Dutch Disease and Venezuelan Industrialisation (1968-1994)

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Abstract

This thesis examines the impact of the 1970s oil booms on Venezuelan private manufacturing within the framework of the Dutch disease and 'resource curse' theses. However, as some of the assumptions implicit in the Dutch disease model do not hold for Venezuela, other factors and theories were brought into the picture. Attention was drawn to the implications of the existence of unemployment before the boom. Our major hypothesis is that, assuming the existence of unemployment, the role of government policies, especially industrial, export promotion and technology policies, are bound to play an important role in shaping the final outcome of a boom.

In researching these issues, a Dutch disease index and an econometric model were estimated. A cointegration and error-correction methodology was chosen to test for the predictions of the standard Dutch disease model. We not only identified the existence of Dutch disease symptoms in Venezuela during 1973-82, but also established whether the transmission mechanisms predicted by the theoretical model operated during these years in Venezuela. The thesis has also involved the compilation of a 30-to-40 year data set of national accounts and trade figures, as well as detailed variables for 18 manufacturing lines.

Dedication

This thesis is dedicated to some of the marvellous people who have been with me and have made me feel that this planet is a comfortable place to stay, I want especially to mention my closest family, good people all of them and full of human generosity, who do not like power. This thesis would have never been possible without their unconditional support and affection. I want to mention especially Pablo, Juana, Auris, Magaly, Mary and Aleyda. They are among the few human beings who I know who have been able to use Catholicism to improve themselves. To my dearest nephews and nieces Pedro Pablo, Pablo Ernesto, Javy, Gustavo Alfredo, Dany, Chuly, Argenis David, Vivy, Gladys and Hernan Luis. To Mary Jose and tio Naty en la memoria.

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Introduction

This dissertation assesses the effects and policy implications of the 1970's oil booms on Venezuelan industrialisation. The Dutch disease theory and the so-called 'resource curse thesis', provide the theoretical framework of the dissertation.

The term Dutch Disease, which appears in the economic literature in the 1960's, refers to the corrosive impact on the Dutch economy brought about by the natural gas discoveries of that time, basically after the real exchange rate appreciation.[1] Nevertheless, it should be borne in mind that the origin of this phenomenon is not exclusively related to the emergence of extractive sectors or higher commodity prices.[2] On the contrary, it is rather linked to sectoral booms of a different nature, which are bound to exert undesirable general equilibrium consequences on other sectors.[3] Dutch disease is defined as the structural (composition of output and employment) adjustment experienced by economies because of the wealth increase following a boom. Within the core model presented by Corden and Neary (1982) and Corden (1984), the expected effect of an oil boom on the economic structure is a reallocation of resources in favour of the booming and non-tradable sectors.

1 The first reference to this term is found in the article "the Dutch disease" in The Economist, 26 November 1977, p. 82-83, (Corden, 1984).

2 It has been argued that the adverse impact of the boom on Dutch manufacturing was due to the increase in government expenditure e.g. social contributions financed by the high revenues from natural gas, (see Frijns, 1986). Other scholars have claimed that Dutch de-industrialisation is better explained by the collapse of the post-war industrial pattern of developed economies, (Fajnzylber, 1981).

3 Corden and Neary (1982) recognise the existence of different sources of a boom, namely (a) neutral or non-neutral technological improvement, which involves the displacement of traditional sectors for more dynamic and productive sectors. (b) an external transfer of foreign capital in the energy sector, (c) an increase in the world prices and (d) a windfall discovery of new resources or an increase in the world prices of a resource.

More recently Auty (1990) presented the so-called resource curse thesis according to which those economies with a primary export sector are expected to under-performed those which lack a resource-based sector due to the lack of macroeconomic discipline and the delay in the adoption of outward and more liberal policies.

It must be stressed that the Dutch disease model is used as a tool to examine the topic, *albeit, as the model showed limitations to explain the reality due to its unrealistic assumptions, other theories and factors were brought into picture.* Attention is drawn to the essential role played by government policies in the outcome of a boom as there is unemployment and as revenues accrue to the State. Under these conditions, there is room for the State to encourage the traded sector and set the foundations for a long-term path of growth. Hence, the exchange rate, fiscal, investment, and industrial policies are examined in detail. The factor intensity character of the different manufacturing lines is also examined.

This thesis is the first research of this kind that comprehensively assesses the topic within the Venezuelan context. It provides empirical estimates of the sources and transmission mechanisms of Dutch disease in Venezuela during 1973-82. The pre-boom (1960-72) and the post-boom (1983-94) phases are also considered as a fruitful counterfactual exercise. The thesis also examines in detail the policy response to the boom namely, fiscal, financing, investment, credit and exchange rate policies with special reference to private manufacturing as a whole and at a dissaggregated way during 1973-82. In this way, insights are also derived on the impact of these policies in the context of the adjustment policies launched in the 1990s.

Manufacturing development during 1973-82 the pre-boom and the post-boom phases are examined and the sources of growth on the demand and supply side for the sector is also made for manufacturing as a whole and at a dissaggregated level (18 subsectors). The development of manufacturing is linked to the industrial and economic policies.

This thesis is an attempt to give insights on some structural features of the Venezuelan economy and especially on industrialisation and its links to the existence of an important oil sector. It is our purpose also to contribute to a better conceptual and empirical understanding of the Dutch disease and 'resource curse thesis', and their limitations to explain the reality of developing countries. Indeed, we consider that this thesis would have achieved its objective if it could shed some light on the factors behind the development of private manufacturing and on the adequate policies for reversing Dutch disease in particular in the sense of promoting industrialisation and a non-oil export-competitive sector.

In assessing the above issues, the thesis compiles a long economic data set, which covers the 1968-94 years and includes the main macroeconomic variables, national accounts, exports and imports. A long-term series of different real exchange rate indices was constructed. A detail set of variables for Venezuelan private manufacturing was also compiled, which implied additional elaboration by combining data at current prices from the industrial survey and deflators from the Central Bank of Venezuela and doing some projections to complete the series. This implied a careful effort by interviewing personnel from both institutions in order to guarantee consistency. This also implied a double check work of data with those provided by UNIDO. It must be noted that to our knowledge this set of data on manufacturing is not available elsewhere.

The major hypothesis is that the performance of the Venezuelan economy and especially Venezuelan industrialisation did not follow a typical Dutch disease process during the 1970's oil prices increases. By contrast it is argued that the major reasons behind the performance of Venezuelan manufacturing during 1973-82 relate to the economic policies launched and especially to the lack of a coherent industrial policy which could have promoted the development of an export-competitive manufacturing sector and deepened import-substitution industrialisation, laying the foundations for a more sustainable development.

Cointegration and error-correction techniques were used to test for the existence of the equilibrium relationships implied by the Dutch disease theory. A contribution of this dissertation is the testing of the Dutch disease model in Venezuela by applying this new econometric approach. *Previous econometric work on Dutch disease in both developed and developing countries are scanty and the non-consideration of the time series properties of data is likely to have conducted to misleading results.* To our knowledge, there is not other similar work for Venezuela.

It must be noted that Venezuela represents a fertile ground to study these issues. It has been an oil-exporting country since the 1920s and it embarked on an import substitution industrialisation strategy in the 1950s. In special, the links between oil activities and windfalls and industrialisation can be clearly observed. Over the 1973-82, a huge stream of oil revenues accrued to the Venezuelan State with oil revenues representing at times near to 40 per cent of GDP. Part of this extra income was used in a resource-based industrialisation and import substitution. Nevertheless, the economy went into a deep crisis by 1978 and even the second oil price increase did not revive investment. Thus the extra oil income represented a lost opportunity to encourage sustainable growth and since 1983, the economy is in a severe crisis.

In organising the theoretical framework we proceeded as follows: In stage one, a survey of the different approaches to the problem of the impact of a mineral development on the rest of the economy is made with special reference to the Dutch disease theory and resource curse thesis. The Dutch disease model assumes that there is no government intervention, so an economy following a sectoral boom is bound to experience a structural adjustment in favour of the non-traded sectors of the economy prompted by the movement of the relative prices. The 'resource curse' thesis formulated by Auty (1990, 1993) is concerned with the impact of a primary export sector on the rest of the economy and this does not necessarily refer to a sudden boom. This thesis argues that those economies with an important primary export sector are expected to perform those economies, which lack this kind of sector. Furthermore, the problems of industrialisation in the first type of economies are associated with the disruptive impact of a primary sector, which is supposed to cause real appreciation of the domestic currency, the lack of macro discipline and the adoption of import substitution policies, which according to Auty is a wrong strategy.

In stage two some criticisms to the Dutch disease model and the resource curse thesis are highlighted. Concerning the Dutch disease model the following aspects are emphasised: (a) the existence of unemployment at the beginning of the boom may spare the traded sector from the corrosive impact of the boom; (b) the factor intensity of the manufacturing lines may also be relevant in examining the impact of a sectoral boom on the different lines; (c) in explaining manufacturing development during a boom more important than exchange rate policies may be the lack of a coherent industrial policy that considers the need to combine import substitution and export promotion. Of course, the setting of a competitive exchange rate seems to be a requirement, but this must be only one aspect of sound economic policies.

Chapter 2 provides a background to the Venezuelan economy and examines the impact of the 1970s oil booms on the real exchange rate by presenting the mechanisms of transmission of the boom to the non-oil economy –fiscal and monetary policies and estimating a set of different indices of the real exchange rate for Venezuela. The aim of the chapter is to establish whether the Dutch disease hypothesis according to which a boom is bound to cause real appreciation of the exchange rate holds for the Venezuelan case during 1973-82.

Chapter 3 assesses the effects of the 1970s oil booms on growth and structural change in the Venezuelan non-oil economy. The purpose of this chapter is to provide stylised facts on the macroeconomic and sectoral developments during the oil boom period of 1973-82, the pre-boom phase (1968-72), and the post-boom phase (1983-91). Formal estimations to identify the existence of Dutch disease in Venezuela are presented by computing the Dutch disease index provided by Gelb and Associates (1988), and a Dutch disease index based on the Syrquin (1989) norms. The Dutch disease mechanisms predicted by the standard model are also tested by examining the development that occurred in the sectoral relative prices and sectoral private investment and, by estimating a Dutch disease econometric model for the major sectors of the non-oil economy which implied the use of cointegration and error-correction techniques. To my knowledge, there is not previous work of this kind for Venezuela.

Chapter 4 presents a detailed analysis of the policy response to the 1970s oil prices increases with special reference to Venezuelan private manufacturing. Fiscal, investment, financing and exchange rate policies were considered by reference to Venezuelan private manufacturing. In addition to the stylised facts, econometric estimates were applied to quantify the impact of some of these policies on dissaggregated private manufacturing. This econometric work represents a major contribution of this dissertation because this can shed light not only on the impact of macroeconomic policies on manufacturing lines during a boom, but on the effectiveness adjustment programmes which have been encouraged by the 'Washington concensus' for Venezuela even today. It must be noted that cointegration techniques were applied to find out the determinants of private manufacturing investment.

Chapter 5 discusses the impact of the previous policies on Venezuelan industrialisation during 1973-82. The first section gives a background on Venezuelan manufacturing and the industrial policies applied during 1950-72 since the previous chapters suggest that the outcome of the 1970s oil boom was largely related to the reinforcement of the policies launched in the previous decades. Next, a detailed assessment of the development of Venezuelan private manufacturing during 1973-82 is provided against the background of the previous policies.

Chapter 6 presents the estimates of the sources of growth on the demand and supply side for Venezuelan private manufacturing as a whole during 1968-94. It must be noted that the estimates of TFPG for private manufacturing during 1968-88, represents another contribution of this dissertation because to our knowledge there is no previous attempt to provide these estimates. The major purpose of this chapter was to elucidate the factors behind the trends examined in the previous chapters.

Chapter 7 deals with the impact of the boom on disaggregated manufacturing. A factor intensity framework was used to establish whether the differences across the manufacturing branches were accounted by the factor intensities. The sources of growth on the demand side were also estimated for 18 manufacturing lines. Moreover, the development in labour productivity by lines was also examined.

Finally, the major findings of this dissertation are summarised in chapter 8 along with some policy recommendations on the choices open to a primary-based developing economy, not only during a sectoral boom but also in the long run.

1. Industrialisation in Resource Rich Economies

Introduction

This chapter sets out the theoretical framework of the thesis, which is concerned with the effects of the 1970s oil price increases on the Venezuelan industrialisation process. The Dutch disease and the 'resource curse' thesis are discussed exhaustively. Section 1 describes some early developments on the issue represented by the relationship between a primary sector and development. Section 2 presents the Dutch disease model. Section 3 examines the 'resource curse thesis'. Next, some criticisms of these two theories with reference to their applicability to developing countries are raised in section 4. Finally, some further insights are summarised in section 5.

1.1 On the Existence of an intrinsic negative relationship between a primary export sector and development

1.1.1 Early discussion

Attempts to formulate a general theory explaining the relationship between primary export and development have been extensive.[1] Notwithstanding, controversy remains. One important issue of this discussion is concerned with the disruptive impact of a primary export sector on the rest of the economy and especially mining. These activities have been perceived as

[1] The staple theory in the 1950s represented an early approach to this issue. It was advanced by Harold Innes. For a survey of the literature dealing with the interaction between external trade and development, see Thoburn (1977, Chapter 3). This author analyses the impact of the tin mining, rubber and palm oil industries on the Malaysian economy within the theoretical context of linkage theory. For a complete survey on the literature dealing with the links between growth and primary sectors, see Davis (1995). Section (1.1.1) of this thesis partly relies on Davis.

disruptive to development in developing economies (Lewis, 1984, 1989). In this sense these ideas set the background for the emergence of the Dutch disease and the so-called resource curse thesis.

The arguments that mineral sectors represent an obstacle to development find their origin in the work of Raul Prebisch, the founder of the old structuralism in Latin America represented by ECLA. From the 1930s Prebish studied the trends in the terms of trade of primary exports concluding that there seems to be a long-term deterioration in the terms of trade of primary exports. Thus, he criticised the neo-classical theory of trade based on comparative advantage, arguing against primary export development and that it was imperative to adopt a state-led strategy to encourage industrialisation as the main route to development. This is the major argument of the so-called structuralist school in Latin America. Mineral activities became a disruptive and undesirable activity. This line of thought was reinforced by the recommendations of the UNCTAD in the 1960s which advised countries to adopt import substitution industrialisation (ISI) and evaluated mineral activities as negative.

The instability and vulnerability of economies to swings in mineral prices was another argument against these activities as recorded by the 1974 United Nations call for a New International Economic Order.

Mineral development was also heavily criticised by the dependency school and Marxist economists. Within this stance, mineral activities were perceived as disruptive as a result of being dominated by foreign capital. This worked against the developing economies, as the interests of foreign investors would involve the extraction and overseas transfer of maximum profits, perpetuating the conditions of dependency and the exploitation and impoverishment of the periphery. These activities were singled out as enclaves with no contribution to development (Baran, 1957; Frank, 1966).

Likewise, the linkage theory firstly formulated by Hirschman (1958), shows that the lack of forward and backward linkages in the mineral activities can imply a weak contribution to development. Hirschman (1981) pointed out the existence of fiscal and consumption linkages between resource-based activities and the rest of the economy. It should be noted that authors such as Furtado (1971) and Sunkel (1967, 1972), adherents to the old structuralism in Latin America, emphasised the negative role of oil on development due to the lack of linkages between the oil industry and the rest of the economy as well as the unproductive use of oil revenues. A similar analysis is found in Harris (1971) for the Venezuelan case.

1.1.2 Criticism of the bias against mining

Some of the criticisms of mining activities were questioned and proved to be mistaken in the light of further studies. For instance, Prebisch's prediction on the decline of the terms of trade of primary exports has been questioned. There was an upward trend in these prices following the publication of Prebisch's work (Gillis et al., 1992, p. 426-428). Davis (1995, p. 1767) states that:

> Prebisch witnessed an 'unlucky country' effect in Latin America. This was to lead to a rather disastrous 30-year foray into forced industrialisation by many Latin mineral exporters.

It seems that Davis' vision is at the other extreme, and mineral development appears as the only possible and feasible export activity for Latin America. I argue that his evaluation of the industrialisation process in Latin America as disastrous is unfair and indicates a bias against manufacturing. As an ample set of studies have shown[2], there have been respectable cases of industrial effort in Latin America, notably Brazil, Mexico and Colombia. In addition, the existence of a mineral sector has often exerted a positive effect on manufacturing through the linkages, by encouraging the development of mineral-related industries. The establishment of export resource-based industrialisation has been perceived as an extension of the 'curse' related to the existence of a mineral sector by Auty (1991). Nevertheless, when we think about a country like Venezuela it is difficult to see why the immediate effort to develop export industries should not consider the resource-based branches, some of which are linked to the oil sector, e.g. chemicals.

However, Davis' criticism of those scholars who advocate a bias against mining seems to be fair. They ignore the early contribution to economic development made by mining activities in some developing countries.

The positive role of mineral activities in the Chilean economy is highlighted by O'Brien (1994), who argues that mining exerted a positive impact on development by establishing the first railways and the modernisation of agriculture via direct investment linkages. Likewise, the investment of local mining groups led to urban development and the encouragement of other activities like banking and the production of guano. There is also

2 See Helleiner (1994, 1995).

evidence that the negative impact of mineral activities associated with price instability has been overemphasised. In the case of Chile, mining revenues seem to have contributed to the stabilisation of the economy during the debt crisis following the 1982 crash. Concerning the lack of linkages between mining and the rest of the economy, Davis points out that over the post-war period, and for a sample of countries, mining became integrated with the domestic economy, with output, income and employment multipliers ranging between 1.5 and 2.5 (enclaves should have a multiplier of 1).

The contribution of mining activities to development through fiscal linkages has been recognised since the 1960s. By 1972 it seemed that the bias against mineral activities was giving way to a recognition of the positive role of these activities in development, which took place against the background of rising mineral prices. Nevertheless, a new literature, which emphasised the negative impact of mineral sectors, appeared.

1.1.3 Rising mineral prices during the 1970s and the renewed criticism of mineral activities

The oil price increase of the 1970s, led to the appearance of a voluminous literature concerned with the use of the oil windfall and the concomitant structural effect. The effect of oil exports was singled out as a curse by Amuzegar (1982) since this entailed the dependence of the population on the state.

In a cross-country study of this period, Nankany (1979) also concluded that the impact of a primary sector on economic development was negative.

Gelb (1986, 1988), working within a neo-classical framework, has argued that the impact of oil exports on the non-oil economy was negative for a sample of countries during the 1970s.

1.2 The Dutch disease theory

As observed earlier, Dutch disease is the most recent effort to deal with the impact of a resource boom on the rest of the economy. However, this approach shares with the previous literature the emphasis on the existence of an intrinsic and inevitable negative relationship between the primary exports sector (booming sector) and the rest of the economy (Gregory, 1976; Corden, 1984; Snape, 1976). Corden (1983, p. 442) states that

> 'the Dutch disease is not primarily to do with the manner in which such gains are spent but rather with the general equilibrium consequences -the effects on sectoral outputs and factoral incomes.'

The great attention given to the Dutch disease issue by scholars of many countries might be linked to the perception that it is a generalised phenomenon throughout many economies: developed and developing. Outstanding examples of energy exporting countries in the first group are the United Kingdom, Norway and the Netherlands. Furthermore, the harmful general equilibrium effects on the tradable sector induced by export booms seem to comprise many other cases. For instance, the process of technological change in Japanese manufacturing during the 1960s gave rise to adverse effects on some tradable sectors. It should be noted that an interesting discussion of the impact of export booms on the economy took place among Australian academics. In fact, Cairnes (1859)[3] studied the impact on Australian industry of the discovery of gold in 1851. Later, Meade and Russell (1953) appraised the effects of an increase in the external demand for Australia's food exports upon the domestic balance of payments and factor distribution. The two sector (food exports and manufacturing) model introduced by these authors suggests the adverse effect of an increase in food exports on manufacturing. This episode has also been approached from an historical perspective by Maddock and McLean (1982).[4] This topic has received great attention from many Australian economists owing to the mining development that occurred in the mid-1960s. An influential paper on this issue was provided by Gregory (1976). The main argument advanced is that the negative impact on import-competing manufacturing of the increase in mineral exports is similar to that arising from a significant reduction in tariffs. Another major contribution relates to Snape (1977), who first presented a model based on the traded/non-traded goods dichotomy with a Ricardo-Viner factor specification; also Porter (1978) studied the effects of the mineral sector on the Australian economy.

McKinnon (1976) analysed the adjustment problems faced by oil economies (Venezuela and Kuwait) which benefit from a considerable real international transfer.[5] The discussion of the Dutch disease topic in the Norwegian case has also been extensive (Eide, 1971; Bjerkholt et al 1981; Enders-Herberg, 1983; Oystein, 1983; and Hodne, 1983). Likewise, a discussion with reference to Canada, the Netherlands, Norway and the United Kingdom is found in Barker and Brailovsky (1981). Forsyth and Kay (1981) studied the effects of oil on the British economy.

Corden and Neary (1982) focus on the real impact of a boom on industrialisation. The core model of Dutch disease based on the standard

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[3] A summary is in Bordo (1975).

[4] The case of Spain during the 16th century owing to the discoveries of gold in America is refered to as another example of Dutch disease symptoms (Forsyth & Nicholar, 1983).

[5] It should be noted that the spending effect of the Dutch disease model is equivalent to the receipt of an international transfer. This issue was approached by Keynes, Ohlin and others in the 1920s, regarding payments in favour of other

three-sector model of Jones (1971), with full labour mobility and capital specificity among all the sectors, is presented. Furthermore, some exercises of comparative statics are made under different assumptions concerning factor mobility and factor intensities of the sectors. Neary (1982) and Van Wijnbergen (1986) assess the real and monetary implications of Dutch disease. The main contributions in the field of monetary aspects of Dutch disease are due to Neary (1982), Neary and Purvis (1983), Winjbergen (1984a, 1984b, 1985) and Harberger (1983). A survey of the Dutch disease literature is found in Corden (1984).

Concerning Dutch disease in developing countries, relevant cases are represented by OPEC member countries and some Latin American countries, e.g. Colombia. Typical Dutch disease symptoms seem to appear in resource-poor countries as a result of the receipt of considerable capital inflows (e.g. an increase in their external borrowing, or foreign aid). In fact, Egypt[6] and Bangladesh may be said to have experienced Dutch disease owing to foreign aid; and the effects of foreign borrowing and external debt on the Chilean economy during the late 1970s are perceived as constituting a case of Dutch disease by Hojman (1987).

It should be underlined that the implications of primary exports on the Latin American economies have been assessed by many scholars from the 1930s onwards. A major discussion took place in Venezuela on the impact of oil exploitation from the beginning of this century (Mayobre, 1946; Peltzer, 1955; Harris, 1971; Aranda, 1977, Flichman, Hagerdoorn and Stroom, 1981; Hein, 1981; Mommer and Baptista, 1985, 1991). This discussion focused mainly on the distributional issue between the state and foreign capital as well as on the problems of 'rentier states'. Almost all of these

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countries that were imposed on Germany in the aftermath of WWI. For a study of the so-called transfer problem according to the Swan-Salter model, see Dornbusch (1980) and Krauss (1979).

[6] The case of Egypt is appraised by De Macedo (1982).

scholars emphasised the negative relationship between the oil sector and economic growth. After the primary export booms of the 1970s, studies from the Dutch disease perspective with special reference to developing countries have been increasing (Nankani, 1979; Roemer, 1985; Hojman, 1987, Gelb, 1988; Urrutia and Yukawa, 1988; Benjamin, et al 1989; Auty, 1993). The Nigerian and the Indonesian cases are assessed by Pinto (1987). Sothersten (1991) analyses the monetary effects of the oil boom in Nigeria. The impact of the coffee boom in Colombia is examined by Edwards (1984) and Kamas (1989). An interesting analysis of the effects on agriculture of the oil boom is found in Sherr (1989) who focuses on the cases of Indonesia, Mexico and Nigeria, showing how the policies adopted during the boom induced different responses. An analysis of the interaction between primary exports and development in Latin America from the Dutch disease perspective was made by Hojman (1987). This author emphasises the adverse long-term general equilibrium effects of higher commodity prices on manufacturing. This negative impact of primary export booms would prevail under different sets of economic strategies. In fact, from his point of view the de-industrialisation faced by the Chilean economy in the late 1970s is attributed to the large external borrowing. However others have argued that de-industrialisation in Chile seems to have been the result of the radical trade liberalisation policies imposed by the authoritarian government during the 1970s[7]

1.2.1 Core model by Corden and Neary, and Van Wijnbergen

Within the Dutch disease model the impact of a resource boom on the economy can be portrayed as follows: the greater income leads to a higher demand for both traded and non-traded goods. However, equilibrium in the traded goods market is achieved by an increase in imports, while in the non-

[7] For an extensive study of neo-liberal policies in Chile during the 1970, s see Foxley (1983).

traded goods market the demand expansion requires a rise in prices. It might be brought about by either nominal appreciation or inflation giving rise to an appreciation of the real exchange rate (defined as the ratio of the price of non-traded goods to the price of traded goods). This, in turn, will be reflected in a lack of international competitiveness, profitability and output of the non-booming tradable sector. This is the so-called spending effect. Further, the non-booming sector receives the adverse impact of the draw of productive factors from the rest of the economy into the booming sector, or resource movement. Thus, if manufacturing is the lagging sector, de-industrialisation appears as a major outcome of the boom and a squeeze of absolute profitability in manufacturing is bound to happen as well. Although the final effect of the boom might vary according to the different assumptions with regard to factor intensities and factor mobility of the sectors, de-industrialisation is a certain effect when the spending effect prevails.

What follows here will refer to the basic general equilibrium models used to analyse the effects of a resource boom.[8] As the main studies of the effects of mineral development on the economy, these models hinge on the Swan (1955) and Salter (1959) models,[9] as well as on those presented by Jones (1971) and Snapes (1977).

1.2.1.1 General assumptions

a) The framework adopted is one of a small open economy in which three sectors can be distinguished: the booming export sector (B); the other tradable goods or lagging sectors (L) which includes the manufacturing

8 The model introduced in this section is a summary of those presented by Corden and Neary (1982), Neary (1982) and Neary and Van Wijnbergen (1986).

9 These models analyse the problems of internal and external balance, distinguishing between a traded (unsheltered) and a non-traded (sheltered) sector.

sector and agriculture export; and, the non-tradable sector (Nt) which includes services and activities which are not subject to international trade. Hence, exportables and importables are aggregated into a sector following Hicks' theorem, which states that different commodities can be regarded as a single good provided that their relative price is constant.[10]

b) The prices of both traded goods are exogenously given by world prices. Consequently, the law of one price holds.[11]

c) Perfect demand substitution between home-produced importable goods and imports is postulated.

d) The Ricardo-Viner specification is assumed. Hence, there are two productive factors used by each sector, whose supply is fixed in the economy: labour and capital. The latter is regarded as specific to each sector in the short run while full labour mobility between sectors is assumed.[12] In addition, there is no international factor mobility.

e) Perfect competitiveness and flexibility in the factor and commodity markets are assumed. Thus real wage flexibility guarantees the existence of full employment at all times. The Nt prices move flexibly to equalise domestic supply and demand.

f) The real exchange rate is defined as the price of Nt relative to T, given by: $RP = \frac{PNt}{PT}$. The price of traded goods in domestic currency is defined

10 Hicks (1946).

11 This requires that the domestic price of tradable goods should be equal to the effective exchange rate at the international prices. The realism of this assumption for manufacturing in developing countries is doubtful, given the existence of market imperfections. Furthermore, empirical studies suggest that the law of one price does not hold even for developed economies. Isard (1977) showed that it does not apply in the cases of the US, Germany and Japan.

12 These assumptions rely on Jones (1971) and Snape (1977).

as its international price in foreign currency multiplied by the price of a unit of foreign currency (nominal exchange rate). Thus, a variation of the real exchange rate can be caused either by a change in the nominal exchange rate, if the nominal prices of Nt are not allow to change, or by an adjustment of these prices when the nominal exchange rate is fixed.

g) Manufacturing output is regarded as numeraire: wages and profits are measured in terms of manufacturing output.

h) Since equality between national income and national expenditure is assumed, the attainment of internal balance involves external balance as well.

1.2.1.2 The Two effects of the boom on the real side of the economy

Pre-boom conditions

The pre-boom equilibrium in the labour market is illustrated by Fig. 1.1 The economy's total labour endowment is represented by the horizontal axis,(e.g. the volume of labour employed by Nt is measured by distances from Ont). The vertical axis shows the wage-rate in terms of manufactures. Under the assumptions stated above, an inverse relationship between the demand for labour and the relative price of production in each sector prevails. Consequently, at the initial prices, Lm, Lt and Lnt correspond to demand for labour in manufacturing, traded and non-traded sectors, respectively. The pre-boom equilibrium is attained at A, where the full employment condition holds. The initial price of non-traded goods depends on sectoral profitability, which is endogenous to the model. So, the way in which the initial price of a service is determined can be appreciated in Fig. 1.2. -the Salter diagram of the productive pattern, as well as the price adjustment in the Nt sector.

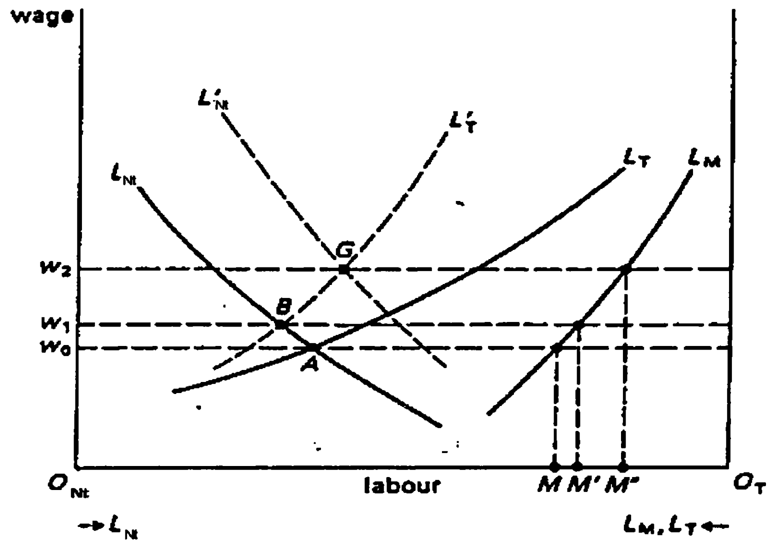

Fig 1.1 Impact of the boom on the labour market

The vertical axis shows tradable production (T), this includes both booming (B) and lagging (L) output, reflecting the fact that the terms of trade are fixed, while the horizontal axis represents non-tradable production (Nt). Assuming the absence of commodity or factor-market distortions, the pre-boom equilibrium situation is reached at point a, where the curve TNt which represents the production possibilities curve is tangential to the indifference curve Io. At this point, the initial price of Nt goods or the real exchange rate is determined by the slope of the common tangent to both curves.

The Resource movement effect

This effect is concerned with the transfer of labour away from the rest of the economy into the booming sector. In order to consider this effect on its own, an increase in demand owing to the boom is ruled out. So, the mechanism is as follows: assuming that the source of the boom is a technological improvement in B, this implies an increase in the marginal product of labour in this sector. Therefore, if the assumption of constant wages in terms of T is maintained, a higher labour demand arises and, consequently, a reallocation of resources in favour of B is bound to happen. This effect is composed of two parts: during a first stage, the assumption of a fixed relative price of Nt (real exchange rate) is embodied while later it is ruled out. This is reflected in the fact that the curve for the demand for labour corresponding to Nt in Fig 1.1 and the price relation in Fig 1.2 remain constant.

Concerning labour market adjustment, the increasing trend in wages faced by B leads to an upward movement of Lt and so equilibrium moves from A to B (Fig 1.1). The higher wages in B at constant RER result in an outflow of labour from other sectors into B. The disruptive effect on manufacturing represents direct de-industrialisation, since it is caused solely by the resource movement effect without any real appreciation.

As regards the effects on output (Fig 1.2), it can be seen that there is an expansion of T caused by the boom, while production of Nt remains unchanged. It is illustrated by the outward movement of the production possibilities curve from OT to OT`. At a constant real exchange rate, the new production point is achieved at b, meaning a fall of output in Nt. The exclusion of the spending effect requires a zero income-elasticity of demand for Nt and, hence, a vertical income-consumption curve. It intersects T`S at j, so it can be concluded that at a fixed RER the resource movement effect gives rise to an excess demand for services, which involves the need for real appreciation to restore equilibrium: in this way, the higher prices of Nt goods entailed a fall in their demand and an expansion of output. Fig 1.1 indicates a situation in which real appreciation leads to an increase in Nt output. Nonetheless, it is not enough to counterbalance the dampening of output entailed by the squeeze of labour into B. Thus, the negative effect of the resource movement effect on Nt output prevails. It can be seen that the draw of labour out of the non-tradable sector at fixed real exchange rate reinforces the phenomenon of excess demand caused by the spending effect. This, in turns, leads to further appreciation and transfer of labour from the lagging to the non-tradable sector. This effect combined with the spending effect gives rise to indirect de-industrialisation by means of the movement of labour from the lagging sector to the non-traded ones.

The Spending or demand-side effect[13]

In order to analyse this effect the booming sector is regarded as an enclave producing for export, with few or no productive linkages with the domestic economy, so there is no drawing of factors from other sectors. In this way, the spending effect of a mineral boom is similar to the impact derived from the receipt of a real international transfer.[14] The problem is as follows: the income derived from transfers induces a higher demand for both traded and non-traded goods. Hence, an increase in imports so as to match excess demand for T is a possible alternative. Nevertheless, the augmented demand for Nt cannot be met in a similar way and, hence, a real appreciation (increase in relative prices of Nt with regard to T prices)

[13] Some Dutch disease models which solely analyse the spending effect are: Gregory (1976), McKinnon (1976), Forsyth and Kay (1980), Buiter and Purvis (1982), Corden (1981), Van Wijnbergen (1982, 1984) and Enders and Herberg (1983). In addition, some empirical research dealing with the impact on the Australian economy of mineral development has focused on this effect (see Dixon, Parmenter and Sutton, 1978).

[14] As stated above, the effects on the economy of international transfers has been largely discussed in the sub-field of international economics.

appears to be necessary. This is expected to entail a supply-side substitution effect in favour of Nt as well as a demand-side substitution

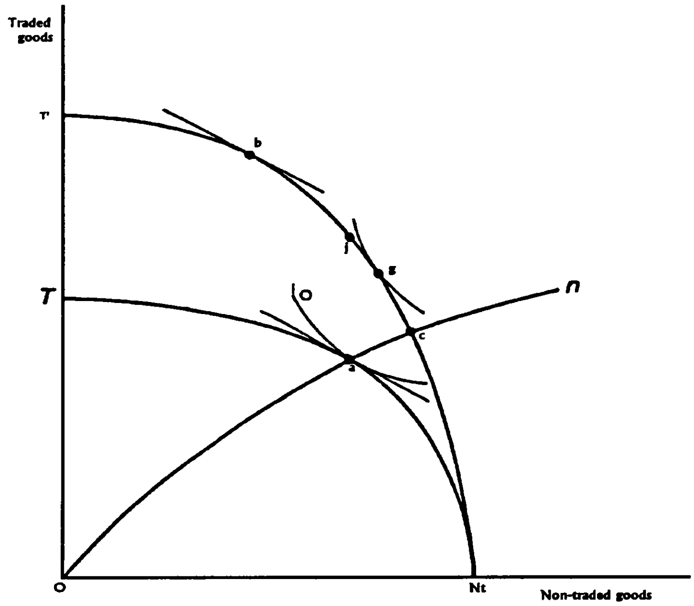

Fig 1.2 Impact of the boom on the commodity market

effect in favour of traded goods. Thus, at a given real exchange rate, the labour market is not affected by the boom (Fig 1.1). Looking at Fig 1.2 it can be seen that after the boom a vertical upward movement of the production possibility curve occurs. It is represented by the displacement of the point of production from a to b. Therefore, as income rises, and assuming that services are normal goods, at the initial real exchange rate there is excess demand for services. It is shown in Fig 1.2 by the movement of demand along an income-consumption curve (on), which intersects the frontier production curve at point c. Consumption at that constant exchange rate must lie on the price line tangential to b or point c. Consequently, excess demand for non-tradeable goods is the outcome again. In turn, it leads to real appreciation caused by higher prices of Nt relative to T. Two cases are possible: in the face of a fixed nominal exchange rate, equilibrium must be achieved with a rise in the nominal price of Nt, while if the price of Nt remains constant, a nominal appreciation is required to restore equilibrium.

In Fig 1.2 the new equilibrium is achieved at some point between j and c, implying that there is an expansion of Nt production. The real appreciation will be reflected in a shift of resources out of both B and L sectors into Nt, together with a switch in demand away from Nt into T and B.

Finally, a key point is that the impact of a boom on the output of Nt is ambiguous: while the spending effect implies a positive increase in the output of Nt, the resource movement effect tends to diminish it. In Fig. 1.2 the spending effects prevail, so that the new equilibrium point at g implies a higher output of Nt.

By contrast, in manufacturing the results are unambiguous. In this case the two effects work in the same direction, lowering its output. In sum, the reallocation of labour from manufacturing into B due to the resource movement effect, dampens manufacturing output. This is the direct de-industrialisation effect, which is due exclusively to the resource movement effect. This is illustrated by the reduction of employment in manufacturing from OtM to OtM` in Fig 1.1. In addition, manufacturing is adversely affected by the real appreciation derived from both effects. Firstly, the negative impact on the output of Nt owing to the resource movement effect entails an excess demand for services, and consequently, a real appreciation. This result together with the real appreciation prompted by the spending effect determines a reallocation of labour away from M to Nt;

giving way to de-industrialisation. Once again, it is shown by the contraction of employment from OtM' to OM" in Fig 1.1.

1.2.1.3 The Income distribution effect[15]

We will consider in turn, the implications of a boom for factor prices. First of all the resource movement effect leads to an unambiguous increase in real wages. It emerges from the required fall in Nt output resulting from the reallocation of resources, which means higher real wages in terms of Nt. In addition, the real wage should rise in relation to T (Fig 1.1). Therefore, real wages increase in terms of both goods. By contrast, the impact of the spending effect on real wages is ambiguous. It might be that real wages rise in terms of traded goods but fall in terms of NT, since the price of these goods are supposed to increase (real appreciation). The achievement is linked to both the share of Nt goods in labour consumption and the difference between the increase in the price of Nt and the rise of wages. It hinges on the employment elasticity and, hence, on the labour intensity in the Nt sector.[16] So, a stronger spending effect relative to the supply effect coupled with a high share of Nt goods in labour consumption and high employment elasticity are expected to lower real wages.

Instead, the two effects induce a fall in the absolute profit of the lagging sector and a contraction of output. However, it should be highlighted that when capital intensity is regarded, other results are possible. For instance, as L is more capital intensive than Nt, the relative profit of the former is less affected by the boom. Thus, if the resource movement prevails, an increase in L profits relative to profits in Nt would be possible. Likewise, a similar result with regard to B might appear when the spending effect

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[15] Cassing and Warr (1983) focus on the distributional impact of a resource boom in the Australian case.

dominates and L is more capital intensive than B. This would induce a reallocation of resources in favour of L in the medium-run, prompted by the relative profitability.

1.2.1.4 Other factor specifications.

As already noted, the core Dutch disease model presented in the previous section can be modified, allowing for different factor specifications. Thus, a range of models have dealt with this issue.[17] The main conclusion on these grounds is represented by the unexpected rise of the lagging sector. Nevertheless, all share a common feature: although the contraction of the lagging sector is not inevitable it is a possible outcome of the resource boom.

To illustrate the implications of different factor specifications, the model by Corden and Neary (1982) is presented. In this context, full labour mobility among the three sectors and capital mobility solely between the lagging and the non-tradable sectors are assumed.[18]

The main result from this model is given by the possible expansion of the lagging sector because of the resource movement effect at constant commodity prices.[19] In fact, this is the case when the lagging sector is characterised by an intermediate capital intensity between the booming and

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[16] Mussa (1974) highlights the relevance of factor specificity, substitutability and intensities for the study of the income distributional impact of tariffs.

[17] Cassing and Warr (1982) present a model with full factor mobility of both factors, namely capital and labour, among the three sectors. Long (1981) considers the case in which capital mobility is only possible between the two traded sectors, while labour is mobile among all three sectors. An attempt at applying the Dutch disease model to developing countries is made by Sarmientos (1988). Labour mobility only holds between the lagging and the non-traded sectors, since labour in the B sector has very particular features. Additionally, a low substitution of capital for labour in all the sectors is a realistic assumption. An interesting point of this model is the consideration of an additional traded sector: agricultural primary commodities, with an intermediate capital intensity between manufacturing and services.

[18] In this way, the analysis of the impact of the boom on the rest of the economy is conducted in the context of a Heckscher-Ohlin Model.

[19] Corden (1984) refers to this model as paradoxical because an unexpected outcome might be achieved, namely, pro-industrialisation and devaluation of the real exchange rate.

the non-tradable sectors. So, the resource movement effect involves a fall in the return to capital in the non-tradable sector. This leads to an outflow of capital from Nt into the lagging sector and hence, to an expansion of its output.[20] An alternative outcome arises when manufacturing is regarded as labour intensive relative to the non-tradable sector. Under this assumption the resource movement effect entails an increase in the output of non-tradables, together with a fall in their prices and a contraction of the lagging sector. Thus, curiously, real devaluation is the result. Concerning the spending effect, it should be stressed that the fall of the lagging sector remains.[21]

1.2.4 The Monetary impact of a resource boom under flexible wages and prices

This section is devoted to considering the monetary aspects of a resource boom. Here a monetary model based on Neary (1984) and Neary and Van Wijnberger (1986) is summarised. As already noted, the real model of the previous section implies the small country assumption regarding traded goods. So in what follows here it is assumed that the same assumption holds in the case of asset markets. This, together with the fact that market imperfections are ruled out, allows for perfect substitution between foreign and domestic bonds. Finally, domestic money represents a third asset. For the sake of reasoning, the discussion will begin by considering the market for non-traded goods illustrated by Fig 1.3. The nominal price of non-traded goods (pr) is measured by the vertical axis, while the nominal exchange rate (e) is represented by the horizontal axis. It should be kept in mind that given the fact that transport costs are ruled out and world prices

[20] This result emerges from the application of the Rybszinski theorem.

[21] According to this analysis, the negative impact of the oil sector on the lagging sector is bound to prevail in those countries in which only the spending effect occurs (e.g. Venezuela).

are fixed, the price of traded goods can be normalised to unity, e.g. $PT = e$. Hence e is defined as the domestic currency price of a unit of foreign exchange. Likewise, a real balance effect on spending is introduced by the higher consumption resulting from lower prices and increased wealth. Thus, equilibrium in the Nt goods market can be expressed as follows:

$$(1.1) \qquad Xnt \cdot \frac{pr}{(e,b)} = Cnt(pr, e, y, \frac{M}{P})$$

Where:
Xnt= output of non-tradables
Pr= relative prices of not tradables to tradables
e= nominal exchange rate defined as the domestic currency price of one unit of exchange rate
b= parameter which accounts for the resource movement effect.
M = the nominal stock of money
P= the domestic price level
M/P = the real money balance effect on spending
y= level of income
Additionally, P is assumed to depend upon on pr and e:

$$(1.2) \qquad P = P(pr, e)$$

$$\partial P/\partial pr \text{ and } \partial P/\partial e > 1$$

Under the assumptions that money supply is the only asset whose velocity is constant, the money demand function that guarantees the equilibrium condition for the money market is as follows:

$$(1.3) \qquad \frac{M}{P} = Y$$

Where Y= real income

In sum, the desired level of real money balances is a function of real income, which implies that money demand is disrupted by the resource boom through its impact on Y.

Fig 1.3 shows equilibrium in the money market and the non-traded goods market. The first one (equation 1.1) is illustrated by the curve NtNt. It is upward sloping, but its slope is less than that corresponding to a ray from the origin. The reason is that a proportional increase in pr and e, accompanied by a fixed money supply, might induce a fall in real money balances. It, in turn, would give rise to a contraction of spending and consequently, to an excess supply of Nt goods. It can be seen that a rise in the nominal price of Nt goods implies excess supply of these goods, while higher prices of T goods entail excess demand.

The clearing market equation for the money market (1.3) is shown by the curve MM, which is downward sloping. Hence, a rise in pr and e brings about a higher domestic price P, entailing an excess demand for money resulting in a fall in the real value of the money stock. The equilibrium point must be always on this curve when there is a flexible exchange rate regime and the clearing money market conditions hold. In this case, assuming a given level of money supply and full employment income, an increase in pr is accompanied by a fall in e.

Alternatively, a fixed exchange rate regime implies that equilibrium might be achieved at points above MM in the short run. In this situation, an excess demand for real money balances is a possibility. Consequently, equilibrium requires a rise in foreign exchange reserves, which leads to an increase in the money supply.

We will consider, in turn, the effects of a boom. The pre-boom equilibrium is at point A. However, as both the resource movement and the spending effect induce excess demand for Nt goods, the NN schedule shows an upward movement towards NN'. As the augmented real income also leads to an increase in demand, equilibrium in the money market would require a fall in the price level, provided the domestic money supply is held constant.

This third effect of a resource boom is called the liquidity effect.[1] It brings about an inward displacement of the schedule MM to MM". If a floating exchange rate regime exists, the equilibrium is achieved at point C, where MM' and NN' intersect. Consequently, the adjustment is attained through a nominal appreciation or fall in e, which implies lower prices of T goods. Under a fixed nominal exchange rate regime, (eo), similar movements of the MM and NN curves take place. Notwithstanding, the equilibrium point is attained at J, provided the nominal money supply is constant and an increase in the price of Nt goods occurs. Concerning the long run equilibrium, it can be seen that the change in relative prices of Nt goods does not guarantee a stable equilibrium. It is because the spending effect is partly neutralised by the balance of trade surplus. The point J is also characterised by a disequilibrium in the money market, since there is excess demand. Therefore, the trade surplus is expected to boost international reserves, and if the inflow of reserves is not sterilised, the domestic money supply will increase. This will be reflected in an upward movement of the NN' and MM' curves, above the point J. Thus the new equilibrium will be attained at the point at which the two schedules intersect. This point is bound to occur at point C', where the real exchange rate matches the slope of the ray OC.

Finally, in the case of a floating exchange rate the adjustment of the relative prices of Nt goods was achieved through a fall in the relative prices of T goods. Instead, under a fixed exchange rate regime the necessary rise in relative prices of Nt goods implies a rise of their nominal prices. This will cause inflationary pressures.

[1] Neary (1982).

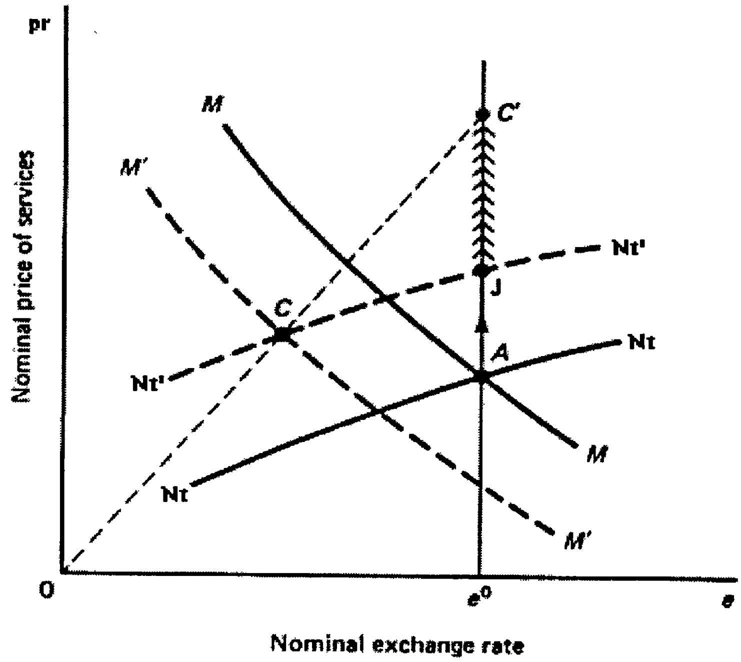

Fig 1.3 Monetary effects of the boom

1.4 A Critical appraisal of the Dutch disease theory

Another group of authors maintain that the interaction between primary exports and development is not necessarily negative, depending upon government policy. Findlay (1983) and Davis (1995) argue that there is no reason to depict a primary resource boom as a disease. In Findlay's view, any change in relative prices is bound to exert negative and positive effects on the different economic sectors. For instance, Malaysia and Thailand are quoted as cases that suggest a substantial contribution of primary exports to economic growth. Karshenas (1989) highlights the positive contribution of the oil sector to industrial growth in Iran via the creation of a national market and capital accumulation and Kauvosi (1986) also shows the contribution of oil export revenues to Iranian industrialisation, emphasising the availability of low imported inputs and capital as well as demand linkages. Likewise, Scherr (1989) and Southern (1991) conclude that the de-agriculturalisation faced by the Nigerian economy during the oil boom reflected the policy response (e.g. scanty public investment). Finally, research on Dutch disease in Cameroon by Benjamin et al. (1989) concludes that the policy response proved to be crucial.

Some criticism of Dutch disease theory has focused on the applicability of the theoretical model to developing countries. As is well-known, the Dutch disease model was formulated to explain the disruptive general equilibrium effects of a resource boom with particular reference to a developed economy. Under the assumption of full-employment, de-industrialisation is the certain outcome of a resource boom. However, the applicability of such a model to developing countries remains a controversial issue. The major difficulties can be summarised as follows:

(a) The full employment condition does not hold in developing economies. Hence, the two effects might not appear, or may be offset. Likewise, under the existence of unemployment the effect of the boom is bound to rely upon the policy response to the boom. It has been argued that even with unemployment, a contraction of the non-booming tradable sector may arise from the direct competition for some productive factors such as skilled labour (Sarmiento, 1988, p. 94). On these grounds, Wai (1988, p. 122) draws attention to the fact that the resource movement effect in developing countries might be driven by the transfer of capital from manufacturing to the non-tradable sector. Similarly, Southern (1991) alludes to the expansion of the informal sector in Nigeria as the result of the oil boom of the 1970s.

(b) The Dutch disease theory does not considerate technological change in the lagging sector. It might affect the sector's response to changes in relative prices.[2] Even more, it is an interesting issue given the diversity of technology patterns used by the different sub-sectors, which compose both the lagging and the non-tradable sectors in developing economies. This fact makes it difficult to distinguish which sector is more capital-intensive. For instance, the non-tradable sector might include capital intensive activities such as electricity and transportation as well as labour-intensive activities such as personal services and the informal sector. This raises questions about the applicability of models based on different factor specifications of the traded and non-tradable sectors in developing countries. Likewise, it can be concluded that an accurate analysis of the impact of oil on the productive structure calls for sectoral studies. This aspect seems to be relevant for Venezuela because of the diversity of production possibilities presented by agriculture and manufacturing in their sub-sectors.

(c) The distinction between traded and non-traded goods in developing countries is a controversial aspect too. It has been argued that in many cases the tradable sectors may behave as non-tradables owing to commercial policies, e.g. tariffs, import restrictions (Roemer, 1985). Similarly, a policy of price-controls and low producer prices might lead to tradable natural goods becoming non-tradable (Struthers, 1991; Cook and Sieper, 1984). By contrast, others scholars claim that these kinds of policies do not make a good non-tradable. It might only be the outcome if a policy of prohibition of imports was applied, leading to a process of market segmentation. Instead, the adoption of highly protective policies based upon tariffs and other instruments would cause a traded good to

[2]This aspect is highlighted by Scherr (1989) in a comparative study about the impact on agriculture of the 1970s oil boom with reference to Nigeria, Indonesia and Mexico. It reveals that available technological options for agriculture played a

behave as a pseudo-non-tradable (McKinnon, 1976; Bhagwati, 1978; Rofman, 1987).

(d) The assumption of perfect substitution between domestic manufacturing and imports embodied in the Dutch disease model does not hold in developing countries. This makes it difficult to aggregate import-competing and exporting sectors into a tradable sector. This is a very relevant issue, given the assumption of perfect substitution between domestic and foreign goods common to neo-classical trade theory. On these grounds it has been pointed out that the lagging sector might be composed of exportable and importable as well as agriculture tradable activities. Thus, de-agriculturalisation rather than de-industrialisation may be the result.[3] Finally, the issue of low substitution between domestic production and imported goods, together with the impact of protectionist policies, raises doubts about the applicability of the law of one price to developing countries.

(e) There is a need to differentiate between import-competing and export-competing sectors within manufacturing. Some of the import-competitive manufacturing lines may benefit from the greater home demand during a boom and from the real appreciation through cheaper imported capital and raw material goods. The negative contribution of import-substitution to growth may be offset by the contribution of domestic demand.

(f) The factor intensity character of the different manufacturing lines may affect the outcome of a boom too.

key role in the adjustment of this sector. Of course, it proved to be associated with the policy choices pursued by the governments.

[3] This issue is brought up by Corden (1984, 1985) and Roemer (1985). This seems to be the case of developing countries such as Nigeria and Mexico during the oil booms of the 1970s and Venezuela when oil activities were initiated at the beginning of this century.

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(g) The ahistorical character of this model and the non-consideration of political economy factors are also important. The present reality of developing countries is rooted in their histories. Hence, political and historical aspects should be taken into account in the analysis of the impact of primary exports on the economy. Indeed, the impact on the real side of the economy of a resource boom might not be explained by market mechanisms. Rather, it seems to be concerned with government policies.

1.3 The 'Resource curse' thesis

Auty (1986, 1990, 1993, 1994) among others, has been a major observer of the impact of the primary export sector and resource booms on the economy and especially on industrialisation of developing countries. This scholar presents the so-called 'resource-curse' thesis, which states that resource-rich countries are bound to experience poor economic performance in comparison to non-resource based economies. This disruptive impact of a primary sector on the economy is explained by the following factors: (a) some features of the primary export sector, such as the high capital intensity of the oil sector, leads to weak productive linkages, low income gains and the predominance of fiscal linkages; (b) the receipt of substantial export revenues by the government of a mining economy may produce Dutch disease symptoms; (c) the availability of foreign currency makes possible the adoption of protectionism for a long time; (d) the lack of fiscal discipline based on over-optimistic expectations of the trend in the prices of minerals, and, (e) the existence of rent-seeking groups. Auty's, thesis need to be discussed

1.3.1 The Debate on industrial strategies in Latin America and the 'resource curse' thesis during 1950-90

A full discussion of the industrial policies and import substitution industrialisation with special reference to Latin America and Venezuela is above the scope of this dissertation, *which deals which the impact of the 1970s oil booms on Venezuelan private manufacturing.* Nevertheless, a brief discussion of those theories appears as necessary because the 'resource curse thesis' suggests that the failures of industrialisation in Latin America were linked to the existence of an important primary sector which led to the overvaluation of the domestic currency and allowed for the adoption of interventionist import-substitution policies. The reason behind the lack of a non-oil export-competitive sector in Venezuela is explained by Auty (1990, p.78) by these factors. We agree on the fact that the structural overvaluation of the domestic currency seems to have been an important factor in explaining the process followed by the Venezuelan economy and by industrialisation during 1935-82. Nevertheless, in our view, the impact of the accrual and domestic distribution of oil revenues by the Venezuelan state did not only take place through the structural overvaluation of the domestic currency. Major mechanisms of the domestic distribution of oil revenues in Venezuela were as well as the real appreciation of the bolivar, the creation of public employment, government spending on infrastructure and the creation of the home and labour markets, which set the basis for ISI by the 1950s. The domestic distribution of oil revenues through these channels from the 1920s exerted an enormous impact on the social, political and economic structures, *which gives remarkable specificity to the Venezuelan economy and industrialisation with regard to other Latin American countries.* These are important political economy aspects, which falls outside the reference framework of the Dutch disease and resource curse theses. This is true that Venezuelan industrialisation shows some similarities with the region in the sense that both applied an import-substitution policy, but the roots of the problems in Venezuela and the reasons why import-substitution led to the absence of a non-oil export-competitive sector are specific to the Venezuelan society. Furthermore, it is misleading to affirm that any of the Latin American countries applied export-promotion policies or showed some export development.

Import substitution vs outward-oriented policies

Early discussion

Within economic development, the discussion on the more accurate strategy to achieve economic development and industrialisation was dominated by the theory of modernisation and the dependency theory until the early 1970's. As far as Latin American is concerned, over the 1950's and 1960's two approaches to economic development became popular namely the so-called structuralism school represented by ECLAC and those advocates of the dependency theory in its Marxist version. While both views relied upon the notion of centre-periphery and the idea of dependency, the latest stance explained underdevelopment as a necessary condition for the development of the centre and the only possible way to overcome dependency and achieve development in the Third World was through a break with the capitalist system, which appears as impossible in the view of some scholars. So, a successful industrialisation was not possible within the capitalist system; with manufacturing remaining in the primary import substitution phase, which is characterised like a new modality of the dependent link between the centre and the periphery, favourable to the new condition in the international economic system. These gave way to a new international division of labour in the 1950's, which favoured the production of final ensemble consumer goods in the periphery. This excessive focus on external factors in explaining the reality in the Third World led to the lack of concern with economic policies and to reductionism, so the internal specificity of a society were not considered.

Import substitution industrialisation (ECLAC's approach)

In contrast to the dependency approach, the ECLAC approach claimed that it was possible to achieve capitalist development through the adoption of appropriate industrial and economic strategies and changes in the internal structure. This vision and its policy prescription imposed in Latin America during the 1950's. Import substitution industrialisation (ISI) was thought like an appropriate industrial strategy in many Latin American economies to overcome the dependence on industrialised economies and the vulnerability to external shocks. This strategy was embodied by the thought of Prebisch, which subsequently became known as the ECLAC approach. Among the main aspects of the ISI strategy was the criticism to the traditional theory of foreign trade based on static comparatives, which encouraged an international division of labour in which the peripherical economies were prompted to specialise in primary products to be bought by the developed economies, while importing manufactured goods. Prebisch (1950) stated that this situation led to a deterioration in the terms of trade and external-sector disequilibrium. Factors behind this situation included the no diffusion of the benefits of technological progress in the developed economies, the low-income elasticity of primary products, the growing substitution of synthetic for commodities (Prebisch, 1950 and 1951). It was argued that some degree of protectionism had been used in the successful cases of industrialisation Within this line of thought, industrialisation appeared as the only adequate strategy for achieving development in Latin America. This pattern of development would contribute to ameliorate the impact of external fluctuations. The industrial strategy was supposed to rely upon the local production of previously imported goods to satisfy the home market with the major instrument being a policy of protection. The state was also supposed to play a key role in providing infrastructure, investment, financial and technological policies. It must be noted that in the thought of Prebisch (1954) protection should have a selective nature. For the author:

'There two types of protection. Firstly a type of protection exists which encourages the structural changes required by economic development without provoking a reduction in imports below the volume corresponding to the capacity for external payment and without either reducing world trade or weakening its rate of growth. Secondly, there is the type of protection which exceeds these limit and adversely affects the world trade'

ISI contributed to a rapid industrial growth during the 1950s in many Latin American countries including Venezuela. Nevertheless, over the 1960's it was obvious that industrial process presented important flaws related to the excessive and indiscriminate protection given to manufacturing; the lack of technological dynamism, the discrimination against exports and the lack of attention to external markets and economies of scale. Additional problems were the scanty development of a capital good sector, which led to excessive dependence on imported capital and intermediate goods, and gave way to balance of payment's disequilibriums, and the low employment generating capacity and the existence of few intra-linkages and the linkages with other activities as agriculture. Consequently, by the late 1960's and 1970's the wide spread perception of these flaws, the limitation of the domestic market and the need to increase foreign currency among other factors led ECLAC to recommend an export promotion policy.[4] In this vision ISI and EP were seemed as compatible.

The Neo-classic critics of import substitution

The neo-classical approach which became popular during the 1980's encouraged by the IMF and WB (the so-called 'Washington consensus' has blamed the inward and state interventionist nature of the industrial strategy launched in the region for the failure of Latin American industrialisation during the 1960's and 1970's, which is the common counterfactual in the studies on East Asian industrialisation within the neo-liberal and other stances. Under the neo-liberal view[5], outward oriented policies and the reliance upon the free market were thought as an alternative to ISI policies promoted by ECLAC, which is seen as a misleading strategy. The critic to ISI focused on excessive protectionism, rent seeking behaviour, and the existence of an anti-export bias. This criticism to the ECLAC's strand or

[4] More recently it has also been pointed out by the neo structuralism that the so-called ECLAC approach or old structuralism did not consider appropriate short-term policies.

[5] Among the most influential representative of the neo-liberal thought and critics to Structuralism and ISI are Balassa

structuralism is though, mistaken since the later view showed concerned with the need to adopt selective protection and to promote exports as early as 1964. An attempt to shift from ISI to export promotion strategy occurred in some Latin American countries, notably Brazil, Argentina, Mexico and Colombia. There is evidence that these economies were able to expand their exports as rapidly as any one could reasonably expect during the 1970s. Brazil expanded its exports of manufactured goods faster than any other country with the exception of South Korea over these years.[6] This evidence seems to contradict the neo-liberal argument according to which while Latin America followed an ISI policy with no export promotion, East Asian followed an outward-oriented policy, which appears as the major factor behind its success. The problem is not that Latin America could not expand not-traditional exports, but the lack of consistency; that is to say, the Latin American export effort was undermined at some point and by 1981 the conditions were not strong enough to absorb the impact of the reduction of capital flows from outside. These countries were partly disrupted by real appreciation of the domestic currency and inflation during the 1970s.

Indeed, it seems that if there is a country in Latin America, which did not adopt an export-promotion policy for the private sector at all, this was Venezuela. In this country there was not any significant attempt to promote non-oil exports in the private sector during the late 1960s or 1970s. *This represents a striking difference between the industrial process in the region and Venezuela.* A resource export industrial strategy based on state enterprises in aluminium and iron lines was promoted in Venezuela, but there was not any serious or co-ordinated important attempt to encourage exports in the private manufacturing sector in the later country. One hypothesis of this dissertation is that the virtual lack of a non-oil export-competitive sector in Venezuela is *partly* related to the structural overvaluation of the domestic

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(1971, 1978, 1982); Bauer (1981, 1984); Krueger (1974, 1978, 1980; Lal (1983); Little (1982).

currency due to the domestic distribution of oil revenues by the state during 1935-82. Nevertheless, *this is not to say* that this was the only or more important factor behind this feature of Venezuelan industrialisation. This is an oversimplification common to the Dutch disease and resource curse theses. Institutional-historical factors as socio-political structures are bound to have played a key role. For instance, in Venezuela there was not a strong agrarian economic group linked to the export sector because the export-agriculture sector was dismantled at the beginning of this century. Thus the existing of conflicting interests between a land-lord class linked to the primary export sector and industrialists, which is stated as one of the factors undermining ISI in Latin America does not hold for Venezuela.[7] The no implementation of an agrarian reform due to the existence of a powerful landlord group common to Latin America as a whole is not common to the Venezuelan case. This is another striking feature of Venezuelan industrialisation and the rest of Latin America. Likewise, it seems that unlike other Latin American countries, Venezuela did not experience inflation problems until the late 1980s and 1990s, which is explained by the fact that the availability of oil revenues allowed for the import of goods.[8]

It has been pointed out that under the neo-liberal thought, there is not room for industrial policies since the free market is bound to guarantee the most efficient allocation of resources. According to this early view the role of industrial policies in East Asia has been marginal (Balassa, 1988). However, in the light of the substantial and convincing evidence that showed the remarkable importance of industrial policies in the economic development of East Asia (Amsden, 1989; Wade 1990, and Chang 1993), the orthodox view modified its argument. This was forced to recognise the existence of extensive state intervention in East Asian larger NICs and that there was not an unique model. Nevertheless, they still claim that industrial policy,

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[6] See Helleiner (1994, 1995)

[7] Hirshman (1968) and Anglade and Fortin (1987).

[8] For a model in which the determination of domestic prices in Venezuela is explained by considering the role of imports

although widespread, exerted only a limited impact on productivity and structural change. An example of this view is the East Asian Miracle report by the World Bank (World Bank, 1993). This study concludes that the contribution of the government policies to industrial change and international competitiveness in East Asia was insignificant and it appears that state intervention was not negative because these was 'market friendly', that is to say the outcome had been the same without interventionism.

This view favours the adoption of free market-oriented policies in order to achieve international competitiveness and the stage of export-substitution, so there is no role for industrial policies. The success of East Asian industrialisation is explained by the adoption of free market policies in a static framework and of an outward oriented strategy which would explain the sustained growth of these economies (dynamics framework).

In response to the World Bank reading of the East Asian model, a substantial range of theoretical and empirical studies, has appeared whose distinctive and common feature is the emphasis on the central role played by the state in the successful East Asian models. The successful industrialisation in these countries appears as the result of the launching of long-term coherent and effective import and export promotion policies by the so-called 'developmental state'.

Likewise, it is worth noting that Weeks (1997) shows that the differences in economic performance between Latin America and the 'High Performing Asian Economies' (HPAEs) has not been as great as is generally believed?. The author concludes that (p. 2, 3):

'...for virtually all the important variables, we find not statistically significance differences between the Latin American countries (this includes all of the Spanish-speaking continental countries of the Western Hemisphere and Brazil, plus Dominican Republic, eighteen in all) and the countries of East and Southeast Asia (HPAEs). Few of the oft-quoted 'stylised facts' prove valid: on average, investment rates were not higher in HPAEs for most periods; growth of exports was not significantly higher; and public sector expenditure did not claim a higher portion of national income than in the Latin American countries. These and other non-significant differences lead to inspection of what was statistically significant during crucial periods: the relative burden of the external debt for the two regions.

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financed by oil revenues see Baptista (1997).

In light of the non-significant results, a growth model was estimated...which demonstrates that a measure of debt service burdens is highly significant in explaining differences in the rate of change of national incomes; it is shown to be of equal importance to investment rates and exports...'

In our view, Weeks (1997) provides evidence that the statement repeated by the World Bank (1993), the orthodoxy and non-orthodoxy, according to which the difference in growth rates in Latin America and the HPAEs was so great that an hypothesis is necessary to account for the difference is not correct.

The Resource curse thesis and industrial policies

The so-called 'resource curse thesis' clearly suggests that the problems of industrialisation in economies with an important primary sector relates to the abundance of natural resources which implies real overvaluation of the domestic currency and the adoption of import-substitution and misleading macroeconomic policies. According to this theory the devaluationist and more outward liberal policies appear as the answer to the problems faced by industrialisation in Latin America and in Venezuela.

Auty's thesis shows various weaknesses. First, in our view, it is likely that the availability of foreign currency arising from the primary export sector may have contributed to the delay in the adoption of export-promotion policies in Latin America and especially in Venezuela. However, we insist, the so-called Latin American NICs (Brazil, Argentina y Mexico) and Colombia applied export-promotion policies with relative success from the late 1960s. This is a misreading of reality to state that these countries did not follow export-promotion policies or were not able to export at all. This is an oversimplification of reality implicit to the resource-curse thesis and to the critic made by the orthodox to the ISI. The critic to the lack of a non-primary export-competing sector is valid in the Venezuelan case. The latter country does not have a sizeable export-competing manufacturing sector which should be partly explained by the lack of compulsion to encourage non-oil exports, and the structural overvaluation of the domestic currency due to the accrual of oil revenues. However, this is only one factor and to point this out as the main factor is an oversimplification of the failures of Latin American and Venezuelan industrialisation. This also overlooks the multiplicity and complexity of the factors involved in the industrialisation process. It can be argued that in the case of Venezuela, which has been an oil-exporting country from the 1920s, the socio-political and economic structures were greatly shaped by the existence of an important oil sector and the domestic distribution of oil revenues. For Baptista (1980, 1986, 1997) and Mommer (1987), the accrual and domestic distribution of oil revenues of a substantial oil income by the state, which is not the result of the national productive effort, had notable implications for the development of the economy and industrialisation. Oil revenues were a kind of international transfer whose domestic distribution by the state implied the collapse of the export-agriculture sector (coffee and cocoa) during the 1920s and 1930s, and the emergence of an important state apparatus and of the tertiary or non-traded activities as construction and trade. The 'rentier capitalism' in Venezuela implied the non-traded sectors developed firstly than the productive activities as manufacturing. Indeed, the industrial capital was closely related to the financing, trade and construction capital. The disappearance of the agricultural activities by 1930 implied that the commercial and financial groups were favoured, and these are the same groups that later invested in import-substitution activities. The commercial capital for instance continued importing input and capital goods under import substitution of consumer goods. This is true that the industrial process in Venezuela show many of the features of Latin American industrialisation as heavy dependency upon imported inputs and intermediate goods, but in the Venezuelan case these features were much more prominent which leads us to say that Venezuela is a special case in the region. Likewise, it must be stressed that it is mistaken to affirm that Latin American as a whole did not develop a reasonable degree of a capital and intermediate ISI and an export-competitive sector. This is the case of Venezuela, in which the availability of substantial oil revenues and the specific socio-political structures determined the lack of a non-oil export-competitive manufacturing sector and the absence of industrial diversification.[9]

The above aspects are of importance to understand the development of manufacturing in Venezuela, but they fall outside the reference framework of the Dutch disease and resource curse theses.

Second, Auty seems also to dismiss the early contribution of oil revenues to economic growth and industrialisation in Venezuela through the creation of the home market and the availability of cheap capital and intermediate goods. The author sees as negative the impact of real appreciation on import substitution industrialisation, when indeed manufacturing seems to have benefited from this under import substitution to some extent. We agree with Auty on the need to launch export promotion policies, which requires the setting of a competitive exchange rate. However, it seems that the author overemphasises the role of devaluationist policies to promote exports, when indeed the experience of developing countries shows that the overcoming of the problems of industrialisation in these economies cannot rely on liberal and devaluationist policies on their own. Furthermore, the author seems to ignore the high social costs of pointing out to the reduction in wages as the solution to the economic problems in already impoverished Third World economies.

Third, the resource curse thesis fails to explain why resource-rich economies like Malaysia and even Indonesia have performed better than Venezuela and other Latin American countries in terms of industrialisation

[9] A detail assessment of the differences between the Venezuelan and Latin American industrialisation falls outside of the scope of this dissertation. For a comparative study between industrialisation in Latin America and Venezuela see Purroy (1982) and Bitar (1983).

and manufacturing exports. Despite the fact that Malaysia faced a primary export boom related to the increase in rubber prices and the beginning of petroleum production in the mid-1970s, this economy was able to launch export-promotion policies together with ISI from the 1970s. Most importantly, and despite the flaws of the industrial strategy, it seems that both resource-based industries and non-resource based export industries have developed from the 1970s. The Scandinavian economies are another example of countries endowed with natural resources, which managed to increase manufacturing exports. Finland and Sweden were able to use their comparative advantage in mining, forestry and ocean resources to foster technology-intensive industries like paper machinery, paper, hardrock drilling, etc. The oil resources in Norway were used to foster its industrial exports. These facts suggest that other factors, different from resource endowment such as social and political structures, are determining in explaining the industrial policies adopted.

Fourth, the empirical evidence presented by Gelb (1988) and Auty (1990) to claim that mineral economies have under-performed those non-mineral economies has been challenged in a recent study by Davis (1995), who concludes that mineral-rich developing economies outperformed non-mineral economies both in growth and in development during 1971-91. Davis suggests that mineral export-development is a feasible strategy for many developing countries and that industrialisation based on an export-promotion strategy does not have to be the only or most feasible alternative open to a mineral economy. We agree with Davis on this point. A coherent economic strategy for an oil-based economy like Venezuela in the foreseeable future is the encouragement of oil exports together with those industries linked to the oil sector such as chemicals. Nonetheless, in our view, this must be accompanied by an effort to implement coherent industrial and agricultural policies that lead to the creation of a non-oil export competitive sector. Oil exports, including oil revenues, must guarantee the foreign currency required to stimulate non-traditional exports in the short and medium term. This seems to be a feasible option because the low level of oil prices may exclude the possible negative effect of a real appreciation on non-traditional exports.

