Alternative Perspectives on Fostering Inclusive and Sustainable Development

– Three Cases of Rural Development in China

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Abstract

This research investigates the nexus between industrialisation and rural growth in China, while providing alternative perspectives on inclusive and sustainable growth patterns. Instead of considering rural areas in China as homogenous, this research presents the multiple facets of rural China through three case studies, identifying various growth patterns that are suitable for different levels of development. The first case, Yuhuan City (county level) in Zhejiang Province, discusses how industrial development builds new engines of growth as this rural area becomes a burgeoning city. The case of Alxa League in Inner Mongolia investigates how a resource-abundant region diversifies its economy and seeks green transition. The third case documents the efforts of breaking poverty traps in Linxia, a poverty-stricken prefecture in Gansu Province.

Prior to the Chinese economic reform in 1978, China implemented urban-rural divide policies that substantially delayed urbanisation. Rural populations were confined within rural collectives, and free movement was restricted. Since most of the Chinese population lived in rural areas before the economic reforms, the analysis of rural China begins with the dual economy model (Lewis, 1954). Instead of taking full employment in the modern sector for granted, this thesis stresses the significance of creating sufficient productive employment to absorb surplus labour and break dualism. Through a comparative analysis of macro-level growth strategies in the pre-reform and post-reform eras, it is considered that pursuing heavy industry-oriented industrialisation without participating in global value chains (GVCs) was responsible for the dualistic economic structure in pre-reform China. Yet, labour-intensive industrialisation in the post-reform era runs the risk of a race to the bottom, since it is important to develop

comparative advantages that go beyond cheap labour. The Yuhuan case discusses how a local production system has been developed to support a "components supermarket" business model, enabling participation in GVCs while continuously increasing workers' wages and thus avoiding the curse of racing to the bottom.

The Alxa case investigates the pursuit of a green transition in ethnic minority communities and suggests that an environmentally sustainable growth pattern is also more equitable and inclusive. Environmental costs, which are treated as externalities by mainstream environmental economics, are not only causing market failures to persist, but are also one of the causes and manifestations of inequalities.

Furthermore, enhancing the poor population's capabilities is an integral part of fostering inclusive growth. The Linxia case indicates the state's role in breaking poverty traps in underdeveloped rural areas. In addition to providing essentials such as access to education and basic welfare, the state devotes massive resources to improving the physical and social infrastructure and creates growth opportunities for underdeveloped regions.

Casting attention to the power dynamics underlying the market economy, such as the capitalist world system, unequal ecological exchange that mispriced environmental costs is more about appropriation than market failures, and the inevitable flow of resources and labour from underdeveloped to advanced regions, this research delves into the pursuit of inclusive growth which goes beyond the concept of equal opportunity based on neoclassical economics. Roemer (1995) criticises conservatives for only touching the surface of the problem: "If there is no discrimination in hiring and

everyone has access to education through a public school system or vouchers, then the conservative standard of equality of opportunity is met." This research considers that promoting equality requires but is not limited to tackling the unequal world system, addressing market failures, and enhancing individuals' capabilities. Through an investigation of rural China's various growth patterns, alternative perspectives on fostering inclusive and sustainable growth are provided, such as through following a production-oriented growth pattern, nurturing advanced productive capabilities, moving up GVCs, pursuing green growth, and breaking poverty traps in underdeveloped regions with state-coordinated investments.

Table of Contents

List of Figures

List of Tables

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Abbreviations

CSP	Concentrating solar power
DPV	Distributed photovoltaic
ECLA	Economic Commission for Latin America
EOI	Export-oriented industrialisation
FMD	Feldman–Mahalanobis–Domar
GCC	Global commodity chain
GDP	Gross Domestic Product
GNP	Gross National product
GPN	Global production network
GVC	Global value chain
HIDC	High income developing country
IC	Integrated circuit
ISI	Import-substitution industrialisation
IRENA	International Renewable Energy Agency
ILO	International Labour Organisation
LIDC	Low income developing country
LCOE	Levelised cost of electricity
LPS	Local production system
LTP	Lewis turning point
MNC	Multinational corporation
NICs	Newly industrialised countries
NGO	Non-governmental organisation
NBS	National Bureau of Statistics
NPC	National People's Congress

NVC	National value chain
OECD	Organisation for Economic Co-operation and Development
OEM	Original equipment manufacturer
PV	Photovoltaic
R&D	Research and development
RCT	Randomised controlled trial
SEE	Society of Entrepreneurs & Ecology
SEPAP	Solar Energy for Poverty Alleviation Programme
SME	Small and medium-size enterprise
SOE	State-owned enterprise
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organisation
UNEP	United Nations Environment Programme
US	United States
UCT	Unconditional cash transfer
WTO	World Trade Organisation
WWII	Second World War

1. Introduction

1.1 Objectives and research questions

This research aims to investigate the nexus between industrialisation and rural development in China, while providing alternative perspectives on inclusive and sustainable growth patterns. For a long time, the urban–rural divide has been significant in China. Cities can attract wealth and talent from rural areas, thereby reducing the growth potentials of the latter. Revitalising rural areas is crucial for fostering inclusive growth. As China has launched poverty reduction and rural revitalisation programmes, the time is ripe for examining rural development in China. Instead of considering rural areas in China as homogenous, this research presents the multiple facets of rural China through three case studies, identifying various growth patterns that are suitable for different levels of development.

The first question this research investigates is, "How can development be fostered for less developed regions and vulnerable populations?". Yet, growth is not automatic and may not occur in the most underdeveloped regions. In mainstream economics, "the true ingredients of persistent economic growth remain mysterious", and "there is no accepted recipe" regarding the question of how to foster growth (Banerjee and Duflo, 2020). Mainstream economics focuses on how to achieve an optimal allocation of economic resources. It considers that the misallocation of resources saps growth, and the policy suggestion for alleviating poverty is to improve the allocation efficiency by removing barriers (e.g., household registration) which hinder the mobility of productive factors. In the context of the urban–rural divide, normally capital and labour will flow from rural to urban areas where they are most productive. Notwithstanding that economic theories predict higher capital returns in poor areas, capital hardly flows into

underdeveloped regions due to real world constraints such as a lack of physical and social infrastructure. Therefore, to explore the mechanism of fostering development in less developed regions, I turn to the non-neoclassical approaches that emphasise the importance of creating a dynamic for growth, while also addressing the constraints imposed by under-development. For example, theories such as global value chain (GVC) participation, world-systems theory, the dual economy (Lewis, 1954), the developmental state, and others provide theoretical tools for conducting this research.

The second question this research addresses is, "How can inclusiveness and sustainability be achieved in promoting rural growth?". According to UNCTAD (2023):

> similar rates of economic growth can have different effects on poverty, employment opportunities and human development depending on the country, the underlying conditions and governance. The extent to which economic growth reduces poverty depends on the degree of equal opportunities and freedom to participate in activities generating economic growth and to benefit from those. Thus, both the pace and pattern of growth matter for reducing poverty and inequality.

The United Nations Conference on Trade and Development (UNCTAD) proposes the concept of inclusive growth and defines it as a convergence in the quality of life for all population groups. UNCTAD constructs an extended Inclusive Growth Indices consisting of four pillars – economy, living conditions, equality, and environment – and 27 indicators (see Table 1). According to UNCTAD (2023), inclusive growth can be

> achieved not only through the governmental redistribution of economic performance outcomes, but also through the creation of favourable, non-

discriminatory economic conditions, that allow each population group to achieve self-sufficiently [a] quality of life comparable to other groups and contributing to the improved quality of life of the entire population and in a sustainable manner.

Table 1: UNCTAD IGI dimensions

Pillar 1. Economy	**Pillar 2. Living condition**	**Pillar 3. Equality**	**Pillar 4. Environment**
GDP	Social and health conditions	Labour participation	Natural capital protection (water, land, gas emissions)
National income	Logistics and finance	Income inequality	Energy intensity
Power consumption		School enrolment	
Employment		Political participation	
Trade		Gender socio-reproduction	

Note: Each of the pillars is composed of a set of correlated indicators. The indicators are presented in box 1.
Source: UNCTAD (2023)

However, most of the research on inclusive growth prioritises diagnosing and measuring inclusive growth (see, for example, McKinley, 2010), often emphasising the accumulation of material and human capital, while the interpretation of inclusive growth and how to achieve it remains an open question. The contributions of this research to the study of inclusive growth are threefold: First, in contrast to mainstream economics which does not identify different growth strategies or patterns, this research argues that development patterns can exert varying influences on both the economy and society, and some development patterns are more inclusive and sustainable than others in term of effectively balancing the four elements of "economy, equality, environment,

and living condition". The inclusiveness and sustainability can be achieved without hurting growth potential by overcoming challenges underlying the capitalist world system, seizing opportunities in GVC participation, nurturing advanced productive capabilities, mitigating the negative impacts of unequal ecological exchange, and breaking persistent poverty traps. By doing so, this research provides some guidelines (not exhaustive) for fostering inclusive and sustainable growth, following general principles while adapting to local conditions and constraints. Second, the potential for improving inclusiveness and sustainability is primarily identified by examining the dimension of political economy. In contrast to mainstream economics, this research acknowledges the existence of power dynamics inherent in the market economy, where the capitalist world system significantly influences the constraints and choices faced by late developing countries, and the power dynamics between capital and labour affect distributional outcomes. Correcting these "market failures" and striving for fairer outcomes will not trigger a trade-off between efficiency and equity. Instead, inclusiveness and sustainability can be achieved without harming growth potential. Third, this research provides useful frameworks and policy schemes for pursuing inclusive and sustainable development. By providing context-specific empirical research in rural and semi-rural areas of China, it substantiates the four pillars of inclusive growth – economy, living conditions, equality, and environment – suggested by UNCTAD. Each empirical chapter, from Chapter 5 to Chapter 7, presents individual framework and policy suggestions. For example, the Yuhuan case suggests a strategy for SMEs to participate in GVCs, the Alxa case presents experimented schemes and the implemented policies while examining the roles of various stakeholders in green transition, and the Linxia case suggests a framework of "Condition, Capability, Industry, and Benefits" to encapsulate the measures of poverty alleviation.

Next, I will discuss the concepts of "economy," "equality," "environment" and "living condition" to clarify some misconceptions and illustrate how they can be achieved in inclusive and sustainable development.

Economy

One topic this research will focus on is economic growth, which is considered the most potent tool for alleviating poverty and enhancing the quality of life (Bourguignon, 2003). Economic growth "would raise the consumption of the mass of lower income groups to levels higher than would result from [the] redistribution of all the excess resources currently accruing to top income groups", especially during the early stages of development (Hirsch, 1976). Regarding the question of fostering growth, neoclassical economics highlights the importance of capital accumulation, technology progress, and labour force growth. However, Schumpeter (1992) suggests that growth is not merely:

> a quasi-automatic increase in population and capital or [due] to the vagaries of monetary system […; instead,] the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organisation that capitalist enterprise creates.

Compared to neoclassical growth models and new growth theories, development economics focuses on fostering growth for poor populations and underdeveloped regions, nurturing advanced productive capabilities, creating development strategies to overcome challenges in the context of globalisation, emphasising social and structural changes, and delivering fairer market outcomes. This research employs the Lewis model (1954) to reveal a growth pathway through absorbing idle resources and surplus

labour into the modern sector, which develops by meeting the demand of world markets. It stresses the importance of creating sufficient quality jobs in a modern sector as both a growth pattern and a method to reduce inequalities stemming from dualism and unemployment. It also indicates that manufacturing can serve as both a growth powerhouse and a great equaliser. Moreover, this research identifies the power dynamics underlying the market economy, such as the capitalist world system, unequal ecological exchange, and the inevitable flow of resources and labour from underdeveloped to advanced regions. The pursuit of growth in the context of globalisation requires overcoming these obstacles by deploying proper strategies and a well-balanced policy mix.

Equality

Unequal outcomes derive from the variance in both personal characteristics and a complex interplay of social, historical, and institutional factors. These factors often offset and intertwine with each other, making it very difficult to ascertain the significance of a single contributing factor. For example, economic growth can increase the "skill premiums" for certain individuals, which enlarges inequality, but it can also diffuse knowledge and encourage investment in training and skills, which decreases inequality, resulting in uncertain overall effects on inequalities. Empirical studies also show contradicting results regarding the relationship between inequality and growth. While some researchers (Alesina and Rodrik, 1994; Benabou, 1996; Perotti, 1996) report that inequality negatively correlates with economic growth in cross-country regressions, Forbes (2000) predicts the opposite. Atkinson (2015) finds no clear relationship between a country's inequality (Gini coefficient) and its annual average growth in GDP. As suggested by a World Bank (2006) World Development Report, the

main reasons why both the cross-sectional and the time-series evidence can be misleading include:

> the possibility of a nonlinear relationship between inequality and growth, problems with [the] comparability of cross-country data, and the difficult question of identifying the direction of causality when both variables are likely to influence one another.

Therefore, it is important to note that improving a single contributing factor may not reduce overall inequality, as intertwining factors may offset each other.

Regarding the causes of inequality, mainstream economics abstracts them into two main categories – inequality based on rewards for productive characteristics, natural abilities, family advantages, and inequality based on unequal opportunities caused by market discrimination, imperfect competition, and institutions. This dichotomy aligns with neoclassical economics, which views economic issues as either market-determined or deviating from perfect market competition. This view indeed captures that personal characteristics are a main contributor to inequality, but using "equal opportunities" as a catch-all category for all remaining social, economic, and institutional factors is rough and misleading for the below reasons. First, the inequality debate has long been disconnected from the discussion of distribution, overlooking distributional conflicts as a systematic cause for inequality. The strand of inequality research suggests that individuals are rich because of their personal capabilities and better access to opportunities, while for distribution research, the accumulation of fortune for capital owners derives from surplus extraction from workers, and this situation can deteriorate if there exists a large reserve army of labour. Since variations in personal capabilities are a natural phenomenon, inequalities based on personal

capabilities are legitimised, not as just, but as unjustifiable, and hence distributional conflicts are depoliticised and removed from the sphere of policy action (Hirsch, 1976).

Second, the theorisation of the catch-all category of "equal opportunities" is misleading. The concept of unequal opportunities is defined as "market discrimination or segmentation and unequal access to income opportunities" (Knight, 2014), which occur "where there is imperfect competition and markets where supply and demand determine only a range of wages, where there is unemployment, and where there is an important place for institutions" (Atkinson, 2015). This conception equates equal opportunities with perfect competition and with a situation where the market mechanism operates without any restraints. It fails to recognise the pervasive unequal power relations within the market economy that contribute to equality. In contrast, this research brings the political dimension back into the discussion of inequality, acknowledging the unequal power relations underlying the capitalist world system and the power dynamics between capital and labour.

Furthermore, in practice, the neoclassical approach to equalise opportunities has been reduced to addressing unequal access. As described by Roemer (1995, p. 21):

> what distinguishes socialists or leftists from conservative is, in large part, the view of how deeply one must go in order to equalise opportunities. Conservatives believe not very deeply: if there is no discrimination in hiring and everyone has access to education through a public school system or vouchers, then the conservative standard of equality of opportunity is met. Socialists believe that those guarantees only touch the surface. … Most generally, equality of opportunity requires that people be compensated for handicaps they suffer, induced by factors over which they have no control.

Put differently, equal opportunity is a much broader concept than equal access. Leftists consider the market economy as a system where all agents with diverging economic power make exchanges or compete, and the rich and powerful may use their economic power to force other individuals into unequal exchanges, for example, by maintaining a large reserve army of labour, diminishing competition, and limiting social mobility (Zhang, 2023). A leftist version of equal opportunity requires that "no one can manipulate economic power to force others into unequal exchanges, and no one is forced by his/her disadvantaged circumstances into unequal exchanges" (Zhang, 2023). To achieve equal opportunity requires compensating the vulnerable population for handicaps they suffer, restraining excessive economic power, and taking initiatives to develop poor regions, which is very demanding.

In most countries, the frequently used approach to tackle inequality is redistribution, including progressive taxation and social security for all (Atkinson, 2015). This approach aims to directly address unequal outcomes rather than unequal opportunities. China has not performed well for a long time in terms of implementing progressive taxes and ensuring equal service provision. Since the pre-reform era, the regressive taxation system, the unequal healthcare, and education systems, along with other unequal institutions between urban and rural areas, have contributed to rural poverty. During China's reform process, some institutional divides imposed on rural and urban residents were gradually abolished, such as the agricultural tax and the restrictions on regional migration. However, some rural-urban divide still exists.

Environment

Environmental costs and natural capital are considered externalities in neoclassical economics because they cannot be appropriately valued. Mispriced environmental costs and natural capital would cause unequal exchanges for those whose livelihoods depend on nature and deteriorated terms of trade for countries exporting primary products. The under-valuation of natural capital is less about market failures than appropriation; the power relationship of capitalism lies behind “ecological imperialism” (Rice, 2007).

Unequal ecological exchanges exist both internationally and domestically. For internationally occurring unequal ecological exchanges between countries, researchers suggest redistribution from rich nations to poor nations, such as by making the rules of the global economy fairer, or through direct transfers of income (Hickel, 2019). Unequal ecological exchanges between countries may be alleviated by improving trade terms and pricing mechanisms. However, this does not eliminate unequal ecological exchanges; instead, it shifts the issue to a domestic level, creating conflicts between capitalists who receive environmental compensation and uncompensated ordinary people. The latter includes those whose lives are affected by environment deterioration and those whose livelihoods depend on nature. However, compensating individuals for environment harm does not solve climate issues. It is noteworthy that individuals are often unable to act effectively on environmental conservation. Though pricing hidden environment harms or redistributing financial resources both internationally and domestically can help mitigate unequal ecological exchanges, collective and proactive environmental conservation efforts are essential for addressing climate issues. This research argues for collaborated actions by the state and society. It uses the case of Alxa to illustrate that it is possible to pursue environmental justice without diminishing

economic growth, and it can deliver fairer market outcomes, particularly for the vulnerable populations whose livelihoods depend on nature.

Living conditions

Improving living conditions is an important component of poverty reduction and human development. The poor population deserves to be compensated for adversaries they suffer. Moreover, compared with the difficult task of reducing inequality, which results from complex factors with uncertain effects on overall inequality, improving living conditions and reducing poverty is a clear and attainable goal which can be accomplished through the provision of subsistence allowances and essential services.

This research will investigate poverty reduction, emphasising the improvement of living conditions as a key component. China's achievement in poverty reduction is remarkable. Based on the World Bank's definition of the poverty line of US$1.90 (2011 PPP), 88.3 percent of Chinese citizens were in poverty in 1981(Wan et al., 2008). However, China announced that extreme poverty had been eliminated by the end of 2020 (BBC, February 25, 2021).

Research overview

Prior to the Chinese economic reform in 1978, China implemented urban-rural divide policies that substantially delayed urbanisation. Rural populations were confined within rural collectives, and free movement was restricted. Since most of the Chinese population lived in rural areas before the economic reforms, the analysis of rural China begins with the dual economy model (Lewis, 1954). Instead of taking full employment in the modern sector for granted, this research stresses the significance of creating

sufficient productive employment to absorb surplus labour and break dualism. Through a comparative analysis of macro-level growth strategies in the pre-reform and post-reform eras, it is considered that pursuing heavy industry-oriented industrialisation without participating in GVCs was responsible for the dualistic economic structure in pre-reform China. Yet, the labour-intensive industrialisation in the post-reform era runs the risks of a race to the bottom, thus it is important to develop comparative advantages that go beyond cheap labour. The case of Yuhuan discusses how a local production system (LPS) has been developed that nurtures a business model of a "components supermarket" to participate in GVCs, and keeps increasing workers' wages, avoiding the curse of racing to the bottom.