Fifth, Auty's vision shares with most of the comparative studies between East Asian and Latin American industrialisation the assumption that both regions had quite similar conditions in the 1950's, which is mistaken. As Kholy (1995) states, even though in terms of per-capita income South Korea and Brazil for instance were comparable, the first country showed considerably greater dynamism in the decades previous to 1950 and by the 1950's, the pattern of state-society modalities prevailing were relatively unique.

Auty, as many of the scholars who assess the problem, tends to overemphasise the important of the shift from ISI to EP strategies under Park-Chung-Hee government. Kholi (1994) argues that the common question posed in comparative studies of East Asian and other countries's industrialisation of why was East Asia able to shift from ISI to EP in the early 1960s is incorrect. Indeed, according to Kholy to speak of a shift from ISI to EPS in South Korea during the 1960's is a mistake since in the light of historical studies it has begun to be acknowledged the fact that the Japanese imperialism contributed greatly to the creation of a kind of a developmentalist state which encouraged export-oriented manufacturing to some extent during the colonial phase. Even though, after the independence and the split of the country, the industrial base inherited was greatly destroyed, or diminished because most of manufacturing was in the north, according to Kholy some labour intensive industries were in South Korea and the entrepreneurship and the export-oriented industrial tradition remained in the region. Kholy states (p. 1286):

'South Korea indeed made some important policy changes under Park Chung-Hee, but their significance can be easily exaggerated; moreover, the state-society configuration that enabled these policies to success had deeper historical roots. In this sense, South Korea under Park Chung-Hee did not so much 'switch', as it fell back into the grooves of colonial origin, or more precisely chose one of the two or three main alternatives that were available to it from its complex historical legacy. Revolutionary communism, a corrupt and wasteful autocracy of the Rhee type and a more US style open democracy were all possible paths along which South Korea could have travelled. The key elements, however, of the eventual path it adopted -a Japanese-style state-driven export economy- were deeply etched into the social fabric. More specifically, Korean economy, especially Southern Korean economy was already export-oriented, its entrepreneurs had considerable experience in selling abroad, and the state within the economy had learned from its own history that strong support from business and exports, and tight control over labour, was a route to high economic growth.'

Kholy's argues for a bringing up the colonial past of developing countries to understand their different path of industrialisation. According to him the denial of the dependency theory implied that the colonial past of the developing economies was ignored.

The lack of industrial entrepreneurship in Latin America has been pointed out as partly inherited from the colonial past and the features of the colonialism.

Sixth, Auty does not seem to recognise that the differences in the performance of industrialisation in Latin American and East Asian countries may relate to the different features of the import substitution policies in these regions. The problem involves not only the delay in the shift from one strategy to other. Auty's assumption that the two regions undertook a similar ISI pattern of industrialisation during 1950-60 is not correct. As Anglade and Fortin (1987) and ECLAC (1987) show, there were striking differences in the way that import substitution policies took place in the two regions, which emphasises notably, those factors related to the role of the state, technological and human resources, institutional and income distribution and land reform (these aspects can not be linked to the natural resource endowment. The differences in the ISI strategies in the two regions may contribute to explain why the primary export industrial phase was delayed in some countries. It has been pointed out that the adoption of agrarian reform led to a more equal income distribution in East Asia, which in turn prompted a demand for labour intensive manufacturing goods during the

1950's.[10] The shift from the primary import substitution to primary export substitution in the 1960's took place once the narrowness of the local market set obstacle to further growth. However, a key point is that the narrowness of the domestic market was due to the relative saturation of the mass demand for non-durable and the policy response was to encourage export of those labour intensive manufacturing. Thus the phase of primary ISI gave way to the primary export substitution phase; both domestic demand and exports worked like source of industrial growth and allowed for the penetration of the European and North American markets by the low value added East Asian exports. The rapid shift from ISI to EPI in this region was also encouraged by the USA's pressures for greater exports due to the balance of payment deficit which was financed by the first country. The possibility of a reduction in the USA aid contribute to stimulate the rapid industrial growth and to target external markets in South Korea and Taiwan. All of these factors together with the adoption of a long-term strategy and the support of the USA and the local capital

By contrast, the lack of agrarian reforms led to concentrated income distribution in Latin America during the 1950's and 1960's. The unequal income distribution caused a skewed patter of industrial growth which set limits to the expansion of the demand for basic consumer goods, and resulted in a supply pattern oriented to the satisfaction of the demand of the high income social strata (Anglade and Fortin, 1987; Pinto). This reinforced the adoption of capital intensive techniques, high import dependence upon imported capital and raw materials and may have set obstacles to the rip the benefits of scale economies, and to a more efficient growth. These were key factors in Latin American industrialisation during 1950-60 and 1950-70, respectively. In the Venezuelan case despite the fact that the distribution of oil revenues benefited to some extent the labour groups, the redistribution was unfavourable to rural workers and although at a high level it is

[10] ECLA, Anglade and Fortin, Rosales Fezyngber

recognised that a skewed income distribution was a feature of Venezuelan society during the 1950's and 1960's. The accrual of substantial oil revenues to the Venezuelan state at the choice of no devaluation in the 1930's implied the decline of the export-oriented agriculture, so unlike other Latin American countries, there was not a powerful landowner class related to primary export activities.

It must be noted that, concerning the comparative studies on East Asia and Latin America, the following issue must be highlighted: common to the comparative studies of both the orthodoxy and the non-orthodox approach is the idea of sequencing in an industrialisation process. The shift from one strategy to another in the large Latin American countries as Mexico and Brazil should have taken place at the beginning of this century because these economies have achieved the first stage of industrialisation based in the market growth by this time. In this light a comparison between East Asia and other Latin American countries different from Brazil, Mexico and Argentina industrialisation would make more sense.

Finally, Auty's blanket criticism of import substitution industrialisation seems to validate implicitly the neo-classical idea that the adoption of outward-oriented policies was crucial to explaining the success of East Asian model and that import substitution industrialisation policies were a waste of time in this region. This is far from being true since the evidence indicates that import substitution policies in the 1950s were a pre-requisite to the later export success. Likewise, as discussed above, manufacturing exports grew faster in Latin America during the 1970s than during the 1980s and 1990s under outward and liberal policies. Although Auty states that CIP implies the granting of temporary protection, there is no acknowledgement of the fact that central to the success of outward-oriented industrialisation was the existence of a precedent phase of extensive import substitution and technological improvement during which international competitiveness was developed. It must be stressed that in an earlier paper Auty (1991, p. 18) recognises that South Korean industrial strategy can be defined as dual, in which ISI proceeds alongside export promotion. However, in the paper discussed here he seems to share with the orthodox approach the heavy criticisms of ISI.

Within the Latin American context, more important than the rapid shift from ISI to EP strategies, seems to be the adoption of an adequate and coherent industrial strategy, which together with other economic policies leads to an improvement in technological change, exports and income distribution.[11] ECLAC has often insisted on the compatibility between export and inward oriented strategies. This institution argues that although export promotion of manufacturing goods is necessary, the domestic market also offers possibilities to achieve industrial growth. ECLAC/UNIDO (1988) stresses the differences between growth based on the domestic market and import-substitution and the need to combine these strategies with export-promotion. A concern of ECLAC is that an improvement in income distribution in Latin America would mean a greater potential for inward policies based upon the greater domestic demand. In addition, the scanty diversification and heavy dependence upon imports of the industrial sector suggest that there is potential for further import-substitution. This must imply, though, a different set of policies that link import substitution to export-outward industrialisation.

Seven, concerning the argument of the entrenchment of rent-seeking groups promoted by the adoption of protectionist policies (autarkic policies), this has been criticised by Fannely et al. (1988 p. 47), Fine and Stoneman (1994) and Cheng (1995) who argue that according to this theory, rent-seeking or profit-seeking is acceptable behaviour when it takes place

[11] It must be noted that the shift from ISI to outward-oriented policies in the Chilean economy from the early 1970s did not lead to successful industrialisation. It has been recognised that following the adoption of neo-liberal policies, de-industrialisation was the outcome, with manufacturing exports representing a small share of non-traditional exports at

through the market but not through the state. Indeed, the case of the economic groups linked to trade in developing countries under import substitution policies shows that there may be rent-seeking e.g. profit-seeking behaviour with both policies. These groups may also benefit the most from import substitution policies if they manage the importation of capital and raw material goods, while they also may benefit the most under import liberalisation policies. For this reason these economic groups have supported the launching of neo-liberal policies which consider import liberalisation and devaluation as the main tools to increase exports. This contradicts the argument posed by different authors, both orthodox and no orthodox, which identifies industrialists linked to import substitution as the main rent-seekers.

In our view, it is mistaken to assign full responsibility to the state interventionism or to the import substitution strategy in the failure of the industrialisation process. The delay in the shift from import substitution to export substitution was not only or exclusively due to the state policies or 'rent seeking behaviour'. From the neo-classical perspective, which is ahistorical and ignores political economy consideration, the influence of different economic and political interests of the social groups on economic policies applied are not taken into account. This is a key point to understand the process of industrialisation in developing countries.

The Role of the state and the ISI strategy in Venezuela

Against the previous background here we briefly consider the role of the state in Venezuelan industrialisation. In doing that it must be stressed that, being Venezuela a country with an important state-owned oil sector since the 1930's, gives specificity to the economic and industrial process.

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present.

The increase in oil exports by the beginning of this century and the accrual of important oil revenues to the state gave it a decisive role in the Venezuelan economy. Thus the role of the state in the economy has been extensively analysed within the Venezuelan political economy. This discussion has changed through the history. Nevertheless, a key issue logically has been the use by the state of the oil revenues and what should have been the best use of these revenues to promote economic and social development. During the 1920-40 years, an ideological debate took place concerning the ownership of oil fields. Then, two main visions could be distinguished namely, that represented by the interest of land-ownership, which claimed that the oil revenues should accrue to the owners of the lands in which the oil fields were located. Opposed to this vision was that which argues that state ownership should be favoured. This stance which eventually imposed, reflected the interest of the national commerce, and financing capital which perceived that the distribution of oil revenues by the state would favour the capitalist development. This line of thought is fairly represented by the work of Uslar Pietri (1939), who claimed that the legitimate use of oil revenues should be investment. This represented the vision of capital. Another vision which favoured the state ownership of oil was the populist one embodied in the thought of Betancourt (1949), and the AD party, which claimed that oil revenues should benefit both labour and capital.

Within the academic level, the major contribution of the Venezuelan political economy to explain the role of the state in the economy and industrialisation were mainly ascribed to the Marxist dependency school of thought during 1950-70. Most of these studies tended to focus on the relationship state-oil transnationals, with the topic of the launching of effective economic policies and long-term growth being less important. The impact of oil revenues on the economy is perceived like negative because this reinforced the economic dependency. The state was supposed to represent the interests of the international and national capital with little capacity of choice against the foreign capital. The failures of the ISI policies appeared as the result of a constellation of external factors which involved the existence of an international division of labour which made convenient for the developed economies (centre) to keep the periphery producing final consumer goods, and buying capital and technologies from them (Maza Zavala et al 1974; Malave, 1974; Cordova, 1976; Mieres, 1975). The criticism to this view is the reductionism.

Other scholars have tended to see the Venezuelan state as an independent entity or agent, which is able to assume choices and represent interest different from any other social class (Sontag 1974).

In the 1980's, another approach within the Venezuelan political economy has argued that in this economy (Baptista, 1987, 1997 and Mommer, 1987, 1991), the state ownership of the oil sector and the accrual of considerable oil revenues gave way to the emergence of the so-called 'rentier capitalist' promoted by the state. In this Marxist approach to the oil question in Venezuela, the oil revenues appear as a kind of international rent imposed to the international capital by the state. The term rent has the meaning of the Marxist term, the part of the social product appropriated by the landlord. However, it must be highlighted that while the state behaves like a landlord in the international front, this behaves like capitalist in the domestic economy by distributing oil revenues. Thus Venezuelan capitalist development appeared as driven by the domestic distribution of an international rent by the state which assumes the role of the industrialist bourgeois in the national economy to some extent and promoted the emergence of this group as well as of the capital linked to finance, commerce and construction.

The main mechanism of distribution of oil revenues by the Venezuelan state between 1930 and 1950 were the public current and capital spending, and the real appreciation of the domestic currency, this latter through cheaper consumer goods. These policies prompted a considerable stimulus to capitalist development with the creation of the home market and the labour force required for the beginning of industrialisation in the 1950's. This distribution of oil revenues was beneficial to the commercial and financial capital which were involved in construction and trade activities, and the emergent industrialist group, but this also benefited the labour group to some extent.

Through the 1950-70 phase, Venezuelan industrialisation was encouraged by the adoption of an ISI strategy, which focused basically upon the granting of protection to the consumer goods and a policy of subsided credits. Furthermore, manufacturing continued benefiting from expansionary fiscal policies and from other mechanism of distribution of oil revenues, like the low income tax and the cheap imported capital and intermediate imported goods due to the real appreciation of the bolivar and low tariff and quotas. In sum, the industrial and other economic policies during 1940-70 seem to have encourage manufacturing in the following ways: the availability of foreign currency which allowed for cheap imports of capital goods, inputs and technology necessary for the domestic production of non-durable goods; and the creation of domestic demand as a result of public capital and current spending.

In our view, the Venezuelan state encouraged the emergence of the bourgeois through the distribution of oil revenues into the private sector. It seems that this process, which it may appeared as a kind of original accumulation in the Marxist language was accelerated during the 1970's oil booms and 1979-82, when the state distributed actual and future oil revenues through external indebtedness. In this light, the weakness of the state from the 1980's appears as the result of the transfer of oil revenues into the private sector, which was also caused by he fall in oil prices.

It must be kept in mind that the Venezuelan state had the role to distribute an important oil revenue from the beginning of this century. It has been pointed out that the process of distribution of oil revenues led to the emergence social groups whose interests were related to the appropriation of a share of those revenues, which are not the results of the national productive effort (Baptista ob cit. Mommer, ob.cit). In Venezuela, the social groups linked to ISI and the commercial capital which evolved from the groups related to import activities at the beginning of this century (in Marxist language commercial bourgeoisie) found profitable to be involved in ISI of primary goods during the 1950's, while at the same time some of them remained related to the commercial activities through the import of capital and raw materials necessary to the first phases of industrialisation.

Hypothesis

Under the assumptions embodied in the Dutch disease model a resource boom is bound to cause de-industrialisation or de-agriculturalisation as a result of the price mechanism. However, the relaxation of the assumptions allows for different outcomes. For instance, assuming the existence of unemployment, which is common to developing countries, there is room for government policy to play a key role in the final effect of a resource boom. Furthermore, *there are important aspects which fall outside the reference framework of the Dutch disease theory*. First, in the case of an economy which may have been benefiting from significant oil revenues, the impact of a sudden boom may depend largely on the initial conditions of the economy, and the specific economic dynamic brought about by the government policies during the pre-boom phase. Our major hypothesis is that assuming the existence of unemployment even if some real appreciation takes place, de-industrialisation may not be the outcome, especially if there is only an import-competing manufacturing sector. This may be explained by the short-term positive effect of real appreciation on this sector via cheap imported capital and raw material goods, the greater home demand and the beneficial impact of financial, investment and credit policies. In this case a possible outcome of a boom might be that despite the negative contribution of import substitution and export to manufacturing growth, the sector may still expand out of the greater home demand. Thus the presence of Dutch disease symptoms in that economy during a sudden boom must be understood in the sense that the accrual of oil revenues may contribute to delaying the need to adopt a coherent industrial strategy, which combines both import substitution and export promotion.

The second hypothesis of this thesis is that although manufacturing may be able to grow, fostered by the home demand in the short to medium term, if there is no coherent industrial policy that encourages non-oil exports and efficiency, this growth may be inefficient, highly dependent on oil revenues and unsustainable. This will make the economy prone to a balance of payment crisis once oil revenues fall. The accrual of the extra income may lead to a booming phase of rapid manufacturing and non-tradable growth in the short-term followed by a severe depression prompted by the need to adopt deflationary economic policies in the face of fiscal and balance of payments problems resulting from falling oil revenues and the lack of a competitive non-oil sector. Thus an oil boom may give way to recession, which may become entrenched despite another oil price increase. If this is the case, the recession should not be ascribed to the Dutch disease mechanisms, but to the deflationary policies and more specifically to the lack of export-competitive manufacturing. This may be largely related to the negative impact of real overvaluation and the lack of coherent industrial policy in the pre-boom and booming phases.

A third hypothesis is that the oil boom may induce a sharp decline in productivity if the policy response is inefficient. This would be the result of the absence of a coherent industrial policy which could have been concerned with efficiency issues, technological change and export promotion. In addition, congestion problems brought about by the lack of skilled labour and management capacities may add to the mentioned factors. We argue that within this context, manufacturing may experience an increase in the wages share in value added driven no so much by increasing product wages as the Dutch disease model predicts, but by a sharp fall in labour productivity caused by the above-mentioned factors.

It must be noted that the Dutch disease model is a comparative static exercise, which focuses on structural change. This is a limitation because the impact of an oil boom on long-term growth and efficiency in the use of the oil revenues seems to be even more important in the case of oil-exporting developing countries. In the case of an oil-based economy, such as Venezuela's, a full understanding of the impact of a price boom on the non-oil economy calls for *the analysis of the implications of the domestic distribution of the oil revenues for growth and labour productivity even before the boom.*

A fourth hypothesis is that given the accrual of oil revenues to the state, the role of government policies must be brought into the picture and an accurate understanding of the impact of oil revenues on development calls for a more detailed consideration of monetary, fiscal, exchange rate, and sectoral policies undertaken by the government. Contrary to the perspective of many scholars who point to the existence a negative interaction between oil revenues and economic growth as well as industrialisation from the beginning of the oil activities, here it is argued that the Dutch disease symptoms that may be distinguished in Venezuela are not the result of the automatic adjustment depicted by the theoretical model. Instead, these symptoms seem to be primarily concerned with the economic policies followed under different historical phases. We argue that oil revenues induced some positive effects on economic growth and its disruptive impact does not seem to have been exerted on manufacturing during the 1951-65 period or the 1973-77 phase. This contradicts the view of most scholars (Harris, 1971; Flichman, 1981; Hein, 1981; Clemente, 1990; and Haussman, 1991) and the dependency school who have emphasised the negative impact of oil on Venezuelan manufacturing. A few Venezuelan authors (Peltzer, 1955; Mommer, 1988, 1989, 1990a; 1990b, 1991; and Baptista, 1987, 1991, 1997) claim that the oil sector entailed some positive effects on economic growth and on manufacturing during the import substitution phase. Nonetheless, there has been no attempt to demonstrate it empirically in detail. An exception is Mommer (1991) who estimated the multiplier effect of the oil sector on the non-oil economy in an input-output framework for 1987, showing the existence of important linkages between the oil sector and the non-oil economy including manufacturing. Baptista (1997) presents a Venezuelan political economy analysis, which focuses on the effects of the distribution of the oil revenues, defined as a kind of international transfer or income which is not the result of domestic productive effort, by the state on economic growth and structural change. However, reference is only made to the impact of oil revenues on manufacturing at an aggregate level and it is shown that industrialisation benefited greatly from the domestic distribution of the oil revenues during 1930-77.

We claim that oil revenues may have exerted some positive impact on Venezuelan industrialisation between 1945 and the mid-1960s, through expansionary public spending, the creation of public employment, the creation of markets and real overvaluation through cheap imported and capital goods. However, once the limitations of the domestic market became binding for further industrial development, real overvaluation may have exerted a disruptive impact on manufacturing by contributing to the lack of international competitiveness.

2. Impact of the 1970s Oil Booms on the Real Exchange Rate in Venezuela

Introduction

The impact of a boom can be traced initially from its effect on relative prices. The Dutch disease model establishes that the spending of the extra income leads to an increase in the output prices of non-tradables relative to tradables. Therefore, this is the first stage of transmission of the boom to the non-oil economy, which is bound to disrupt the tradable sectors through a fall in relative profitability.

For this reason, although the major topic of this dissertation is the study of the impact of a sectoral boom on the real side of the economy, this chapter examines the first stage of transmission of the positive oil price shocks of 1973-74 and 1979. The main purpose is to establish whether the movement in the real exchange rate and in relative prices took place according to the mechanisms embodied in the Dutch disease theory. In other words, we consider if there was real appreciation of the domestic currency during 1973-82 as a result of the so-called spending effect linked to greater income and domestic demand.

As with the oil revenues which accrue to the Venezuelan government, we discuss in section 1 the mechanisms of transmission from the oil boom to the non-oil economy by examining the relationship between oil price, fiscal deficit, money supply, inflation and real appreciation implied by the Dutch disease model. Next, empirical evidence on the relationship between the oil revenues and the fiscal deficit and between oil revenues and the money supply is presented in section 2. The path taken by the real exchange rate during 1973-82 is presented in section 3, and the major conclusions are summarised in section 4.

2.1 Transmission mechanisms of the oil booms: oil prices, fiscal deficit, money supply and real exchange rate

When the extra oil income accrues to the government, there are two possible options, namely, full adjustment and non-adjustment. The first option would imply the distribution of oil revenues into the domestic economy while the second one would involve the sterilisation of the monetary and fiscal impact of the extra revenues by the purchase of foreign assets. In this way, capital outflows would offset the receipts in the current account.

Assuming that a fixed exchange regime with no complete sterilisation of the monetary and fiscal effects of oil revenues is adopted, the Dutch disease theory predicts that a sectoral boom is bound to cause a real appreciation of the domestic currency. This would be the result of the so-called spending effect derived from the greater income. When the extra revenues accrue to the government though, the impact of the boom depends on the government's policy response, and the structure and timing of public spending become relevant too.[1]

Under a fixed exchange rate regime, the real appreciation of the exchange rate may be prompted by increasing public expenditure, which leads to higher demand for both traded and non-traded goods and a rise in the relative price of the latter due to their inelastic supply. At the same time, a direct effect of greater government spending on the non-tradable market can be identified: non-tradables such as construction, services and wages are supposed to be an important component of public spending. So, an expansionary fiscal policy may add to the real appreciation of the domestic currency through this channel.

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[1] The policy choice faced by an economy going through a sectoral boom has been discussed by David (1983), Scherr (1989) and Van Wijnbergen (1984) within the neo-classical framework of analysis. According to these scholars, if the boom is supposed to be temporary it is advisable to avoid the structural adjustment implied by the changes in relative prices. In contrast, if the boom is expected to be long-lasting it may be justified to allow the structural adjustment to take place.

The monetary effects of a boom and the links between government spending and money supply can be assessed by considering the following identity which traces the process of money creation for the central and commercial banking system:[2]

$$\Delta M_2 = (G - T + \Delta NFA^g) + \Delta DC^{nb} + \Delta NFA^b$$

Where M_2 ≡ broad money or liabilities of the banking system;

G-T ≡ government spending less taxes (taxes includes oil and non-oil revenues);

NFA^g ≡ net foreign assets of the government;

DC^{nb} ≡ domestic credit to the non-bank private sector; and

NFA^b ≡ net foreign assets of the banking system

This equation indicates that changes in the money supply depend basically upon the domestic budget deficit and the supply of bank credit to the private sector. If the extra oil revenues are deposited in the Central Bank, while government spending is held constant; T and NFA^b rise by the same amount of the increase in oil revenues with no change in the money supply taking place. In contrast, if there is an increase in government spending and oil revenues are monetised, an expansion in the money supply will take place which, combined with the higher real income, is likely to cause inflation as a result of greater domestic demand. This, together with the inelastic supply of non-traded goods, would cause a real appreciation.

Theoretically, the greater international reserves do not necessarily lead to an expansion of the monetary base of the economy if the increase in the first variable is offset by a reduction in net domestic credit to the government or to the private sector and if oil revenues are saved abroad. In

[2] Dornbush (1980), chap. 2 eq. 11, quoted by Pinto, op.cit.

this case, the accumulated reserves are sterilised.[3] Nevertheless, if this policy is not applied, a rise in the oil price will cause a real appreciation of the domestic currency.

2.2 The Mechanisms of transmission of the oil boom: empirical evidence

In this section the mechanisms involved in the first stage of transmission of the 1970s oil booms namely, the fiscal deficit, money supply and prices, are analysed for Venezuela. The purpose is to establish if these mechanisms suggest the existence of a typical Dutch disease process. In doing this we first provide a background sketch of the Venezuelan economy. Secondly, we present some estimates of the oil revenues that accrued to the State during the 1970s; and in the two following subsections empirical evidence on the links between oil revenues, the fiscal deficit, money supply and prices is presented.

2.2.1 Background on the Venezuelan non-oil economy and the impact of oil revenues

Venezuela is a small opened economy, which experienced a rapid oil development from the beginning of this century. Large-scale oil activities began in Venezuela during the 1920s, following the important discoveries made during 1917 and the major investments carried out by Royal Dutch Shell and Standard Oil of New Jersey in the 1920s. As a result, by the middle 1920s oil became the country's major export and by 1929 Venezuela was the first oil exporter in the world. Previous to this mineral development, agriculture was the main sector, accounting for more than 80 per cent of GDP, with export-oriented coffee and cocoa being the major subsectors until the early 1920s. Following these years, the Dutch disease

[3] It has been pointed out that even if government spending is held constant after a boom, real appreciation might occur as a result of the net transfers to the private sector (Pinto, p. 421). See also Neary and Van Wijnbergen (1984).

effect during the 1920s and the Great Depression in the 1930s combined to squeeze these activities.

Owing to the accrual of oil revenues to the state, and given the pre-capitalist conditions of the economy in the 1930s,[4] the first use of the oil revenues by the Venezuelan state was necessarily on current spending and infrastructure construction due to the low capital absorptive capacity of the economy. This led to massive rural-urban migrations which damaged agriculture. It is worth noting that the agricultural sector was further disrupted by the collapse in crop prices in 1927 on the one hand, and the government policy of maintaining a fixed exchange rate with gold from 1934, despite the fact that the gold content of the American dollar had been modified in February 1934, which implied 40 per cent devaluation of the dollar. Unlike other Latin American countries the Venezuelan government took the choice of no devaluation, so the gold parity of the domestic currency to the American dollar declined from Bs5.18 to Bs3.06.[5] This reinforced the Dutch disease effect.

Since oil became a state-owned resource, the domestic distribution of oil revenues gave way to a particular economic model defined as 'rentier capitalism' by analysts (Baptista, 1986, 1997 and Mommer, 1984, 1989).[6] The major feature of this economic model was the existence of a strong state which was the recipient of a substantial external 'rent' that was distributed within the domestic economy through various mechanisms notably, public spending, public employment, real overvaluation of the domestic currency and low income taxes and subsidies. It has been

4 Rangel (1971).

5 Mommer (1987, p. 171).

6 The concept of rentier capitalism in Venezuela was firstly put forward by Mommer (1987). This scholar observes that the accrual of important oil revenues led to the emergence of a kind of 'rentier capitalism' in Venezuela between 1920 and 1985. Over these years voluminous oil revenue encouraged the development of capitalism. The end of this economic model based on the distribution of oil revenues occurred in the middle 1980s with the important decline which occurred in oil revenues and their use to cover the external debt.

estimated that oil revenues accounted for 15 per cent of non-oil GDP by 1940.

Two phases have been distinguished in Venezuelan economic history between 1920 and 1985: the first one comprises the years of 1920-45 and is referred to as the oil outward growth strategy (Maza Zavala, 1974; Malave, 1974). Through these years, the Venezuelan economy relied almost entirely upon oil activities since agriculture was severely squeezed and there was no manufacturing activity. These years witnessed the distribution of oil revenues for the development of the state apparatus and the creation of the home market, with the main mechanism of distribution of oil income being the creation of public employment through current public spending. The second phase, which spanned the years from 1945 until 1970, was defined by the use of the inward-oriented model, which refers to the adoption of an import substitution strategy from the late 1940s. This phase was characterised by the distribution of oil revenues into capitalist development and industrialisation through import-substitution industrialisation. The main mechanisms of distribution of oil revenues were the increase in public employment through government investment and consumption, real overvaluation of the domestic currency which allowed for cheap imported goods, low income tax, cheap credit to the private sector and protection from foreign competition.[7] These policies led to the development of the home market and were the basis for import-substitution industrialisation. It must be noted that three sub-phases can be distinguished during 1945-70. The years between 1945 and 1956 were characterised by an increase in the fiscal use of oil revenues and the rapid growth of both the oil and non-oil economy with the latter growing by 9 per cent per year during 1943-57. Nevertheless, it must be noted that the non-development of an export-competitive manufacturing or agricultural sector

[7] Mommer (1990).

implied an excessive dependence on oil income as a source of foreign currency and this made the economy prone to balance of payments crises.

The closure of the Suez Canal in 1956 caused an upward trend in oil prices, which together with the selling of leases on oil fields by the military government which controlled the Venezuelan economy at that time, led to the accrual of substantial oil revenues to the state and to a booming phase. This did not last, however. The oil policy underwent major changes when the military dictator was deposed in January 1958. The social democratic Accion Democratica won the elections in December 1958 and the nationalist attitude against oil multinationals resulted in a radical change in oil industry legislation. As a result, no more leases were granted, tax rates were increased and a state-owned enterprise was established. This, combined with the opening of the Suez Canal and falling international prices, produced a substantial fall in exports, oil revenues and capital inflows. The late government response to this situation led to a balance of payments crisis by 1959-60 and an adjustment policy was launched. This implied the adoption of a multiple exchange rate regime from 1960 to 1964, and, after the completion of a 35 per cent cumulative devaluation, a return to a single fixed convertible currency.

Finally, it must be noted that the Venezuelan government adopted a fixed exchange rate regime from the 1930s to 1960, which fixed the American dollar to 3.35 bolivares. From November 1960 to January 1964 a gradual devaluation occurred and a multiple exchange regime was adopted due to a balance of payments crisis caused by the drop in international reserves prompted by a decline in oil revenues. This regime was abolished in 1964 and a fixed exchange rate system with free convertibility was implemented in January 1964 and maintained until February 1983. The parity was 1 US$ 1 = 4.30 bolivares.[8]

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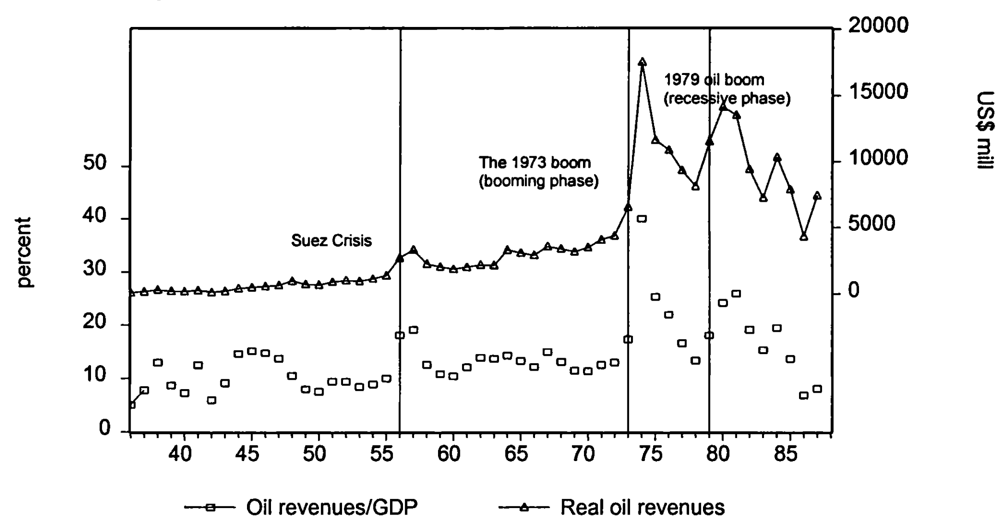
[8] For a detailed study of the treatment of imports in the exchange regime in Venezuela from 1983, see Torrealba de

2.2.2 The two 1970s oil booms

The previous background makes clear that Venezuela has been an oil-based economy since the 1920s. As shown by Figure 2.1, after the stagnant trend occurred in the oil revenues during the 1960s, the two oil prices increases of 1973 and 1979 brought about a massive flow of oil revenues into Venezuela. The quadrupling of world oil prices, from about $3.45 per barrel to $14 per barrel in 1973, involved a rise in the price of Venezuelan crude oil from $2.50 in 1972 to $10.50 a barrel in 1974. Consequently, oil revenues accounted for 40 per cent of non-oil GDP in 1974, up from only 13 per cent in 1972.

Figure 2.1 Trends in oil revenues, Venezuela, 1936-88



Notes: oil revenues at constant 1984 prices. Sources: Baptista (1991) and BCV, economic reports, various issues

Although oil revenues then declined until 1978, the second oil price increase, which resulted from the overthrow of the Shah of Iran and Iran's subsequent war with Iraq, resulted in oil revenues accounting for nearly 25 per cent of non-oil GDP in 1980. Subsequently, from 1982 to 1986 (with

Suzzarini (1991).

the exception of 1984), oil revenues followed a downward trend. This is the post-boom phase.

2.2.3 Links between oil revenues, the fiscal deficit and prices during 1973-82

As noted earlier, if the revenues derived from a sectoral boom are managed by the government under a fixed exchange regime, the impact of a boom takes place through direct public spending or an increase in the domestic credit to the private sector.

In Venezuela, the traditional of strong interventionism was enhanced with the outset of the 1970s oil boom. Within the context of a democratic government, the higher oil revenues were rapidly transferred to the private sector via current and investment expenditure. There was an attempt to save part of the oil income abroad during 1973-74 through the Venezuelan Investment Fund (FIV)[9] -which was reflected in the fiscal surplus during 1973-75- but the government lacked fiscal discipline due to the political pressures to spend the extra oil income from 1975 to 1977. This, together with an important rise in domestic credit to the private sector, led to an increase in the money supply (M_1) and an acceleration of the rate of inflation during 1974-77 (see Table 2.1).[10]

Data on Venezuelan government deficits and their sources of financing for 1968-88 are presented in Table 2.2 below. The domestic government budget, excluding oil receipts, is shown in column 2. In this way, the difference between government spending and non-oil revenues is used as a proxy for those expenditures financed by oil receipts and external borrowing.

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9 The Venezuelan Investment Fund (FIV) was assigned a budget of 13.000 million bolivares, an amount which was equal to 50 per cent of special fiscal revenues from the oil sector. Resources were supposed to be invested in the domestic economy according to absorptive productive capacity (BCV, economic report, 1974, p. 314).

10 This relationship proved to be true in the Colombian case during the coffee boom of the 1970s according to a Dutch

The main purpose of this table is to show the marked increase in the domestic deficit, defined as government expenditures minus domestic tax revenues (or exclusive of oil receipts) as a percentage of GDP during 1974-77. This caused an enormous expansion of money liquidity, which paved

Table 2.1 Some macroeconomic indicators, Venezuela, 1966-88

Year	Realisation prices of oil %	OilX/X %	OGDP/TGDP %	Growth rate of International reserves %	Rate of growth of M1 %	Growth rate of of public spending %	Government surplus/deficit as percentage of GDP	CPI inflation rate %
	1	2	3	4	5	6	7	8
1966	1.88	92.4		-6.5	2.4	5	2.3	1.7
1967	1.85	92.1	54	13.9	10.6	8.2	-0.3	0
1968	1.86	92.7	51.9	6.4	9.6	6	-7	1.3
1969	1.81	91.1	50.7	1.2	8.9	6.2	-24.1	2.4
1970	1.84	90.2	47.7	9.3	4.1	-2.5	-13.3	2.5
1971	2.35	92.4	43.4	46.2	18.2	12.9	4.1	3.2
1972	2.52	92.2	43	19.2	12.6	6.6	-2.7	2.8
1973	3.71	93.1	37.5	38.1	20.4	8.2	15.8	4
1974	10.53	95.6	29.2	181.3	34.6	44.7	44.4	7.9
1975	10.99	94.6	27.1	42.1	43.3	4.1	16.2	9.7
1976	11.15	94.2	24.8	4.1	11.8	2.2	-29.5	7.4
1977	12.54	95.5	23.7	1.2	23.1	26.6	-43.3	7.5
1978	12.04	94.9	24.5	-15.7	19.1	-2.3	-40.8	6.9
1979	17.69	95.2	23.1	12.8	6.5	-13.7	19.1	11.6
1980	26.44	95	22.1	8.6	12.9	8.5	0.4	19.5
1981	29.71	94.6	20.3	33.8	6.9	10.4	-13.7	14.9
1982	27.47	94.8	20.2	-5.2	-8.7	-13	-43.5	9.2
1983	25.31	92.6	20.2	-2.1	26.7	-9.6	-15.1	6.1
1984	26.7	92.1	19	17	7.2	9.9	33.1	11.5
1985	25.89	89.3	19.2	17.6	12.2	-1.7	50.8	10.8
1986	12.82	82.6	18.7	-19.2	20	-5.3	-20.2	11
1987	16.32	79.5	19.1	-4.4	29.5	14.8	-51.7	24.8
1988	13.51	79.6	20.8	-50.3	20.5	-14	-71.2	25.8

Notes: (2) Oil share of total exports value, percent, (3) Oil share of total GDP, percent, (4) Mill of U.S. $, (8) Variations in the consumer price (index 1972 =100). Sources: own estimations based on data provided by the Central Bank of Venezuela, economic reports (various issues) and PODE, reports, (various issues).

the way for an acceleration of the inflation rate by 1975 (Table 2.1). As a result, a price control and subsidies policy was launched and a surge in imports occurred to offset the inflationary pressures. Despite these measures, domestic inflation rose substantially during 1974-77 compared to 1968-71, leading to a real appreciation of the domestic currency (see next section). These data thus capture the links between public spending and

disease econometric model presented by Edwards (1986).

Table 2.2 Government indicators, Venezuela, 1970-86

Year	Oil revenues as % of GDP	Government domestic deficit[1]	Government domestic[2] deficit as % of GDP	Net domestic credit to government	Net foreign Borrowing	Public external debt as % of GDP
1970	11.4	-6753	-12.9	371	443	30.9
1971	12.2	-8401	-14.7	193	-177	27.1
1972	12.7	-9346	-15.2	212	15	24.8
1973	16	-11680	-15.9	452	42	20.3
1974	32.1	-39566	-35.3	-889	-313	12.5
1975	22.3	-28466	-24.1	-1335	-2	21.3
1976	19.3	-35784	-26.5	-680	8651	80.2
1977	15.5	-36918	-23.7	599	6233	124.7
1978	13.3	-35897	-21.2	-1512	10151	168.8
1979	17.3	-41772	-20.1	-1605	-1081	135.5
1980	20.5	-65790	-25.9	-1897	5469	123.4
1981	19.6	-60971	-21.4	8207	-1373	143.1
1982	15.5	-54518	-18.7	-1645	-7899	159.0
1983	14.4	-79238	-27.3	-1715-	-1617-	136.7
1984	14.5	-103546	-29.8	-5116	-4529	151.3
1985	10.7	-113319	-30.5	-20965	-3962	128.5.1
1986	7.8	-124172	-30.7	-19435	-4393-	387.7

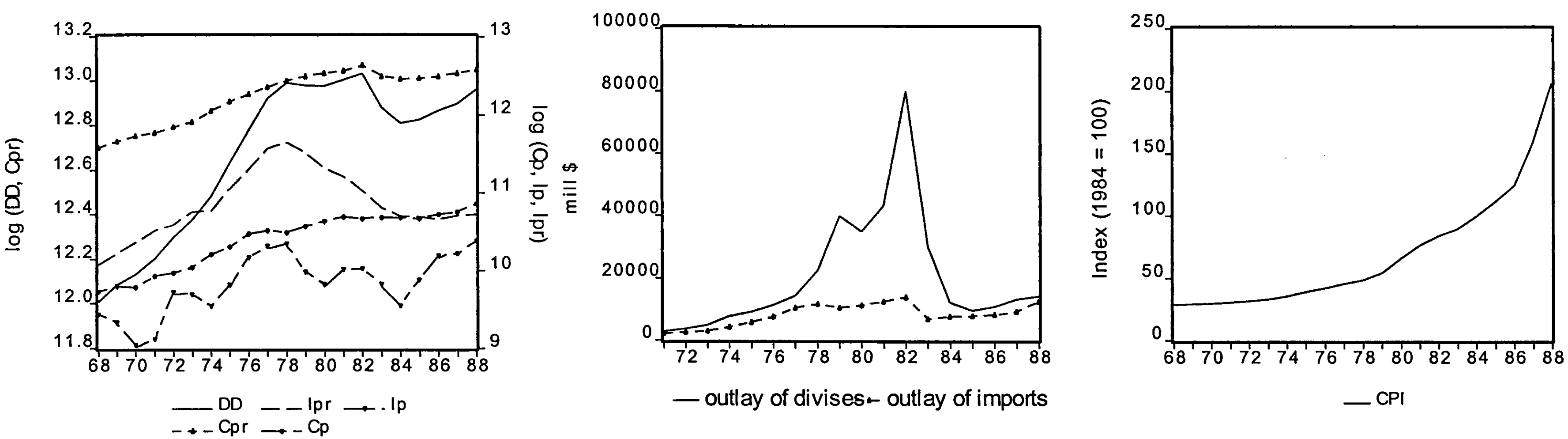
Notes: 1 Government domestic deficit is equal to government expenditure minus domestic tax revenues; 2 This refers to domestic government deficit or exclusive of oil revenues as percentage of GDP. Sources: oil revenues: BCV, economic reports, various issues and IMF; government deficits: IMF, International Financial Statistics; public debt: IMF and World Bank, World Tables. GDP: World Bank, Tables.

inflation in an economy following a sectoral boom, as predicted by the Dutch disease theory.

It must be noted that the government deficit, excluding oil receipts, increased regardless of the falling trend in oil revenues during 1976-78. The greater government spending brought about a surge in domestic demand and in imports over 1974-78 which, against falling oil revenues and the lack of a non-oil export-competitive sector, led to an imbalance in the income and outlays of foreign currency by 1977 and the adoption of an external debt programme in 1978 (see Fig. 2.2).

Declining oil revenues and substantial external and domestic deficits led the government to implement restrictive credit and budgetary policies in 1978-79. The stabilisation programme applied by the new Christian Democratic administration, which took office in 1979, had the following elements: (a) rationalisation and a decrease in public expenditure, which would be cut by 10 per cent in real terms in 1979; (b) the elimination of the

Fig 2.2 Some macroeconomic indicators, Venezuela, 1968-90



Notes: DD = domestic demand; Cpr = private consumption; Ipr = private investment; Cp = public consumption; Ip = public investment; outlay of divises = outflow of divises; outlay of imports = amount of divises used to finance imports; CPI = consumer price index, 1984 = 100. Sources: own estimations based on data provided by the Central Bank of Venezuela economic reports, (various issues).

external debt; (c) an increase in competitiveness, this would be achieved through a price and import liberalisation policy with import duties to be reduced from up to 300 per cent to a maximum of 100 per cent; (d) reductions in subsidies; and a decrease in the money supply growth and a rise in interest rates. These policies prompted a decline in domestic government spending exclusive of oil receipts between 1978-79 and 1981-82.[11] Although government spending increased in 1980 as a result of higher financial investment, the fall in domestic private investment from 1978 produced a drop in domestic demand (Fig 2.2).

The adjustment programmes brought about a recession in the non-oil economy and, contrary to other oil-exporting countries, the second oil price increase did not lead to a boom in Venezuela. Over the 1978-82 period oil revenues were used to finance the outlays of private capital, so that these revenues distributed by the state to the private sector were saved in the external markets.

As the stabilisation programme launched in 1979 also included a price and import liberalisation policy and the elimination of subsidies, the deflationary effect of the contraction in domestic demand was more than offset by the impact of the elimination of price controls and subsidies with the result being high inflation from 1979. At the same time, some cost factors, such as rising wages and salaries and higher financial costs, also contributed to an acceleration of the domestic inflation rate.

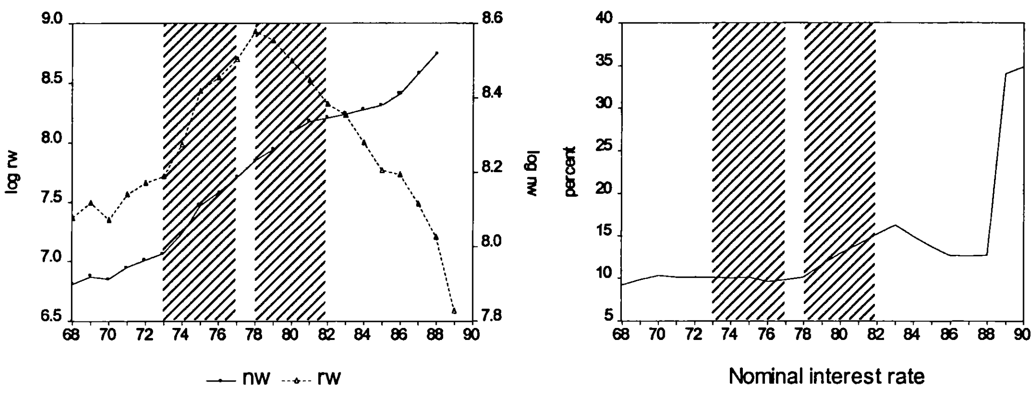
Concerning labour costs, Fig. 2.3 suggests a substantial increase in nominal wages and salaries during 1978-82. A general law on the readjustment of wages and salaries to compensate for the price rises resulting from the new policy was passed in early 1980 and some wage increases were obtained by collective bargaining. It has been estimated that total wages and salaries

[11] Physical investment spending was reduced from 6100 million bolivares in 1977-78 to less than 4000 million in 1979-80 (BCV, p. 778).

paid by the central government rose by 29 per cent in 1980. Likewise, average family income was 20 per cent higher during the first half of 1980 than during 1979.[12]

Average annual wages per man in the non-oil economy increased substantially between 1978 and 1982 compared to in 1973-77. The minimum urban wages established by the government increases from Bs450 per month in 1979 (US$104.6) to Bs 900 per month (US$209) during 1980-82. Minimum rural wages were increased from Bs450 in 1979 to Bs750 per month during 1980-82.[13]

Fig. 2.3 Trends in wages and the interest rate, Venezuela, 1968-90



Notes: nw = total annual nominal wages, mill of Bs; rw = total annual real wages, mill of Bs.
Sources: own estimations based on data provided by the BCV, economic reports various issues.

The effect of increasing labour costs on inflation was reinforced by rising credit costs resulting from the higher interest rates in international financial markets and from the adjustment in domestic interest rates in order to contain the outflow of capital during 1979-80 (Fig 2.3). This policy was reversed from March 1981 when domestic interest rates were reduced, despite the upward trend in this variable in international markets, which

[12] ECLAC (1981).

[13] Valecillos (1990), p. 88.

reinforced the outflow of private capital during 1981-82. Thus, the lowering of the domestic interest rate did not encourage a recovery of domestic private investment during 1981-82.

It should be noted that rising wages and the price and import liberalisation policy implied that the price of non-tradables kept growing despite falling domestic demand, while the tradable sectors were prevented from increasing prices because of foreign competition.

2.2.4 The Links between oil revenues, money supply and prices during 1973-82

This section traces the first stages of transmission of the 1970s oil booms through monetary policy. From the Dutch disease perspective higher oil prices are bound to cause an expansion of the money supply as a result of growing international reserves. Thus the boom can also contribute to real appreciation of the domestic currency via monetary channels. This outcome can be offset by policies which aim to sterilise the impact of the boom on the money supply through a decline in domestic credit to the private sector or to government.

Table 2.3 shows that in Venezuela the first oil boom exerted an expansionary influence on the money supply (M1 and M2) which was not offset by a rise in government deposits in the banking system or a decline in domestic credit to the private sector during 1973-77. Despite a sharp increase in government deposits in the Central Bank over these years, which led to a decrease in net domestic credit to government, the significant growth of credit to the private sector and a decline in the deposits in investment funds of the government implied that the greater international reserves gave way to a monetary expansion during 1973-75. Over 1976-77 the effect of declining international reserves on the money supply was partly offset by the expansion of domestic credit to the private sector together with a decline in deposits in the government investment funds.[14]

The growth of the money supply and the expansionary fiscal policy during the 1973-77 oil boom in Venezuela led to a sharp increase in domestic inflation compared to 1968-71 and to the real appreciation of the bolivar (see next section). Although as noted above, a price control and subsidies policy was launched in 1974 to avoid inflationary pressures, the domestic consumer price index accelerated considerably. Table 2.3 indicates that substantial growth in high-powered money (M1) occurred during 1973-77 , which caused a marked acceleration of the domestic inflation rate compared to the pre-boom years.

The mentioned policy response proved to be inefficient. A more cautious fiscal and monetary policy may have been advisable given the low capital absorptive capacity of the economy compared to the amount of extra oil revenues. The government's choice implied the rapid spending of oil revenues during 1974-77 and, at the same time, the aim to control inflationary pressures led to the adoption of price controls and subsidies as well as to a surge in imports.

In this light, it can be concluded that the impact of higher oil prices on the monetary side did take place according to the predictions of the Dutch disease model over 1973-77.

When it comes to the second oil boom, however, the picture changes. As noted above, the restraint in fiscal and monetary policy over 1978-79, combined with a price and import liberalisation policy and a drop in private investment, gave way to stagflation. Table 2.3 indicates that the rise in

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[14] There was a drop of 19 per cent in the Venezuelan Investment Fund (FIV) deposits with the Central Bank and the commercial banks in 1976. This development is explained by the fall in fiscal inputs to the FIV in 1976 and the increase in investment (ECLAC, 1976, p. 424).

international reserves resulting from the 1979 oil price increases did not prompt a substantial monetary expansion. Lower domestic credit to the private sector and a rise in the government investment funds combined to offset the expansionary effect of international reserves on the money supply in 1979 and 1981. There was a large increase in M1 in 1980 due to the expansion of government spending and domestic credit to the private sector at the outset of the second oil price increase. Paradoxically, this development did not result in a significant expansion of internal demand

Table 2.3 Decomposition of changes in the monetary position (annual growth rates)

Years	M1	M2	NIR	DCG*	DCPI	DCP	QM	IF	OI
1970	15.6	15.7	41.1	-330	127.4	9.7	15.8	0	51.5
1971	18.5	20.5	16.7	-848	-54.9	15.5	23.4	0	-11.3
1972	17.9	18.3	36	-508	57.3	23.7	19	0	64.5
1973	34.7	27.4	98.8	-1787	4.2	29.3	16.8	0	10.8
1974	37.6	39.9	31.7	-17300	5	41.1	43.5	32.8	13.7
1975	15.1	22.9	-9.9	-23755	9.1	31.4	33.6	-33.8	-24.2
1976	22.7	23.4	1.5	-22139	28.2	17.4	24.2	-44.1	-1.9
1977	13.6	14.1	-18.7	-18175	-7.2	21	14.7	-126.3	1.8
1978	8.5	5.9	19.3	-15166	19.2	4.8	2.6	-43.6	67.9
1979	16.8	16.5	-9.6	-16401	41.6	15.4	16.2	-151.5	-5.8
1980	9	15.2	18.4	-12832	6.3	8.7	22.7	11.6	52.1
1981	5.4	11.7	9	-8721	-15.7	12	18.4	50.3	50.4
1982	18.8	18.8	20.4	-2212	16.6	5.3	18.8	-117.9	-54.9

Notes: NIR is net international reserves, DCG is domestic credit to government, DCPI is domestic credit to public institutions, DCPS is domestic credit to the private sector, QM is quasi money defined as savings and time deposits, IF is investment funds and OI is other items; * values. Sources: IMF (various years).

due to the sharp fall in domestic private investment. This suggests that the lack of investment opportunities in the domestic economy meant that a substantial share of the oil revenues transferred to the private sector by the government was saved in external markets.

The increase in the domestic interest rate played a major role in the expansion of domestic demand in 1980. This policy was aimed at controlling the massive outflow of capital resulting from the lack of investment opportunities in the home market and the high interest rates prevailing on the international financial markets (see chapter 3). A structure of domestic interest rates that were competitive with those prevailing in the international market was established. This, together with other measures, succeeded in ensuring a source of financing for domestic production and to a lesser extent in stopping the foreign exchange drain through 1980. Loans and investments by commercial banks, which had stagnated during 1979, grew by 17 per cent in 1980. Likewise, loans by the mortgage bank increased by 18 per cent. These institutions were granted 2 billion bolivares by the Central Bank at the beginning of the year to compensate for the fall in deposits by the public in these institutions.[15] However, domestic interest rates were reduced in March 1981 with no adjustment being introduced despite the rising trend observed in this variable in international markets. This policy encouraged the outflow of short-term capital, which contributed to sterilising monetary liquidity and to controlling the domestic inflation rate in 1981. This occurred despite the fact that there was no liberalisation of the capital account during this period. As the differential between the domestic and external interest rates increased, the discretionary management of interest rates was replaced by a system of floating rates freely determined in the financial market.[16] Since interest rates in the foreign market were increasing, domestic interest rates rose considerably in 1981-82.

It is worth noting that Van Winbergen (1984) presented a Dutch disease model which attempted to explain the recession in some developing oil-exporting countries following the 1979 oil price increase. Within this model, product wages in manufacturing need to increase, while product wages in the non-tradables need to decline. Thus, if the decline in the latter variable is not enough to absorb the workers shed by the tradable sector, the outcome of a boom may be unemployment. Assuming the existence of real wage indexation on the CPI and a high share of tradable goods in consumer goods, a rise in product wages of the tradable sectors would cause a large

15 ECLA (1980 p. 539).

16 The differential between domestic interest rates and the USA primate rate was -4.37 per cent in 1981 compared to -1.82 per cent in 1980, while the differential between domestic interest rates and LIBOR was -2.20 per cent in 1981 compared to

decline in the product wages of non-tradable goods. This sector will be able to employ the workers laidoff from the tradable sectors.

Van Wijnbergen argues that the experience of the Gulf countries, Indonesia and some Latin American countries seems to fit this model. Since in the Gulf countries most goods are imported (tradables), the boom is expected to create employment. By contrast, the existence of high tariffs on imported good in Latin America, Indonesia and Egypt makes most consumer goods non-traded. According to the model, these economies are expected to end up with classical unemployment following a sectoral boom. In our view, these conclusions are misleading. Firstly, the existence of high protection does not make a tradable sector become a non-traded one and secondly, the author apparently explains why the 1979 oil shock led to unemployment in some economies but he does not explain why the 1973s oil shock did lead to employment. As it applies to Venezuela, unemployment was the outcome of the second oil shock, but not for the reasons implied by this model. As shown above, the increase in domestic demand was lower in 1978-82 than in 1973-77. As regards the conditions and assumptions embodied in this model, manufacturing must not be considered a non-tradable sector and there is no real wage indexation on the CPI in Venezuela. Even if manufacturing is assumed to be a non-tradable sector, the model fails to explain why employment rose after the 1973 oil price increase.

2.3 The Impact of the 1970s oil booms on the real exchange rate

The real exchange rate can be viewed as the ratio of the price of tradables to non-tradables. A fall in this index means a decline in the relative prices of import-competing tradable goods and exports. Different measures of the exchange rate are presented in Fig 2.4.[17] By all measures the trends in the

-0. 020 in 1980. (ECLAC op. cit).

[17] The indices of the real exchange rates were estimated following the methodology used by ECLAC, Economic Survey of

exchange rate conform with the theoretical predictions of the Dutch disease model: a downward trend in this index occurred during the 1970s oil booms. After a real devaluation of the domestic currency in 1974, there was an appreciation through 1975-77, which was followed by a slight recovery in 1978-79. Finally, the real exchange rate declined sharply (appreciation) from 1980 to 1983.

It must be noted that the trade-weighted indices can be estimated according to different weighting procedures depending on the objective of the study.[18] Given our purpose to analyse the impact of higher oil prices on the non-oil economy, the import-weighted real exchange rate is the most relevant because this is computed by excluding oil and is focused on the non-oil sector. According to these measures of the import-weighted real exchange rate (MWREr), a real devaluation occurred in 1974, which was related to higher world inflation compared to that in Venezuelan. Nevertheless, there was a decline in these indices (meaning an appreciation) between 1975 and 1977, which was followed by a slight recovery in 1978-1979. Finally, a downward trend occurred from 1980 until 1983, as devaluation and a multiple exchange rate regime were implemented. This policy caused a real devaluation of the domestic currency during 1983-85, but an appreciating trend appeared again between 1986 and 1988. It seems that the devaluation brought about a substantial increase in the inflation rate through the higher cost of imported inputs.[19] Thus the adjustment of the Venezuelan economy during the post-boom phase and within the context of falling oil revenues proved to be unsuccessful.

As suggested by the preceding evidence it appears that, as predicted by the Dutch disease theory, some real appreciation of the domestic currency

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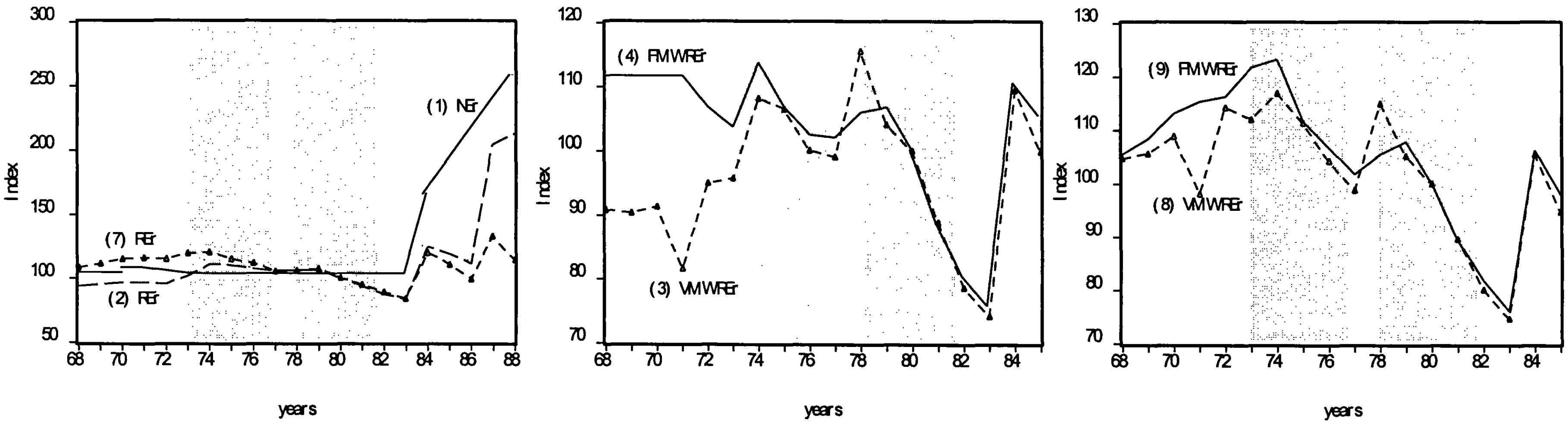
Latin America, 1981, 1986. The tradable-weighted Er was calculated according to the indices given by Rhomberg (1976). For details, see methodological appendix to this chapter.

18 Struders (op. cit.) and Rhomberg (1976).

19 According to Shafaeddin (1993), 54 per cent of inflation was caused by the real devaluation of the domestic currency during 1980-87.

Fig. 2.4 Different measures of the exchange rate for Venezuela, 1958-1988, (index 1980 = 100)



Notes: A fall in each real exchange rate means an appreciation of the domestic currency; (1) NER = nominal exchange rate (Bs/$); (2) Rer = bilateral real exchange rate defined as the nominal exchange rate index divided by the relative price index = the Venezuelan consumer price index (CPI) divided by the U.S. wholesale price index (WPI); (7) Rer = bilateral real exchange rate defined as nominal exchange rate index divided by the relative price index which is defined as the domestic wholesale price index (dWPI) divided by the U.S. wholesale price index (WPI); (3) VMWREr = varying import weighted real exchange rate. This is defined as the real exchange indexes (ner/dCPI/fWPI) vis a vis the main trading partners multiplied by the weightings of imports; (4) FMWREr = fixed import-weighted real exchange rate. As in 3 with fixed 1958 and 1975 import weights. Correlation coefficient between (3) and (4) is 0.88; (8) VMWREr = varying import-weighted real exchange rate: real exchange indexes (ner/dWPI/fWPI) vis a vis the main trading partners multiplied by the annual imports weights. (9) FMWREr = fixed import-weighted real exchange rate. As in 10 with fixed 1958 and 1975 import weights. Correlation coefficient between (8) and (9) is 0.89. Sources: Tables 2.a in the appendix.

occurred during 1973-77 and 1978-82. The analysis of the mechanisms of transmission of the oil boom into the non-oil economy, made in the previous section, showed that the real appreciation during the first oil boom occurred according to the channels predicted by the Dutch disease theory. Clear links between budgetary and credit expansion and the real exchange rate can be identified. By contrast, during the second oil price boom the links between the real exchange rate and monetary and fiscal policies predicted by the Dutch disease theory broke down. The real appreciation that occurred during 1979-82 was due to other factors. The deflationary policies, combined with import and price liberalisation and wage rises during 1978-80, led to a real appreciation and a squeeze on profitability in the traded goods sector. Likewise, the modest expansion of public spending in 1981-82 was counterbalanced by the fall in private investment, which did not lead to a significant recovery in domestic demand.

In sum, as a whole, the stagnation of the economy and real appreciation during 1978-82 is not explained by the mechanisms considered by the Dutch disease model.

2.4 Final remarks

The above analysis suggests that the impact of the 1973 price increase on the exchange rate in the Venezuelan case took place according to the predictions of the Dutch disease core model, to some extent. The real appreciation during 1974-77 was driven by greater domestic public spending and expansionary monetary policy. The hypothesis on the links between a rising oil price, money supply, public spending, higher domestic inflation and the real appreciation of the domestic currency established by the model applies to the Venezuelan case during 1973-77. Nevertheless, when the second oil shock is considered, it was shown that *real appreciation was not the result of the so-called spending effect because the expansion of domestic demand was lower than in 1973-77 due to the* *deflationary fiscal and monetary policy applied during 1978-80 and the fall in private investment.* This suggests that by 1978, given the lack of a manufacturing export-competitive sector, the fall in oil revenues led to internal and external problems, prompting the adoption of deflationary policies. The drop in private domestic investment greatly offset the positive impact of higher public spending on domestic demand during 1981-82. Contrary to Auty (1987) and Gelb and Bourguignon (1988) we conclude that the real appreciation of the domestic currency during 1978-82 does not seem to be adequately accounted for by the mechanisms considered within the Dutch disease theory, that is, the spending effect. Apart from 1981-82, when there was an attempt to reactivate the economy by raising public spending, deflationary policies were launched. Real appreciation may have been partly encouraged by the spending effect over these two years. Nevertheless, other more relevant factors seem to have been at work, namely, the acceleration of the inflation rate in the Venezuelan economy as a result of the elimination of price controls and subsidies together with some high wage offers in the public sector. Thus the reasons behind the real appreciation over these years were not principally related to the spending effect predicted by the Dutch disease model.

3. Impact of the 1970's Oil Booms on Economic Growth and Structural Change in the Venezuelan Non-Oil Economy

Introduction

This chapter examines the impact of the 1970s oil boom on economic growth and structural change in the Venezuelan non-oil economy within the Dutch disease framework. The major purpose is to quantify Dutch disease in Venezuela during 1973-82 and to establish which role, if any, were played by the mechanisms of transmission embodied in the standard Dutch disease model in explaining the phenomenon.

In considering the topic, we first present an overview and brief assessment of the Venezuelan non-oil economy during the 1960s, which are of relevance to the understanding of the impact of the 1970s oil booms on growth and structural change in Venezuela. Section 2 sets the macroeconomic context during the 1970s oil booms. Section 3 paves the way for the measuring of a Dutch disease index by presenting stylised facts on growth and structural change in the Venezuelan economy during 1968-94. Indicators of growth and structural change for Venezuela and some selected developing countries are presented. In section 4 two kinds of Dutch disease indices for 1968-94 are estimated according to the methodology developed by Gelb and Associates (1988). The first index uses the Chenery-Syrquin (1975) norms, while the second index relies upon the Syrquin (1989) standardised pattern of structural change as counterfactuals.

Section 5 discusses whether the Dutch disease mechanisms embodied in the standard Dutch disease model were of any relevance in explaining the performance of Venezuelan manufacturing during 1973-82. This is done by looking at the trends in sectoral relative prices and by estimating an econometric model which sheds light on the impact of real appreciation and the absorption effect on four sectors of the non-oil economy. Because of the non-stationary nature of the data, a cointegration approach was adopted. The theory of cointegration and the error correction model (VECM) (Granger, 1983; Granger and Engle, 1985; Johansen, 1988, 1991) and Stock and Watson (1989) dynamic OLS are used to test the existence of the equilibrium relationships implied by the Dutch disease theory. It is noteworthy that previous econometric works on Dutch disease economics in both developed and developing countries are scanty and do not test for stationarity, thus their results are likely to be misleading.

3.1 Major features of the Venezuelan economy during the pre-boom phase (1960-72)

By 1973 Venezuela was a middle income small economy which had achieved some manufacturing import-substitution development. Manufacturing was the fastest growing sector during the 1950-70 years with its share in GDP increasing from 12 to 17 per cent over these years. By contrast, agriculture never recovered from the initial disruptive impact of oil revenues in the 1920s, and despite substantial subsidies and investment programmes this sector only accounted for 6 per cent of GDP in 1972. However, it must be stressed that the major share of non-oil GDP was accounted for by services. This was partly the expected outcome of the accrual of significant oil revenues, which supported greater import capacity.

The 1950s and 1960s were characterised by high investment, which was made possible by the accrual of oil revenues to the state. By 1972 public saving accounted for more than 40 per cent of total national savings. State-owned enterprises were established in transport, electricity, iron, aluminium, steel and later oil. It has been estimated that over 1968-72, 30 per cent of gross investment was public.[1]

[1] BCV, economic reports, various issues.

Other aspects of the Venezuelan economy during the 1960s, which are worth mentioning within the context of this thesis, are the low inflation rate and public external debt. During 1958-72 the consumer price index increased at an average yearly rate of only 1.8 per cent, and in 1972 public foreign debt was $1 billion.[2]

Despite rapid growth, however, the Venezuelan economy suffered from high unemployment and a severely squeezed income distribution. Open unemployment was estimated to be 8 per cent in 1971 (without including underemployment). According to Gelb and Bourguignon (1988, p. 323), the Gini coefficient for incomes before transfers exceeded 0.50.

As discussed in later chapters, striking features of Venezuelan industrialisation during the 1960s were the lack of a non-oil export-competitive sector, low employment generation, failure to equalise income distribution, heavy dependence on imported capital and intermediate goods, high capital intensity and high protection. The reduced market due to the non-existence of exports and the unequal income distribution may explain the slowdown of manufacturing that occurred in the late 1960s. The policy response of the Christian Democratic government (1968-73) to this development was the launching of a resource-based industrialisation in steel and aluminium. It must be noted that this administration also implemented a nationalistic oil policy which would end with the nationalisation of the oil industry in 1975. The higher oil revenues allowed the COPEI government to compensate for slower economic growth of the non-oil economy, with greater public spending.

The new social democratic government of AD (1974-78) emphasised the need to fight poverty and unemployment and continued with the resource-based industrialisation.

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[2] BCV (1990), tomo I.

The above background allows us to summarize some features of the Venezuelan economy by 1970, which are relevant for the analysis in terms of the Dutch disease framework, as follows:

(a) The booming or oil sector works as a kind of enclave, which only directly affects the public sector through tax payments. Thus there is no resource movement from the rest of the economy to the oil sector. It can be assumed that the oil sector contains only its sector-specific factors, while full mobility of capital and labour are common to the tradable and non-tradable sectors.

(b) The spending effect of the boom, which relates to the increase in national expenditure, depends solely on the government's policy response to the boom.

(c) The Venezuelan economy was characterised by the existence of unemployment at the beginning of the 1970s. Thus the assumption of full employment common to most of the Dutch disease models needs to be qualified. Nevertheless, there were some rigidities in the skilled labour market.

(d) The Venezuelan government adopted a fixed exchange rate regime with free convertibility between January 1964 and February 1983. The parity was US$1 = Bs4.30.

(d) There was no non-oil export-competitive manufacturing or agricultural sector.

3.2 The 1970s Oil booms and the macroeconomic context: stylised facts

3.2.1 The 1973-77 phase

Following the three-fold increase in oil prices by the end of 1973, policy discussion in Venezuela was concerned with the issue of what to do with the extra oil income. The newly elected government of Carlos Andres Perez made an initial attempt to sterilise the windfall income by transferring funds abroad. Nevertheless, this was not possible, and during 1973-77 there was a substantial expansion of private sector consumption and especially investment. The revenues accruing to the government were mainly used to: expand imports, public investment in manufacturing and investment in infrastructure; to subsidise domestic private industry and agriculture; and, to a lesser extent, to increase wages.[3] Likewise, the resource-based industrial strategy initiated in the late 1960s was also reinforced during the oil boom period of 1973-82.

The domestic distribution of oil revenues brought about a huge expansion of home demand driven by the rapid growth of both consumption and investment during 1975-78 (see Table 3.1 and Fig. 3.1). Investment grew by 19 per cent per year during 1973-1977 and this variable increased its share of value added from 18.7 per cent in 1974 to 33.8 per cent in 1977 (see Table 3.2). The trend in public investment growth during 1973-77 is explained by the launching of important investment programmes, which were embodied in the Fifth Plan of the Nation (1976-1980).[4]

The surge in domestic demand boosted imports, which grew at an average yearly rate of 21 per cent during 1973-78 compared with 4 per cent over 1968-72 (Fig. 3.1). It is estimated that imports of capital goods grew by 61 per cent per year during this phase while at the same time intermediate and consumer goods achieved average yearly growth rates of 29.9 and 49 per cent, respectively.

It should be noted that the marked import expansion through 1974-77 was accompanied by a falling trend in oil export revenues. This brought about a deteriorating situation of the trade balance which, according to the Central

[3] For a detailed discussion of the use of oil revenues in Venezuela, see Gelb (1989) and Mommer (1991).

[4] A major exponent of this policy was Gumersindo Rodriguez (1979), minister of planning.

Bank of Venezuela (BCV),[5] declined from US$7414 m in 1974 to US$1500 m in 1978 (see chapter 2 and Fig 3.3 below).