The Alxa case investigates how Alxa, a League in Inner Mongolia, China, achieved three key goals – economic growth, environmental protection, and a more equitable distribution – by pursuing a green growth pattern. It challenges the argument that environmental justice comes at the expense of economic growth. Instead, it suggests that in certain circumstances, the trade-off between the environment and growth diminishes as people find economic opportunities in the process of environmental conservation, and the utilisation of renewable resources is maintained at a sustainable level. Furthermore, a well-designed and implemented green transition scheme is crucial to protect the benefits of vulnerable groups and ensure a just transition for all. The Alxa case provides context-specific research on the green transition in ethnic minority communities and less developed regions. It discusses the constraints and conditions faced by Alxa, the experimented schemes, and the implemented policies, including green subsidies, green public investment, and the creation of green jobs. It also

examines the different roles played by the state, NGOs, enterprises, and rural society in green transition practices.

Moreover, enhancing the poor population's capabilities is an integral part of fostering inclusive growth. The case of Linxia indicates the state's role in breaking poverty traps in underdeveloped rural areas. Besides providing essentials such as access to education and basic welfare, the state devotes substantial resources to improving the physical and social infrastructure and creates growth opportunities for underdeveloped regions.

This research will delve into the pursuit of inclusive growth such as through following a production-oriented growth pattern, nurturing advanced productive capabilities, moving up GVCs, pursuing green growth, and breaking poverty traps in underdeveloped regions with state-coordinated investments.

This research provides insights into the following sub-questions:

- Through comparing development strategies in pre-reform and post-reform China and analysing the problems with the pre-reform development pattern, this research investigates the distributional implications of industrial policies in the pre-reform era, and how can the obstacles of late development be overcome without falling into the trap of racing to the bottom.
- What is the development pattern observed in Yuhuan, the once rural area with a high level of development? What are the business models employed by firms in this area, and what are the circumstances of the workers?
- Can addressing environmental injustice deliver inclusive and sustainable development in Alxa, a resource-abundant but environmentally fragile area?

- How can development be fostered in Linxia, an underdeveloped region, through state-orchestrated investment? How do poverty reduction programmes benefit the poor population?
- What is the role of the state in promoting inclusive and sustainable development? What is the state–society relationship?

1.2 Methodology

This section provides an elaboration on the methodology employed in this research. To ensure a comprehensive analysis, a mixed research methods approach is employed, incorporating qualitative analysis (through case study, theoretical analysis, and comparative study) and some quantitative (statistical) analysis. The utilisation of various research techniques and diverse sources of data allows for a profound understanding of how different development strategies impact the growth trajectories of various rural areas and small towns, as well as the lives of their residents.

Firstly, this research adopts a non-neoclassical approach to examine how different growth strategies influence growth and distributional outcomes. Theoretical analyses are conducted in Chapter 2 and 3, with a framework provided in Chapter 3. Neoclassical economics does not consider growth patterns and overlooks the power dynamics within the market economy. In contrast, through theoretical discussion this research identifies the power dynamics underlying the market economy, such as the capitalist world system, unequal ecological exchange whereby mispriced environmental costs are more about appropriation than market failures, and the inevitable flow of resources and labour from underdeveloped to advanced regions. This research acknowledges the challenges encountered by late developing countries, which affect their choice of

development pathways, and explores growth opportunities in the context of globalisation.

Secondly, since the purpose of this research is to analyse the implications of various growth patterns on rural development, a multi-layered approach is employed to integrate the analysis of the macro-level development strategies with regional growth patterns:

(1) Macro-level (development strategies and historical context): Development strategies comprise a set of industrial policies that shape a country's relationship with the global economy and allocate resources among domestic industries and major social groups. National development strategies, in turn, affect a country's development pattern, which includes a nation's leading industries, the degree to which these industries are inwardly or outwardly oriented, and the major economic agents that implement and sustain development (Gereffi, 1990). Reviewing the historical context provides insights into the reasons behind the adoption of certain development strategies, the evolution of government policies, and their implications for society and the economy.

(2) Meso-level: The analysis focuses on regional growth patterns, considering industrial development, regional government policies, and institutional changes.

(3) Micro firm-level: The focus is on sectoral specificities (in particular, market and/or sector), firms' behaviour and strategy, and employees' income growth within a firm.

The methods or approaches:

(1) Case studies. The primary qualitative research method I employ is the case study. Case studies are employed for the following reasons. First, the case study approach

enables the examination of China's diverse rural areas with varying levels of development. Instead of considering rural areas in China as homogenous, this research selects three cases that represent the high, the medium, and the low level of development in rural China (see Table 2). Second, distinct regional conditions and endowments dictate different growth patterns. The case study approach allows for the consideration of differences in social and cultural settings, as well as the identification of different growth patterns according to each region's circumstances and interactions with a variety of actors on the ground (government, communities, and labour).

However, case studies also have limitations. One such limitation is the potential for selection biases, as authors may select cases that align with their expectations. This can compromise the objectivity and generalisability of the findings. As a result, cross-regional econometric research is often adopted by the mainstream economics approach. However, it is worth noting that case studies allow for a nuanced exploration of the contextual factors that shape outcomes, offering valuable insights into the design, implementation, and consequences of growth strategies, as well as a more comprehensive understanding of the subject matter. In contrast, relying solely on quantitative analysis fails to comprehensively capture the complex dynamics of ongoing conflicts, contradictions, and collaborations on the ground, which are often hidden behind simple observable variables. Therefore, the case study approach is considered more relevant for the purpose of this research.

The selection of Yuhuan, Alxa, and Linxia as case studies

The first case of Yuhuan City in Zhejiang Province discusses how industrial development builds new engines of growth as this rural area becomes a burgeoning

city. The case of Alxa League in Inner Mongolia investigates how a resource-abundant region diversifies its economy and seeks green transition. The third case documents the efforts of breaking poverty traps in Linxia, a poverty-stricken prefecture in Gansu Province.

Table 2: Comparison of the per capita GDP and income for the three regions

	Per capita GDP (yuan)	Per capita urban disposable income (yuan)	Per capita rural disposable income (yuan)
Yuhuan	110,122	81,806	41,871
Alxa	137,663	47,266	25,204
Linxia	17,677	24,902	9,006

Source: Data from the Taizhou Statistical Yearbook 2022, the Statistical Bulletin on the National Economy and Social Development of Alxa League in 2021, and the Statistical Bulletin on the National Economy and Social Development of Linxia Prefecture in 2021[1]

Yuhuan is a county-level city, affiliated to Taizhou Prefecture in Zhejiang Province. The motivation for choosing Yuhuan is to represent affluent rural and semi-rural areas in coastal China, such as those in Zhejiang, Jiangsu, and Guangdong provinces. First, Yuhuan is among the richest counties in China. In 2021, Yuhuan ranked second in terms of per capita disposable income for urban and rural residents among the top fifty strongest counties and county-level cities.[2] Second, Yuhuan's development sheds light on the growth paths of these affluent rural areas in coastal China. China has a long history of developing handicraft industries in the rural Jiangnan region (south of the Yangtze River). Starting with handicraft industries and family workshops, some rural areas on the coast gained a head start in the early years of the reform era by filling the large markets with petty commodities. Yuhuan barely had any industries except

farming, fishery, and salt production in the 1950s. However, it has since evolved into an important component provider, forming a crucial link in the domestic supply chains that support the advanced industrial sectors in big cities. Third, beyond the concern of representativeness, the selection of cases needs to consider to what extent the research object explains the research theme. Yuhuan, a manufacturing town, allows for the observation of employment's implications on wages. Despite a relatively low per capita GDP, the per capita disposable income for Yuhuan residents is not far behind that of their counterparts in major cities such like Shanghai and Beijing, demonstrating that manufacturing serves as a social equaliser (See Chapter 5, Table 6). Compared to its neighboring area, Wenzhou, despite their similar early development paths based on rural clusters of small-scale family enterprises that draw on market-oriented flexible production and local networks, Wenzhou has diversified businesses into non-manufacturing sectors and relocated some businesses (Wei et al. 2007), while Yuhuan remains manufacturing-focused and has retained most local businesses. As a result, Yuhuan has surpassed Wenzhou in terms of per capita GDP, urban, and rural disposable income (See Chapter 5, Table 6). Furthermore, compared with Jiangsu Province, which has attracted significant foreign investment, Zhejiang's economy relies more on domestic private businesses. Yuhuan, due to its inconvenient transportation links to major cities such as Shanghai and Hangzhou, relies more on local grassroots assets and capabilities, illustrating the possible development pathway from a rural and semi-rural background.

Such a burgeoning town does not fit the urban–rural stereotype. One might argue that Yuhuan is not a typical rural area. However, one direct indicator to determine whether a region is considered rural in China is the proportion of rural *hukou* holders. Although

these regions may now be considered cities, most residents had rural hukou decades ago, which were gradually transformed into urban *hukou* during the development process. The entire Taizhou Prefecture was predominantly rural before the economic reforms of the late 1970s, with 91% of the population holding rural *hukou* in 1964 and 88.2% in 1982.[3] Including rural industrialisation in this research aims to present a development possibility for rural areas beyond traditional approaches focusing on farming mechanisation and the Green Revolution. Ignoring rural industrialisation would exclude the development experience of affluent rural and semi-rural areas in coastal China.

Moreover, rural industrialisation has been encouraged by the state as one pathway for rural development. Historically, the Chinese government has sought to prevent the "overgrowth" of megacities, viewing towns as suitable for absorbing the population moving out of agriculture. The former Premier of China, Li Keqiang (1991), proposed a ternary structure comprising cities, townships (rural industrial sector), and the rural sector, arguing that China's urbanisation could be facilitated by developing the rural industrial sector, as the urban sector alone may not provide sufficient employment for all those leaving agriculture.

Furthermore, Chinese literature has already considered the development of rural industries as part of rural development. For example, Fei's (1962) seminal work, investigated in Jiangsu province during the reign of Chiang Kai-shek, argued that with a dense population living on limited land, rural residents could not become wealthy without developing side businesses and handicraft industries.

The case study of Yuhuan investigates two questions: “How can economic development be achieved by developing manufacturing in rural/semi-rural areas?”, and “How does industrial development influence the circumstance of workers, particularly migrant workers?”. This case employs both qualitative and quantitative research approaches. Qualitative methods include semi-structured interviews and network analysis of the local production system. Quantitative methods involve surveys with workers and examination of secondary data sources, such as statistical yearbooks.

Alxa (or Alashan) is chosen for the case study of green transition because of its importance in China’s efforts to control desertification and its success in combining environment protection, economic growth, and favourable outcomes for the poor population. In 1990s, the sandstorms in North China were severe, with deserts in Alxa considered a major source of the sand. Therefore, Alxa is a key area for implementing the Three-North Shelter Forest Programme, which started in 1983 and is the most important project in China’s desertification prevention efforts. Alxa has also achieved economic success through the innovative development of green industries, combing the sand fixation capabilities of *Haloxylon ammodendron* with the profitability of *Cistanche* farming, incentivising residents to engage in large-scale afforestation of *Haloxylon*.

In early 2000s, compared to other desert regions, Alxa was among the earliest to experiment grafting Cistanche onto Haloxylon. The path of developing such innovation may be unique. Due to its critical role in controlling sandstorms, Alxa has attracted significant social capital devoted in environment protection. This unique ability in attracting capital has fostered innovations. However, other regions can replicate Alxa’s

successful experience and roll out the practice. As Chinese subnational governments learn and compete with each other, Alxa has been widely reported by the news media as a role model in desertification control, and its practices have inspired emulation. Even during Alxa's experimentation stage, Ordos, another successful competitor in desertification control and home to the leading "Elion Group", was also conducting similar desertification control experiments. Therefore, Alxa's green transition practice should not be considered unique as it has already been widely adopted in desert or semi-desert areas.

Another distinctive aspect of Alxa is its prioritisation of environmental concerns over the profitable mining industries due to its fragile ecosystem, which pushes residents to the brink of losing their habitats. This may not be the case in other resource-abundant areas in China, which naturally follow a resource-dependent growth pattern. However, Alxa's reduction in coal production should not be considered unique. Coal industries are subject to rampant corruption and bribery. In the 2010s, all coal producing regions in Inner Mongolia underwent reforms, partly due to the anti-corruption campaign and partly because of the shift away from a GDP-oriented rating system for subnational government leaders, with environment protection now included as an evaluation indicator.

Despite the concern about uniqueness and representation of the Alxa case, it provides an excellent example of the green growth pattern that delivers both a higher growth rate and more inclusive economic outcomes. These inclusive economic outcomes are achieved through addressing the market failures related to mispriced environmental costs, which are borne by the vulnerable groups. Moreover, as most of the empirical

ex-post policy research focuses on industrialised countries and wealthy populations (Lamb et al., 2020), the case of Alxa contributes to the debate on green transition by providing context-specific research about ethnic minority communities and poor populations.

The case of Alxa also employs a mixed-methods approach encompassing qualitative and quantitative research methodologies. Qualitative methods involve semi-structured interviews, ethnographic interviews, and environment analysis. Quantitative methods include the analysis of secondary data sources such as government reports and statistical yearbooks.

Linxia is a *hui* (muslim) autonomous prefecture in Gansu Province, situated in the transitional zone between the Loess Plateau and the Qinghai-Tibet Plateau. This area faces challenging natural conditions, including low precipitation and a scarcity of underground water. Linxia is one of the deeply impoverished areas designated as the "Three Regions and Three Prefectures" [4] at the national poverty level and "Two Prefectures and One County" [5] at the provincial poverty level. These regions are considered the toughest challenges in China's poverty reduction campaign. Unlike other areas that can overcome poverty simply through autonomous development during China's market-oriented reform, these regions only recently escaped poverty through state-initiated comprehensive poverty reduction programmes.

Linxia was chosen for its representation of poverty-stricken regions and the challenges in poverty reduction, which stem from harsh natural conditions and a lack of capital, technology, human resources, and infrastructure. Despite these challenges, Linxia has

successfully achieved its poverty reduction goal. Through state-initiated investments that empower communities, enhance people's capabilities, and promote economic development, all eight impoverished counties and cities in Linxia Prefecture have shed their poverty labels. Problems such as difficulty in accessing drinking water, education, medical care, housing, and transportation in rural areas have been resolved. The conditions of rural infrastructure, public service levels, industrial development, and the overall living environment have all seen comprehensive improvement.

The case of Linxia uses a mixed-methods approach incorporating qualitative and quantitative research approaches. Qualitative methods include semi-structured interviews and policy analysis such as policy evaluation. Quantitative methods involve the examination of secondary data sources such as government reports and statistical yearbooks.

The three cases are selected from high, medium, and low development levels in rural and semi-rural areas of China, respectively. A common rationale for choosing the three cases is their capacity to demonstrate how to pursue each component of inclusive and sustainable growth: economic growth, distribution, environment, poverty reduction. The three cases also share some common features. First, they all follow production-oriented growth patterns, foster industrial development, and engage the poor population in development. The Yuhuan case demonstrates the possibilities of rural industrialisation, as well as its implications on labour. The Alxa case uncovers the economic potential of green farming. And poverty reduction in Linxia does not stop at redistribution but focuses on industry cultivation, employment creation, and capability development. Second, they demonstrate that there is not necessarily a trade-off between

economic growth and fair distributional outcomes, highlighting the essence of inclusive growth. Particularly, the Alxa case shows that it is possible to achieve economic growth, fairer distribution, and environment protection simultaneously.

(2) Quantitative analysis

Chapter 4 and Chapter 5 use the quantitative method in addition to qualitative research. Chapter 4 describes the multiple dimensions of the urban–rural divide including disparities in income, consumption, and social service provision for both the pre-reform and post-reform eras with publicly available data from the National Bureau of Statistics (NBS) and year books.

Chapter 5 investigates the labour dimension of the LPS in Yuhuan, with data collected from a survey in a manufacturing firm, as well as employment and payroll data obtained from other firms. Statistical analysis is conducted on the primary data collected, yielding valuable findings.

(3) Comparative studies and historical analysis

Chapter 4 employs the comparative research method to compare the growth strategies for the pre-reform and post-reform eras, examine the differences in the provision of social services, assess the benefits between urban and rural areas, and analyse the role of developmental policies in facilitating growth and influencing urban-rural divide. The comparative study draws an accurate general picture of the issues and policy problems underlying the pre-reform development patterns and the mechanism of economic take-off in post-reform China.

The various methods utilised in this research are interconnected. Historical analyses offer a useful tool to understand the past and the contemporary evolution of China's development strategies. The use of case studies enables the investigation of the mechanism underlying robust development in certain rural areas. Quantitative data analysis in the Yuhuan case enables the investigation of the labour dimension of the LPS.

Data collection

I collected information and data mainly through fieldwork, supplemented by the secondary source of data and information. PhD fieldwork was conducted in China during three periods: September to November 2020, October 2021, and March 2022. The key activities conducted during the fieldwork included the following: visiting factories and inspecting the main production facilities; conducting semi-structured interviews with entrepreneurs and senior management; administering surveys to factory workers, administrative staff, and managers; and collecting the life stories of entrepreneurs. In Yuhuan, I conducted a survey in an automobile component manufacturing firm, collecting 98 questionnaires from workers and management (see Appendix D for more details). In Alxa, I conducted 12 semi-structured interviews, including two interviews with senior officials from the Alxa government, staff and senior management from non-governmental organisations (NGOs) such as the Society of Entrepreneurs & Ecology (SEE) and Beijing Weixi Agricultural Development Co., Ltd, as well as with local entrepreneurs, peasants, and herders. Additionally, I visited the Alxa Barunbieli Town water resource management service centre and observed the functioning of a water-saving intelligent control system. In Gansu Province, I met officials in Linxia Prefecture government, the Dongxiang County Poverty Reduction

Office, and the poverty reduction officials stationed in Bulenggou Village. I conducted a group interview with the Party Secretary of Sanping Village and officials from the township government. Moreover, I visited Guoqiang Vocational and Technical School in Dongxiang County, as well as the relocated communities, poverty reduction factories, workshops in Hezheng County and Dongxiang County, and the homes of villagers.

While I obtained verbal permission from the interviewees to record most of the interviews, it was agreed to maintain confidentiality in terms of the identities of the informants. However, a few entrepreneurs and organisations willingly disclosed their names, while some information regarding the firms mentioned in this research is publicly available from news sources. All notes were taken in Chinese during the interviews; the author retained all the original notes and compiled all the interview and observation transcripts.

Surveys and interviews can be challenging for the following reasons. Firstly, selecting the right participants for surveys and interviews can be difficult, which requires careful consideration of the research objectives and ensures diverse representation to gather comprehensive information. Secondly, surveys and interviews require a significant investment of time and effort from both the researcher and participants. Thirdly, it is important to acknowledge that the participants' perceptions of the occasions may be influenced by their prior experience, positions, or personal feelings, which can introduce bias into their storytelling and the data collected. To address the first concerns of selecting suitable candidates for surveys and interviews, I leverage my established connections with multiple stakeholders (e.g., entrepreneurs and government officials)

from my prior work experience, which proved to be valuable in facilitating the fieldwork, gathering original data from diverse sources, and conducting on-site observations. Moreover, I allocated sufficient time for each survey/interview, which ranged from 30 minutes to 2 hours. The responses were recorded through notetaking and audio recording, except in one instance where the interviewee preferred notetaking only. Furthermore, to ensure accuracy, I frequently cross-checked information and followed up with details via social media and email after returning from my field trip. In addition, to enhance the quality and reliability of the evidence base, I consulted various secondary data sources from individual firms and institutes for verification, such as the National Bureau of Statistics (NBS) of China, to obtain macro- and regional-level socio-economic data. I also extensively reviewed reports, archive documents, and records to gain a comprehensive understanding of the historical background.

1.3 Summary of the chapters

This thesis is divided into eight chapters. The remainder of the thesis is structured as follows.

Part I (chapter 2 and 3) presents the conceptual framework of this thesis. Chapter 2 provides a literature review encompassing various research strands on fostering growth in the context of globalisation. It discusses mainstream economic growth theories, the Lewis model, and review globalisation theories and strategies, including dependency theory, ISI versus EOI. For a dual economy (Lewis, 1954) with large hidden unemployment before the Chinese economic reform, instead of taking full employment in the modern sector for granted, this research stresses the significance of creating sufficient productive employment to absorb surplus labour and break dualism. Creating

sufficient employment opportunities requires capitalising growth opportunities within globalisation and implementing growth strategies such as adopting a production-oriented growth pattern, pursuing geographical specialisation, and assuming the role of a developmental state.

Chapter 3 focuses on the distributional outcomes of increasing employment and how globalisation influences different groups of people in both developing and developed countries. Based on the Lewis Model (1954), Richard Koo (2020) employs a three-stage analysis to discuss the implications of employment creation on inequality. Inequality may widen until surplus labour is exhausted, as rapid economic growth generates high profits which accrue to capitalists, while wage growth remains slow during this process. Since observed inequality in a society is also significantly affected by policies choices, I review China's unequal service provision between rural and urban areas as a cause of rural poverty. At the end of Chapter 3, I elaborate on the framework of "economic growth, distribution, environment, and poverty reduction" for the pursuit of inclusive and sustainable development.

Part II (chapter 4, 5, 6, and 7) investigates China's development strategies and provides case studies of development in three rural/semi-rural regions. Chapter 4 explores the macro-level growth strategies in the pre-reform and post-reform eras, their implications for rural areas, the constraints faced by developing countries in catching up, and how to overcome these obstacles.

Chapter 5 investigates the Yuhuan case and discusses the development of an LPS that nurtures a business model of a "components supermarket" to participate in GVCs while

continuously increasing workers' wages, thus avoiding the curse of racing to the bottom.

Chapter 6 investigates the pursuit of green transition in the Alxa case and suggests that an environmentally sustainable development pattern is also more equitable and inclusive. Through green transition, the rural society in Alxa realises the investment opportunities in green agriculture and tourism with the aid of government subsidies and micro-credit. This chapter examines the context-specific green transition featuring state–society cooperation.

Chapter 7 investigates the poverty reduction programmes in Linxia Hui Autonomous Prefecture in Gansu Province. Besides providing essentials (e.g., access to education and basic welfare), the state devotes substantial resources to improving the physical and social infrastructure and creates growth opportunities for underdeveloped regions.

Chapter 8 summarises the findings of this thesis, based on which it theorises an alternative approach to foster inclusive and sustainable development.

2. Literature Review: How to Foster Growth in the Context of Globalisation

Despite significant economic growth and remarkable technology advancements, poverty persists in human society. Various economic theories, including neoclassical growth models, endogenous growth models, and heterodox growth models, offer distinct explanations for this phenomenon. This chapter also reviews the literature on the challenges and growth opportunities for late-developing countries in engaging with globalisation. Furthermore, it suggests specific growth patterns and strategies that have been empirically proven to be effective.

2.1 Mainstream models of economic growth

What is the central process of economic growth? Early economic theories emphasise the importance of capital accumulation. The Feldman–Mahalanobis model was adopted by the Soviet Union and India, where the machinery sector was considered particularly responsible for the generation and diffusion of technological change. In a similar vein, the Harrod–Domar model seeks to explain economic growth as a result of capital investment. Rostow's (1960) stage theories suggest that developing countries can follow in the footsteps of their predecessors, the developed countries, to go through a series of stages of development. One precondition for take-off is that capital investment should reach a threshold. The existence of the Two-Gap model – the first gap between investment and saving, and the second between exports and imports – in developing countries highlights the need for foreign aid (Chenery and Strout, 1966).

Then, economists recognised the crucial role of human resources in late development. Although the theoretical roots can be traced to the eighteenth and nineteenth centuries,

Schultz (1961) brought it back to the centre of development theory. It is also argued by development economists that the East Asian miracle is partly due to its reservoir of highly disciplined, good quality human capital.

The Solow model (1956), as a representative of neoclassical growth theory, stresses the importance of capital accumulation and technology progress. Based on the assumptions of exogenous and universal technological progress, diminishing returns to capital accumulation, and the mobility of production factors, the Solow model predicts the convergence of countries to the same steady-state rate of growth and income level. (Crafts, 1998). The neoclassical growth theory is challenged by economic reality that exhibits economic divergence rather than convergence across countries. At best, partial convergence is achieved where East Asian countries successfully catch up in the post-WWII era.

Therefore, endogenous growth models seek to endogenise the sources of productivity increase that are assumed exogenous in neoclassical models, thereby justifying the empirically persistent divergence in growth performance across countries. The endogenous innovation branch of new growth theory (Aghion and Howitt, 1997; Grossman and Helpman, 1991) suggests that technological progress results from the allocation of resources to the search for innovations, driven by incentive structures. The incentives to innovate in such models are typically increased by larger markets, by better human capital supplies, by greater productivity in research, and by reduced fears that rewards will be expropriated by other agents or by government (Crafts, 1998). Furthermore, the new growth theory changes the assumption of diminishing returns to capital, suggesting that these diminishing returns can be offset by the accumulation of

a larger stock of scientific knowledge available to all, by an increase in the investment rate (in physical and human capital) and an increasing variety or quality of machinery or intermediate inputs (Pack, 1994).

Fine (2000) considers that in many fundamental respects, the endogenous growth theory represents a continuity rather than a break with the exogenous growth theory. They are both organised around steady-state balanced growth. However, first, growth in the real world is neither steady or balanced. It is irregular and the composition of output shifts significantly in different stages of industrialisation and post-industrial society. Second, by endogenising social changes, the model would become too complex to handle, ignoring historical contingency and differentiation between various periods and societies. Third, the approach of modelling social changes is often based on agents optimisation or more or less arbitrary behavioural patterns. This approach precludes the endogeneity of social forces, structures and relations, which sharply contrasts with classical political economy (Fine, 2000).

2.2 An alternative perspective on how structural transformation fosters growth

A criticism against neoclassical models and endogenous growth models is their focus on the steady state of growth does not effectively explain structural changes. In this section, I will examine the Lewis model from the perspective of structural transformation in fostering development.

The mainstream growth models assume the full utilisation of available labour within an economic system. However, the common practice of estimating full employment in the real world involves excluding those who are not actively seeking a job or lack the skills

for employment. Therefore, economies with low labour participation rates could be considered as full employment. This forms a low-level equilibrium. The significance of incorporating surplus labour and idle resources into production systems is to move towards the production potential/frontier of the country. Therefore, an economy with the so-called “full employment” but a low labour participation rate is very likely not achieving its economy potential. The gap between the theoretical full employment of labour and the real-world exclusion of those who cannot be absorbed by existing industries leads to the low-level equilibrium. This stems from a failure to differentiate between development stages, treating mature economies and developing economies with the same approach. For mature economies, the gap between theoretical and practical full employment may be negligible, whereas for developing countries with surplus labour not included in the labour force, it can be substantial.

Secondly, by envisioning the development process as transitioning surplus labour into productive workers or middle-class employees, development economics introduces social changes as a key factor in growth research, in contrast to mainstream economics.

Thirdly, development economics emphasises industry development as a means of fostering growth. A low-level equilibrium arises because existing industries or domestic markets can only absorb a small fraction of the available labour pool. Therefore, it is crucial to develop robust industries that can absorb all the surplus labour.

The Lewis model (1954) provides a powerful framework for understanding how social transformation occurs alongside with economic growth. Development is described as a process where a primarily subsistence economy undergoes the “structural

transformation" via "the process of labour transfer" and "the growth of output and employment in the modern sector" until it meets the "Lewis turning point" – rural surplus labour disappears and the real wages for unskilled labour begin to increase. The Lewis model implies that (1) an economy that includes a large subsistence sector and a small modern sector can be underdeveloped; (2) in the early stages of development, the diffusion effect of the modern sector is too limited to induce surplus labour to move out of the subsistence agricultural sector; and (3) industrialisation can break dualism. The Lewis turning point occurs when one of the following events puts an end to the horizontal supply curve of labour: (a) the worsening terms of trade for the industrial sector, or (b) the exhaustion of the labour surplus in the agricultural sector. Then, Ranis and Fei (1961) extend the Lewis model into a three-phase developmental process, contending that a rise in the industrial real wage might occur in phase two due to a shortage of agricultural goods resulting from the disappearance of the redundant agricultural labour force. They also suggest that two factors may lead to a postponement of the Lewis turning point: (1) increases in agricultural productivity and (2) population growth.

However, both the Lewis and Ranis–Fei models assume full employment in the urban sector, an assumption rectified by Harris and Todaro (1970). The difficulty for a dualistic economy in achieving modernity lies in the urban sector's inability to absorb all the surplus labour moving out of the rural sector. In this context, the urban–rural migration results in unemployment in the urban sector and drives down urban wages. Therefore, the key factor here is sufficient employment opportunities above the subsistence level. By creating sufficient quality jobs in the modern sector and enhancing individuals' capabilities in productive activities, structural change can be

triggered, and this development process typically involves a high economic growth rate and is inclusive in terms of integrating surplus labour into a modern economy.

The importance of employment opportunities has rarely been discussed in the literature. Amsden (2010) criticises the neglect of job creation in research and government decision making, pointing out that it is the same fallacious reasoning behind Say's Law that the supply of whatever an economy produces creates the demand to buy it (at a positive price). One ignores unemployment, while the other ignores under-consumption. Sen (2001) has a similar view that if unemployment already exists, then investing more in workers' human capabilities, whether in the form of healthcare, housing, and schooling, or political freedom, democracy, and transparency, may create more discontented unemployed jobseekers rather than plentiful jobs.

To create sufficient productive employment, one method is to engage in globalisation, overcoming the constraints of limited domestic demand by supplying global demand. Therefore, it is necessary to place a late-developing country's development in the context of globalisation and examine the growth opportunities from integrating into the world market as well as challenges posed by confronting the power dynamics inherent in the capitalist world system. Limited domestic markets pose constraints primarily in the early stage of development, as the domestic population has low purchasing power. As people's income levels increase, domestic consumption can better support the development of domestic industries.

2.3 A review of the globalisation literature

2.3.1 The "orthodox" international trade theory and its critique

Ricardo (1817) developed the comparative advantage model to explain that a country can increase its overall consumption by exporting the goods for which it has a comparative advantage while importing other goods, while the Heckscher–Ohlin model focuses on endowment-determined comparative advantage. These theories lay the foundation for international trade, with the international division of labour emerging as a result of globalisation. Moreover, globalisation brings advanced technologies that promote the development of late-developing countries. If a developing country fails to catch up, neoliberalism offers an influential explanation known as the thesis of "conditional convergence", ascribing the observed stagnation of growth in the developing world to "bad policies", specifically those that obstruct the functioning of the market (Lo, 2012).

Empirical studies provide evidence of the significant benefits gained from globalisation. Benefits include: (1) lower production costs by offshoring less efficient parts of their production process or importing products that are less efficiently produced domestically. Feenstra and Hanson (1999) argue that offshoring can account for 11–15% of the observed decline in the cost share of production labour in US manufacturing between 1979 and 1990. (2) Globalisation also brings about an increase in the variety of goods available to consumers. Broda and Weinstein's (2005) research estimates that the impact of new product varieties on the US import price index has resulted in a nearly 30 percent reduction in the real cost of imports compared to the conventional price index. According to their estimates, this drop in import prices has raised US welfare by $260 billion, approximately 3 percent of 2001 GDP. (3) Globalisation allows countries to specialise in sectors where they have a comparative advantage, and resources freed up from offshoring less efficient activities can be used in areas where they excel. On

the other hand, engaging in protectionism can be costly. Krugman (1990) suggests that under a hypothetical trade war between three trading regions, where each region restricts trade with the other regions by one-half, the global efficiency losses could amount to 2.5 percent of the global national product (GNP). Feenstra (1992) argues that the actual global losses could be much larger, as reducing the range of product varieties should also be considered as welfare losses.

However, going beyond the narratives of comparative advantage and neoclassical universal growth, and adopting a political perspective to investigate globalisation, one motivation of capital seeking globalisation is to lower production costs through acquiring low-cost raw materials and cheapening labour. Taking advantage of advancements in transportation and telecommunication technologies, global production has been achieved by decomposing complicated production into simple processes that can be offshored to regions with the lowest production costs and incorporating into the capitalist world economy of productive resources (e.g., labour and raw materials) that were previously outside the system. The process of deskilling allows the substitution of high-skill, high-wage workers with low-skill, low-wage labour.

Moreover, unequal power dynamics exist in the capitalist world system where the advantaged may manipulate economic power to force others into unequal exchanges, while the disadvantaged may be forced by their disadvantaged circumstances into unequal exchanges. This includes, but not limited with, unequal ecological exchanges, maintaining a large reserve army of labour, and diminishing competition (Zhang, 2023).

Therefore, for developing countries, seizing opportunities in engaging in globalisation while mitigating the negative impacts is a challenging but necessary task. The reminder of this chapter will be devoted to examining challenges, opportunities, and strategies for developing countries in globalisation.

2.3.2 Dependency theory and unequal ecological exchange

The costs and benefits of globalisation are unevenly distributed both internationally and domestically. In response to the "orthodox" international trade theory, which proposes that free trade would benefit the periphery, dependency theory emerged, grounded in empirical cases in Latin America where primary producers experienced long-term deterioration in the terms of trade against industrial producers, leading to a decline in the wealth of nations (Prebisch, 1950). The dependency view considers globalisation as a promoter of under-development (Lo, 2012). Although the deteriorated terms of trade against peripheral countries and forced specialisation are not the sole causes of the periphery's poverty, they reduce the surplus that the periphery could gain from international trade that could be available to overcome poverty (Kay, 2011). According to this theory, some countries can expand through self-impulsion, while the growth of others is dependent on dominant countries, establishing a dependent relationship between the two groups of nations (O'Brien, 2013).

Latin America's dependence on dominant countries originated from direct colonial administration and later evolved into a subtle form through free trade. This arrangement ensured that Latin American production was geared towards meeting the demands of the dominant economies, and the gains from trade were unevenly distributed, benefiting only a small elite class in Latin America and the dominant metropolitan countries

(O'Brien, 2013). Focusing on exporting primary products limits Latin America's potential to develop an autonomous capability for development.

Wallenstein's (1979) concept of the world system divides the global economy into three main components: the core comprises developed, industrialised, and democratic countries; the periphery consists of poor, raw-material-exporting, and less developed countries; and the semi-peripheral areas lie between the core and periphery. The division of labour in the world economy follows a hierarchical pattern, where tasks requiring a higher level of skill and greater capitalisation are reserved for higher-ranking areas, while semi-peripheral and peripheral countries occupy lower positions in the value chain (Wallerstein, 1979). The mechanisms of the world system enable core countries to exploit economic surplus, such as raw materials or cheap labour-intensive products, from the periphery (Wallerstein, 1979).

Drawing on the unequal exchange (Emmanuel, 1972), dependency (Frank, 1967), and world system (Wallerstein, 2011a, 2011b, 2011c) theories, unequal ecological exchange theory suggests that developed countries exploit the ecosystems in developing countries to externalise their consumption-based environmental costs (Chen, 2022; Foster and Holleman, 2014; Jorgenson, 2006; Rice, 2007). Core countries manipulate the capitalist world system to take advantage of the mispriced natural capital in peripheral countries with less strict environmental regulations. The under-valuation of natural capital is less about market failures than appropriation; the power relationship of capitalism lies behind "ecological imperialism" (Rice, 2007). Unequal ecological exchange acts as a mechanism that reproduces international inequality through the

concentration of wealth in core countries and the limitation of growth opportunities in the peripheries (Hornborg, 1998). Baran (1957, p. 330) further claims that

> to a number of underdeveloped countries what little they receive at the present time for the raw materials with which they are endowed may well turn out to be the mess of pottage for which they are forced to sell their birthright to a better future.

Frank's (1969) review of Chilean history reveals how foreign interests appropriated the country's economic surplus through monopolising the buying and reselling of Chilean products, and controlling a large share of the storage, transport, and insurance facilities associated with exporting Chile's principal economic surplus-producing goods. It is estimated that between 1880 and 1913, Britain appropriated around £16 billions of profit from Chilean-produced economic surplus, while Chileans and foreigners living in Chile retained a mere £2 billion of the surplus produced by Chilean nitrate mines, despite these mines being largely funded and worked by Chilean capital and labour (Frank, 1969). Since copper replaced nitrates as Chile's major export surplus, American companies came to dominate the industry, owning 90 percent of copper mines. The distribution of copper earnings exemplified the surplus extraction, with 47 percent going to Americans, 35 percent to the Chilean government, 13 percent to the workers who produced the copper, and 5 percent to a few high-income employees (Frank, 1969). The unequal exchange pattern, where industrialised countries held more monopoly power than underdeveloped countries, led to unfavourable terms of trade for the latter.

2.3.3 Import-substitution industrialisation (ISI) vs export-oriented industrialisation (EOI)

To escape the unequal world system, many underdeveloped countries have sought to accelerate domestic industrial development. ISI has been adopted by many

technologically underdeveloped economies to accelerate domestic industrial development by substituting imported industrial goods with domestically produced ones. This strategy involves implementing trade barriers, the government manipulation of market prices, and access to imports and finance. The goal is to reduce the reliance on imported goods and promote self-sufficiency. ISI is viewed as a transitional strategy that will be superseded by lowering import barriers and promoting industrial exporting as the industrial sector matures technologically (Felix, 1989). While import substitution initially yields substantial success in terms of growth and output diversification, this strategy fails to adequately incentivise productivity improvement and product specialisation. As a result, the desired efficient scale of production and economies of scale were not achieved. The protective measures implemented to shield domestic industries from external competition hindered the attainment of lower costs, thus impeding the expansion of production (Teitel and Thoumi, 1986). Regarding the distributional outcomes associated with ISI, Ranis (1990) concludes that the Latin American choice of this growth path led to deteriorating distributional outcomes.

On the other hand, EOI focuses on promoting exports as the engine of economic growth in developing countries, especially those that have a surplus of labour moving out of the agricultural sector (subsistence sector), where labour's marginal productivity is negligible, zero, or even negative (Lewis, 1954). Based on Ricardo's (2014) comparative advantage theory, late developers with abundant labour resources are deemed to possess the comparative advantage of low-wage labour, making them well-suited for exporting labour-intensive manufactured goods. Krueger (1978) suggests that labour-abundant developing countries are likely to specialise in exporting labour-intensive products, as pursuing a greater export orientation aligns with the objectives

of generating more employment opportunities. Keesing (1967) lists several reasons for adopting an outward-looking strategy, including:

> (1) Learning effects and improvement of human resources. (2) The value of competition and close communication with advanced countries, in view of dependence on technology and ideas from abroad. (3) Increasing returns connected with economies of scale and market size. (4) Authorities' limited knowledge of when and how to intervene. (5) The inapplicability of terms of trade and underemployed labour arguments for protection in relation to less-developed countries. (6) Foreign exchange and import constraints in development.

The empirical evidence tends to associate rapid economic growth with manufacturing exports. For example, Tyler (1981) analyses a sample of 55 middle-income developing countries for the 1960–1977 period and finds a positive and highly significant relationship between economic growth and manufacturing output growth, as well as a similar relationship between GDP growth and export growth. Regarding the relationship between EOI and income distribution, the available empirical evidence indicates a relatively low degree of inequality in some newly industrialised countries. Gereffi (1990, p14) finds that Taiwan and South Korea, which exported a high proportion of manufactured goods, exhibited relatively egalitarian income distributions compared with high inequality in Brazil and Mexico, which exported a wide range of goods including natural resources. However, it cannot be definitively stated that EOI is the sole cause of the lower degree of inequality. In certain East Asian countries, the relatively egalitarian pattern of income distribution can be traced back to historical factors: wars and foreign occupation left most people in these countries relatively impoverished, and land reform substantially benefited cultivators by providing them with land and imposing restrictions on the size of land ownership (Gereffi et al., 1990).