Table 3.1 Trends in the final demand components of Venezuelan real GDP

Sectors	1968-72	1973-77	1978-82	1973-82	1983-88
Domestic demand*	7.30	13.00	1.10	7.30	-0.40
	0.99	**0.99**	**0.55**	**0.84**	**0.02**
Non-oil domestic demand	7.61	13.00	0.08	6.83	0.19
	0.99	**0.99**	**0.01**	**0.79**	**0.00**
Consumption	6.40	10.40	4.80	7.60	0.10
	0.99	**0.98**	**0.99**	**0.95**	**0.01**
Private consumption	6.40	10.50	4.80	7.70	-0.20
	0.99	**0.99**	**0.99**	**0.96**	**0.01**
Public consumption	6.40	9.40	4.72	6.60	2.87
	0.94	**0.89**	**0.84**	**0.89**	**0.71**
Gross domestic investment	10.05	19.10	-8.02	6.40	-2.76
	0.95	**0.96**	**0.86**	**0.44**	**0.14**
Non-oil gross domestic investment	11.50	19.60	-13.00	4.41	2.10
	0.94	**0.95**	**0.96**	**0.20**	**0.00**
Private investment	13.40	20.40	-15.40	4.60	-4.10
	0.99	**0.96**	**0.99**	**0.19**	**0.49**
Public investment	7.10	17.00	-6.30	3.60	8.96
	0.22	**0.87**	**0.27**	**0.17**	**0.47**
Non-oil exports	12.40	14.10	7.70	11.20	8.30
	0.89	**0.93**	**0.77**	**0.95**	**0.89**
Imports	3.70	21.20	0.30	9.30	-4.75
	0.86	**0.98**	**0.00**	**0.67**	**0.12**
Non-oil GDP	7***	9.80	1.70	5.80	2.17
	0.98	**0.98**	**0.93**	**0.87**	**0.61**
Total GDP	3.20	4.00	0.50	2.70	2.51
	0.98	**0.92**	**0.39**	**0.87**	**0.69**

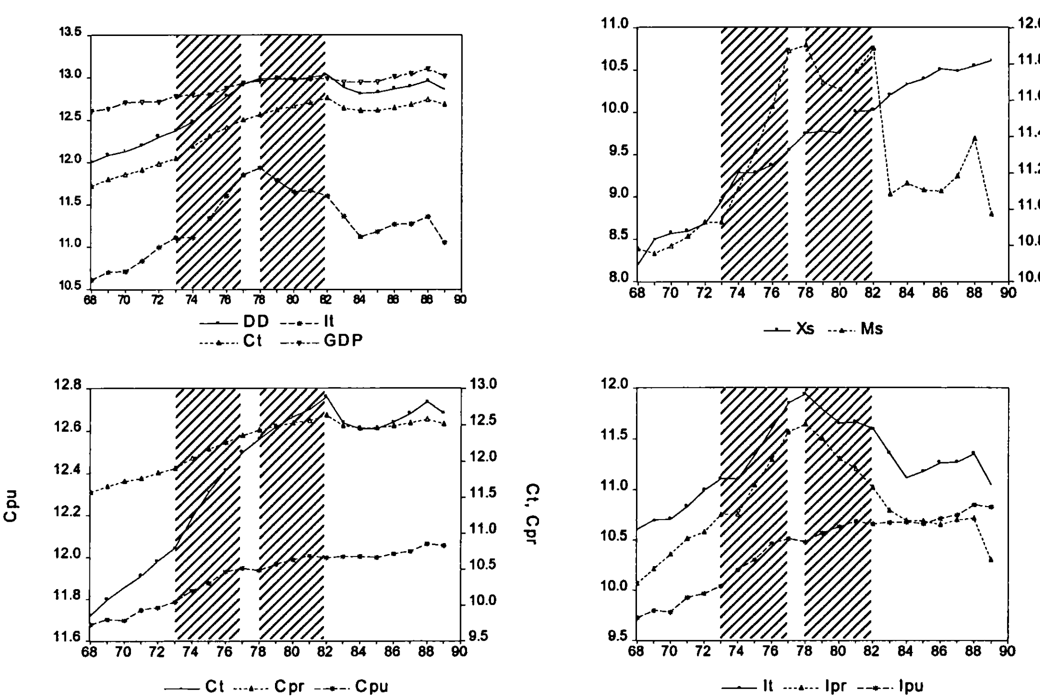
Notes: *Growth rates are the least squares estimates of trend growth; **domestic demand is defined as the sum of consumption and gross domestic investment; ***It refers to the 1960-73 period. Figures in bold are the R^2 of the trend growth rates. Source: own estimations based on data at 1984 price provided by the Central Bank of Venezuela, economic reports, various issues.

The greater home demand brought about some acceleration of the inflation rate during 1973-77 compared to 1960-72. However, it must be noted that, as shown in Fig. 3.2 below, the trend was modest compared to the huge increase in domestic demand and inflation was relatively controlled from 1975 to 1978. This development is accounted for by the surge in imports and the price control and subsidies policy launched during 1973-77. The same figure suggests that the first oil boom prompted a drop in the unemployment rate during 1973-77 compared to the pre-boom phase. There was a rise in

[5] BCV, economic report, 1979.

employment during 1973-77, followed by a continuous decline until 1984 with the exception of a slight recovery in 1980.[6]

Fig. 3.1 Trends in the final demand components of GDP, 1968-90, (log scale)

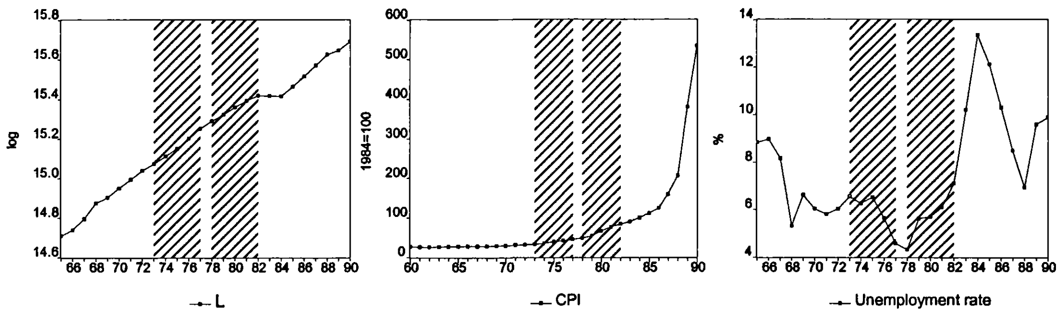


Notes: DD = domestic demand; GDP= total GDP; Ct = total consumption; Cpr = private consumption; Cpu = public consumption; Xs = total exports; Ms = total imports; It = total investment; Ipu = public investment; Ipr = private investment. All data at constant Bs of 1984. Source: as Table 3.1.

Over this phase, especially after 1976, a change in debt policy took place, with a sudden increase in external loans received by the central government and public sector agencies. Likewise, private sector debt in international markets also increased.

6 Although data for total employment and unemployment may give an accurate picture of the trends in both variables; Fig.. 3.2 also shows a rise in the unemployment rate in 1975, which is unlikely because construction, manufacturing and services value

Fig. 3.2 Total Employment, unemployment and inflation in Venezuela, 1965-90



Notes: L= total employment; CPI consumer price index, base year: 1984. Sources: Central Statistics and Information Office, Household Survey.

Table 3.2 Final demand components of value added (%)

	1968	1973	1977	1978	1982	1986	1988
Consumption	41.2	47.8	64.6	67.0	79.4	69.1	71.5
Private consumption	35.6	41.4	55.7	58.6	69.7	59.0	60.3
Public consumption	5.6	6.4	8.9	8.4	9.7	10.0	11.2
G. D. Investment	13.6	18.7	33.8	36.0	25.0	17.4	14.0
Private investment	7.9	13.1	25.4	26.7	14.0	9.4	6.6
Public investment	4.2	4.5	7.2	7.3	5.1	5.9	5.1
Exports	55.1	45.3	25.7	26.5	22.5	27.8	30.1
Private (goods)	0.8	1.2	0.6	0.6	0.4	0.9	0.9
Oil	53.9	43.1	22.2	22.5	17.4	19.6	21.0
Public	0.0	0.2	0.6	0.6	1.0	0.0	0.0
Services	0.4	0.8	2.2	2.8	3.8	7.4	8.2
Imports	16.1	15.6	34.5	34.6	33.1	14.8	12.9
Total GDP	100	100	100	100	100	100	100

Source: As in Table 3.1.

3.2.2 The 1978-82 phase

The Venezuelan non-oil economy stagnated during 1978-82. Non-oil value added grew by only 2 per cent per year in this period and private domestic investment growth began to slow down from 1978 (see Table 3.2).

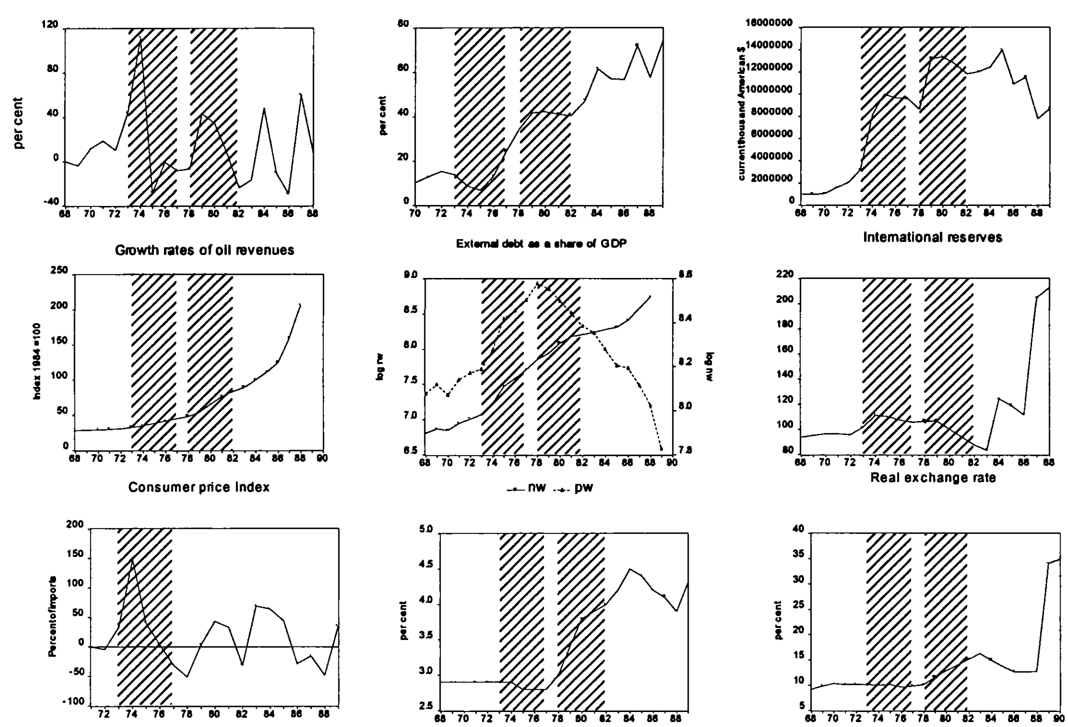
As shown in chapter 2, the reasons for the stagnation of the Venezuelan economy from 1978, despite the second oil price increase, are mainly related

added were growing.

to the launching of a stabilisation programme in 1979. This was a response to the growing internal and external deficits caused by falling oil revenues from 1979[7] and a huge foreign debt, aspects which are related to the lack of an export-competitive manufacturing sector and the excessive dependence on imports. The adjustment programme was supposed to last until 1980 but, in fact, recession persisted until 1982 despite the second oil price increase.

Within the context of the Venezuelan economy, the immediate effect of this adjustment programme was the acceleration of the inflation rate prompted by the price liberalisation policy that also activated a wage-price spiral. The

Fig 3.3 Some macroeconomics indicators



Notes: It = non-oil investment at 1984 prices; Er = real $ exchange rate defined as the nominal exchange rate adjusted by the relative wholesale prices; nw = nominal wages; pw = manufacturing product wages at 1984 prices. The capital-output is based on data at 1984 prices. Sources: as Table 3.1, oil revenues: Baptista, 1991.

7 It must be born in mind that the concept of oil revenues refers to an income which is different from the fiscal tax paid by the oil companies to the state. Instead, oil revenues are defined as a rent in the Ricardian and Marxist sense of the term. Mommer (1997) and Baptista (1991) define oil revenues as a rent paid by the oil companies to the state. They define a normal benefit as 15 per cent over the invested capital. Thus all benefit in excess of 15 per cent is considered as rent or the remuneration to the natural resourceds. In other words, oil revenues are understood as a kind of international transfer.

trade unions managed to get an increase in wages and salaries from January 1980. It must be noted that the general living cost index in Caracas rose from 7.2 per cent in 1978 to 12.3 per cent in 1979 and 21.6 per cent in 1980.[8]

The inflationary process, together with fiscal spending cuts and lower monetary liquidity, led to a decline in home demand and non-oil value added which grew by only 1.1 and 2.0 per cent per year, respectively, during 1978-82 (see Table 3.1). Both public and private consumption increased at lower growth rates than in the preceding phase (1973-77). The reduction in domestic demand was largely accounted for by a decline in investment growth from 1979, with the public component recording negative growth during 1978-82 (-15.4 per cent per year). Similarly, private investment undertook a substantial decline of -6.3 per cent per year over 1978-82 as compared to 17 per cent in the preceding phase (see Tables 3.1, 3.2 and Fig. 3.1).

During 1978-80 the decline in import growth owing to falling investment and together with the stable performance of oil exports and the rise in oil prices, allowed for an improvement in the external balance. Thus, the balance of payments experienced some improvement in 1979 (Fig 3.3). By 1981-82 the substantial slackening of value added, the improvement in the external and fiscal sectors and the assumption that the second oil boom would be longer, led to the adoption of an expansionary policy. Nevertheless, no significant recovery took place, and total investment and domestic demand experienced only a mild recovery in 1981, because the expansion of public consumption and investment was offset by the drop in private domestic investment and the outflow of capital.[9] It is estimated that capital outflow amounted to US$38.815 m. between 1973 and 1987, and that the foreign assets of the private sector represented 131.5% of total external debt by 1985.[10] Private financial balances in Venezuela had been negative from the late 1960s and

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[8] BCV economic reports, various issues.

[9] It must be noted that there were no changes affecting the regulations of the capital market over these years.

this situation worsened during 1973-82 (see Table 3.3). The outflow of capital was encouraged by the policy of keeping interest rates fixed in 1980, despite domestic inflation and the rise of interest rates in the US. Moreover, the conditions in the oil market deteriorated which, together with the lack of a non-oil export-competitive sector, led to the balance of payments crisis of 1983 (Fig. 3.3).

Finally, some evidence suggests that the low capital absorption may have contributed to the stagnation of the Venezuelan economy by 1978. For instance, the growth rate of the non-oil economy was falling from 1977 despite the fact that investment growth had achieved its maximum level in that year, and there were large capital outflows (Baptista, 1986, 1997, Mommer, 1991), (see also Fig. 3.3). This may indicate that the expanded productive capacity due to the over-investment of oil revenues during 1975-78, could not be matched by domestic demand which was depressed during 1978-82. It must be noted that the inability to export implied that production could not find demand in the international markets.

Table 3.3 External financial balance and oil revenues, Venezuela

Year	Public financial Balance	Private financial balance	oil revenues (R)	Financial balance Public/R	Private/R
1970	786	-279	5474	14.4	-5.1
1971	715	133	6396	11.2	2.1
1972	2227	-654	6847	32.5	-9.6
1973	634	-1030	10259	6.2	-10.0
1974	162	-1759	27476	0.6	-6.4
1975	2144	424	18224	11.8	2.3
1976	8674	-2166	17063	50.8	-12.7
1977	7921	-582	14609	54.2	-4.0
1978	7842	-846	12710	61.7	-6.7
1979	6333	-409	18077	35.0	-2.3
1980	2325	-3077	22177	10.5	-13.9
1981	4588	-4494	21213	21.6	-21.2
1982	9873	-6428	14728	67.0	-43.6
1983	-4282	-700	11341	-37.8	-6.2
1984	-3681	-405	16181	-22.7	-2.5
1985	-4341	-537	12321	-35.2	-4.4
1986	-4473	-1321	6764	-66.1	-19.5
1987	-2725	-185	11603	-23.5	-1.6

Notes: R = oil revenues; mill of Bs at 1968 constant prices. Sources: Mommer (1995, p. 39, Table 3).

[10] Pastor (1990), quoted by Mommer (1991).

3.2.3 The Adjustment of the Venezuelan economy during the post-boom phase (1983-88)

The balance of payments crisis in 1983 forced the government to launch a stabilisation programme, which implied the adoption of devaluation and a multiple exchange rate regime (in February 1983), cuts in public spending, foreign exchange controls, an extension of protectionism and price controls. This program which continued in 1984, when a 40 per cent devaluation was implemented and proved to be successful in achieving external and fiscal balance. This, together with a combination of high unemployment and low inflation, led the government to adopt an expansionary fiscal policy in 1986. However, the falling trend in oil revenues following a sharp decline in oil prices brought about further complications. Thus, another 93 per cent devaluation was implemented in December 1986. During 1986-88, the government undertook expansionary policies which implied a sharp fall in its international reserves and the accumulation of imbalances which ended with the worst economic crisis of the Venezuelan economy in 1989 following the launching of the IMF adjustment programme.

3.3 Growth and structural change in the Venezuelan non-oil economy during 1973-82 and Dutch disease

According to the standard Dutch disease model, a resource boom is bound to prompt a structural adjustment in favour of the non-traded sectors of the economy. The mechanisms or intermediate causes of Dutch disease are as follows: (a) real appreciation of the domestic currency and the consequent fall in the profitability of tradables, (b) increases in real and product wages, and (c) a rise in the interest rate.

At the same time, within the 'resource curse' thesis the existence of a negative impact of the oil sector on agriculture and manufacturing is expected to work through the real overvaluation of the domestic currency, the adoption of inward-oriented industrial policies and the lack of macro discipline together with the instability of oil prices.

If these two theories apply to Venezuela, the following effects should hold: (a) a resource boom may lead to a deceleration of the growth rate of the non-oil tradable sectors (agriculture and manufacturing) or to lower growth rates of these sectors compared to non-tradables; and (b) an structural specialisation in favour of non-tradables must be the outcome of a boom (de-industrialisation and/or de-agriculturalisation). Even more importantly, these outcomes must be associated with the above mentioned transmission mechanisms.

Pattern of Growth

Table 3.4 presents a comparison of the growth performance of the Venezuelan non-oil economy with that of other developing countries for 1967-88. The picture that emerges from these figures is that Venezuelan manufacturing

Table 3.4 Sectoral growth of GDP in some selected developing countries, 1966-1988 (average annual growth rates, %)

	Average annual growth rates														
Countries	1967-72			1973-77			1978-82			1983-88			1989-96		
	A	M	S	A	M	S	A	M	S	A	M	S	A	M	S
Bolivia	1.7	2.6	-2.6	4.0	7.2	8.1	2.5	-3.6	1.9	1.4	0.4	0.5	-	-	-
Colombia	4.7	7.3	6.2	3.9	4.6	5.2	3.2	2.5	5.2	3.1	3.9	2.9	2.0	1.5	5.8
Costa Rica	6.7	-	5.8	1.9	8.2	5.4	1.3	-0.3	0.8	3.5	4.7	3.9	3.0	3.4	4.2
Ecuador	4.3	10.7	5.4	4.0	11.9	10.1	2.5	6.1	4.7	4.0	-0.2	-0.2	3.4	2.8	3.0
Venezuela	3.8	8.8	5.2	3.0	11.8	10.2	0.6	4.4	-0.5	5.3	5.8	3.5	1.1	3.4	2.1

Sources: A= agriculture; M = manufacturing; S = services. Growth rates are expressed at 1987 constant dollar prices. Sources: World Bank data base. Estimations of sectoral growth rates for Venezuela are based on data at constant 1984. Sources: as Table 3.1.

achieved satisfactory rates of growth until 1973-77 and following a severe stagnation during 1978-82, recovered during 1983-88. In the case of agriculture, the sector seems to have been disrupted by the 1973-77 oil boom and the deflationary policies of 1978-82, but it experienced some recovery during 1983-88.

A more detailed picture of the pattern of growth of the Venezuelan economy is provided by Table 3.5 and Fig 3.4. These indicate that construction and manufacturing achieved the highest levels of value added and employment growth during 1973-77, followed by services. The marked employment increase in construction during 1975-77 (13 per cent), compared to the pre-

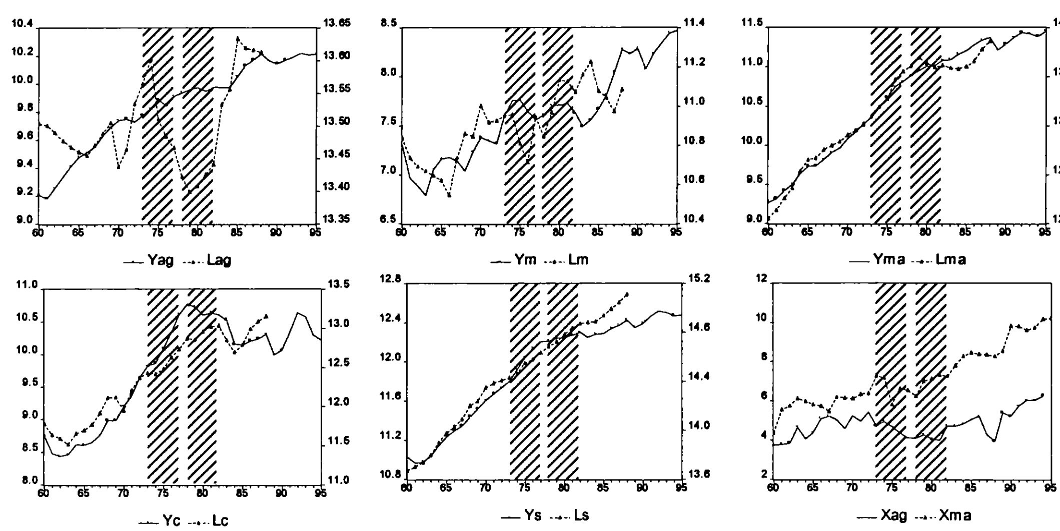
Table 3.5 Sectoral growth rates of real value added, employment and exports, Venezuela, 1960-95

Value Added	1960-72	1973-77	1978-82	1983-88	1989-95
Agriculture	5.84	2.97	0.61	5.34	1.14
	0.97	**0.75**	**0.36**	**0.97**	**0.78**
Mining	2.91	-2	0.67	15.75	4.62
	0.38	**0.12**	**0.042**	**0.95**	**0.54**
Manufacturing	8.22	11.82	4.43	5.81	3.41
	0.99	**0.99**	**0.95**	**0.99**	**0.74**
Construction	8.39	20.46	-4.14	-2.23	4.92
	0.76	**0.95**	**0.75**	**0.36**	**0.2**
Services	6.85	10.23	-0.50	3.45	2.08
	0.97	**0.99**	**0.18**	**0.96**	**0.55**
Non-oil value added	6.92	10.92	1.72	3.64	2.15
	0.97	**0.99**	**0.93**	**0.93**	**0.47**
Employment	**1968-72**	**1973-77**	**1978-82**	**1983-88**	
Agriculture	0.5	-3.14	0.65	1.61	
	0.05	**0.77**	**0.40**	**0.56**	
Mining	2.067	-2.58	6.1	-3.33	
	0.28	**0.14**	**0.63**	**0.49**	
Manufacturing	4.35	9.68	-0.58	4.57	
	0.99	**0.99**	**0.09**	**0.86**	
Construction	5.95	10.92*	4.5	8.34	
	0.09	**0.98**	**0.88**	**0.76**	
Services	5.6	5.12	4.99	4.79	
	0.09	**0.98**	**0.99**	**0.97**	
Total	4.18	4.49	3.25	4.46	
	0.99	**0.99**	**0.99**	**0.96**	
Exports	**1960-72**	**1973-77**	**1978-82**	**1983-88**	**89-95**
Agriculture	13.29	-17.74	9.92	-15.00	16.55
	0.74	**0.74**	**0.28**	**0.34**	**0.79**
Oil	1.60	-12.51	-6.46	1.87	7.25
	0.60	**0.86**	**0.77**	**0.31**	**0.92**
Manufacturing**	9.69	-19.95	23.63	7.16	21.33
	0.51	**0.29**	**0.72**	**0.33**	**0.73**
Non-oil exports	10.33	-19.78	22.66	6.66	21.17
	0.68	**0.37**	**0.74**	**0.29**	**0.74**

Notes: growth rates are the least squares estimates of trend growth. *It refers to 1974-1977. **It refers to private manufacturing. Figures in bold are the R^2 of the trend growth rates. Sources: real value added at 1984 prices: as Table 3.1; employment: own estimations based on data provided by the OCEI, Household Survey, various issues, and the Industrial Survey, exports in tones: BCV, Finexpo, economic surveys, various issues.

boom phase, is consistent with the Dutch disease theory, but manufacturing employment also expanded greatly during 1973-76. Although it was not possible to estimate factor intensities for the economic sectors due to the lack of data, it is expected that manufacturing would have been more capital-intensive than construction, services and agriculture. Nevertheless, the boom of some of the labour-intensive manufacturing branches and the public sector may explain the growth in manufacturing employment during 1973-77. Furthermore, increasing ratios of raw materials to wages during these years compared to 1968-71 may have encouraged the use of labour.[11] Although agricultural growth declined during 1973-77 compared to the pre-boom phase, it must be noted that this sector was also affected by droughts during 1975-76.

Fig. 3.4 Sectoral growth in value added, employment and exports, Venezuela, 1960-94, (log scale)



Notes: Y_a = agricultural value added; Y_m = mining value added; Y_{ma} = manufacturing value added; Y_c = construction value added; Y_s = services value added; L_{ag} = agricultural employment; L_m = mining employment; L_{ma} = manufacturing employment, L_c = construction employment; L_s = services employment,; X_{ag} = agricultural exports; X_{ma} = manufacturing exports. Sources: as Table 3.5.

As regards the impact of the 1970s oil boom on exports, Table 3.5 shows that the performance of non-oil exports has been really poor and that a clear negative link between manufacturing and agricultural exports and the growth of oil revenues can be established. The 1973-77 phase saw a sharp fall in

[11] See chapter 6 of the present dissertation.

export growth, which was the result of real appreciation as well as the expansion of the domestic market (see chapter 6).

This information suggests that some Dutch disease symptoms can be observed in Venezuela and/or before during 1973-77, which were related to the disruptive impact of the 1973 oil price shock on agriculture and on the performance of the already insignificant non-oil exports. By contrast, manufacturing output and employment accelerated their pace of growth over 1973-77.

Structural change

As regards the argument derived from the Dutch disease theory, which states that the outcome of a boom will be a structural specialisation in favour of non-tradables, evidence suggest that the Venezuelan economy was severely squeezed by the late 1960s. Data showing the specialisation in favour of non-tradables (construction and services) is presented in Table 3.6. This provides a picture of structural change for selected developing countries and the lower middle income economies, which is the group to which Venezuela belongs. It becomes evident that, as applied to Venezuela, there is a severe squeeze of agriculture and to a lesser extent in manufacturing and this pattern was already set by the mid-1960s.

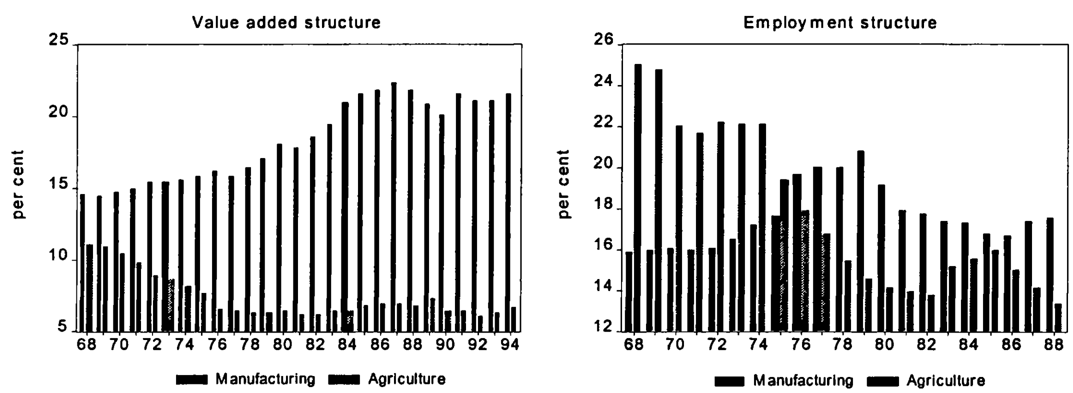
An interesting aspect, however, is that the share of manufacturing in GDP did not decline during 1972-82 (see also Fig 3.5). By contrast, after undertaking a decline from the mid-1960s, the sectoral share undertook some increase during 1969-72 and this continued increasing during 1973-76 but at a slower pace. It must be noted that as applied to Venezuela the increase in the manufacturing share in value added during 1983-88 was due to the positive effect of devaluation on import substitution, while the de-industrialisation effect in the rest of the countries appears to be related to the launching of adjustment programmes during these years.

Table 3.6 Structural change in Venezuela and some developing countries

	Per capita GNP ($)		Population mill, 1988	Produccion structure as % of GDP															Sectoral shares in total exports (%)			
				1966			1972			1982			1988			1996						
	1966	1988		A	M	S	A	M	S	A	M	S	A	M	S	A	M	S	1972	1982	1988	1996
Algeria	1818	2576	23.8	9	14	49	10	14	46	10	10	38	14	14	45	13	8	38	5	1	4	4
Bolivia	849	701	0.0	19	13	53	20	13	46	21	9	41	33	16	35	-	-	-	1	3	3	16
Colombia	682	1120	0.0	25	19	49	24	22	47	19	21	50	17	21	47	16	16	64	20	24	24	34
Costa Rica	1149	1541	0.0	23	-	54	19	19	54	24	20	50	16	21	60	16	18	60	24	25	25	24
Ecuador	604	1108	9.8	26	19	51	22	19	50	12	18	48	14	21	50	12	21	51	2	3	2	9
Egypt	352	849	50.1	28	-	45	31	18	42	20	13	48	19	24	52	17	24	51	31	8	35	32
Peru	312	295	20.6	18	16	52	17	20	51	10	20	48	8	25	56	7	23	56	2	14	16	16
Venezuela	2897	2662	18.8	6	15	68	5	15	66	5	19	57	7	22	60	6	20	64	2	2	8	12

Notes: A= agriculture, M = manufacturing, S = services; per capita GNP at 1987 constant American dollars. Sources: World Bank data based; except for Venezuela all the structures are based on data valued at 1987 constant dollar prices. The last heading refers to manufacturing exports. Sources: Central Bank of Venezuela economic reports, various issues and World Bank, data base for all other countries.

Fig 3.5 Structural change in the Venezuelan non-oil economy, 1960-94



Sources: as Table 3.7.

A more detailed look at the process of structural change exhibited by the Venezuelan non-oil economy is presented in Table 3.7. This makes clear that in terms of value added and employment, construction and manufacturing increased their size during 1973-77. Manufacturing's contribution to value added rose from 15 per cent in 1973 to 16 per cent in 1977. Analogously, the sector's relative share of total employment increased from 17 per cent in 1973 to 19 per cent in 1977. Data on manufacturing employment given by the Household Survey differ greatly from that published by the Industrial Survey.

Table 3.7 Sectoral shares of Venezuelan non-oil value added and employment (%)

Sectors	Value Added 1968	1973	1977	1982	1988	1994	Employment 1968	1973	1977	1982	1988
Agriculture	11.1	8.7	6.5	6.2	6.9	6.6	25.0	22.1	16.9	13.8	13.3
Mining	0.8	1.0	0.6	0.6	1.0	1.1	1.8	1.6	1.4	1.3	1.1
Manufacturing	14.6	15.4	15.9	18.6	21.9	21.4	15.9	16.5	19.1	17.8	17.6
Construction	5.8	9.1	13.0	11.6	7.6	7.2	6.3	7.1	8.1	9.2	8.4
Services	67.6	65.8	64.0	63.1	62.7	63.6	51.0	52.7	54.4	57.9	59.6
Non-Oil GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: the structure of value added is based on constant 1984 prices. Sources: value added: own estimations based on Central Bank of Venezuela (various issues); employment: OCEI, Household Survey, (various issues).

According to the latter source there was a sharper increase in manufacturing employment during 1973-77, which is in accordance with the substantial expansion of sectoral value added over the period.[12] Construction's relative share of value added rose from 9 per cent to 13 per cent in 1982. This sector had also increased its share from 6 per cent to 9 per cent through 1968-72, while a fall from 12 per cent in 1982 to 8 per cent in 1988 took place. The contribution of services to value added declined from 66 per cent in 1973 to 64 per cent in 1977. A drop in this share also occurred during 1968-72 and 1983-88. Services observed a rise in its relative contribution to total employment between 1973-77 and in the post-boom phase.

Correspondingly, agriculture and mining underwent a drop in their relative shares of value added and employment during 1973-77. The contribution to non-oil value added of these sectors also fell in the pre-boom phase and in the post-boom period (1963-88).

Structural change during 1978-1982 was influenced by the deflationary economic policies launched during 1978-80. The public spending cuts

[12] It must be noted that data on employment for Venezuela provided by the Household Survey carried out by the Central Statistics and Information Office are very poor. Figures for total employment and unemployment may reflect the trends in both variables, but they are not easily reconciled with the sectoral development of value added. According to this source, manufacturing employment expanded at a very low rate during 1973-77 and a substantial drop in employment growth for all sectors took place in 1975. This is unlikely, because all the economic sectors showed high value added growth in this year. Since the Industrial Survey provides data on manufacturing employment, we applied the growth rates of employment derived from this source to the 1966 value of manufacturing employment given by the Household Survey. It was not possible to use an alternative source of information for employment because data given by the Labour Ministry are even less reliable and are

implied a decline in the relative size of non-tradables in non-oil value added, with both services and construction diminishing their contribution to non-oil value added during 1978-82. However, these two sectors increased their relative contribution to total employment for the period. Thus a significant rise in the manufacturing contribution to value added from 16 per cent in 1978 to 19 per cent occurred in 1982 while the share of agriculture and mining in value added remained the same during the phase.

The development of the sectoral export structure is presented in Table 3.8. This makes clear the insignificant share of both agricultural and manufacturing exports in total exports until the present. This, together with the evidence presented in Table 3.7 above, makes clear that the Dutch disease symptoms in Venezuela are related to the squeeze of agriculture and to the virtual lack of a manufacturing export-competitive sector.

Table 3.8 Export structure, Venezuela, 1960-95

	1960-72	1973-77	1978-82	1983-88	1989-95
Oil	99.72	99.35	98.84	95.66	86.94
Agriculture	0.07	0.07	0.07	0.13	0.23
Manufacturing	0.22	0.58	1.1	4.22	12.82
Total	100	100	100	100	100

Sources: BCV, Finexpo, reports (various issues).

3.4 Estimation of a Dutch disease index for Venezuela

In order to provide further evidence of Dutch disease in Venezuela, two versions of the indices of Dutch disease were computed for the whole 1968-94 period. Both relied on the methodology presented by Gelb and Associates (1988). According to this methodology the Dutch disease index is computed by comparing the trends in the sectoral shares for agriculture, manufacturing, services and construction in non-oil GDP to the norms or standardised pattern

sporadic.

of structural change derived from the Chenery-Syrquin norms (1975).[13] Following Gelb (1988), we used non-oil value added per capita in place of real income per capita.[14] The formula provided by Gelb (1988) to estimate the Dutch disease index is as follows:

$$DD = (SN_{ag} + SN_{ma}) - (S_{ag} + S_{ma})$$

where SNi are the norms for the sectoral shares and Si are the actual constant prices shares.

Thus the index is derived from the deviation of the actual shares from their stylised norms according to Chenery-Syrquin (1975), providing a measure of the squeezed of agriculture and manufacturing share in the non-oil economy relative to their normal levels.

The first index computed in this dissertation used the Chenery-Syrquin (1975) norm as a counterfactual, but while Gelb only estimated the index for the years 1973-82 we estimated a year-to-year index for the whole 1968-94 period. In addition, another version of this index was attempted by using the actual sectoral shares of manufacturing in private GDP.

Following Sakr (1997), a second index of Dutch disease was computed by using the results provided by Syrquin (1989) to derive the counterfactual norms. In doing so, we first estimated the standardised norms for the relative shares in non-oil GDP corresponding to agriculture and manufacturing. These were obtained by multiplying the stylised growth rates of these sectors which were associated with a 1 per cent increase in per capita income as reported by

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13 Despite the fact that structural change can be influenced by many factors, a general stylised pattern has been identified, which relates structural change to the growth of per capita income. The empirical evidence suggests that this pattern is observed with an important degree of uniformity and it is known as Chenery's stylised pattern of structural change.

14 This is justified by the high share of oil on GDP and exports, which would make the share of other sectors appear very low. Given the fact that Chenery and Syrquin present aggregate results for manufacturing and construction, an additional computation was made. Thus the Chenery-Syrquin equations were used to project industrial shares and then on industry was split into construction and manufacturing.

Syrquin (1989, p. 37) to the observed non-oil per capita income in the Venezuelan economy. Therefore the index is derived as the deviation of the actual changes in the share from the norm. A positive index indicates a reinforcement of Dutch disease and a negative index would indicate a reverse Dutch disease effect. Reasons to estimate this index are the relatively newer character of the estimations made by Syrquin compared to those of Chenery, and the availability of estimates for manufacturing on their own as opposed to the industrial sector as a whole. The incremental index was also estimated as the change in the value of each index from the previous year. A negative number indicates an improvement while a positive number represents a deterioration of the index. The incremental index was more meaningful for catching marginal changes and for comparing the trends with the changes in economic policies.

The trends in those indices are analysed against the development in the oil sector and its windfalls, and some key variables such as the real exchange rate, domestic demand and shifts in economic policies.

The Manufacturing indices

Table 3.9 presents the sectoral shares in non-oil GDP and modified Chenery/Syrquin norms (1975) for 1972 and the Dutch disease index. These results suggest that the Venezuelan economy exhibited severe Dutch disease symptoms by 1972, in the sense that both the agriculture and manufacturing shares of value added fell far below the estimated norms. Concerning the trends in the Dutch disease index, Figures 3.6 and 3.7 indicate that there was an increase in the index for manufacturing during 1966-68, which was followed by a decline during 1969-73. As shown later, these trends seem to be associated with the unfavourable effect of the structural overvaluation on manufacturing, and the launching of a resource-based state-led industrialisation by the late 1960s; a policy which was reinforced during

1973-82. This and other incentive policies for manufacturing during 1973-77 may explain why the index did not rise, but it declined slightly during 1975-76 and more sharply prior to 1978. This suggests that in the case of Venezuelan

Table 3.9 Structural change and Dutch disease in Venezuela, 1972

Sectors	Actual	Norms
Agriculture	8.50	17.56
Manufacturing	15.69	27.45
Construction	9.23	11.39
Services	66.58	43.60

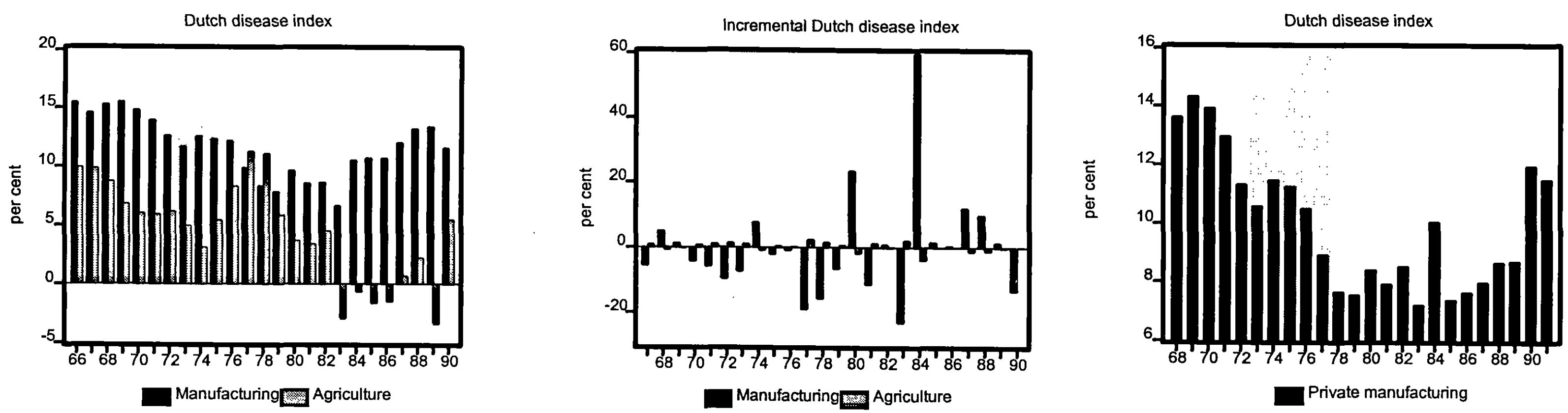
Sources: own estimations.

manufacturing Dutch disease was not reinforced during the 1970s oil booms.[15] It must be noted that an improvement in the index for private manufacturing occurred during 1974-77, 1977-79 and in 1981. The development in the later phase was the result of the large decline in the share of non-tradables due to the deflationary economic policies.

It must be highlighted that, as regards to manufacturing, the Dutch disease index worsened in Venezuela during 1983-88 in spite of a real devaluation. This may indicate the irrelevance of devaluation policies for reversing Dutch disease, especially in the case of de-industrialisation in Venezuela. Finally, it is worth noting that the second Dutch disease index (Fig 3.7) suggests that there was an improvement in the index during 1989-91, although the trend in this index was highly unstable for the 1989-94 phase as a whole. Likewise, the index based on the Chenery-Syrquin (1975) norm indicates a similar trend during 1989-90.

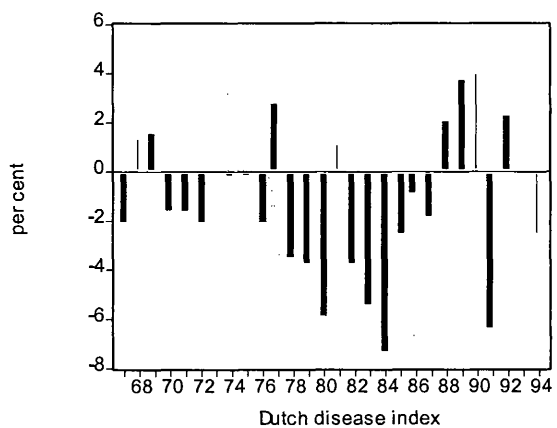
15 It must be noted that according to Gelb (1988) this index also declined between 1972 and 1981.

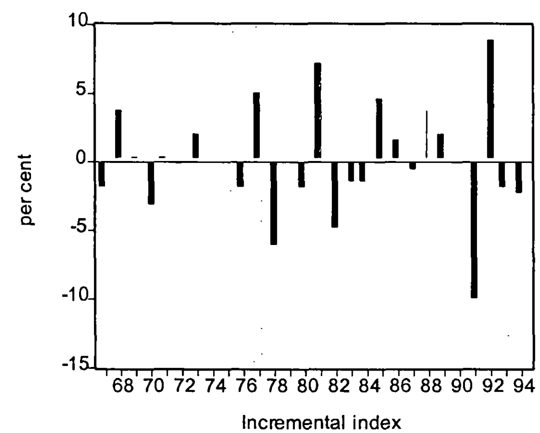
Fig 3.6 Dutch disease index based on the Chenery-Syrquin's (1975) norm



Sources: see methodological annex, Table 3.a

Fig 3.7 Dutch disease index for Venezuelan manufacturing based on the Syrquin's (1989) norm





Sources: see methodological annex, Table 3.b.

The Agricultural index

Concerning the agricultural sector, the Dutch disease index increased during 1974-78 while it experienced some decline from 1979, which may be explained by the drop shown by non-tradables during 1978-82 and the positive impact of real devaluation during the post-boom phase. Nevertheless, this index increased again during 1986-88.

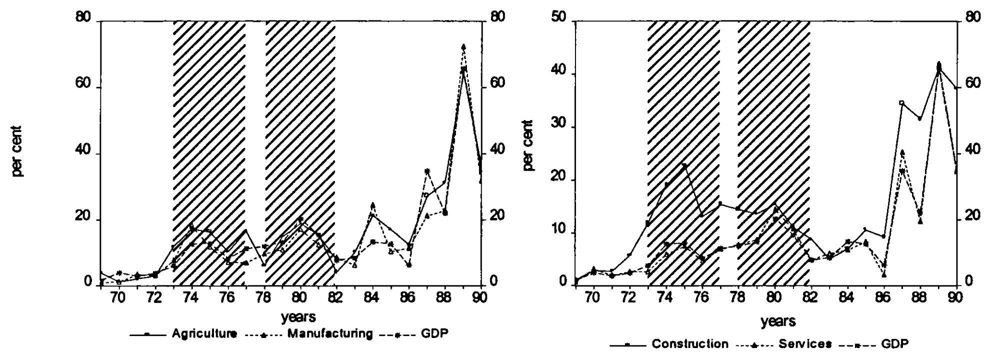
3.5 Did the transmission mechanisms of the Dutch disease model work in Venezuela during 1973-82?

3.5.1 Trends in sectoral relative prices

As shown in the previous chapter some real appreciation of the domestic currency was brought about by the first oil boom. Here we look at the trends in relative prices to establish their role in the performance of the tradable sectors during 1970s.

Table 3.10 illustrates the cumulative changes in the implicit deflator. This makes clear that there was a significant acceleration of the inflation rate measured as the non-oil GDP implicit deflator during 1973-77 compared to 1968-72. The prices of both tradable and non-tradable sectors increased markedly during the boom years (see Fig. 3.8). This development reflected the large monetary expansion and the increase in public expenditure as a result of the surplus in the balance of payments and the expansion of domestic demand following the first oil price boom. Although the basic cause of domestic inflation during 1973-77 was demand pressure, an additional factor was represented by the increase in the price of imported goods which grew by 17.4 per cent in 1974 and 12 percent during 1975, compared to 5.4 per cent in 1973. Likewise, some induced wage increases also took place because the government passed a law for the general increase of wages and salaries in 1974, which is estimated to have represented an increase of 17 or 18 per cent of wage costs.[16]

Fig. 3.8 Growth rates of prices in the private non-oil economy, Venezuela, 1968-90, (per cent)



Sources: As Table 3.10.

A look at Table 3.10 indicates that construction recorded the highest rise in prices, but that the increase in prices for services price lagged behind those of agriculture, mining and manufacturing over 1973-77.

Thus, although the Dutch disease index increased for agriculture during 1973-77, one of the major mechanisms of transmission of the disease predicted by the standard model namely a decline in the relative prices of tradables which is supposed to dampen profitability and investment, is not corroborated for agriculture. This was due to the policy of higher agricultural prices like the granting of incentives to increase production. It must be noted that the stagnation of agricultural value added from 1976 is also explained by adverse weather conditions.[17]

The performance of Venezuelan agriculture does not seem to be explained by the trends in relative prices. Indeed, de-agriculturalisation occurred during

16 Pazos (1988, pp. 124-125).

17 BCV, economic reports, 1977, 1978.

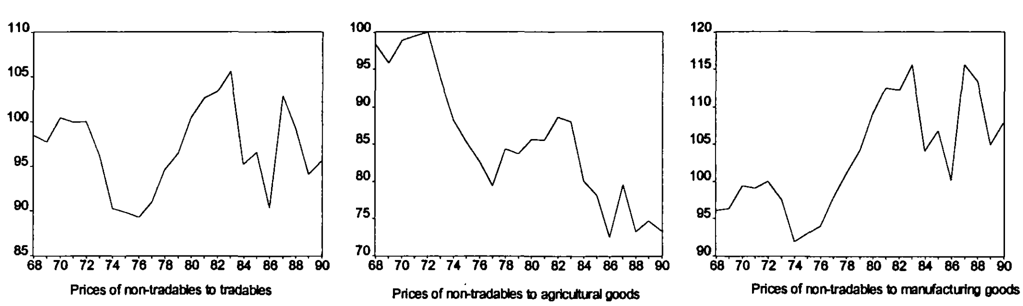
1973-77 despite a policy of allowing for higher producer price, subsidies, easy credit and cheaper inputs, and the higher domestic demand for intermediate and final agricultural goods.[18]

Table 3.10 Cumulative percentage price evolution in the private non-oil economy, Venezuela, 1969-88

	1969-72	1973-77	1978-82	1973-82	1983-88
Agriculture	10.1	72.2	55.2	131.6	119.5
Mines	-0.6	55.6	19.2	75.7	150.3
Manufacturing	8.2	51.5	49.9	109.9	96.2
Construction	12.3	82.0	54.5	145.3	97.7
Services	13.2	43.7	66.4	117.8	96.5
Non-oil GDP	12.0	50.9	60.8	119.4	97.2

Notes: * It refers to the cumulative annual changes in the sectoral price index. Source: own estimations based on data provided by the Central Bank of Venezuela.

Fig. 3.9 Relative price of non-tradables to tradables, (index 1972=100), Venezuela, 1968-90



Source: As Fig. 3.8.

Concerning the second oil price boom, a sharp increase in domestic inflation took place with agriculture and services prices experiencing the greatest rise. As already discussed, inflation during these years was not linked to demand

18 The increase in agricultural producer prices was the result of the greater domestic demand and the fixing of new minimum prices for the producer with respect to 15 crops, eggs, chicken, pigs and fish. The credits granted to agriculture by the government amounted to Bs 3000 m. compared to Bs 510,8 m. in 1974. The 'Instituto de Credito Agricola y Pecuario' was established to give credits to the small producers. Likewise a law was passed in 1974 according to which the debt of agricultural producers was forgiven. An agricultural financial programme with a value of Bs400 m., as part of the government

pressures, but to other factors such as the freed prices policy adopted in 1979. In August 1979, control prices of almost all goods were abrogated with the exception of a few basic goods. This policy implied that only 37 of the 158 categories that had been controlled remained so. Likewise this policy led to the establishment of differential prices for public services, for redistribution purposes. The more moderate price increases in construction occurred in parallel with the strong contraction of this sector over the period. By contrast, the drop in services value added was accompanied by an acceleration of price growth.

As for the post-boom phase, mining and agriculture recorded the main increase in prices. Apart from 1987, there was a persistent drop in the relative prices of non-tradables to manufacturing and agricultural goods during 1984-89. The lower growth of manufacturing prices compared to agriculture may be related to the existence of price controls in some manufacturing branches, which may have avoided a full mark-up price adjustment during 1983-88. Some agricultural subsectors may have benefited from the import substitution effect encouraged by the large devaluation of the domestic currency, but exports did not show a significant increase.

As regards the performance of manufacturing during 1973-77, contrary to the predictions of the core Dutch disease model,[19] the incremental Dutch disease index for manufacturing fell slightly during 1973-77 and 1978-82 indicating an 'improvement'.

Concerning the second mechanism embodied in the Dutch disease model, namely increasing real and product wages and salaries in tradables (although

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assistance measures for the flood victims in 1976, was set (BCV, 1975, p. 158-59).

19 Apart from Saudi Arabia and Kuwait, all the developing oil-exporting countries experienced an expansion of their manufacturing sectors during the 1970s oil boom (World Bank, 1984). This fact was highlighted by Benjamin et al. (op. cit.) and Fardmanesh (op. cit). The Dutch disease theory has shown some limitations in explaining the impact of a booming sector on the agricultural sector also. Richard's (1994) points out that the impact of the booming activity of the 1970's and 1980's in Paraguay did not conform with the Dutch disease predictions since some of the traditional export-crops expanded. This outcome may be related to the complementary nature of the expansion of the new cash crops with some of the traditional export-activities.

we do not have disaggregated data for agriculture), Table 3.11 indicates that the increase in manufacturing product wages was mild during 1973-77. Finally, as for interest rates, the setting of very low interest rates for agriculture and manufacturing until the 1980s is a very well-documented fact in Venezuela (see also chapter 4 of this dissertation).

Table 3.11 Sectoral trends in wages

	1969-72	1974-77	1978-82	1983-88
Product wages				
Construction	3.47	-6.69	-1.56	-0.76
Manufacturing	-1.17	0.60	2.60	-7.80
Nominal wages				
Construction	7.32	6.86	10.40	7.58
Manufacturing	1.10	9.60	21.10	10.60

Sources: for construction wages Baptista (1997) and for manufacturing: OCEI, industrial survey and BCV, economic reports.

Relative prices and the trends in investment

De-agriculturalisation in Venezuela during 1973-77 does not seem to have been the outcome of real appreciation leading to lower profitability. Private and public investment in agriculture expanded substantially during 1973-77 compared to the pre-boom phase. The considerable expansion of investment reflected the substantial credits granted to the sector by the government and the policy of cheap interest rates.[20,21]

Table 3.12 and Fig 3.10 indicate that private investment growth in agriculture was faster than in manufacturing during 1973-77, which may suggest that the

20 According to regulation No 3 of the General Law on Banks and Other Credit Institutions, commercial banks were required to allocate a minimum of 20 per cent of their loans to financing agricultural activities. Likewise, a Decree published in 1975 established tax exoneration for income derived from capital granted to the agricultural sector (BCV, op. cit. p. 161).

21 It has been pointed out that the public sector allocation of resources into agriculture was inefficient; for instance, grain production was favoured despite the lack of comparative advantages in this product compared to temperate products. Likewise, government assistance to increase farm size went to larger farmers who reloaned low-interest agricultural loans at higher interest for other purposes. (Auty, 1987).

problems of the agricultural sector are accounted for by the inefficient allocation of investment rather that by the relative price mechanism, which

Table 3.12 Trend growth in investment, Venezuela, 1968-84

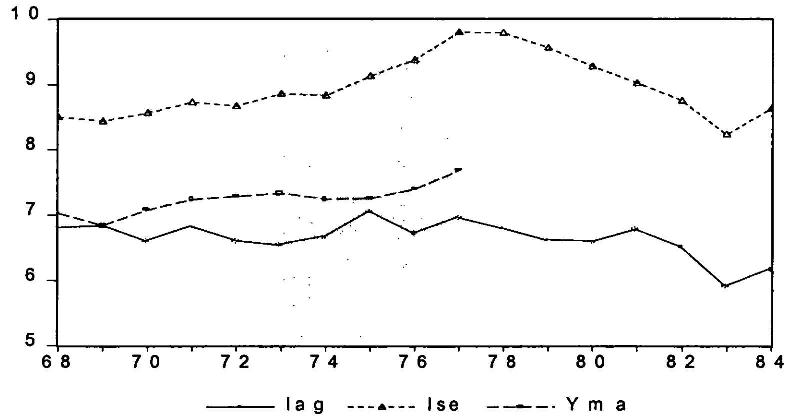
Private Investment	68-72	74-77	78-82	83-84
Agriculture	-4.43	8.84	-3.99	-17.05
	0.33	0.43	0.27	
Manufacturing*	9.15	14.52**	-	-
	0.66	0.93		
Services	6.28	24.21.	-26.11	-6.01
	0.7	0.91	0.99	
Total	5.53	21.17	-24.58	-7.2
	0.65	0.9	0.99	
Public Investment				
Agriculture	5.69	11.69	-16	-38.42
	0.40	0.54	0.73	0.65
Manufacturing	69.49	0.54	-25.3	-36.59
	0.99	0.97	0.82	0.76
Services	-1.6	18.69	2.05	14.44
	0.00	0.90	0.03	0.78
Total	7.31	22.6	-2.46	-30.77
	0.16	0.88	0.06	0.50

Notes: data at constant 1968 prices. There is no available data on private sectoral investment from 1984. *The Central Bank of Venezuela stopped publishing data on private manufacturing investment from 1976. ** It refers to 1975-77.
Source: Own estimations based on data provided by the BCV, economic reports, various issues.

implied that the investment effort was not sustainable. The slump in agricultural value added and investment from 1977 to 1982 was associated with a decline in the level of financial resources granted to the sector by the government and private institutions and with the drop in domestic demand.

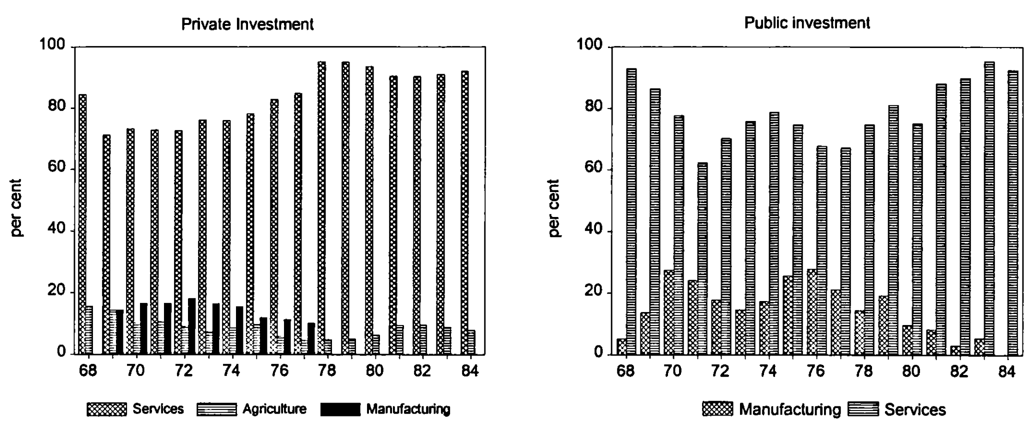
In our view the existence of Dutch disease symptoms in Venezuela during the 1970s must be understood in the sense that further real appreciation (although mild) and a buoyant exchange currency set further obstacles to the development of an export-competitive non-oil sector, which may have laid the foundations for a more independent and sustainable pattern of growth in the long-term. It is also worth mentioning that although private manufacturing growth accelerated during 1973-77 compared to 1968-72, the trend was lower relative to the growth in agriculture and services. Furthermore, Fig 3.11 makes clear that the share of manufacturing in non-mining investment declined during 1973-77 compared to 1969-72.

Fig. 3.10 Trends in private investment, Venezuela, 1968-84, (log scale)



Notes: Iag = agricultural investment; Ima = manufacturing investment and Ise = investment in services. All data is at constant prices of 1968. Sources: as Table 3.12.

Fig 3.11 Sectoral shares in non-oil investment (%), 1968-1984



Sources: as Fig 3.10.

It may be said that the policy response to the 1973 oil boom encouraged the increase in public investment in manufacturing, but although private investment accelerated its pace of growth compared to the pre-boom phase, this was relatively modest, leading to a decline in its share in total private investment during 1973-77. This suggests that the policy response to the boom did not bring about a significant response in private manufacturing and that the first reaction in the sector was to use the high spare capacity to meet the greater home demand. This, as shown later on, was due to the lack of a coherent industrial policy.

3.5.2 Econometric evidence on the transmission mechanisms of Dutch disease in the Venezuelan economy

3.5.2.1 Model

In order to give further support to the previous ideas, econometric estimations were attempted by using time series data for 1955-94. In this way, additional insights are provided on whether the Venezuelan tradable sectors were negatively influenced by the 1970s oil booms through real appreciation of the domestic currency and the spending effect, as predicted by the Dutch disease and 'resource curse' theories.

A reduced form model is formulated for the purpose of identifying the impact of the 1970s oil boom on the Venezuelan non-oil economy. The basic hypothesis being investigated is that higher oil prices will cause -through the appreciation of the real exchange rate- a decline in the tradable output growth rate. Since there is a spending effect, we establish the relationship between real appreciation, real public spending and the output of the different economic activities. A second model considers real money supply as a proxy for the spending effect. Accordingly, the vector of variables considered here includes the sectoral real value added as the explained variable, and the real money supply (M) and the real exchange rate (Er), as explanatory variables. A cointegration and vector error correction model approach was adopted. The reasons for using this methodology were twofold: firstly, most of the macroeconomic variables are non-stationary or have a time series structure with a unit root. A second reason to choose the cointegration and error-correction approach was that this technique allows for consideration of the dynamics of both short-run changes and long-run (level) adjustment processes; so it was possible to appraise the impact of the resource boom on the real side of the economy in the short term and long term.

The problem posed by the non-stationary character of most of the macroeconomic data has been highlighted by recent studies (Nelson and Plosser, 1982 and Schwert, 1988) which show that the trend components of most time series contain both deterministic and stochastic elements. Since regression analysis using time series data relies upon the assumption that this data is stationary, the results may be misleading. Stock and Watson (1989) have argued that the regression of non-stationary time series on another non-stationary time series implies that the standard t and F tests are not valid, the regression being spurious.[22] That means that the results from applying the classical estimation methods, such as OLS, are not valid. Differencing of the data has been pointed out as a solution to this problem. Nevertheless, in this case valuable information about the long-term relationship between the variables may be lost.[23] The cointegration concept allows for the search for a stationary linear combination of time series, each of which are individually non-stationary. Methods to test for cointegration are the Engle-Granger (1985,1987), CRDW or Durbin-Watson statistic for the cointegrating regression[24] and the Johansen method (1988, 1991). We used the three tests to establish a cointegrating equation.

3.5.2.2 Methods to estimate the long-run elasticities

Following the evidence that our variables were non-stationary,[25] we conducted tests for cointegration, that is to say, for the long-run equations. The Engle-

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22 The idea of a spurious regression was first presented by Granger and Newbold (1974) and later developed, within the cointegration framework, by Phillips (1986).

23 Gujarati (1995).

24 The use of this statistic to test for cointegration relies on the work of Sargan and Bhargave (1983).

25 The unit root tests are presented in the methodological appendix to this chapter.

Granger and Johansen methodologies (1988, 1991) were adopted to test for cointegration as a first step. Secondly, given the existence of the inference problems posed by OLS estimations even if there is cointegration, we apply the dynamic OLS methodology presented by Stock and Watson (1989, 1991). This has allowed us to get reliable estimators free from nuisance parameters of the long-term impact of the movement in the real exchange rate and money supply on the output of the different economic subsectors.

The Engle-Granger test

The so-called Granger (1985, 1990) representation theorem states that, if a vector of variables are cointegrated there is always an error correction representation (ECM) of the dynamic model and vice versa.[26] The basic idea is that if a vector of variables is cointegrated, there is a long-term equilibrium relationship between them. Nevertheless, since in the short-run there may be disequilibrium, the error term in the cointegrating equation can be interpreted as the 'equilibrium error' and this can be used to tie the short-run behaviour of the variables to their long-run behaviour.[27] The error correction mechanism corrects for disequilibrium. According to the two step procedure of Engle and Granger, an ECM can be estimated as follows: the first step is to formulate the cointegration model. A static OLS regression is run on the levels or log of each variable in order to search for a linear combination of individually non-stationary time series that is itself stationary. The second step of the Engle-Granger procedure requires that the lagged estimated residuals of the cointegration regressions are entered into the Error-Correction-Model or dynamic model in place of the level terms. This model represents an equation, which ties the long-run behaviour of manufacturing output to its short-term value. The basic form of an ECM is as follows:

$$\Delta Y_t = \beta\Delta Z_t + \theta R_{t-1} + \mu_t$$

26 The error-correction mechanism was first presented by Sargan (1964) and later popularised by Engle and Granger (1985).

27 Gujarati (1995).

where Z is the vector of all explanatory variables, R_{t-1} represents for the residuals of the cointegrating vector, and θ is the error correction coefficient.

The Johansen Test for Cointegration

The Johansen (1991) test for cointegration was also applied. This method allows us to establish the number of cointegrating equations. This methodology is described as maximum likelihood (ML) and relies upon an assumption of multivariate normality, despite the fact that the asymptotic arguments do not depend on this assumption. The Johansen procedure works with the EC representation directly, and the framework adopted implies the assumption that introducing sufficient lags will lead to a well-behaved disturbance term. ΔX_t is assumed to be an I(0) vector and the initial specification of the process can be written as follows:

$$\Delta X_t = \Gamma_1 \Delta X_{t-1} + \Gamma_{t-1} \Delta X_{t-p+1} + \pi X_{t-p} + \mu + \varepsilon$$

The above equation is a typical first difference VAR model which includes the long-run equilibrium term πX_{t-p}. The Johansen method examines whether the coefficient matrix π provides information about long-run relationships in the data vector. The number of cointegrating relationships which can be identified in X_t is given by the rank (r) of π. The above model can be interpreted as a vector error correction model (VECM) similar to the representation presented by Engle and Granger (1987).

Within the Johansen framework, there are two test statistics for identifying the number of cointegrating vectors: the trace and maximum eigenvalue statistics. The second test computes the null hypothesis that there are r or less cointegrating vectors ($r = 0$, $r<1$, ... $r< n$). This is tested against the general alternative ($r = 1$, $r = 2$..., $r = n$). We used the eigenvalue test to establish the number of cointegrating vectors.

The Dynamic Stock and Watson Representation

Once cointegration was obtained we proceeded to apply the Stock-Watson representation to estimate the long-term elasticities. In order to get more reliable estimators of the long-term elasticity of sectoral output with respect to the changes in real money supply and the real exchange rate, we applied the Stock and Watson dynamic OLS specification (1989, 1992). This method represents an answer to the biases introduced in the cointegrating regressions by simultaneity and serial correlation. The non-linear representation reproduced below was applied

$$Y_t = \alpha_0 + \beta_1 M_t + \beta_2 Er_t + \sum_{i=1}^{k} \delta_{1i} \Delta M_t + \sum_{i=1}^{k} \delta_{2i} \Delta Er_t + e_t$$

where k represents leads and lags.

3.5.2.3 Unit Root Tests for Stationarity

Table 3.13 reports the results of the unit root tests for the variables analysed, namely, sectoral value added (Y_a, Y_m, Y_{ma}, Y_c, Y_s); real money supply (M); bilateral real exchange rate (E_r); and relative prices (P_r).

Where

Ya, Ym, Yma, Yc, Ys: logarithms of real value added at 1984 prices of agriculture, mining manufacturing, construction and services, respectively. Source: Own estimations based on data provided by the BCV, economic reports, various issues.

M_t: logarithm of the real money, that is the sum of notes, coins and checkable deposits (M1), deflated by the consumer price index.. Source: BCV.

G: log of real government spending at 1984 prices. Sources: BCV, economic reports, various issues.

Er_t: logarithm of the \$ or bilateral real exchange rate index. Source: Table 2.a, column 10, chapter II.

The lag length depends on the existence of autocorrelation in the variables. All the variables in levels needed one lag to be included for serial correlation to disappear. On the basis of the computed DF and ADF tests, the unit root

Table 3.13 Unit root tests for variables in logs and differences

	DF	Perron test
Variables/Critical Values	-3.525	-4.220
Agriculture Y	-1.080	-1.300
Manufacturing Y	0.113	-4.140
Construction Y	-0.876	-2.770
Services Y	0.112	-1.560
M	-0.594	-3.320
G	-0.697	-2.720
Er	-3.078	-1.810
	DF	Perron test
Variables/Critical Values	-3.528	
Δ Agriculture Y	-6.202	-4.750
Δ Manufacturing Y	-5.793	-4.390
Δ Construction Y	-3.760	-3.430
Δ Services Y	-4.931	-2.070
Δ M	-5.022	-5.050
Δ G	-6.024	-4.4006
Δ Er	-8.191	-6.050

Notes: No augmented DF test was performed when the disturbance. The DF critical value for goverment spending are -3.5514 Terms in the DF regression did not seem to be autocorrelated and -3.5562 because the sample spans from 1960 to 1994.

hypothesis is rejected for all the variables in (log) first difference form (ΔX) (except for mining value added). Thus the variables appear integrated of order 1. The Perron test confirms these findings for agriculture and manufacturing value added. Nevertheless, according to this test the first difference of construction and services value added is non-stationary. Since the DF test rejects the unit root hypothesis for these variables, we assume that they are stationary.

3.5.2.4 Estimating long-run elasticities

The econometric model presented here is based on the model formulated by Kamas (1986) to estimate the impact of the 1970s coffee boom on the real side of the Colombian economy. However, it must be noted that this scholar overlooked the problem of stationarity. The estimations presented here rely upon this model, but a cointegration and VECM methodology is applied.[28] The cointegrating equation is of the form:

$$Y_t = \alpha + \beta_1 M_t + \beta_2 Er_t + e_t$$

where Y_t is real value added, M_t is real money supply, Er_t is the real exchange rate and e_t is the error term.

This equation was estimated for the different economic sectors, namely agriculture, manufacturing, construction and services. In the case of construction and services, real government expenditure was used as a proxy for the spending effect.

The results of the tests for cointegration are reported in Table 3.14. In the case of the first test, the results of the DF test for determining the existence of a unit root in the residuals of these cointegrating regressions are also reported. This suggests the existence of cointegration in all the cases. Hence, long-run movements in the level of the sectoral value added are related to the long-run movement on the real money supply (M) or real government spending (G) and the bilateral real exchange rate (Er) (this is the cointegrating equation). The real exchange rate appears to be correctly signed from the Dutch disease perspective in the long-run for agriculture, manufacturing and construction but

[28] The econometric model presented by Kamas served as typical model used in other studies on Dutch disease; see for instance

Table 3.14 Testing for cointegration, 1960-1995

	Engle-Granger Test					
	Cointegrating Vector					
	Constant	M	Er	G	R^2	DF
Agriculture	2.240	0.320	0.848		0.94	-5.121
	(0.000)	(0.000)	(0.000)			
Manufacturing	-3.646	0.736	1.271		0.96	-2.616
	(0.000)	(0.000)	(0.000)			
Construction	-5.647		-0.019	1.422	0.94	-3.188
	(0.000)		(0.921)	(0.000)		
Services	0.130		0.596	0.822	0.92	-4.394
	(0.745)		(0.000)	(0.000)		

	Johansen Test			
	Null hypothesis r<=1, alternative hypothesis r=2			
	No of lags:4			
Estimated cointegrating vectors (Normalised)	Yag	M	Er	Max
Agriculture				19.025
Vector 1	-1	0.373	1.186	
Vector 2	-1	0.253	0.694	
Critical values:				
95 percent				14.069
	Null hypothesis r<=1, alternative hypothesis r=2			
	No of lags: 7			
	Yma	M	Er	
Manufacturing				14.568
Vector 1	-1	0.952	0.191	
Vector 2	-1	0.666	0.474	
Critical values:				
95 percent				14.069
	Null hypothesis r=0, alternative hypothesis r=1			
	No of lags: 5			
	Yc	G	Er	
Construction				25.06
Vector 1	-1	1.476	-1.469	
Critical values:				
95 percent				20.967
	null hypothesis r=0, alternative hypothesis r=1			
	No of lags: 5			
	Ys	G	Er	
Services				38.68
Vector 1	-1	0.833	0.648	
Notes: Critical values:				
Critical values:				
95 percent				20.967

Notes: number on parenthesis in the Engle-Granger test are the standard deviations.

not for services.[29] The Johansen cointegration test also confirms the existence of cointegration for the vectors of variables.[30] The cointegrating vectors in

Richards (1994) and Hutchison (1994).

29 Another equation, in which the sectoral value added is determined by the real money supply (M) and the relative prices of non-tradable to tradable (Pr), was attempted. However, the tests showed that there was non-cointegration.

30 Serial correlation tests were applied using p = 4 in the equation of the levels vector autoregression. In this way the choice of p = 4 is confirmed in terms of residual whiteness. The Johansen test was applied using different p, with similar results.

normalised form are also shown. In the case of agriculture and manufacturing a positive coefficient on the real exchange rate would suggest a long-run disruptive impact of real appreciation on value added. A positive parameter on the money supply would indicate a favourable impact of expansionary monetary/fiscal policies on the sector.[31] For construction and services a negative parameter on the real exchange rate would indicate that real appreciation has a positive effect on the sectoral value added. As can be seen from Table 3.14, the real exchange rate is correctly signed in the case of construction but not in the case of services.

In order to get more reliable estimators of the long-term elasticity of sectoral value added with respect to the changes in money supply and the real exchange rate, the Stock and Watson dynamic OLS was applied. The results, presented in Table 3.15, do not differ substantially from those obtained by

Table 3.15 Stock and Watson estimates, 1960-1995

	Constant	M	Er	G	R^2
Agriculture	2.332	0.291	0.900		0.98
	(0.000)	(0.000)	(0.000)		
Manufacturing	-3.234	0.719	1.235		0.99
	(0.000)	(0.000)	(0.000)		
Construction	-6.475		0.394	1.327	0.97
	(0.000)		(0.175)	(0.000)	
Services	-0.137		0.689	0.809	0.99
	(0.000)		(0.000)	(0.000)	

Notes: standard deviations in parenthesis, number of lags is 2.

applying the Engle-Granger and Johansen tests with regards to the signs of the coefficients. Apart from the Er in the case of construction, the coefficients keep the same sign. However, under the Stock and Watson methodology, in the case of manufacturing the coefficient for the real exchange rate is greater compared to the results obtained by using the Johansen methodology. In the

[31] These results were obtained using E-views (1994) and the estimation option for variables with a linear deterministic trend. The maximum eigenvalue statistics indicate the existence of three cointegrating vectors in the cases of manufacturing, construction and services (r=3).

long-term, the real appreciation of the domestic currency has a negative effect on agriculture and manufacturing. Nevertheless, this effect is partly counterbalanced by the positive impact of the fiscal expansion.