Moreover, Coleman and Nixon (1986) point out that the limitation of these analyses is that they exclude those countries that attempted to pursue EOI but failed.

The frameworks of ISI and EOI have some drawbacks. First, ISI and EOI overlook external influences such as the global economic conditions and geopolitical shifts. ISI emerged as a response to the need to escape the unequal world system, and its emphasis on domestic markets is understandable. In contrast, EOI tends to overlook the relative disadvantage of developing countries in participating in the global division of labour and the unsustainability of the original equipment manufacturer (OEM) strategy. Second, the favourable distributional outcomes often associate with manufacturing export, rather than primary EOI. Third, in recent years, the concept of GVCs has gained prominence, capturing the trends of developing countries' specialisation in certain tasks of global production without building comprehensive domestic production networks.

While several factors contribute to the failure of ISI and the relative success of EOI, comparing the distributional outcomes between one development pattern that involves labour with another pattern that does not yields valuable insights for my discussion. From the perspective of labour absorption, it is consistent to argue that ISI, constrained by limited domestic markets, often fails to absorb surplus labour. In contrast, EOI, especially in the context of labour-intensive manufacturing exports, tends to be more inclusive by generating sufficient employment opportunities to absorb surplus labour.

2.4 How can developing countries seize growth opportunities in the context of globalisation

2.4.1 The new global division of labour

The foregoing literature review compares mainstream growth theories and the Lewis model, discusses challenges in the capitalist world system as depicted by dependency theories. It suggests a growth pathway for developing countries by integrating idle resources and surplus labour into the modern sector. Testing this principle in underdeveloped countries offers insights into why some development strategies in globalisation are more successful than others. For instance, ISI fails to provide enough quality jobs to engage surplus labour, while implementing EOI enables a developing country to overcome domestic under-consumption by producing to meet the demand of world markets, which in turn creates sufficient quality job opportunities. In recent decades, the new global division of labour organised along global value chains (GVCs) presents new opportunities and challenges. Researchers suggest that firms are redefining their core competencies to focus on innovation and product strategy, marketing, and the highest value-added segments of manufacturing and services, while reducing their direct ownership of "non-core" functions such as generic services and volume production (Gereffi, Humphrey, and Sturgeon, 2005). By decomposing complex production into simple processes that can be offshored to less developed regions, this process of deskilling enables substituting high-skill, high-wage workers with low-skill, low-wage labour. Aided by advancing transportation and telecommunication technologies, enhanced trade connections between countries have facilitated increasingly fragmented and globalised production. This phenomenon gives rise to concepts such as global value chains (GVCs), which focus on governance arrangements that utilise distinct and geographically dispersed production, global commodity chains (GCCs), which depict the power and control exerted by buyers (retailers and brand name firms) or producers (original equipment manufacturers [OEMs]) in governing their international suppliers and service providers, and global

production networks (GPNs), which focus on the construction and strategic management of relational networks between economic actors (Kano et al., 2020). GVCs and related concepts have been investigated across various academic disciplines, including development studies, economic geography, supply chain management, political economy, and international business (Andreoni, Lee, and Torreggiani, 2021; Buckley, 2009a, 2009b; Coe and Yeung, 2019; Gereffi, 1999, 2018; Henderson, Dicken, Hess, Coe, and Yeung, 2002). Literature on GVC governance usually takes the perspective of MNEs that lead GVCs, focusing on value generation and extraction, performance governance, and the strategies and choices of lead firms. Conversely, research on developing countries that being integrated into GVCs typically investigate the opportunities and social consequences of GVC participation, upgrading strategies, the unequal power relations within GVCs, and the value distribution between lead firms and suppliers. Compared with the old development strategies of export orientation, GVC participation reduces the difficulties of export, allowing emerging economies to specialise in specific production tasks and to export components. Regarding the question of how to foster development in the context of globalisation, this section will investigate the new global division of labour and propose growth strategies and elements that are considered effective in overcoming challenges in globalisation.

Firstly, the Atlantic economy's shift towards a high-wage economy and the substitution of high-wage labour in developed countries with cheap labour gave "room for Japan, and later China, to capture the huge Asian mass consumer market with the use of their cheap labour" (Sugihara, 2004). It is a voluntary choice of high-income countries to stop competing in some low-value-added sectors, leaving developing countries to fill the gap in supplying the world market and thus overcome demand constraints.

Secondly, implicit in this is the difficulty of moving up the GVCs and breaking the current global division of labour to challenge the existing advantage of developed countries in high-value-added segments. As a result, there is limited room for late development. Would late developers be trapped in low-value-added segments and unable to upgrade into a higher level? As global demand, primarily from the developed world, has been satisfied by China's rapid increasing productive capacity, and emerging demand from newly industrialised countries remains far below their production levels capacity due to relatively low wages, is there further room for the rest of the developing world to industrialise? Suppose there is a Lewis model applied on a global scale, and the growth of demand is slower than the growth of labour supply. In that case, can the Lewis turning point be reached in the foreseeable future? For this reason, integrating idle resources into the world economic system also creates the possibility of a global scale of over-capacity. The existence of an over-supply of labour suggests the possibility of racing to the bottom. Furthermore, the challenge of moving up the GVCs is evident not only in the intense competition for limited space during the transition from a low technical level to a mid-level, but also in the progression from a mid-level to the top level where developed countries dominate, assuming an international division of labour organised in a hierarchical order. The most recent example is that the US seeks to contain China and decouple it from the global system as China is growing its economic power. Chang (2002) discusses how imperialist countries took measures to prevent weaker countries from entering more dynamic sectors prior to the end of war WWII:

> First, certain high-value manufacturing activities were banned outright in the colonies. For example, under Robert Walpole, the construction of steel mills was banned in the American colonies, which were thus forced to specialise in (less

> sophisticated) iron. Second, exporting activities by producers in the colonies were restricted in order to minimise competition with the producers in the colonising countries. Third, in the colonies, raw material production was strongly encouraged through policies, with the explicit purpose of making manufacturing activities less attractive.

The new imperialism after WWII is in a more implicit way by demanding all members of the World Trade Organisation (WTO), developed or developing countries, to sign all the agreements, although free trade pauses a great threat to infant industries in late developers (Chang and Andreoni, 2020).

Thirdly, there is global-scale competition at various segments of the GVCs. Late developers must compete for limited opportunities of offshoring and outsourcing (limited global demand). The fiercer the competition, the thinner the profit margin. The distribution of benefits along the GVCs is uneven. Acer's founder, Stan Shih (1996), used the "Smile Curve" to depict the uneven distribution of value creation among various activities along the GVCs, with manufacturing/assembling positioned at the bottom of the curve in terms of added value. On the one hand, compared with those focused on design and marketing, the manufacturers of components and assemblers have little control of the supply chain and product market, and hence have weaker bargaining power than upstream/downstream producers. On the other hand, companies focused on the low-value-added segments face fierce competition that further drives down the prices they can bid.

Fourthly, offshoring production processes does not guarantee that each developing nation secures a share of global production. Only a few East Asian countries witness flourishing manufacturing industries, advanced economies and developing economies

lacking a comparative advantage in manufacturing experience "deindustrialisation". According to Rodrik (2016), a sharp decline in manufacturing employment takes place in the high-income region, with an impact on manufacturing output depending on the balance between technology (positive) and trade (negative) shocks. Conversely, there will be an increase in output and, possibly, employment in the low-income region with a comparative advantage (or head start) in manufacturing. However, for other low-income countries without a comparative advantage in manufacturing, a decline in both output and employment will occur (Rodrik, 2016). The decline in the share of manufacturing output and employment does not imply declining productivity in manufacturing. On the contrary, Rodrik (2013) demonstrates that unconditional convergence occurs in labour productivity in the modern parts of the economy – manufacturing activities, regardless of geography, policies, or other country-level influences.[6] The danger of deindustrialisation is reflected in employment, primarily hurting labour if the service sector is unable to absorb all the displaced workers.

2.4.2 Overcoming the challenges in globalisation

Integrating into the world economy does not necessarily bring about inclusive growth; it depends on the development strategies employed by the state, the sector integrating into GVCs, and a series of complex domestic social policies. The following discussion will suggest growth patterns and strategies that have been empirically proven effective in globalisation.

Production-oriented development pattern

Compared to a finance-led economy, a production-oriented development pattern is widely considered to be more inclusive and can deliver better economic performance.

For example, Arrighi (1994) demonstrates that historically, countries that transitioned the accumulation regime from trade and commodity production to finance witnessed a decline of their hegemonic power.

Industrial development, particularly manufacturing, plays a positive role in facilitating productivity growth, job creation, linkage building, knowledge spillover, and capability development (Amsden, 1989; Andreoni and Chang, 2017; Andreoni, Chang, and Estevez, 2021; Chang, 1994). For instance, investment in research and development (R&D) within the manufacturing sector enhances the potential for innovation and technology transfers, and the knowledge spillovers can improve productivity growth in other sectors (Weiss, 2013). Moreover, manufacturing and downstream diversified industries have relatively higher employment multipliers (Tregenna, 2012). Furthermore, manufacturing has strong linkages with other sectors, stimulating demand for more primary goods and services, and creating employment in other sectors through indirect effects (UNIDO, 2013). Both the direct and indirect employment effects suggest that manufacturing can provide job opportunities and stimulate economic activities in various sectors of the economy. The production-oriented growth model has also been compared with service-driven structural change where limited productivity increases have been witnessed, such as urbanisation without industrialisation (Brady, Kaya, and Gereffi, 2011; Gollin, Jedwab, and Vollrath, 2016).

Geographical specialisation

Geographical specialisation, a competitive advantage, further complicates the challenge of contesting existing production centres. Specialisations may be traced back to historical differences in endowments, but the emergence of advantages hinges on a

complex evolution of competitive and cooperative relationships among local businesses, government strategies, and various other social and political institutions (Porter, 1998). Geographic specialisation is strengthened when industrial clusters/ecosystems/production systems form within a specific region. The industrial ecosystem has been defined as a

> multi-tiered production systems involving heterogeneous agents operating in *sectoral value chains* and contributing to the *capability domains* of the ecosystem (and its participants) with closely complementary but dissimilar sets of resources and capabilities (Andreoni, 2018).

The agglomerative effect of industrial clusters improves efficiency, creates scale economy, and raises entry barriers for potential entrants, shielding against competition. Some scholars predict that as a country advances into the production of higher-ranked products, the rise in wages causes its effective cost level to increase and its global market share in this industry to fall (Sutton and Trefler, 2016); hence, the leading country relocates production to developing countries during the latter's catching-up process, while the high-value activities stay at home, resulting in a dynamic "flying geese" model (Akamatsu, 1962). However, geographical specialisation, along with the industrial clusters, industrial ecosystems, and production systems it gives rise to, hints at another potential. Within the ecosystem, wage increases may be offset by reduced fixed or logistical costs from the economies of scale and agglomeration effect, without moving production to areas with lower labour costs. The cheap labour advantage held by the next-tier emerging countries becomes insufficient to challenge the established geographic specialisation centres with production networks. This may constitute the limit, or the boundary, for late catch-up. However, the strategy of geographic specialisation can also be deployed by developing countries, allowing them to raise wage levels while retaining the business.

A developmental state

To navigate participation in the global division of labour, the state should act as the growth facilitator to overcome constraints on development. The state's role includes forging comparative or competitive advantage through using state intervention policies such as subsidies or currency devaluation, and organised investment that private enterprises may not otherwise have made. The extent of state intervention is determined by the capacity and authority of the state; a stronger state can allocate more resources to the leading sector through price distortions and subsidies.

In the analyses of the developmental economists, government involvement is seen as crucial for the East Asian economic miracles, with East Asian developmental states featuring strong involvement in economic planning, industrial policy, and infrastructure development. First, the state plays a significant role in forging comparative advantages. The relative domestic scarcity of capital and human capital is considered a product of late development rather than inherent features of a country, thus allowing comparative advantages to be forged through a developmental process involving a variety of social and institutional factors. The role of the government becomes increasingly important as a country industrialises later and is further from the global technological frontier (Gerschenkron, 1962). In the case of Asian tigers, governments used measures such as currency devaluation and credit subsidy to influence relative prices, boost industrialists' profits, and encourage investment (Amsden, 1992). However, many late industrialisers faced the challenge that their productivity was too low to compete at market-determined prices, even with subsidies. This, coupled with the inability to conduct a real depreciation of the exchange rate for importing producer goods, led Taiwan and South

Korea to focus on establishing a “leading sector” by organising private entrepreneurs into investments that they might not have otherwise made (Rodrik, Grossman, and Norman, 1995).

Second, a developmental government can facilitate industrial upgrading. It is difficult for firms in developing economies to integrate into the higher tiers of GVCs and perform high-value-added activities (Andreoni, 2019; Andreoni, Lee, and Torreggiani, 2021). If the OEM sites lose wage and cost competitiveness, the production orders will move to lower-wage countries (Lee, 2005). In this context, the OEM strategy is unsustainable, and pursuing industry upgrading becomes a necessity. The case of East Asian tigers illustrates the positive role the government can play to facilitate industry upgrading. By the early 1970s, the Asian tigers faced difficulties arising from the inherent constraints of primary EOI. With a shrinking labour pool and rising wage levels, Taiwan and South Korea faced challenges from newly emerging countries competing in many of the same low-wage sectors. Additionally, they encountered protectionism in major export markets such as the US and Western European nations. Therefore, Taiwan and South Korea sought to develop heavy industries like steel, petrochemicals, and heavy machinery to enhance national production capability in these sectors and pave the way for diversified exports in the future (Ellison and Gereffi, 1990). In the case of Taiwan, government planning documents from the early 1960s clearly identified a number of specific industrial sectors worthy of government involvement and promotion (Wade, 1990a). The Singapore government also established a “Growth Triangle” to move labour-intensive sectors to Malaysia and Indonesia, while retaining higher-wage activities in Singapore (Hobday, 1994).

2.5 Concluding remarks

This chapter provides a literature review of mainstream economic growth theories and the Lewis model (1954) and suggests fostering growth in developing countries through utilising surplus labour and idle resources. As a late developer often faces the constraints such as limited domestic demand in developing industries and challenges in creating employment, it cannot achieve growth in isolation. Instead, it must navigate the global division of labour and address the constraints imposed by the capitalist world system. Limited domestic markets pose constraints primarily in the early stage of development, where the domestic population has low purchasing power. As people's income levels increase, domestic consumption can better support the development of domestic industries.

The literature on globalisation highlights its diverse facets and varying impacts on both developed and developing countries. The global division of labour is a hierarchical system in which developed countries occupy the higher ranks and reap the most benefits, often by exploiting surplus and inexpensive raw materials from developing countries. However, industry offshored from developed countries also present opportunities to some developing countries. Integrating into the world economy does not necessarily bring about inclusive growth, but rather it depends on the development strategies employed by the state, the sector integrating into GVCs, and a series of complex domestic social policies. Practices such as following a production-oriented development pattern, developing geographical specialisation including clusters and industrial ecosystems, and playing the role of a developmental state through forging comparative advantages and facilitating upgrading have been empirically proven effective in globalisation.

3. The Distribution Issue from the Employment Perspective

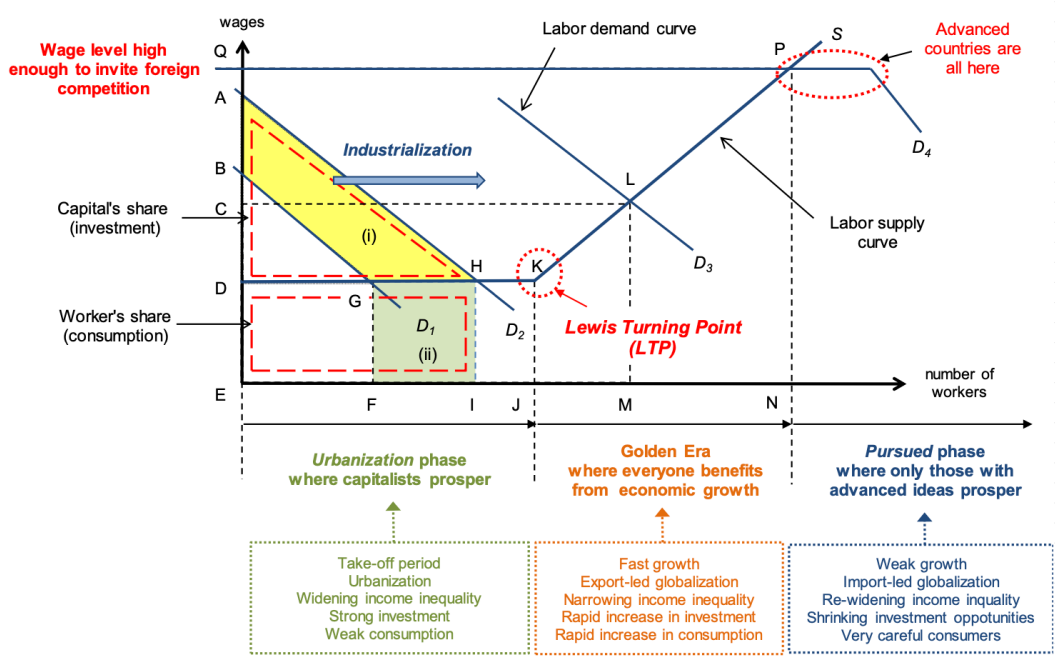
3.1 How labour market dynamics link to inequality

The dynamics of labour markets affect how profits are distributed between workers and business owners. The Lewis (1954) model and the Marxist model (Dutt, 1990) both indicate how gains are distributed between capitalists and labour. When there is surplus labour, the Lewis model predicts that the distribution will be pro-capitalist. The Marxist model proposes that a large reserve army of labour allows capitalists to keep labour's wage at the subsistence level. But as expanding investments absorb all the surplus labour, the Lewis model suggests that distribution will become pro-labour; and a Marxist model becomes neoclassical because upward pressure on real wages occurs when the economic growth rate exceeds the labour growth rate.

Koo (2020) proffers a theory that increasing employment has the potential to reduce inequality, while the degrees of inequality exhibited in the real world are affected by policy choices. Based on Lewis' dual economy model, Koo (2020) proposes three phases of industrialisation/globalisation, associating with varying degrees of inequality due to the labour market supply and demand dynamics. During the stage before reaching the Lewis turning point (LTP), capital faces unlimited labour supply and can hence extract a large share of surplus. At labour demand curve D1, capital's share is represented by the triangle BDG, and labour's share is the rectangle DEFG (see Figure 1). The capital share BDG may be distributed among only a few individuals or families, whereas the labour share DEFG may be distributed among millions of workers. Inequality may widen until surplus labour is exhausted, as rapid economic growth generates high profits which accrue to capitalists, while wage growth remains slow in this process. Koo (2020) suggests that the rise of a few super-rich in Europe a century

ago, the zaibatsu in Japan before World War II, and the super-rich in post-1978 China all drew on an essentially flat labour supply curve (wealth accumulation in North America and Oceania was not quite as extreme due to a shortage of labour).

Figure 1. Three phases of industrialisation/globalisation



Source: Koo (2020).

In Stage II of industrialisation, the post-LTP maturing economy, workers become scarce and expensive, thereby increasing their bargaining power, forcing capitalists to concede to some of labour's demands. This shift is mirrored in the policies of centre-left and centre-right political parties. At this stage, capitalists still seek to enhance worker productivity to offset high labour costs. As workers' purchasing power increases, market demand grows, prompting capitalists to expand their capacity. Both productivity- and capacity-enhancing investments boost the demand for labour and capital. During this phase, business investments improve workers' productivity even if their skill levels remain unchanged.

As the economy enters Stage III of industrialisation, the pursued phase, inequality worsens. When wages reach a certain point, production is moved abroad to circumvent high domestic labour costs. Workers are on their own in the pursued phase, with job security and seniority-based wages becoming increasingly rare (Koo, 2020).

Therefore, Koo (2020) argues that manufacturing is a great social equaliser: when manufacturing industries are thriving, people without advanced education can still earn a decent living. Similar findings can be found in the research of Baymul and Sen (2020) which shows that manufacturing-driven structural transformation has been found to decrease inequality, while the outcomes are more nuanced for service-driven structural change.

Moreover, the pursued phase witnesses the phenomenon of outsourcing production to developing countries since the 1970s, along with capitalists shifting towards financial activities to draw profits and a decline in real investments in mature economies, a trend identified as financialisation. The literature on financialisation demonstrates its significant impacts on labour. The disconnection of capital from established institutions and business systems has weakened labour by making employment more insecure (Daguerre, 2014). Emphasis on the rise of shareholder value has worsened the condition of labour at work, as employers have not kept their side of the employment bargain (Thompson, 2003, 2013). And the corporate governance ideology that prioritises shareholder value justifies the act of value extraction from labour (Cushen and Thompson, 2016), “downsize and distribute”, tax avoidance to boost corporate profits, and insufficient reinvestment in new, higher-value-added capabilities on a sufficient

scale to create middle-class employment opportunities that can provide a new foundation for a stable and equitable growth economy (Lazonick, 2017; Lazonick and O'Sullivan, 2000). Wage shares have declined substantially in all Organisation for Economic Co-operation and Development (OECD) countries and most developing economies since the 1980s (ILO, 2011). Scholars consider that globalisation and financialisation are two main contributors to declining wage shares (Dunhaupt, 2017; ILO, 2011; Stockhammer, 2017).

However, it is noteworthy that regardless of the stage of industrialisation, the levels of inequality are significantly affected by policy choices of a society. Put differently, the distribution stemming from production is subject to redistribution, and both shape the levels of inequality a society exhibits.

3.2 Distribution in the context of globalisation

Distribution of benefits from international trade from the GVC perspective

Following the vein of Koo's (2020) research, in this section, I will investigate how globalised production influences workers in developing and developed countries regarding what productive factors are involved in global production and to whom the benefits of globalisation accrue. Regarding international trade and the distribution of the fruits from it, classic globalisation theories view a country as a whole when analysing its benefits and drawbacks from international trade. Dependency theory suggests that workers and capitalists in the centre can gain the fruits of their technical progress via rises in wages and profits. Meanwhile, the opposite has happened in the periphery due to the weakness or absence of trade unions, a large surplus labour force, and greater competition faced by producers. By contrast, neoliberalism argues for the

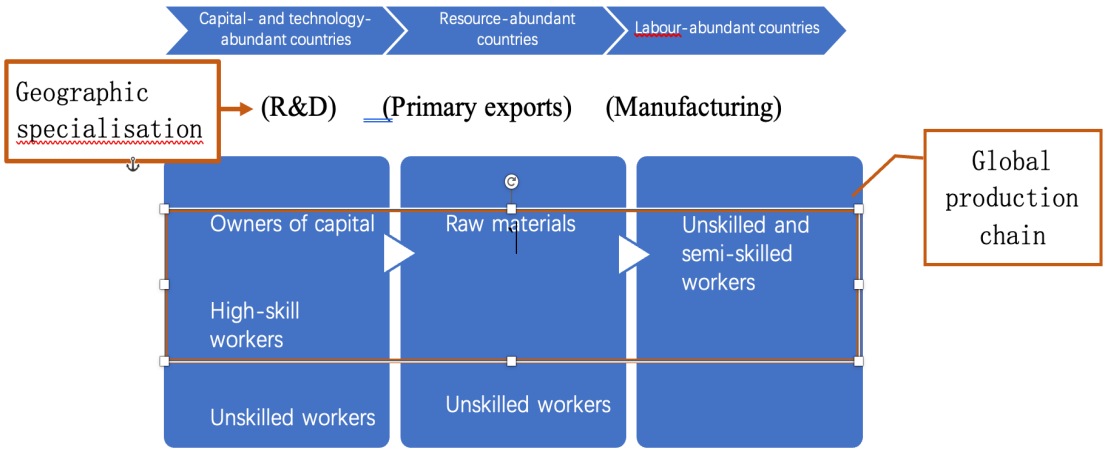
equalisation of factor prices across countries, meaning that wages of labour in the South will converge with those in the North. However, as one goal of global production is to cheapen productive inputs, such as labour, capital in the North reaps great benefits through offshoring production, while the circumstances of workers in high income countries are uncertain. Furthermore, as the world system continues to integrate the next-tier emerging countries with lower wages, current offshored destinations face constant cost competition, driving down wages and potentially hindering technical advancement, making it difficult to converge with developed countries. Another flaw in these arguments is the tendency to view the labour force in a country as a collective entity, without recognising the distinctions among its various groups. The discussion on the distribution of benefits from international trade needs to shift its focus towards assessing its impact on different groups of people within a country.

Globalisation has altered the employment relationship between the working class and employers in both developed and developing countries. Theoretically, when capital-rich countries in the North focus on capital-intensive production and labour-rich countries in the South engage in labour-intensive production, the outcome is that labour in the South gains relatively compared to capital owners, while capital in the North benefits more than labour. An extended version of this model differentiates in terms of the effect of openness on skilled and unskilled labour rather than on capital and labour. According to these models, in countries where highly skilled labour is abundant, in the long run, the wages of unskilled workers will fall, whereas the wages of skilled workers will rise (Wood, 1994). Dani Rodrik (1997) argues that trade liberalisation benefits the more mobile factor capable of crossing international borders, such as capital owners, highly skilled workers, and professionals, who can relocate their resources to high-

demand areas. Conversely, unskilled and semi-skilled workers, along with many middle managers, belong to a category that cannot easily migrate borders. Consequently, the increasing substitutability of workers across national boundaries undermines the post-war social contract between workers and employers in Western countries, resulting in diminished bargaining power for workers, leading to lower wages and fewer benefits.

Classifying countries into three categories – capital and technology-intensive countries that focus on R&D, branding and marketing; labour-intensive countries specialising in manufacturing; and resource-abundant countries engaging in primary exports – each country occupies a specific niche within GVCs based on its respective comparative advantage or natural endowment. This analysis will explore how the new global division of labour affects domestic distribution. In a simplified model (see Figure 2), capital from developed countries migrates across borders, bringing technology transfer and combining with raw materials and low-wage labour in developing countries to carry out production. Productive factors that have not been integrated into global production are either expensive relative to their substitutes (e.g., semi-skilled or unskilled workers in developed countries receive higher wages than their counterparts in developing countries) or are inefficient to utilise (e.g., unskilled workers in resource-abundant countries that focus on primary exports). As can be observed from reality, these workers excluded from global production are either absorbed by an untradeable sector (in developed countries) or left unemployed or under-employed (in less developed countries).

Figure 2: Inclusion and exclusion of productive factors in GVCs



Source: The author.

The impacts of globalisation on labour in the global North

Neoliberalists' prediction that workers in developed countries will benefit from international trade is based on two assumptions: (1) homogeneity in the labour market, and (2) that labour can easily move around and find jobs in another sector. However, both assumptions do not hold in the real world. People in developed countries can be broadly categorised into three groups: owners of capital can freely migrate across borders to seek the highest return; highly skilled workers and professionals who cannot be substituted by workers in developing countries; and unskilled and semi-skilled workers, along with most middle managers, who can be easily substituted.

The first problem is that high-tech and high-value-added service sectors (e.g., finance) may not be job creating. These tradable sectors contribute a large share of GDP but create disproportionate employment, thereby increasing income gaps between high-wage earners and low-wage earners. Not only are low-skill jobs in high-income countries being outsourced, but high-skilled labour is also facing increasing precarity

if the domestic high-value-added sector cannot provide sufficient job opportunities. Contrary to the presumption that the free flow of labour between tradeable and non-tradeable sectors leads to wages equalisation, the labour market is segmented, with limited labour movement between sectors. Case studies in the US show that the labour market is not fluid enough to allow free job transfers, and those left unemployed by trade often simply depart from the labour force altogether (Autor et al., 2013, 2016).

Secondly, by offshoring production to developing countries, capital owners reduce investment in productive activities in their home countries. As Marxian theories note, capitalism has an inherent tendency for producing far more than can be absorbed by consumption, and over-accumulation and under-consumption lead to declines in profits which, in turn, hinder accumulation and growth. Outsourcing production lowers productive costs and accelerates the rate of accumulation. The surplus available for investment has either taken the form of anarchic flows in and out of developing countries or has been directed towards the "fictitious" economy such as speculative financial activities (Lapavitsas, 2011). Financialisation of the economy has weakened labour through disconnecting capital from established institutions and systems of business (Daguerre, 2014), and reducing investment in productive activities that can create quality job opportunities. In this sense, globalisation and financialisation are responsible for the collapse of the golden age model in developed countries in recent decades.

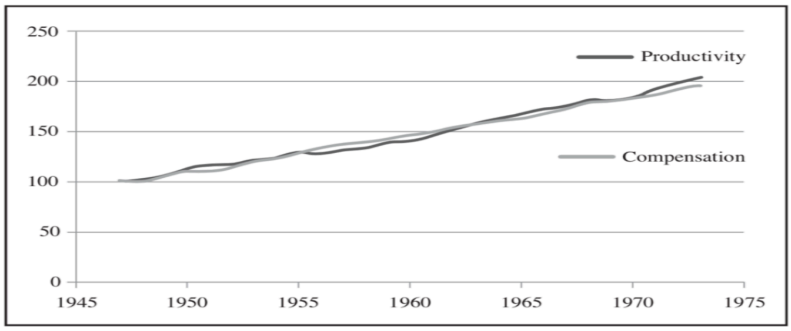
The empirical literature provides evidence that job loss and wage stagnation often occur in the low- and middle-skill sectors in developed countries. Take the US as an example, as Carlton et al. (2018) note, except for some labour markets that exist in large,

economically diverse cities or innovative regions such as Silicon Valley, there are many labour markets that are rural and small town-based, and which have borne the brunt of the "China shock". Lacking cultures of innovation, and dependent on industries with either low skill requirements or over-specialised requirements, it is difficult to replace lost jobs, leading to rising unemployment.

The documentary *American Factory* depicts the case of Fuyao Glass, showcasing the Chinese company's foray into Ohio, a state located in the "Rust Belt" of the US, an area that has witnessed the decline of US manufacturing. In 2013, Fuyao Glass acquired the former General Motors (GM) factory in Dayton, which had ceased operations in 2008.[7] A glass inspector who used to work at the GM factory recalled earning nearly $30 an hour, but at Fuyao, she now made $12.84 (Huang, 2019). The case of Fuyao Glass exemplifies the trend of downward wage convergence for workers in a developed country: reduced salaries and the absence of union protection.

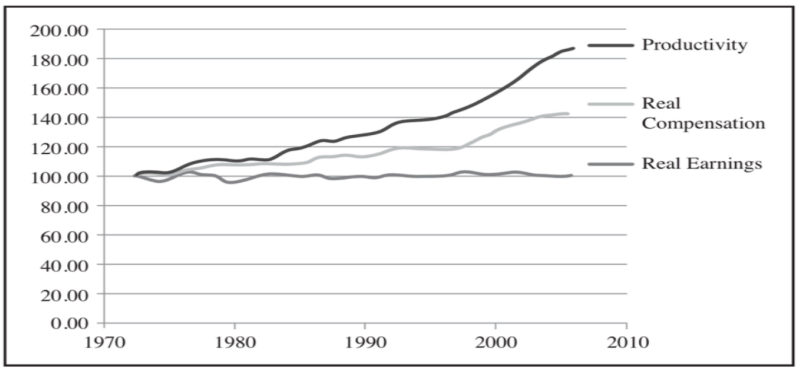
Another phenomenon is the growing wedge between productivity and real wages, whereas, prior to 1973, there was a strong positive correlation between rising labour productivity and rising real wages in the US. The process of factor price equalisation that occurs in an open economy may break the link between earnings and productivity (Weiher and Beladi, 2011).

Figure 3: Productivity and compensation (1947–1973, where 1947=100)



Source: Weiher and Beladi (2011). Data originally collected from the Bureau of Labour Statistics

Figure 4: Productivity, real Compensation, and real Wages (1973–2005, where 1973=100)



Source: Weiher and Beladi (2011). Data originally collected from the Bureau of Labour Statistics

In contrast to the downward wage convergence in the low- and middle-skill sector, there appears to be an upward wage convergence in the high-skill sector. Globalisation may not weaken the bargaining power of a high-skilled workforce in advanced countries, but it could lead to engineers in developing countries with comparable skills rapidly converging with their Western counterparts. In 2002, integrated circuit (IC) designers in both India and China were earning an average of 10% of the compensation received by their US peers. However, according to Fuller et al. (2017), the compensation for early-to-somewhat experienced engineers in India increased to around 20–25% of that of their US peers; and for senior technical staff, the compensation gaps are much smaller, ranging from 1:1.15–1.2, indicating near equal pay levels between India and the US. In the case of China, by 2014, the compensation for early career engineers was between one-third and one-quarter of their US peers, and

it reached near parity with US salaries for senior technical staff (Fuller et al., 2017). This case shows upward wage convergence for high-skilled workforce with low substitutability.

The impacts of globalisation on labour in labour-abundant countries

Labour intensive countries such as China participate in global production by utilising their abundant factor of labour, thus providing substantial industrial employment. It is extremely important for poverty reduction. Amsden (2012) stresses the limitations of today's development debate as follows:

> Poverty is caused by unemployment, owing to a scarcity of jobs that pay above bare subsistence, but grass roots poverty alleviation measures are exclusively designed to make jobseekers more capable although no jobs are available.

Supply-side theories posit that the high-quality human resources in East Asian countries are crucial for their economic success. However, lacking industries that provide job opportunities, high-quality human resources remain unemployed and structural change cannot be triggered. As the domestic market is constrained by limited demand that restricts the development of industries, integration into the world system creates demand for labour resources and motivates the intensive utilisation of this productive factor.

Creating industries which can provide sufficient jobs with above-subsistence-level wages is significant for breaking dualism, as it initiates the process of structural change and transforming surplus labour into productive workers, while enabling individuals to embrace modern perspectives, adopt working habits, and cultivate technical skills. As the transition unfolds, the economy enhances its productive potential and adaptability.

Manufacturing has garnered widespread praise for making productivity growth easier, inducing backward or forward linkages, improving managerial and organisational capacity, and increasing export earnings (Andreoni and Chang, 2017). The most significant function is its role in creating employment, which holds great importance for a late developer with substantial labour reserves. In contrast, although high-tech industries such as software, particularly software services, enable a late developer to engage in the global economy with only limited physical infrastructure, even a successful software industry is likely to contribute at best 2 to 3 percent of GDP and an even smaller fraction of employment (Arora and Gambardella, 2005). Consequently, high-tech industries' impact on the entire economy remains relatively modest. Comparisons have also been drawn between labour-intensive industrialisation and heavy industry-led growth, especially in the case of China. In the pre-reform era, China deviated from the dictates of its comparative advantage, resulting in distortions in industrial structure.[8] The distortions impeded the transfer of labour from agricultural to non-agricultural sectors and allocated little resources to the production of consumer goods, consequently hampering the improvement of people's living standards and the rate of economic growth (Lin et al., 2003). Considering that the primary characteristic of the heavy industry is their capital-intensive nature and low employment-absorption capacity, an empirical study that examines the relationship between development strategy, urbanisation, and the urban–rural income gap based on Chinese provincial panel data for the 1978–2008 period reveals that a heavy industry-led development pattern is likely to result in a lower urbanisation rate and a larger urban–rural income gap (Chen and Lin, 2014).

However, it is noteworthy that there are two ramifications for labour-intensive industrialisation. Labour-intensive EOI can evolve into two distinct outcomes through the income–demand nexus: (1) the race to the bottom results in a low-wage, low-skill trap; and (2) through labour-intensive manufacturing, developing countries move up the GVCs and converge with developed countries in terms of income. In the former scenario of racing to the bottom, growth is not associated with technology improvement. For example, Krugman (1994) claims that the East Asian miracle involves much perspiration but little inspiration. Building on the growth of factor inputs instead of focusing on efficiency improvement, growth becomes extensive rather than intensive. Making the transition from a craft-based industry to a large-scale industry necessitates significant entrepreneurial efforts. Moreover, late catch-up requires time to establish a team of engineers and high-quality workforce, due to the presence of foreign competitors who may introduce a stream of new innovations in productivity and quality as a countermeasure for their declining market share (Amsden, 1992). Therefore, moving up the GVC cannot be taken for granted.

The impacts of globalisation on labour in resource-abundant countries

Specialisation in primary exports also poses some problems. The dependency school contributes a rich body of discussion on how forced specialisation leads to under-development or limited gains from international trade due to countries' disadvantageous position. However, my focus here is on how the characteristics of primary exports affect domestic income distribution. First, the mining industry often exhibits monopolistic traits, while plantations feature with economies of scale; they require significant initial capital and are susceptible to control by the powerful few – the elite class. From the perspective of industrial structure, a high level of industry

concentration leads to highly concentrated market power, causing high inequality (Goga and Mondliwa, 2021). By examining the metal industry in South Africa using Khan's theory (2018) of the distribution of power, Goga and Mondliwa (2021) suggest that leading firms' economic and political power have been leveraged to shape outcomes, such as increasing input prices for the downstream industries, slowing the pace of sectoral deepening, and causing economic rents to become extractive rather than productive as the conditionalities have been poorly enforced, thus shifting the surplus from consumers to producers. Second, primary exports induce limited forward and backward linkages that help to build domestic industries to compete with existing production centres. Latin American history reveals that in the initial period when mining was the key economic activity, all agricultural activities were geared towards supplying the mines "with food for its labour, animal[s] for transport, and wood for fuel and construction", while later the establishment of Ibero–American plantations primarily produced sugar, tobacco, coffee, rubber, and so on for the European market (Kay, 2011). Third, improving the terms of trade for primary exports will result in an appreciation of the exporting country's currency, leaving domestic wages uncompetitive. Last, but not least, primary exports are not job creating. Lacking sufficient middle-class employment, it is hard to break dualism although the economy can register a high growth rate. Some less developed countries are investing in innovation and developing high-tech industries, seeking leapfrogging to surge ahead. However, it depends on the size and composition of the domestic labour market, and whether the primary sector and high-tech industry could absorb these two distinct types of workforces, and it remains an open question as to whether dualism can be mitigated through the diffusion effect that slowly extends into the untradeable sector, transforming surplus labour in the subsistence sector into a new middle class.

3.3 How policy choices affect distribution and redistribution

In this section, I will review how policy choices affect distribution and redistribution. Policy choices affecting distribution primarily involve state intervention in markets and the price mechanism. Take pre-reform China for example, the planned system adopted an urban-biased policy and distorted prices to fund the development of heavy industry strategies, which was responsible for an urban–rural divide (Chan and Zhang, 1999; Kanbur and Zhang, 2005; Lin et al., 2003). In the pre-reform era, China's population was divided into agricultural and non-agricultural groups through the *hukou* system, resulting in significant disparities in opportunities, obligations, and socio-economic statuses (Chan and Zhang, 1999). To maintain the distorted prices, the state must establish non-market mechanisms to prevent the free flow of resources between sectors. As a result, the surplus was extracted from the rural, contributing to rural poverty in pre-reform China.