3.5.2.5 Estimating short-run elasticities

The Engle-Granger two step procedure was used to formulate an error correction model and test the predictions of the Dutch disease theory on the real side of the economy for Venezuela. Thus, an error-correction model was tested under which the residuals from the cointegration regression presented in Table 3.14 were used as an error-correcting variable in a dynamic equation which states that sectoral real value added is influenced by the bilateral real exchange rate (Er), and the level of domestic absorption measured as real money supply (M).[32] The standard equations of the ECM for the log of sectoral value added can be written as:

$$\Delta Y_t = \alpha + \beta_1(L)\Delta M_t + \beta_2(L)\Delta Er_t + r_{t-1} + e_t$$

$$\Delta Y_t = \alpha + \beta_1(L)\Delta M_t + \beta_2(L)\Delta Er_t + r_{t-1} + e_t$$

where Δ denotes the first difference operator; L is the lag operator, r_{t-1} is the one-period lagged value of the residual from regressions (3), and e_t is the error term. Equation (10) was applied to the different economic sectors. Thus the changes in sectoral value added (Y_{ag}, Y_{ma}, Y_c, Y_s) are linked to changes in the money supply (M) or real government spending (G) and the bilateral real exchange rate (Er_t) and the equilibrating error in the preceding period. In this equation ΔM_t and ΔEr_t represent the short-run disturbances in the sectoral value added and the error correction term (r_{t-1}) captures the adjustment towards the long-run equilibrium.

32 This model is based on Kamas (1986), who estimated a similar model to measure the impact of the 1970s coffee boom on the Colombian economy, by using OLS method without testing for stationarity.

The 'general-to-specific' modelling methodology of Hendry (1986) was followed. We formulated an initially complex model with different lags on the dependent and independent variables and a dummy variable for the 1978-81 years, which was simplified and reparametarised until we obtained the most adequate equations. According to the Dutch disease theory there is a positive association between the behaviour of manufacturing real value added and the movement of the real exchange rate; while a negative relationship between the trends in the latter variable and construction and services value added is expected. The impact of real government expansion on both tradable and non-tradable sectors is bound to be positive. Thus, in the estimation of the equations for agriculture and manufacturing it is expected that β_1 and β_2 >0; while in the estimation of the equations for construction and services it is expected that $\beta_1 > 0$ and $\beta_2 < 0$.

The results for estimation of the error-correction model in logs are reported in Table 3.16. These equations were estimated by using OLS on annual data for the 1968-95 years[33] as there is no evidence of autocorrelation either from DW or the Lagrarian multiplier tests for sixth-order autocorrelation. The fit of the equations is quite good in terms of a high R^2 and the most simple tests reported. As can be seen, in all the equations the coefficient of real money supply and real government spending has the expected sign and is significant at the 95 per cent confidence level. This means that in the short-term this variable exerts a positive impact on value added of these sectors, which suggests that expansionary fiscal and monetary policies have a positive impact on both tradable and non-tradable sectors of the economy in the short-run. The bilateral real exchange rate has the predicted sign in the case of construction, but not in the case of manufacturing, and it was not significant at the 95 percent. Similarly, for services the real exchange rate has the wrong sign. Hence, the hypothesis that real appreciation prompts an adjustment in favour of the non-tradable sectors is not confirmed in the short-run. Likewise,

Table 3.16 Error-correction Representation

Dependent Variable is Δ(Yag)
Sample: 1956 1995
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.044	0.008	5.888	0.000
Δ(M)	-0.017	0.040	-0.426	0.673
Δ(Er)	0.006	0.060	0.099	0.922
R(-1)	-0.147	0.069	-2.137	0.040
D1	-0.039	0.023	-1.719	0.095
D2	-0.044	0.016	-2.744	0.010
R-squared	0.297	Mean dependent var		0.034
Adjusted R-squared	0.194	S.D. dependent var		0.040
S.E. of regression	0.036	Akaike info criterion		-6.531
Sum squared resid	0.043	Schwartz criterion		-6.277
Log likelihood	79.857	F-statistic		2.873
Durbin-Watson stat	1.680	Prob(F-statistic)		0.029

Dependent Variable is Δ(Yma)
Sample: 1956 1995
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.047	0.006	8.524	0.000
Δ(M)	0.285	0.035	8.144	0.000
Δ(Er)	0.145	0.050	2.895	0.006
R(-1)	-0.083	0.035	-2.340	0.025
R-squared	0.693	Mean dependent var		0.064
Adjusted R-squared	0.668	S.D. dependent var		0.055
S.E. of regression	0.032	Akaike info criterion		-6.797
Sum squared resid	0.037	Schwartz criterion		-6.628
Log likelihood	83.186	F-statistic		27.147
Durbin-Watson stat	2.116	Prob(F-statistic)		0.000

Dependent Variable is Δ(Yco)
Sample: 1962 1994
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.017	0.021269	0.792725	0.435
Δ(G2)	0.655	0.158289	4.135637	0.000
Δ(ERB)	-0.454	0.170802	-2.655307	0.013
Δ(Yco(-1))	0.453	0.115506	3.919324	0.001
R3(-1)	-0.412	0.110291	-3.737313	0.001
R-squared	0.654	Mean dependent var		0.055
Adjusted R-squared	0.604	S.D. dependent var		0.169
S.E. of regression	0.106	Akaike info criterion		-4.348
Sum squared resid	0.315	Schwartz criterion		-4.122
Log likelihood	29.921	F-statistic		13.208
Durbin-Watson stat	2.115	Prob(F-statistic)		0.000

Dependent Variable is Δ(Ys)
Sample: 1962 1994
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.025	0.008	3.319	0.00
Δ(G)	0.252	0.045	5.646	0.00
Δ(Er)	0.086	0.060	1.436	0.16
Δ(Ys(-1))	0.214	0.121	1.765	0.09
R(-1)	-0.222	0.089	-2.485	0.02
R-squared	0.642	Mean dependent var		0.05
Adjusted R-squared	0.591	S.D. dependent var		0.05
S.E. of regression	0.030	Akaike info criterion		-6.90
Sum squared resid	0.025	Schwartz criterion		-6.67
Log likelihood	71.993	F-statistic		12.55
Durbin-Watson stat	1.712	Prob(F-statistic)		0.00

despite the devaluation of the bolivar during 1983-88, services showed the same rate of growth as compared to 1973-82. It must be noted that the error-correction term is statistically significant in all the equations.

3.6. Final remarks

The major finding of this chapter is that although some Dutch disease symptoms can be identified in the Venezuelan economy by 1972, as far as manufacturing is concerned these were not reinforced during 1973-77. Dutch disease in Venezuela is especially linked to the shrinkage of agriculture which was severely disrupted since the 1930s and to the non-existence of an export competitive manufacturing sector, which is partly explained by the structural overvaluation of the domestic currency common to the Venezuelan economy since the 1930s. Although there is evidence that Venezuelan manufacturing fell below the standardised norm during 1966-72, some development based on import-substitution industrialisation took place. As regards the 1973-77 phase, the Dutch disease indices for manufacturing did not deteriorate indicating that the phenomenon was not reinforced during these years. By contrast, the index for agriculture did increase during these years. However, the trends in sectoral prices as well as the econometric evidence suggest that the mechanisms (or intermediate causes) embodied in the Dutch disease model did not take place during 1973-77. The results of the econometric work suggest that the predictions of the Dutch disease theory on the negative impact of real appreciation are rather mixed as they apply to Venezuela. The negative effect of real appreciation and manufacturing and agriculture value added growth is verified in the long-term, but not in the short term. These results indicate that manufacturing was not disrupted by real appreciation during 1973-77.

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[33] In the cases of construction and services, the sample was 1960-95 due to a lack of earlier data for government spending.

This discrepancy from the theoretical predictions may be explained by the specific features of the Venezuelan economy such as the existence of a large public sector, controlled prices, and interventionism in both commodity and factor markets, which suggest that the role of government policies may be of more relevance that the price mechanism in explaining the allocation of resources. At the same time, there was no export-competitive Venezuelan manufacturing sector. Within the Dutch disease model both import-competing and export competing subsectors are aggregated into a tradable sector. However, the impact of a boom on tradables may be different if these are import-competing or export-competing. Moreover, the negative impact on import-competing manufacturing associated with an appreciation of the real exchange rate, may have been counterbalanced by other macroeconomic and sectoral policies and the positive effect of appreciation through cheaper imported inputs. Therefore, the negative impact of the spending effect predicted by the Dutch disease model may have been mitigated or overcome.

As a result of the previous considerations, the next step in the research is to examine the economic policies with special reference to manufacturing.

4. Venezuelan Private Manufacturing and the Policy Response to the 1970s Oil Booms

Introduction

This chapter assesses the fiscal, financing and exchange rate policies adopted at the outset of the 1970s oil price shock with special reference to Venezuelan private manufacturing. Section 1 briefly discusses the role of economic policies within the Dutch disease framework. Section 2 examines the role of fiscal policies and, especially, investment decisions and financing policies with reference to manufacturing. Next, exchange rate policy and its influence on manufacturing are considered in section 3.

The remainder of the chapter is devoted to presenting the results of econometric work in order to provide further insights into the impact of government policies during a boom. Consistent with the non-stationary properties of the data, an error correction modelling approach was used to estimate the impact of the fiscal, monetary and exchange rate policies launched at the outset of the 1970s oil booms on private manufacturing value added and investment during 1960-88. This is a relevant aspect not only for understanding the effects of the 1970s oil booms on manufacturing from a theoretical view, but also for determining the effectiveness of the fiscal, monetary, and exchange rate policies in dealing with a resource or export boom (and the post-boom phase) and in attempting to reverse the Dutch disease process. A further contribution of this chapter relates to the need to evaluate the effectiveness of these macroeconomic policies at the sectoral level since the impacts of these policies are expected to differ across sectors and subsectors.[1] Finally, the major findings are summarised in section 5.

4.1 The Role of economic policies under the Dutch disease framework

[1] It must be noted that the econometric model attempted here also provides insights into the accuracy of the adjustment program prescribed by the Washington consensus, which was launched in Venezuela in 1989.

From the neo-classical view point, the best policy in the face of a resource boom is no policy at all since, within the model, the structural adjustment prompted by the boom would lead to an optimal allocation of resources, and levels of production and investment. In this context, appreciation and de-industrialisation would be necessary to improve social welfare and would both appear as optimal.

Nonetheless, it has been argued that if the boom is expected to be temporary, the structural adjustment following a sectoral boom should be avoided because the wrong price signal in the short-term would imply a movement away from the optimal allocation of resources in the long term. This may be the case if the economic agents do not predict the future adequately or focus on short-term profitability (Corden, 1982). It has been argued that despite being aware of the long-term equilibrium in the short-term, profit opportunities may induce adjustment in favour of the non-traded sectors (Kamas, 1986). Thus, if the adjustment is expected to be temporary, interventionism is justified in order to avoid the loss of exports in the traded sector and the temporary unemployment of factors. Consequently, these factors make a case for interventionism at the onset of a boom.

One option is the setting of an "anti-cyclical" fund. Kamas (1986) observes that a helpful policy may be the restraint of domestic absorption, which allows for a surplus of the balance of payments. The accumulation of foreign assets may serve the aim of future investment or like an equilibrating income during phases of falling resource prices.

Another option is the granting of protection to manufacturing on the basis that the possible losses in terms of technological learning-by-doing in favour of the non-traded sector would imply losses in terms of learning and it may be difficult to re-establish manufacturing growth in the post-boom phase (Van Winjbergen, 1982; 1984). The granting of protection to manufacturing is justified by arguing that technological change is more rapid in manufacturing than in agriculture and services.[2] The existence of economies of scale, inter-industry links and other externalities, such as the training of labour in manufacturing, are also reasons for supporting protection for manufacturing during a sectoral boom.

By recognising the existence of positive externalities in industry, the Dutch disease model allows for government intervention in the presence of a temporary boom. However, the model remains essentially neo-classical, which implies a general equilibrium framework of analysis with all the automatic mechanisms and assumptions, such full employment, the law of one price, rational expectations, etc. It is worth noting that more recent studies ascribed to the neo-classical framework acknowledge that the spending effect can take place through government policies when oil revenues accrue to the state. In this case, real appreciation may occur during a boom due to both market and government failures. Nevertheless, the policy recommendations under this view also remain neo-classical as it is claimed that devaluation and more liberal policies may be effective in encouraging industrialisation (see Gelb and Associates, 1988, Auty, 1991).

We must stress that the considerations derived from the more orthodox neo-classical framework on policy issues may not be adequate for oil-exporting developing countries. In these cases, even if an economy is expected to benefit from important extra international revenues for a long time, the encouragement of manufacturing is important. Concerning the policy recommendations of the more recent analysis of Dutch disease, we argue that the launching of devaluation and the use of more liberal policies may not encourage industrialisation, especially in an economy such as Venezuela's, which lacks an export-competitive manufacturing sector. In

[2] This is arguable. According to Davis (1995) there is evidence that rapid technological change can occur in agriculture

this case the granting of selective protection to manufacturing, within a coherent industrial policy which combines import–substitution and the development of an export-competitive sector, is a must in the effort to achieve a more sustainable growth path.

4.2 The Role of fiscal policies and private manufacturing during 1973-77 and 1978-82

4.2.1 Domestic absorption during 1973-82

The role of government expenditure may entail some positive and negative effects. Through the expansion of domestic demand, it may revive private investment. Likewise, investment in infrastructure can contribute to improving profitability by overcoming constraints, such as the low quality of roads.

Some evidence on the absorption of oil revenues during 1973-82 is presented in Fig. 4.1. These estimates assume as normal the public spending of 1970, because this year was characterised by stable economic conditions and a low level of oil revenues. Therefore, the excess of the actual values relative to the normal level is considered to be the public spending attributed to the increase in oil revenues. In order to estimate the normal level of spending for the other years it was assumed that public spending increased with per capita GDP. Thus, the normal values of public spending were estimated by a lineal extrapolation or interpolation according to per capita GDP. Fig 4.1 shows the excess of the actual current spending as a share of total normal current spending; as a share of GDP; and, as a share of oil revenues. The same indicators for capital spending are also presented.

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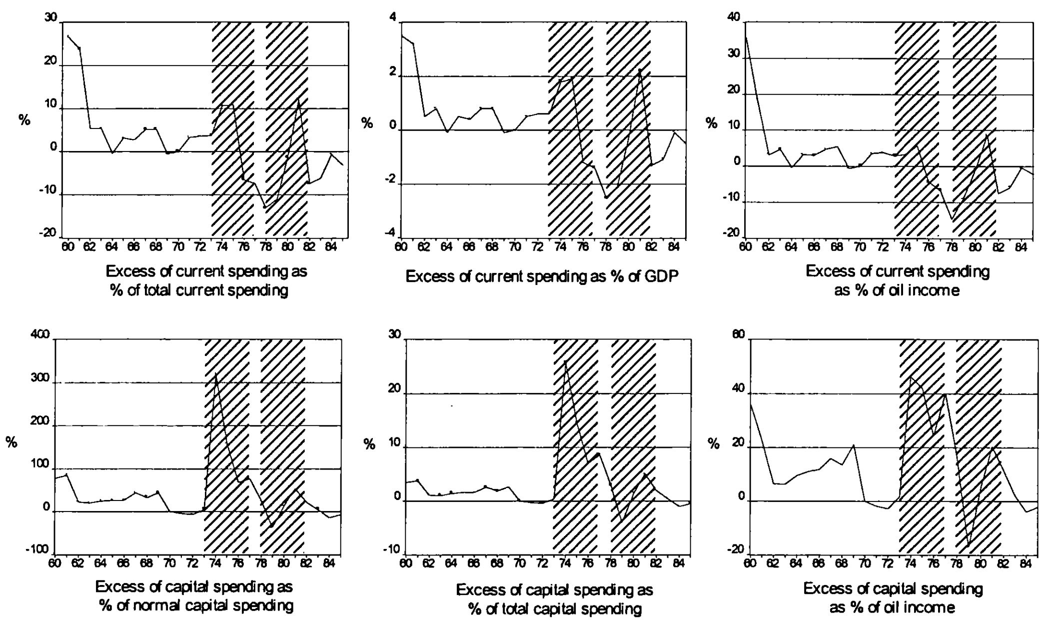
too.

The picture that emerges from these figures is that the Venezuelan policy response to the 1973s oil boom favoured the domestic investment of oil revenues especially during 1973-82. The differential between the actual

Fig. 4.1 Public current and capital spending, Venezuela, 1960-85



Sources: Mommer (1990), pp. 211-223, Tables 9 and 10.

and normal current spending (as a share of the normal current spending) increased from 3.3 per cent in 1971 to 10.9 per cent in 1975, but with the exception of 1981, it was negative thereafter. At the same time, the differential between the actual and the normal capital spending as a share of the normal capital spending increased from -3.9 per cent in 1971 to 319.5 and 158.2 per cent in 1974 and 1975, respectively. Although lower, this variable remained positive during 1978-82, except from 1979.

Contrary to the common perception in the political and economic circles of Venezuelan society, it is shown that most of the oil revenues were beneficial for investment and tended not to be chanelled into consumption. This suggests that the problem in Venezuela was not the lack of investment, but the inefficiency of its allocation.[3]

4.2.2 Direct public investment

The 1973-82 years witnessed a growing direct involvement of the Venezuelan State in the economy and in industrialisation. Although the Venezuelan industrial strategy remained unchanged during 1973-77, interventionism was enhanced by the accrual of oil revenues to the state.[4] During the 1973 oil boom, the upsurge in public manufacturing investment reflected the formulation of an ambitious export-oriented resource-based industrialisation, as contained in the Fifth Plan of the Nation (1976-80). As shown by Table 4.1, 37 per cent of the public investment projected in the

Table 4.1 Investment program by sectors of the V Development Plan (1976-80)

Sectors	Values millions of bolívares	Percentage of total %
Traded	21540	38.95
Agriculture	300	0.54
Mining	510	0.92
Manufacturing	20730	37.49
Non-traded	33758	61.05
Services	16081	29.08
Social infrastructure	5375	9.72
Infrastructure for transport	10706	19.36
Electric energy	17677	31.97
Total investment	55298	100.00

Source: Central Bank of Venezuela, economic reports (1976).

Fifth Plan was allocated to manufacturing. The aluminium and the iron industries took a full 90 per cent of public manufacturing investment. The

3 For an interesting and novel discussion on this topic see Baptista (1997).

4 Some Venezuelan scholars have read interventionism as a kind of threat to the private capital. The employers organisation, Federacion Venezolana de Cámaras y Asociaciones de Comercio y Producción (FEDECAMARAS), itself had often critiqued the strong interventionism of the Venezuelan state, especially when this felt threatened by some economic policies. Nevertheless, as Fine (1997) puts forward the interest of private capital can be served by an interventionist or privatising strategy. For a critical assessment of interventionism in Venezuelan industrialisation see Rangel (1972) and Duno (1975).

Central Bank of Venezuela estimates that real public investment grew by 15.34 per cent during the 1973-77 period in comparison with -2.2 per cent during the pre-boom phase (1969-72).

Similarly, it is estimated that the percentage of funding allocated by the state to direct and indirect investment increased from 39.3 per cent in 1971 to 69.4 per cent in 1977 (Table 4.2). By contrast, the private sector share of surplus allocated to financing capital formation declined from 60.7 per cent

Table 4.2 Public and private financing of gross fix investment

Sector	1971	%	1975	%	1977	%
(a) Public Investment	5235	39.3	22730	74.2	41958	69.4
(b) Direct investment	3152	23.7	12533	41	23662	39.1
(c) Indirect investment	2083	15.6	10197	33.2	18296	30.3
(d) Private Investment	8083	60.7	7869	25.8	18526	30.6
(e) Direct investment	10166	76.3	18065	59	36822	60.9
(f) Indirect investment by the public sector	2083	15.6	10197	33.2	18296	30.3

Notes: (b) This refers to government and state enterprises; (c) This refers to the credits granted by the state to the private sector; (e) It refers to the value of private investment financed by own resources; (f) Amount of total private investment financed by resources provided by the public sector. This variable was measured by excluding the credits granted by the state to the private sector from the investment made by the private sector. Sources: Infante (1981), Table 20, p. 65.

to 30 per cent on average during the same period. As a result of this, the dynamic performance of private manufacturing investment over 1973-75 took place with little effort because the distribution of oil revenues served as a substitute for domestic saving (see chapter 5).

Concerning the quality of government investment in manufacturing, the choice of allocating a large share of oil income to a resource-based industrialisation strategy has been strongly criticised by many observers. As we are only concerned with private manufacturing here, it will suffice to say that some of these criticisms appear as valid, especially those related to the inefficiencies arising from lack of public administrative capacity and the non-consideration of international trends with regards to technological change.[5] Nevertheless, the criticism regarding the supposed crowding-out effects of the large-scale projects of resource-based industrialisation on private investment does not seem to be correct. In our view, there were enough resources to have combined even an export-oriented and owned-state resource sector with the promotion of other selected branches such as chemicals in the private sector. What was missing was a coherent industrial strategy. In other words, we argue that the problems with public investment during the 1970s were associated with the reluctance to launch a coherent industrial strategy which should have encouraged a deepening of import substitution together with the promotion of exports. By contrast, the industrial policy remained the same as in the 1960s and despite the availability of external revenues, there was no export promotion policy which addressed private manufacturing. In this way, the opportunity to diminish dependence upon oil and set the basis for a more sustainable path of growth was wasted.

4.2.3 Financing policies: direct transfers to the private sector

In Venezuela, domestic investment in public and private manufacturing and the non-oil economy was also promoted by the policy of easy credit during the 1970s oil booms. One of the major instruments of the industrial strategy between 1960 and the mid-1980s was the granting of cheap public credit. In accordance with the aims of the Fifth National Plan (1973-77), the Venezuelan Investment Fund (F.I.V.) favoured the expansion of the steel and aluminium industries.[6] In this plan, the encouragement of intermediate industries was a priority, especially the development of a publicly owned export-oriented sector. Public institutions, such as the Industrial Credit Fund (FCI), CORPOINDUSTRIA and the Venezuelan Industrial Bank (BIV) were created or enhanced to channel financial

[5] See Auty (1991).

[6] It has been estimated that more than 50 per cent of the total financing resources granted during the 1970s was channelled to the basic metal lines by the FIV. Fajardo (1984, p. 54).

resources into manufacturing. Table 4.3 shows that there was an increase in credits granted to private manufacturing during 1974-78 followed by its decline a decline in 1979-80. The latter institutions channelled 2.061 m. bolívares into private manufacturing in 1975, which represented an increase of 152.3 per cent compared with 1974.

Table 4.3 Credits granted to private manufacturing by type of institution, Venezuela, 1970-80

	1970-73	1974-78		1979		1980	
	Value	Value	Credit No	Value	Credit No	Value	Credit No
FCI	-	1444.5	155	198.1	19	192.9	19
CVF	417.0	2723.6	-	302.7	-	154.3	-
CORPOINDUSTRIA	41.3	2117.0	1601	-	-	-	-
FIVCA	-	1888.0	-	-	-	-	-
BIV	-	1619.2	-	-	-	-	-

Notes: the value is in mill of bolívares. Sources: Fajardo (1985).

Although the policy of public credit favoured some intermediate manufacturing subsectors such as basic metals, metals products, non-metallic mineral products and chemicals, food and textiles also benefited (Table 4.4). Textiles received 16 per cent of the public credits granted to manufacturing (excluding basic metal industries) during 1974-77.[7] The policy of easy public credit may have encouraged an increase in the number of small-scale enterprises. A key point here is that some of the lines favoured by the government's financing policy, such as textiles and food, experienced poor performance in terms of labour productivity and output during 1974-77 (see chapter 7). This suggests that the financing policy was far from adequate, with indiscriminate granting of credits leading to an increase in the number of small establishments with very low labour productivity.

The policy of easy credit to private manufacturing during 1973-82 brought about changes in the sources and use of funds in the sector. Regarding private manufacturing, between 1970 and 1977 more than half of all investment relied on external sources. Thus, internal financing declined considerably.[8] Furthermore, these so-called 'credits' were really grants, which were never re-paid.[9]

Table 4.4 Structure of the public credit to Venezuelan private manufacturing, 1974-77 (%)

ISIC code	Industries	1974	1975	1976	1977	1974-77
	Labour-intensive industries	59.1	55.2	54.4	63.8	58.1
332	Furniture	2.1	1.5	0.9	1.3	1.5
331	Wood	0.4	1.2	0.6	0.7	0.7
356-54-90	Other manufacturing	7.7	13.6	16.0	24.7	15.5
323	Leather products	1.9	0.2	0.8	0.3	0.8
322-24	Wearing apparel and footwear	2.6	0.8	0.7	1.3	1.4
321	Textiles	30.2	11.1	8.0	10.4	14.9
381	Metal products	9.4	13.7	10.7	7.2	10.3
355	Rubber	0.9	0.8	0.3	0.8	0.7
361-62-69	Non-metallic mineral products	3.9	12.2	16.4	17.2	12.4
	Capital and/or human Capital-intensive industries	40.9	44.8	45.6	36.2	41.9
313	Beverages	0.2	0.1	0.0	0.1	0.1
314	Tobacco	0.4	0.1	0.0	0.1	0.1
341	Paper and paper products	0.4	1.9	4.2	0.5	1.8
384	Transport equipment	4.5	5.9	4.7	5.5	5.2
311-12	Food products	26.6	24.9	20.6	11.4	20.8
351-52	Chemical products	4.7	6.8	2.0	6.3	4.9
382-83	Mechanical and electrical machinery	2.4	3.1	12.7	10.3	7.1
342	Printing	1.7	2.1	1.4	1.9	1.8
300	Private manufacturing	100.0	100.0	100.0	100.0	100.0

Sources: own estimations based on data provided by the Central Bank of Venezuela, economic reports, 1974-77.

In 1977, more than half of all private investment was financed by credits provided by the government.[10]

Concerning the possible financial crowding-out effect of public investment, this is unlikely because public investment in Venezuela was financed by external sources. The expansion of government expenditure was financed by the greater oil revenues and this allowed for an increase in government borrowing from commercial banks and in domestic credit to the private

7 Central Bank of Venezuela, economic reports, various issues.

8 Fajardo (1985, p. 17).

9 Mommer (1991).

sector. It should be noted that during 1978-82, the existence of a financial crowding-out effect was also unlikely because bank credit to the private sector continued to grow during these years. The marked increase in government borrowing from commercial banks during 1978-79 reflected the deflationary fiscal and monetary policies pursued during these years. As mentioned above, the greater oil revenues derived from the second oil price increase were partly made available to the private sector through private credit. However, these revenues were saved abroad.

4.2.4 Indirect transfers to the private sector and private investment

From 1960 to the mid-1980s, private investment was encouraged by the availability of loans from private banks at low interest rates. This was one of the indirect mechanisms of distributing part of the oil revenues to the private sector especially, during 1973-77. Interest rates were very low or negative during these years (see Fig 4.2). This would be expected to have encouraged private investment.[11]

The key role of an easy credit policy for private manufacturing during 1960-82 can also be suggested by the fact that increasing financial costs are mentioned as one important contributing factor to the poor performance of Venezuelan private manufacturing begun in 1989. Following the sharp decline in oil income and the financial liberalisation from 1989, interventionism in the financing of private investment stopped and high and increasing interest rates operated as a disincentive to private investment. This is confirmed by the investment equation estimated below.[12]

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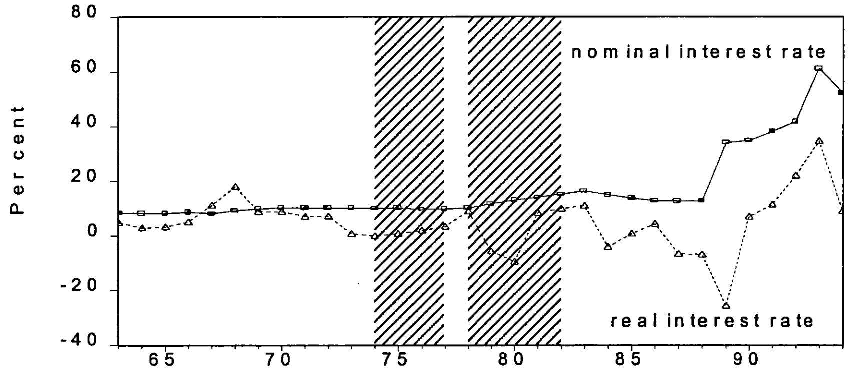
[10] Infante (1981, p. 65) quoted by Bitar and Troncoso (1983, p. 87).

[11] The Venezuelan case contrasts with the case of other developing countries in which financial repression may have determined a low response of private investment to changes in the interest rates. In this context the availability of bank credit would pay a more important role (Wai and Wong, 1982). Nevertheless, Bernanke (1983) and Greene and Villanueva (1991) estimate that high real interest rates exert a negative impact on private investment, via increasing labour costs.

[12] While some of the big-scale industries were able to stand this situation due to their links with the financial sector, the small-scale enterprises were severely disrupted. It has been mentioned that the inability of many manufacturing enterprises to pay the loans contributed to the severe financial crisis, which began in 1994. Valecillos (1994, p. 48).

Fig 4.2 Real active interest rate, Venezuelan manufacturing, 1963-94



Notes: the active real interest rate is defined as the nominal active interest rate for the industrial sector deflated by the manufacturing GDP deflator. Sources: own estimations based on data provided by the Central Bank of Venezuela.

Another indirect mechanism for the distribution of oil revenues which also favoured private investment was the low income tax policy. This was possible due to the accrual of oil revenues to the state between 1936 and the mid-1980s. The financing of public spending did not rely entirely on tax payments, but it was mainly financed by oil revenues. The taxation level remained stable from 1946 to 1984, despite the fact that the process of modernisation of the economy should have entailed an increase in taxation.[13] The contribution of private taxation to fiscal income remained at 10 per cent during 1960-82. This was possible due to the accrual of oil revenues to the state, which amounted to more than 50 per cent of public income between 1950 and 1970, and 60 per cent between 1970 and 1980. Low-income taxation remained as one of the mechanisms for the distribution of the mermaid oil revenues even during 1982-92. It has been estimated that during the latter period the amount of tax paid by non-

[13] Mommer (1991, p. 197). The same author points out that the low taxation is not perceived as an important mechanism of distribution of oil income within the Venezuelan literature, which identifies the investment of oil income with direct public investment or the granting of public credit to the private sector. It is not understood that the distribution of oil income may have encouraged private investment through low taxation for instance. For this reason a popular idea in Venezuela is that oil revenues were mainly allocated into excessive current spending.

institutions was 0.8 per cent of their income, while non-oil corporations paid 2.4 per cent on average.[14]

A negative aspect of the low income taxation policy was that this may have favoured a regressive income distribution leading to the worsening of the problem of market size already refered to. This also had a negative impact through the encouragement of a diversified and fragmented market, which resulted in a capital intensive and inefficient pattern of production, which lacked long-term viability.

4.3 Manufacturing and the role of the exchange rate policies during 1973-77

From standard Dutch disease theory, real appreciation represents the main mechanism of transmission of the disease. In the Venezuelan case, the structural overvaluation of the domestic currency under a fixed exchange rate regime was a striking feature of the economy from the 1940s onwards. According to Baptista (1997), through 1933-83 the exchange rate never exceeded the limit of 5 bolívares per dollar. The exceptional stability and overvaluation of the real exchange rate in Venezuela during 1935-1982 can only be explained by the accrual of considerable oil revenues to the Venezuelan State. Exchange rate policy was a key political matter in Venezuela because the real overvaluation of the bolívar resulted in the transfer of part of the oil revenues to the private sector through low import costs. This situation benefited both capital and to some extent labour.[15] Import substitution industrialisation also may have benefited from real overvaluation through the availability of cheap imported capital and intermediate goods.

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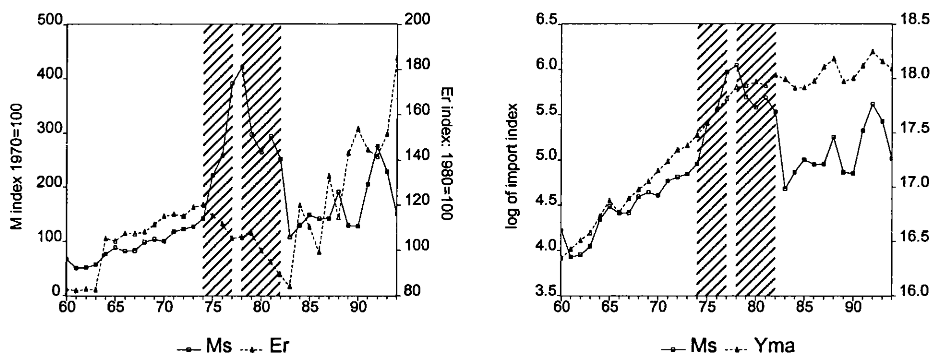
14 Garcia (1994) Statistical Appendix, Table I.

15 The determination of prices in Venezuela has been also influenced by the domestic distribution of part of oil revenues into consumption. The access to cheap imports due to the structural overvaluation led to low inflation during 1930-1973. It seems that this policy contributed to control inflation pressures as a result of the huge spending of oil revenues, during

A look at Fig 4.3 suggests the existence of a high positive correlation between private manufacturing value added and imports of capital and intermediate goods through 1960-77. From 1983, the expansion of these imports was lower than the expansion of manufacturing value added -this is confirmed in chapter 6. The fall in the importation of capital and raw material goods may be attributable to the modest recovery of private investment during 1983-88.

Fig 4.3 The structural overvaluation of the bolívar, imported capital and intermediate goods and manufacturing growth



Notes: Ms = volume index of imports of capital and intermediate goods; Er = $ real exchange rate; Y = real manufacturing GDP at 1984 prices. Sources: M: BCV, Finexpo, reports (various issues); Er: Table 2.a in chapter 2 and Yma: as Table 5.6 in chapter 5.

The passive management of the exchange rate in Venezuela before and during the 1970s must be understood in the light of the previous political economy considerations, which fall outside of the reference framework of the Dutch disease theory.

These results suggest that the impact of a resource boom on manufacturing may differ markedly depending on the export-competing and import-competing character of the sector and the manufacturing lines.

1973-77. (Mommer, 1991; Baptista, 1997).

The relative price elasticity of manufacturing output, exports and imports may be of relevance also in explaining the final outcome of a boom. The assumption embodied in neo-classical theory that manufacturing output, imports and exports are responsive to the movements in relative prices may not hold for developing countries with a high share of imported inputs. In this case, the short-term negative impact of real devaluation may be more severe. These ideas are further confirmed by the estimates of the import demand equations, according to which the value of imports (M) is explained by the level of income (Y) and the real exchange rate (Er).[16] Tables 4.5 and 4.6 show the results of the import demand equations for capital and raw material goods and total imports which were estimated by using the Stock and Watson dynamic OLS for the 1960-90 years. Although the results are far from being satisfactory in terms of the statistical significance of the parameters, together with the previous evidence, these may suggest a low price elasticity of capital and raw material imports. These are responsive to the income level, but not to increases in relative prices as measured by the bilateral real exchange rate in the long-term.[17] It must be noted that in the short term the price elasticity of these imports is also positive indicating that a real devaluation does not lead to a decline in imports. As shown in the following chapters, this is attributable to the scanty progress of import-substitution in capital goods. By contrast, the negative price elasticities for total imports suggest that a significant volume of imports were not essential.

During 1973-77, the real appreciation of the bolívar was bound to have benefited manufacturing to some extent through the cheap importation of capital goods and raw materials. This, and the greater home demand, may

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16 Al variables in logs. Imports and income (national GDP) are expressed at constant bolívares of 1984 and the real exchange rate is defined as the nominal exchange rate adjusted by the relative prices computed as the ratio of the domestic and USA wholesale prices. Sources: For imports and income the Central Bank of Venezuela, Finexpo, annual reports, various issues. All the variables were integrated of order 1 in first difference.

17 A similar methodology was used by Reinhart (1995, p. 303) to estimate the total import and export demand equation for a set of developing countries. This scholar found that there are positive and statistically significant long-term relative price elasticities for imports.

have offset the negative impact of real appreciation through higher import competition *in the short term*. Econometric estimations presented in the

Table 4.5 Stock and Watson estimates of the import demand for capital and intermediate goods, Venezuela,1960-94

Dependent Variable is M
Sample: 1963 1988
Included observations: 26 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-19.628	1.507	-13.021	0.000
Er	0.573	0.360	1.595	0.135
Y	1.252	0.088	14.265	0.000
$\Delta (Er_{(-1)})$	0.701	0.353	1.988	0.068
$\Delta (Er_{(1)})$	0.391	0.288	1.359	0.197
$\Delta (Er)$	0.505	0.383	1.318	0.210
$\Delta (Y)$	0.027	0.409	0.067	0.948
$\Delta (Y_{(-1)})$	-0.186	0.411	-0.452	0.659
$\Delta (Y_{(1)})$	0.369	0.420	0.880	0.395
$\Delta (Er^{(}_{(-2)})$	0.304	0.348	0.874	0.398
$\Delta (Er_{(2)})$	0.020	0.308	0.066	0.948
$\Delta (Y_{(-2)})$	-0.297	0.418	-0.712	0.489
$\Delta (Y_{(2)})$	-0.054	0.463	-0.117	0.909
R-squared	0.984	Mean dependent var		4.999
Adjusted R-squared	0.969	S.D. dependent var		0.615
S.E. of regression	0.109	Akaike info criterion		-4.135
Sum squared resid	0.153	Schwartz criterion		-3.506
Log likelihood	29.857	F-statistic		65.826
Durbin-Watson stat	1.164	Prob(F-statistic)		0.000

last section of this chapter seem to validate this idea. The hypothesised positive effect of real appreciation through cheap imported raw materials and capital goods on Venezuelan manufacturing is confirmed in the short-term. The negative impact of competition may have also been offset by the trade policy of lowering tariffs and quotas on capital and raw material goods which was implemented as an incentive to industrialisation during the 1960s, and maintained during 1973-77. Decree No 255 of March 1960, which stated that imported raw materials in general were not subjected to tariffs, was applied. The massive rise in the importation of capital and intermediate goods which occurred during this period is consistent with the view that higher oil revenues induced some short-term positive effect on Venezuelan manufacturing through cheaper imported inputs and capital goods.

Table 4.6 Stock and Watson estimates of the import demand, Venezuela 1960-94

Dependent Variable is M
Sample: 1963 1992
Included observations: 30 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-8.624	2.065	-4.177	0.001
Y	0.905	0.142	6.358	0.000
Er	-0.512	0.401	-1.276	0.219
Δ(Y)	1.038	0.639	1.626	0.122
Δ ($Y_{(-1)}$)	1.581	0.576	2.746	0.014
Δ ($Y_{(1)}$)	0.434	0.656	0.661	0.517
Δ (Er)	-1.728	0.569	-3.037	0.007
Δ ($Er_{(-1)}$)	-0.491	0.539	-0.910	0.376
Δ ($Er_{(1)}$)	-2.080	0.444	-4.687	0.000
Δ ($Y_{(-2)}$)	1.390	0.619	2.247	0.038
Δ ($Y_{(2)}$)	-0.277	0.688	-0.402	0.692
Δ ($Er_{(-2)}$)	0.072	0.507	0.142	0.889
Δ ($Er_{(2)}$)	-0.724	0.432	-1.674	0.112
R-squared	0.921	Mean dependent var		5.023
Adjusted R-squared	0.866	S.D. dependent var		0.513
S.E. of regression	0.188	Akaike info criterion		-3.046
Sum squared resid	0.599	Schwartz criterion		-2.439
Log likelihood	16.126	F-statistic		16.627
Durbin-Watson stat	1.409	Prob(F-statistic)		0.000

Thus, in an economy undergoing an export boom, devaluation is expected to deepen the problems by increasing domestic money and rising import costs. At the same time, as shown in chapters 6 and 7, the disappearance of the structural overvaluation and the fall in oil revenues from the mid-1980s has not brought about significant positive changes in the pattern of growth and industrial change and exports. As discussed in later chapters, the positive impact of devaluation on manufacturing during 1985-87, which took place via import-substitution and to a lesser extent via export growth, proved to be unsustainable. Following a severe drop during 1983-84, when there were negative growth rates, Venezuelan private manufacturing recovered during 1985-87, but declined from 1988. The negative impact of real devaluation on manufacturing via increased import costs may have been attenuated over 1983-88 because of the existence of a preferential rate for some imported inputs.[18] Thus the full disruptive effect of real devaluation may have been felt only from 1989. During these years, the increase in the real costs of imported capital and inputs seems to have dampened private investment, especially in manufacturing and agriculture (see section 4.4).

The results presented suggest that the adoption of devaluation policies in Venezuela to encourage industrial exports must be made with caution and within a broader industrial strategy, which might include a selective subsidies over limited time periods.

4.4 The Impact of exchange rate and fiscal policies on Venezuelan industrialisation during 1973-82: some econometric evidence

Model

In this section, econometric evidence is presented in order to give further support to the previous idea on the impact of the 1973 oil boom, on private manufacturing as a whole and on some of the manufacturing lines, through fiscal and exchange rate policies. According to Dutch disease theory, the domestic spending of oil income leads to higher relative prices of non-tradables (spending effect) which will disrupt the non-booming traded sectors. The income effect takes place through public spending and/or monetary growth. Thus, we must establish the effects of: the real exchange rate and/or relative prices (Er), monetary growth (M) and/or public spending (G) on private manufacturing value added (Y_{ma}). A second equation expresses the impact of public investment (Ip), public consumption (Cp), real exchange rates (Er) and domestic credit to the private sector (DC) on private manufacturing value added (Y_{ma}). In notation form:

[18] Although it was estimated that only a 5 per cent of total imports enjoyed a preferential exchange rate (BCV, 1989).

$$(4.1)\ Yma_t = \alpha_o + \beta_1 M_t + \beta_2 Er_t + e_t$$

$$(4.2)\ Yma_t = \alpha_o + \beta_1 Ip_t + \beta_2 Cp \beta_3 DC_t + \beta_4 Er_t + e_t$$

The model presented here provides insights into the impact and effectiveness of the exchange rate and monetary and fiscal policies on Venezuelan manufacturing during 1960-88, in the short and long term. The fact that these policies are central to the adjustment programmes promoted by the Washington consensus make these model relevant in explaining not only the impact of higher oil prices on Venezuelan manufacturing during the 1973-77 oil boom, but also the effects of the neo-liberal policies adopted in the 1990s which call for restraint in the use of fiscal policies and real devaluation.

The Stock and Watson dynamic OLS methodology (1989, 1991) was adopted to estimate long-term and short-term elasticities. As explained in chapter 3, this methodology was chosen due to the non-stationary nature of the series involved and to the superiority of this methodology compared to the Engle-Granger method. The Johansen method was first applied to test for cointegration among the variables of the two equations. The first multivariate system includes private manufacturing real GDP (Y_{ma}), an index of the US$ real exchange rate (Er), and the level of domestic absorption measured by real money supply or M1 (M).[19] A second version of this model includes manufacturing private value added, the level of public consumption (Cp), the level of public investment (Ip), the level of real domestic credit to the private sector (DC) and the index of the US$ real exchange rate (Er). The dynamic Stock and Watson OLS equations are as follows:

[19] This model relies on Kamas (1986), who estimated a similar model based on logarithms of variables to measure the impact of the 1970s coffee boom on the Colombian economy. Her results might thus be misleading.

$$(4.3)\ Yma_t = \alpha_o + \theta_M M_t + \theta_{Er} Er_t + d_M(L)\Delta M_t + d_{Er}(L)\Delta Er_t + e_t$$

$$(4.4)\ Yma_t = \alpha_o + \theta_{Ip} Ip_t + \theta_{DC} DC_t + \theta_{Er} Er_t + d_{Ip}(L)\Delta Ip_t + d_{DC}(L)\Delta DC_t + d_{Er}(L)\Delta Er_t + e_t$$

4.4.1 The Unit root test for stationarity

As stated above, the research findings show that most macroeconomic variables have a time series structure with a unit root. Thus, the Dickey-Fuller (DF) and the Perron tests for stationarity were applied to the following variables in logs and differences: private real manufacturing value added (Y_m), real money supply or M1 (M), dollar real exchange rate (Er), real public consumption (Cp), real public investment (Ip) and real domestic credit to the private sector (DC). The null hypothesis is that there is a unit root, and failure to reject it implies that the variable is non-stationary. The lag length depends upon the existence of autocorrelation in the variables. No augmented test was performed when the disturbance terms in the DF regression did not appear to be autocorrelated. Table 4.7 suggests that on the basis of the computed DF and ADF, all variables in

Table 4.7 Unit root tests for variables in logs and differences

	Variables in log levels		Variables in first difference	
	ADF(1)	Perron test	DF	Perron test
5 % critical values	-3.587	-4.220	-3.587	-4.220
Value added:				
Total manufacturing	-1.253	-2.800	-4.673	-4.412
Labour intensive*	-1.355	-1.188	-3.987	-3.477
Capital intensive	-1.340	-2.683	-5.433	-5.185
Food	-1.793	-3.905	-6.295	-5.952
Textiles*	-1.707	-1.017	-3.275	-3.625
Beverages	-1.912	-2.151	-5.459	-5.156
Clothing	-2.778	-3.694	-6.462	-5.549
Non-metallic minerals	-2.065	-3.772	-7.621	-7.164
Chemicals	-1.123	-3.344	-8.032	-8.000
Metals	-1.147	-2.512	-4.851	-4.456
Machinery*	-3.541	-3.375	4.190	-4.019
Transport	-2.499	-3.613	-5.835	-5.553
M	-1.034	-2.373	-3.655	-4.308
Er	-2.253	-3.156	-6.879	-7.027
Ip	-2.908	-2.865	4.464	-4.175
Cp	-1.052	-1.961	-4.927	-4.925
DC	-1.737	-2.789	-4.751	-5.098

Notes: No augmented DF test was performed when the disturbance terms in the DF regression did not seem to be autocorrelated. *This means that the model A of the Perron test was used, while for the other variables the model C was used. See Perron (1989, p. 1364 and the critical values for this test were taken from Tables VI.B and IV.B pags. 1376 and 1377 from the same source. The 5 % critical value for model A is -3.72.

log-level form are non-stationary, while variables in log first difference form (ΔX) seem to be integrated of order zero. The results of the Perron test with a constant and a time-trend are consistent with that derived from the DF and ADF tests.

Where:

Y = logarithm of private manufacturing value added at 1984 prices. Source: own estimations based on data provided by the Industrial Census, (for further details see methodological appendix).

M = logarithm of real money supply, that is the sum of notes, coins and checkable deposits (M1), deflated by the consumer price index. Source: Central Bank of Venezuela, economic reports, various issues.

Er = logarithm of the bilateral real exchange rate. This is defined as the nominal exchange rate (Bs per US$ deflated by the ratio of the wholesale prices). Source: Statistical appendix, chapter II, Table 1 column 10.

Cp = logarithm of public consumption at 1984 prices. Sources: BCV, economic reports, various issues.

Ip = logarithm of public investment at constant 1984 prices. Sources: as Cp.

DCP = logarithm of real domestic credit to the private sector. This is defined as the ratio of nominal DCP to the deflator of private investment. Source: IMF and BCV.

4.4.2 Cointegration test

The Johansen maximum eigenvalue test was applied to determine the existence of cointegration in the multivariate system defined above. The results of the Johansen maximum eigenvalue (λ_{max}) tests for the cointegrating vectors associated with each model are shown in Tables 4.8 and 4.9.

Concerning the first equation (eq. 4.1), this methodology suggests the existence of cointegrating vectors for manufacturing and the selected lines. Thus there seems to be a long-term equilibrium relationship among the variables and the coefficients have the expected sign according to the Dutch disease theory.[20] The bilateral real exchange rate has a positive coefficient indicating that manufacturing value added may have been disrupted by the real appreciation of the domestic currency in the long term. Likewise, the

[20] According to the study on the impact of real devaluation for a set of developing countries Edwards (1986) found that a real devaluation has a negative effect in the short-term (1 year), but it is reversed thereafter.

coefficient of the money supply is positive meaning that the expansionary monetary policies have a positive long-run effect on manufacturing value added. Additionally, the estimation of the long-term elasticities by applying the Stock and Watson (1989, 1991) dynamic OLS method gives further support to the previous findings (Table 4.10).

An interesting point here is that both labour-intensive and capital-intensive groups seem to have been similarly disrupted by real appreciation in the long term. A one percent increase in the index of the real exchange rate (devaluation) leads to an increase of 1.28 and 1.32 per cent in the value added of the labour-intensive and capital-intensive groups, respectively. It must be noted that the high positive long-term relative price elasticity for some of the capital-intensive branches, like machinery and transport (1.887 and 1.922 respectively), may be ascribed to the positive demand substitution effect of real devaluation which may have offset the negative impact via higher import costs.

These results do not give support to the hypothesis that some of the more capital-intensive manufacturing lines may have benefited the most from the structural overvaluation of the domestic currency in the long term.

Table 4.9 presents the Johansen cointegration test for equation 4.2. It must be noted that, in general, public consumption was excluded because the results were not adequate. It must be noted that the results of this equation do not confirm the findings on the relative price elasticity for manufacturing as whole given by the Johansen test in equation 4.1. In the second equation, the coefficient of the real exchange rate index for manufacturing as a whole and for the capital-intensive group is negatively signed. Likewise the results of the Stock and Watson dynamic OLS

Table 4.8 Testing for cointegration, Johansen test 1960-1988

null hypothesis r<=2, alternative hypothesis r=3					null hypothesis r<=2, alternative hypothesis r=3					null hypothesis r=0, alternative hypothesis r=1				
No of lags:3					No of lags: 1					No of lags: 3				
	Yma	M	Er	Max		Y	M	Er			Y	M	Er	
Total manufacturing				4.266	Textiles				5.593	Chemicals				23.256
Vector	-1	0.754	1.474		Vector 1	-1	0.534	1.357		vector 1	-1	1.2407	1.670	
Critical values:					Critical values:					Critical values:				
95 percent				3.762	95 percent				3.762	95 percent				20.967
null hypothesis r=0, alternative hypothesis r=1					null hypothesis r=0, alternative hypothesis r=1					null hypothesis r=0, alternative hypothesis r=1				
No of lags: 3					No of lags: 3					No of lags: 3				
	Y	M	Er			Y	M	Er			Y	M	Er	
Labour-intensive group				22.260	Beverages				30.313	Metals				23.256
Vector 1	-1	0.746	1.278		Vector 1	-1	0.785	0.218		Vector 1	-1	1.241	1.670	
Critical values:					Critical values:					Critical values:				
95 percent				20.967	95 percent				20.967	95 percent				20.967
null hypothesis r=0, alternative hypothesis r=1					null hypothesis r=0, alternative hypothesis r=1					null hypothesis r<=2, alternative hypothesis r=3				
No of lags: 3					No of lags: 3					No of lags: 3				
	Y	M	Er			Y	M	Er	max		Y	M	Er	
Capital-intensive group				21.920	Clothing				28.842	Machinery				5.063
Vector	-1	0.741	1.328		Vector 1	-1	0.707	0.906		Vector 1	-1	1.289	1.887	
Critical values:					Critical values:					Critical values:				
95 percent				20.967	95 percent				20.967	95 percent				3.762
null hypothesis r<=2, alternative hypothesis r=3					null hypothesis r=0, alternative hypothesis r=1					null hypothesis r=0, alternative hypothesis r=1				
No of lags: 3					No of lags: 3					No of lags: 3				
	Y	M	Er			Y	M	Er	max		Y	M	Er	Trace
Food				5.523	non-metallic minerals				22.176	Transport equipment				31.672
Vector 1	-1	0.248	2.140		Vector 1	-1	0.665	1.515		Vector 1	-1	0.383	1.922	
Vector 2	-1	0.844	1.519		Critical values:					Critical values:				
Critical values:					95 percent				20.967	95 percent				29.680
95 percent				3.762										

Notes: In some cases there was more than one cointegrating vector according the test. However, after looking at the residuals adjusted by the short-run dynamics we selected one.

Table 4.9 Testing for cointegration, Johansen test equation (4.2), 1960-1988

null hypothesis =2, alternative hypothesis r=1 No of lags:2	Yma	Ip	Cp	DC	Er	max
Total manufacturing						26.744
Vector	-1	0.709		0.216	-0.096	
Critical values:						
90 percent						24.734

null hypothesis r<=3, alternative hypothesis r=4 No of lags: 1	Y	Ip	Cp	DC	Er	Max
Textiles						4.499
Vector 1	-1	-0.370		0.616	2.322	
Critical values:						
95 percent						3.762

null hypothesis r=0, alternative hypothesis r=1 No of lags: 2	Y	Ip	Cp	DC	Er	max
Chemicals				23.256		25.880
vector 1	-1	1.966		-0.156	-2.226	
Critical values:						
95 percent				20.967		24.730

null hypothesis r=0, alternative hypothesis r=1 No of lags: 2	Yma	Ip	Cp	DC	Er	Trace
Labour-intensive group						48.165
Vector	-1	-5.662		3.910	9.657	
Critical values:						
95 percent						47.210

null hypothesis r=0, alternative hypothesis r=1 No of lags: 3	Y	Ip	Cp	DC	Er	Max
Beverages						27.460
Vector 1	-1	0.529		0.376	-0.694	
Critical values:						
90 percent						24.734

null hypothesis r=0, alternative hypothesis r=1 No of lags: 2	Y	Ip	Cp	DC	Er	Max
Metals				23.256		
Vector	-1	0.935		0.282	1.309	26.380
Critical values:						
90 percent				20.967		24.734

null hypothesis r=0, alternative hypothesis r=1 No of lags: 2	Yma	Ip	Cp	DC	Er	max
Capital-intensive group						28.410
Vector	-1	0.711		0.228	-0.251	
Critical values:						
95 percent						27.067

null hypothesis r=0, alternative hypothesis r>=1 No of lags: 2	Y	Ip	Cp	DC	Er	Trace
Clothing						214.450
Vector 1	-1	1.074		-0.111	-0.818	
Critical values:						
95 percent						43.949

null hypothesis r=0, alternative hypothesis r=1 No of lags: 2	Y	Ip	Cp	DC	Er	Max
Machinery						45.615
Vector	-1	0.482		0.740	0.266	
Critical values:						
95 percent				3.762		27.067

null hypothesis r<=3, alternative hypothesis r=4 No of lags: 1	Yma	Ip	Cp	DC	Er	max
Food						3.017
Vector 1	-1	0.228		0.337	0.861	
Critical values:						
95 percent						2.687

null hypothesis r=0, alternative hypothesis r=1 No of lags: 3	Y	Ip	Cp	DC	Er	max
non-metallic minerals						32.340
Vector	-1	0.407		0.326	0.770	
Critical values:						
95 percent						27.067

null hypothesis r<=0, alternative hypothesis r=>3 No of lags: 1	Y	Ip	Cp	DC	Er	Trace
Transport equipment				31.672		30.197
Vector 1	-1	0.956	-1.420	0.731	0.437	
Vector 2	-1	0.316	3.944	-2.280	-2.059	
Critical values:						
95 percent						29.680

Notes: In some cases there was more than one cointegrating vector according to the test. However, after looking at the residuals adjusted by the short-term run dynamics we selected one.

methodology (Table 4.12) indicate that the long-term elasticity of manufacturing output to the real exchange rate for the entire sector and for the capital-intensive branches although positive, is not statistically significant. These results seem to contradict the previous ones.

Table 4.10 Stock and Watson dynamic OLS estimation equation (4.3) 1960-88

Sectors	Constant	M	Er	R^2
Total manufacturing	-2.425	0.795	1.298	0.99
	0.038	**0.000**	**0.002**	
Labour-intensive group	-3.164	0.753	1.384	0.99
	0.001	**0.000**	**0.000**	
Capital-intensive group	-3.022	0.816	1.259	0.98
	0.049	**0.000**	**0.013**	
Food	-3.865	0.597	2.007	0.98
	0.007	**0.000**	**0.000**	
Textiles	-2.182	0.427	2.040	0.98
	0.029	**0.000**	**0.000**	
Beverages	0.763	0.811	0.026	0.99
	0.395	**0.000**	**0.923**	
Clothing	-3.722	0.717	1.240	0.97
	0.021	**0.000**	**0.014**	
Non-metallic minerals	-3.521	0.726	1.195	0.98
	0.005	**0.000**	**0.003**	
Chemicals	-12.310	1.327	0.954	0.99
	0.000	**0.000**	**0.032**	
Metals	-21.003	1.099	3.522	0.99
	0.000	**0.000**	**0.000**	
Machinery	-15.132	1.245	1.674	0.88
	0.010	**0.000**	**0.277**	
Transport equipment	-1.783	0.373	2.212	0.71
	0.631	**0.051**	**0.074**	

Sources: probability in bold. Except from textiles three leads and lags were used for all the sectors.

A look at table 4.11 indicates that there is a long term positive association between private manufacturing value added as a whole and public investment and real domestic credit to the private sector. Venezuelan manufacturing as a whole benefited from greater public investment and real domestic credit to the private sector brought about by oil revenues in the long term. It seems that manufacturing output in the capital-intensive group is more responsive to public investment in the long term than is the labour-intensive group while the opposite seems to hold in the case of domestic credit to the private sector. As expected, some manufacturing lines, such as textiles and non-metallic mineral products, benefited greatly from domestic credit to the private sector in the long-term. It must be noted that although the Stock and Watson method allows for estimates of the short-term elasticities these are not presented because they were not statistically significant at the conventional levels of probability. However, in some of the cases the real exchange rate was negatively signed. This may indicate that the impact of increasing oil prices and real appreciation did not have a negative impact on manufacturing during 1973-77. The previous evidence suggests that the negative impact of real appreciation on manufacturing during 1973-77 may have been partly counterbalanced by the greater home demand. Furthermore, real appreciation may have exerted some positive effect on those manufacturing branches with a high level of imported capital and raw materials and with an inward orientation in the short-term.

Table 4.11 Stock and Watson dynamic OLS estimation equation (4.4) 1960-88

Sectors	Constant	Ip	DC	Er	Cp	R^2
Total manufacturing	1.788	0.327	0.441	0.492		0.99
	0.029	**0.053**	**0.001**	**0.039**		
Labour-intensive group	0.371	0.018	0.580	1.170		0.98
	0.608	**0.908**	**0.000**	**0.000**		
Capital-intensive group	1.556	0.491	0.369	0.127		0.98
	0.086	**0.015**	**0.006**	**0.618**		
Food	1.905	0.527	0.161	0.449		0.97
	0.043	**0.011**	**0.182**	**0.097**		
Textiles	-0.958	-0.538	0.703	2.659		0.93
	0.425	**0.046**	**0.001**	**0.000**		
Beverages	-1.499	0.101	-0.367	-1.227	1.58	0.98
	0.395	**0.000**	**0.923**	**0.923**		
Non-metallic minerals	-1.138	0.057	0.532	1.169		0.98
	0.005	**0.000**	**0.003**	**0.003**		
Metals	-11.633	0.623	0.481	1.521		0.98
	0.000	**0.048**	**0.019**	**0.002**		
Transport equipment	0.087	0.604	-1.120	-1.817	1.92	0.93
	0.973	**0.093**	**0.040**	**0.017**	**0.05**	

Sources: probability in bold. One lead and lag were used for all the sectors.

4.4.3 VECM Variance Decomposition and Impulse Responses

This section gives further support to the previous estimations of the impact of monetary and real exchange rate policies made in equation 4.1, by way of estimating a restricted VAR model derived from the Johansen framework. We focus on the analysis of the short-run and long-run dynamics among the vector of variables (eq. 4.1) by using standard innovation accounting techniques: variance decompositions (VDCs) and impulse response functions (IRFs). It is well known that VDCs give the percentage of the forecast error variance of each variable explained by the particular shock, whereas the IRFs indicate the estimated response of each variable to a one standard deviation impulse in the fundamental shock.

The variance decomposition of private manufacturing value added growth for a three lags, three variables model is reported in Table 4.12. The variables considered are: private manufacturing value added, real money supply and the real exchange rate.[21] The cointegrating equations derived from the Johansen test were used to compute the VECM model and the variance decomposition in this section. It seems that 10.9 per cent and 18.5 per cent of the fluctuations in total manufacturing value added are caused by disturbances in the real exchange rate and money supply respectively, at the one-year horizon. The variations in the real exchange rate and the real money supply account for 25.9 and 48.8 per cent of the variations in manufacturing value added at the 10-period forecast horizon. These results are fairly consistent with Dutch disease theory in the sense that both the real exchange rate and expansionary monetary and fiscal policies seem to have played a key role in the performance of manufacturing in the long term. Nevertheless, the unexplained variance of manufacturing is near to 70.5 per cent at one period horizon and near to 25.4

per cent for 5- and 10-period forecasts. Thus, it seems that we need to consider other factors to explain the performance of Venezuelan manufacturing over 1974-77. As regards disaggregate manufacturing, it seems that in the case of the labour-intensive group, as a whole a greater percentage of the variation in value added is ascribed to the variation in Er and M in the medium to long-term (more than 70 percent between the 5- and 15-period forecast horizon). In contrast, the percentage of the variation in manufacturing output in the capital-intensive group is less than 33 per cent between the 1-and 15-year forecasts.

Some of the lines, such as textiles, were more influenced by the exchange rate in the short term. For chemicals and transport, the impact of the real exchange rate seems to increase in the long term.

Dynamic response to the shocks

The impact of shocks on the real exchange rate and government spending are measured by using IRFs, presented in Fig 4.4. This indicates the estimated dynamic response of manufacturing value added to a one unit increase in money supply and the real exchange rate (devaluation). It seems that, while the adverse effect of real devaluation on private manufacturing value added prevails in the short term (between the 2nd and the 6th period), this is reversed after the 6th period. This seems to hold for all the manufacturing lines considered. It must be noted, however, that some lines such as textiles and food seem to have a positive response to devaluation policies in the short and long term.

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[21] The VECM was estimated by using the econometric-view program (1994).

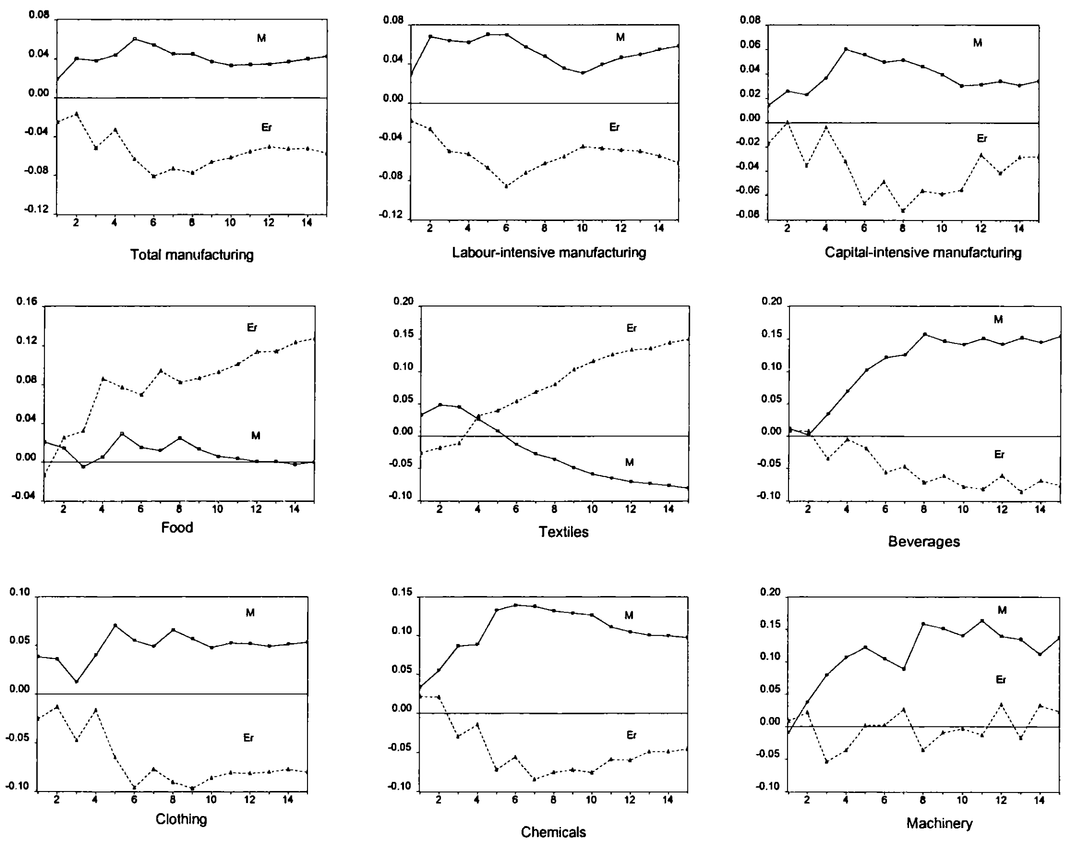
Table 4. 12 Manufacturing value added growth variance decompositions, eq (4.1) 1960-88

Sectors	Er	M	Other factors		Er	M	Other factors
Total manufacturing				Clothing			
1	10.9	18.5	70.5	1	7.0	15.5	77.5
5	34.3	33.0	32.6	5	27.9	34.5	37.6
10999	25.9	48.8	25.4	10	54.5	28.0	17.5
15	25.5	49.1	25.4	15	57.8	27.4	14.8
Labour-intensive group				Non-metallic minerals			
1	26.7	9.7	63.6	1	2.4	17.8	79.7
5	48.8	28.2	22.9	5	38.6	20.8	40.6
10	39.3	40.3	20.4	10	32.5	22.3	45.2
15	39.6	41.1	19.3	15	27.1	24.8	48.1
Capital-intensive group				Chemicals			
1	5.9	8.4	85.7	1	6.0	14.0	80.0
5	25.3	10.3	64.4	5	13.8	71.5	14.7
10	20.4	23.8	55.9	10	20.2	74.6	5.2
15	16.6	20.1	63.3	15	20.2	75.4	4.4
Food				Metals			
1	8.8	3.7	87.5	1	0.4	16.2	83.4
5	5.1	49.4	45.6	5	60.0	5.1	35.0
10	3.0	56.8	40.1	10	69.9	6.8	23.3
15	1.5	66.6	31.8	15	72.7	6.1	21.3
Textiles				Machinery			
1	20.5	12.6	66.8	1	21.7	8.9	69.4
5	15.1	9.0	75.9	5	21.2	9.5	69.2
10	12.4	36.3	51.3	10	20.2	9.4	70.4
15	16.4	54.4	29.2	15	19.1	9.6	71.3
Beverages				Transport equipment			
1	5.6	2.8	91.6	1	11.3	29.9	58.8
5	79.1	8.1	12.8	5	33.3	18.2	48.6
10	79.1	15.4	5.4	10	42.3	20.0	37.8
15	77.6	17.5	4.9	15	46.2	18.7	35.1

Notes: Variance decompositions reports the percentage of the n period ahead manufacturing value added forecast error variance which is explained by the variable presented in the column. The variance decomposition is based on a three-variables, three lags, VEC ordered: Er, M, Y. In the cases of machinery, non-metallic mineral products and metal 5 lags were used.

Likewise, the effect of real devaluation on the capital-intensive group as a whole is not well-defined especially in the short-to-medium term. For machinery, it seems that a real devaluation has some positive effects after the 3rd and until the 8th period, but it is not clear thereafter.

Fig. 4.4 Response of manufacturing value added to money and the real exchange rate index



It should be noted that according to the IRFs, variations in the money supply have significant positive and long-lasting effects on manufacturing value added in all the sectors, but this effect is reversed after the 6th period.

4.4.4 Some econometric evidence on the impact of fiscal, exchange rate and credit policies on private manufacturing investment

In this section, the determinants of private manufacturing investment for Venezuela are estimated by using cointegration techniques and an error-correction model. The reason to include this section relates to various factors. First, the findings in chapter 3 suggest sectoral private investment has shown a severe reluctance to increase from the 1980s onwards, so it may be of relevance to disentangle the factors behind the performance of private manufacturing. Second, according to the resource curse thesis, there is supposed to be a crowding-out effect of private investment by public investment. In the case of an economy with unemployed resources, this effect may appear in the medium or long term. For this reason, the long-term elasticity of private manufacturing investment was estimated for Venezuelan manufacturing.

The equation for manufacturing investment was formulated by taking into account a structural feature of the Venezuelan economy, which is the high import content of public investment. This might lead us to expect that public infrastructural investment would have a greater impact on private manufacturing than would total public investment. The policy of easy credit led us to include the real interest rate as one of the independent variables. It must be noted that the real interest rate was chosen instead of domestic credit to the private sector because the first variable provided better results.

On the basis of previous considerations, the investment equation states that private manufacturing investment (Im) is explained by government investment in infrastructure (Ip), the real exchange rate index (Er), real public consumption (Cp) and the real interest rate (r). Since all data was integrated of order 1, a cointegration and error correction methodologies were applied with the basic equation as follows:[22]

$$\mathrm{Im}_t = \alpha + \beta_1 Ip_t + \beta_2 Er_t + \beta_3 Cp_t + \beta_4 r_t + d_{ip}(L)\Delta Ip_t + d_{iEr}(L)\Delta Er_t + d_{Cp}(L)\Delta Cp_t + d_r(L)\Delta r_t$$

where:

Im_t= logarithm of private investment in the manufacturing sector at constant 1984 prices. Sources: OCEI Industrial Survey and Central Bank of Venezuela, annual reports, various issues.

Ip_t = logarithm of non-oil public investment in infrastructure at constant 1984 prices. Sources: Baptista (1991).

Er_t = logarithm of the bilateral real exchange rate index. This is defined as the nominal exchange rate adjusted by the index of the relative prices (a fall means a real appreciation). Source: Statistical appendix, chapter II, Table 1 column 10.

Cp = logarithm of public consumption at constant 1984 prices. Sources: BCV, annual reports.

r_t= real domestic interest rate at constant 1984 prices. Sources: BCV, annual reports.

The unit root test for the variables considered is presented in Table 4.13. As all the variables are integrated of order 1, the equation was estimated by using an error-correction model for the 1966-88 years.[23]

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22 For the explanation on the mathematical derivation the investment function see methodological appendix.

23 The variables considered are the same included in the previous model. It was not possible to apply the Stock and Watson methodology due to the small sample size.

Table 4.13 Unit root tests in logs and differences

	Variables in log levels			Variables in first differences	
	DF	ADF (1)	Perron test	DF	Perron test
5 % critical values	-3.004	-3.645	-3.720	-3.645	-3.72
Ima		-1.709	-1.827	-4.454	-4.029
Ip	-2.004			-3.424	
Er	-2.918			-6.62	
Cp	-0.942		-2.782	-4.143	-3.893
r			-3.412		-4.822

Notes: non augmentes DF test was performed when the disturbance terms in the DF regression did not seem to be autocorrelated. The model A of the Perron test was used. Perron (1989, p. 1364), the critica values for this test were taken from Tables VI.A and IV.A, pags. 1376-1377 from the same source. In t case of public consumption the DF value is -3.003 because no trend was included.

Table 4.14 reports the results for the cointegrating equation, which suggest that private manufacturing investment was positively influenced by public consumption and investment in infrastructure and devaluation in the long term.[24] It must be noted that the results arising from the Engle-Granger and the Johansen tests differ with regards to the exchange rate and the real interest rate. The first test suggests a disruptive impact of real devaluation on manufacturing private investment, although the coefficient is not statistically significant. By contrast, the Johansen test suggests an important disruptive effect of real appreciation on private manufacturing investment in the long term.[25]

Regarding the real interest rate, the Engle-Granger test indicates that private manufacturing investment is highly responsive to the movement in this variable in the long term. Nevertheless, the Johansen test gives the opposite results.