Through the lens of political economy, the role of the state is complicated. A developmental state often prioritises the goal of development over social equity. The extent of state intervention is determined by the capacity and authority of the state. A stronger state can allocate more resources to the leading sector through price distortions and subsidies. It is commonly argued that over the long term, as the economy expands, individuals who experience losses due to state intervention in income distribution or redistribution may still be better off by expanding the size of the "economic pie" available to all. However, due to the path dependency of institutions, reforming an existing unequal system designed to benefit certain sectors or individuals often requires a significant amount of time to transition to a more equitable system. Moreover, Bates

(1981) suggests one possible motivation behind price distortions is to direct benefits towards influential interests in exchange for political support. Hence, policies aimed at serving national interests can sometimes fraudulently benefit certain interest groups.

How policy choices affect redistribution in China

On the other hand, policy choices influence redistribution through taxes, service provision, and benefits. For pre-reform China, Ma Hong (1983) estimated an urban subsidy of 526-yuan, equivalent to 82% of annual income in 1978, which greatly widened urban-rural divide. In 1978, the Gini coefficient was 0.222 for rural areas and 0.165 for urban areas, while China's overall Gini coefficient was 0.317 (excluding urban subsidies) and 0.438 (including urban subsidies), highlighting how urban subsidies further exacerbated the already significant urban-rural gap (Adelman and Sunding, 1987). For post-reform China, researchers have also found that in-kind income, urban-biased policies, and institutions were responsible for the long-term urban–rural divide (Yang, 1999; Gustafsson and Li, 1997). The empirical literature below shows that regressive taxes and unequal provision of public services have persisted for a long time in the post-reform era.

Taxation

Researchers (Tao and Liu, 2005; Wang and Piesse, 2010) found that highly regressive system of taxation existed for a long time, where the rural poor paid a disproportionally higher share in the form of the agricultural tax before the tax was cancelled in 2006.

Education

Hao et al. (2014) argue that the *hukou* system establishes a hierarchical structure and that the urban–rural school system perpetuates the unequal distribution of resources. The initial disadvantages associated with rural *hukou* and rural schools accumulate throughout an individual's life, leading to divergent educational paths. While policies promoting a universal nine years of compulsory education have been successful, the urban–rural divide remains a significant factor perpetuating intergenerational educational inequality in China, separating the education-poor from the education-rich across generations (Knight et al., 2013).

Healthcare

Approximately three-quarters of the total public expenditure on healthcare in China consists of subsidies. However, these subsidies disproportionately favour individuals who are already better off. According to Zhong and Gustafsson (2008), the concentration coefficient for subsidies is remarkably high at 72 percent, significantly surpassing the Gini coefficient for income distribution at 45 percent. In contrast, the concentration coefficient for the households' unreimbursed out-of-pocket payments is much lower at 37 percent. This disparity stands in stark contrast to OECD countries, where public funding tends to have minimal redistributive effects, while private financing sources often exacerbate inequalities. Their study also reveals that the urban residents, who are generally more affluent, are the primary beneficiaries of healthcare subsidies, while the rural population, comprising the majority, is excluded. Wang (2008a) finds that the average reimbursement from the medical insurance system is higher for urban middle- and high-income groups than for low-income groups. The same is true for the reimbursement ratio for per capita medical expenditure. In other words, the coverage is lower for the poor.

Social assistance and poverty reduction

The World Bank (2015) report confirms China's achievement in enhancing the social safety net. For example, the Chinese "Dibao" is the largest unconditional cash transfer (UCT) programme, reaching about 75 million individuals. Gao et al. (2015) examine urban China's primary poverty reduction programme, Dibao, and find that Dibao has significant poverty reduction effects. The participation rate of Dibao increased slightly from 3.7% in 2002 to 4% in 2007, while its mis-targeting rate increased. However, Dibao was unable to eliminate poverty among its target population, with a notable poverty rate, gap, and severity persisting in both years. Gustafsson and Gang (2013) compare the social assistance systems of China and Sweden and find that in both countries the social assistance payments reduce dire poverty but are less successful in placing full-year recipients above the poverty line. In the last decade, uniform thresholds were applied across Sweden, but in China, they vary by location and are higher in urban areas compared to rural China, mirroring the regional and urban-rural gap.

Redistribution including taxation and service provision greatly influences distribution determined by productive characteristics and production relations, and it ultimately shapes the level of inequality observed in a society. The persistent unequal institutions and service provision in China undoubtedly contribute to high inequality in China. It is noteworthy that the long-lasting adverse impacts of unequal institutions may offset the positive effects of employment creation and rural development on overall inequality in China, making it difficult to ascertain the effects of the latter. While historical factors such as unequal service provision and progressive taxation in China contribute to rural

poverty, the research in subsequent chapters will focus on the production dimension and recent rural development.

3.4 Towards an integrated framework of inclusive and sustainable growth

The components of inclusive growth defined by UNCTAD include the "economy, living condition, equality, and environment", but how to achieve these goals in development remains an open question. This research proposes a framework of "economic growth, distribution, environment, and poverty reduction" for pursuing inclusive and sustainable growth and argues that these goals are attainable for developing countries through proper development strategies in globalisation and specific development patterns.

First, I suggest that following a production-oriented development pattern and creating sufficient quality jobs in a late developing country can effectively achieve economic growth and fairer distribution. The analysis starts from the Lewis model of a dual economy, revealing that the essence of late development lies in integrating idle resources and surplus labour into the capitalist system and modernising them. Employment creation can also generate better distribution outcomes for labour. The perspective of employment does not address inequality among individuals, particularly inequality based on personal capabilities and family status, instead, it casts attention to the long-neglected dimension of distribution conflicts between capital and labour. It suggests that providing quality jobs to people can ensure decent living conditions and enhance their capabilities. Moreover, reducing the large reserve army of labour mitigates the adverse impacts of unemployment and enhances labour's bargaining power. In this sense, manufacturing is a great equaliser, while the flourishing of

financialisaton worsens distribution as financial capitalists can now circumvent production and labour to reap profits. It is the power dynamics between capital and labour underlying political movements that lead to policy choices on redistribution. For example, the rise and retreat of the welfare state may not be an automatic result of the evolution of social democracy in Western countries but rather mirrors the changing bargaining power of labour during both the golden age and the post-golden age. However, it is noteworthy that the improved distributional outcomes resulting from increased employment may be offset by other factors such as unequal policies, as policy choices significantly affect the level of inequality observed in a society. Even more, increasing employment may associate with enlarging inequality. Koo (2020) indicates that in the development stage before surplus labour is exhausted, a large share of the increasing profits from economic growth accrues to capitalists, thereby worsening distribution temporarily.

In contrast, the mainstream debate on inequality often categorises it into two main areas -inequality arising from variance in personal characteristics and inequality stemming from inequality of opportunity. This categorisation leaves no room for the political aspect such as capitalist production relations. The concept of unequal opportunities is defined as “market discrimination or segmentation and unequal access to income opportunities” (Knight, 2014), occurring “where there is imperfect competition and markets, where supply and demand determine only a range of wages, where there is unemployment, and where there is an important place for institutions” (Atkinson, 2015). It is misleading to use “unequal opportunity” to abstract complex social, historical, and institutional factors that contribute to inequality. It removes the distributional conflicts from discussion and ignores the possibility of alleviating

inequality through reducing the reserve army of labour and addressing unequal power relations in the capitalist system. Furthermore, the conservative approach to addressing unequal opportunities has often turned into promoting equal access. As Roemer (1995) criticises: “If there is no discrimination in hiring and everyone has access to education through a public school system or vouchers, then the conservative standard of equality of opportunity is met.”

Second, the discussion of inclusive development is situated within the context of globalisation. The motivations are twofold: On the one hand, integration into GVCs is crucial for late catch-up, fostering new industries driven by global market demand. On the other hand, it allows me to investigate how globalisation influences different groups of people in various countries. The global division of labour is a hierarchical system which impacts both international inequality and domestic inequality in each participating country. By identifying the unequal power relations within the world system, understanding their impacts on diverse groups in developing and developed countries, strategies can be formulated to navigate the global division of labour, thereby improving trade terms and enhancing domestic well-being.

Third, this research challenges the neoclassical economics approach of treating environmental costs as externalities and mispricing natural capital, proposing instead to take them into account when choosing industries and growth paths for a region. Mispriced environmental costs and natural capital would cause unequal ecological exchanges internationally and domestically. Unequal ecological exchanges between countries may be alleviated by improving trade terms and pricing mechanisms. However, this does not eliminate unequal ecological exchanges; instead, it shifts the

issue to a domestic level, creating conflicts between capitalists who receive environmental compensation and uncompensated ordinary people. The latter includes those affected by environment deterioration and those whose livelihoods depend on nature. Although compensating individuals for environment harm may help mitigate unequal ecological exchanges, it does not solve the issue of environmental degradation. It is noteworthy that individuals are often unable to act effectively for environmental conservation, while collective and proactive environmental conservation efforts are essential for addressing the climate issue. This research also challenges the argument that there must be a trade-off between the environment and growth, suggesting instead that they can be addressed simultaneously by seeking opportunities in green industries. Fairer market outcomes can also be achieved because green transition triggers revitalisation of rural areas and environment protection benefits those whose livelihoods depend on nature. Using the case of Alxa, this research discusses the constraints and conditions faced by this area, examines the implemented green transition scheme, and explores the different roles played by stakeholders, proposing a state–society cooperation model called "Research – Experiment – Rollout – Subsidy Phase-out" for green transition practice.

Fourth, inclusive growth requires improving living conditions and reducing poverty for the vulnerable population. Poverty reduction necessitates not only equal access to services but also active actions to enhance individuals' capabilities and compensate people for the disadvantages they suffer. Poverty reduction and the improvement of living conditions can be achieved through providing services and production materials and investing in underdeveloped regions. The case of Linxia proposes a framework of "condition, capability, industry, and benefits" to encapsulate the locally implemented

poverty reduction strategy, suggesting a comprehensive poverty reduction scheme and multiple methods to generate income.

Fifth, the role of the state is complicated – it is both a growth facilitator and a service provider. A developmental state may use price distortions and subsidies to develop strategic industries. However, it is notable that subsidies are funded by taxes. For a poor country, this would increase the burden on ordinary people, leading to negative impact on income distribution. For example, China's catch-up efforts in the pre-reform era was associated with price distortions and urban-rural divide institutions, which exacerbated overall inequality. A commonly held argument is that over the long term, as the economy expands, individuals who experience losses due to state intervention and price distortions may still be better off when the size of the pie is bigger. However, instead of waiting for the trickle-down effects from economic expansion to reach the poorest, the inclusive growth approach requires the state to play an active role in implementing targeted welfare policies to assist people in plight and launch developmental projects in underdeveloped regions.

To substantiate this framework, the subsequent chapters revolve around the theme of "economic growth, distribution, environment, and poverty reduction", which constitute the core component of inclusive growth that shares economic benefits with individuals. Chapter 4 conducts a historical analysis through comparing the pre-reform and post-reform patterns of industrialisation and suggests that the success of the development pattern in the post-reform era lies in the creation of sufficient quality jobs that absorb surplus labour through participating in the global division of labour. Chapter 5 discusses the geographic specialisation of production in a coastal town, exploring

strategies to avoid a race to the bottom by leveraging its specific advantages. Chapter 6 investigates green transition in the region of Alxa, addressing the question of how to balance effective environmental protection, economic development, and income growth for vulnerable communities. Chapter 7 examines the state-initiated poverty reduction programmes in Linxia Prefecture, stressing the importance of redistributing resources towards the poorest and implementing development policies targeting poverty-stricken regions.

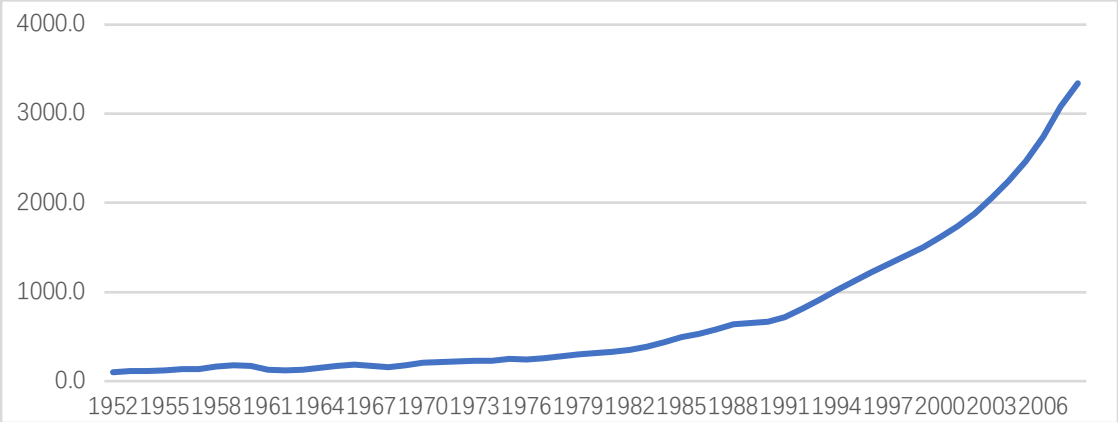
4. The Historical Background of the Urban–rural Divide and Development Strategies in the Pre-Reform and Post-Reform Eras

4.1 Introduction

China has achieved phenomenal economic growth since its establishment, and particularly the reform era has witnessed an economic take-off. The per capita GDP (constant price) saw a 33-fold increase from 1952 to 2008, and China joined the group of upper-middle-income countries in 2010. China's economic success has raised people's concerns about the widening income and wealth inequalities, especially the divide between urban and rural areas. In the pre-reform era, China adopted a planned economy where private ownership was abolished, and it was considered by many an equal regime. However, Adelman and Sunding (1987) suggest that the urban–rural gap in the pre-reform era significantly enlarged overall inequality. Moreover, rural policies restricted free movement between urban-rural areas, confining rural populations within rural collectives, which substantially delayed urbanisation. Therefore, although China significantly strengthened its industrial sector during the pre-reform era, its economy still displayed characteristics of a dualistic economy by 1978. By that year, 17.9% of the population lived in urban sectors, producing 75.2% of the total agricultural and industrial output. Meanwhile, the remaining 82.1% of the population lived in rural areas, contributing 24.8% of the total agricultural and industrial output (Li, 1993). In the reform era, although restrictions on free movement and some dualistic policies were abolished, studies still indicate that the urban-rural gap has been a major contributor to rising inequality in China (Khan and Riskin, 2008; Yang, 1999). For a long time, urban-biased policies and institutions (Yang, 1999) and in-kind income (Gustafsson and Li,

1997) were responsible for the urban–rural divide in China.

Figure 5: Per capita GDP, 1952-–2008 (constant price, 1952=100)



Source: Department of Comprehensive Statistics of the NBS of China (2010).

The rest of this chapter is structured as follows. Section 4.2 will provide an investigation into the institutions responsible for the urban–rural divide. The impact of unequal rural institutions is depicted as a multi-dimensional urban-rural divide in section 4.3. As institutions are created to fulfil the requirements of development strategies, section 4.4 will examine the development strategies and development patterns in both the pre-reform and post-reform eras. Section 4.5 will then discuss the desirability of these patterns and the conditions for making certain development strategies effective, while section 4.6 will conclude this chapter.

4.2 Rural institutions and policies responsible for urban-rural divide in China

Pre-reform era

China launched the socialist transformation campaign in the 1950s. Agriculture and rural communities were collectivised, and production teams were designated as the basic accounting units. The commune management included residence registration, grain rationing, and political and ideological control. The government decided what the

peasants should produce, how much to produce based on the estimation of normal output (*dingchan*), and how much food to consume, and implemented the planned purchase of major agricultural produce (*dinggou*). Additionally, the government supplied grain for those who planted cash crops and for those who were unable to meet their own food needs (*dingxiao*) (Ministry of Finance et al., 1994). The collective income after paying agricultural taxes and selling agricultural produce to the state at the state-set price was distributed among commune members, whose attendances in collective activities were rewarded with work points.

These agricultural institutions facilitated the extraction of agricultural surplus through taxation (in kind) and the under-valuation of agricultural produce. According to the Agricultural Regulation of the People's Republic of China issued in 1958, the average agricultural tax was 15.5% of agricultural produce. The tax rate in practice was around 10–15% (Cui, 1988). And it was estimated that net planned purchase was around 14–28% of the total agricultural output (see Appendix A). Feng and Li (1993) estimate that the agricultural surplus provided an industrial accumulation of 1,159.4 billion yuan from 1952 to 1990, and the net outflow from agriculture was 952.8 billion yuan. However, Cui (1988) argues that the amount of investment into the rural sector was close to that extracted from agriculture.

The *hukou* system is an important policy tool by which the Chinese government uses to implement economic dualism between agriculture and industry, as well as to manage society. In 1958, the Standing Committee of the National People's Congress (NPC) issued the "Regulations on Household Registration in the People's Republic of China", which classified people as rural or urban residents and imposed strict restrictions on

free population movement, formally setting up the household registration system (the *hukou* system). In addition, the police were authorised to detain "illegal" migrants and repatriate them to their permanent residency location under the *hukou* system (Wang et al., 2019). Its main function has been to confine the population within various state-defined segments and to ensure the desired manageability (Chan and Zhang, 1999).

The *hukou* registration system has a dual classification: residential location and socio-economic eligibility. The first classification is based on a person's presumed regular residence, defining their rights for various activities in a specified locality, including access to staple food and meats during the period when major daily necessities were rationed, and job opportunities even in the present day of reforms. The second classification is "agricultural" and "non-agricultural" *hukou* (the latter is also called "urban" *hukou*), determining entitlements to state-subsidised food grain and other prerogatives (Chan and Zhang, 1999). The *hukou* system has resulted in diverging opportunities, obligations, and socio-economic statuses for urban and rural populations.

Table 3: Dualism in the economy and society

Economy	
Industry	Agriculture
Priority sector	Non-priority Sector
State owned	Non-state sector
State support and control	Self-reliance
Monopoly profits through unequal sectoral exchange	As provider of cheap resources for the state sector
Society (based on hukou classification)	
"Non-agricultural" households	"Agricultural" households
State protection; subject to political control	Self-reliant; subject to less central control
State-provided employment and welfare	Employment and welfare based on local collectives
Restricted entry	Tied to land and agriculture

Source: Chan and Zhang (1999)

Post-reform era

Household responsibility system

Since the end of the 1970s, China has implemented reform and open-door policies. China's rural reform replaced people's communes and collectives with the household responsibility system, which incentivised peasants to increase output and contributed to 48.69 percent of agricultural output growth during the 1978–1984 period, while the application of fertiliser and the substantial increase in the state procurement price contributed to a 32.2 percent and 15.98 percent increase, respectively (Lin, 1992). During this 1978–1984 period, the wage growth of urban employees stagnated and was far outpaced by the income growth of farmers (Li, 2018). As a result, according to NBS data, income gaps between urban and rural areas swiftly narrowed, down from 2.57 times in 1978 to 1.82 times in 1983 – the lowest level since China's economic transition.

Policies towards migrant workers

Although the *hukou* system persists in the post-reform era, with the revision of the Constitution in 1975, regulations restricting free movement were abolished, allowing peasants to migrate freely. Since the mid-1980s, there has been an outflow of the rural labour force, which has become migrant workers. Migrant workers are disciplined and diligent, accepting wages much lower than their urban peers, and were excluded from the safety net designed for urban residents. The abundant rural surplus labour contributed to China becoming the "world's factory". According to the National Bureau of Statistics of China (2009, 2018), the number of migrant workers was around 225

million in 2008 and 288 million in 2018, accounting for about 37% of the total labour force in 2018.[9] The impact of migration on income distribution is dubious. On the one hand, the income gap quickly widens as industrialisation and urbanisation increase the "skill premium". On the other hand, the reallocation of labour from the subsistence sector where the marginal productivity of labour is negligible, zero, or even negative (Lewis, 1954) to the modern sector reduces rural poverty, leading to an increase in the per capita income of rural households. Migrant workers are still better off than they would otherwise have been.

Despite the reduced restrictions on permanent migration, the process of transferring rural to urban *hukou* (*nong zhuan fei*) has been replaced by locally determined "entry conditions" which primarily attract the wealthy or highly educated individuals, neglecting the majority of rural migrant workers (Chan and Buckingham, 2008). The *hukou* system maintains barriers between rural and urban social spaces, defining "locals" and migrants as distinct groups (Chan and Buckingham, 2008). Zhang et al. (2019) examine the *huko*u qualification requirements across different cities in China and find that the average investment amount required for *hukou* qualification in first-tier cities (Beijing, Shanghai, Guangzhou, Shenzhen, and Tianjin) was 3.4 million yuan in the 2000–2013 period, decreasing to 2.6 million yuan in 2014–2016 due to a slight relaxation of additional conditions. For second-tier cities, the average required amount for a *hukou* was 1.01 million yuan during the 2000–2013 period, decreasing to 0.963 million yuan in 2014–2016. Other channels for obtaining a first- and second-tier city *hukou* include housing purchase and high-end employment, often with requirements for higher education, years of employment, years of residence, and social security payment (Zhang et al., 2019).

Social security provision is linked to individuals' *hukou* and operates on a regional basis. Migrant workers who could not obtain a local *hukou* were consequently excluded from the social security benefits offered by the region where they were working. Social security policies towards migrant workers had been absent for a long time until the introduction of the New Cooperative Medical System in 2003 and the New Rural Pension Scheme in 2009, and the issuance of "Interim Measures for the Integration of Urban and Rural Pension Insurance Systems" in 2014.[10]

Service provision for rural residents

Service provision for rural residents was limited for a long time during the reform era. Before the abolition of the agricultural tax in 2006, taxation was considered regressive, with higher agricultural tax and fees imposed on rural residents compared to urban residents (Tao and Liu, 2005; Wang and Piesse, 2010). Moreover, peasants had to raise funds for public services such as education and to contribute to building rural infrastructure. The institutional roots of limited service provision in rural areas and regressive taxation can be traced back to the dualistic system implemented in the pre-reform era. The 1994 fiscal reform that replaced the "fiscal-responsibility system" with a "tax-sharing system" did not significantly improve the situation of peasants either. The fiscal reform required the retention of most tax revenues in the hands of the central government and assigned the main responsibilities for providing social services to lower government tiers while providing limited transfers to finance these services. As described by Hussain and Stern (2008), the relations between government tiers are characterised by both hierarchy and rivalry. In times of financial constraints, each tier attempts to pass on the expenditure responsibility to the lower tier while trying to retain

maximum revenue for itself. Consequently, lower government tiers often find themselves burdened with expenditure responsibilities that surpass the revenue available to them.

> Cities, at the third and fourth tiers, account for all expenditures for social security (pensions, unemployment insurance, and other income support and welfare schemes). Counties and townships (fourth and fifth tiers) are responsible for providing basic education and public health for the rural population: the two tiers account for 70 percent of budgetary expenditures on education and 55–60 percent of expenditures on health. (Hussain and Stern, 2008)

Wong (2013) also demonstrates that the central government covered 5.5% of the education expenditure and 1.7% of health expenditure, while the lowest-level counties and towns were responsible for 60.7% and 54.9%, respectively (see Table 4).

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How do lower tier governments make their ends meet? The 1994 fiscal reform also gave lower tier governments more autonomy to raise off-budget revenues including local taxes, levies of various kinds, and profit from local enterprises to finance their costs. It is estimated that a typical peasant in 1999 needed to pay 45.9 yuan for agricultural tax, 65.3 yuan for contributions and accumulation for funding education and irrigation facilities, 27.8 yuan for fees, administrative charges, and fines, and 18 yuan for constructing local infrastructure in the form of unpaid labour (see Table 5). Beyond the agricultural tax, local officials had the power to decide how much peasants needed to pay for the latter three costs, which substantially aggravated the peasants' burden.

Table 4: Distribution of budgetary expenditures by government level (percent of total)

Government level	All budgetary expenditures	Education expenditure	Healthcare expenditure
Central government	23%	5.5%	1.7%
Provincial government	17.7%	15%	17.2%
Municipal government	22.2%	18.8%	26.2%
Counties/town government	37.1%	60.7%	54.9%

Source: Wong (2013)

Table 5: Composition of peasants' burden: per capita (unit: yuan)

	1994	1995	1996	1997	1999
Agricultural tax	25.3	30.3	40.2	43.4	45.9
Contributions and accumulation	40	53.2	65.9	70.5	65.3
Fees, administrative charges, and fines	7.7	12.6	14.3	14.7	27.8
Corvées (i.e., unpaid labour)	16.4	15.5	23.7	18.2	18

Source: Ma (2002)

Since about 2003, Chinese policymakers have taken measures to abolish the dualistic system that had widened the urban–rural divide. In January 2006, the agricultural tax was abolished nationwide. The miscellaneous fees that local governments charged from farmers was abolished at the end of 2005, followed by a substantial increase in budgetary expenditures for education and health, and an expansion of the government provision of social services in the countryside (Naughton, 2018).

4.3 Multi-dimensional urban-rural divide in China

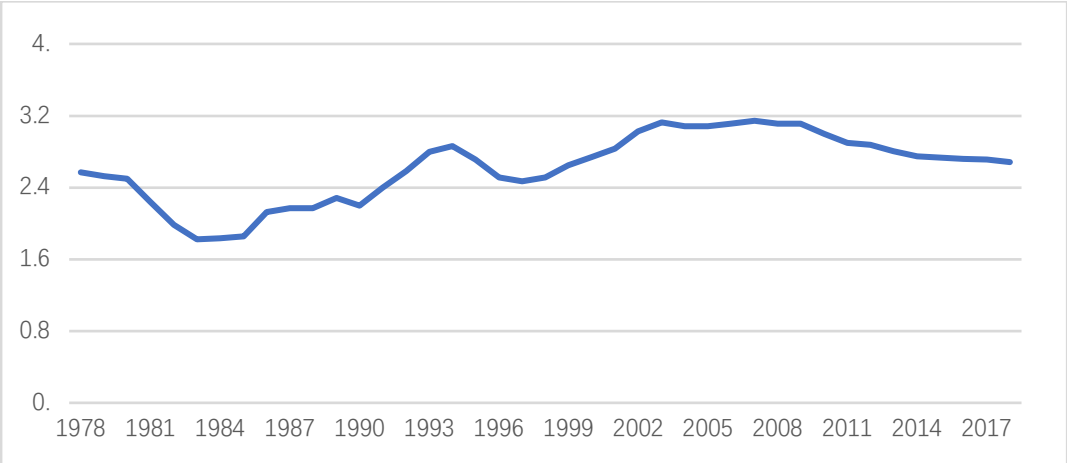
The urban–rural divide in China is multi-dimensional, encompassing the (1) income and consumption gaps, (2) investment gap, and (3) welfare and service gap (including the provision of pension and healthcare, etc.). Rural areas receive significantly less service provision and investment compared to urban areas, contributing to their under-development.

(1) Income and consumption gaps

The urban–rural income gap, measured as the ratio of per capita annual disposable income of urban households to net income for rural households, increased from 2.2 in 1990 to 3.14 in 2007, and then gradually decreased to 2.876 in 2012. In 2021, the annual per capita disposable income for urban residents was 47,411.9 yuan, while for rural residents it was 18,930.9 yuan, resulting in an urban–rural income gap ratio of 2.5.

Urban residents also spend a smaller proportion of their income on food compared to their rural counterparts, as shown in Figure 7, which compares the Engel's coefficient of urban and rural households.

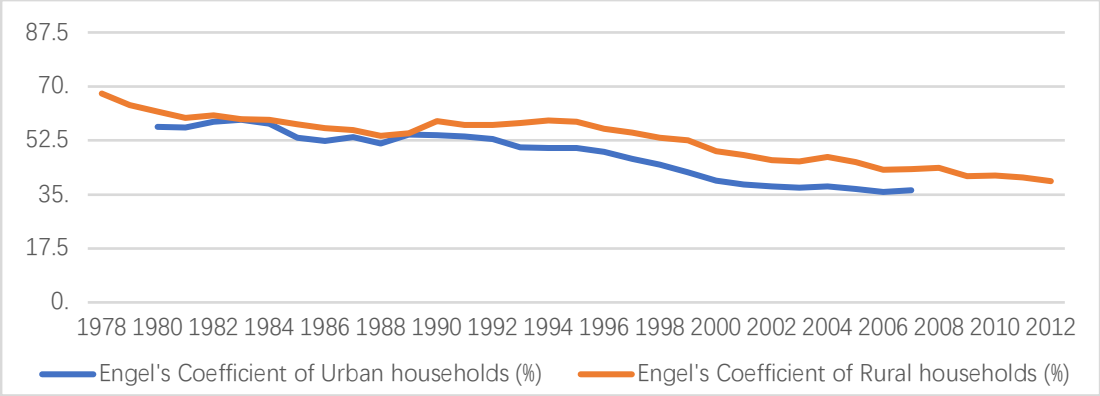
Figure 6: Per capita urban and rural income gap



Source: NBS of China

Note: For the 1978–2012 period, rural per capita income was calculated based on the net income of rural households. Since 2013, the NBS of China has adopted a new method for calculating rural household income. For the period from 2013 to 2018, the income gap was calculated by dividing the per capita disposable income of urban households by that of rural households.

Figure 7: Engel's coefficient for urban and rural households

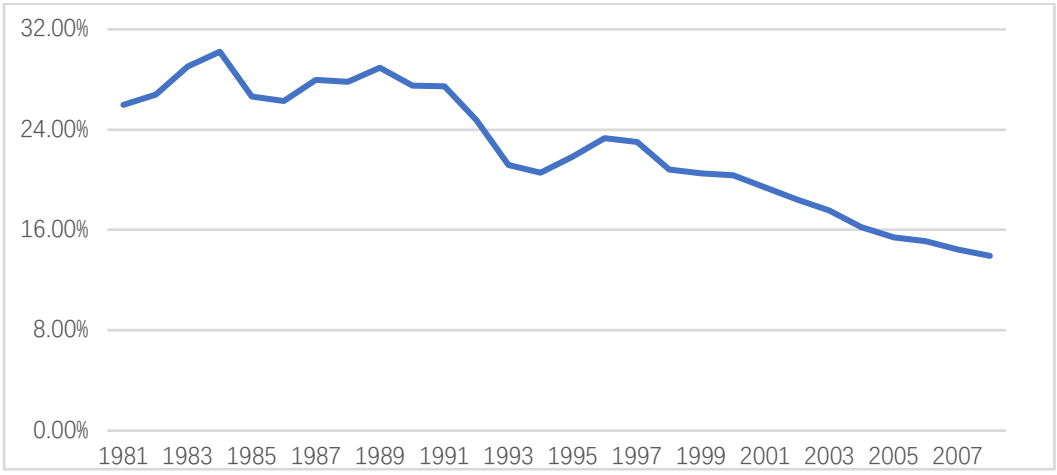


Source: NBS of China

(2) Uneven distribution of investment between rural and urban regions

Rural and urban regions in China experience significant disparities in capital investments. According to data from the NBS, rural areas accounted for 26% of the nation's fixed asset investments in 1981. This share declined to 20.3% by 2000 and further decreased to 13.9% by 2008.

Figure 8: The share of rural fixed asset investment in total investment



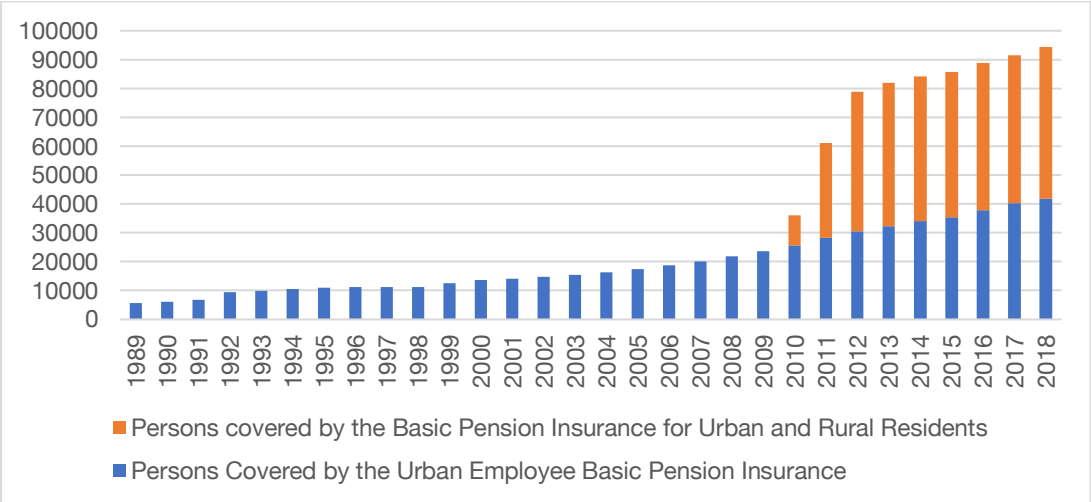
Source: Department of Comprehensive Statistics of the NBS of China (2010).

(3) Unequal provision of welfare and social services

The provision of social welfare and services is also unequal between urban and rural areas in both the pre-reform and post-reform eras. In pre-reform China, urban residence conveyed the following benefits: (1) job security; (2) guaranteed low-price access to food grains and other scarce commodities; (3) healthcare (about 40% of all general hospital beds were in the state-owned industrial system); (4) retirement benefits, including healthcare; (5) primary- and middle-school education for children (70% of state enterprises provided schools); and (6) low-cost housing, supplied by the work unit (Naughton, 2018). Rural residents were excluded from urban subsidy, and household provision was the primary form of security, except for those who were eligible for the "Five Guarantees"[11]. For ordinary rural residents, only crude forms of social security such as a rural cooperative medical service were provided by the people's commune system (Wu, 2015). Although 95% of the rural population was covered by the rural collective medical service (Cai, 1998), this service was provided by "barefoot doctors" who were peasants and had received very limited medical training. The new social

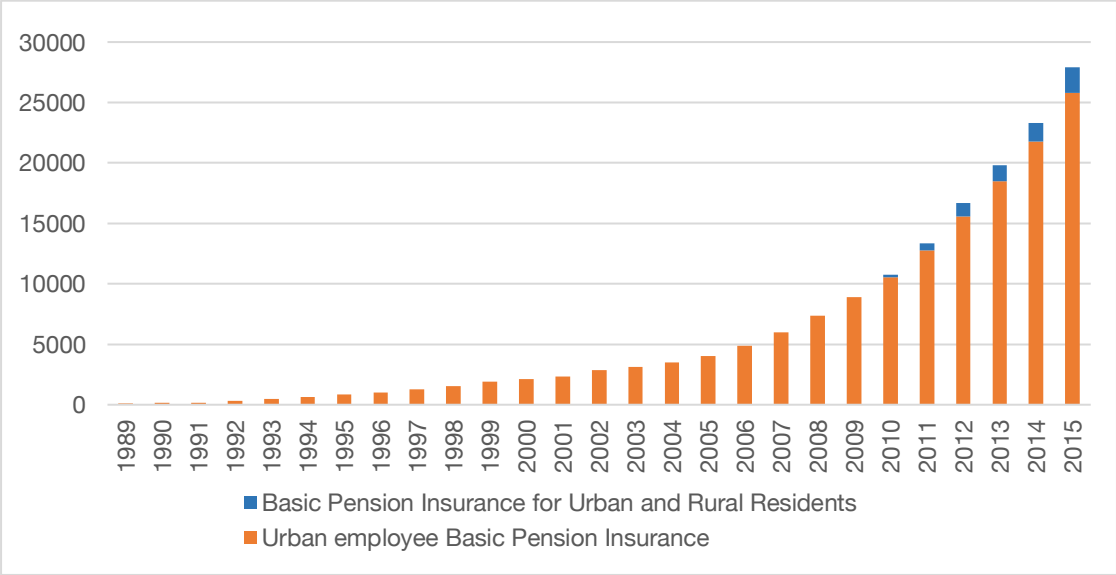
welfare system that has been established since 1994 did not provide benefits to rural residents until the early 2000s (Zheng, 2002). The gradual rollout of the New Cooperative Medical System since 2003, and the New Rural Pension Scheme since 2009, has addressed the lack of health insurance and social security provisions for rural residents. Figures 9 and 10 show that although the number of rural residents covered by basic pension insurance surpassed that of urban residents in 2011, the total pension expenses for urban residents are significantly higher. Similarly, as shown in Figure 11, expenditure on health services in rural areas is considerably lower compared to urban areas. Per capita health expenditure for rural residents is also notably less than that for their urban counterparts. In addition to gaps in pension and health expenses, the divide in the provision of health services is significant. As depicted in Figure 13, the number of health workers per thousand population in rural areas is also considerably lower than in urban areas.

Figure 9: Comparison of the number of urban and rural residents covered by basic pension insurance



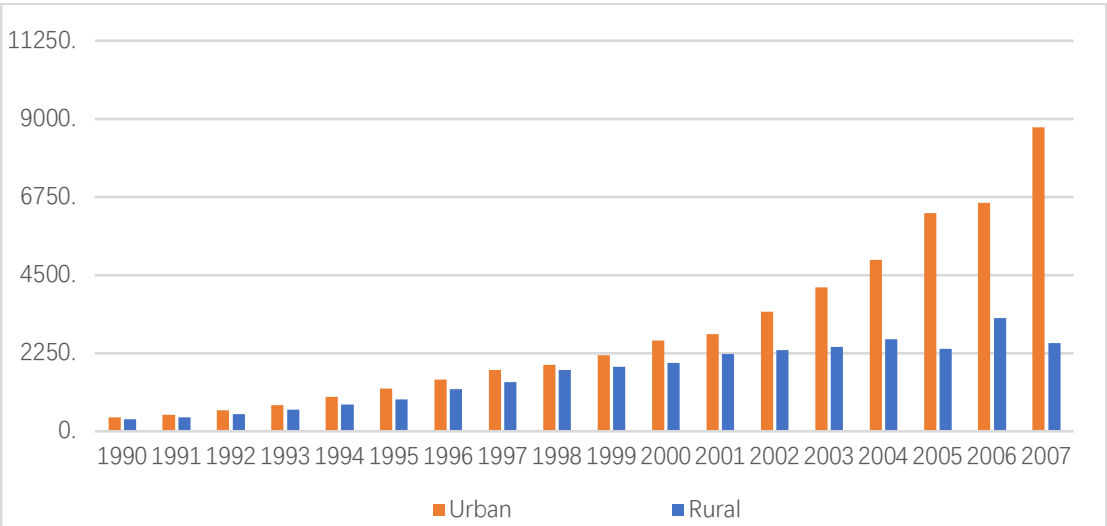
Source: China Labour Statistical Yearbook 2016.