24 Although (Ochoa, 1985) concludes that there is no evidence of a strong direct multiplier effect of fiscal policies on manufacturing growth, the existence of a significant positive association between manufacturing growth and monetary expansion, indicates that the indirect effect of fiscal policies is relevant. Likewise, given that this author does not test for non-stationarity, his results may be mistaken.

25 A negative effect of devaluation on private investment in the short-term has been found for other developing economies. See Chhibber, et al, 1992)

Concerning the short-term equation, the results presented in Table 4.15 indicate that, except for public investment in infrastructure, all the independent variables are correctly signed and are statistically significant at the conventional levels according to our theoretical considerations. Manufacturing private investment seems to be disrupted by real devaluation in the short term, with a one per cent increase in the Er leading to a change of –0.73 per cent in the first variable. Likewise, manufacturing private

Table 4.14 The Engle Granger and Johansen cointegration tests, 1966-1988

Dependent Variable is Δ(Ima)						
Included observations: 23						
Variable	Coefficient	Std. Error	T-Statistic	Prob.	ADJR 2	DW
Constant	-0.355	2.758	-0.129	0.899	0.933	2.218
Ip	0.245	0.077	3.188	0.005		
Er	-0.238	0.326	-0.730	0.475		
Cp	0.746	0.099	7.532	0.000		
R	-0.011	0.006	-2.023	0.058		
Johansen maximum eigenvalue test 1966-1988						
null hypothesis r = 0, alternative hypothesis r =1						
No of lags:1						
Variables	Ima	Ip	Er	Cp	r	*max
Total manufacturing						43.595
Vector	-1	0.1823	34.587	14.244	0.036	
Critical values:						
95 percent						33.461

investment seems to be highly responsive to public consumption, and to the movement in the real interest rate. An increase in one unit in the real interest rate causes a 0.9 per cent fall in private manufacturing investment in the short term. These results cast doubt on the hypothesised negative association between private manufacturing investment and public investment in the long and short term. Public investment in infrastructure seems to have a positive impact on non-oil private investment and private manufacturing investment.

The availability of cheap domestic credit seems to be important for manufacturing in the short term. Our findings are in accordance with the results derived by Wai and Wong (1982) and Blejer and Khan (1984) who

Table 4.15 Error correction model for private investment in Venezuelan manufacturing

Dependent Variable is Δ (Ima)
Sample: 1967 1988
Included observations: 22 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.002	0.028	0.055	0.957
Δ (Ip)	0.099	0.108	0.918	0.373
Δ (Er)	-0.726	0.226	-3.216	0.006
Δ (Cp)	-0.009	0.004	-2.403	0.030
Δ (r)	1.023	0.387	2.644	0.018
Δ (Ima$_{(-1)}$)	-0.243	0.104	-2.325	0.035
R^2	-1.269	0.230	-5.513	0.000
R-squared	0.789	Mean dependent var		0.067
Adjusted R-squared	0.705	S.D. dependent var		0.164
S.E. of regression	0.089	Akaike info criterion		-4.580
Sum squared resid	0.119	Schwartz criterion		-4.233
Log likelihood	26.167	F-statistic		9.354
Durbin-Watson stat	1.550	Prob(F-statistic)		0.000

applied traditional econometrictechniques to estimate an aggregate model of private investment for a set of developing countries (including Venezuela). Their estimates suggest the important role for public investment policy in directing the pattern of private capital formation in developing countries.

The real appreciation of the bolívar seems to have benefited private investment in manufacturing through lower costs of imported capital and inputs especially in the short term. This is a logical result due to the high share of imported capital in total manufacturing investment in Venezuela. It must be kept in mind that the import coefficient in machinery, excluding electrical machinery, was 83 per cent in 1986.[26]

In linking the above evidence to the impact of the 1970s oil boom on private manufacturing, it seems that the expansion of government expenditure and some real appreciation during 1973-77 favoured private investment in manufacturing. However, the same factors, exerted a negative effect in the medium term. The negative effect may be associated with the fact that real appreciation encouraged a high import content in accumulation and, even more importantly set obstacles to the expansion of manufacturing exports.

All of these factors led to inefficiencies in the accumulation process and to balance of payments deficits by 1977. As shown, manufacturing investment stagnated from 1978 and the capital-output ratio began to increase from 1977.[27] This suggests that a more cautious and co-ordinated absorption and income generating policy may have been advisable. The higher installed capacity due to the rapid investment made during 1975-78 could not be used due to the declining demand over 1978-82. Through the post-boom phase (1985-87) some recovery in private manufacturing in terms of output and investment growth took place after a sharp absolute decline during 1983-84 due to the real devaluation of the bolívar. At first glance, the Venezuelan case seems to give support to the conclusion that devaluation policies in the long term prompt a restructuring of domestic manufacturing to meet the greater export demand resulting in efficiency improvement and profitability (Chhibber and Shafik, 1992). Nonetheless, two things must be highlighted. Firstly, although some expansion of manufacturing exports took place following the devaluations of 1983-84 and 1986, the results were rather poor as discussed in

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26 Brandi (1989, p. 103).

27 See chapter 6, Table 6.12.

the previous chapter, and instead manufacturing benefited from the import-substitution effect. Secondly, and although the analysis of the 1989-97 phase is beyond the scope of this thesis, the positive impact of real devaluation on output and investment in Venezuelan manufacturing proved to be temporary. A dramatic decline in these two variables has been recorded for the whole 1989-96 phase[28].

In sum, and referring to the Venezuelan case during 1973-77, the issue was not the lack of financial resources in the non-oil economy, but rather its misleading and inefficient allocation, which resulted in unsustainable growth. This highlights the importance of dynamics in economics compared to static optimum allocation for long-term growth. The Venezuelan case seems to corroborate the argument regarding the relevance of improvements in productivity which can lead to sustainable growth compared to the once-and-for-all gains which accrue from an improvement in the static efficiency of resource allocation or greater capacity utilisation.[29] Finally, our findings seem to render mistaken the argument made by Auty (1990, p. 208) according to which non-resource-based private Venezuelan manufacturing was affected negatively by the government's resource-based industrialisation through the crowding out of investment.

The Econometric results and the role of exchange rate policies during a boom

In linking the previous results with the Dutch disease predictions, these appear to be supported by our estimates only to some extent. The theory suggests that

28 It is likely that import liberalisation policies have had a severe disruptive impact on manufacturing, albeit, the modest positive impact of devaluation on Venezuelan manufacturing during 1985-87, may suggest that contrarily to Chhibber and Shafik's (1992) conclusions on Indonesia, the impact of devaluation on private investment through greater costs of imported capital and inputs may prevail even in the long term and that the process of industrial restructuring cannot rely on a policy of real devaluation as a main tool.

29 See Helleiner (1995), Rodrick (1989).

an appreciation (fall) of the real exchange rate or an increase in the prices of non-tradables relative to tradables is bound to exert a negative influence on manufacturing value added. The Dutch disease hypothesis as a long-run phenomenon seems to be confirmed by our estimates. Nevertheless, this hypothesis is not confirmed in the short-term; real appreciation may have exerted some positive impact on import-competitive manufacturing in the short term, so the effect of the first oil boom on Venezuelan manufacturing may not have taken place according to the model.

The previous evidence suggests that the overvaluation of the bolívar may have been functional to the industrialisation process through the availability of cheap capital and intermediate goods at the earlier stages. However, once the reduced market poses difficulties to manufacturing development, real overvaluation is expected to have set obstacles to a sustainable pattern of industrial growth and structural change by disrupting exports. The stagnation of Venezuelan manufacturing due to the reduced market by the mid-1960s seems to relate to this fact (see chapters 3 and 5).

If we choose to characterise the problems of Venezuelan industrialisation during 1973-82 as Dutch disease, this must be qualified by various facts. First, over 1973-77, real appreciation was mild and its disruptive impact on manufacturing may have been attenuated by the import-competitive character of Venezuelan manufacturing and the cheapening of imported capital and intermediate goods in the short term. Second, the negative impact of real appreciation on Venezuelan manufacturing during 1973-82 must be understood in the sense that real appreciation and the availability of oil income may have defferred the need to develop an export-competing manufacturing sector to expand the market, to avoid balance of payments problems, and to achieve a viable long-term pattern of growth. Likewise, the abundant oil revenues and the strengthening of the bolívar encouraged all kind of imports prompting the appearance of balance of payments problems in the short-term and reinforcing import dependence and the capital-intensive pattern of industrial growth and structural change, with the attendant problems of unemployment, a worsening of income distribution and the maintenance of the assembly nature of the production process.

We argue that the symptoms of Dutch disease in Venezuela must be understood in the light of the above facts and these are not especially related to the 1970s oil price increase, but are concerned with the structural features of the economy and especially with the lack of a coherent industrial policy before the 1970s boom.

4.5 Concluding remarks

The consideration and econometric analysis of the policies launched during 1973-82 with reference to Venezuelan manufacturing presented in previous pages further confirm that Dutch disease, especially relating to de-industrialisation, was not the outcome of the traditional mechanisms embodied in the standard Dutch disease theory. Firstly, the greater public spending seems to have exerted some short-term positive impact on private manufacturing. Venezuelan manufacturing proved to be responsive to expansionary fiscal and monetary policies in the short term. Secondly, over 1973-77, the economy benefited from the launching of investment policies and easy credit to the private sector. Thirdly, it also benefited from cheaper imported capital and raw materials due to the real appreciation of the domestic currency. These policies may have spared manufacturing from the disruptive effect of the 1970s oil boom. However, the higher short-term level of private investment was neither able to promote long-term efficient growth, nor was it sustainable. The expansion of private manufacturing was rather modest over these years, especially if we consider that the sector enjoyed considerable subsidies. In addition, this growth was inefficient as measured by the strong decline in value added per worker (see Chapter 5, Table 5.8).

It seems that the rapid local distribution of oil income led to a situation of excess demand with a huge increase in imports. The huge domestic demand may have been a contributing factor in explaining the drop in labour productivity growth at the beginning of the boom due to the scarcity of skilled labour and management capacities common to the Venezuelan economy. It is worth noting that there were serious implementation problems with the resource-based industrialisation and with the financing policy which favoured some of the most inefficient manufacturing branches, such as textiles.

Concerning exchange rate policy, the government maintained a fixed exchange rate regime which implied a reinforcement of the structural real overvaluation of the bolívar during 1973-77. In this sense, the policy of allowing for real appreciation during 1973-77 may have contributed to the crisis of the Venezuelan economy by 1978 through three channels, namely, (a) the setting of obstacles to the development of an export-competitive manufacturing sector when an important problem in the economy was the reduced home market and import dependence; (b) the encouragement of imports of capital goods and thus the over-investment of oil revenues; and, (c) the reinforcement of a pattern of industrialisation characterised by the use of imported capital and raw material goods, which contributed to the appearance of balance of payments problems by 1977.

These findings lead us to claim that the problem of Venezuelan industrialisation during 1960-96 is linked to the virtual lack of a coherent industrial policy which would consider, in an integrated way, policies focused on import substitution, export promotion, technology and investment.

5. The Impact of the 1970s Oil Boom on Venezuelan Manufacturing

Introduction

The purpose of this chapter is to consider the effects exerted by the economic policies launched during the 1970s oil booms on Venezuelan private manufacturing as a whole. The major issue is to what extent the sectoral response reflected Dutch disease symptoms or, instead, it was linked to structural factors and sectoral policies pursued during the 1970s and/or before.

The chapter begins by portraying the salient features of Venezuelan industrialisation through 1950-1972 (section 1). Attention is drawn to various aspects of growth and structural change in the non-oil economy and especially, the industrial sector, which seems to be essential in disentangling the factors behind the impact of the 1970s oil booms on the Venezuelan economy. Next, the principal trends in private manufacturing as a whole during 1974-77, 1978-82 and the post-boom phase (1983-88) are presented. Here we bring into the picture some explanations for the process followed by Venezuelan private manufacturing as a whole during the 1973-1982 phase, and especially during the rapid sectoral growth phase of 1973-77 and its stagnation thereafter. The major conclusions of the chapter are set out in the final section.

5.1 Venezuelan industrialisation during the pre-boom phase (1950-1972)

An Import substitution industrialisation strategy

The adoption of an import substitution industrialisation (ISI) strategy in Venezuela took place later than in other Latin American countries as a result of the availability of foreign currency provided by oil activities. Although previous studies[1] claimed that the beginning of Venezuelan industrialisation was linked to the years of democratic rule (1945-48 and especially from 1958), there is evidence that Venezuelan industrialisation began and was encouraged by the state in the 1940s, and continued during the dictatorship years (1948-58).[2] Following the overthrow of Perez Jimenez's dictatorship, a formal import substitution strategy was adopted in Venezuela from 1958 under the new democratic government. This led to the violation of the trade agreement with the US. This agreement, which had prevented the rise in tariffs on imports by the Venezuelan government, was finally rescinded in 1972 through an escape clause. The state planning and co-ordination board, CORDIPLAN, was set up in 1960 and Decree 512 was published, which established the commitment of the government to buying nationally produced goods. The industrial policy consisted mainly of uncoordinated trade policies under the form of protectionism, which relied basically on subsided credits, low tariffs and quotas on capital, and intermediate goods; the establishment of public enterprises and state corporations to provide financial support to the sector, and a decentralisation policy.[3]

Despite the fact that during 1950-72, industrial policies in Venezuela were mainly focused on the granting of protection to manufacturing, the major instrument for protection was not tariffs. The protectionist system adopted from 1959 was based on quantitative restrictions on imports, mainly quotas, licensing and tariff exemptions. The average tariff surcharge was only 21.6 per cent and high tariffs were only levied on those products that represented less than 5 per cent of total imports during 1961-63.[4] This protection structure obeyed the commercial agreement with the US already referred to.

[1] See Silva Michelena (1971, p. 108-9).

[2] In the late 1930's, a programme to promote industrial development was launched. Nevertheless, the signing of the so-called reciprocal Trade Agreement with the United States in 1939, which prevented the increase in tariffs on imports by the Venezuelan government, limited the impact of this industrial programme. As a result, instead of tariffs, protection was based on quantitative restrictions. As early as in 1946 the Venezuelan Development Corporation (CVF) was established to grant financial resources to industrial projects. As stated above the greater government spending in education, health and infrastructure fostered home demand. The industrialisation continued during the Perez Jimenez dictatorship (1948-58).

[3] Purroy (1982).

[4] CORDIPLAN (1968, p. 166), quoted by Perez Sainz and Zarembka (1979, p. 10).

The main instruments of protection in the 1960s were licensing and duty exemption on imported capital goods and raw materials. The arithmetic means of the incidence of custom duties, and other charges with similar effects on the CIF value of imports in Venezuela was 56 per cent in 1959, which was the third-highest level of protection in Latin America (Table 5.1). The existence of high protection contributed to the existence of high costs and prices in Venezuela compared to those in other Latin American countries. A comparative study undertaken by ECLAC[5] for 19 Latin American countries estimated that Venezuela had the highest relative price index in Latin America in 1962. The price index for Venezuela was 101 per cent higher than in Ecuador.

Table 5.1 Arithmetic means of incidence of customs duties and other duties of equivalent effect on the CIF value of imports in selected Latin American countries

Country	Year or Period	Incidence of customs duties (%)
Argentina	1959	91.5
Paraguay	1957-1958	61.5
Venezuela	1959	56
Ecuador	1957-1958	54.9
Chile	1957-1958	49.2
Colombia	1956-1958	41.3
Brazil	1957-1959	40.1
Bolivia	1957-1958	30.3
Peru	1957-1958	28.3
Uruguay	1957	21.1
Mexico	1957-1958	18.1

Source: Harris (1971, p. 147, Table 39).

As noted above, tariffs were not the main instrument of protection in Venezuela during the 1960s. Nevertheless, we present some estimates of the incidence of tariffs according to the kinds of goods to make clear that the level of protection on consumer goods was higher than on capital goods

5 UN, Economic Bulletin for Latin American (1963, p. 8-10).

(Table 5.2). Furthermore, the relative prices for five categories of goods are also presented. The parity exchange rates were estimated for the main expenditure groups. These data also indicate that the pattern of protection was positively correlated to the relative prices. Processed foodstuffs, tobacco, chemicals and pharmaceutical products showed high levels of tariff protection and high relative prices. By contrast, capital goods had relatively lower levels of tariff protection and relative prices. There is no evidence that changes in this situation took place throughout the 1960s.

Table 5.2 Incidence of tariffs and Venezuelan relative prices

Sectors	Tariff	Commodity category	Relative prices
Processed foodstuffs and tobacco	287	Food and tobacco	94
Chemical and pharmaceutical products	121.1	Toilet articles, drugs and medicines	103
Other current consumer goods	74	Clothing, footwear, textiles, household supplies	82
Durable consumer goods	14.7	Books and toys, etc., furniture, electrical appliances	54
Capital goods	10.9	Transportation equipment, producer equipment	48

Source: Harris (1971, p. 148, Table 41).

One of the main instruments of industrial protectionism in Venezuela was exemption from custom duties. During 1961-67, these were granted according to Decree N° 255, which allowed exemption from customs duties for imported raw materials, and machinery and equipment that covered the demands of industry and agriculture.[6]

A negative effect of this protectionist policy was the promotion of those industries which were more dependent on imported inputs and the placing of obstacles in the way of national production of some industrial inputs. The protectionist structure also encouraged a phenomenon of over-sized plant and high levels of spare capacity. It has been estimated that the average level of

6 Official Gazette No 26228, April 1960, quoted by Purroy (1982, p. 229).

capacity utilisation in Venezuelan manufacturing was 60 per cent in 1969.[7]

Oil income, the role of the state, and industrialisation

Expansionary fiscal policies and rural-urban migrations prompted a considerable stimulus to capitalist development with the creation of the home market and a labour force required for the beginning of industrialisation in the late 1940s. Oil income also contributed to the growth of the non-oil economy by covering the deficits in the non-oil current account of the balance of payments. In the terminology of structuralism, oil revenues covered the external gap or the foreign currency constraint to growth. In Venezuela, imports were financed almost totally by the foreign exchange income from the oil sector. The share of imports financed by oil income rose from 43.5 per cent in 1951 to 83 per cent in 1972. In this sense, the real appreciation of the bolívar became an important mechanism for the distribution of oil income in Venezuela, which facilitated the acquisition of cheap imports.

The distribution of oil income also benefited industrialisation through the financing of domestic investment. During 1969-71, there was an increasing trend in the share of external resources used in the financing of domestic investment (see Table 5.3). As expected, this trend was reinforced by the 1970s oil booms, when the share of domestic savings of the non-oil sector declined from 71 per cent in 1971 to 43 per cent in 1977. The substitution of oil income for domestic savings allowed for high levels of investment without curbing consumption, thus favouring labour to some extent.

The evidence provided in this section seems to bear out the views of some scholars[8] who have claimed the existence of an entirely negative impact of oil revenues on Venezuelan manufacturing even before the 1970s.

7 Industrial Survey (1971).

8 Examples of this view are Store (1980); Auty, (1987) and Gelb (1988).

Table 5.3 Oil income and financing of capital accumulation 1968-88

Year	Gross Investment bn Bs	Percentage of gross investment: Gross domestic savings (a + b)	Non-oil savings (a)	Oil resources (b)	Foreign savings (c)	Total external resources (b+ c)
1968	11.85	117.80	72.93	44.87	22.70	67.57
1969	13.25	113.70	75.45	38.25	16.68	54.93
1970	13.35	112.40	69.27	43.13	18.20	61.33
1971	15.41	117.07	71.25	45.82	23.69	69.51
1972	18.34	108.70	65.62	43.08	11.40	54.48
1973	21.55	126.87	68.60	58.27	33.50	91.77
1974	24.29	184.04	22.51	161.53	116.34	277.88
1975	35.41	121.09	38.18	82.91	27.17	110.08
1976	49.5	102.05	43.14	58.91	2.40	61.31
1977	70	84.16	45.86	38.30	-18.30	20.00
1978	83.14	74.56	44.52	30.04	-27.95	2.09
1979	75.87	103.97	53.60	50.37	4.30	54.67
1980	74.24	126.46	53.48	72.98	27.98	100.95
1981	80.77	120.12	48.35	71.78	20.38	92.16
1982	81.21	90.54	37.37	53.17	-10.98	42.19
1983	64.06	167.96	112.92	55.04	45.30	100.34
1984	57.37	172.12	68.80	103.31	80.74	184.05
1985	70.5	155.57	81.75	73.82	62.98	136.80
1986	93.7	100.30	65.29	35.01	0.32	35.33
1987	137	103.49	54.87	48.62	4.16	52.78
1988	198.67	81.59	33.03	48.55	-26.01	22.54

Notes: The contribution of the oil sector to saving was assumed to be equal to oil revenues that accrue to government and n-on-oil saving was estimated as a residual. Foreign savings equal the current account of the balance of payments. Sources: World Bank Tables, 1988 and Baptista (1991).

Accelerating growth during 1950-64 and sluggish performance thereafter

The above policies led to rapid manufacturing growth from 1950 to the mid-1960s. The performance of Venezuelan industrialisation was impressive during 1950-65. As shown by Table 5.4, over this phase Venezuelan manufacturing achieved faster value added growth (9.5 per cent) than in seven other Latin American countries.

Table 5.4 Industrialisation and economic development in Latin America and Venezuela during 1960-73

	Growth rates of Yma*		Ratio of Yma/Yt	
Countries	1950-65	1965-73	1950	1973
Argentina	4.8	5.9	26	33
Brazil	7.3	12	22	30
Mexico	7.2	8.1	19	26
Chile	5.5	3.4	23	24
Colombia	6.2	7.7	13	18
Peru	7.8	6.6	16	25
Venezuela**	9.5	5	12	17

Notes: Yma = manufacturing real value added in American dollars at 1970 prices; Yt = total GDP; * It refers to average annual growth rates. ** Data for Venezuela refer to the non-oil economy. Sources: Bitar and Troncoso (1988, cuadro No II-3, p. 53).

A further picture of Venezuelan manufacturing is presented in Table 5.5. The average annual growth rate of the sectoral value added was 12.23 per cent during the 1950s compared to 7.24 per cent in the non-oil economy. Likewise, real gross domestic investment expanded at an annual rate of 7.1 per cent during 1950-55, and over 20 per cent during 1955-59.[9] At the same time, manufacturing's contribution to non-oil value added rose from 7 per cent in 1950 to 12 per cent in 1960 and the sector also exhibited a marked increase in labour productivity measured as value added per worker, although labour absorption was very low during the 1950s.

Interestingly, this development took place during a phase of high oil exports and revenues, which spanned the period from 1948 to 1957.[10] This seems to refute the hypothesis of an intrinsic negative association between primary exports and industrial development.

However, the rapid manufacturing growth during the 1950s was interrupted by a fall in oil income during 1959-62.[11] Although some recovery in the sector took place during 1962-65, as a whole there was a slowdown in manufacturing during 1960-70 and especially during 1965-69 when the average output growth rate per year was 6.3 per cent compared with 9.6 per

9 Data on investment at constant prices of 1957. Sources: BCV, annual economic reports.

10 Oil exports increased from 691 to 2751 mill $ between 1947 and 1957.

11 For a study of the performance of Venezuelan manufacturing during 1960-70 see Merhav (1972).

Table 5.5 Industrialisation and economic development, Venezuela, 1950-72

	1950-60	1960-72*	1960-65*	1965-69
Trend growth				
Growth of manufacturing GDP	12.23	8.22	9.59	6.34
Growth of total GDP	7.24	6.92	5.05	7.47
Growth of manufacturing employment	3.37	6.28	7.16	5.15
Growth of total employment	3.27	5.54	5.16	5.21
Population growth	4.03	3.51	3.72	3.52
Growth of sectoral labour productivity	8.86	1.94	2.44	1.19
Growth of total labour productivity	3.97	1.38	-0.11	2.26
Structural change	1950	1960	1965	1972
Manufacturing share of GDP	6.9	11.8	15	15.4
Manufacturing share of employment	11.7	12.5	13.1	14.7
Manufacturing employment share of total economically active population	11.0	10.9	15.3	16.1

Notes: GDP at 1984 prices. Growth rates are the least squares estimates of trend growth. * In the case of employment the year 1964 was excluded due to the unreliability of the data for that year. Sources: own estimations based on data provided by PDVSA, internal files and the Central Bank of Venezuela, economic reports (various issues).

cent in 1960-65 and real investment was 0.60 per cent compared to 8.5 per cent during 1962-65.[12] The common explanation for the lack of industrial dynamism has been the difficulties of embarking upon the more complex stages of import substitution.[13] However, it is more likely that the problems of Venezuelan manufacturing by the mid-1960s were associated with the reduced market and the absence of sound and coherent industrial policy. This led to a pattern of growth and structural change in industrialisation which suffered from severe weaknesses, notably the lack of an export-competitive subsector, high dependence on capital and intermediate imports, low employment generation (which reinforced the unequal distribution of income), low diversification and limited intersectoral links.[14] These aspects are discussed below.

The Lack of an export-competitive manufacturing sector, high import dependence and balance of payments problems

A striking feature of Venezuelan manufacturing over the period 1950-72 was

[12] Data on investment refers to values at constant 1957 prices. Sources: BCV, annual reports various issues.

[13] Malave (1974); Maza Zavala (1974) and Purroy (1982).

[14] The idea of considering the demand side effect of oil income on the economy is put forward by Karshenas (1989).

the virtual lack of an export-competitive subsector. Indeed, oil exports accounted for 90 per cent of total exports during 1960-72. This problem is fully discussed in later chapters in relation to the impact of the 1970's oil booms, so here it will suffice to introduce few ideas.

As noted, the absence of an export promotion policy implied that the Venezuelan industrialisation process led to the existence of chronic deficits in the manufacturing trade balance that were covered by oil income. As shown by Table 5.6, over 1969-72 the trade balance ratio defined as the share of the trade (export minus imports) in total trade (exports plus imports) was close to -1 in manufacturing as a whole and this was a sector-wide phenomenon, as 13 out of 18 lines was very close to -1 and remained the same during these years. This development is explained by the scanty increase in manufacturing exports as well as by the high import ratios especially in the capital goods sectors, which have been a chronic problem of the Venezuelan industrial sector.

As further discussed in Chapter 6, the virtual lack of an export-competitive manufacturing sector in Venezuela seems to be partly related to the disruptive impact of the structural overvaluation of the bolivar.

Concerning trends in the import ratios, it becomes evident that although traditional intermediate lines such as food, textiles, non-metallic minerals and rubber experienced an important process of import substitution, this was not the case for manufacturing as a whole and especially for the capital goods sector. The import structure shows that the greater share of manufacturing imports corresponded to mechanical and electrical machinery. It is worth noting that according to data from ECLAC, the share of capital goods in manufacturing imports was the highest within a group of 7 countries.[15] The poor performance of import substitution in the capital branches seems to have been a weakness of Venezuelan industrialisation, with serious implications for the medium and long-term feasibility of the economic model. The rapid growth of imports of capital and intermediate goods was the major source of the balance of payments problems in Venezuela in the short term and medium term. The share of such goods in total imports amounted to more than 50 per cent on average during 1950-69.[16] Although data on the value of manufactured imports are scanty before 1968, it is estimated that in 1972 capital and intermediate goods for manufacturing represented 66 per cent of total imports and that the share of capital goods for manufacturing in total capital imports was 77 per cent. It is reasonable to assume that these shares were similar or higher during the preceding years.

Table 5.6 Trade indicators for Venezuelan manufacturing, 1969-72

ISIC	Manufacturing	Trade balance ratio		Export ratio		Import ratio		Share of exports		Share of imports	
Code	Lines	1969	1972	1969	1972	1969	1972	1969	1972	1969	1972
311-12	Food	-0.47	-0.29	3.7	4.9	9.7	8.5	65.2	53.3	4.9	3.7
313	Beverages	-1.00	-1.00	0.0	0.0	24.4	32.4	0.0	0.0	3.3	3.9
314	Tobacco	-	-	-	-	-	-	-	-	-	-
321	Textiles	-1.00	-1.00	0.0	0.0	18.9	19.8	0.0	0.0	3.2	3.1
322-24	Clothing	-1.00	-1.00	0.0	0.0	5.5	5.0	0.0	0.0	0.6	0.5
323	Leather	-1.00	-1.00	0.0	0.0	33.6	21.7	0.0	0.0	1.0	0.4
331	Wood	-1.00	-1.00	0.0	0.0	5.0	4.6	0.0	0.0	0.2	0.2
332	Furniture	-1.00	-1.00	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0
341	Paper	-0.96	-0.85	0.8	3.0	26.1	26.9	2.8	6.6	3.4	3.1
351-52	Chemicals	-0.99	-0.96	0.4	1.9	49.6	50.7	1.5	5.4	9.8	10.9
355	Rubber	-1.00	-1.00	0.0	0.0	16.2	13.7	0.0	0.0	0.5	0.4
361-62-69	Non-metallic minerals	-0.84	-0.65	1.9	2.3	18.5	9.9	7.0	6.2	2.1	1.1
371-72	Basic metals	-0.93	-0.92	1.7	1.8	32.5	30.5	12.0	8.1	9.1	7.7
381	Metal products	-0.90	-0.81	3.9	5.9	43.8	37.1	9.9	11.4	5.1	4.1
382-83	Machinery	-1.00	-1.00	0.3	0.8	84.2	86.1	0.6	1.3	31.8	38.6
384	Transport equipment	-1.00	-0.96	0.1	1.9	50.2	50.2	0.8	7.4	17.4	14.6
342	Printing	-1.00	-1.00	0.0	0.0	11.8	11.3	0.0	0.0	0.8	0.7
354-56-85	Others	-1.00	-1.00	0.0	0.2	56.4	47.6	0.0	0.4	6.8	6.9
300	Total	-0.95	-0.93	1.4	2.2	35.0	36.3	100.0	100.0	100.0	100.0

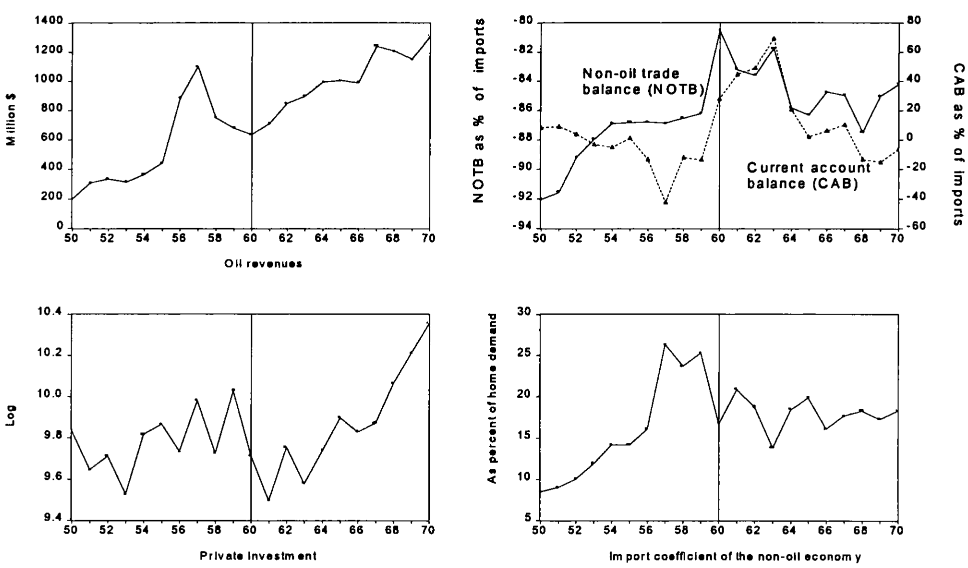
Notes: trade balance ratio = $(X_i - M_i)/(X_i + M_i)$; export ratio = $X_i/Q_i \cdot 100$; import ratio = $M_i/D_i \cdot 100$; share of exports = X_i/Xt_i 100; share of imports = M_i/Mt_i 100; where X_i = exports of sector i's products; M_i = imports of sector i's products; Q_i = sector i's total domestic output; $D_i = Q_i + M_i - X_i$ = domestic demand. All data at constant bolivares of 1984. Exports f.o.b. and imports c.i.f. Sources: own estimation based on data provided by BCV, Finexpo, annual reports and Brandi (1989).

15 ECLA (1974).

16 ECLA (1963).

In sum, we argue that the problems of Venezuelan industrialisation are partly linked to the lack of a coherent industrial strategy which could have combined import substitution with export promotion policies. This resulted in a pattern of growth and structural change which was prone to balance of payments crises. As illustrated by Fig 5.1, the Venezuelan non-oil economy showed a dynamic characterised by cycles of rapid growth under phases of increasing oil revenues, which were accompanied by rising import ratios and deficits in the current account and the non-oil trade balance, especially manufacturing. For this reason, phases of rapid growth end with balance of payments problems once the oil revenues can no longer finance the balance of payments deficits. The years 1953-59 witnessed rapid growth, which led to increasing deficits in the current account and the non-oil trade balance. Thus,

Fig. 5.1 Oil revenues and import dependence of the non-oil economy



Sources: Central Bank of Venezuela, annual reports various issues.

once this expansion in income was not enough to finance such deficits, balance of payment problems appeared by 1960 (Fig 5.1). This forced the government to pursue corrective actions in the form of public spending cuts, import controls and devaluation.

The Low-Employment generating capacity of Venezuelan industrialisation

A common criticism of the Latin American and Venezuelan industrial process is its incapacity to generate enough employment. The major features of Venezuelan industrialisation during 1950-72 are summarised in Table 5.5 above. This shows that the sectoral share in total employment was 11.7 per cent during 1950-60 and 12.5 per cent during 1960-72. At the same time, the share of manufacturing employment in the total active population remained static at 11 per cent through the 1950s. This share increased from 11.1 per cent in 1959 to 15 per cent in 1965, which is accounted for by a significant decline in construction and services during the recessive phase of 1959-64. Although there is evidence that manufacturing private investment growth fell during 1959-60, it recovered during 1961-63, which suggests that manufacturing may have benefited from the fall in imports due to real devaluation. It seems that Venezuelan industrialisation exhibited a very low labour absorption during the 1950s, but this trend was reversed during the late 1960s.

The incapacity of industrialisation to adequately absorb the labour force resulted in its absorption by the service sector, whose sectoral share in total employment increased from 35.11 per cent in 1950 to 42.5 per cent in 1960 and 52 per cent in 1970. Likewise, agriculture accounted for about 36 per cent of total employment by 1960 and 22 per cent by 1970.[17] This contrasts with the low agricultural share in value added, which remained at 11 per cent from 1950 to 1970. Consequently, the performance of labour productivity in agriculture did not improve substantially.

The phenomenon of low employment absorption in Venezuelan manufacturing is associated with the adoption of capital-intensive techniques, which has been a striking feature of Venezuelan manufacturing from 1950.[18] This seems to be linked to the following factors: (a) the unequal income distribution which favoured the production of goods with similar characteristics to those produced in developed societies; (b) protectionist policies which favoured the importation of capital and raw materials; (c) the availability of oil income through real appreciation of the domestic currency, which led to high manufacturing wages compared with other countries at the prevailing exchange rate (together with the availability of international reserves, this encouraged the adoption of capital-intensive technologies); and, (d) a pattern of protection which favoured imports of capital and intermediate goods and may have encouraged the substitution of capital for labour to diminish costs.

Inefficient growth

A salient feature of Venezuelan manufacturing during the 1960s was the low labour productivity growth. This point is widely discussed in the next chapter, so here it will suffice to say that over the 1950s rapid manufacturing growth was accompanied by high labour productivity growth, which was also due to the slow expansion of employment. By contrast, throughout the 1960s the contrary occurred, although it is worth

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17 BCV, annual economic reports, various issues.

18 Purroy (1982);, Baptista (1987).

noting that during 1965-69 manufacturing output and employment experienced a similar declining trend (Table 5.5).

Oil income, unequal income distribution, the reduced domestic market and industrialisation

Although oil income had some positive effects on the non-oil economy and industrialisation, the accrual and particular domestic distribution of voluminous oil revenues in Venezuela had also undesirable implications for income distribution and the pattern of home demand during 1935-89.[19] Although real appreciation and public spending are bound to have favoured both labour and capital, the latter group seems to have benefited the most from government policy and the greater distribution of oil revenues in the urban areas led to deeper regional inequalities with regard to income. It is estimated that while in Latin America and other developing countries the richest 20 per cent of the population received 59.1 and 44.9 per cent of total income respectively by the late 1960s, in Venezuela this figure was 69.5 per cent.[20] The uneven income distribution common to Venezuela has been highlighted as one of the reasons for the narrowness of the home market and the problems faced by industrialisation in the late 1960s.[21]

These facts brought about negative consequences for industrialisation. The concentrated income distribution resulted in a highly differentiated and changing domestic demand structure that required a differentiated and sophisticated supply. The marked income concentration led to a consumption structure oriented towards luxury consumer goods, which favours the adoption of capital intensive technologies since the supply is designed to satisfy a highly concentrated market, causing high import

19 Karshenas (1989) highlighted the existence of the negative impact of the domestic distribution of oil revenues on income distribution and the patter of domestic demand by reference to the Iranian case during 1950-72.

20 Baptista (1986, p. 35). This Venezuelan scholar argues that the unequal income distribution (partly favoured by the particular distribution of oil income) was one of the reasons for the reduced domestic market.

21 Purroy (1982) and Baptista (1986, 1997).

dependence on capital and intermediate goods, balance of payments problems and lack of intersectoral links.[22] Likewise, the fragmented market sets obstacles for industrial diversification because the pattern of production takes the form of last-stage assemblage. This limits the absorption of technologies that, together with the reduced market, lead to efficiency problems and discourage exports. The logical result is the existence of chronic balance of payments problems, which reinforce the described process of growth leading to a worsening of the distributional problem due to growing unemployment.[23]

Lack of diversification

The unequal income distribution together with the availability of abundant foreign currency brought about a particular industrial structure characterised by the limited development of the capital goods and some intermediate industries (see Table 5.7). At first glance, some diversification appears to have taken place, with the relative share of the traditional group in manufacturing value added having declined from 59 per cent in 1960 to 49 per cent in 1970. At the same time, almost all of the traditional lines grew more slowly than manufacturing as a whole over 1960-72. Correspondingly, there was an increase in the contribution of the intermediate and mechanical lines to industrial value added from 23 and 11 per cent in 1960, respectively, to 30.6 and 14 per cent respectively in 1972. However, this was not an all-embracing phenomenon, and the relative share of those industries producing capital goods was very low (4 per cent) in 1974. The high growth of these lines in 1960-72, which was partly due to their low level of activity in 1960, did not have great significance in terms of industrial diversification. Branches relating to the production of inputs for construction and certain

22 Purroy (1982) and Aranda (1984), Brandi (1989).

23 A fundamental difference between the industrial process in East Asia and Latin America relates to the inclusive nature of industrialisation in the first region which produced non-durable goods for the internal market in the 1950s and for the external market later on due to the more even income distribution. By contrast in Latin America a capital-intensive industrialisation emerged as a result of an unequal income distribution (for a discussion of this idea see Anglade and Fortin

Table 5.7 Pattern of Growth and Industrial Structure, Venezuela, 1950-1972

ISIC	Manufacturing	Growth rates of		Percentage breakdown						
Code	lines	of real output		Output structure					Employment structure	
		1950-72	60-72	1950	1955	1960	1965	1972	1961	1972
311-12	Food	11.7		17.7	15.5	18.0	20.7	18.9	18.3	17.0
313	Beverage	8.7	6.5	11.2	7.9	9.1	6.5	6.0	5.9	3.2
314	Tobacco	8.0	6.0	10.2	7.5	9.3	8.2	6.6	1.8	1.1
321	Textiles	12.9	7.6	7.7	7.6	9.0	8.9	7.9	9.4	8.8
322-24	Wearing apparel & footwear	19.6	7.6	2.8	6.1	5.5	4.6	4.6	12.6	10.3
323	Leather	14.2	0.2	1.5	1.3	2.1	1.1	0.8	1.6	0.9
331	Wood	7.2	8.1	9.1	8.5	4.1	3.2	3.2	2.1	2.7
332	Furniture	7.9	7.7	3.8	3.0	2.2	2.3	1.7	6.9	3.7
	Traditional industry	10.9	7.5	64.0	57.4	59.4	55.4	49.7	58.6	47.7
341	Paper & paper products	25.2	10.6	0.8	1.9	3.3	4.2	4.1	2.7	3.0
351-52	Chemical products	14.5	10.2	5.4	6.6	6.2	6.9	7.5	4.8	7.0
355	Rubber	17.2	8.9	1.3	1.7	2.0	1.9	1.9	2.4	1.8
361-62-6	Non-metallic minerals	10.1	8.4	13.7	12.9	10.3	9.9	9.1	6.3	6.6
371-72	Basic industry	46.0	22.5	0.0	0.6	1.0	1.9	6.8	1.2	5.2
	Intermediate Industry	13.5	11.2	21.1	23.8	22.7	24.7	29.4	17.3	23.6
381	Metal products	25.4	9.4	1.5	2.3	4.4	3.7	4.6	3.4	7.5
382-83	Mechanical & electrical machin	13.9	26.3	0.5	0.4	0.6	1.8	4.3	2.5	5.9
384	Transport equipment	9.3	7.9	7.8	9.3	6.1	8.3	4.9	8.2	5.5
	Mechanical Industry	13.3	11.4	9.8	11.9	11.1	13.8	13.8	14.2	18.8
342	Printing	11.8	6.7	4.3	5.5	4.4	3.3	3.2	3.8	3.7
354-56-8	Other manufacturing	23.9	11.6	0.8	1.4	2.4	2.8	3.8	6.2	6.2
300	Total	12.0	9.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: growth rates are the least squares estimates of trend growth (1984 prices). Sourcres: own estimations based on data provided by PDVSA, internal files and BCV, economic reports, various issues.

5.2 Venezuelan industrialisation during 1973-82[24]

5.2.1 The booming phase (1973-77)

A view of the main indicators of Venezuelan private manufacturing is presented in Table 5.8 and Fig 5.2. These make clear that this sector accelerated its pace of growth during 1974-77 compared to 1968-72. The real

(1987), Amsden (1989).

24 This section is based on data provided by the industrial census (see methodological appendix to this chapter).

annual growth rate of manufacturing value added increased from 9 per cent in 1968-72 to 11.06 per cent in 1974-77 and a considerable expansion in employment and private investment also occurred.[25]

The expansionary fiscal, financing and investment policies of 1973-77 gave way to the expansion of public and private manufacturing investment. According to the industrial census, manufacturing private investment grew by 17.49 per cent per year during 1974-77; this was higher than in 1968-72 when it grew by 12.42 per cent annually.[26] The second estimate of private manufacturing investment, which refers to the non-residential assets, shows a more important expansion of investment. By contrast, private investment in manufacturing declined during 1978-82, while only a mild and unstable recovery took place over 1983-88.[27] The trend in

Table 5.8 Main indicators in private manufacturing, growth rates, Venezuela, 1968-1994

Indicators	1968-72	1974-77	1978-82	1983-88	1989-1994
Value added	9.19	11.06	2.27	4.78	3.31
	0.99	**0.99**	**0.65**	**0.61**	**0.38**
Gross production value	8.16	11.45	0.67	7.91	4.42
	0.99	**0.99**	**0.15**	**0.91**	**0.56**
Employment	5.48	11.76	-1.49	3.21	-0.33
	0.97	**0.97**	**0.16**	**0.84**	**0.01**
Value added per worker	3.71	-0.42	3.46	1.30	3.64
	0.89	**0.25**	**0.65**	**0.26**	**0.91**
Gross production value per man	2.68	-0.57	1.86	3.64	4.75
	0.78	**0.28**	**0.55**	**0.91**	**0.97**
Gross domestic investment*	12.42	17.49	-2.65	10.02	4.83
	0.87	**0.93**	**0.24**	**0.59**	**0.39**
Gross domestic investment**	4.54	26.69	-23.99	8.17	-
	0.24	**0.97**	**0.99**	**0.27**	-
Product wages	-0.26	0.38	2.00	-7.74	-
	0.049	**0.28**	**0.45**	**0.93**	-

Notes: growth rates are the least square estimates of trend growth. All values at 1984 prices. *This refers to gross domestic investment at constant 1984 prices and based on data at current prices on investment provided by OCEI (industrial surveys) and the import price index for machinery and equipment. ** It refers to gross domestic investment at 1984 prices excluding residential investment. Figures in bold are the R^2. Sources: own estimations based on data provided by the industrial survey and the Central Bank of Venezuela, economic reports (various issues); gross domestic investment excluding residential assets is based on data provided by Baptista (1990).

25 The average annual growth rate of private manufacturing output was 9 per cent during 1961-72.

26 At constant prices of 1984.

27 According to the Central Bank of Venezuela, manufacturing investment rose during 1975-77 (see chapter 3).

manufacturing investment, including residential assets, over 1973-74 was linked to the fall in construction which occurred in 1974. It seems that import-competitive private manufacturing benefited to some extent from the domestic distribution of oil revenues during 1974-77. Our findings are contrary to Auty's argument (1990) according to which non-resource manufacturing was neglected by the government, which would have channelled few resources into this sector.

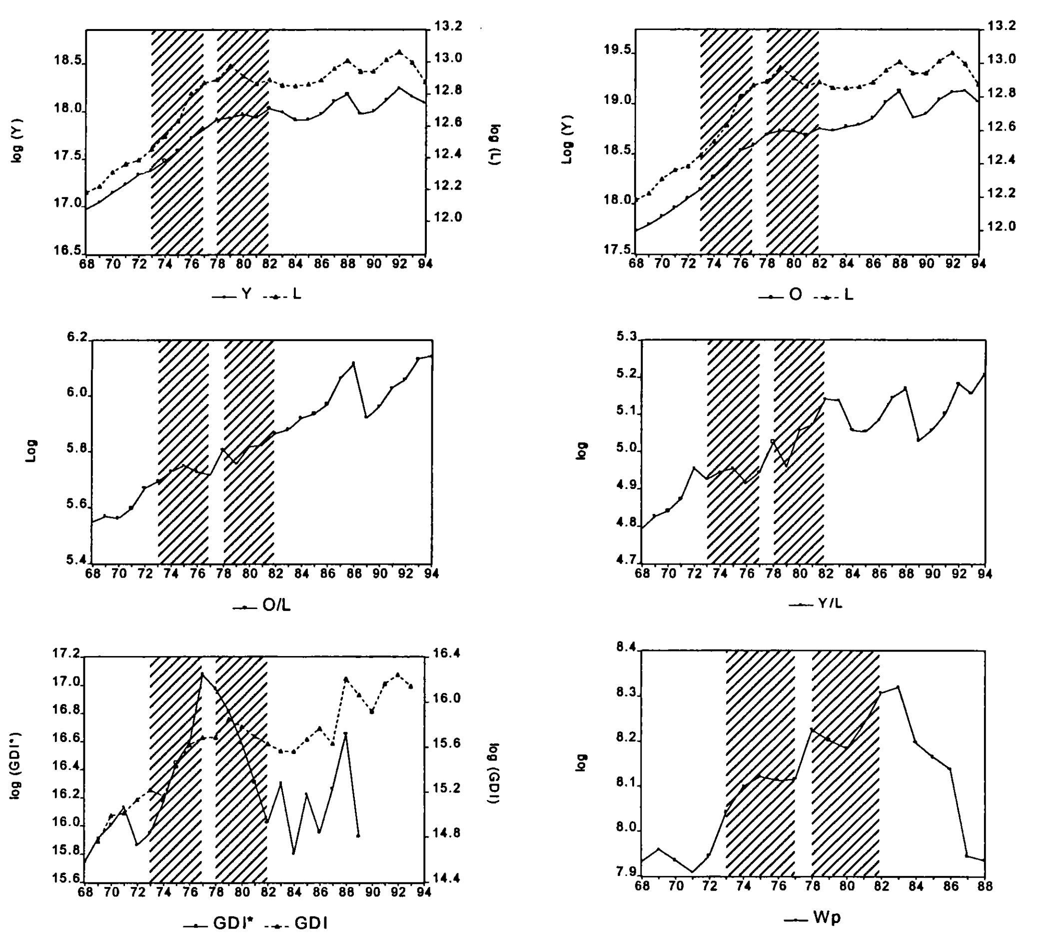
5.2.2 The post-1977 recession

Venezuelan manufacturing expanded during 1973-77. Nonetheless, the industrial process exhibited three major weaknesses which are closely related: (a) growth was inefficient as measured by a decline in value added per man and an increase in the capital/output ratio in the non-oil economy; (b) a coherent industrial strategy concerned with efficiency and the ability to exports was lacking; and (c) dependence on imported capital and intermediate goods was reinforced.

Concerning the first aspect, Fig 5.2 shows that a severe decline in manufacturing labour productivity, measured as output and value added per worker, occurred during 1974-77. This trend may be partially linked to the reluctance to launch adequate industrial policies and to the problem of the over-investment of oil revenues, which exceeded the capital absorptive capacity of the economy, leading to inefficiencies. This topic is assessed in the next chapter, so here we only point out that the huge expansion of domestic demand (investment and consumption) gave way to a situation characterised by congestion problems related to the scarcity of skilled labour, infrastructure services and management capacities. In this sense, the low capital absorptive capacity caused by these factors may have set obstacles to the better absorption of oil income, resulting in a huge increase in imports and low labour productivity growth especially in manufacturing.

It must be noted that the significant increase occurred in the wage share in manufacturing value added during 1973-77 is mainly explained by the sharp decline in labour productivity growth and to a lesser extent to the modest increase in product wages. Thus 'labour hoarding' did not explain

Fig. 5.2 Some indicators for manufacturing, Venezuela, 1968-1994



Notes: all data at constant prices of 1984. Y = value added of private manufacturing; O = gross production value of private manufacturing; L = number of employees in private manufacturing; GDI* = private gross domestic investment in manufacturing. This only includes machinery and equipment; GDI = private gross domestic investment in manufacturing; wp = product wages in private manufacturing . Sources: as Table5.9.

the decline in the profit share. This seems to be in contradiction with the Dutch disease theory, according to which the increase in unit labour costs take place through rising product wages. Some subsectors experienced an increase in their unit labour costs over the period. Nevertheless, the reason was not spiralling product wages due to a drop in relative prices, but a substantial decline in labour productivity growth (measured as real value added per man). So, our findings do not seem to confirm the theoretical predictions of the Dutch disease model on these grounds. The profit rate did not fall during 1973-77 because the fall or stability in the profit share was compensated by the rise in the output-capital ratio during 1974-1976.[28] As regards the second and third aspects, there were no significant changes in the so-called industrial policy launched during the 1960s, which continued relying on import substitution without concern for the development of an export-competitive sector and the achievement of greater diversification and efficiency. As a result, the expansion of manufacturing during 1973-77 implied growing deficits in the trade balance (see Fig 5.3). The dependence upon imported capital and intermediate goods of Venezuelan manufacturing was exacerbated during these years. The already insignificant export ratio showed a decline from 2 per cent in 1973 to 1 per cent in 1977, which together with the increase in the import ratio from 34.8 per cent in 1973 to 50.4 per cent in 1977 caused a worsening of the trade balance ratio (see Table 5.9). It can also be seen that the share of capital imports in total manufactured imports increased during 1973-77 and remained very high until 1988. The real appreciation of the bolívar during the 1973 oil boom is bound to have reinforced the

[28] See estimations of manufacturing profitability in the methodological appendix to this chapter.

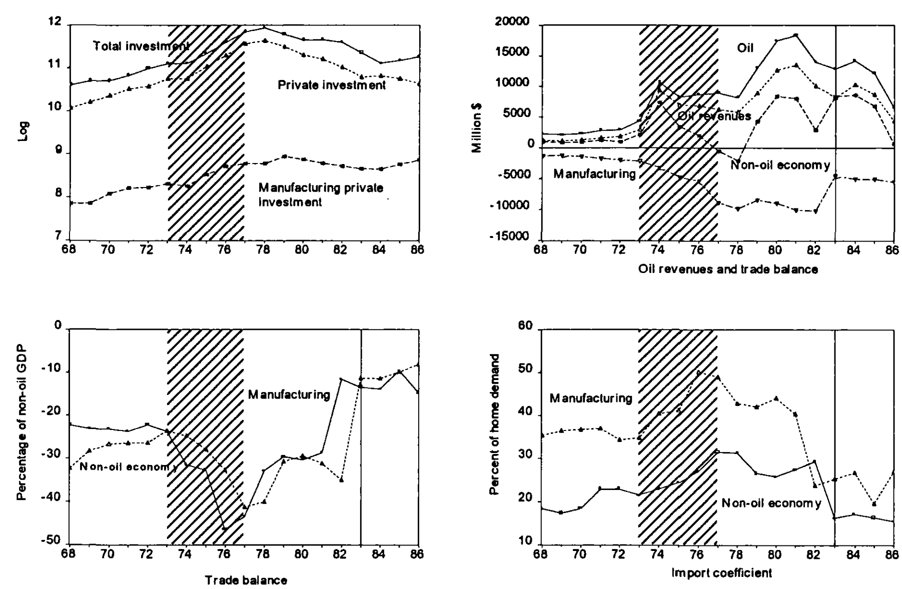
importation of all kind of goods, including manufactured goods. This pattern of growth, together with the declining trend in oil revenues, implied severe foreign exchange shortages and the widening of the current account deficits by 1977 (see Figure 5.3). These imbalances promoted the

Table 5.9 Trade indicators for Venezuelan manufacturing, 1973-88

ISIC	Manufacturing	Trade balance ratio				Export ratio				Import ratio				Share of exports				Share of imports			
Code	lines	1973	1977	1982	1988	1973	1977	1982	1988	1973	1977	1982	1988	1973	1977	1982	1988	1973	1977	1982	1988
311-12	Food	-0.5	-0.9	-0.9	-0.9	2.9	1.4	1.0	1.0	8.5	18.9	16.3	10.9	33.6	22.5	12.5	6.6	4.3	4.6	6.9	7.2
313	Beverages	-1.0	-1.0	-1.0	-0.9	0.0	0.0	0.0	0.2	23.9	38.5	28.0	6.2	0.0	0.0	0.0	0.4	2.8	3.0	3.2	1.0
314	Tobacco	-1.0	-1.0	0.7	0.9	0.0	0.0	2.1	4.2	0.1	0.1	0.3	0.3	0.0	0.0	2.9	2.5	0.0	0.0	0.0	0.0
321	Textiles	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.1	0.4	14.7	27.2	31.6	19.1	0.0	0.0	0.3	0.7	2.6	2.1	2.6	3.1
322-24	Clothing	-1.0	-1.0	-1.0	-0.9	0.0	0.0	0.0	0.6	3.5	19.8	34.6	9.2	0.0	0.0	0.0	1.1	0.3	1.3	4.2	1.6
323	Leather	-1.0	-1.0	-1.0	-0.8	0.0	0.0	0.0	1.5	18.0	51.1	46.0	12.0	0.0	0.0	0.0	0.4	0.3	0.7	0.7	0.3
331	Wood	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.2	4.7	37.8	39.3	6.1	0.0	0.0	0.0	0.0	0.2	1.0	1.2	0.2
332	Furniture	-1.0	-1.0	-1.0	0.7	0.0	0.0	0.0	0.4	0.2	0.6	0.8	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
341	Paper	-0.7	-1.0	-0.9	-0.8	5.0	0.8	1.2	4.7	27.1	26.9	32.4	27.2	10.3	2.8	1.8	5.4	3.0	1.6	2.1	3.6
351-52	Chemicals	-0.9	-0.9	-0.9	-0.8	6.8	4.3	4.1	7.3	49.9	47.8	39.4	40.9	19.9	28.4	20.7	23.4	11.3	7.1	9.4	17.8
355	Rubber	-1.0	-1.0	-1.0	-0.9	0.0	0.0	0.0	0.0	17.5	50.4	39.1	1.3	0.0	0.0	0.0	0.0	0.4	1.1	1.2	0.1
361-62-	Non-metallic minerals	-0.7	-1.0	-1.0	-0.5	1.5	1.2	0.8	3.8	9.2	50.0	29.1	11.1	3.5	4.4	1.9	5.7	1.0	4.4	2.9	1.6
371-72	Basic metals	-1.0	-1.0	-0.7	-0.3	1.3	0.4	5.4	10.7	39.7	51.7	28.3	18.2	5.1	4.1	35.8	35.6	10.9	12.4	7.4	5.7
381	Metal products	-0.9	-0.9	-0.9	-0.5	3.2	2.6	2.6	3.6	33.4	46.7	29.6	10.0	5.9	10.8	7.1	6.8	3.7	4.3	3.3	1.7
382-83	Machinery	-1.0	-1.0	-1.0	-1.0	1.3	1.7	2.7	1.8	81.3	87.9	81.8	69.9	2.7	7.5	7.7	3.5	37.4	39.8	37.2	37.1
384	Transport equipment	-0.9	-1.0	-1.0	-0.9	4.0	2.0	1.6	2.7	47.2	56.5	45.0	43.1	18.1	16.5	7.7	6.2	16.1	12.9	11.9	14.7
342	Printing	-1.0	-1.0	-1.0	-0.9	0.0	0.0	0.0	0.3	13.5	14.4	20.1	7.8	0.0	0.0	0.0	0.2	0.9	0.5	1.1	0.6
354-56-	others	-1.0	-1.0	-1.0	-0.9	0.6	0.8	0.7	0.8	41.0	42.1	38.5	22.2	1.0	2.9	1.7	1.3	4.9	3.2	4.6	3.8
300	Private manufacturing	-0.9	-1.0	-0.9	-0.8	2.2	1.2	1.9	3.1	34.8	50.4	39.1	27.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Trade balance ratio = $(X_i - M_i)/(X_i + M_i)$; export ratio = $X_i/Q_i \cdot 100$; import ratio = $M_i/D_i \cdot 100$; share of exports = X_i/Xt_i 100; share of imports = $M_i/Mt_i \cdot 100$; where X_i = exports of sector i's products; M_i = imports of sector i's products; Q_i = sector i's total domestic output; $D_i = Q_i + M_i - X_i$ = domestic demand. All data at constant bolivares of 1984. Exports f.o.b. and imports c.i.f. Sources: as Table 5.6.

Fig 5.3 The balance of payments problems and Venezuelan manufacturing



Notes: data on investment at constant 1984 prices, trade balance as percentage of non-oil GDP and import coefficient of the non-oil economy and manufacturing as percent of home demand are based on data in bolivares at consnstant 1984 prices. Sources: Central Bank of Venezuela, annual reports various issues and OCEI, industrial surveys and Brandy (1989).

adoption of deflationary policies by 1977 and especially during 1978-80. Thus the expanded productive capacity, which resulted from the high investment of oil income made during 1973-77, could not be matched by and increase in the home demand. It must be noted that the external market was not an alternative because the structural overvaluation of the bolívar limited the possibility of exporting. This suggests that foreign exchange constraints played a key role in explaining the crisis of Venezuelan manufacturing and of the whole economy from 1978.

As already noted throughout 1978-82, private investment in manufacturing was also disrupted by rising labour costs. In sum, we argue that the slowdown of manufacturing from 1978 is related to the lack of feasibility of the economic strategy applied during 1950-72, which was reinforced during 1973-77. This implied that there was no a coherent industrial policy which could have led to the allocation of oil revenues into import substitution industrialisation and export promotion. This resulted in a high dependence on oil exports and the absence of a competitive manufacturing sector during 1950-82. This argument is found in Purroy (1982), Auty (1986) and Gelb (1988). However, we differ from those scholars in the sense that they do not seem to recognise the early contribution of oil revenues to industrialisation and economic growth in the previous decades. They also seem to blame import substitution industrialisation and interventionism for the failures of the Venezuelan economy and to associate the problems of industrialisation with the accrual of oil revenues when indeed there is evidence that other economies with a large primary export sector, such as Malaysia, which managed to adopt an export promotion industrial policy despite the primary booms.

Contrary to Clemente (1984), Auty (1986), Gelb and Bourguignon (1988), we conclude that the stagnation of Venezuelan manufacturing during 1978-82 did not reflect a typical Dutch disease phenomenon. How can the path of the non-oil economy be typified as Dutch disease if there was no boom during 1978-82 owing to the adoption of deflationary policies following the appearance of balance of payments problems?

5.3 The Post-boom phase and manufacturing

The Venezuelan economic crisis continued during 1983-95. The path followed by manufacturing during 1983-88 does not fit entirely with the predictions of the Dutch disease and resource curse theses. Following the severe decline during 1983-84, some recovery took place in manufacturing output, employment and private investment during 1985-88 compared to 1978-82. This is explained by the improvement in profitability favoured by declining product wages, which is linked to the large devaluations of the domestic currency. The latter action also encouraged an import-substitution effect. Nevertheless, the following aspects must be considered: (a) the recovery of private investment was highly unstable and modest; and, (b) from 1988 onwards the performance of private manufacturing has been disappointing in terms of output, employment, investment and exports (see Fig 5.2). Logically, the disappearance of the overvaluation of the domestic currency with the drop in oil revenues exerted some positive influence on manufacturing output and exports. The recovery during 1985-87, is ascribed to the import substitution effect as a result of the real devaluation of the domestic currency in 1983, 1984 and 1986, and the expansion of public and private manufacturing exports (see chapter 6). Nevertheless, it was not the case that a reverse Dutch disease process took place, manufacturing growth has been modest and highly fluctuating, with a downward trend from 1986 to 1989, which points to the temporary dynamic effect of devaluation policies on output and exports. It must be noted that those lines with a high import content were negatively affected by real devaluation.[29] Some of the industries were affected by sluggishness of domestic demand. Although the Venezuelan government managed to avoid following the prescriptions of the IMF, the policies launched in 1984-85 implied a reduction in government spending and major devaluations of the domestic currency to achieve external balance.

In sum, contrary to the predictions of the Dutch disease model and the 'resource curse' thesis, agriculture and manufacturing were not the fastest-growing sectors during the post-boom phase and they did not record structural gains. Indeed, in spite of real devaluation, de-agriculturalisation and de-industrialisation have been the outcomes when the entire 1983-95 period is compared to 1960-77. There was a substantial decline in Venezuelan private manufacturing output and investment growth from 1989-94 and a fall in the sectoral share in total value added and employment. Observers of the Venezuelan economy are concerned with the de-investment process, which has been occurring in the manufacturing sector. This de-industrialisation is linked to the adoption of neo-liberal policies and especially trade liberalisation witch is not supported by supply-side policies.[30]

5.4 Concluding remarks

29 BCV, economic reports (1984).

30 The impact of the neo-liberal policies on Venezuelan manufacturing has been studied by Valecillos (1992), Maza Zavala and Malave Mata (1992), Lander (1996), and Pirela (1996).

The major conclusion of this chapter is that Venezuelan private manufacturing did not follow a typical Dutch disease process during 1973-82. By contrast, our analysis suggests that the impact of oil revenues on the Venezuelan non-oil economy and the manufacturing sector is closely linked to some structural factors and the nature of the economic policies pursued over this period.

With the benefit of hindsight, the picture which emerges is that oil income brought about some positive effects on Venezuelan industrialisation until the late 1960s through the creation of the home market and the positive impact of the structural overvaluation (due to oil revenues) though the cheapening of imported capital and other goods. However, the policies of distribution of oil income such as the real overvaluation of the domestic currency together with the lack of coherent industrial policies entailed some negative effects such as the lack of an export-competitive manufacturing sector, the lack of diversification and heavy dependence on imported inputs and capital goods. We show that the impact of the 1970s oil booms is linked to the policy response in Venezuela, which reinforced the described weaknesses of industrialisation. The first oil boom stimulated the manufacturing sector, which was experiencing a slowdown from the mid-1960s as a result of the limited market. However, industrial growth was not sustainable due to inefficiencies, the lack of exports and heavy import dependence, with the initial rapid growth leading to severe balance of payments and fiscal problems once oil revenues declined. This prompted restraint in the use of expansive government policies by 1977. In the initial stages of the boom, the greater domestic demand prompted by the surge in government spending represented a temporary relief to the problems posed by the reduced market, and public investment and substantial credits also led to a revival of private investment. Nevertheless, given the lack of a non-oil export-competitive sector, once oil revenues declined, severe balance of payment problems appeared.

In sum, this chapter shows that Venezuelan private manufacturing was not affected by the lack of investment or labour in response to the squeeze of profitability caused by real appreciation and increasing product wages. Although the 1973 oil boom entailed some real appreciation, this was modest and substantial oil revenues were used to encourage a process of resource-based industrialisation. At the same time, the policy of import substitution industrialisation in the private sector was also reinforced. These policies and the expansion of the home market, help to explain why both private and public manufacturing grew faster during 1974-77 than in the late 1960s, but this growth was inefficient and unsustainable. On the supply side, the crisis of Venezuelan manufacturing and the whole non-oil economy which began in 1978 despite another increase in oil prices, points to the lack of a coherent industrial strategy that could have considered the efficiency of investment, and the encouragement of export-competitive manufacturing. This led to balance of payments problems once oil income did not keep growing enough to match the requirements of manufacturing growth and prompted the launching of the stabilisation policy during 1978-80. On the demand side, the low capital absorptive capacity of the economy, caused mainly by the lack of management capacities, set obstacles to the absorption of oil revenues during 1973-77.

6. The 1970s Oil Booms and the Sources of Growth of Venezuelan Manufacturing during 1973-82

Introduction

In this chapter, the sources of industrial growth for Venezuela during 1969-93 are estimated. Section 1 presents the sources of growth of manufacturing on the demand side. It is hypothesised that the boom may have resulted in a negative contribution of import substitution and exports to manufacturing growth, while the role of domestic demand may have been positive. Since the lack of an export-competitive manufacturing sector is the major symptom of Dutch disease in Venezuela, section 2 examines the performance of manufacturing exports in detail by presenting some stylised facts and econometric evidence on the determinants of exports. Section 3 deals with the supply determinants of industrial growth. This focuses on a striking feature of private manufacturing development during 1974-77, namely the sharp decline in labour productivity growth, which leads us to raise questions about the determinants of productivity in an oil-based economy, and especially on the efficiency of the policies adopted during before 1974-77. TFPG was also estimated. Finally, the concluding remarks are summarised in the third section.

6.1 Demand side sources of growth of Venezuelan manufacturing during 1973-82

Following Kavoussi (1986), a modified version of the Chenery decomposition of the sources of industrial growth was used to asses the impact of domestic demand, import-substitution, exports and shifts in the pattern of domestic demand on Venezuelan private manufacturing during 1969-73, 1974-77, 1978-82 and 1982-88.[1] The periodisation relates to the different economic policies pursued during these periods. Estimates for the 1989-93 phase are also presented

[1] See methodological appendix for explanation of the methodology used.

because the radical changes in the economic policies launched during these years allows for an interesting comparison with the previous years and may contribute to the understanding of our problem. It is hypothesised that over the pre-boom phase, the role of import-substitution and domestic demand in industrial growth should be positive, while throughout the 1974-77 phase, the impact of import-substitution on industrial growth is bound to be negative. The contribution of exports to industrial growth is expected to decline too, with domestic demand becoming the only driving force of growth. The immediate post boom period (1982-88) should be characterised by the positive role of import substitution and exports as a result of the disappearance of the overvaluation of the domestic currency.

The results for the demand side sources of growth are reported in Table 6.1. These indicate that despite the negative impact of the boom on the import and export-competitive manufacturing sub-sectors during 1974-77, the positive impact of the greater internal demand prevailed and private manufacturing accelerated its pace of growth during this phase compared to 1969-73. The contribution of import substitution to manufacturing growth became negative during 1974-77 while it had been positive during 1969-73. Throughout the boom years, the huge surge in imports was encouraged by the passive trade policy with regards to consumer goods. Imports of consumer goods were not restricted in order to offset inflationary pressures arising from the huge internal demand. However, the expansion of domestic demand allowed for manufacturing growth during these years. Since the contributions of the shift in the structure of domestic demand and in exports to the manufacturing growth were negative, sectoral growth relied entirely on expansion of home demand during 1974-77.

Over these years, the rise in income due to the oil boom brought about changes in the structure of domestic demand. As illustrated by Table 6.2, there was a decline in the share of the traditional sector in domestic demand, while the share of machinery and transport equipment, metals and chemicals increased. While in 1969 textiles, food and beverages accounted for 36.63 per cent of total domestic demand for manufactured products, in 1977 the share of these sectors had declined to 26.73 per cent. At the same time, the share of machinery and transport equipment and chemicals increased from 35.78 per cent in 1969 to 47.25 per cent in 1977. The higher import coefficient for those lines compared to the traditional ones helps to explain the changes in the demand structure.

Table 6.1 Demand side sources of growth of Venezuelan private manufacturing, 1969-93

	million of bolívares					percentage of total				
	1969-73	1974-77	1978-82	1982-88	1989-93	1969-73	1974-77	1978-82	1982-88	1989-93
Domestic demand	3441	69647	-12337	23650	55533	90.83	213.74	-163.2	4.54	115.49
Import substitution	20815	-22404	13712	1435	-4186	15.01	-68.76	181.41	74.83	-8.71
Change in structure of domestic demand	-2328	-13831	6241	4590	-3891	-10.16	-42.45	82.57	14.52	-8.09
Exports	988	-828	-58	1929	628	4.31	-2.54	-0.76	6.1	1.31
Total	22915	32584	7559	31605	48083	100.00	100.00	100.00	100.00	100.00

Note: based on a 18-sector level of disaggregation. Sources: own estimations based on data at 1984 prices provided by the industrial survey and the Central Bank of Venezuela. For further details see methodological appendix.

Table 6.2 Domestic demand and output structures in Venezuelan private manufacturing (%), 1969-93

SIC Code	Lines	Domestic demand						Gross production value					
		1969	1974	1977	1982	1988	1993	1969	1974	1977	1982	1988	1993
311-12	Food	20.4	18.9	14	18.6	19.7	17.8	27.8	26.3	22.5	25.9	24.1	21
313	Beverages	5.3	4.9	4.5	5	4.9	6.3	6	4.8	5.4	5.9	6.3	7
314	Tobacco	2.1	2.2	1.4	1.7	1.4	1.9	3.2	3.2	2.8	2.9	2.1	2.5
322	Textiles	6.8	6.9	4.5	3.6	4.8	4.7	8.1	8.4	6.4	4	5.3	4.8
324	Clothing	4.2	4.5	3.8	5.4	5.2	5.9	5.9	5.8	6.1	5.8	6.5	6.6
323	Leather	1.2	0.9	0.7	0.7	0.8	0.4	1.1	0.8	0.7	0.6	0.9	0.7
331	Wood	1.9	1.7	1.6	1.3	0.8	0.6	2.6	2.3	2	1.3	1	0.6
332	Furniture	1.4	1.1	1	1.2	1	1.3	2.1	1.7	1.9	1.9	1.4	1.6
341	Paper	5.2	4.4	3.4	2.8	3.9	3.4	5.7	4.4	4.9	3.2	4.1	3.4
351-52	Chemicals	6.9	7.1	7.8	10.3	13	12.2	5.9	7.3	9.2	10.9	11.3	13.3
355	Rubber	1.3	1.2	1.3	1.3	1.6	1.8	1.6	1.4	1.3	1.3	2.2	2
361-62-69	Non-metallic minerals	4.1	3.8	5.1	4.2	4.2	4.2	5.7	5.4	5.1	5.1	5.2	5.3
381	Metal products	4.3	4	5.3	4.7	5.1	4.6	4	4.5	5.8	5.8	6.5	5.4
383-84	Machinery	15.1	16.9	26.2	20	15.9	13.7	3.5	4.9	6.3	6.1	6.6	6.7
384	Transport equipment	13.8	14.6	13.3	11.6	10.2	12.1	10.3	11.6	11.5	10.7	8.2	9.3
342	Printing	2.5	2.4	1.9	2.5	2.3	2.9	3.4	3.1	3.2	3.3	2.9	3.4
354-56-90	Other manufacturing	3.7	4.7	4.3	5.2	5.1	6.3	3.1	4.1	5	5.3	5.5	6.4
300	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: * This refers to the sectoral shares of home demand, defined as the sum of output plus imports less exports, over total domestic demand for private manufacturing, **This refers to the sectoral shares of output in total output for private manufacturing. Sources: as Table 6.1.

Interestingly, despite the lowering of tariffs in 1979, the role of import-substitution on manufacturing growth was positive during 1978-82, while the contribution of domestic demand was negative. These paradoxical results are explained by the decline in imports that occurred during these years due to the deflationary fiscal policies applied and the recession which led to a significant drop in imports of capital and consumer goods. The import coefficient declined from 49 per cent in 1978 to 41 per cent in 1982. It should be noted that a more detailed analysis in Chapter 7 shows that some of the manufacturing lines, notably, textiles, machinery and transport, recorded absolute declines in output growth during 1978-82.

As expected from the above discussion, import substitution had a positive role in manufacturing growth during the immediate post-boom phase (1982-88). At the same time, the expansion of domestic demand contributed only 4.6 per cent to manufacturing growth, while there was a positive contribution from the pattern of domestic demand. This development is explained by the trade and exchange rate policies launched during 1984-87. The three major devaluations of the bolívar and the restrictions on imports imposed by the government encouraged import-substitution of some manufacturing goods, as well as exports.[2] It is worth noting that during 1982-88, there was an increase in the share of traditional lines in domestic demand, with the role of changes in demand structure being positive. This may be explained by the disruptive impact of the strong devaluation of the domestic currency on income distribution, which may have entailed a shift from durable goods to consumer goods. During 1989-93, there was a negative contribution of import substitution to industrial growth as a result of the liberal trade policies launched from 1989. At the same time, manufacturing growth is

[2] Bruton (1989) observes that real devaluation is advantageous for import substitution because this promotes domestic saving, facilitates the identification of profitable domestic investments and promotes the accumulation of foreign exchange.

largely explained by the expansion of home demand during these years, with the contribution of exports being positive but even lower than during 1982-88.
The major conclusion of this analysis is that Venezuelan manufacturing growth during 1974-77 was entirely driven by the expansion of domestic demand, while the contribution of import substitution was negative.

6.2 Venezuelan manufacturing exports and the 1970's oil booms

The performance of exports for Venezuela during 1960-95 is reported in Table 6.3. This further confirms the virtual lack of a Venezuelan export-competitive private manufacturing sector until 1988 and its insignificant development during the 1990s. As shown in the third chapter, the Dutch disease symptoms in Venezuela must be understood in the light of the non-existence of an export-competitive manufacturing sector by 1972.

Concerning the impact of the 1970's booms on exports, there was a volume decline in manufacturing exports during 1973-77, followed by a recovery during 1978-82 and 1983-88. This suggests the existence of a Dutch disease process during 1973-77. As already assessed in Chapter 4, the setting of a fixed exchange rate regime implied some real appreciation of the bolívar during 1973-77. This seems to have contributed to the sharp decline in private manufacturing exports over this phase. Although the export incentives granted during 1973-77[3] diminished the gap between the real exchange rate for exports and the dollar real exchange rate for the economy during this phase compared to the pre-boom years, manufacturing exports declined. This outcome is

[3] In the face of the extra oil revenues and to offset the real currency appreciation some export subsidies were granted during the 1970s to the public and private sector. They took the form of fiscal incentives, subsidised credits free of trade risks granted by the Fund for export's financing (FINEXPO), which was established by decree on 28/09/73. Preferential exchange rate was only implemented from 1983. The export promotion policy contained in the IV National Plan remained essentially the same during 1976-88, with the granting of subsidy and financial support being the major instruments for export promotion.

largely accounted for by the huge expansion of domestic demand (see Fig 6.1). Given the inward-oriented nature of the Venezuelan industrial sector, export growth was closely linked to the changes in domestic demand,

Table 6.3 Growth and structural change in manufacturing exports, Venezuela, 1961-95

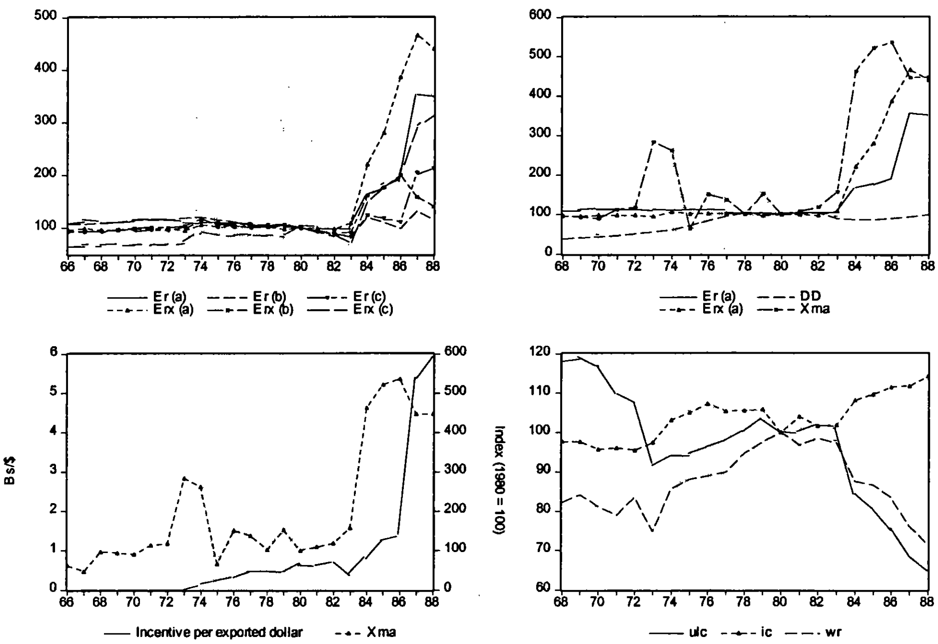
Growth	61-72	73-77	78-82	83-88	89-95
Oil	1.60	-12.51	-6.46	1.87	7.25
	0.60	**0.86**	**0.77**	**0.31**	**0.92**
Agriculture	13.29	-17.74	9.92	-15.00	16.55
	0.74	**0.74**	**0.28**	**0.34**	**0.79**
Manufacturing (a)	5.64	-19.95	-0.21	14.71	17.04
	0.46	**0.29**	**0.00**	**0.35**	**0.30**
Manufacturing (b)	3.42	-16.28	-10.37	11.66	5.74
	0.64	**0.77**	**0.47**	**0.88**	**0.31**
Structure					
Oil	90.87	86.38	88.61	85.42	84.99
Agriculture	0.07	0.07	0.07	0.13	0.23
Manufacturing (a)	0.22	0.58	0.54	2.31	8.16
Manufacturing (b)	9.07	13.56	11.32	14.45	14.78
Total	100	100	100	100	100

Notes: (a) It refers to private manufacturing exports; (b) It refers to total manufacturing exports
Sources: BCV, Finexpo reports various issues.

with exports increasing when the domestic market was contracting and vice-versa. Manufacturing exports accelerated their pace of growth during 1978-82 despite further real appreciation of the bolívar as a result of the strong fall in domestic demand owing to the deflationary monetary and fiscal policy adopted during 1978-80. It may be argued that tariff reductions played a role in reducing the anti-export bias, but it seems that the decline in domestic effective demand was the major factor explaining the redirection of existing production from the home to the external market.

Concerning the reasons explaining the inability of Venezuelan private manufacturing to export, two factors are extensively mentioned in the literature, namely, the structural overvaluation of the bolívar due to the accrual

Figure 6.1 Trends in the real exchange rates and manufacturing exports



Notes: Er (a) = index of the USA dollar real exchange rate. This is defined as the nominal currency exchange rate deflated by the relative prices defined as the ratio of the home goods prices and home and import goods prices, Erx (b) = as Er (a) but using the nominal exchange rate for exports which is the nominal exchange rate including export incentives Er (b) = As Er (a) using the relative prices defined as the ratio of domestic consumer prices to USA consumer prices index, Erx (b) = as Era (a) but using the nominal exchange rate for exports which is the nominal exchange rate including export incentives, Er (c) As Er (a) using the relative prices defined as the ratio of domestic wholesale prices to USA wholesale prices index, Erx (c) = as Er (c) but using the nominal exchange rate for exports which is the nominal exchange rate including export incentives, Xma = private manufacturing exports index of volume; ulc = unit labour costs in manufacturing; ic = intermediate costs in manufacturing; wr = real wages in manufacturing. Sources: for the exchange rates: IMF, statistic yearbook, for incentive to exports and exports, BCV, FINEXPO, various issues; for ulc, ic and wr industrial survey and BCV, economic reports (various issues).

of oil revenues (see Purroy, 1982; Gomez and Ross, 1986; Mommer, 1991; Baptista, 1986, 1997). The other is the 'anti-export bias' of the trade regime and heavy subsidies which would have caused an inefficient productive process leading to the lack of international competitiveness (Purroy, 1982; Brandi, 1989). It is also observed that the virtual lack of an export strategy accounts for the disappointing performance of private manufacturing exports (Ross, 1988; Frances, 1986; Viana et al. 1996). The limited attention paid to the launching of a technological policy is emphasised by Avalos (1986)[4], while Ortiz (1992) highlights the low expenditure on research and development in Venezuela compared with other countries such as Chile and Brazil during the 1970s and 1980s. The scanty and inefficient infrastructure and services facilities is often quoted by the private sector as a serious obstacle to export (Purroy, 1989).

The first argument, which is also shared by orthodox theory and the 'resource curse' thesis, assigns a central role to the establishment of a competitive exchange rate to encourage manufacturing exports. The 1974-77 oil boom and the real appreciation must have further discouraged manufacturing exports, or more exactly, the need to develop a non-oil export-competitive sector. This reasoning seems to be essentially correct, although, the fall in export growth during these years was also related to the huge increase in domestic demand. We argue that the disappearance of the structural overvaluation of the domestic currency owing to high oil revenues was a requirement for promoting manufacturing exports. Nevertheless, as suggested by the modest export development during 1983-95, this was not the only requirement.

It should also be noted that real devaluation has led to inflation due to the increasing costs of imported inputs and capital goods.[5] This is attributable to the limited degree of vertical integration common to the manufacturing lines.[6] The poor progress of import-substitution in these lines remains a feature of the Venezuelan manufacturing sector even today (see Chapter 7). The weak linkages among the manufacturing lines were partly the result of the structural

[4] For Avalos (1986) there was not technological policy in Venezuela until the late 1970s and even thereafter this can be consider precarious. There was the idea that the aim of the scientific and technological policy should be the expansion of the national scientific apparatus. This idea was based on the wrong recommendations from UNESCO, which was based on the study of the reality of developed economies.

[5] The share of material inputs costs in manufacturing gross production value increased from 50.1 per cent in 1982 to 61.7 per cent in 1988. Sources: own estimations.

[6] Canto (1987, p.127).

overvaluation of the domestic currency, which favoured the import of capital and intermediate goods. Likewise, it seems that this situation implies that a real devaluation leads to higher costs with little influence on exports.

The picture that emerges is that the export performance of Venezuelan private manufacturing is not entirely explained by the movement of the real exchange rate. It appears that the real devaluation of the bolívar encouraged some export expansion during 1983-95 and that the export coefficient increased from 0.81 per cent to 2.31 per cent between 1982 and 1987. However, the contribution of manufacturing exports to manufacturing growth was rather low during 1983-88 and these exports accounted for an insignificant (12 per cent) share of total exports even during 1989-95.[7] Such performance is modest compared to the international standards (see Table 6.4).

As regards the second argument, it is likely that the excessive and indiscriminate protection, especially the high tariffs, which was granted to manufacturing discouraged the development of an export-competitive sector. Nonetheless, it must be noted that according to recent studies (Helleiner, 1994, 1995), the trade regime does not seem to be an important factor in explaining the export performance in a set of late-comer industrialising countries. In the case of Venezuela, the rapid and indiscriminate import liberalisation policy of the 1990s does not seem to have brought about an impressive expansion of manufacturing exports.

In our view, the disappointing performance of manufacturing exports in Venezuela since the 1960s is linked to the absence of an export strategy - which is not only related to the trade regime- within the context of a broader

[7] This contrast with the export performance of other economies like Malaysia in which the share of manufacturing exports over gross manufacturing output increased from 23 per cent in 1983 to 45.3 per cent in 1989. Likewise, manufacturing exports as percentage of total exports increased from 12.2 per cent in 1970 to 59.2 per cent in 1990. Tech G. Lim and Kin W., Toh (1994,

Table 6.4 International comparisons of the export coefficient ratio

Country	1960	1982(a)	1987(b)	1988	1990
Brazil	-	9.90	14.60	-	-
Chile	17.50	22.80	29.10	-	36.60
Mexico	6.30	4.60		13.10	-
Peru	-	10.10	8.26	-	-
Tanzania	-	8.10	13.80	16.60	-
Venezuela(c)	0.28	0.81	2.31	1.69	5.20
Venezuela (d)	7.27	2.52	6.56	5.87	14.04

Notes: *(a) It refers to 1980 for Mexico; (b) It refers to 1985 for Brazil and Chile;(c) It refers to private Venezuelan manufacturing exports; (d) It refers to total Venezuelan manufacturing exports. Source: For Venezuela: own estimates and for other countries: Brazil: Fritsch and Franco (1995) Table 3.2, p. 68; Chile: Meller (1995), Table 4.8, p. 106; Mexico: Ros (1994) Table 6.3, p.176; Peru: Paredes (1994), Table 7.14, p. 246; Tanzania: Ndulu and Semboja (1994), Table 16.3, p. 520. It must be noted that the ratio is expressed at nominal values of the domestic currency for all the cases with the exception of Mexico, which is based at values of 1980 constant prices.

coherent industrial strategy that aimed to overcome some negative structural features of growth and structural change in the Venezuelan economy. As the experiences of other countries show, import substitution has been combined with export-oriented strategies, but this requires the parallel enactment of deep structural reforms. It is worth noting that the devaluation of the bolívar from 1983 was not part of an export-promotion strategy. The devaluationist policy aimed to deal with the fiscal and balance of payment problems caused by the falling oil revenues.

The lack of an adequate technological policy and the disregard for international trends in technological processes has been pointed out by (Pirela et al, 1996) as a central factor in explaining the manufacturing export performance of Venezuela. Indeed, Avalos (1986) argues that there was no technology policy in Venezuela until the end of the 1970s. Even during these years, the so-called technology policy was rudimentary and divorced from scientific policy as the emphasis was put on the acquisition of technological packages. For this scholar, the lack of a technology policy was partly the

p. 373).

result of the inward-oriented character of the industrialisation process.[8] The export promotion strategy only addressed the development of a resource-based sectors, while there was not a serious export-promotion policy aimed at developing the non-traditional manufacturing exports. Even more, the static vision of international trade according to which Venezuela should favour specialisation in raw materials or labour-intensive goods contributed to a disregard for technology as a key factor within the process of industrialisation.

We agree with Avalos that the specific modality assumed by the import-substitution strategy in Venezuela -which implied the production for a highly differentiated demand, high import-dependence, limited diversification, the lack of a parallel export strategy, and no technology- policy led to the absence of a non-traditional manufacturing exports sector. However, it must be stressed that the protecionist trade regime was not a major cause of the non-existence of an export-competitive manufacturing sector, as the poor performance of manufacturing exports under the import liberalisation policy of the 1990s suggests.[9]

The Importance of an external policy and regional integration as a tool to encourage manufacturing exports: the Andean Pact

In our view, all the factors mentioned above are of relevance to understand the virtual lack of an export-manufacturing sector in Venezuela. Nevertheless, a missing factor relates to the absence of an external policy aimed to take advantage of the regional integration and to identify some niches in which the economy could be able to compete. We believe that the possibility opened to Venezuela to expand non-oil exports requires the integration of the economy to the region. The few studies on manufacturing exports for the Venezuelan

[8] Avalos (1986) also observes that the availability of oil revenues, which allowed for the indiscriminate and careless acquisition of technological packages as another factor in explaining the lack of any technological policy in Venezuela. The modalities of foreign investment and the excessive protectionism are also highlighted.

case point to the importance of the regional markets as the sole destiny of the insignificant manufacturing exports, especially Colombia.[10] The integration attempt contributed to increase intra-regional trade. By 1965 the intra-regional exports accounted for 12.6 per cent of the total exports of the countries in the region, and the integration coefficient increased to 17.9 per cent in 1975. It must be noted that the percentage of intra-regional exports corresponding to manufacturing increased from 26.6 per cent in 1965 to 40.8 per cent in 1970. Concerning Venezuela, the country only exports to the region were oil before 1970.[11] Following the setting up of the Acuerdo de Cartagena or Andean Pact in 1973 and the incorporation of Venezuela in 1974, most of the Venezuelan non-oil manufacturing exports to the region were products of the government-owned primay industries (iron and aluminium). The lack of a coherent industrial policy towards private manufacturing implied that the participation of the private sector in the Andean Pact was marginal.[12]

Some econometric evidence on the links between export supply and the real exchange rate

In this section, the demand and supply export equations for Venezuelan manufacturing are estimated. Various specifications were attempted from the traditional ones to those which are eclectic. The aim was to establish which are the determinants of demand and export supply for Venezuelan manufacturing and the effect of the 1970's oil booms through the real appreciation of the domestic currency. The regressions were estimated for the 1965-82 and 1983-95 phases in order to determine the impact on exports of the 1970's oil booms and the movement from a fixed exchange rate regime during 1965-82 to a multiple regime during 1983-88.

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[9] See Tables 3.6 and 6.1.

[10] Ross (1988), FINEXPO, reports (1996).

[11] Inter-American Development Bank (1984, p. 93).

[12] Ross (1988).

Specifications issues

The export demand and supply equations that are formulated in this section conform to an established tradition in the literature, according to which the demand for exports (x^d) is explained by a foreign demand variable (Y^w) and the real exchange rate (E_r), while the supply (x^s) is determined by the domestic prices of exports, a domestic costs variable and a productive capacity variable. Likewise, in a third equation the supply export equation was estimated by including domestic demand as an independent variable (DD). All the variables are expressed in logs. According to the features of the time series, cointegration and error-correction techniques were used to estimate the equations. Thus the static equations can be written as:

(a) $x_t^d = \alpha + \beta_1 Y_t + \beta_2 Er_t + e_t$

(b) $x_t^s = \alpha + \beta_1 Y_t^{ma} + \beta_2 Er_t + e_t$

(c) $x_t^s = \alpha + \beta_1 DD_t + \beta_2 Er_t + e_t$

The error-correction representation is as follows:

(d) $\Delta x_t^d = \alpha + \beta_1 (L) \Delta Y_t + \beta_2 (L) \Delta Er_t + r_{t-1} + e_t$

(e) $\Delta x_t^s = \alpha + \beta_1 (L) \Delta Yma_t + \beta_2 (L) \Delta Er_t + r_{t-1} + e_t$

(f) $\Delta x_t^s = \alpha + \beta_1 (L) \Delta DD + \beta_2 (L) \Delta Er_t + r_{t-1} + e_t$

where Δ denotes the first difference operator; L is the lag operator; r_{t-1} is the one-period lagged value of the residual from the cointegrating regression (a-c), and e_t is the error term. Thus the variations in manufacturing export demand are linked to the changes in the world income (Y^w) and changes in the bilateral real exchange rate (Er_t), as well as the equilibrating error in the preceding period. For its part, the changes in manufacturing export supply are related to the variations in manufacturing GDP (ΔY^{ma}) and changes in the real exchange rate (ΔEr_t), and the error-correction term. In these equations, ΔY^w, ΔEr_t, ΔY^{ma} and ΔDD_t, represent the short-run disturbances in the export demand and export supply, respectively, and the error correction term (r_{t-1}) captures the adjustment towards the long-run equilibrium.

The Stock and Watson dynamic OLS method (1989, 1992) was also applied to estimate the trade elasticities. The representation reproduced below was applied:

$$x_t^d = \alpha_0 + \beta_1 Y_t^w + \beta_2 Er_t + \sum_{i=1}^{k} \delta_{1i} \Delta Y_t^w + \sum_{i=1}^{k} \delta_{2i} \Delta Er_t + e_t$$

$$x_t^s = \alpha_0 + \beta_1 Y_t^{ma} + \beta_2 Er_t + \sum_{i=1}^{k} \delta_{1i} \Delta Y_t^{ma} + \sum_{i=1}^{k} \delta_{2i} \Delta Er_t + e_t$$

where k means leads and lags.

Results of the econometric work

Although the demand and supply export equations were estimated, the results for the demand export equation are not presented because it was not possible to get sensible results. It must be noted that all data are integrated of order (1).

The estimates of the Engle-Granger and Johansen test for cointegration for the export supply functions are presented in Table 6.5. As a measure of relative price differences, estimates of the real exchange rate and the real exchange rate for exports were used. In equation 1, the log of the real exchange rate index based on home and traded goods prices was used, and in equation 2 the corresponding export real exchange rate was used. In equation 3 the log of the CPI-based real exchange rate was employed and the exchange rate for export was used in equation 4. The log of the real exchange rate based on wholesale prices and the corresponding exchange rate for exports were used in equations 5 and 6. Finally, in equation 7 the supply export function was estimated by including domestic demand. Given the fact that the real capital stock is integrated of order two, I(2), and there are no available data on capacity utilisation, an index of the real value added of manufacturing was used as a proxy for productive capacity. It must be noted that the dummy variable for the 1973-78 years was included in the cointegration regression in order to account for the possible impact on exports of some restrictions imposed during these years and the general congestion problems that arose a result of the oil boom. However, in the case of the Johansen cointegration test, the dummy variable was not included (although cointegration is also found when the dummy variable is included).

The results reported in Table 6.5 suggest the existence of cointegration in all the vectors considered. It seems that Venezuelan manufacturing exports are highly responsive to the movement in the real exchange rate and the real exchange rate index for exports in the long term. It must be noted that the role of export incentives on its own does not have the expected sign and because of that the variable was not included. This may indicate that exporters only asked for export incentives as a compensation for the disincentives arising from revaluation due to the administrative difficulties in obtaining these subsidies.

On the whole, and from the Dutch disease perspective, the relevant result is that Venezuelan private manufacturing exports appear to be responsive to the real exchange rate and the real exchange rate for exports during 1973-94. Nevertheless the equation for the 1973-82 phase suggests that the performance of export supply is not adequately explained by this variable. Concerning manufacturing value added, this variable although not significant statistically is negatively signed, indicating that the performance of the export supply in manufacturing is linked to the trend in domestic demand in the long term. This is confirmed by equation 7 in which domestic demand is included.

The results for the error correction models which are presented in Table 6.6. The models seem to explain the performance of manufacturing exports quite well as measured by the fit of the regression and the simplest tests. Nonetheless, it must be noted that the error-correction models do not pass the most sophisticated tests. With some caution we can say that these results suggest that the real exchange rate and the real exchange rate for exports are relevant to the performance of manufacturing exports in the short term in 3 of the 6 equations, and the error correction term is statistically significant indicating that the error correction representation is adequate to model the supply export equation. Although manufacturing GDP is positively signed, it is not statistically significant for all the cases. As regards the Stock and Watson methodology (Table 6.7), the results for the long-term and short-term export supply elasticity are basically similar, but some of the coefficients of the short-term elasticity with regard to manufacturing value added are negative and statistically insignificant. The above evidence suggests, that, as applied to Venezuela private manufacturing, export growth is responsive to trends in the real exchange rates, but it is also influenced by home demand. As with other

Table 6.5 Tests for Cointegration

Engle-Granger test for cointegration

Periods	a: 1973-1994						
Equations	1	2	3	4	5	6	7
C	5.44	5.86	4.11	5.70	1.37	1.88	6.61
	1.89	**2.28**	**1.26**	**1.98**	**0.33**	**0.49**	**2.37**
Er	0.94	0.99	0.95	1.09	0.91	1.08	0.94
	8.36	**9.66**	**7.03**	**8.42**	**4.51**	**5.38**	**9.14**
Yma	-1.01	-1.20	-0.68	-1.20	0.02	-0.30	-2.95
	-1.49	**-1.97**	**-0.90**	**-1.75**	**0.02**	**-0.34**	**-1.97**
DD							-0.45
							-1.69
DUM	-0.56	-0.40	-0.73	-0.51	-0.87	-0.71	
	-1.83	**-1.48**	**-2.11**	**-1.66**	**-1.90**	**-1.72**	
R-squared	0.86	0.89	0.81	0.86	0.67	0.73	0.87
Adjusted R-squared	0.83	0.87	0.78	0.83	0.62	0.69	0.85
S.E. of regression	0.49	0.43	0.56	0.49	0.74	0.67	0.47
Sum squared resid	4.30	3.40	5.61	4.26	9.87	8.06	3.97
Log likelihood	-13.27	-10.67	-16.18	-13.15	-22.40	-20.18	-12.39
Durbin-Watson stat	1.76	2.07	1.41	1.74	1.03	1.13	1.86
DF	-3.977	-4.632	-3.289	-3.916	-2.631	-2.765	-3.536
95 % cv	-1.958						

Periods	b: 1973-1982						
Equations	1	2	3	4	5	6	7
C	28.72	22.49	17.43	13.91	12.84	5.11	18.931
	0.69	**1.10**	**1.47**	**2.02**	**0.67**	**0.31**	**0.586**
Er	-3.65	-2.69	-1.40	-1.15	-0.48	0.83	-1.739
	-0.46	**-0.63**	**-0.66**	**-0.65**	**-0.16**	**0.29**	**-0.276**
Yma	-1.55	-1.17	-1.36	-0.88	-1.29	-0.92	
	-1.35	**-1.94**	**-1.92**	**-1.27**	**-1.01**	**-1.03**	
DD							-1.335
							-1.517
DUM							
R-squared	0.34	0.35	0.36	0.36	0.32	0.33	0.372
Adjusted R-squared	0.15	0.17	0.17	0.17	0.13	0.13	0.192
S.E. of regression	0.41	0.40	0.40	0.40	0.41	0.41	0.397
Sum squared resid	1.17	1.14	1.13	1.13	1.20	1.19	1.106
Log likelihood	-3.44	-3.32	-3.29	-3.30	-3.57	-3.53	-3.179
Durbin-Watson stat	2.52	2.82	2.62	2.70	2.49	2.30	2.540
DF							
95 % cv							

Periods	c:1983-1994					
Equations	1	2	3	4	5	6
C	10.12	5.63	9.22	5.78	8.39	3.97
	1.36	**0.79**	**1.22**	**0.79**	**0.82**	**0.40**
Er	0.82	0.90	0.79	0.92	0.74	0.80
	5.11	**5.06**	**4.91**	**4.85**	**3.19**	**3.02**
Yma	-1.82	-1.01	-1.53	-0.97	-1.22	-0.37
	-1.07	**-0.62**	**-0.89**	**-0.58**	**-0.52**	**-0.16**
DD						
DUM						
R-squared	0.78	0.78	0.77	0.76	0.60	0.58
Adjusted R-squared	0.73	0.73	0.72	0.71	0.51	0.48
S.E. of regression	0.49	0.50	0.51	0.51	0.67	0.69
Sum squared resid	2.20	2.24	2.34	2.38	4.04	4.26
Log likelihood	-6.86	-6.94	-7.21	-7.32	-10.49	-10.82
Durbin-Watson stat	1.99	1.83	1.88	1.69	1.33	1.24
DF	-3.36	-2.92	-3.45	-2.72	-2.90	-2.52
95 % cv	-1.980					

Notes: t-statistic in bold.

Johansen Maximun Likelihood tests for cointegration, sample: 1973-94

		eq. 1		eq. 2		eq. 3		eq. 4		eq. 5		Eq. 7	
Cointegrating Vectors		Xma Er Yma		Xma Er Yma		Xma Er Yma		Xma Er Yma		Xma Er Yma		Xma Er DD	
Null	Alternative	Statistics	95 percent	Statistics	95 percent	Statistics	95 percent	Statistics	95 percent	Statistics	95 percent	Statistics	95 percent
r=0	r=1	23.405	20.967	22.522	20.967	21.164	20.967	32.054	20.967	22.204	20.967		
r<=2	r=3											5.212	3.762
Normalized Vectors		V1		V1		V1		V1		V1		V1	
Xma		-1.00		-1.00		-1.00		-1.00		-1.00		-1.00	
Er		0.860		0.968		0.915		1.137		2.646		0.087	
Yma		-0.612		-0.519		-0.618		-0.768		-9.029		0.087	

Notes: the number of lags used were 2 for equations 2, and 5, while 3 lags were used for 1, 3 and 4 and 1 lag for equation 7.

Table 6.6 Error correction representation of the export supply equation

Equation 1
Sample: 1974 1994
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.085	0.158	-0.537	0.599
Δ(Er)	1.006	0.510	1.972	0.066
Δ(Yma)	0.402	1.456	0.276	0.786
R(-1)	-1.154	0.278	-4.155	0.001
Δ (Xma(-1))	0.291	0.186	1.566	0.137
R-squared	0.59	Mean dependent var	0.11	
Adjusted R^2-	0.48	S.D. dependent var	0.64	
S.E. of regression	0.46	Akaike info criterion	-1.35	
Sum squared resid	3.37	Schwartz criterion	-1.10	
Log likelihood	-10.60	F-statistic	5.65	
Durbin-Watson stat	1.79	Prob(F-statistic)	0.00	

Equation 2
Sample: 1974 1994
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.07	0.15	-0.46	0.65
Δ (Erx)	0.90	0.51	1.78	0.09
Δ (Yma)	0.24	1.44	0.17	0.87
R(-1)	-1.37	0.25	-5.54	0.00
Δ (Xma(-1))	0.33	0.16	2.07	0.05
R-squared	0.71	Mean dependent var	0.11	
Adjusted R^2-	0.64	S.D. dependent var	0.64	
S.E. of regression	0.38	Akaike info criterion	-1.72	
Sum squared resid	2.34	Schwartz criterion	-1.47	
Log likelihood	-6.74	F-statistic	9.94	
Durbin-Watson stat	1.78	Prob(F-statistic)	0.00	

equation 3
Sample: 1975 1994
Included observations: 20 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.06	0.17	-0.32	0.75
Δ (Er)	1.01	0.56	1.80	0.09
Δ (Yma)	0.63	1.73	0.36	0.72
R(-1)	-0.93	0.29	-3.17	0.01
Δ (Xma(-1))	0.27	0.22	1.21	0.25
R-squared	0.48	Mean dependent var	0.12	
Adjusted R^2-	0.34	S.D. dependent var	0.65	
S.E. of regression	0.53	Akaike info criterion	-1.06	
Sum squared resid	4.21	Schwartz criterion	-0.81	
Log likelihood	-12.80	F-statistic	3.46	
Durbin-Watson stat	1.90	Prob(F-statistic)	0.03	

Equation 4
Sample: 1974 1994
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.04	0.15	-0.29	0.78
Δ (Er)	0.90	0.48	1.87	0.08
Δ (Yma)	0.04	1.46	0.03	0.98
Δ (Yma(-1))	0.25	0.18	1.38	0.19
R(-1)	-1.10	0.27	-4.09	0.00
R-squared	0.58	Mean dependent var	0.11	
Adjusted R^2-	0.48	S.D. dependent var	0.64	
S.E. of regression	0.46	Akaike info criterion	-1.35	
Sum squared resid	3.39	Schwartz criterion	-1.10	
Log likelihood	-10.66	F-statistic	5.60	
Durbin-Watson stat	1.82	Prob(F-statistic)	0.01	

Equation 5
Sample: 1974 1994
Included observations: 20 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.00	0.17	0.02	0.98
Δ (Er)	0.61	0.46	1.33	0.20
Δ (Yma)	-1.16	1.58	-0.74	0.47
R(-1)	-1.30	0.62	-2.10	0.05
Δ (Xma(-1))	0.81	0.53	1.54	0.15
R-squared	0.33	Mean dependent var	0.12	
Adjusted R^2-	0.16	S.D. dependent var	0.65	
S.E. of regression	0.60	Akaike info criterion	-0.81	
Sum squared resid	5.39	Schwartz criterion	-0.56	
Log likelihood	-15.26	F-statistic	1.89	
Durbin-Watson stat	1.71	Prob(F-statistic)	0.17	

Equation 6
Sample: 1974 1994
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.06	0.17	0.37	0.72
Δ (Erx)	0.76	0.53	1.44	0.17
Δ (Yma)	-1.07	1.70	-0.63	0.54
R(-1)	-0.42	0.32	-1.33	0.20
Δ (Xma(-1))	-0.05	0.28	-0.17	0.87
R-squared	0.25	Mean dependent var	0.11	
Adjusted R^2-	0.06	S.D. dependent var	0.64	
S.E. of regression	0.62	Akaike info criterion	-0.76	
Sum squared resid	6.10	Schwartz criterion	-0.51	
Log likelihood	-16.82	F-statistic	1.33	
Durbin-Watson stat	2.09	Prob(F-statistic)	0.30	

equation 7
Sample: 1974 1994
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.04	0.14	-0.28	0.78
Δ (Er)	0.52	0.44	1.19	0.25
Δ (DD)	-2.77	3.16	-0.88	0.39
Δ (Er(-1))	0.82	0.41	1.99	0.06
R(-1)	-0.83	0.23	-3.57	0.00
R-squared	0.62	Mean dependent var	0.11	
Adjusted R^2-	0.53	S.D. dependent var	0.64	
S.E. of regression	0.44	Akaike info criterion	-1.45	
Sum squared resid	3.06	Schwartz criterion	-1.20	
Log likelihood	-9.58	F-statistic	6.63	
Durbin-Watson stat	1.85	Prob(F-statistic)	0.00	

Table 6.7 Stock and Watson estimates of the supply export equation

Equation 1
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	4.017	3.262	1.232	0.242
LEr	0.932	0.178	5.235	0.000
Yma	-0.727	0.781	-0.931	0.370
D(LEr)	0.009	0.651	0.014	0.989
D(LEr(-1))	0.100	0.786	0.127	0.901
D(LEr(1))	0.815	0.603	1.351	0.202
D(Yma)	1.208	1.589	0.760	0.462
D(Yma(-1))	-3.762	2.011	-1.871	0.086
D(Yma(1))	0.786	1.790	0.439	0.668
R-squared	0.901	Mean dependent var		5.802
Adjusted R-squared	0.835	S.D. dependent var		1.125
S.E. of regression	0.457	Akaike info criterion		-1.269
Sum squared resid	2.504	Schwartz criterion		-0.822
Log likelihood	-7.470	F-statistic		13.664
Durbin-Watson stat	1.796	Prob(F-statistic)		0.000

Equation 2
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	4.316	2.845	1.517041	0.1552
LErx	1.088	0.149	7.325422	0
Yma	-0.974	0.701	-1.39012	0.1897
D(LErx)	-0.365	0.657	-0.55575	0.5886
D(LErx(-1))	-0.857	0.773	-1.109099	0.2891
D(LErx(1))	1.106	0.687	1.610208	0.1333
D(Yma)	1.831	1.652	1.108396	0.2894
D(Yma(-1))	-4.860	2.004	-2.424569	0.032
D(Yma(1))	1.679	2.013	0.83378	0.4207
R-squared	0.923	Mean dependent var		5.802418
Adjusted R-squared	0.872	S.D. dependent var		1.125151
S.E. of regression	0.403	Akaike info criterion		-1.519256
Sum squared resid	1.951	Schwartz criterion		-1.071603
Log likelihood	-4.846	F-statistic		17.97066
Durbin-Watson stat	1.917	Prob(F-statistic)		0.000014

Equation 3
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	2.566	3.491	0.735	0.477
LEr	0.925	0.231	3.997	0.002
Yma	-0.356	0.863	-0.413	0.687
D(LEr)	0.216	0.640	0.337	0.742
D(LEr(-1))	-0.307	0.823	-0.373	0.716
D(LEr(1))	1.339	0.609	2.198	0.048
D(Yma)	1.505	1.654	0.910	0.381
D(Yma(-1))	-5.440	2.273	-2.393	0.034
D(Yma(1))	0.954	1.959	0.487	0.635
R-squared	0.879	Mean dependent var		5.802
Adjusted R-squared	0.798	S.D. dependent var		1.125
S.E. of regression	0.506	Akaike info criterion		-1.064
Sum squared resid	3.074	Schwartz criterion		-0.617
Log likelihood	-9.623	F-statistic		10.853
Durbin-Watson stat	1.709	Prob(F-statistic)		0.000

Equation 4
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	4.675	2.563	1.824	0.093
LErx	1.188	0.151	7.859	0.000
Yma	-1.099	0.650	-1.689	0.117
D(LErx)	-0.194	0.475	-0.410	0.689
D(LErx(-1))	-0.935	0.460	-2.034	0.065
D(LErx(1))	1.607	0.445	3.611	0.004
D(Yma)	2.458	1.193	2.061	0.062
D(Yma(-1))	-6.142	1.443	-4.256	0.001
D(Yma(1))	1.582	1.386	1.142	0.276
R-squared	0.939	Mean dependent var		5.802
Adjusted R-squared	0.899	S.D. dependent var		1.125
S.E. of regression	0.358	Akaike info criterion		-1.756
Sum squared resid	1.539	Schwartz criterion		-1.308
Log likelihood	-2.358	F-statistic		23.175
Durbin-Watson stat	2.132	Prob(F-statistic)		0.000

eq. 7
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	4.521	3.705	1.220	0.246
LEr	1.030	0.196	5.254	0.000
LDD	-2.128	2.052	-1.037	0.320
D(LEr)	-0.553	0.698	-0.792	0.444
D(LERHT(-1))	0.226	0.715	0.316	0.757
D(LEr(1))	0.162	0.580	0.279	0.785
D(LDD)	1.571	5.173	0.304	0.767
D(LDD(-1))	-8.651	4.605	-1.878	0.085
D(LDD(1))	2.116	5.108	0.414	0.686
R-squared	0.900	Mean dependent var		5.802
Adjusted R-squared	0.834	S.D. dependent var		1.125
S.E. of regression	0.459	Akaike info criterion		-1.262
Sum squared resid	2.523	Schwartz criterion		-0.814
Log likelihood	-7.547	F-statistic		13.554
Durbin-Watson stat	1.803	Prob(F-statistic)		0.000

eq. 7a
Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	5.096	4.001	1.274	0.227
LEr	1.102	0.177	6.215	0.000
LDD	-2.612	2.246	-1.163	0.267
D(LEr)	-0.886	0.718	-1.233	0.241
D(LERHT(-1))	-0.154	0.684	-0.224	0.826
D(LEr(1))	-0.005	0.628	-0.008	0.993
D(LDD)	1.388	5.101	0.272	0.790
D(LDD(-1))	-7.683	4.725	-1.626	0.130
D(LDD(1))	1.344	5.762	0.233	0.820
R-squared	0.906	Mean dependent var		5.802
Adjusted R-squared	0.843	S.D. dependent var		1.125
S.E. of regression	0.446	Akaike info criterion		-1.319
Sum squared resid	2.384	Schwartz criterion		-0.871
Log likelihood	-6.951	F-statistic		14.433
Durbin-Watson stat	1.839	Prob(F-statistic)		0.000

Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	3.637	4.271	0.851	0.411
LEr	1.065	0.256	4.165	0.001
LDD	-1.694	2.431	-0.697	0.499
D(LEr)	-0.258	0.728	-0.355	0.729
D(LERHT(-1))	-0.178	0.771	-0.231	0.821
D(LEr(1))	0.793	0.598	1.327	0.209
D(LDD)	4.144	5.879	0.705	0.494
D(LDD(-1))	-12.866	5.195	-2.476	0.029
D(LDD(1))	2.483	5.939	0.418	0.683
R-squared	0.870	Mean dependent var		5.802
Adjusted R-squared	0.783	S.D. dependent var		1.125
S.E. of regression	0.525	Akaike info criterion		-0.993
Sum squared resid	3.302	Schwartz criterion		-0.545
Log likelihood	-10.372	F-statistic		10.003
Durbin-Watson stat	1.726	Prob(F-statistic)		0.000

Sample: 1973 1993
Included observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	5.565	4.242	1.312	0.214
LEr	1.278	0.207	6.182	0.000
LDD	-3.130	2.442	-1.282	0.224
D(LEr)	-0.967	0.648	-1.491	0.162
D(LERHT(-1))	-0.704	0.572	-1.230	0.242
D(LEr(1))	0.451	0.546	0.826	0.425
D(LDD)	4.184	4.832	0.866	0.404
D(LDD(-1))	-11.101	4.337	-2.559	0.025
D(LDD(1))	2.397	5.093	0.471	0.646
R-squared	0.897	Mean dependent var		5.802
Adjusted R-squared	0.829	S.D. dependent var		1.125
S.E. of regression	0.465	Akaike info criterion		-1.233
Sum squared resid	2.596	Schwartz criterion		-0.786
Log likelihood	-7.847	F-statistic		13.130
Durbin-Watson stat	1.801	Prob(F-statistic)		0.000

late-comers, in Venezuela the expansion of manufacturing exports in the late 1980s is explained by the switching of sales from the domestic to the external market with no increase in productive capacity.[13] Manufacturing exports may have been responding to the new domestic incentives, but also to depressed domestic demand. This may indicate the ineffectiveness of real devaluation as a policy tool on its own to encourage industrialisation and exports without other supply-side policies in the case of a country that is only beginning to apply an export-oriented industrial strategy. Manufacturing exports may stagnate once the potential for switching output away from the home market had been exhausted. Despite the positive impact of real devaluation on international competitiveness, this is a short-term effect since this does not imply an increase in productive capacity, but a switch from domestic to external markets (see also Fine, 1997 and Helleiner, 1995).[14]

The performance of Venezuelan manufacturing from 1983, once the bolívar is devalued, does suggest that, though important for industrialisation and export growth, a stable and adequate real exchange rate cannot be the only or most important element within an industrial strategy. If essential for the launching of an export-oriented strategy, the level of the real exchange rate does not seem to be the only factor affecting private manufacturing exports in Venezuela.

It may be argued that the instability of the exchange rate has been the reason for the ineffectiveness of real devaluation in Venezuela. There were three major devaluations (in 1983, 1984 and 1986), and this happened in the middle of great macroeconomic uncertainty. There was not coherence or continuity

[13] This was the case of Chile, Turkey I the 1980's, Tanzania, Mexico and Colombia (Helleiner, 1995, p. 8).

[14] For Auty (1995, p. 20) the Latin American real exchange rate overvaluation not only eroded the competitiveness of the primary sector but also hampered the competitive industrial diversification. An overvalued exchange rate cheapens those imported inputs used by the protected sectors, which are not produced domestically. It also appears to justify extended protection to infant industries. Over the long-term such policies results in more erratic and slower economic growth than do

between the exchange rate and export promotion policies. Stability in the real exchange rate has been pointed out as a main determinant of output and non-traditional export growth (Caballero and Corbo, 1989). The stability of incentives, and so its credibility as a guide to investment and other behaviour, may be as relevant as having the statically correct ones, assuming that the latter are known (Rodrik, 1991). Helleiner (1994) concludes from a set of case studies on industrialisation in developing countries, including Latin America, that what is essential for a sound industrial policy seems to be the level and stability of the exchange rate as an element of an adequate macroeconomic environment.

6.3 Supply side factors and industrialisation

6.3.1 Total factor productivity growth[15]

Studies on Venezuelan manufacturing productivity are scanty and to our knowledge attempts to measure total factor productivity have not been made previously. Here we present some measures of total factor productivity in private manufacturing as well as some explanations for their trends.

We attempt here to provide some estimates of total factor productivity growth (TFPG) for Venezuelan private manufacturing by using the growth accounting framework.[16][17] TFPG was estimated for the 1968-88 years. Changes in TFP were obtained by applying the equations presented by Ahulawia (1991) and

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more orthodox policies.

[15] The concept of total factor productivity is understood as a shift in the production function, which is reflecting not only technological change but also the improvement of machines, maintenance, learning by doing effects. Although this concept presents difficulties on the theoretical grounds (see Fine, 1994; Felipe, 1999), here it is estimated given the lack of an alternative framework.

[16] See methodological appendix to this chapter.

[17] The adoption of a growth accounting framework to estimate TFPG has been strongly criticised by Griliches and Jorgenson (1967), Nelson (1973) and Nelson (1981). Nevertheless, as Pack (1988) and Ahluwalia (1991) observe, the non-existence of an alternative framework for assessing the links between growth and productivity justify the use of the concept of TFPG despite the problems arising from the methodological framework.

Syrquin (1994) (Tables 6.8 and 6.9 respectively). Likewise, labour was estimated as the number of employees and real labour costs with the first measure giving more coherent results. The evidence presented in Table 6.8 suggests that the contribution of TFP to manufacturing GDP growth was 21 percent during 1968-72, but declined during 1974-76, and turned negative during 1978-82. An improvement took place during 1985-88.

Table 6.8 Growth of output and total factor productivity in private manufacturing

	1968-72	1974-76	1978-82	1985-88
Average annual growth rate of value added	9.17	11.94	3.71	9.27
Rate of growth of TFPG	1.94	1.21	-0.94	4.74
TFPG's contribution to output growth	21.19	10.15	-25.28	51.10
Gross domestic investment share of value added	29.86	30.56	27.54	17.33
Investment growth rate	4.54	26.69	-23.99	16.04
Investment growth rate	11.41	12.54	-2.69	7.13

Notes: all data excludes the years of 198 in1 and 1983 and 1984 because there was an absolute decline in output growth during these years. Source: own estimations, see methodological appendix to this chapter and text.

Table 6.9 gives another estimation of TFPG for Venezuela and other countries. In this case, Syrquin's equation (1994) and his assumptions were adopted to compute TFPG of Venezuela in order to make the variable comparable. According to this exercise, TFPG was lower in Venezuela than in seven other countries before the 1980s.

Table 6.9 Some international comparisons of estimates of TFPG

Country	1960-70	1969-72	1967-74	1974-77	1978-82	1970-82	1980-89
Mexico	3.60	-	-	-	-	1.60	-2.80
Brazil	1.10	-	-	-	-	2.50	-0.20
Colombia	0.90	-	1.23	-	-	0.90	0.40
Peru	1.30	-	-	-	-	-0.80	-3.50
Chile	2.10	-	-	-	-	-0.90	0.20
Kenya	2.50	-	-	-	-	2.00	-
Tanzania	2.90	-	-	-	-	0.10	-
Venezuela	-	0.13	-	-0.07	0.13	-	0.61

Sources: For other countries Syrquin (1994, p. 48), Table 2.3. *In the case of Venezuela, TFP was estimated by adopting the same assumptions that Syrquin namely, that the marginal productivity of capital was 0.12 up to 1982 and 0.10 for the 1980's.

An Explanation for the trends in TFP growth

It has been suggested that TFP growth is associated with trade openness, and especially with exports, through the positive impact of competition (Krueger, 1997). Others point to the positive role of technology embodied in imported goods, so exports may become important as a means of financing imports (World Bank, 1991). Studies on the determinants of TFP in manufacturing for other countries suggest that the evidence on the impact of the trade regime upon TFP is inconclusive and statistically uncertain (see Pack, 1988, p. 353; Rodrik, 1992, p.170; Helleiner, 1995, p. 30). According to the case studies compiled by Helleiner (1994, 1995) there is only weak empirical evidence, if any, on the alleged association between export expansion or import liberalisation and productivity growth.[18] The same study suggests that the performance of TFP may be linked to the stability of incentives and macroeconomic performance in general, such that phases of rapid GDP and investment growth are expected to be followed by rapid growth in productivity. The explanations for this development are twofold: a very well-known reason is the Verdoorn (1949) effect and Kaldor's idea according to which a high rate of investment is expected to encourage technological change through the process of learning, the embodiment of new technologies in machinery and the low mean age of the capital stock. The expansion of output may also allow for the use of potential or latent scale economies, positive externalities and learning experiences. The existence of such as association between manufacturing productivity growth and macroeconomic growth can be clearly identified at various points in the 1980s for a set of countries as different as India, Turkey, Brazil, Mexico, Colombia, Sri

[18] In Brazil, Turkey, Korea, Thailand, Kenya and Sri Lanka an improvement in manufacturing productivity took place together with manufactured exports. However, this development was also associated with fast overall economic growth, which makes it difficult to disentangle the role of exports. By contrast, in India the increase in manufacturing TFP growth took place in the early 1980s preceding the export boom and import liberalisation policies. The improvement in manufacturing productivity growth in Mexico in the early 1980s before import liberalisation also invalidates the alleged link between TFP and the trade regime. For Colombia, no link between productivity growth and changes in the trade regime during the 1970s and 1980s was found, and the phase of more rapid productivity growth in Korea was not accompanied by import liberalisation (Helleiner, 1994, p.29).

Lanka, Kenya and Tanzania.[19] On the other hand, the decline in manufacturing TFP growth in Chile the 1970s was accompanied by a deterioration of the macroeconomic situation.[20] A second factor which explains the links between TFP and output growth is represented by the changes in the level of capacity utilisation. In general, if demand or supply constraints increase, under-utilisation of the capital stock and labour leads to a decline in output and productivity.

Although an explanation of the determinants of TFP growth is a complex task, here we attempt to measure the impact of some variables on the productivity growth of Venezuelan private manufacturing during 1968-88 by adopting an econometric methodology and using time-series data. The exercise explores the effects on TFPG of economic growth, trade policies and capital intensity. It is worth noting that since no data on real capital stock are available for disaggregated manufacturing it was not possible to use pooled data to estimate TFPG for manufacturing.[21] The equation which was estimated by using OLS states that TFP growth in private manufacturing is explained by the rate of growth of value added (Y), a measure of import substitution (MS) defined as the ratio of production for the domestic market as a share of apparent domestic demand, the capital-labour ratio (K/L), and the export coefficient (XC). A dummy variable which takes the value of 1 for 1974-77 and 0 for the other years was included to take into account the impact of the first oil boom. The effect of concentration cannot be measured due to the lack of data such as the growth in the number of factories or a factor scale defined as the size of capital stock per factory.

[19] Helleiner (1994, p.29/30).

[20] Idem.

[21] Data on real capital stock for private manufacturing were estimated by Baptista (1991) by using the perpetualinventory method (see also methodological appendix to Chapter 6).

The econometric results reported in Table 6.10 confirm the relevance of all the variables considered for TFPG in Venezuelan manufacturing with the exception of the export coefficient. As expected, the Verdoorn effect is central to explaining the performance of TFPG in Venezuelan private manufacturing and value added growth had the greatest coefficient in all the equations. Import substitution and the capital-labour ratio have positive and statistically significant effects on TFP, with the role of import substitution being especially strong. In contrast, the export coefficient has a mixed sign and is not statistically significant in any case.[22] This casts doubts on the argument which attributes to external competition a key role in productivity improvement. The negative impact of the excessive and inefficient allocation of oil revenues on TFPG is caught by the dummy variable, which is negatively signed and statistically significant in all the equations.

The positive links between import substitution and TFPG can have been influenced by the fact that the improvement in TFP for Venezuelan private manufacturing during 1983-88 was accompanied by a substantial positive contribution of import substitution to growth which took place as a result of the real devaluation of the bolívar. This development cannot be assigned to a change in the trade regime because this remained the same during 1983-88. There was a

Table 6.10 Determinants of TFPG in Venezuelan private manufacturing, 1968-88

Equation	C	GY	Dum	MS	XC	K/L	R^2
1	-3.172	0.850	-5.704	-	-	-	0.306
	(-1.309)	(2.811)	(-2.198)	-	-	-	-
2	-30.092	0.900	-3.077	0.411	-	-	0.742
	(-5.356)	(4.875)	(-1.845)	(4.966)	-	-	-
3	-28.949	0.890	-2.612	0.419	-0.456	-	0.741
	(-5.034)	(4.802)	(-1.503)	(5.028)	(-0.975)	-	-
4	-37.261	1.043	-2.859	0.276	0.256	0.041	0.882
	(-8.208)	(7.773)	(-2.380)	(4.015)	(0.684)	(3.769)	-

Sources: own estimations (see text), t statistics in parenthesis.

[22] Similar results were found by Ocampo (1995, p. 162).for Colombian manufacturing using pooled data

mild lowering of tariffs during 1978-82, but this policy was abandoned from 1983 to 1988. The picture that emerges from the econometric exercise is that the performance of TFPG in Venezuelan manufacturing is greatly determined by the Verdoorn effect. This suggests that TFP is a dependent variable and that trade policy can only exert a positive impact on productivity if it also promotes the expansion of domestic production.

It must be noted that during 1973-76 TFP did not follow the well-known Verdoorn and Kaldor proposition according to which rapid investment and output growth are associated with greater productivity growth. The high levels of oil revenues and their domestic distribution led to growth with no improvement in productivity. We tentatively advance the hypothesis that the improvement of TFP in Venezuelan private manufacturing during 1983-88 may be attributable to the reduced availability of oil revenues which may have encouraged some enterprise owners to rationalise the use of resources. It may be argued that real devaluation had a positive impact on manufacturing TFP from 1983 to 1988, through the export stimulus, as the export coefficient although not statistically significant is positive in one of the equations. Nevertheless, if as has been observed, the main impact of trade openness on TFP takes place through the technology embodied in imports, the Venezuelan experience is a paradox since the economy enjoyed a higher level of all kind of imports before the 1983-88 phase due to the availability of currency provided by the buoyant oil revenues. In contrast, the 1983-88 phase was characterised by import controls and devaluation with a drop in imports being the outcome.

It is worth noting that one of the few detailed studies on the Venezuelan industrial sector, and especially on the chemical subsector, concludes that a major problem of Venezuelan industrialisation was the absence of consideration of the important role of technological variables (Pirela et al, 1996, p. 32). This resulted in the lack of a technology policy as part of an industrial strategy which could have encouraged the promotion of technological capabilities and of entrepreneurship strategies. The same study suggests that in Venezuela there was an absolute disregard for the technological and organisational trends, or the links between the oil sector and some manufacturing branches. This development was reinforced at the outset of the 1970s oil boom, when a resource-based industrialisation was further promoted, with basic and mechanical metals being the chosen branches. This proved to be a mistake given the conditions in the international market, in which this subsector was in crisis and undergoing a process of technological redefinition. The vertical integration of the aluminium with the metal mechanical and the automobile industry appears as inappropriate given the crisis of the later branch in the 1970s (Pirela et al, p. 33, 34). An interesting point highlighted by the same research is that the political and ideological thought being articulated in Venezuela previously to the 1970s, led to the effort to diversify out of oil-related activities. Consequently, a chemical industry for instance, was not promoted despite the fact that this has proven to be one of the few manufacturing lines with some accumulated technological learning experience.

6.3.2 Labour productivity[23]

Two indicators of manufacturing labour productivity are reported in Table 6.11, namely, value added per worker, and value added per unit real labour cost.[24] According to the two measures, a striking feature of Venezuelan manufacturing performance during 1974-77 was the substantial decline in labour productivity growth. Although manufacturing value added grew during 1974-77, a significant increase in employment during 1974-76, as compared to 1968-71,

[23] The performance and determinants of labour productivity are better assessed by analysing disaggregate manufacturing. This is done in chapter 7 of this thesis.
[24] This is defined as the ratio of value added to the real wages divided by the number of persons employed.

led to a drop in labour productivity. Venezuelan industrialisation has been capital-intensive, although data show that the incremental capital-intensity per worker ratio declined from 1972 to 1976 (see Table 6.12). One factor behind this was the substantial rise in employment during 1973-76. This was caused by the growth of some of labour-intensive and public branches during 1973-76, which benefitted from the greater domestic demand, cheap public credit and/or from public investment (e.g. wearing apparel and footwear, chemicals, metals and basic metals).[25]

The use of value added per worker as a measure of the trends in labour productivity posed some problems, as the number of employees is not a good indicator of the effective labour time applied.[26] At the same time, there was a mild increase in the share of labour costs in value added during 1974-77 and this helped to offset the marked rise in employment, while the strong increase in this share during 1978-82 offset the effect of the drop in employment. Consequently another version of labour productivity was estimated namely, value added per unit real labour cost. This indicator shows that labour productivity

Table 6.11 Growth rates of labour productivity in Venezuelan private manufacturing

	1966-71	1974-76	1978-82	1983-88				
Value added per worker	2.69	0.53	2.91	0.05				
Real labour cost per worker (a)	1.00	6.62	1.83	-2.86				
Value added per unit real labour costs (b)	8.14	4.69	2.49	3.00				
	1966	1971	1974	1975	1976	1977	1979	1982
Labour cost share in value added	30.53	36.03	38.99	36.15	40.94	38.25	41.82	39.29
Labour cost share in total cost	62.58	51.44	53.82	50.75	52.16	53.17	54.57	46.03

Notes: data at constant 1984 prices. The average of labour productivity for 1983-88 excludes 1983. (b) This is defined as the ratio of the wages and salaries per year to the number of employees per year. (c) This is defined as the ratio of value added to the real wages divided by the number of persons employed. Sources: own estimations based on data provided by OCEI industrial survey, various years and the Central Bank of Venezuela, economic reports.

[25] These industries have a high relative share of employment in value added.

growth almost halved during 1974-76, compared to 1969-72, but rebounded again during 1978-82 and 1983-88. Labour productivity seems to be led by output growth following the Verdoorn pattern with the exception of the 1974-77 and 1978-82 phases.

The development of labour productivity in Venezuelan manufacturing during 1974-77 deserves close attention. The modest growth of labour productivity during the latter phase compared to the increase in output, raises the issue of efficiency. In our view, the sharp drop in labour productivity during these years is explained by the following factors: (a) the lack of a coherent industrial policy which could have focused on efficiency and the need to promote exports; and, (b) the massive consumption and investment of oil revenues which overwhelmed the capital absorptive capacity of the economy as measured by the lack of managerial and skill capacities. In a study on productivity for manufacturing during 1971-77, Iturbe et al. (1980) observe that the drop in labour productivity growth (measured as value added or output per worker) in Venezuelan manufacturing during 1974-77 was linked to the high rotation of labour during these booming years, because the greater demand for labour between firms allowed workers more mobility from a job to other.

6.3.3 The Trends in the capital-output ratio

Table 6.12 presents some measures of the capital-output ratio by using capital stock in Venezuelan private manufacturing. Both the capital-output ratio and the ICOR declined during 1974-76, compared to 1968-73. Nevertheless, this trend was reversed from 1977 to 1982, and declined during the post-boom phase. The steep rise during 1978-82 is attributable to the launching of deflationary fiscal and monetary policies during 1978-80.

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[26] Ndubulu and Semboja (1991, p. 523).

In contrast, through 1983-88 the improvement in the capital-output ratio may have been due to the increase in capacity utilisation following the severe recession in 1978-82. As expected, the real devaluation prompted some demand substitution effects, which resulted in the expansion of some manufacturing branches.

Table 6.12 Trends in the capital-output ratio in private manufacturing, Venezuela, 1968-94

	1968-72	1974-76	1978-82	1984-88	1989-94
Annual growth rate of GDI	11.4	12.54*	-2.7	10.0	4.8
Annual growth rate of GDInr	4.5	26.7	-24.0	8.2	
(a) Capital-output ratio	2.3	2.1	2.5	2.4	
(b) ICOR	3.6	2.9	4.7	2.2	

Notes: * It refers to 1975-77; GDI is gross domestic investment at 1984 prices including residential assess; GDInr: it refers to non-residential investment at 1984 prices; (a) It is based on data of capital stock at 1984 prices; (b) It is based on total gross domestic investment at 1984 prices, the 1978-82 phase excludes 1981 and the 1983-88 phase excludes the years of 1983-84 because there was an absolute decline in GDP. Sources: GDI is based on data provided by the industrial survey; GDInr, the capital-output ratio and ICOR are based on data provided by Baptista (1990).

6.4 Concluding remarks

The estimation of the sources of industrial growth made in this chapter indicates that a sectoral boom may exert a negative effect on import-substitution and exports, while at the same time it may allow for some manufacturing growth in the short-term due to the greater home demand. In Venezuela, the government's decision to maintain a fixed nominal exchange rate implied a real appreciation, which caused some disruptive effects on import-substitution and exports. Nevertheless, the surge in government spending prompted greater domestic demand, which together with the protectionist policies explain manufacturing growth during 1974-77. On the other hand, as already noted, the specific policies launched during the 1973-77 phase produced negative effects on Venezuelan industrialisation, involving the reinforcement of the weaknesses of the industrial process such as the lack of exports and low labour productivity.

As in other oil-based economies, the main lesson which can be drawn from the Venezuelan case and the impact of the 1970s oil boom on industrialisation is that the over-investment and inefficient use of the extra income entails negative effects. Although manufacturing achieved rapid growth based on the home market, this growth was inefficient without laying the foundations for a more independent and sustainable economic model through the adoption of a coherent industrial policy which may have encouraged manufacturing exports and diversification. As a result, growth was unsustainable in the long term due to the appearance of balance of payments problems which led to the launching of deflationary policies by 1978.

7 Impact of the 1970's Oil Boom on Growth and Structural Change within Venezuelan Manufacturing

Introduction

The present chapter examines the disaggregated performance of Venezuelan manufacturing by portraying the main features of 18 manufacturing lines within a factor intensity framework during 1973-82 and by estimating the source of growth for some selected manufacturing lines. The major issues discussed are as follows: (a) the role played by factor intensity in explaining the differences observed across manufacturing; (b) The extent to which weaknesses of Venezuelan industrialisation during the 1960s, namely, the lack of exports, heavy dependence on imported capital and inputs, the lack of diversification and inefficient growth, were reinforced by the pattern of growth and structural change within Venezuelan manufacturing through 1974-82

The structure of this chapter is as follows: Section 1 outlines the pattern of growth and structural change by industries during 1968-88. Section 2 presents the decomposition of the sources of growth into domestic demand, import substitution and exports for the main branches. Section 3 sets out the main trends and some influences at work on the growth of labour productivity in Venezuelan manufacturing at a detailed level of disaggregation. The major conclusions are summarised in the final section.

7.1 Pattern of growth within Venezuelan manufacturing during 1973-82 and Dutch disease

7.1.1 Pattern of growth

From the Dutch disease perspective the impact of the oil boom on the manufacturing branches may differ according to their factor intensities, with labour-intensive industries being more disrupted than capital-intensive ones by real appreciation and higher product wages. However, the econometric evidence discussed in Chapter 4 suggests that both manufacturing groups were equally disrupted by real appreciation in the long-term, while real appreciation exerted a positive influence on both groups in the short-term and especially in the case of the labour-intensive group as a whole. On the other hand, some manufacturing lines, such as textiles and food, seem to have been greatly affected by real appreciation in the short-term.

In order to get further insights on the differences observed across manufacturing, the path of growth revealed by manufacturing data which have been disaggregated according to factor-intensities is presented in Tables 7.1 and 7.2, as well as Figs 7.1 and 7.2. The picture that emerges from these data is that there were lines with very high output and employment growth during 1973-77 in both the labour and capital-intensive groups. It should also be noted that the growth of the capital-intensive group as a whole may appear lower due to the fact that transport equipment experienced a sharp decline in 1975, although this line grew at high rates during 1973-74 and in 1976.

Within the labour-intensive group, textiles were severely disrupted as shown by the strong drop in output and employment growth rates during 1974-77 compared to the pre-boom phase. As the drop in output was more significant, labour productivity growth also declined. It is worth noting that textiles was one of the lines that benefited the most from the financing policy launched during 1973-79, which indicates that the sectoral problems were not related to the lack of resources.[1]

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[1] See chapter 4 of this thesis.

Textiles continued declining during 1978-82, with a recovery taking place during 1983-88. It seems that the sector benefited from the demand side substitution effect of real devaluation through the latter phase, but following import liberalisation in 1989 it entered a deep crisis.

Table 7.1 Trend growth in manufacturing real value added, 1960-94

ISIC code	Industries	1960-71	68-71	74-77	78-82	83-88	89-94
	Labour-intensive industries	8.68	10.70	12.53	-0.16	5.13	3.64
		0.99	**0.96**	**0.99**	**0.00**	**0.84**	**0.38**
332	Furniture	-0.14	6.38	15.20	1.35	-3.21	6.52
		0.00	**0.66**	**0.87**	**0.01**	**0.29**	**0.41**
331	Wood	7.39	15.77	2.89	-7.34	-0.25	-2.32
		0.84	**0.86**	**0.35**	**0.98**	**0.00**	**0.01**
356-54-90	Other manufacturing	12.74	19.52	20.74	0.87	2.37	8.72
		0.95	**0.95**	**0.89**	**0.04**	**0.67**	**0.72**
323	Leather products	6.41	9.12	9.22	-1.33	-2.80	3.90
		0.73	**0.62**	**0.81**	**0.07**	**0.25**	0.08
322-24	Wearing apparel & Footwear	6.86	6.82	11.39	5.34	2.02	0.95
		0.84	**0.95**	**0.93**	**0.75**	**0.25**	0.00
321	Textiles	8.96	10.02	3.59	-10.54	9.59	-2.58
		0.99	**0.99**	**0.86**	**0.74**	**0.97**	**0.19**
381	Metal products	15.85	15.43	26.94	0.97	4.00	2.96
		0.96	**0.95**	**0.93**	**0.01**	**0.32**	**0.27**
355	Rubber	7.89	10.48	3.54	6.87	9.71	8.57
		0.95	**0.99**	**0.27**	**0.95**	**0.70**	**0.70**
361-62-69	Non-metallic minerals	7.67	7.55	10.40	1.91	7.94	4.36
		0.93	**0.61**	**0.83**	**0.16**	**0.91**	**0.58**
	Capital and/or human	7.51	7.68	10.62	3.54	4.20	3.15
	capital-intensive industries	**0.95**	**0.99**	**0.99**	**0.77**	**0.48**	**0.37**
313	Beverages	4.95	6.20	15.14	3.46	1.25	2.69
		0.84	**0.98**	**0.99**	**0.31**	**0.03**	**0.15**
314	Tobacco	-5.72	2.07	28.89	7.03	0.26	0.83
		0.48	**0.61**	**0.91**	**0.90**	**0.01**	**0.00**
341	Paper and paper products	12.99	12.83	19.53	-8.73	7.92	1.53
		0.99	**0.86**	**0.99**	**0.70**	**0.69**	**0.15**
384	Transport equipment	6.59	-1.13	7.93	7.23	6.77	30.62
		0.66	**0.04**	**0.84**	**0.96**	**0.43**	**0.87**
311-12	Food products	8.53	7.11	1.87	2.89	1.41	1.50
		0.87	**0.97**	**0.37**	**0.57**	**0.91**	**0.20**
371-72	Basic metal products	19.92	14.61	8.59	16.76	10.77	2.14
		0.75	**0.89**	**0.94**	**0.82**	**0.93**	**0.22**
351-52	Chemical products	9.90	15.46	14.11	5.19	8.13	-4.61
		0.97	**0.93**	**0.90**	**0.20**	**0.85**	**0.32**
382-83	Mechanical & electrical	10.57	19.65	17.81	2.65	7.69	2.99
	machinery	**0.62**	**0.87**	**0.92**	**0.53**	**0.65**	**0.23**
342	Printing	10.42	3.93	8.51	2.77	-2.40	8.25
		0.90	**0.17**	**0.30**	**0.16**	**0.11**	**0.57**
300	Private manufacturing	7.93	8.81	11.34	2.27	4.51	3.31
		0.97	**0.99**	**0.99**	**0.65**	**0.61**	**0.38**

Note: growth rates are the least squares estimates of trend growth. Sources: OCEI, industrial survey, various issues and BCV, economic report, various issues, see methodological appendix.

Among the labour-intensive group, leather, wood and rubber were also disrupted by the oil boom during 1974-77. By contrast, the rest of this

Table 7.2 Trend growth in manufacturing employment, 1968-94

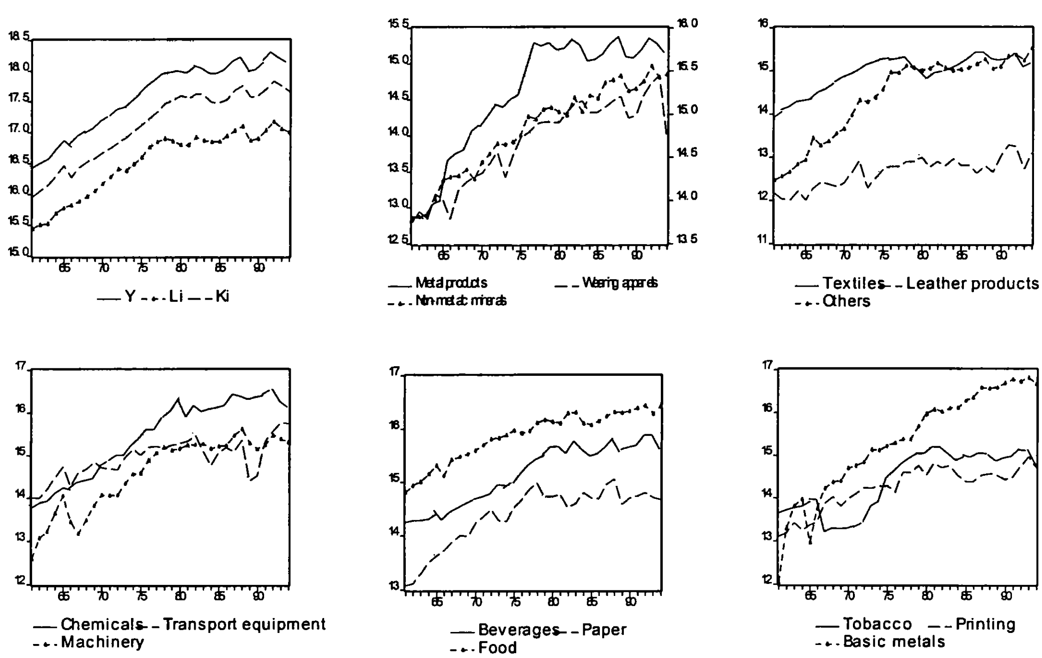
ISIC code	Industries	1968-71	74-77	78-82	83-88	89-94
	Labour-intensive industries	6.53	11.87	-3.05	3.84	-0.11
		0.99	**0.97**	**0.55**	**0.87**	**0**
332	Furniture	5.85	14.63	-4.18	-3.21	3.16
		0.98	**0.92**	**0.55**	**-0.85**	**0.46**
331	Wood	8.88	3.83	-8.39	1.92	-2.6
		0.99	**0.89**	**0.92**	**0.36**	**0.38**
356-54-90	Others	17.507	13.83	2.95	7.14	-1.72
		0.91	**0.93**	**0.63**	**0.99**	**0.025**
323	Leather products	11.57	10.68	-2.09	1.87	-3.27
		0.42	**0.96**	**0.41**	**0.23**	**0.105**
322-24	Wearing apparel & footwear	8.49	12.77	1.7	2.49	-8.35
		0.90	**0.98**	**0.24**	**0.71**	**0.39**
321	Textiles	2.25	6.98	-12.24	6.63	-6.77
		0.89	**0.95**	**0.87**	**0.99**	**0.94**
381	Metal products	6.77	13.46	-4.59	3.48	-3.35
		0.97	**0.87**	**0.40**	**0.41**	**0.39**
355	Rubber	8.13	7.97	-6.92	3.65	3.51
		0.96	**0.95**	**0.83**	**0.6**	**0.31**
361-62-69	Non-metallic minerals	2.46	15.76	-2.19	4.04	13.79
		0.45	**0.97**	**0.21**	**0.78**	**0.74**
	Capital and/or human	6.026	11.64	0.49	2.66	-0.53
	capital-intensive industries	**0.92**	**0.97**	**0.051**	**0.79**	**0.029**
313	Beverages	2.38	12.06	2.19	-0.99	1.69
		0.78	**0.9**	**0.63**	**0.13**	**0.82**
314	Tobacco	9.18	3.54	0.18	-2.85	-0.52
		0.64	**0.28**	**0.00**	**0.29**	**0.023**
341	Paper and paper products	5.23	13.14	-5.78	3.63	-1.85
		0.99	**0.99**	**0.65**	**0.53**	**0.2**
384	Transport equipment	11.86	13.91	-4.55	1.65	2.6
		0.99	**0.95**	**0.65**	**0.28**	**0.33**
311-12	Food products	1.33	8.92	2.24	3.07	0
		0.13	**0.95**	**0.48**	**0.96**	**0**
371-72	Basic metal products	6.17	18.6	0.00	3.97	-5.49
		0.81	**0.96**	**0.00**	**0.56**	**0.95**
351-52	Chemical products	9.78	13.31	1.84	3.23	0.00
		0.97	**0.96**	**0.42**	**0.97**	**0**
382-83	Mechanical & electrical machinery	18.46	15.9	-0.04	4.58	-2.93
		0.88	**0.96**	**0.00**	**0.55**	**0.18**
342	Printing	8.27	10.16	2.18	1.4	-5.13
		0.99	**0.94**	**0.28**	**0.26**	**0.41**
300	Private manufacturing	6.27	11.76	-1.19	3.21	-0.33
		0.98	**0.97**	**0.19**	**0.84**	**0.009**

Note: growth rates are the least squares estimates of trend growth. Sources: Industrial survey and UNIDO, see methodological appendix.

group benefited from the expansion of the domestic market notably, metal products and furniture.

As regards the capital-intensive group as a whole, it experienced lower growth compared to the labour-intensive group during 1974-77. Nevertheless, it is worth noting that some lines such as machinery,

Fig 7.1 Trends in value added, Venezuelan manufacturing 1960-94, (log scale)

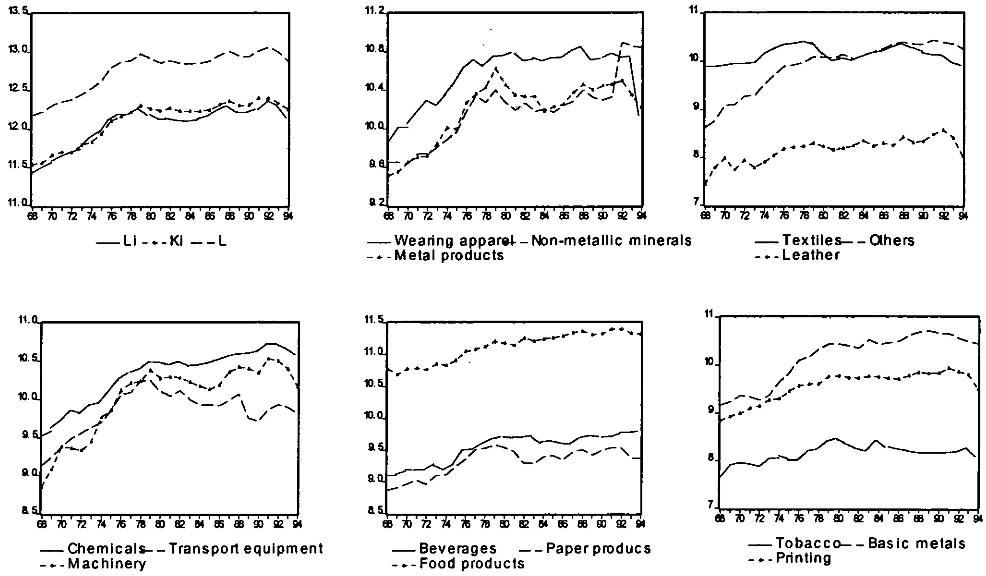


Notes: Y= value added, Li = value added in the labour-intensive group and Ki = value added in the capital-intensive group. Sources: as Table 7.1.

beverages and chemicals achieved very high growth rates during this phase. On the other hand, food witnessed a slowdown which seems to be caused by import competition, the low income elasticity of this type of good as well as a slowdown in agriculture output and the slowdown of agriculture.

There were substantial differences in the performance of the lines within the labour-intensive and the capital-intensive groups. Concerning the pattern of growth during 1983-88, some branches of the labour-intensive group expanded at high rates (e.g. textiles, non-metallic mineral products). At the same time, some of the capital-intensive branches as machinery

Fig 7.2 Trends in employment, Venezuelan manufacturing 1960-94, (log scale)



Notes: L = manufacturing employment, Li = employment in the labour-intensive group and Ki = employment in the capital-intensive group. Sources: as Table 7.2.

and chemicals also achieved rapid growth during 1983-88 in terms of output and employment. The recovery of manufacturing during these years was driven by import substitution prompted by real devaluation and some expansion in exports as a result of relative prices incentives. Likewise, the recovery of some manufacturing lines during 1986 is explained by the positive effect of the public investment programmes on those lines linked to the construction sector. Nevertheless, it must be noted that over these years growth was unstable compared to the 1960s and the reluctance of private investment to expand represented a serious obstacle to long-term growth. Finally, following the launching of neo-liberal policies from 1989, manufacturing has experienced a severe fall in output, employment and investment growth (Figs 7.1 and 7.2).

7.2 Structural change within Venezuelan manufacturing during 1973-82 and Dutch disease

Structural change in Venezuelan private manufacturing during 1960-94 is illustrated by Table 7.3. This makes clear that manufacturing has maintained a similar structure over the 1960-90 period, with traditional industries having a major although declining share in the sector's total output and employment. The falling trend in the traditional sector follows the pattern of structural change observed in the industrial process identified by cross-national studies on industrialisation.[2] Nevertheless, it must be stressed that the progress of the lines producing capital goods was disappointing during1960-90 and there were no significant changes during the boom phase (1974-82).

Considering the factor intensities of manufacturing lines, it seems that the growth of the labour-intensive group during 1974-77 led to a slight increase in its share of total value added and employment. However, some of the capital-intensive lines also increased their shares. The growth of these industries was fostered by the expansion of the home demand. Table 7.3 also indicates that the highest share of investment corresponded to non-metallic mineral products, metal products, food, textiles and chemicals. As a result, there was a favourable development of chemicals and metals, which increased their shares in output and employment. Nevertheless, the growth of these intermediate and mechanical subsectors was mainly based on import-substitution of a few manufacturing consumer goods and basic

[2] Chenery (1960), Chenery and Taylor (1968), Chenery and Syrquin (1986).

inputs for the construction sector.[3] At the same time, the development of those industries producing capital goods was very limited, with the mechanical and electrical machinery branch representing only 6 per cent of value added in 1977 compared with 4.8 per cent in 1974. The low development of the capital and transport equipment subsectors over 1973-77 is also shown by their high import coefficients which increased from 81 per cent in 1973 to 88 per cent in 1977 and reached more than 60 per cent for machinery and the whole mechanical group during this phase.[4] This reflected the excessive dependence of the domestic productive process on the imports of capital goods, a feature of Venezuelan manufacturing which, as noted, was associated with the availability of oil revenues, unequal income distribution and the demand structure which encouraged a highly differentiated supply produced with capital-intensive techniques.[5] These features of industrialisation were reinforced by the policies pursued during 1973-82. As already discussed, oil income was used to finance the importation of capital and raw material goods. Likewise, the policy of lower tariffs for capital and raw material goods as an incentive for industrialisation seems to have been a contributing factor to the heavy dependence on capital imports. Thus, it seems that the policy response over these phases reinforced one of the major weaknesses of Venezuelan industrialisation namely, excessive reliance on oil income and on capital good imports which contributed to the appearance of balance of payments problems by 1977. It must be noted that some decline in the share of machinery in manufacturing imports took place during 1978-82 when this fell from 40 per cent in 1977 to 32 per cent in 1982. This was due, however, to the stagnation of the economy and by 1988 this share rose to 37 per cent due to the recovery of manufacturing during 1985-87. Over 1

[3] Brandi (1989).

[4] Table 5.10 in chapter 5 of this thesis.

[5] A study of the mechanical industries in Venezuelan manufacturing is found Trujillo (1977, p. 62).

Table 7.3 Structural change in Venezuelan private manufacturing 1960-94

		Value added structure						Employment structure						Investment structure			
ISIC code	Industries	1960	1974	1977	1982	1988	1994	1968	1973	1977	1982	1988	1994	1974	1977	1982	1988
	Labour-intensive industries	37.2	36.7	37.9	33.1	34.0	33.9	47.4	48.2	50.5	45.8	47.7	46.2	38.3	44.6	19.7	49.3
332	Furniture	3.7	1.8	1.9	1.9	1.2	1.5	3.9	4.3	4.2	3.7	3.0	3.5	1.8	0.8	0.6	0.7
331	Wood	3.0	2.6	2.0	1.1	1.0	0.7	2.6	3.1	2.4	1.7	1.8	1.7	1.5	1.3	0.6	0.8
354-56-90	Other manufacturing	1.9	4.5	5.7	5.7	5.5	7.8	2.9	4.2	5.2	6.4	7.3	7.2	5.5	5.3	4.3	10.4
323	Leather products	1.4	0.6	0.7	0.6	0.5	0.7	0.9	0.9	1.0	0.9	1.0	0.8	0.5	0.3	0.3	1.1
322-24	Wearing apparel & footwear	8.2	9.8	7.6	4.4	6.1	5.1	9.9	10.6	11.5	11.2	11.3	6.3	2.4	2.3	1.8	3.5
321	Textiles	7.4	4.5	5.3	5.5	5.1	3.4	10.1	8.4	8.2	5.6	6.7	4.9	8.7	6.9	3.6	9.6
381	Metal products	2.6	4.9	7.7	6.5	5.8	5.1	6.9	7.4	8.2	7.8	7.8	7.0	8.4	7.2	1.9	7.9
355	Rubber	1.8	1.6	1.5	1.6	2.5	2.5	2.3	2.2	1.8	1.4	1.4	1.7	1.8	2.8	0.5	2.8
361-62-69	Non-metallic mineral products	7.1	6.5	5.7	5.8	6.5	7.2	8.0	7.1	8.0	7.3	7.4	13.1	7.7	17.8	6.1	12.5
	Capital and/or human capital-intensive industries	62.8	63.3	62.1	66.9	66.0	66.1	52.6	51.8	49.6	54.2	52.4	53.8	61.7	55.4	80.3	50.7
313	Beverage	11.4	8.2	8.1	8.0	9.3	8.0	4.5	4.0	3.4	4.0	3.5	4.4	6.0	9.2	14.5	6.2
314	Tobacco	6.2	2.6	4.7	5.6	4.0	3.5	1.1	1.2	0.9	1.0	0.8	0.8	1.0	0.5	0.1	0.2
341	Paper and paper products	3.5	4.5	5.3	3.0	4.5	3.3	3.6	3.5	3.5	2.8	3.0	3.0	8.3	11.2	1.7	0.2
384	Transport equipment	8.9	8.9	7.4	7.8	5.9	9.6	4.8	6.0	6.3	6.3	5.3	4.7	3.9	5.0	4.9	5.2
311-12	Food products	20.0	20.3	15.8	17.6	15.6	19.0	24.4	20.1	16.8	19.6	19.3	21.0	15.2	13.7	12.5	15.2
351-52	Chemical products	7.1	8.6	10.5	15.2	16.3	13.1	7.1	7.8	7.9	9.0	8.8	9.9	19.7	5.8	41.1	12.9
382-83	Mechanical & electrical machinery	2.1	4.8	6.3	6.2	7.7	6.2	3.6	5.0	7.0	7.4	7.5	6.7	4.8	7.2	4.9	7.0
342	Printing	3.6	4.3	4.1	3.6	2.7	3.4	3.6	4.2	3.8	4.2	4.2	3.4	2.9	2.8	0.6	3.8
300	Private manufacturing	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes: the structure of value added is at constant 1984 prices, while the structure of investment is at current prices.
Sources: as Table 7.2.

1983-88, the lines producing machinery experienced a recovery due to the positive impact of real devaluation, but this effect was reversed from 1989. Although these lines were supposed to be less disrupted by the import liberalisation policy, it seems that the corrosive impact of the policy on the other manufacturing lines, which has led to de-accumulation, accounts for the severe decline recorded by machinery. These branches may have been also affected by the liberalisation of the financial markets.[6] Concerning the performance of the labour-intensive industries during 1983-88, textiles, non-metallic mineral products and rubber benefited to some extent from the demand substitution effect of real devaluation of the currency during 1985-88. This positive trend was reversed, however, in the 1990s when import liberalisation, the greater financing costs and in general the lack of an adequate industrial policy brought about negative import substitution.[7]

7.3 Demand side sources of growth

In this section we look at the decomposition of the sources of growth from the demand side in 18 manufacturing lines. Due to the lack of data, the effect of the shift in domestic demand was not estimated. The results for manufacturing as a whole, though, do not differ basically from those obtained by using the previous methodology. Table 7.4 indicates that the contribution of domestic demand, import substitution, and exports to manufacturing growth differed across sectors during 1969-93.

Considering the 1974-77 phase, it seems that some industries producing consumer goods, like textiles and food, experienced a reversal in import

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[6] Valecillos (1992, 1994).

[7] Within manufacturing, some of the capital-intensive lines have been the most disrupted by the neo-liberal policies, notably, chemicals, electrical and non-electrical machinery, beverages and paper. Within the labour-intensive group, textiles and metal products has been severely hit. It must be noted that the accumulated net investment for machinery was negative during 1988-92. Likewise, there was a substantial drop in the used installed capacity in almost all the lines during these years, notably, in chemicals, machinery, textiles and metals. Between 1988 and 1992, the percentage of used installed capacity declined from 78.85 per cent to 64.07 in chemicals, from 56.14 per cent to 42.58 per cent in the same years, and from 88.56 to 50.56 per cent in textiles. See Valecillos (1994, p. 39, Table 8).

substitution. Within the intermediate group, non-metallic mineral products was severely affected also which was due to the importation of cement while machinery and transport equipment also recorded negative import substitution during this phase. The huge increase in capital goods imports prompted by the easy credit, real appreciation and low protection on capital goods seems to account for this fact. The reversal in import substitution during 1974-77 contrasts with the results achieved during 1969-73 when most of the industries showed a positive contribution of import substitution to growth. Despite this, a significant positive contribution of domestic demand to growth in all the lines over 1974-77 offset the negative impact of ISI. As expected, there was a negative contribution of exports to growth during 1974-77, due to the huge expansion of domestic demand and the real appreciation of the currency. This was so despite the establishment of an institution to provide easy credit to exporters.

Paradoxically, despite the lowering of protection, a positive contribution of import substitution to growth took place in some manufacturing lines during 1978-82, with the role of domestic demand being negative. These results are explained by the strong decline in imports and domestic demand during 1978-82 (see Table 7.4). The significant decline in the import coefficient of machinery and transport was the result of the fall in investment and this must not be understood as a structural trend in the import substitution of these goods. On the other hand, some highly protected sectors such as textiles and paper, showed negative growth rates during 1978-82 which suggests that they were severely affected by the lowering of tariffs and quotas.

When it comes to the 1982-88 phase, the real devaluation of the domestic

Table 7.4 Demand side sources of growth of Venezuelan private manufacturing (% of total growth), 1969-93

ISIC Code	Sectors	(a) Domestic demand 1969-73	1974-77	1978-82	1982-88	1989-93	(b) Import substitution 1969-73	1974-77	1978-82	1982-88	1989-93	(d) Exports 1969-73	1974-77	1978-82	1982-88	1989-93	(e) Total 1969-73	1974-77	1978-82	1982-88	1989-93
311-12	Food	94.5	214.5	74.8	51.2	260.5	4.4	-105.5	24.8	48.4	-370.3	1.1	-9.0	0.3	0.4	209.8	100.0	100.0	100.0	100.0	100.0
313	Beverages	96.2	127.2	-23.0	0.3	111.0	3.8	-27.2	123.0	98.7	-15.8	0.0	0.0	0.0	0.9	4.8	100.0	100.0	100.0	100.0	100.0
314	Tobacco	100.2	100.2	42.4	0.0	91.0	-0.2	-0.2	-7.1	0.0	-4.1	0.0	0.0	64.7	0.0	13.1	100.0	100.0	100.0	0.0	100.0
321	Textiles	85.5	400.6	*	59.4	193.9	14.5	-300.6	*	39.8	-157.9	0.0	0.0	*	0.9	64.0	100.0	100.0	*	100.0	100.0
322-24	Clothing	87.5	138.1	181.9	-4.0	117.0	12.5	-38.1	-81.9	101.8	1.2	0.0	0.0	0.0	2.2	-18.2	100.0	100.0	100.0	100.0	100.0
323	Leather	*	279.6	*	14.8	139.6	*	-179.6	*	82.0	-147.8	0.0	0.0	*	3.2	108.2	*	100.0	*	100.0	100.0
331	Wood	98.3	461.5	*	*	*	1.7	-361.5	*	*	*	0.0	0.0	*	*	0.0	100.0	100.0	*	*	*
332	Furniture	99.3	101.2	102.4	*	141.0	0.7	-1.2	-2.4	0.0	-17.6	0.0	0.0	0.0	*	-23.3	100.0	100.0	100.0	*	100.0
341	Paper	82.9	82.0	*	70.8	183.8	-7.6	23.9	0.0	18.6	-22.1	24.7	-5.9	*	10.6	-61.7	100.0	100.0	*	100.0	100.0
351-52	Chemicals	85.2	94.8	26.8	92.2	128.4	-1.2	4.9	58.8	-10.9	85.3	16.0	0.3	14.4	18.8	-113.7	100.0	100.0	100.0	100.0	100.0
355	Rubber	115.3	432.7	-15.4	24.0	91.9	-15.3	-332.7	115.4	75.9	-15.9	0.0	0.0	0.0	0.1	24.0	100.0	100.0	100.0	100.0	100.0
361-62-69	Non-metallic minerals	65.5	427.5	-240.5	-7.2	71.1	34.1	-325.5	365.5	92.2	7.3	0.4	-2.1	-25.0	15.0	21.6	100.0	100.0	100.0	100.0	100.0
371-72	Basic metals	170.1	180.5	-23.0	0.0	50.9	-69.4	-80.3	102.9	0.0	4.9	-0.7	-0.3	20.1	0.0	44.2	100.0	100.0	100.0	*	100.0
381	Metal products	55.7	161.7	-1844.9	17.6	122.2	42.3	-60.1	1881.2	76.1	-29.0	2.0	-1.6	63.7	6.3	6.8	100.0	100.0	100.0	100.0	100.0
382-83	Machinery	67.1	234.1	-226.2	-56.8	72.9	30.6	-135.4	386.0	157.5	32.4	2.2	1.3	-59.8	-0.7	-5.3	100.0	100.0	100.0	100.0	100.0
384	Transport equipment	71.5	184.5	*	*	85.8	16.7	-75.4	*	*	-3.0	11.8	-9.1	*	*	17.1	100.0	*	*	*	100.0
342	Printing	107.9	97.9	139.9	-110.8	138.3	-7.9	2.1	-39.9	206.2	-11.8	0.0	0.0	0.0	4.6	-26.5	100.0	100.0	100.0	100.0	100.0
354-56-85	Other manufacturing	42.5	106.7	23.0	-1.6	124.7	56.2	-7.3	77.4	100.2	-16.7	1.3	0.6	-0.4	1.3	-8.0	100.0	100.0	100.0	100.0	100.0
300	Total	90.8	213.7	-163.2	4.5	116.3	4.9	-111.2	264.0	89.4	-16.6	4.3	-2.5	-0.8	6.1	0.3	100.0	100.0	100.0	100.0	100.0

Notes: all data at constant prices of 1984. * There was an absolute decline in output of these branches. Sources: Table 7a.

currency led to a positive and important contribution of import substitution to manufacturing growth, notably in food, clothing, textiles, non-metallic minerals, metals, machinery and transport equipment. For manufacturing as a whole, the effect of domestic demand was lower than the effect of import substitution given the negative impact of real devaluation on wages and salaries which was reflected in a decline in the role of domestic demand in food and clothing. The contribution of exports to manufacturing growth became positive during 1982-88, but it is still insignificant (6.10 per cent). The higher export ratio corresponded to chemicals which despite the fact that this includes petrochemicals, was considered as part of the private sector because of an important private component in this branch.

As expected the import liberalisation policy launched in 1989 led to a reversal in import substitution in most of the manufacturing lines, with a few exceptions, such as chemicals and machinery. Contrary to the predictions of the advocates of free trade as a tool for encouraging exports, the main source of manufacturing growth during 1989-93 was domestic demand and not exports, whose contribution declined compared to 1982-88. Some of the lines in which the contribution of exports to growth was important were food, non-metallic minerals, textiles and tobacco.

Export performance in disaggregated manufacturing

As shown by Table 7.4, a striking feature of Venezuelan manufacturing was the insignificant contribution of exports to growth during 1969-73 in almost all the manufacturing lines considered. Chemicals, paper and transport equipment provided the greatest contribution of exports to manufacturing growth during 1969-73. Basic metals, which was dominated by the public sector until 1997 and was an export-oriented sector, showed a negative export contribution to industrial growth during

1969-73. This is explained by the fact that resource-based industrialisation had begun by these years, so sectoral exports increased during 1978-82.

Figure 7.3 and Tables 7.5 and 7.6 show the negligible diversification of manufacturing exports from 1968 to the early 1990s. Manufacturing, excluding iron, accounted for only 5 per cent of total exports during 1989-94.

Table 7.5 Export structure as percentage of total exports, Venezuela, 1960-94

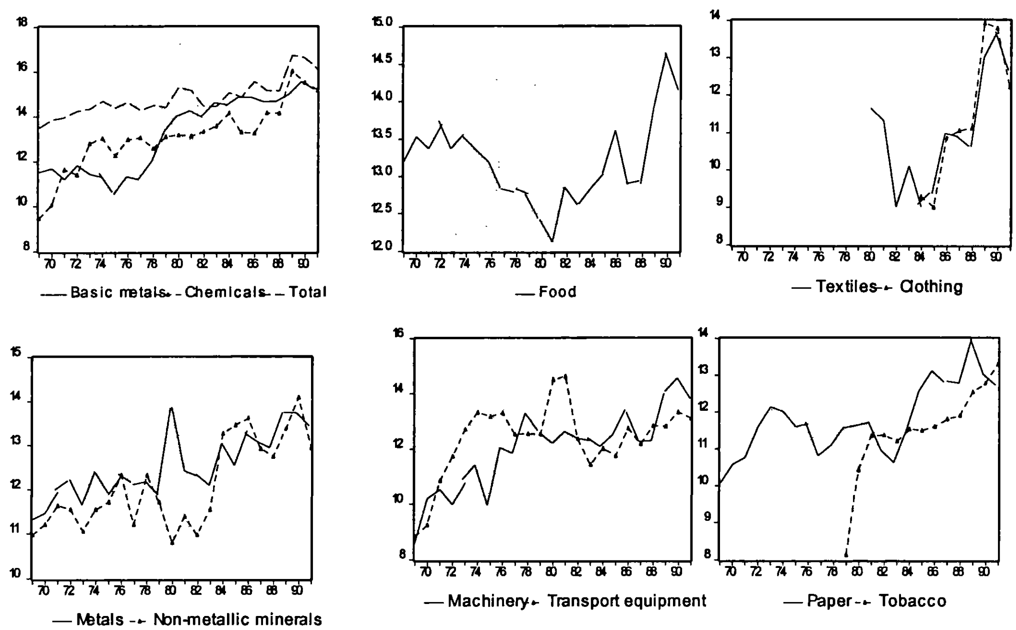
	Oil	Agriculture	Iron	Chemicals	Other Manufacturing	Total exports
1960-72	90.9	0.1	8.9	0.0	0.2	100.0
1973-77	86.4	0.1	13.0	0.5	0.6	100.0
1978-82	88.6	0.1	10.2	0.4	0.5	100.0
1983-88	85.4	0.1	10.2	0.9	2.3	100.0
1989-94	85.0	0.2		1.0	4.8	100.0

Sources: BCV, Finexpo, reports, various issues.

Table 7.6 indicates that the most important export increase took place in chemicals, basic metals (which was a publicly-owned line) and food. These lines achieved the greatest growth rates during 1968-90, but their export coefficients were low and fluctuating.

The first 1970s oil boom brought about a decline in private manufacturing exports in almost all the lines during 1974-77 (with the exception of 1976) despite the granting of some export subsidies. As noted in Chapter 6, this was largely linked to greater domestic demand and some real appreciation. This defines a feature of the performance of non-traditional exports in Venezuela, where national firms are only encouraged to export as a response to a decline in domestic demand, but there is no a real export-oriented sector. Concerning the immediate post-boom phase (1982-88), there was some expansion in private manufacturing exports as a result of devaluation (see Fig 7.3). However, this was not impressive. Indeed, during 1960-90 the contribution of manufacturing to total exports has been negligible with the only manufacturing exports being iron and chemicals, with the private sector (excluding chemicals) playing a marginal role (see Table 7.5). Likewise, although the export coefficient of private manufacturing showed an

Fig 7.3 Trends in manufacturing exports, Venezuela,1969-91 (log scale)



Sources: as Table 7.5.

increasing trend from 1983, it was still very low and fluctuating and only amounted to 2.26 per cent (see Table 7.6). This was so despite the fact that chemicals was included in the private sector.[8] The lines which recorded the greatest increases in their export coefficients were chemicals, non-metallic mineral products, paper, tobacco and transport equipment.

[8] The decline shown by the export coefficient of basic metals during 1973-77 is associated with the greater domestic emand of aluminium which occurred during the booming phase.

Table 7.6 Trends in manufactured exports, Venezuela, 1969-93

ISIC		(a) Average annual growth rate					(b) Share of exports						(d) Export coefficient					
Code	Sectors	1969-72	1973-77	1978-82	1982-88	1989-93	1969	1974	1977	1982	1988	1993	1969	1974	1977	1982	1988	1993
311-12	Food	16,36	-11,09	0,21	0,86	40,97	74,13	30,70	23,50	19,44	10,25	14,18	3,69	3,29	1,40	1,04	0,96	6,00
313	Beverages	0,00	0,00	0,00	0,00	60,12	0,00	0,00	0,00	0,00	0,60	1,72	0,00	0,00	0,00	0,00	0,21	2,18
314	Tobacco	0,00	0,00	0,00	8,96	46,43	0,00	0,00	0,00	4,45	3,81	2,90	0,00	0,00	0,00	2,11	4,19	10,07
321	Textiles	0,00	0,00	0,00	26,03	67,20	0,00	0,00	0,00	0,42	1,01	4,02	0,00	0,00	0,00	0,15	0,43	7,36
322-24	Clothing	0,00	0,00	0,00	0,00	36,73	0,00	0,00	0,00	0,00	1,74	1,20	0,00	0,00	0,00	0,00	0,61	1,62
323	Leather	0,00	0,00	0,00	0,00	65,88	0,00	0,00	0,00	0,00	0,62	1,76	0,00	0,00	0,00	0,00	1,50	23,30
331	Wood	0,00	0,00	0,00	0,00	68,03	0,00	0,00	0,00	0,00	0,07	0,14	0,00	0,00	0,00	0,00	0,16	1,97
332	Furniture	0,00	0,00	0,00	0,00	34,19	0,00	0,00	0,00	0,00	0,25	0,11	0,00	0,00	0,00	0,00	0,41	0,63
341	Paper	51,35	-48,51	3,08	29,72	-0,06	3,20	6,82	2,97	2,83	8,44	2,36	0,77	4,34	0,81	1,23	4,66	6,07
351-52	Chemicals	64,86	-14,98	5,66	13,51	34,14	1,74	18,85	29,65	32,23	36,29	33,25	0,41	7,25	4,34	4,10	7,25	22,21
355	Rubber	0,00	0,00	0,00	0,00	135,97	0,00	0,00	0,00	0,00	0,04	2,00	0,00	0,00	0,00	0,00	0,04	8,86
361-62-69	Non-metallic minerals	18,65	-15,56	-4,46	29,41	6,57	7,99	4,26	4,63	3,03	8,87	6,79	1,95	2,24	1,22	0,83	3,82	11,38
371-72	Basic metals	10,04	-35,82	55,30	11,41	18,26	0,00	0,00	0,00	0,00	0,00	0,00	1,66	0,79	0,44	5,38	10,68	23,55
381	Metal products	27,56	3,51	3,65	10,79	16,93	11,28	9,33	11,22	11,02	10,54	5,95	3,85	5,85	2,62	2,64	3,65	9,76
382-83	Machinery	46,21	-38,04	12,51	-1,56	48,09	0,73	3,33	7,78	11,92	5,43	5,34	0,28	1,90	1,65	2,69	1,85	7,07
384	Transport equipment	96,35	-10,15	-3,25	7,94	8,98	0,93	25,34	17,24	12,00	9,67	14,29	0,13	6,18	2,01	1,56	2,67	13,58
342	Printing	0,00	0,00	0,00	0,00	72,31	0,00	0,00	0,00	0,00	0,38	0,66	0,00	0,00	0,00	0,00	0,30	1,72
354-56-85	Other manufacturing	0,00	36,30	1,48	6,77	49,67	0,00	1,37	3,01	2,65	1,99	3,33	0,00	0,94	0,80	0,69	0,82	4,60
300	Total	24,51	-10,98	4,00	11,54	31,89	100,00	100,00	100,00	100,00	100,00	100,00	1,38	2,82	1,34	1,39	2,26	8,86

Notes: this is based on values at 1984 prices. Sources: as Table 7.5.

From 1989 onwards, the import liberalisation policy led to a reversal of import substitution without a substantial export effort. It must be highlighted that the high growth rates of manufacturing exports during 1989-93 were due to the sharp increase in 1989 but there was a decline in 1990-91, followed by a recovery during 1992-93. This poor manufacturing export development occurred despite the reforms launched in the exchange rate regime from 1983 and in the trade regime from 1989.

7.4 Supply side determinants of industrial growth

Labour productivity in Venezuelan private manufacturing during 1973-82

In this section the development of labour productivity growth measured as value added per worker in Venezuelan private manufacturing is assessed. It was not possible to estimate TFP or the capital-output ratio due to the lack of reliable disaggregated data on real capital stock.[9]

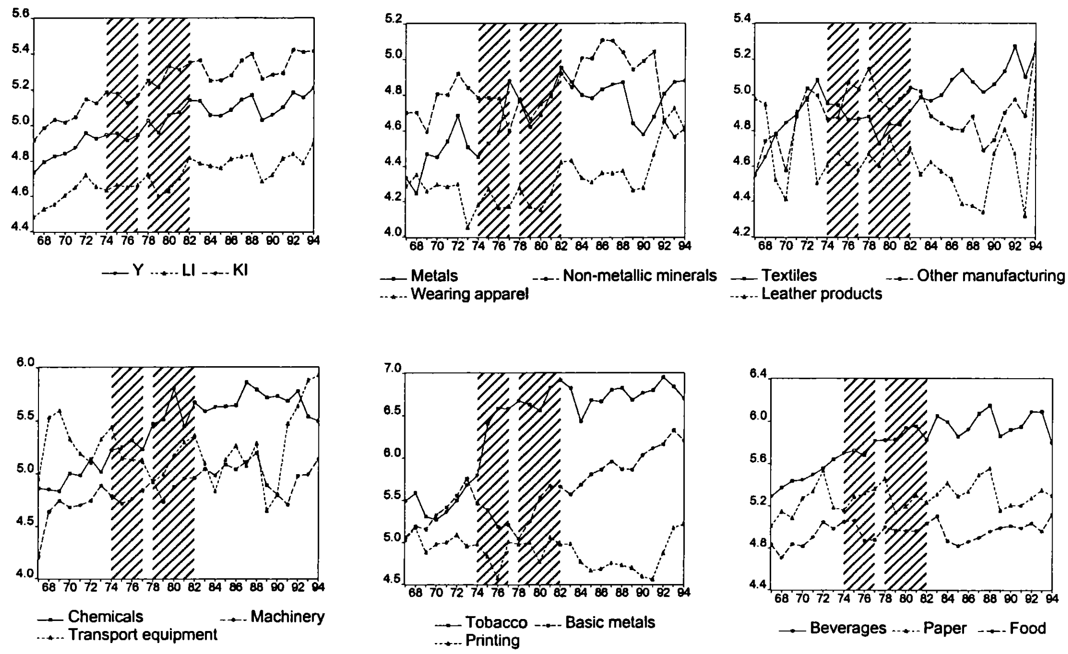
The picture that emerges from Fig 7.4 is that during 1974-77 most of the manufacturing lines were affected by a strong decline in labour productivity growth measured as value added per worker compared to 1968-71. Thus, the problem of the traditionally low labour productivity in manufacturing worsened during 1974-77. While value added increased in the wake of the boom, this growth was modest compared to the rise in employment. Thus both the labour- and capital-intensive manufacturing groups were affected by falling labour productivity over this phase, but the decline was more severe in the labour-intensive group as a whole compared to 1968-71.[10] In this group labour productivity growth fell from 4.17 per

[9] See mehtodological appendix to Chapter 6.

[10] It must be noted that basic metals (a stated-owned industry) had the sharpest drop in labour productivity over 1974-77, which is explained by the huge increase in employment and the modest growth in value added over this phase.

cent during these years to 0.66 per cent during 1974-77; while in the case of the capital-intensive group as a whole the growth of this variable fell from 1.65 per cent per year over 1968-71 to -1.02 per cent during 1974-77. As noted in Chapter 6, the factors behind the falling trend observed in

Fig 7.4 Trends in value added per man, Venezuelan manufacturing, 1967-94 (log scale)



Notes: all values at constant prices of 1984, Y = value added per man of private manufacturing, Li = value added per man of labour-intensive industries, Ki = value added per man of capital-intensive industries. Sources: as Fig 7.1

labour productivity growth were linked to various factors: first, the inability to export which meant a reduced market; and second, the rapid and excessive spending of the extra oil income which may have led to the emergence of constraints on productivity growth related to supply-side factors, e.g. infrastructure, intermediate inputs. In this case, the shortage of some intermediate inputs was not the result of overall foreign exchange. The decline in labour productivity growth that occurred in some of the capital-intensive lines may be explained by their greater use of skilled labour which became a scarce factor during 1974-77. Although, as noted earlier, there was some international migration of non-skilled labour, during 1973-77. Likewise, some of the labour-intensive lines, such as textiles and food, may have been affected by the lack of raw materials with low substitution elasticity.

The third factor which affected labour productivity was the disorganised and inefficient allocation of financial resources. As discussed in Chapter 4, some of the manufacturing branches which were favoured by the subsidies policy experienced the sharpest decline in labour productivity during 1973-77. This was the case for textiles and food. It may be related to the granting of abundant credit with no restrictions which led to the emergence of an excessive number of small and inefficient enterprises. This is confirmed by the substantial proliferation of the number of establishments with less than 5 workers in textiles and food during 1974-77. It must be noted that the growth of the number of factories has been taken by Ahluwalia (1994, p. 136) as a proxy for the degree of competition within an industry. According to this author, the higher the number of competitors within an industry, the greater the forces of competition are bound to encourage higher productivity.[11] However, the author observes that it may be the case that the rapid growth of factories could have been caused by a phenomenon of fragmentation which is derived from the existence of distortionary policies launched to achieve regional decentralisation and the granting of protection to the small-scale sector. In the Venezuelan case, through 1973-77 the growth in establishments during 1973-77 essentially reflected a phenomenon of proliferation of small-scale enterprises as a result of the misleading and inefficient policies launched with regards to manufacturing.[12]

Fourth, a positive association is found between the growth of labour productivity and the growth in value added across industries during all the

[11] Ahluwalia mentioned these factors as determinants of TFPG in a study of Indian manufacturing, but it seems that the same factor should affect labour productivity.

[12] See Arrieta (1988).

phases between 1968 and 1994. Despite the fact that the so-called Verdoorn (1949) law does not seem to hold when manufacturing as a whole is analysed because the rapid value-added growth during 1974-77 was accompanied by a substantial fall in labour productivity measured as value added per worker, the correlation coefficient across industries was 89 per cent during this phase and over 70 per cent during the other phases.[13]

As noted in Chapter 6, the problems of inefficiency and low labour productivity in Venezuelan industrialisation during 1960-89 have been seen mainly as a consequence of the excessive protection granted to these sectors, especially through the closed trade regime which led to the absence of international competition. The reinforcement of these policies during 1973-82 appears as a mistake which caused a further decline in labour productivity. If this idea is accurate, it is expected that the productivity of the more protected sectors would be considerably lower than the less protected sectors and that the launching of an import liberalisation policy must have led to a considerable improvement in manufacturing labour productivity. The picture given by Table 7.7 and Fig 7.4 is that this was not the case, the more protected sectors (consumer goods lines) had higher labour productivity growth than the less protected ones (capital and intermediate lines) during 1968-72. It may be argued that this relates to the state-owned nature of some of the intermediate industries. Nonetheless, the only line dominated by the public sector was basic metals, thus this cannot account for these results.

It must be noted that in a study of Indian industrialisation, Ahulawia (1994) suggests that some protectionist policies, such as the granting of licences according to specified values of investments and the high rent on these licences, allowed for an investment capacity far in excess of what could have been considered as adequate in terms of efficiency. For this reason

[13] Own estimations.

some of the more protected sectors may have shown a higher capital-labour ratios, with this variable reflecting the effect of protection. In the Venezuelan case, during the 1960s, the capital and intermediate goods showed higher capital-labour ratios defined as investment per worker, but these lines in general were less protected than the traditional group.

As assessed in Chapter 6, the low labour productivity growth of during the 1960s may be related to the rapid expansion of the capital productive capacity compared to market growth. This imbalance is due to the reduced market size which was linked to the inability to export, the unequal income distribution and the nature of oil revenues. The reduced market appears as an obstacle to further growth and so it becomes a cause of low labour productivity. According to this idea, over the 1960s those industries with the lowest labour productivity growth may have been the same that required a larger market to produce efficiently, such as mechanical and intermediate goods. This seems to be the case of Venezuelan manufacturing as shown by Table 7.7.

Concerning the trends in manufacturing labour productivity during 1983-88, there was no improvement in this variable compared to 1978-82. Better performance of labour productivity took place during 1989-94. It may be tempting to conclude that there is a positive association between labour productivity and the changes in the trade regime which involved a radical import liberalisation policy from 1990. Nevertheless, a qualification must be made: in eleven of the manufacturing lines there was no trend in labour productivity, showing the unstable character of the recovery in this variable over the later years.

Considering the case of textiles, although the sector's labour productivity growth was well above that of manufacturing as a whole during 1968-71, inter-country comparisons show that labour productivity in Venezuelan

Table 7.7 Trend growth in manufacturing labour productivity, 1968-94

ISIC code	Industries	1968-71	74-77	78-82	83-88	89-94
	Labour-intensive industries	4.17	0.66	2.89	1.29	3.75
		0.98	**0.38**	**0.03**	**0.65**	**0.79**
332	Furniture	0.53	0.57	5.53	-2.36	3.36
		0.02	**0.01**	**0.48**	**-0.85**	**0.36**
331	Wood	6.89	-0.94	1.05	-2.17	0.28
		0.54	**0.12**	**0.10**	**0.08**	**0.00**
354-56-90	Other manufacturing	2.01	6.91	-2.08	-4.77	10.44
		0.04	**0.71**	**0.14**	**0.74**	**0.77**
323	Leather products	-2.45	-1.46	0.76	-4.67	7.17
		0.01	**0.21**	**0.03**	**0.74**	**0.22**
322-324	Wearing apparel & footwear	-1.67	-1.38	3.64	-0.47	9.30
		0.30	**0.13**	**0.28**	**0.09**	**0.79**
321	Textiles	7.77	-3.39	1.70	2.96	4.19
		0.94	**0.82**	**0.15**	**0.67**	**0.56**
381	Metal products	8.66	13.48	5.56	0.52	6.31
		0.78	**0.87**	**0.48**	**0.09**	**0.35**
355	Rubber	2.35	-4.43	13.79	6.06	5.06
		0.71	**0.51**	**0.92**	**0.72**	**0.52**
361-62-69	Non-metallic mineral products	5.09	-5.36	4.10	3.90	-9.43
		0.43	**0.62**	**0.51**	**0.57**	**0.69**
	Capital and/or human	1.65	-1.02	3.05	1.54	3.68
	capital-intensive industries	**0.68**	**0.24**	**0.68**	**0.20**	**0.81**
313	Beverages	3.82	3.08	1.27	2.24	1.00
		0.94	**0.43**	**0.09**	**0.16**	**0.03**
314	Tobacco	-7.11	25.35	6.85	3.11	1.35
		0.42	**0.77**	**0.54**	**0.15**	**0.06**
341	Paper and paper products	7.60	6.39	-2.95	4.29	3.38
		0.72	**0.90**	**0.14**	**0.57**	**0.81**
384	Transport equipment	-12.99	-5.98	11.78	5.12	28.02
		0.80	**0.95**	**0.97**	**0.35**	**0.92**
311-312	Food products	5.78	-7.05	0.65	-1.66	1.43
		0.81	**0.76**	**0.11**	**0.09**	**0.25**
371-372	Basic metal products	8.44	-10.01	16.76	6.80	7.63
		0.82	**0.85**	**0.90**	**0.56**	**0.80**
351-352	Chemical products	5.68	0.80	3.35	4.90	-4.61
		0.70	**0.06**	**0.06**	**0.72**	**0.56**
382-383	Mechanical & electrical	1.19	1.91	2.69	3.11	5.92
	Machinery	**0.13**	**0.24**	**0.20**	**0.65**	**0.53**
342	Printing	-4.34	-1.65	0.59	-3.80	13.38
		0.20	**0.01**	**0.01**	**0.37**	**0.75**
300	Private manufacturing	2.54	-0.42	3.46	1.30	3.64
		0.98	**0.10**	**0.09**	**0.25**	**0.90**

Notes: growth rates are the least squares estimates of trend growth. Sources: as Tables 7.1 and 7.2.

textiles and manufacturing as a whole was very low by 1970. Research conducted by UNIDO (1979), found that labour productivity in Venezuelan textiles grew by 4 per cent per year over the 1968-74 period compared to 5.4 per cent in Equator, 6.4 per cent in Zambia and 13.6 per cent in South Korea for the same years. In accordance with the discussion on productivity outlined in the first chapter, the low labour productivity in textiles relates to the limits imposed by the small market size on the expansion of production and to the structural overvaluation of the domestic currency. This helps to explain the lack of competitiveness of Venezuelan manufacturing goods even before the 1970's oil booms.

Through 1974-77, despite the slackening trend in textiles' real value added, employment grew at higher rates in 1973-76 than in 1968-71, with a maximum of 19 per cent growth in 1974. The dynamic behaviour of this variable may be linked to the fact that textiles' real value added increased during 1973-75 as compared to 1968-71 and to the rising number of industrial establishments during 1974-76, especially in small and medium-scale industries, already referred to. The increase in the number of firms was the result of substantial amounts of public credit granted to textiles during 1973-76. The number of textile enterprises with a declared capital of less than Bs5 m. rose from 27 in 1964-68 to 38 in 1974-79, while the increase in the other groups was insignificant.[14] The availability of public credit may have allowed for the rise in the number of firms and employment without a corresponding expansion of real value added due to the inefficient allocation of resources.

It should be noted that labour productivity in this sector grew at high but declining rates between 1969 and 1971. During the post-boom phase (1983-88), despite the considerable expansion of textiles over these years, no substantial improvement in labour productivity took place. Figure 7.4 shows the unstable trend in this variable during the whole of 1983-94.

[14] Source: Arrieta (1981).

7.5 Final remarks

The major conclusions drawn from this chapter are as follows:

(a) Factor-intensity does not seem to be an important factor behind the differences observed in the performance of the manufacturing lines during the 1970s. There were lines within both groups which benefitted from the boom in the short-term while others in both groups showed a disappointing performance over 1974-77.

(b) The analysis of the sources of growth from the demand side suggests that the disruptive effect of real appreciation through import-competition was an all-embracing phenomenon during 1973-77. However, almost all of the lines were able to grow out of the greater home demand. The exceptions were those lines, such as textiles, which were not able to stand external competition.

(c) The analysis of the sources of growth on the supply side suggests that a relevant factor in explaining the different performance across the manufacturing lines relates to the trends in labour productivity growth rather than to their factor intensities. Although a severe decline in labour productivity growth took place in almost all the manufacturing branches, those labour-intensive lines and capital-intensive lines which experienced the milder decline in labour productivity, performed better during 1974-77 compared to 1968-71.

(d) The pattern of growth and structural change within the Venezuelan manufacturing sector during 1973-82 shows some similarities with the trends during 1950-72. The economic policies pursued during 1973-77 reinforced the weaknesses exhibited by industrialisation during 1950-72. In particular, heavy import dependence on capital and intermediate goods was encouraged and despite some expansion of chemicals the progress of the mechanical branches and especially those branches producing capital goods was disappointing. This had negative consequences for industrial inter-linkages, efficiency, the capacity to export and external balances and in general for the long-term feasibility of the economic model.

8. Conclusions

This dissertation has examined Dutch disease and its mechanisms of transmission in Venezuela, as well as the extent to which the problems faced by private manufacturing reflected the disease during the 1970s oil booms. An attempt was made to quantify Dutch disease and the impact of the policy response on industrialisation. Likewise, an exhaustive analysis of Venezuelan private manufacturing, as a whole and at a dissaggregated level, was made by examining the sectoral process and estimating the demand and supply side sources of growth during 1968-94. Attention was drawn to two features of Venezuelan industrialisation namely, the lack of exports and inefficiency. Despite our focus on the 1973-82 years, we also referred extensively to the pre-boom and post-boom phases in order to compare developments in the three phases, especially because Venezuela has been an oil exporting country since 1930.

In assessing the above issues we compiled, organised and processed long time series of important economic variables, some of which were not previously available. The findings of this thesis contribute to the illumination of important aspects of the Venezuelan economy and industrialisation and the links with the oil sector. Some insights on the policy options open to an economy which needs to reverse Dutch disease symptoms are derived. Thus, the conclusions of this thesis are of relevance in disentangling the problems related to Dutch disease and industrialisation in other similar economies.

In what follows the major findings of this dissertation are summarised and the chapter concludes with a section on why industrial policy may have made a difference for the impact of the 1970s oil booms on the Venezuelan economy. It was shown in chapter 2 that the effects of the boom on the real exchange rate are quite in line with the theoretical predictions of the standard Dutch disease model. A real appreciation took place during 1973-77 as a result of the spending effect promoted by expansionary fiscal and monetary policies (absorption). However, real appreciation was mild during 1973-77, with a major fall in this variable (real appreciation) during 1978-82. This came as a result of price inflation which followed the price liberalisation policy applied within the context of the adjustment programme that began in 1978. It was concluded that if the 1973s oil price increase led to a boom phase in Venezuela, by contrast the second oil prices increase of 1979 did not lead to a boom due to the launching of deflationary policies in response to the deterioration of internal and external macroeconomic balances, especially balance of payments deficits. The real appreciation of the domestic currency during 1978-82 was not the result of Dutch disease since domestic demand contracted, but it was the result of the price and trade liberalisation policy which implied that the prices of non-tradables increased more than those of tradables. Finally, the higher real wages during 1978-82 were caused by the institutional settings of wages and not by greater home demand.

Chapter 3 showed that formal estimates of a Dutch disease index indicate the existence of severe Dutch disease symptoms in Venezuela before the 1970s oil booms, in the sense that the actual shares of agriculture and manufacturing in non-oil GDP fell under the Chenery-Syrquin (1975) norms. The inability to export manufacturing goods seems to be related to the Dutch disease which led to the structural overvaluation of the domestic currency. Nevertheless, as regards the 1973-82 phase, although the Dutch disease index worsened for agriculture, this was not the case for manufacturing. Likewise, the findings of this chapter suggest that the mechanisms of transmission predicted by the Dutch disease theory, namely, real appreciation or falling relative prices, increasing real wages and rising interest rates, do not seem to have been of relevance in explaining de-agriculturalisation or the problems of industrialisation in Venezuela during 1973-82. Consideration of the trends in the sectoral relative prices and the econometric estimates suggest that Dutch disease in agriculture during 1973-82 was not the result of real appreciation because there seems to have been a short-term positive association between real appreciation and output for agriculture and manufacturing. At the same time, agriculture showed a favourable trend in relative prices compared to services and manufacturing during 1973-82. An interesting point is that private investment in agriculture increased at higher growth rates than in manufacturing. Concerning the development in real and/or product wages, the upward trend in manufacturing was mild and the real interest rates were low as a part of an easy credit policy. It must be noted that the relative share of agriculture and manufacturing in total private investment declined during 1973-77, but this does not seem to be explained by the movement in relative prices.

By contrast, Dutch disease as a long-term phenomenon seems to be confirmed by the econometric work, which may give support to the idea that real overvaluation sets obstacles to manufacturing development in the long term.

The evidence gave strong support to the hypothesis that the performance of the traded sector, and especially private manufacturing, in Venezuela was largely accounted for by the government policies during 1973-82. This was the topic of the next chapter.

Chapter 4 addressed the policy response to the boom through the consideration and the econometric analysis of the fiscal, financing, investment and exchange rate policies with special reference to dissaggregated private manufacturing. It was shown that these policies were far from being efficient in the sense that: i) the high investment in both tradables and non-tradables did not guarantee long-term growth; ii) some of the less productive lines benefited the most from credits; and, iii) the implementation of resource-based industrialisation was inefficient. Venezuelan manufacturing as a whole and all the 18 lines showed a positive response to expansionary fiscal and monetary policies. Concerning the role of exchange rate policies, a disruptive impact of real appreciation on output is confirmed in the long term for almost all the branches, but not in the short-term with the exceptions of textiles and food which proved to be very positively responsive to real devaluation. Thus, the problems of Venezuelan industrialisation during 1973-77 were not linked to real appreciation. The disruptive effect of real appreciation on Venezuelan industrialisation must be understood in light that this set the obstacles for the development of an export-competitive sector. Finally, the econometric estimates for the investment equation suggest that private manufacturing is greatly responsive to domestic demand and public infrastructure investment. This is of relevance because the adjustment programmes recommend deflationary policies.

Chapter 5 assessed the performance of Venezuelan private manufacturing during 1960-94. A major conclusion of this chapter is that the manufacturing sector benefited from the domestic distribution of oil income during 1940-72. This occurred through the creation of the home market, low income taxation, high public investment and real overvaluation via cheap imported capital and intermediate goods. Nevertheless, Venezuelan manufacturing showed several weaknesses, notably its inefficient nature and the virtual lack of an export-competitive sector. These were features of Venezuelan manufacturing during 1950-72. The evidence suggests that the structural real overvaluation of the domestic currency was conducive to import substitution industrialisation during the 1950s and the mid-1960s, but once the domestic market set limits to industrialisation, the real overvaluation became an obstacle to export and industrial development. We can associate the presence of Dutch disease in Venezuela with the virtual lack of an export-competitive manufacturing sector. In this sense, the accrual of oil revenues during 1973-77 contributed to defering the need to adopt a coherent industrial policy that may have promoted the development of an export-competitive manufacturing sector, thus laying the basis for a more sustainable and less vulnerable economic model. Thus, the weaknesses of the industrial process were reinforced during 1973-82 due to the lack of a coherent industrial policy, with the result that the growth during 1973-77 implied severe external and internal balances, which by 1978 forced the government to launch deflationary policies, leading to recession in the non-oil economy. Therefore although private manufacturing exhibited some investment effort during 1973-77, this was not able to sustain output growth once oil revenues fell.

Through 1983-88 several adjustment programmes were applied including a major real devaluation. Nevertheless, despite the vulnerability of the economy to falling oil revenues no effort was made to apply a coherent industrial policy that could have deepened import substitution and encouraged exports. It must be noted that the scanty progress of manufacturing exports following the sharp fall in oil revenues and the disappearence of the structural real overvaluation during 1983-88 and even in the early 1990s suggests that, concerning the lack of manufacturing exports, Dutch disease was not reversed in the post-boom phase despite real devaluation. This must be a warning against the adequacy of the adjustment programmes recommended by the 'Washington consensus', which only rely on devaluation, financial liberalisation and labour market reforms to reverse Dutch disease, especially in Venezuela. Indeed some evidence suggests that the Dutch disease effect, understood as a fall in the relative share of agriculture and manufacturing in non-oil GDP, have been the outcome of the neo-liberal policies launched in the 1990s. This suggests that the problems of Venezuelan industrialisation were not exclusively linked to the accrual and domestic distribution of oil revenues or the real appreciation of the domestic currency as the Dutch disease and the resource curse thesis predict, but to the inefficient economic policies launched.

Chapter 6 showed that according to the estimates of the sources of manufacturing growth on the demand side, the contribution of import substitution and exports to manufacturing growth were negative during 1973-77. However, the sector benefited from the greater home demand, which was the only source of manufacturing growth during 1973-77. The 1973 oil boom seems to have disrupted manufacturing through import competition and fall in the already insignificant level of exports via real appreciation and home demand. Manufacturing growth during 1973-77 is explained by the positive impact of greater domestic demand and of the short-term effect of real appreciation.

The estimate of the supply side sources of growth suggests that the 1973-77 years were characterised by a sharp decline in labour productivity and TFPG in Venezuela's private manufacturing sector. It must be noted that the low productivity was a feature of Venezuelan industrialisation during the 1960s. This development seems to be associated to the lack of an external market, which added to the unequal income distribution and implied that sectoral production was inefficient because the productive capacity could not be expanded more due to the reduced market in spite of the significant oil revenues. This led to low labour productivity growth. During 1973-77, the non-adoption of coherent industrial policies which could have promoted exports implied that this problem was reinforced. In addition, the rapid domestic distribution of oil revenues seems to have exceeded the capital absorptive capacity of the economy defined as the availability of skilled labour and management capacities. This may be a factor to consider when explaining the sharp fall which occurred in labour productivity during 1973-77.

Chapter 7 presented the dissaggregated performance of Venezuelan industrialisation during 1968-94. Attention was drawn to the factor intensities of the different lines. The major finding of this chapter is that an important factor behind the performance across manufacturing seems to have been the trend in labour productivity growth, while factor intensity does not seem to have played a key role. Those lines which performed better in terms of output growth were the same that experienced the less severe decline in labour productivity growth. The exercise for identifying the demand side sources of growth confirms that, apart from textiles, all the branches were able to benefit from the greater home demand in the short-term, but experienced a reverse in import-substitution and export growth. An interesting finding of this chapter is that some of the lines which experienced poorer performance during 1973-77, such as textiles and food, were those that benefited the most from the credit granted by the state. This points to the efficiency in the implementation of policies.

Finally, the hypothesis regarding the weakness of the industrialisation process, such as the lack of diversification and dependence upon imported capital and intermediate goods were reinforced during 1973-82, was confirmed.

The Role of an industrial strategy to reverse Dutch disease in Venezuela

One of the findings of this dissertation is that the performance of Venezuelan industrialisation during 1973-82 is not entirely explained by the Dutch disease and resource curse theses. The evidence presented in this dissertation suggests that the impact of the 1970s oil booms on Venezuelan industrialisation was not the outcome of the automatic price adjustment mechanism predicted by the Dutch disease model or it was not exclusively the result of the structural overvaluation of the domestic currency as suggested by the resource curse thesis. It must also be noted that the findings of this dissertation do not give support to the argument according to which import liberalisation and devaluationist policies on their own can be the answer to the problems of industrialisation in oil-exporting countries or the cure to Dutch disease. By contrast, one of our main conclusions is that the impact of the 1970s oil booms on Venezuelan private manufacturing is largely related to the policy response at the macro and micro levels, and especially to the lack of an adequate industrial strategy. As shown in chapter 4, the structural overvaluation of the domestic currency in Venezuela was functional to some extent to manufacturing development under import substitution during 1936- and the middle 1960s. Nevertheless, evidence was shown that by the middle 1960s the small size of the domestic market was setting obstacles to further industrial development. In this context real overvaluation exerted a negative impact of manufacturing by contributing to delay the adoption of export promotion policies and in general, of a more sound industrial strategy. In our view, if there has been conditions by the late 1960s to adopt a coherent economy and industrial strategy, the Venezuelan economy has not gone into a crisis by 1978. Nevertheless, we have doubts about the feasibility of this possibility given the fact that this would have required some sterilisation of the oil revenues and the setting of a competitive real exchange rate as one of the multiple factors required for the launching of a successful industrialisation. These measures, of course, lacked popularity because these would have implied that oil revenues were not transferred to the private sector, or to the main beneficiaries of the domestic distribution of oil revenues until the 1960s. As a result the oil revenues were used partly to invest in import substitution industries, in public-owned resource-based manufacturing, in consumption and no less importantly, in financing the 'outflow of capital' of the private sector during 1973-82. This, in our view, meant the privatisation of the oil revenues that favoured capital, which transferred these revenues to their external accounts.

In what follows, we want to outline some ideas on the types of economic policies open to developing oil-exporting countries not only during a boom, but during a post-boom phase and in a longer-term perspective.

The findings on the impact of oil revenues on Venezuelan industrialisation during the 1970s and during 1960-94 suggest that a considerable effort needs to be made to promote private manufacturing. The availability of substantial oil revenues until 1982 did not lead to a sustainable path of growth or industrialisation. This, in our view, is essentially related to the lack of coherent industrial and macroeconomic policies, which could have set the basis for emergence of a non-oil export competitive manufacturing or agricultural sector. As shown, by 1970, unlike other Latin American countries, Venezuela virtually lacked an export-competitive private manufacturing sector and no export promotion effort which addressed the private sector has been launched. This, in our view, is partly linked to the nature of the economic model that prevailed until the early 1980s, which relied upon the domestic distribution of substantial oil revenues (defined as an income which is not the result of the domestic productive effort). Within this model the structural overvaluation of the domestic currency was one of the main mechanisms of distribution of oil revenues. Real overvaluation was beneficial not only to capital but to workers through the availability of cheap imported consumer goods. This in our view, is an important factor in explaining the non-existence of manufacturing exports in Venezuela. In this sense the warning of the resource curse thesis on real appreciation of the domestic currency seems to be correct. However, we disagree with Auty on the central role given by the author to devaluation policies in order to promote exports. As it has been shown by several studies of successful cases of industrialisation (e.g. East Asia) exchange rate policies did not play a major role in increasing manufacturing exports.[1] In the face of serious production inefficiencies resulting from the lack of appropriate industrial policies, the pursue of a sound exchange rate policy on its own would not be sufficient to promote exports

As Lall (1991, 1993) argues the causes of successful industrialisation cannot be associated to only one factor, but it has to do with a combination of multiple factors which interact with each other in several ways. To explain successful industrialisation in terms of one factor such as outward orientation or the existence of free market is a mistake which could lead to misunderstand the reality and drawing inadequate policies. For Lall the adoption of neo-liberal and the strong incentives-based policies has led to the lack of attention to the importance of capabilities and institutional factors and to overlook the

[1] Amsden ob. cit; Chang ob. cit.

role of the state given the market failures in developing capabilities, both functionally and selectively.

Lall argues that an industrial strategy depends on the interplay of several factors, namely, incentives, capabilities and institutions, at the micro or firm level and at the national level.

By referring to the to the micro or firm level, Lall insists on the fact that efficiency at a firm level requires capabilities, that is to say, specific knowledge and skills to technology and organisation on the part of the firms. (Lall, 1990, p. 123-124). When industries are setting up, the necessary capabilities do not exist within the firm. Thus if these capabilities are not offered by the market they need to be generated by the firm itself, but this is not an easy task. The efficiency at a firm level relates to its ability economically mobilise external capabilities, to integrate them into its organisation, and to produce its own set of technological, managerial and other capabilities.[2]

Capabilities can be classified as follows: entrepreneurial, managerial, and technological. Likewise, Lall (1987) presents a functional classification of technological capabilities required to setting up and operating an enterprise. The functions of technological capabilities relate to three general sets of activities: investment, production and linkages.

Investment capabilities are defined as the skills needed to identify, prepare, obtain technology for design, construct equip, staff, and commission a new facility (or expansion) (Lall 126). Production capabilities refers to basic skills like quality control, operation and maintenance, adaptation, improvement or equipment stretching, research, design and innovation. Linkage capabilities are the skills required to transmit information, skills and technologies to and receive them from, component or raw material suppliers, sub-contrators, consultants, service firms, and technology institutions.

According to Lall a firm must master those technical functions that are essential to its efficient performance, while other capabilities can be bought from other agents. The author, though, warns about the fact that the excessive reliance upon other agents for innovations can inhibit technological progress The acquisition of firm level capabilities involves the interaction of diverse factors which are internal and external to the firm namely, incentives, investment and external support. Incentives for undertaking the building of capabilities relates to the need to compete in product markets, to adapt to local circumstances and meet official regulations. The most important incentives in the long term relate to competition and movement in the technological frontier (see Katz, 1987 and Lall, 1987). Nevertheless, it must be stressed that the argument for competition, especially in the international market, must be qualified in the sense that this is bound to exert some positive effects on learning and innovation, but it can become a negative factor when applied without criteria. For instance, it is argued that given the difficulties such as the higher cost-lower quality that are common to the process of developing new capabilities, a radical exposure to competition from mature firms can destroy a new entrant. This is a relevant aspect because in much of the theory, the learning period of building up capabilities is brief, costless, foreseeable and quite similar across different activities. This analysis has led to the policy prescriptions according to which the level of protection in developing countries should be low because the range of capabilities to be acquired is small, brief because the process is short and predictable and uniform across all industries by assumption the process of maturity is the same in all technologies (Lall, 1991, p. 128, 129).

The experience of many Developing countries suggests that the process of acquisition of capabilities is much more complex than that suggested by the orthodox approach. This process depends on an additional effort from the firm and on the interaction between and coordination with a host of other economic agents. It does not only relate to static efficiency (i.e., best practice level of operation), but it also refers to dynamic efficiency in the sense that it

[2] Scholars who have assessed the topic of industrial capabilities are Lall, 1987; Pack and Wesphal,

is a must to broaden and deepen the original capabilities. Furthermore, the maturing process differs according to the technology because there are differences in the levels and complexity involved.

Furthermore, it seems that protection must vary according to industry and country and even more importantly, protection is not sufficient to achieve maturity. It can be said that intervention is required and that protection may be one element of the intervention package. This will also consider some competitive inducements to capability acquisition and the development of external support.

It is obvious that for Venezuela, which has a private manufacturing sector in its early stage of development, the need of a sound and coherent industrial policy is a must and the policies suggested by Lall must be taken into consideration when designing an industrial strategy. Special attention should be drawn to the fact that the building up of capabilities in manufacturing requires the creation of externalities and the providing of some degree of selective protection to the manufacturing enterprises. The launching of policies that provides protection to help firms to bear their initial costs before they became mature appears as a must. We want to emphasise this point because the pursue of liberal policies in Venezuela from 1989 which implied radical import liberalisation proved to be disastrous leading to de-industrialisation.

During the 1970s oil booms, no effort was made to redirect the industrial strategy and thus the rapid domestic distribution of oil revenues entailed the old import substitution strategy and inefficiencies.

It seems that although infrastructural spending was positively related to private manufacturing, this is not sufficient to guarantee long-term growth.

Likewise, although a short-term positive effect of real appreciation on private investment manufacturing via the low cost of imported capital is found, this

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1986).

effect is reversed in the longer term. It must be noted that the relative share of manufacturing in non-oil private investment fell below that of services during 1968-77 and there is not evidence that this trend was reversed during 1988-94.

Here it is argued that the excessive and indiscriminate protection of the domestic industries brought about negative effects, but the alternative cannot be a non-interventionist free-trade policy. An adequate strategy for Venezuela may be to implement a new industrial strategy that fosters the acquisition of technical and organisational skills and combines import substitution and export promotion. In our view, a suitable strategy for Venezuela at present and within the context of falling oil revenues may be to redirect efforts to encourage non-oil exports within a medium and long-term perspective. In the meantime, oil and iron exports must provide the foreign currency necessary for the acquisition of imports and to deal with the severe social problems. Likewise, the strong dependence of Venezuelan manufacturing on imported capital and intermediate goods calls for the need to deepen import substitution industrialisation in these branches. Likewise, manufacturing lines with proven potential for export, such as chemicals, must be encouraged. In sum, an adequate industrial strategy should point to a set of industries and provide incentives to import and export conditional on productivity improvement. This strategy necessarily must be accompanied by careful technological, human resource and infrastructural policies. An option open to Venezuela is also represented by the export-promotion of some agricultural sectors.

In sum, our estimates suggest that private investment in manufacturing is responsive to domestic demand and infrastructural public spending in the short and long term. Nevertheless, despite the fact that these two factors exerted some positive impact on private manufacturing during 1973-77, this investment was not able to drive sustainable growth and by 1979 once the home demand and public spending declined, private manufacturing investment collapsed together with the non-oil economy. This seems to indicate that in order to revive private manufacturing in Venezuela radical changes in the economic and industrial strategy must be made. This is the immediate task in Venezuela, an economy which seems to resist making a shift from being a mono-export economy to a more diversified one even in the 1990s.

We do not claim that we have provided a complete answer to the problems of Venezuelan private industrialisation, but in our view, some key aspects of this problem have been raised. Finally, it must be noted that one of the contributions of this dissertation is itself the highlighting of specific issues, which may be worth further research such as the role of technology policies, the role of trade and human resource policies in the setting of an adequate industrial strategy for Venezuela, as well as a more detailed analysis of the determinants of private investment.

Methodological Appendix

Chapter 2: Estimates of the indices of the real exchange rate[1]

1. The formula for the index of the real effective exchange rate for imports is as follows:

$$MWREr = \sum_{i=1}^{n} \left(REr \cdot MW_{Bi} \right)$$

where:

$$REr = \frac{NEr_{Bi}}{RPI_{Bi}}$$

$$MW_{Bi} = \frac{M_{Bi}}{\sum_{j=1}^{m} M_{Bi}}$$

NEr_{Bi} = index of the exchange rate between the currency of country B (under analysis) and that of country i; e.g. prices of one unit of currency i in terms of currency B, or number of units of the currency of country B per US dollar, number of units of currency of country i in terms of liras.

RPI_{Bi} = index of the ratio of the price index of country B to the price index of country i.

REr_{Bi} = index of the exchange rate between the currency of country B and that of country i, divided by the index of the relative price between country B and i.

M_{Bi} = imports of country B from country i.

[1] This procedure was followed by ECLA (1982).

$\sum_{j=1}^{m} M_{Bj}$ = total imports of country B.

n = main trade partners for imports in country B.

m = total number of countries from which country B imports

2. The formula for the index of effective real exchange rate for exports is as follows:

$$EWREr = \sum_{i=1}^{n} \left(REr_{Bi} \cdot XW_{Bi} \right)$$

in which

$$REr = \frac{NEr_{Bi}}{RPI_{Bi}}$$

$$XW_{Bi} = \frac{X_{Bi}}{\sum_{j=1}^{m} X_{Bi}}$$

where: NEr_{Bi} and RPI_{Bi}, correspond exactly with the definitions given in 1.

X_{Bi} = the exports of country B to country i.

$\sum_{j=1}^{m} X_{Bj}$ = total exports of country B.

n = trade partners for exports

m = total number of countries to which country B exports.

3. The formula for the trade-weighted index is as follows:

$$TWREr = MWREr \cdot M + \frac{X}{(M + X)}$$

4. In order to obtain the series of the nominal exchange rate (NEr) the supplement on exchange rates of the IMF was used. In this way, it was possible to estimate exchange rates between the currency of the country under analysis and the currency of the other countries.

5. The price indices used were the consumer price index and the wholesale price index. In this way, different indices of the real exchange rates were estimated (see Table 2.a). The source of data was the IMF International Financial Statistics.

6. The weightings used to estimate the real effective exchange rate indices for exports and imports are the average share of the countries in question in the exports or imports of the country under analysis (Venezuela), in every year (see Tables 2.e and 2.f).

7. The base year is 1980 = 100.

8. Series of the MWRER and XWRER were estimated using different weights, e.g. varying them every year, and with two weights, 1958 and 1975.

Table 2.a Measures of the exchange rate, Venezuela, (1980 = 100)

Year	(1) NEr	(2) REr	(3) VMWREr	(4) FMWREr	(5) VXWREr	(6)FXWREr	(7) REr	(8)VMWREr	(9)FMWREr
1968	104.83	93.90	90.78	111.74	92.31	102.23	108.21	104.62	105.47
1969	104.82	95.30	90.34	111.74	89.92	102.72	111.37	105.57	108.47
1970	104.79	96.44	91.28	111.74	96.53	104.82	114.99	108.85	113.19
1971	104.85	96.42	81.62	111.74	100.13	106.54	115.88	98.10	115.35
1972	102.50	95.75	94.99	106.83	100.85	94.07	115.09	114.18	116.33
1973	100.28	101.74	95.71	103.75	95.61	99.85	119.10	112.05	121.77
1974	99.83	111.09	108.16	113.72	112.62	109.81	120.10	116.93	123.26
1975	99.83	110.14	106.51	106.83	111.89	109.92	115.12	111.33	111.66
1976	99.94	107.31	100.09	102.52	105.51	106.66	111.74	104.21	106.75
1977	100.00	105.63	99.07	102.11	110.37	104.98	105.33	98.80	101.82
1978	100.00	106.35	115.51	106.04	106.90	106.83	105.79	114.90	105.48
1979	100.00	106.49	104.17	106.81	108.47	106.90	107.54	105.21	107.87
1980	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1981	100.00	94.02	88.80	88.61	87.64	91.94	94.79	89.53	89.34
1982	100.00	87.46	78.63	80.26	85.87	85.34	89.10	80.11	81.78
1983	100.12	83.39	74.19	75.58	79.85	80.58	83.97	74.71	76.11
1984	163.48	124.31	109.50	110.43	122.79	118.77	119.68	105.42	106.31
1985	186.78	118.74	99.98	105.38	95.48	855.19	110.42	94.70	97.99
1986	210.08	111.37	-	-	64.07	-	99.19	-	-
1987	233.37	205.13	-	-	150.97	-	132.69	-	-
1988	256.67	213.36	-	-	129.62	-	114.52	-	-
1989	279.97	535.41	-	-	355.23	-	142.88	-	-
1990	303.26	750.00	-	-	-	-	153.70	-	-
1991	326.56	909.51	-	-	-	-	142.88	-	-

Notes: A fall in each real exchange rate means an appreciation of the domestic currency. (1) Ner = nominal exchange rate (Bs/$); (2) REr = bilateral real exchange rate defined as the nominal exchange rate index divided by the relative price index = the Venezuelan consumer price index (CPI) divided by the U. S. wholesale price index (WPI); (3) VMWREr = real exchange indices ER/dCPI/fWPI) vis a vis the main trading partners multiplied by the annual imports weights; (4) FMWRE = fixed import-weighted real exchange rate. As in 3 with 1958 and 1975 imports weights; correlation coefficient between (3) and (4) is 0.81; (5) VXWREr = varying export-weighted real exchange rate. As in (2) exports weights; (6) FXWREr = export weighted real exchange rate. As in 5 with 1958 and 1975 export weights, (7) REr = bilateral real exchange rate defined as the nominal exchange rate index divided by the relative price index which is defined as the domestic wholesale price index (dWPI) divided by the U.S. wholesale price index (WPI); (8) VMWREr = varying import-weighed real exchange rate. This is defined as the real exchange indices (REr/dWPI/fWPI) vis a vis the main trading partners multiplied by the annual import weights; (9) FMWREr = import weighted real exchange rate. As in (7) with 1958 and 1975 import weights. correlation coefficient between (8) and (9) is 0.88. Sources: International Monetary Fund, Supplements of Exchange Rates and Prices, (various issues). International Financial Statistics; trade and import weights: Direction of Trade, IMF (various issues)

Table 2.b Nominal exchange rates, Venezuela

	Venezuelan bolivares per:								
Annual Average	USA dollar	Canada dollar	Japan yen	Germany mark	Spain peseta	France franc	Italy lira	Unit.Kingdom p.sterling	Nether. Antilles guilder
1968	4.500	1.078	360.550	3.992	69.682	4.951	623.400	0.418	1.879
1969	4.500	1.077	358.370	3.925	69.851	5.199	627.320	0.418	1.888
1970	4.498	1.044	358.070	3.647	69.700	5.528	627.200	0.417	1.874
1971	4.501	1.010	347.860	3.482	69.230	5.512	618.400	0.409	1.800
1972	4.400	0.990	303.170	3.189	64.270	5.050	583.200	0.400	1.800
1973	4.305	1.000	271.700	2.673	58.260	4.458	583.000	0.408	1.800
1974	4.285	0.978	292.080	2.588	57.690	4.814	650.300	0.428	1.800
1975	4.285	1.017	296.790	2.460	57.410	4.286	652.800	0.452	1.800
1976	4.290	0.986	296.550	2.518	66.900	4.779	832.300	0.557	1.800
1977	4.293	1.064	268.510	2.322	75.960	4.914	882.400	0.573	1.800
1978	4.293	1.141	210.440	2.009	76.670	4.513	848.700	0.522	1.800
1979	4.293	1.171	219.140	1.833	67.130	4.254	830.900	0.472	1.800
1980	4.293	1.169	226.740	1.818	71.700	4.226	856.400	0.430	1.800
1981	4.293	1.199	220.540	2.260	92.320	5.435	1136.800	0.498	1.800
1982	4.293	1.234	249.080	2.427	109.860	6.572	1352.500	0.572	1.800
1983	4.298	1.232	237.510	2.553	143.430	7.621	1518.800	0.660	1.800
1984	7.018	1.295	237.520	2.846	160.760	8.739	1757.000	0.752	1.800
1985	7.500	1.366	238.540	2.944	170.400	8.985	1909.400	0.771	1.800
1986	8.083	1.390	168.520	2.172	140.050	6.926	1490.800	0.682	1.800
1987	14.500	1.326	144.640	1.797	123.480	6.011	1296.100	0.610	1.800
1988	14.500	1.231	128.150	1.756	116.490	5.957	1301.600	0.561	1.800
1989	34.681	1.184	137.960	1.880	118.380	6.380	1372.100	0.610	1.790
1990	46.900	1.167	144.790	1.616	101.930	5.445	1198.100	0.560	1.790
1991	56.816	1.146	134.710	1.660	103.910	5.642	1240.600	0.565	1.790

Source : IMF, supplement of exchange rates and prices.

Table 2.c Nominal exchange rate indexes, Venezuela

Annual Averages	US dollar	Canadian dollar	Japanese yen	Deutch Mark	Spanish Peseta	French franc	Italian lira	Pound sterling	Netherland Antilles guilder
1958	78.04	94.01	49.18	33.84	124.63	78.36	106.99	94.36	74.81
1959	78.04	95.13	49.16	33.94	111.63	67.24	107.60	94.32	74.98
1960	78.03	94.08	49.16	34.01	93.07	67.24	107.63	94.28	75.04
1961	78.04	90.06	48.99	35.30	93.13	67.23	107.60	94.10	74.85
1962	78.04	85.37	49.04	35.48	93.42	67.29	107.65	94.28	74.91
1963	78.04	84.60	48.95	35.58	93.44	67.41	107.51	94.03	74.91
1964	104.86	113.67	65.68	47.95	125.57	90.42	143.80	126.00	100.88
1965	104.83	113.70	65.75	47.71	125.49	90.38	143.66	126.13	100.31
1966	104.83	113.77	65.60	47.65	125.42	90.77	143.76	126.00	100.21
1967	104.84	113.63	65.64	47.80	123.07	90.04	143.85	123.68	100.75
1968	104.83	113.75	65.93	47.73	107.87	89.47	144.01	107.98	100.42
1969	104.82	113.82	66.32	48.54	107.60	85.20	143.10	107.82	99.94
1970	104.79	117.34	66.36	52.24	107.80	80.11	143.09	108.04	100.66
1971	104.85	121.40	68.34	54.73	108.59	80.38	145.20	110.25	104.85
1972	102.50	121.07	76.66	58.43	114.35	85.78	150.52	110.16	102.50
1973	100.28	117.24	83.69	68.20	123.41	95.06	147.31	105.72	100.28
1974	99.83	119.34	77.49	70.12	124.07	87.62	131.46	100.42	99.83
1975	99.83	114.74	76.26	73.75	124.67	98.41	130.96	95.02	99.83
1976	99.94	118.51	76.41	72.14	107.11	88.37	102.83	77.27	99.94
1977	100.00	109.94	84.44	78.27	94.39	86.00	97.05	75.06	100.00
1978	100.00	102.50	107.75	90.50	93.52	93.63	100.91	82.51	100.00
1979	100.00	99.81	103.47	99.17	106.81	99.32	103.07	91.13	100.00
1980	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1981	100.00	97.52	102.81	80.43	77.66	77.75	75.33	86.47	100.00
1982	100.00	94.77	91.03	74.91	65.26	64.30	63.32	75.17	100.00
1983	100.12	94.98	95.58	71.27	50.05	55.51	56.45	65.30	100.12
1984	163.48	147.59	156.06	104.42	72.91	79.05	79.69	93.57	163.48
1985	186.78	149.61	-	107.88	73.52	82.17	78.37	97.46	174.72
1986	210.08	158.46	-	157.63	96.41	114.89	108.18	118.87	188.31
1987	233.37	297.85	-	341.61	196.15	237.48	223.20	238.22	337.80
1988	256.67	320.92	-	349.63	207.92	239.62	222.26	258.93	337.80
1989	279.97	797.84	-	781.17	489.35	535.11	504.28	570.06	812.46
1990	303.26	1094.85	-	1229.20	768.56	847.87	780.99	839.07	1098.71
1991	326.56	1350.76	-	1449.79	913.32	991.31	913.70	1007.76	1331.01

Sources: as Table 2ª.

Table 2.d Relative prices: Venezuela CPI /main trade partners WPI (1980=100)

Year	USA	Canada	Japan	Germany	Spain	France	Italy	U. Kingdom	Nether. Antilles
1968	108.75	114.13	96.06	72.73	149.22	98.31	185.92	151.17	109.78
1969	107.06	112.39	97.99	72.85	143.72	96.59	183.82	147.29	108.53
1970	98.57	105.07	88.18	71.16	135.67	87.71	163.52	143.14	104.40
1971	89.86	95.65	72.55	67.94	124.34	73.54	125.80	125.51	94.80
1972	90.63	94.71	77.62	71.58	125.61	85.88	127.79	112.43	90.35
1973	93.13	96.97	79.57	74.26	119.43	86.17	111.26	104.14	92.45
1974	94.67	96.96	84.18	77.94	107.14	87.97	102.79	94.94	94.41
1975	94.02	95.12	92.60	82.58	98.58	90.31	101.59	92.60	93.54
1976	93.91	93.37	96.89	88.45	96.67	89.51	98.75	93.80	94.34
1977	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1978	106.36	105.30	114.43	107.64	100.38	104.54	99.52	105.87	103.42
1979	114.34	108.96	123.32	111.54	98.12	103.22	95.83	107.85	106.95
1980	120.06	111.91	134.10	116.84	91.30	98.83	92.86	108.77	110.54
1981	131.51	120.64	150.71	127.32	91.26	97.85	94.38	114.89	121.41
1982	147.14	130.96	169.92	138.69	94.19	104.81	97.95	121.28	
1983	169.08	-	-	-	-	-	-	-	-
1984	164.68	-	-	-	-	-	-	-	-
1985	158.32	-	-	-	-	-	-	-	-
1986	150.90	-	-	-	-	-	-	-	-
1987	145.68	-	-	-	-	-	-	-	-
1988	145.53	-	-	-	-	-	-	-	-
1989	383.54	-	-	-	-	-	-	-	-
1990	512.57	-	-	-	-	-	-	-	-
1991	659.62	-	-	-	-	-	-	-	-

Sources: IMF Supplement on Prices (various issues).

Table 2.e Venezuelan relative prices: domestic WPI/main trade partners WPI (1980=100)

year	USA	Canada	Japan	Germany	Spain	France	Italy	United Kingdom	Netherlands Antilles
1968	90.48	94.96	79.92	60.51	124.15	81.80	154.69	125.78	91.34
1969	89.06	93.49	81.52	60.61	119.56	80.36	152.92	122.53	90.29
1970	84.20	89.75	75.32	60.78	115.88	74.92	139.67	122.27	89.18
1971	83.12	88.47	67.10	62.84	115.01	68.03	116.36	116.09	87.69
1972	86.71	90.62	74.26	68.49	120.18	82.16	122.26	107.56	86.45
1973	89.44	93.13	76.42	71.32	114.71	82.76	106.86	100.01	88.79
1974	94.94	97.23	84.42	78.16	107.44	88.22	103.08	95.20	94.68
1975	94.53	95.63	93.09	83.02	99.11	90.80	102.13	93.09	94.04
1976	92.98	92.46	95.94	87.59	95.72	88.63	97.78	92.88	93.41
1977	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1978	105.49	104.44	113.50	106.76	99.56	103.69	98.71	105.01	102.58
1979	112.23	106.94	121.04	109.47	96.31	101.31	94.06	105.86	104.97
1980	119.22	111.14	133.17	116.03	90.66	98.15	92.22	108.01	109.77
1981	136.60	125.31	156.54	132.25	94.79	101.64	98.03	119.33	126.11
1982	158.24	140.84	182.73	149.15	101.29	112.72	105.34	130.43	#¡DIV/0!
1983	120.11	111.96	134.16	116.89	91.34	98.88	92.91	108.81	110.59
1984	131.67	120.78	150.89	127.47	91.37	97.97	94.49	115.02	121.56
1985	147.26	131.06	170.06	138.81	94.26	104.90	98.03	121.38	

Sources: IMF Supplement on Prices, (various issues).

Table 2.f Import weights, Venezuela

Year	USA	Canada	Japan	Germany	Spain	France	Italy	United Kingdom	Netherlands Antilles	Subtotal	Others	Total
68	50.4	4.6	5.7	8.6	1.3	2.8	5.2	6.5	1.0	80.8	19.2	100
69	49.3	4.5	6.0	9.4	1.3	3.2	4.6	5.4	0.6	78.5	21.5	100
70	48.5	4.2	6.9	8.9	1.6	3.0	4.9	5.1	0.3	77.0	23.0	100
71	38.3	5.9	7.9	8.5	1.9	3.9	4.7	4.3	0.1	68.2	31.8	100
72	42.9	6.9	7.5	10.3	2.2	3.9	5.8	4.9	0.0	77.8	22.2	100
73	42.0	2.9	8.6	13.1	1.7	3.3	4.0	3.6	0.1	73.8	26.2	100
74	47.6	2.3	8.3	8.9	2.0	3.0	4.2	3.2	0.3	73.4	26.6	100
75	47.7	2.8	9.5	8.1	2.3	3.0	5.7	3.5	-	75.2	24.8	100
76	44.8	2.8	8.0	9.7	2.3	2.4	5.6	3.2	-	73.1	26.9	100
77	39.7	2.9	8.7	12.0	2.7	2.1	6.0	2.8	-	70.9	29.1	100
78	50.8	3.9	11.0	11.2	3.8	4.3	6.2	4.5	-	86.8	13.2	100
79	46.1	4.2	11.7	7.0	3.5	2.6	4.1	2.9	0.7	73.2	26.8	100
80	47.8	4.8	8.2	6.8	3.0	3.0	4.2	2.9	0.8	75.0	25.0	100
81	48.3	4.7	8.0	6.3	3.0	3.0	4.0	2.8	0.7	74.9	25.1	100
82	43.6	4.6	8.0	4.7	2.9	3.8	7.2	2.2	0.8	73.8	26.2	100
83	47.9	4.2	9.8	4.3	2.8	4.3	5.6	2.2	1.5	83.3	16.7	100
84	50.1	3.2	6.0	4.6	2.5	4.3	6.0	2.0	1.1	84.5	15.5	100
85	47.5	3.8	5.2	5.7	2.5	3.5	4.3	3.0	0.8	81.1	18.9	100
86	45.9	2.5	5.7	7.4	2.5	4.3	4.7	4.1	-	82.8	17.2	100
87	44.6	2.7	6.9	8.6	2.6	3.5	5.0	3.4	-	80.8	19.2	100
88	42.6	3.2	6.1	9.1	2.6	3.3	6.1	2.8	-	79.9	20.1	100
89	44.6	2.2	5.4	7.9	2.2	2.9	7.0	2.9	-	78.0	22.0	100
90	46.7	2.9	4.1	9.9	2.2	3.5	4.8	3.0	-	80.7	19.3	100
91	49.4	3.8	3.9	6.4	2.7	2.8	5.5	3.1	-	82.1	17.9	100

Source: International Monetary Fund, Direction of Trade, various issues.

Table 2.g Export weights, Venezuela

Year	USA	Canada	Japan	Germany	Spain	France	Italy	United Kingdom	Netherlands Antilles	Subtotal	Others	Total
1968	32.69	12.07	1.42	1.84	2.25	1.36	1.59	7.09	19.58	82.44	17.56	100
1969	33.53	11.78	1.98	1.63	1.54	1.27	1.65	5.12	19.53	78.56	21.44	100
1970	37.94	11.22	0.74	1.76	1.23	1.55	1.33	4.81	20.05	82.5	17.5	100
1971	36.91	11.65	0.76	2.69	0.77	1.38	1.59	5.17	21.83	84.5	15.5	100
1972	34.87	12.54	0.46	1.25	0.83	1.57	1.25	3.97	25.46	83.56	16.44	100
1973	38.09	11.82	0.58	0.98	0.76	1.19	0.96	2.68	16.93	75.2	24.8	100
1974	38.43	12.24	0.43	1.13	1.11	1.01	0.95	2.79	21.39	80.89	19.11	100
1975	33.86	12.43	0.4	1.39	1.15	0.8	1.43	3.84	23.69	79.98	20.02	100
1976	32.28	13.25	0.31	1.31	0.91	0.8	2.09	2.06	22.67	76.85	23.15	100
1977	42.89	12.38	0.37	0.79	0.98	0.83	1.71	1.27	19.79	82.55	17.45	100
1978	38.36	10.76	0.46	0.66	1.81	0.87	2.24	1.27	22.08	81.03	18.97	100
1979	37.3	10.1	0.38	0.93	2.35	1.07	2.45	2.45	21.71	80.96	19.04	100
1980	27.75	9.2	1.01	1.05	3.63	1.78	5.83	1.17	23.83	81.3	18.7	100
1981	25.57	9.55	3.54	0.95	3.16	2.3	7	0.95	21.54	79.59	20.41	100
1982	26.93	8.79	3.9	2.67	2.01	1.83	5.18	1.33	25.75	84.11	15.89	100
1983	31.41	5.49	3.91	7.45	1.26	1.66	4.63	1.69	20.76	82.16	17.84	100
1984	39.96	6.06	3.45	5.68	0.99	1.13	4.11	1.89	17.99	83.98	16.02	100
1985	45.99	5.05	2.73	4.27	1.58	1.17	5.23	1.71	17.7	87.76	12.24	100
1986	44.75	3.23	2.92	5.79	0.49	1.59	1.75	2.41	0	64.15	35.85	100
1987	57.24	3.09	3.32	5.48	0.33	1.02	1.8	1.43	11.55	83.85	16.15	100
1988	47.25	2.83	0.53	4.37	0.42	0.71	0.95	1.08	0	63.47	36.53	100
1989	51.6	3.12	4.4	4.38	1.08	0.68	0.57	1.11	7.79	76.35	23.65	100
1990	51.54	2.64	4	3.67	0.8	0.92	1.06	0.94	0	66.3	33.7	100
1991	50.73	2.31	2.8	4.27	1.08	1.34	0.81	1.03	2.72	67.68	32.32	100

Source: International Monetary Fund, Direction of Trade, various issues.

Chapter 3

Table 3 a Dutch disease index, Chenery-Syrquin (1975) norm

	Dutch disease index			Incremental Dutch disease index		
Year	Agriculture	Manufacturing	Traded	Agriculture	Manufacturing	Traded
1966	8.8	15.8	24.6	8.8	15.8	24.6
1967	8.8	14.5	23.2	-0.1	-1.3	-1.4
1968	8.5	15.1	23.6	-0.3	0.6	0.4
1969	6.7	15.8	22.5	-1.8	0.7	-1.1
1970	6.0	15.1	21.0	-0.8	-0.7	-1.5
1971	5.9	14.3	20.3	0.0	-0.7	-0.8
1972	6.1	12.7	18.8	0.2	-1.7	-1.4
1973	4.9	11.8	16.8	-1.2	-0.9	-2.1
1974	3.1	12.8	15.9	-1.8	0.9	-0.9
1975	5.4	12.8	18.2	2.3	0.0	2.3
1976	8.2	11.8	20.0	2.8	-1.0	1.8
1977	11.2	10.5	21.7	3.0	-1.3	1.7
1978	10.9	8.9	19.9	-0.3	-1.6	-1.8
1979	5.8	8.8	14.6	-5.1	-0.1	-5.3
1980	3.9	9.4	13.2	-1.9	0.6	-1.4
1981	3.6	9.2	12.7	-0.3	-0.2	-0.5
1982	4.7	9.6	14.3	1.2	0.4	1.6
1983	-2.9	8.1	5.2	-7.6	-1.5	-9.1
1984	-0.5	11.1	10.6	2.4	3.0	5.4
1985	-1.5	11.0	9.4	-1.0	-0.1	-1.2
1986	-1.4	11.2	9.8	0.2	0.2	0.4
1987	0.7	11.6	12.3	2.1	0.4	2.5
1988	2.2	12.2	14.4	1.5	0.6	2.1
1989	-3.2	12.6	9.5	-5.4	0.4	-5.0
1990	-4.7	13.1	8.4	-1.5	0.4	-1.1

Notes: The traded index is the sum of the manufacturing and agriculture indices; the incremental indices are estimated as the change in the value of each index from the previous year. A negative number means an 'improvement' and a positive number a 'deterioration' in each index or reinforcement of Dutch disease. Source: own estimations (see text).

Table 3 b Dutch disease index, Syrquin norm (1989) for manufacturing

Year	Index	Incremental index
1967	-2.3	-2.3
1968	1.3	3.6
1969	1.6	0.3
1970	-1.9	-3.5
1971	-1.7	0.2
1972	-2.1	-0.5
1973	-0.2	1.9
1974	-0.4	-0.2
1975	-0.3	0.1
1976	-2.4	-2.0
1977	2.8	5.1
1978	-3.7	-6.5
1979	-3.8	-0.1
1980	-6.1	-2.3
1981	1.1	7.2
1982	-3.9	-5.0
1983	-5.5	-1.6
1984	-7.5	-1.9
1985	-2.7	4.8
1986	-1.0	1.7
1987	-2.0	-1.0
1988	1.9	3.9
1989	3.8	1.9
1990	3.9	0.1
1991	-6.5	-10.4
1992	2.3	8.8
1993	0.0	-2.3
1994	-2.7	-2.6

Sources: own estimations (see text) based on Sakr (1997).

Chapter 4

Derivation of the Investment Equation

The specification of the investment function adopted here considers both macro and microeconomic aspects. Following Shafik (1992) the investment function was derived from a conventional neo-classical model with profit-maximising firm subjects to constant returns to scale and constant elasticity of substitution production function. Thus the optimal capital stock is derived from the marginal productivity conditions:

(1) $K^{*} = AY^{e}(1+1/\varepsilon)^{\sigma}/C^{\sigma}$

where

K^{*} = desired capital stock,

Y^{c} = expected output,

ε = elasticity of demand in the product market (which is assumed to be constant),

C = cost of capital

σ = elasticity of substitution

The relationship between investment and the capital stock is given by the following equation:

(2) $I_{t} = \delta K_{t-1} + a(L)\Delta K_{t}^{*}$

where

It = investment

K= capital stock

δ = depreciation rate

a(L) =function of the lagged operator

Given the problems posed by the fact that the capital stock is a variable integrated of order 2, Bean's (1981) approach which allows for direct analysis of investment flows was adopted. Under the assumption that output grows at some constant rate which is small relative to the rate of depreciation, δ,

(3) $\ln[K_t/Y_t] = \ln[I_t/(\delta + g)Y_t]$

and

(4) $\ln[K_t/Y_t] \approx \ln[I_t/Y_t] - \ln\delta - g/\delta$

Substituting (4) into (1), the following long-run equilibrium relationship is obtained:

(5) $(i - y)^{*} = a - \sigma C\, g/\delta$

In accordance with the non-stationary character of most of the series considered, cointegration and error-correction techniques were applied to estimate short- and long-run dynamics of private investment in Venezuelan manufacturing. As already mentioned, since the capital stock proved to be integrated of order two we adopted a specification which allowed us to remove the capital stock variable.

A modality of the reduced form specification derived from a model which takes into account the firms' behaviour and macroeconomic variables was applied by Shafik (1992) for the Egyptian case and was adopted. The variables considered as a proxy for costs of capital in the Venezuelan case were the real exchange rate and the domestic real interest rate. Real domestic credit to the private sector (nominal domestic credit to the private sector deflated by the private investment deflator) was firstly included as a proxy for the cost of capital but the results were not good enough.

Chapter 5

The basic source for detailed time series data on gross production value, value added, employment, investment, number of establishments, wages, imports and exports for private manufacturing is the annual industrial survey carried out by the Central Statistic Office of Venezuela (OCEI). It must be noted that we used the industrial survey because the BCV does not publish detailed data on manufacturing. As data from the industrial survey is at current prices, suitable deflators were obtained from the Central Bank of. Venezuela in order to estimate the variables at constant prices of 1984. The procedure used to estimate each variable in detail is explained below

1. The Industrial survey

As noted, the main source for detailed time series data on industrial indicators within a consistent framework is the industrial census, which is conducted by the Central Statistical Office (OCEI). This survey, which covers establishments with more than 5 workers, has been conducted for the following years: 1961, 1966, 1971 and 1974-94, except for 1980. Data for the missing years were interpolated by using the real growth rates provided by the Central Bank of Venezuela (BCV).

Real manufacturing gross production or output and real value added: value added and output at constant 1984 prices for total manufacturing were estimated by first deflating the sectoral values and then these were aggregated. These variables for a number of industries at the three-digit level of disaggregation were estimated as follows: the current values of gross production and value added provided by the industrial census were deflated by the producer price index and the GDP deflator given by the Central Bank of Venezuela (BCV). The real growth rates provided by the BCV were used to complete the whole 1961-94 series data.

Employment: This is defined as the total number of employees who had a paid or unpaid job in the establishment when the census took place. The categories covered are as follows: owners, family and non-remunerated workers, managers, employees and workers. The growth rates of manufacturing employment provided by UNIDO were used to complete the 1966-88 series.

Nominal wages and salaries per worker: Total annual nominal wages and salaries, and employment are provided by the industrial census, so wages per worker were estimated. As in the case of employment, when the census was not available the growth rates from UNIDO were used to complete the 1967-88 series. It must be noted that there were some problems with the results for the years of 1972 and 1981. Because of that, the trends for the 1973-82 period were estimated excluding 1981.

Product wages and salaries: This was estimated as the ratio of nominal wages and salaries per worker to manufacturing output prices. There were some problems with the results for the year 1972 and 1981. Thus, the trends for the 1973-82 period were estimated excluding 1981.

Intermediate consumption: This was estimated by subtracting the value added from output.

Exports and imports: Sectoral exports were provided by the Central Bank of Venezuela, Finexpo; and the source for disaggregated manufacturing exports and imports at 1984 prices is own estimations based on data provided by Brandi (1989) from 1968 to 1983 data provided by the Central Bank of from 1983 to 1993. It must be noted that the basic source for this data is the international trade bulletin from OCEI, which guarantees its compatibility with data on value added and output that is provided by the same source (OCEI).

2. Estimates of profitability in Venezuelan private manufacturing sector

Decomposition of the profit rate

To decompose the changes in profit rate considers the following mark-up rule pricing equation:[2]

(2.1) $$O = Po \cdot o = [W + M + Nt] \cdot [1 + \tau]$$

Dividing 2.1 by $P_o \cdot o$ we have the following identity:

(2.1)' $$1 = \left[\frac{W}{Po \cdot o} + \frac{M}{Po \cdot o} + \frac{Nt}{Po \cdot o}\right] \cdot [1 + \tau] =$$

$$1 = \left[\frac{W}{Po \cdot o} + \frac{M}{Po \cdot o} + \frac{Nt}{Po \cdot o}\right] + \left[\frac{W}{Po \cdot o} + \frac{M}{Po \cdot o} + \frac{Nt}{Po \cdot o}\right] \cdot \tau$$

(2.2) $$\frac{W}{Po \cdot o} = \frac{nw \cdot L}{Po \cdot o} = \frac{pw}{lp}$$

[2] Formulations of mark-up price models are found in Sylos-Labini (1957, 1984), Kalecki (1971), Taylor (1991).

Similarly, the wage share in value added can be written as:

$$(2.3)\qquad \frac{W}{Va} = \frac{W}{Po \cdot L} \cdot \frac{Pv \cdot L}{Va} \cdot \frac{Po}{Pv} =$$

$$= pw \cdot \frac{1}{lp'} \cdot \frac{Po}{Pv}$$

where P_o = price index of output, P_v = price index for value added, lp' = labour productivity or real value added per man.

Likewise, product wages can be decomposed into real consumption wages *(nw/Pc)* and relative prices of consumer to manufacturing goods. That is to say:

$$(2.4)\qquad pw = \frac{nw}{Pc} \cdot \frac{Pc}{Po}$$

These formulas can be written in approximate proportionate rate-of-change form. Dots are used to indicate proportionate rate-of-change variables:

$$(2.2)'\qquad \frac{\dot{W}}{O} = \dot{pw} - \dot{lp}$$

$$(2.3)'\qquad \frac{\dot{W}}{Va} = \dot{pw} - [\dot{lp}' - \frac{\dot{P}_o}{P_v}]$$

$$(2.4)'\qquad \dot{pw} = \frac{\dot{nw}}{P_c} - \frac{\dot{P}_o}{P_c}$$

According to (2.3)', the variations of the wage share in value added depends on the excess of product wages over the rate of growth of real factor incomes. This is the growth rate of labour productivity (value added per man) adjusted for the impact of the variations in the relative prices of inputs (including depreciation) and gross value added. Thus, if the average product wages increase at a rate equal to productivity, the unit labour cost and profits remain unchanged. A rise in the wages share in value added may be caused by an increase in the product wages or a decline in real factor incomes due to a slowdown in labour productivity or increasing relative prices of intermediate materials.

It must be noted that according to the standard Dutch Disease model the disruptive impact of a resource boom on manufacturing is linked to a decline in the price of tradeables relative to that of non-tradeables. Under a fixed exchange regime, the adjustment in an economy following a sectoral boom should take via increasing prices. Since the inflation rate will be accelerated, it is expected that a fall in the relative prices of manufacturing to consumer goods will take place P_o/P_c (identity 2.4'), which in term, leads to a rise in product wages (*pw*) and a profit squeeze in manufacturing. So, it follows that those industries with a higher labour intensity will be more disrupted by the resource boom. The reason is that this model relies on the neo-classical cost function or so-called factor price frontier. Although within the Dutch disease framework labour productivity can change due to factor substitution, the impact of technological change on labour productivity is not taken into account. Therefore, the assumptions of constant returns to scale and full employment lead to a strict inverse trade-off between real wages and profit rate.[3] It should be also noted that the assumption of the marginal productivity conditions in the Dutch Disease model involves that if real wages increase, the labour/output ratio declines. So, for a given output, a drop in employment is necessarily related to higher

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[3] It should be noted that the trade-off between the real wage and the profit rate is also implicit to Marxist formulations in which the rise in wages due to the drop in the reserve army leads to lower profits and a slowdown of accumulation.

real wages. A lower employment in the traded sector is entailed by a rise in product wages. In this way, some resources are directed towards the non-traded sectors in which lower product wages allow for greater employment. According to the identities presented here, a rise in product wages may occur together with higher employment.

The profit share is defined as the ratio of operating surplus (*Prof*) to output or value added:

$$\text{(2.5)} \qquad \frac{Prof}{O} = \frac{t \cdot (W + M + Nt)}{O} = 1 - \frac{W}{O} - \frac{M}{O} - \frac{Nt}{O}$$

$$\text{(2.5)'} \qquad \frac{Prof}{Va} = \frac{t \cdot (W + M + Nt)}{Va} = 1 - \frac{W}{Va} - \frac{M}{Va} - \frac{Nt}{Va}$$

where $\frac{W}{O}, \frac{M}{O}, \frac{Nt}{O}$ are the share of wages, intermediate materials and non-traded services in output respectively. Equation (2.5)' restates (2.5) in terms of value added.

The profit rate (*r*) is defined as the ratio of gross operating *surplus (Prof=O-W-Nt)* to capital stock at current prices (*K*). The profit rate can be expressed as the product of the profit share and the output- capital ratio (*u=O/K*)

$$\text{(2.6)} \qquad r = \frac{Prof}{K} = \left(\frac{Prof}{O}\right) \cdot \left(\frac{O}{K}\right) = \left(\frac{Prof}{O}\right) \cdot u$$

Writing this expression in proportionate rate-of-change form:

$$(2.6)' \qquad r = \frac{\dot{\Pr of}}{K} = \left(\frac{\dot{\Pr of}}{O}\right) + \left(\frac{\dot{O}}{K}\right) = \left(\frac{\dot{\Pr of}}{O}\right) + \dot{u}$$

The output/capital ratio (u) is defined as the product of the real output/capital ratio (o/k) and the relative price of output and capital goods (P_o/P_k):

$$(2.7) \qquad u = \frac{o \cdot P_o}{k \cdot P_k} = \left(\frac{o}{k}\right) \cdot \left(\frac{P_o}{P_k}\right)$$

Trends in the profit share and its components for Venezuelan manufacturing during 1968-88

Variations in the Profit Share and Unit Labour Costs

A look at Table 5.a indicates that while there was an downward trend in the relative share of labour costs in value added[4] which led to high profit shares between 1966 and 1971 a reverse in this trend occurred during 1974-1976. Although it must be noted that the profit share increased slightly during 1975-76. Unit labour costs rose between 1977 and 1979 while it declined between 1979 and 1982 prompting a recovery of the profit share in 1982. The drop in the labour share of value added during 1983-88 implied a stable upward trend in the profit share.

Table 5.a Cost structure of non-oil Venezuelan manufacturing (as a share of gross value added)

	1966	1971	1974	1975	1976	1977	1979	1981	1982	1985	1986	1988
Labour input	37.72	33.74	33.94	36.15	37.71	38.25	41.82	42.24	39.73	37.09	36.18	32.94
Other inputs	22.55	25.08	21.73	27.40	26.43	33.69	34.82	41.56	40.21	42.09	42.87	41.58
Rents	2.08	1.49	1.79	2.22	2.42	2.58	2.99	2.81	2.39	2.74	2.79	2.40
Interests & insurance	3.75	4.09	5.44	6.54	5.78	5.94	8.50	13.40	12.21	14.95	11.65	11.20
Royalties	1.04	1.36	0.96	0.69	2.50	0.57	0.74	0.39	0.38	0.51	0.37	0.55
Publicity	3.40	3.51	2.32	2.46	1.21	2.36	2.57	3.02	2.92		4.02	3.52
Professional services	0.82	0.78	1.03	1.19	0.69	1.21	1.52	1.86	2.22	2.54	2.89	2.66
Indirect tax	2.34	2.43	1.19	4.54	4.32	4.34	4.76	7.22	5.69	6.37	6.03	5.25
Various	9.11	11.42	8.99	9.77	9.52	9.86	13.73	12.86	14.39	14.99	15.13	16.00
Depreciation	8.33	7.20	6.65	7.67	7.68	6.83	8.25	8.27	8.36	7.22	7.05	6.22
Profit share	39.73	33.98	44.32	28.55	35.86	28.06	34.68	15.98	20.06	20.83	20.95	25.48
Total	39.73	33.98	44.32	28.55	35.86	28.06	34.68	15.98	20.06	20.83	20.95	25.48

Sources: OCEI, industrial survey, and various issues.

Variations in labour costs and in labour productivity

A look at Table 5.b indicates that there was a marked labour productivity slowdown measured as manufacturing output and value added per man during 1974-76 compared to 1969-71.[5] Despite the faster growth of output and value added during 1974-76 compared with 1968-71 the substantial rise in employment prompted a decline in labour productivity. An important recovery of labour productivity occurred during the recessive phase (1978-82) because of the substantial fall in employment.[6]

The disappointing performance of labour productivity may have reflected problems of inefficient management of oil revenues during the boom phase and to the adoption of sectoral policies that imply inefficient allocation of resources and the reinforcement of the weakness of industrialisation such as low productivity and high import dependence.

Labour productivity growth measured as value added per man slowed down during 1983-88 while it remained stable as measured by output per man. Manufacturing value added growth declined strongly over 1983-84, and

[4]This is defined as the sum of wages and salaries, social benefits and other payments as percentage of value added.

[5] It was not possible to estimate hourly labour productivity due to the lack of data.

[6] Iturbe's (1980) and Ecobar (1982) pointed out that a fall in labour productivity occurred in Venezuelan manufacturing during 1974-1976 compared with 1961-71.

following a recovery during 1985-87, stagnated during 1988-89. This result may be explained by the negative impact of devaluation through increasing intermediate and capital costs. There was a substantial decline in the relative price of output or value added to capital through 1983-88 (see Table 5.b).

Table 5.b Average annual variations in manufacturing profitability, Venezuela, 1969-88

	1969-71	1974-76	1978-82*	1983-88*
(a) Labour productivity = (d) - (e)	2.36	-1.49	4.60	0.93
(b) Labour productivity = (c) - (e)	1.40	-0.04	2.43	1.84
(c) Real output	8.43	13.39	1.23	5.29
(d) Real value added	9.39	11.94	3.40	4.38
(e) Employment	7.03	13.43	-1.20	3.45
(f) Effect of input costs	0.10	1.19	0.50	2.76
(g) Real factor incomes = (a)-(f)	2.26	-2.68	4.10	-1.83
(h) Product wages	-2.72	0.74	2.55	-8.40
(i) Nominal wages and salaries per man	-0.36	10.42	21.12	12.35
(j) Wages share of value added = (h) - (g)	-4.98	3.42	-1.55	-6.57
(k) Wages share of output = (h) - (b)	-4.12	0.78	0.12	-10.24
(l) Real intermediate material/gross real output ratio	-0.89	1.19	-1.92	0.74
(m) Relative prices of intermediate Materials and gross output	0.10	0.81	0.61	1.83
(n) Prices of intermediate materials	2.46	10.49	19.18	22.59
(o) Intermediate materials share of output = (m) + (n)	-0.79	2.00	-1.31	2.57
(p) Profit share of output	2.72	-3.78	2.28	1.79
(q) Profit share of value added	1.86	-1.14	0.56	1.88

Notes: * excluding 1980 and 1987, (see methodological appendix). Source: own estimations based on data provided by OCEI, industrial survey, various issues, BCV, economic report.

The intersectoral performance of unit labour costs and its components is presented in Table 5.c. As the 1974-77 phase is considered, a rise in the changes in the wage share in value added in 12 out of 17 sub-sectors compared to 1968-71 took place. The highest increases took place in, in order: rubber (11.65 per cent), leather (9.47 per cent), food (6.69), transport equipment (5.85) textiles (4.2 per cent), mechanical and electrical machinery (2.79 per cent) and wearing apparel, food (2.16 per cent). The lines which performed better in terms of the unit labour costs were: tobacco (-14.29 per cent), wood (-6.34 per cent), non-metallic mineral products (-2.73 per cent), others (-2.09), paper (-1.89), furniture (-1.42), metal products (0.14) and chemical products (0.33).

Table 5.c Decomposition of the share of wages in value added, Venezuelan private manufacturing, 1968-1988

		1968-71				1974-77				1978-82				1983-88			
Codes	Sectors	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va
	Labour-intensive industries	-1.37	4.17	0.59	-5	-0.3	0.66	2.22	1.3	2.85	3.81	0	-1	-6.21	1.29	2.83	-4.7
332	Furniture	0.1	0.5	0.2	-0.2	-1.9	0.57	1	-1.4	6.03	7.47	0.4	-1.1	-5.3	0	2.6	-2.7
331	Wood	-5.6	6.9	-0.2	-12.6	-8.6	-0.94	1.4	-6.3	-2.1	1.02	0.9	-2.3	-9.1	-2.17	3.4	-3.6
354-56-90	Others	8	2	-8.3	-2.3	5.4	6.91	-0.6	-2.1	2.8	-3.14	-0.6	5.4	-9.3	-4.77	2.2	-2.3
323	Leather	0.8	-2.5	0.2	3.5	7.8	-1.46	0.2	9.5	-0.6	1.1	0.6	-1.2	-10.3	-4.67	-1.3	-6.9
324	Wearing apparel	-7.3	-1.7	0.1	-5.5	-0.3	-1.38	1	2.2	3.1	5.095	0.4	-1.6	-4.4	-0.47	0.4	-3.5
322	Textiles	4.9	7.8	0.1	-2.8	-0.3	-3.39	1.1	4.2	5.3	2.02	0.4	3.7	-8.8	2.96	6.3	-5.5
381	Metal Products	-5.1	8.7	0.1	-13.7	5.6	13.48	8.1	0.1	5.6	7.39	0.4	-1.5	-5.9	0.52	1.1	-5.4
355	Rubber	-18.8	2.4	16.9	-4.2	5.4	-4.43	1.8	11.7	-1	18.65	0.3	-19.4	2	6.06	-0.4	-4.5
361-62-69	Non-metallic minerals	2.5	5.1	-1.2	-3.8	-9.1	-5.36	1	-2.7	2	5.54	0.4	-3.2	-6	3.9	5.1	-4.8
	Capital and/or human																0
	Intensive industry	-1.41	1.654	0.43	-2.6	1	-0.11	0.83	0.9	2.29	4.07	0.5	-1.3	-8.67	1.82	3.62	-6.9
313	Beverage	0.8	3.8	0.1	-3	1.69	3.08	1.1	-1	4.3	1.29	0.4	3.4	-6.2	2.24	2.2	-6.2
314	Tobacco	12.5	-7.1	0.1	19.6	10	25.35	1.1	-14.3	-19.6	9.27	0.5	-28.4	-2.4	3.11	0.2	-5.3
341	Paper	2.8	7.6	0	-4.8	3.4	6.39	1.1	-1.9	-0.5	-5.22	0.1	4.8	-6.2	4.96	5.9	-5.3
384	Transport equipment	-15.6	-13	3.2	0.5	-1.2	-5.98	1.1	5.8	8	16.15	0.3	-7.9	-13.1	5.12	6.3	-12
311-12	Food	-0.7	5.8	-0.1	-6.5	-1.4	-7.05	1	6.7	1.9	0.97	-1.3	-0.4	-6.8	-1.66	1.4	-3.7
371-72	Basic metal industries	1.7	8.4	1.9	-4.8	6.2	-10.01	1.8	18	6.1	22.92	10.7	-6.1	-17.4	6.8	10.9	-13.4
351-52	Chemical	0.5	5.7	1.6	-3.6	6.3	0.8	-5.1	0.4	-1.7	5.34	4.2	-2.9	-8.1	4.9	6	-6.9
383-84	Mechanical & elect machiner	-2.5	1.2	1.3	-2.3	3.7	1.91	1	2.8	7.5	2.94	2	6.6	-14.6	3.11	5.7	-12.1
342	Printing	0.7	-4.3	0.1	5.1	-2.2	-1.65	1.1	0.5	4	0.57	0.3	3.8	-10.2	-3.8	0	-6.4
300	Manufacturing	-1.17	2.54	0.41	-3.3	0.6	-0.42	1.3	2.3	2.6	4.62	0.5	-1.6	-7.8	1.3	2.9	-6.2

Notes: The formula for changes in the wage share in value added is as follows: $\frac{\dot{W}}{Va} = \dot{pw} - [\dot{lp}' - \frac{\dot{P_o}}{P_v}]$

where:
pw = product wages
Va/L= value added per man
W/Va = share of wages in value added
Po/Pva = relative price of output to value added or effect of input costs
Growth rates are the least squares estimates of trend growth. Source: own estimations based on data provided by the Central Bank of Venezuela, economic reports, various issues and the industrial census.

According to the Dutch disease theory, those labour-intensive industries are expected to be more disrupted by supply factors than the capital-intensive ones; namely, increasing product wages due to the real exchange rate appreciation of the domestic currency. Nevertheless, it seems that both, labour and capital-intensive industries suffered from increasing unit labour costs during 1974-77.

At the same time the previous results show that the significant increase in unit labour costs occurred in Venezuelan private manufacturing during 1974-77 reflected a significant decline in labour productivity growth, with the role played by the changes in product wages being insignificant. The average annual growth rate of value added per man in private manufacturing fell from 2.54 per cent in 1968-71 to -0.43 per cent during 1973-82, with a maximum of 25 per cent per year for tobacco and with a minimum of -7.05 for food over the latest phase. The disappointing performance of labour productivity growth was a whole-embraced phenomenon in private manufacturing, with a substantial decline in this variable having taking place in 8 of the 17 manufacturing branches considered regardless of factor intensities during 1973-7 compared to 1968-71. It must be noted that four of the remaining lines, recorded negative growth rates of labour productivity despite the fact that this meant an improvement compared to the pre-boom phase. The decline in labour productivity growth occurred over 1974-77 was due to the substantial rise in employment in both labour-intensive and capital-intensive industries and to the problems linked to the low capital absorptive capacity of the economy to absorb the extra oil revenues. The lack of management capacities and skilled labour led to inefficient growth. This is consistent with one of the main argument of this thesis that the over spending of the oil revenues is expected to have prompted a fall in labour productivity during the first years of the boom. By contrast an improvement in labour productivity occurred during the recessive phase (1978-82) due to the substantial drop in employment.

Although product wages declined in some industries or increased at a moderate pace over 1974-77 compared to 1968-71, this variable increased faster than the real factor income (wages plus profit), which is permitted by the increase in labour productivity adjusted by the changes in the real costs of intermediate inputs. It must be noted that through 1974-77 there was similar growth of product wages in capital and labour intensive groups as a whole. Some labour-intensive industries such as furniture, wood, non-metallic minerals wearing apparel and textiles showed the lowest growth rates of product wages over 1974-77. This result seems to be explained by the improvement in the relative prices and the modest increase in nominal and real wages of the latest group. Salaries grew faster than wages, so labour-intensive industries, which has a low skill ratio were less affected than capital industries, in which salaries are an important component of labour costs. Additionally, the above development was partly due to the modest increase in employment occurred in this group (11.84 per cent p.a.) compared to the capital-intensive industries (11.15 per cent p.a.) during 1974-77. The expansion of employment in the capital-intensive industries was related to their more dynamic performance during 1974-77. As regards the performance of relative prices, the output response does not seem to be explained by the relative prices changes.

The modest increase in the cost of non-labour inputs contributed to ameliorate the effects on the wage share of the faster wages growth over productivity growth. However, the significant fall in labour productivity prompted a rise in unit labour costs. It seems that the differences in the sectoral changes in this variable are largely explained by the intersectoral variations in labour productivity. The intersectoral development of product wages and intermediate costs growth being less important.

Table 5.d shows the correlation coefficients between the intersectoral changes in the wage share in value added and its components, namely product wages, value added per man and intermediates costs according to formula (2.3). It is evident that there was a very low correlation coefficient (0.06) between the intersectoral variations in product wages and the wage share in value added over 1974-77 compared to 0.45 in 1968-71. The correlation between this variable and the variations in input costs was also insignificant trough 1974-77.

The picture that emerges from the previous findings is that some of the sectors where labour productivity increased or declined less showed a decline or a milder increase in the wages share in value added despite higher product wages over 1974-77. A look at Tables 2.3 indicates this was the case of tobacco, metals, paper, beverages, others chemicals, and machinery over 1973. The increase in product wages growth was compensated by higher labour productivity growth.

Table 5.d Correlation coefficients between intersectoral changes in the wage share of value added and its components

	Y/L	Pw	Po/Py
1968-71	-0.69	0.45	-0.04
1974-77	-0.71	0.06	0.01
1978-82	-0.72	0.74	0.00
1983-88	-0.39	0.62	-0.41

Source: own estimations.

By contrast, despite a decline in product wages growth the sharper fall in labour productivity growth prompted a rise in labour costs in textiles, transport, food and printing during 1974-77. In the case of transport, a substantial slowdown in value added per man implied a significant rise in the unit labour costs despite declining intermediate input costs (Table 5.c).

Non-metallic minerals and paper showed relative low unit labour costs growth during 1974-77. However, the decline in this variable was milder than in 1968-71 due to the deterioration in labour productivity growth during 1974-77. This development occurred despite the substantial drop in the growth of product wages and input costs over 1973-82 compared to 1968-71.

As regards the 1978-82 phase it seems that the increase in product wages growth played a key role in explaining the trends in the wages share in value added across the manufacturing lines. This is due to the declined in manufacturing relative prices, which was prompted by the import and price liberalisation policy. As noted above this was not Dutch disease because there was a stagnant domestic demand during 1978-82. It must be noted that the rise in labour productivity growth during this recessive phase was mainly due to the sharp fall in employment which decline more than value added.

Considering the 1983-88 phase, it seems that there was a negative correlation between value added per man and unit labour costs (-0.49), but it was lower than in 1974-77 (-0.73). The correlation coefficient between unit labour costs and product wages (0.73) increased considerably compared to 1974-77. It has already been noted that there was a substantial decrease in product wages over 1983-88, which was linked to the considerable improvement in manufacturing relative prices after the strong devaluation of the domestic currency implemented in 1983, 1984 and 1986.

It is worth noting that the correlation coefficient between the wage share in value added and intermediate costs had the wrong sign during 1983-88. This may suggest that the increase in the price of imported intermediate goods did not exert a strong disruptive effect on manufacturing. Although intermediate inputs costs measured as the ratio of output to value added prices showed an important increase during 1983-88 compared to 1974-77, the increase was rather mild until 1986. This is partly explained by the exchange rate system adopted, which established an official exchange rate for imports of $7.50 in 1983 as compared to $4.30 in the preceding years, while the rest of the transactions should take place in a free market. Likewise, the increase in the exchange rate for imports took place gradually. It has been estimated that the accumulated devaluation of the controlled exchange rate was only 74 per cent between 1983 and October 1986, while the accumulated devaluation of the free exchange was 500 per cent for the same years.[1] Consequently, it seems that Venezuelan manufacturing benefited from the real devaluation of the domestic currency over these years through import-substitution. However, no all the industries were spared from the negative impact of devaluation. The expansion of manufacturing was driven by intermediate and mechanical industries, which were able to expand due to the import substitution effect following the devaluation of the domestic currency. By contrast, apart from textiles, most of the traditional industries declined as a result of the substantial drop in real wages, which implied a severe decrease in their domestic demand.

An interesting point is that most of the capital-intensive industries continued expanding at high rates during the post-boom phase. This is in contradiction with the Dutch disease theory, which predicts a better performance of labour-intensive industries after the devaluation of the real exchange rate and the fall in product wages, which are supposed to occur over the post-boom phase. The reason is that this theory does not take into account the demand-side factors. In the Venezuelan case, the negative effect of real devaluation on the domestic demand implied that despite lower product wages, many labour-intensive industries stagnated or did not experience a substantial expansion during the post-boom phase.

[1] BCV, economic surveys various issues.

Variations in Unit Labour Cost and in Product Wages

As illustrated by Table 5.e, the increase in product wages during 1974-76 is mostly explained by the considerable growth of nominal wages

Table 5.e Trends in product wages and its components, Venezuelan private manufacturing, 1969-88

Phases	Nominal Wages	Real consumption wages	Relative prices	Product wages
1969-71	-0.4	-3.21	-0.49	-2.72
1974-76	10.4	1.88	1.14	0.74
1978-82	21.1	1.107	-1.4	2.55
1983-88	12.4	-6.59	1.82	-8.4

Notes: trends are the least squares estimates of the variables
Source: own estimations.

and to a lesser extent, to real consumption wages variations. This is explained by the favourable movement occurred in manufacturing relative output prices during these years compared to the pre-boom phase, which contributed to counterbalance the effect of rising nominal on product wages changes. Despite the existence of price controls for some products, manufacturing prices went up considerably during 1974-76 compared to 1969-71.[2] This path was linked to the substantial rise in nominal wages and in the price of intermediate materials occurred over these years. The trend in the latter prices was mainly due to the higher variations in the prices of imported intermediate goods. According to the Central Bank of Venezuela the imported component of these prices grew faster than the national component during 1973-76. The faster growth of manufacturing prices though led to a modest rise in input costs and in product wages during this phase.

[2] On August 1974 the prices of some items which had been subjected to controls, among other, agricultural goods, and some processed food. It seems that the food branch was the most affected by price controls over 1974-76. Likewise, the price of some items like processed food remained controlled after 1979. Central Bank of Venezuela, economic reports, (1979, p. 158).

This development is neither in accordance with the Dutch disease model, nor with the experience of other economies that have gone through an export boom. The theory predicts an increase in product wages during a boom due to the fall in the relative price of manufacturing goods to consumer goods. The estimations show that the variations in the relative prices of manufacturing goods contributed to lowering product wages growth over 1974-76. Likewise, the Iranian, Nigerian and Zambian economies, for instance, experienced a substantial increase in product wages during the 1970's export booms.[3] Government policy seems to explain the outcome in Venezuela. In this economy the more modest rate of domestic inflation during 1974-76 due to the control prices policy may have contributed to avoid a fall in the relative prices of manufacturing to consumer goods during 1974-77. The main increase in manufacturing product wages occurred during 1977-82 despite recession because of the higher inflation rate and the role of trade unions together with the decline in the relative price of manufacturing.[4] These exerted pressures on the government owing to the accelerating inflation following prices deregulation. In fact, a law calling for a 30 per cent increase in wages was approved in December 1979. This together with an improvement in labour productivity during 1978-82, prompted a mild fall in unit labour costs during this phase.

It must be noted that the mild upward trend in the relative prices of intermediate materials to value added contributed to counterbalance the effect on the wage share of the excess of product wages growth over productivity growth during 1973-77. The relative price of intermediate materials and value added grew at a modest rate in 1973-82 as compared to 1969-71. Although the prices of intermediate materials went up

[3] See Jazayery (1988) and Norberg and Blomstrom (1993).

[4] The Venezuelan manufacturing sector was affected by a large number of strikes during 1973-82. A strike in textiles lasted for 6 months.

substantially during 1974-76 and 1973-82 compared to 1969-71, value added prices also increased.

Trends in the profit rate in Venezuelan private manufacturing over 1974-76 and 1978-82

Table 5.f illustrates the trends in the profit rate for Venezuelan private manufacturing during 1969-88. This data makes clear that despite a decline in the manufacturing profit share occurred through 1974-76 compared to 1968-71, the increase in the output-capital ratio determined a rise in the profit rate growth. By contrast the fall in the output-capital ratio from 1977 to 1982 led to a decline in the profit rate during 1978-82.

It must be noted that the declining profit share did not allow for a greater improvement in the profit rate which may account for the modest performance of the sectoral private investment *compared to the rest of the non-oil economy.*

Table 5.f Variations in manufacturing profitability, Venezuela, 1969-88

	1969-71	1974-76	1978-82*	1983-88*
(a) Profit share of output	2.72	-3.78	2.28	1.79
(b) Profit share of value added	1.86	-1.14	0.56	1.88
(c) Real output-capital ratio	-1.00	4.90	-2.25	3.99
(d) Relative prices of output to capital	-1.43	1.30	1.86	-3.85
(e) Real value added-capital ratio	0.07	3.37	-1.87	3.73
(f) Relative prices of value added to capital	-1.88	-1.78	0.94	-2.70
(g) Nominal output/capital ratio = (c) + (d)	-2.43	6.21	-0.39	0.14
(h) Nominal value added/capital ratio = (e) + (f)	-1.81	1.59	-0.93	1.03
(i) Profit rate =(a)+(g)	0.29	2.43	1.89	1.93
(j) Profit rate = (b) + (h)	0.05	0.45	-0.37	2.91

Notes: *excluding 1980 and 1987, (see methodological appendix).
Source: own estimations based on data provided by OCEI, industrial survey, BCV and Baptista (1991).

As shown before, the considerable expansion of the effective demand during 1974-1976 led to the recovery of the sector, which was suffering from lack of market for the investment before the 1973. Thus the capital-output ratio fell over these years, but the low capital absorptive capacity of the economy caused by the lack of management capacities and other input bottlenecks implied a fall in labour productivity together with the lack of a coherent industrial policy which could have aimed to develop an export-competitive sector. Furthermore, once the over-investment of the oil revenues prompted a huge expansion of the productive capacity, the lack of market due to the deflationary policies set obstacles leading to an increase in the capital-output ratio and the decline in the profit rate from 1977.

Chapter 6

As in the case of chapter 5, this chapter is based on data provided by the annual industrial survey carried out by the Central Statistic Office of Venezuela (OCEI).

1. Derivation of the sources of demand side growth

The sources of industrial growth can be expressed as follows:

(1.1) $x_i^2 - x_i^1 = (1 - m_i^1)(D_i^2 - D_i^1) + (m_i^1 - m_i^2)\, D_i^2 + (E_i^2 - E_i^1)$

According to this expression the increase in manufacturing output is due to three different effects namely:

Contribution of the increase in domestic demand: $(1 - m_i^1)(D_i^2 - D_i^1)$

Contribution of import substitution: $(m_i^1 - m_i^2)\, D_i^1$

Contribution of export growth: $(E_i^2 - E_i^1)$

The decomposition of the sources of growth in the manufacturing sector can be assessed under two different approaches. The first ones sums the components for each subsector as follows:

$$(1.2)\quad (x_i^2 - x_i^1) = \sum_i (x_i^2 - x_i^1) = \sum_i (1 - m_i^1)(D_i^2 - D_i^1) + \sum_i (m_i^1 - m_i^2)\, D_i^2 + \sum_i (E_i^2 - E_i^1)$$

where x is global total manufacturing production.

In the second methodology, domestic production, imports and exports are aggregated across branches and then these results are used to compute the source of growth. In notation:

$$(1.3)\quad x^2 - x^1 = (1 - m^1)(D^2 - D^1) + (m^1 - m^2)\, D^2 + (E^2 - E^1)$$

where

$$x^t = \sum_i x_i^t$$

$$D^t = \sum_i D_i^t$$

$$M^t = \sum_i M_i^t$$

$$E^t = \sum_i E_i^t$$

$$m^t = \frac{M^t}{D^t}$$

There has been an extensive discussion on these two methods due to the different results for the effect of import substitution provided by each equations. A significant contribution to the aggregation problem has been made by Guillaumont (1979). This scholar states that the global import coefficient (m = M/D) is affected by import substitution at the sectoral level, but variations in this ratio can also be due to changes in the structure of demand or substitution between demand with different import contents. A demand shift towards imported products may imply an increase in the import coefficient for manufacturing as a whole, even if it remains the same for each subsector. The change in the global import coefficient can be expressed as follows:

$$(1.4)\quad m^1 - m^2 = \sum_i a_i^2(m_i^1 - m_i^2) - \sum_i m_i^1(a_i^2 - a_i^1)$$

where $a_i = Di/D$ or the share of sector i in total domestic demand for industrial products. The second term on the right-hand side of equation (1.4) accounts for the impact of the shift in the structure of demand, and the first term represents the impact of import substitution at the sectoral level. Import substitution at the global level is defined by Guillaumont as 'the difference between the value of the global average import coefficient which would have prevailed if the import coefficient by product had been unchanged and the actual value of the import coefficient'. It follows that the first term on the right-hand side of equation (1.4) measures import substitution at the global level. Kavoussi argues that Guillaumont's definition of import substitution is also compatible with that implicit in equation (1.2) so the estimate of the sources of growth of manufacturing provided by the equation is also biased. While the effect of import substitution is correctly estimated by (1.4), the role of final demand is not adequately assessed. The reason is that the effect of variations in the demand structure is amalgamated with that of the demand expansion.

Kauvossi wrote equation (2.4) as follows:

$$(1.5)\quad \sum_i (1 - m_i^1)(D_i^2 - D_i^1) = (1 - m^1)(D^2 - D^1) - D^2 \sum_i m_i^1(a_i^2 - a_i^1)$$

and shows that even when there is no change in domestic demand, if there is a shift in user's purchases from sectors with high import coefficients to those with low ones, equation (1.4) will erroneously indicate an increase in total manufacturing output as a result of demand expansion.

In this light, it seems that the contradictory results given by equations (1.2) and (1.3) are related to the fact that neither formula explicitly considers the effects of changes in the demand structure. In the first equation this effect is combined with that of demand growth, and in the second formula, it is combined with the effect of import substitution.

In order to overcome this problem, here the definition of global import substitution proposed by Gillaumont and Kavoussi is used. Specifically, the equations provided by the latter author, which explicitly account for the effect of the change in the pattern of domestic demand, is used. These equations expressed in Laspeyre and Paasche formulas are as follows:

The Laspeyre form is as follows:

$$(1.6)\quad x^2 - x^1 = (1 - m^1)(D^2 - D^1) + D^2 \sum_i a_i^2 (m_i^1 - m_i^2) - D^2 \sum_i m_i^1 (a_i^2 - a_i^1) + \sum_i (E_i^2 - E_i^1)$$

The Paasche form is as follows:

$$(1.7)\quad x^2 - x^1 = (1 - m^2)(D^2 - D^1) + D^1 \sum_i a_i^1 (m_i^1 - m_i^2) - D^1 \sum_i m_i^2 (a_i^2 - a_i^1) + (E^2 - E^1)$$

The two equations were estimated for the manufacturing sector as a whole and as the results were very similar we worked with the Laspeyres form.. This analysis was based on a 18-sector desegregation for 1968-73, 1974-82, 1983-88 and 1989-93. The high aggregation may have led to overestimation the extent of import expansion during 1973-77 and 1978-82 because it is likely that a higher income would prompt demand shifts from products with low import coefficients to those with high import coefficients. This error may be very serious if the products included in particular subsectors were characterised by major differences in import coefficients and income elasticity of demand. The lack of data made it impossible to estimate the sources of industrial growth based on a greater disaggregation.

2. Derivation of the sources of supply side growth

Total Factor productivity growth: data and procedure for estimation

The estimates of total factor productivity growth for Venezuelan manufacturing used in this research were obtained by using the growth accounting method. Two estimates were made. Firstly, following Syrquin (1994), TFPG was estimated using this simple growth accounting equation:

$$(2.1)\quad g_Y = MPK \cdot \frac{I}{Y} + E_L g_L + Y$$

where

g_y = growth rate of real value added;

MPK = marginal product of capital;

I/Y = net domestic investment as a share of GDP;

E_L = elasticity of output with respect to labour;

g_l = growth rate of employment; and

Y = residual or TFPG.

A second estimate of TFPG was attempted. A translog index of TFP was derived by using the growth accounting framework. The translog production function presented by Ahluwalia (1991) is as follows:

$$(2.2)\quad \Delta \log TFP_t = \Delta Y_t - [(SL_t + SL_{t-1})/2]\Delta \log L_t - [(1 - SL_t) + (1 - SL_{t-1})/2]\Delta \log K_t$$

where

Y, L, K and TFP and SL represent real value added, labour, capital, total factor productivity and the share of labour income in value added, respectively.

It must be noted that we estimated TFPG by using the number of employees and the real unit labour cost as a proxy for the labour factor. As the first estimates appear to be more coherent, we only present these results.

As is well known, the estimate of TFPG by using a growth accounting framework represents the composite effect of all factors, other than the increases in labour and capital, on the variations in value added. The error on estimates of any variable is included too. According to Ahluwalia (1991) the error term is likely to be high.

There are several criticism of the concept of TFP, of the growth accounting methodology and of the problems embodied in the estimation of real capital stock. Nevertheless, given the lack of any alternative methodology we adopted this framework. We estimated TFPG according to these two above equations. In the case of the one presented by Syrquin, we applied the assumptions made by the scholar according to which the marginal product of capital was assumed to be 0.12 up to 1982 and 0.10 for the 1980s. This procedure was followed in order to make the results for Venezuela comparable with the results provided by Syrquin.

In the case of the second estimation of TFPG in order to avoid the problems caused by the volatility of the variable, which is partly related to the oil boom, trend values of GDP and inputs as computed by regressions of the variables on time together with average factor shares were used to compute TFPG. It is worth noting that to our knowledge, there has been no other attempt to measure TFPG for Venezuelan private manufacturing.

No correction was possible for under-utilisation of capital stock and there was no data on man-hours, for instance. It must be noted that the problem of the high under-utilisation of capital in Venezuela is mainly due to the lack of demand, which is a structural factor, which must be considered as one of the causes of low TFPG. In other words, in the Venezuelan case the problem of low use of the installed capacity is related to the oil-based nature of the economy in which the excessive investment of oil revenues is used to prompt the more rapid growth of the productive capacity relative to market growth. In this sense, more than a correction for under-utilisation of capital, it is likely that we must include this variable as one of the determinants of TFPG in Venezuela.

Concerning the sources of data, this covered the period from 1968 to 1988 and the basic source was the yearly survey of manufacturing carried out by the Central Statistic Office of Venezuela. Data on wages and salaries, the number of workers, and value added was basically provided by the OCEI and nominal values were deflated by the prices given by the Central Bank of Venezuela (see section 1 of this appendix above). The major problem was to find data on capital stock because the manufacturing survey does not provide data on this variable.

Real capital stock

The theoretical and practical difficulties related to measuring capital stock are well known. In the case of developing countries, the lack of the necessary data to estimate this variable is especially notorious. In the case of Venezuela, there is scanty data on real capital stock from 1968 onwards. The Central Bank of Venezuela did estimate this variable for the different economic subsectors and manufacturing branches until 1968. The industrial census does not provide data on capital stock. For this reason we took the estimations of real capital stock at 1984 prices provided by Baptista (1991). This scholar used the perpetual inventory method to build up these series and this is, to our knowledge, the most serious attempt to estimate this variable in Venezuela. The other attempt to estimate capital stock for Venezuelan manufacturing is provided by CORDIPLAN in a paper made by the employment division. Although both series give a similar picture, we opted for using the data provided by Baptista because data from CORDIPLAN relied on a benchmark capital-output ratio for the initial year and it is valued at 1968 prices.

Chapter 7

See appendix to chapters 5 and 6.

Classification of manufacturing industries by factor intensity

Various methods have been developed to measure factor intensity. The so-called 'industry method' commonly uses two indices to estimate capital intensities namely, fixed capital per worker and a skill ratio. These indices were estimated by Hufbauer (1970) and Hirsch (1974). The higher the fixed capital per worker, the more capital-intensive an industry. This estimation deals with capital stock instead of capital flow, so it allows for comparing both the consumed and the capital stock required in the production. The skill ratio can be measured by the share of professional, technical and scientific personnel in the labour force. A high ratio indicates a human capital-intensive industry. This index tries to give some picture of the innovative content of the manufactured goods.[5] Both indices are the result of long-term investment in an industry. For this reason the classification based on these indices is called the industry method. The commodity method classifies commodity groups by factor intensity. The indices used in this method are the value added per worker and the labour costs share in value added. These indices were used by Lary (1968), Krause (1982), Anderson (1980) and Findlay and Li (1992). Krause (1982) presents a classification in which goods are divided into natural-resource intensive goods, unskilled labour-intensive goods which rely on per capita value added in the USA, and technology-intensive goods using USA data on research and development expenditure as an indicator. Tyers and Phillips () and Ariff and Hill (1986) adopted a similar classification, but they divide resource intensive goods into agriculture and mineral-resource intensive products.

The wage share in value added is commonly used as an indicator of the labour requirement. Nevertheless, a high wage bill/value added ratio may be the result of a large number of low-wage unskilled workers or few well-paid skilled workers. In the first case the industry is labour-intensive while in the second case is human capital-intensive. Zhang (1994) stresses the need to use the value added per worker together with the wage share in value added to overcome this problem. In our view, another possibility is to diseggregate the wage share in value added into the share corresponding to skilled personnel (salaries) and the share corresponding to unskilled personnel (wages).

Venezuela's 1971 industrial census provides data to measure factor intensity by using the skill ratio, the value added per worker, and the share of wages in value added. It was not possible to estimate the fixed capital per worker index due to the lack of reliable data on capital stock. Indeed, earlier attempts to classify Venezuelan manufacturing branches using the fixed capital per worker led to mistaken results. A classification using this index for Venezuelan manufacturing in 1966 was made by Tomas (1975). According to this classification, many establishments in textiles were

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[5] Lary (1968).

ranked as capital-intensive, while heavy industries like electrical and mechanical machinery and transport had many establishments which appeared to be labour-intensive. This casts doubt on the reliability of these results. In fact, the institution responsible for the industrial census carried out in 1961 and 1966 warned about the unreliability of data on capital stock for these years.[6]

The classification for 18 manufacturing subsectors according to the commodity method in 1971 is reported in Table 7.a. The skill ratio was also used. Industries were classified into labour-intensive, capital-intensive and human capital-intensive. Those branches ranked in places 1-9 by using the wage share in value added were classified as labour-intensive. Non-metallic mineral products were classified as labour-intensive because the

Table 7.a Classification of industries by factor intensities, 1971 ranking

ISIC Code		Labour productivity Y/L	Skill ratio Salaries/Y	Wages share in value added wages/Y ratio
	Labour-intensive industries			
332	Furniture	18	16	1
331	Wood	12	17	3
356-54-90	Other industries	11	11	4
323	Leather	9	15	5
322-24	Wearing apparel & footwear	17	18	6
321	Textiles	10	14	7
381	Metal products	16	12	8
355	Rubber	15	10	9
361-62-69	Non-metallic mineral products	13	13	10
	Capital and/or human **capital intensive industries**			
313	Beverage	1	3	18
314	Tobacco	3	2	17
341	Paper	4	6	16
384	Transport equipment	5	8	15
311-12	Food	8	7	14
371-72	Basic metals	2	5	13
351-52	Chemicals	7	1	12
382-83	Mechanical & electrical machinery	14	9	11
342	Printing	6	4	2

Sources: own estimations based on data provided by the 1971 industrial survey

[6] See Iturbe (1980).

wage/value added ratio is above the average and because its low skill ratio. Printing was included in the capital-intensive group due to its high skill ratio. Labour-intensive industries had the lower rank of value added per worker. Indeed, a negative correlation coefficient of -0.70 was found between these two indices. This group was also characterised by a low skill ratio. The more labour-intensive and less human capital-intensive were furniture, wood, leather, wearing apparel, textiles and metal products.

Those industries ranked between 9 and 18 according to the wage bill/value added were classified as physical capital-intensive. Among the most capital-intensive branches were beverages, tobacco, basic metals and chemicals. It should be noted that these industries are also human capital-intensive. According to the skill ratio index, all of them are ranked in places 1-9. Apart from machinery, when the value added per worker index is considered, this group had the highest ranks.

Table 5.c Decomposition of the share of wages in value added, Venezuelan private manufacturing, 1968-1988

		1968-71				1974-77				1978-82				1983-88			
Codes	Sectors	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va	pw	Va/L	Po/Pva	W/Va
	Labour-intensive industries	-1.37	4.17	0.59	-5	-0.3	0.66	2.22	1.3	2.85	3.81	0	-1	-6.21	1.29	2.83	-4.7
332	Furniture	0.1	0.5	0.2	-0.2	-1.9	0.57	1	-1.4	6.03	7.47	0.4	-1.1	-5.3	0	2.6	-2.7
331	Wood	-5.6	6.9	-0.2	-12.6	-8.6	-0.94	1.4	-6.3	-2.1	1.02	0.9	-2.3	-9.1	-2.17	3.4	-3.6
354-56-90	Others	8	2	-8.3	-2.3	5.4	6.91	-0.6	-2.1	2.8	-3.14	-0.6	5.4	-9.3	-4.77	2.2	-2.3
323	Leather	0.8	-2.5	0.2	3.5	7.8	-1.46	0.2	9.5	-0.6	1.1	0.6	-1.2	-10.3	-4.67	-1.3	-6.9
324	Wearing apparel	-7.3	-1.7	0.1	-5.5	-0.3	-1.38	1	2.2	3.1	5.095	0.4	-1.6	-4.4	-0.47	0.4	-3.5
322	Textiles	4.9	7.8	0.1	-2.8	-0.3	-3.39	1.1	4.2	5.3	2.02	0.4	3.7	-8.8	2.96	6.3	-5.5
381	Metal Products	-5.1	8.7	0.1	-13.7	5.6	13.48	8.1	0.1	5.6	7.39	0.4	-1.5	-5.9	0.52	1.1	-5.4
355	Rubber	-18.8	2.4	16.9	-4.2	5.4	-4.43	1.8	11.7	-1	18.65	0.3	-19.4	2	6.06	-0.4	-4.5
361-62-69	Non-metallic minerals	2.5	5.1	-1.2	-3.8	-9.1	-5.36	1	-2.7	2	5.54	0.4	-3.2	-6	3.9	5.1	-4.8
	Capital and/or human																0
	Intensive industry	-1.41	1.654	0.43	-2.6	1	-0.11	0.83	0.9	2.29	4.07	0.5	-1.3	-8.67	1.82	3.62	-6.9
313	Beverage	0.8	3.8	0.1	-3	1.69	3.08	1.1	-1	4.3	1.29	0.4	3.4	-6.2	2.24	2.2	-6.2
314	Tobacco	12.5	-7.1	0.1	19.6	10	25.35	1.1	-14.3	-19.6	9.27	0.5	-28.4	-2.4	3.11	0.2	-5.3
341	Paper	2.8	7.6	0	-4.8	3.4	6.39	1.1	-1.9	-0.5	-5.22	0.1	4.8	-6.2	4.96	5.9	-5.3
384	Transport equipment	-15.6	-13	3.2	0.5	-1.2	-5.98	1.1	5.8	8	16.15	0.3	-7.9	-13.1	5.12	6.3	-12
311-12	Food	-0.7	5.8	-0.1	-6.5	-1.4	-7.05	1	6.7	1.9	0.97	-1.3	-0.4	-6.8	-1.66	1.4	-3.7
371-72	Basic metal industries	1.7	8.4	1.9	-4.8	6.2	-10.01	1.8	18	6.1	22.92	10.7	-6.1	-17.4	6.8	10.9	-13.4
351-52	Chemical	0.5	5.7	1.6	-3.6	6.3	0.8	-5.1	0.4	-1.7	5.34	4.2	-2.9	-8.1	4.9	6	-6.9
383-84	Mechanical & elect machiner	-2.5	1.2	1.3	-2.3	3.7	1.91	1	2.8	7.5	2.94	2	6.6	-14.6	3.11	5.7	-12.1
342	Printing	0.7	-4.3	0.1	5.1	-2.2	-1.65	1.1	0.5	4	0.57	0.3	3.8	-10.2	-3.8	0	-6.4
300	Manufacturing	-1.17	2.54	0.41	-3.3	0.6	-0.42	1.3	2.3	2.6	4.62	0.5	-1.6	-7.8	1.3	2.9	-6.2

Notes: The formula for changes in the wage share in value added is as follows: $\frac{\dot{W}}{Va} = \dot{pw} - [\dot{lp}' - \frac{\dot{P_o}}{P_v}]$

where:
pw = product wages
Va/L= value added per man
W/Va = share of wages in value added
Po/Pva = relative price of output to value added or effect of input costs
Growth rates are the least squares estimates of trend growth. Source: own estimations based on data provided by the Central Bank of Venezuela, economic reports, various issues and the industrial census.

Exports and imports: Sectoral exports were provided by the Central Bank of Venezuela, Finexpo, (various issues) and the source for desegregate manufacturing exports and imports at 1984 prices is own estimations based on data provided by Brandi (1989) from 1968 to 1983 and on data provided by the Central Bank of from 1983 to 1993. The real growth rates provided by Brandi were used to complete the whole series before 1983. It must be noted that the basic source for this data is the international trade bulletin from OCEI, which guarantee its compatibility with data on value added and output that is provided by the same source (OCEI). Likewise, it is worth noting that the paper by Brandi is a research made for the Central Bank of Venezuela while she was a researcher for that institution.

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