Figure 10: Comparison of pension expenses on urban and rural residents



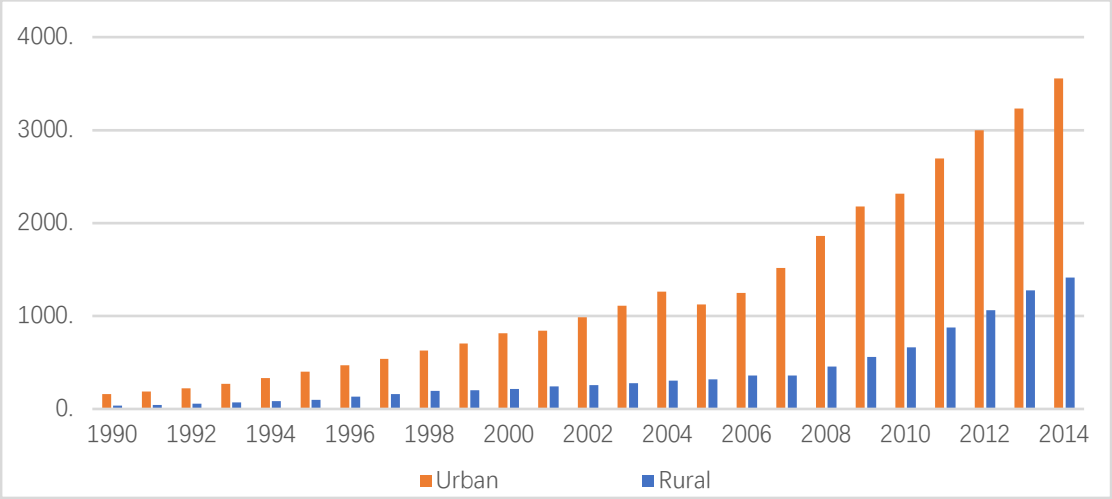
Source: China Labour Statistical Yearbook 2016.

Figure 11: Expenditure on health services in rural and urban areas (100 million yuan)



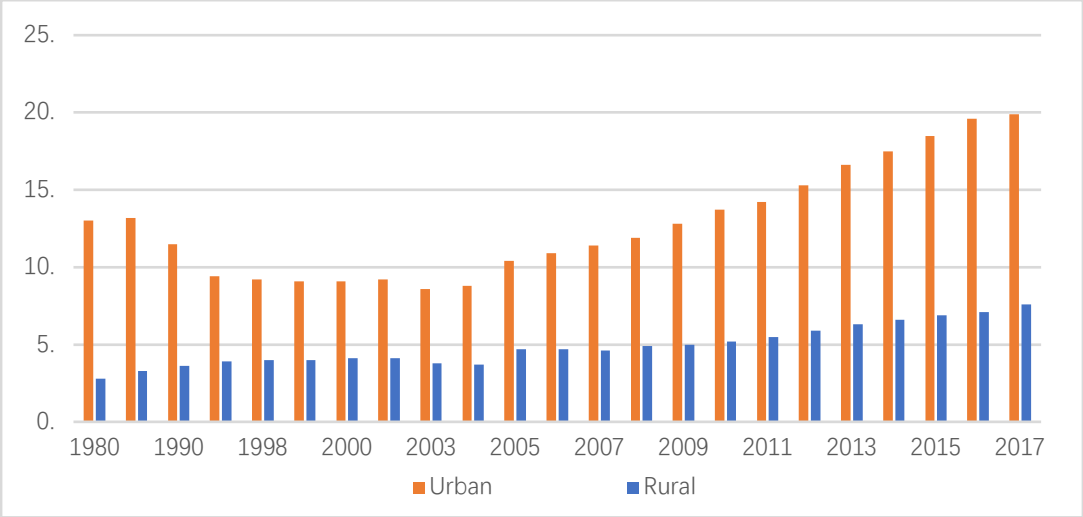
Source: NBS of China

Figure 12: Comparison of per capita expenditure on health between urban and rural areas



Source: NBS of China.

Figure 13: Comparison of the number of health workers per thousand population between urban and rural areas



Source: NBS of China.

4.4 Different development patterns in the pre-reform and post-reform eras

As suggested by Gereffi (1990, p. 23):

> development strategies can be defined as sets of government policies that shape a country's relationship to the global economy and that affect the domestic allocation of resources among domestic industries and major social groups.

Development strategies influence a country's development pattern through its leading industries, the degree to which these industries are inwardly or outwardly oriented, and the major economic agents that implement and sustain development (Gereffi, 1990). Rural policies are an integral part of China's development strategies. For example, the *hukou* system that confines the population within the various state-defined segments in the pre-reform era serves the needs of a planned economy. And the relaxation of the ban on migration suits the development of market economy and labour-intensive industries in the post-reform era.

Pre-reform era

The development strategy in pre-reform China can be identified as the Feldman–Mahalanobis–Domar (FMD) model that prioritises the machinery sector to generate and diffuse technological change. Heavy industry-oriented development strategy with a high accumulation rate had been practised in the Soviet Union and was deemed crucial to remedy backwardness.[12] Lin et al. (2003) also indicate the significance of capital accumulation:

> A country's economic growth is determined by three factors: (1) the increase of various production factors, especially capital; (2) the upgrading of industrial structure from low-value-added industry to high-value-added industry; and (3) the technological innovation. … The only factor that can differ greatly is the rate of capital accumulation.

Another reason for adopting a heavy industry-oriented development strategy was the constraints imposed by the international political and economic environment.

Confronted with the Kuomindang regime in Taiwan and economic embargo imposed by Western capitalist countries, China sought to quickly improve its military strength and build a relatively comprehensive and self-sufficient industrial system, with heavy industries at its core (Lin, 2003). Thus, the development strategy practised in pre-reform China also showed features of ISI, which aimed at accelerating industrial development primarily for the home market and substituting imports with domestically produced goods. This was achieved through government manipulation of market prices, barriers to entry, and control over access to imports and finance. By developing heavy industries and adopting a high accumulation approach, pre-reform China achieved rapid economic growth (see Table 6). Although lower than in the reform era, this growth was by no means low compared to international standards.

Table 6: Indices for economic growth from 1952 to 1978 (%)

	Total social output value	Total output value of industry and agriculture	GDP	National income	Accumulation ratio
First Five-Year Plan	11.3	10.9	9.1	8.9	24.2
Second Five-Year Plan	-0.4	0.6	-2.2	-3.1	30.8
1963–1965	15.5	15.7	14.9	14.7	22.7
Third Five-Year Plan	9.3	9.6	6.9	8.3	26.3
Fourth Five-Year Plan	7.3	7.8	5.5	5.5	33.0
1976–1978	8.1	8.0	5.8	5.6	33.5
1953–1978	7.9	8.2	6.0	6.0	29.5

Source: Lin (2003).

Note: The growth rate is based on comparable prices; the accumulation ratio is based on current prices.

It is noteworthy that development strategies have distributional outcomes. Faced with resource constraints, it is important to establish a non-market allocation mechanism to concentrate resources into strategic industries. In Gerschenkron's (1962) analysis of pre-industrial Russia, due to backwardness in terms of capital scarcity, a lack of public trust, and the weak and fraudulent banking system, the government played a pivotal role in directing incomes from consumption to investment through taxation policies to introduce the most modern technology and develop investment-goods industries. The Soviet Union also used a non-market mechanism to channel resources to strategic industries. As Stalin (1946) claimed in a speech:

> in capitalist countries, industrialisation usually starts with light industry ... But this is a long process ... Naturally, the Communist Party, could not take this path. It would be greatly facilitated by the nationalisation of industry and the banks, which made it possible to quickly collect funds and transfer them to heavy industry. Secondly, by the policy of collectivising agriculture.

Pre-reform China adopted the Soviet practice. To finance industrial expansion, the state implemented an "unequal exchange" between the agricultural and industrial sectors. To maintain such an artificial imbalance under the condition of a dual economy, the state had to find a mechanism to block the free flow of resources (including labour) between industry and agriculture, as well as between cities and the countryside (Chan and Zhang, 1999). The dualistic institutions between urban and rural areas in pre-reform China served as an instrument that extracted rural surplus to fuel the growth of the machinery sector.

Therefore, in pre-reform China, the urban–rural divide is an inevitable result of the dualistic economy. The *hukou* system was initially designed to facilitate the extraction

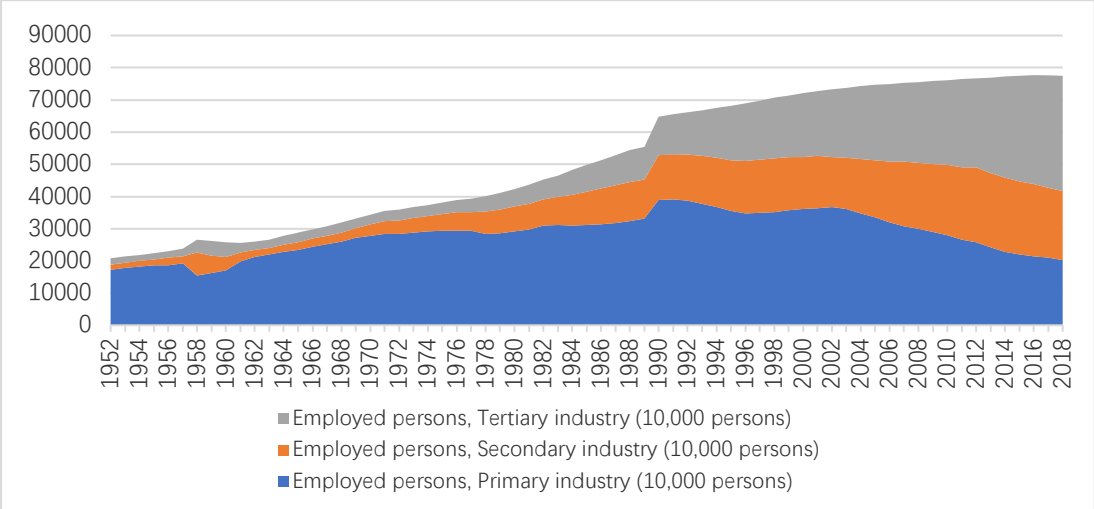
of rural surplus and the implementation of industrial policy aimed at nurturing strategic sectors and building infrastructure. However, the *hukou* system's discriminatory effects are far-reaching, leading to remarkably different opportunities and socio-economic statuses for urban and rural residents. The urban sector in the pre-reform era consisted of state organs, state enterprises, and collective enterprises, which were considered more important than the rural sector and were given priority in distribution. Distribution within the urban sector was also hierarchical, according to the status of work units linking to their importance in the national industrial system or government hierarchy. The state sector was given preferential treatment over the collective sector in the supply of finance, material, and labour, and could provide higher wages and benefits to its employees (Bian, 1994; Guo, 2016). State-sector employees were more powerful compared to collective employees and rural residents and were more effective in expressing their needs and fighting for their benefits. Therefore, in the pre-reform era where there were no other factors such as a market economy or globalisation contributing to distributional outcomes, and the central planner was the only agent that determined distribution, industrial policy that gave preferential treatment to certain industries allowed employees in these sectors more bargaining power and better benefits compared with other sectors.

Post-reform era

As Wu (2015) indicates, China implemented a mix of ISI and EOI for the period from 1979 to 1993 and shifted towards comprehensive EOI after 1994. China has a huge workforce reservoir that is "young, with a low dependency rate and a high labour-force participation rate for both genders" (Naughton, 2018), which can be considered an endowment. Undertaking the offshoring of labour-intensive manufacturing from

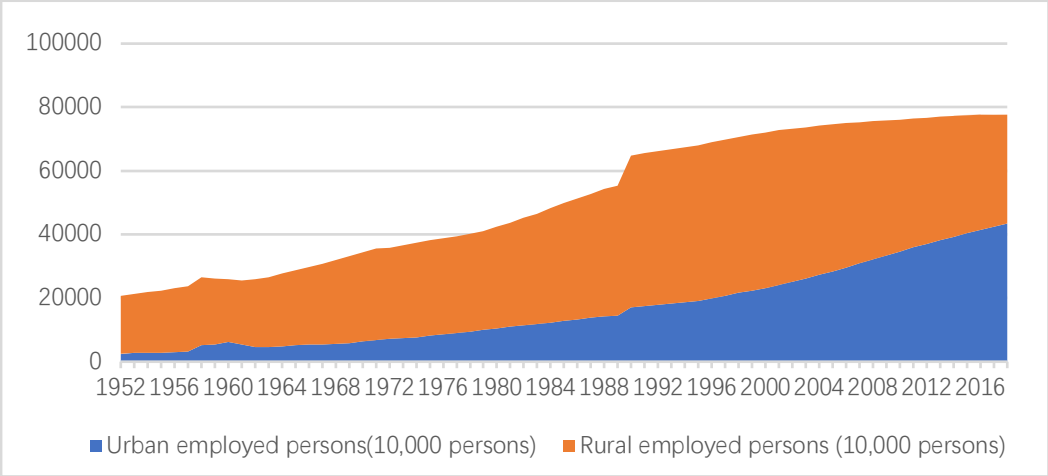
developed countries, the growth of manufacturing exports in China since the mid-1980s has created plenty of employment opportunities that attract rural surplus labour to move out of the agricultural sector as restrictions on the free movement of people have been relaxed. As a result, rural *hukou* labour staffs the manufacturing sector and the low-end services in urban areas. In coastal export centres such as Shenzhen and Dongguan, migrant labour accounted for the largest share (70 to 80 percent) of the labour force (Chan, 2010). Industrial development has trigged changes in the employment structure. As shown by Figures 14 and 15, the second and tertiary industries have witnessed a rise in the number of employees, and the urban sector has also experienced remarkable growth in labour absorption, while the proportion of people employed in the primary industry has decreased.

Figure 14: Number of employed persons by three industry levels



Source: NBS of China

Figure 15: Number of employed persons in urban and rural areas



Source: NBS of China

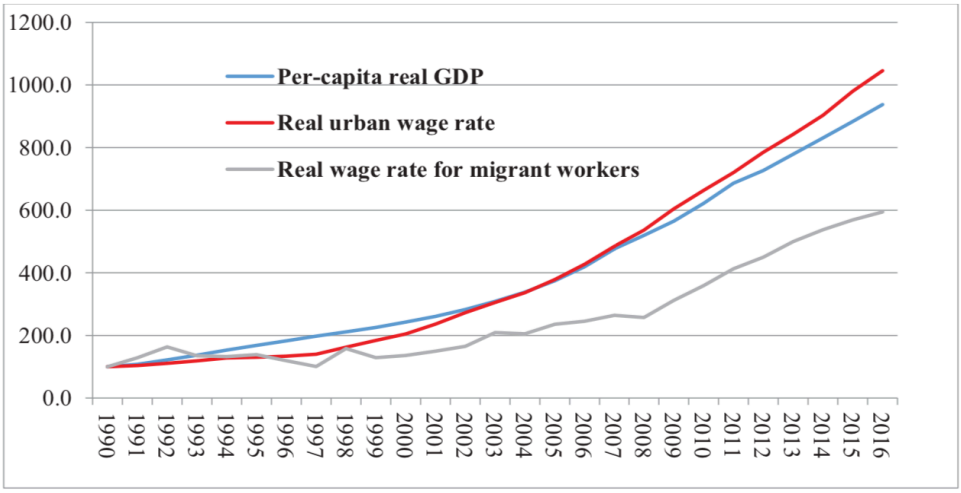
China has gradually developed a comparative advantage that extends beyond relying solely on cheap labour, its "given" comparative advantage. China's exports exhibit a high tendency towards capital-intensive products. According to Lo and Zhang (2011), mechanical and electronic products constituted 61 percent of China's total manufacturing exports in 2007, with electronic products alone accounting for 40 percent. While the machinery sector cannot be classified as labour-intensive, the electronics industry is primarily considered capital-intensive. Furthermore, the proportion of high-tech products in China's manufacturing exports was 30 percent in 2006, surpassing countries generally considered more capital-abundant such as Brazil (12 percent), Russia (9 percent), and the average of all middle-income economies (20 percent), and approaching South Korea (32 percent) (Lo and Zhang, 2011).

China's changing comparative advantage and its movement up the GVC result from a complex evolution of competitive and cooperative ties among Chinese enterprises, of government policies, and of a host of social changes. Workers who have moved out of

subsistence sectors improve their skills in the process of learning by doing. Compulsory nine-year education and investment into tertiary education train the young generation of workers and further improve human capital. Tournament-like GDP competition among regions incentivises subnational governments to launch investment projects and facilitate economic growth.

It is noteworthy that investment and productivity growth occur concurrently with real wage growth. Lo (2018) finds that the annual growth rates for per capita GDP growth, urban wage growth, and migrant workers' real wages were 8.99%, 9.45%, and 7.10%, respectively, during the 1990–2016 period. Despite lagging behind, the wages of migrant workers still experienced rapid growth, avoiding a race to the bottom. Cai et al. (2011) also suggest an increasing trend in ordinary workers' wages, as well as wage convergence between local and migrant workers and across regions. Put differently, productivity growth has translated into real wage growth for both urban workers and migrant workers.

Figure 16: Indices of per capita real GDP, real urban wage rate, and real wage rate for migrant workers



Source: Lo (2018)

Lo (2018) proposes the Golden Age model to characterise China's recent development, which includes investment growth, productivity growth, and real wages growth, labelled as "Big Business, Big Labour, and Big Government". "Big Business" denotes an investment-led, capital-deepening growth trajectory with a focus on large-scale enterprises, predominantly SOEs in China; "Big Labour" represents collective bargaining over wage settlement, therefore serving as a countervailing force against capital to influence income distribution; and "Big Government" refers to the welfare state (Lo, 2018). Indeed, large corporations with advanced technologies and productive capabilities are emerging, labour's bargaining power increases as large investments exhaust surplus labour, and the state has rebuilt a comprehensive social security system that fills the absence of pension and healthcare insurance provisions to rural residents.

However, at the same time, a tendency of financialisation has emerged, interrupting China's progression towards a production-oriented growth pattern (Lo, 2018). An apparent phenomenon of financialisation in China is asset inflation – asset bubbles in stocks, real estate, and various collectibles. As urbanisation creates more demand for urban housing, speculation has further fuelled the increase in housing prices, leading households to increase leverage. The leverage of households had increased to 49% by the end of 2017 (Zhang et al., 2018). The rise of home mortgages is one symptom of the financialisation of everyday life that has involved low-income and middle-class households in financial markets (Lapavitsas, 2018). In terms of financial deepening, the Chinese Academy of Social Sciences estimated that China's debt-to-GDP ratio increased from 146% in 2008 to 194% in 2014 (Li, 2015). McKinsey Global Institute (2015) research claims that China's total debt quadrupled, rising from $7 trillion in

2007 to $28 trillion by mid-2014, representing 282 percent of GDP and surpassing the developing economy average and some advanced economies, including Australia, the US, Germany, and Canada. Regarding the monetisation of the Chinese economy, according to NBS data, the ratio of broad money supply (M2) to GDP increased from 81.03% in 1990 to 202.93% in 2018.

Speculative activities tend to crowd out productive investment, undermine productive capabilities, and cause the problem of rents squeezing profits. In a Marxian analysis of financialisation, it leads to declines in profits which, in turn, hinder accumulation and growth. Profits drawn from the "fictitious" economy and declining wage share show a disconnection of capital from established institutions and systems of business. Meanwhile, in post-Keynesian analysis, financialisation refers to stagnating or declining production and booming finance. Financialisation has empowered shareholders and rentiers to extract a big share of corporate profits in the form of interest and dividend payments (Stockhammer, 2017). Therefore, financialisation tends to reduce the share of wages in national income and widen inequality.

To sum up this section, the development strategies adopted in the pre-reform era were close to the FMD and ISI model. To support the priority industries, the state had to concentrate resources on heavy industries through the non-market resource allocation mechanism and block the free movement of resources (e.g., capital and people). On the one hand, these policies reinforced and institutionalised the urban–rural dualism. On the other hand, blaming the FMD model for aggravating dualism may underestimate its role in "creation" (i.e., the level and rate of accumulation). It is even harder to answer the question of how much of the post-reform success is contributed by the pre-reform

accumulation. Meanwhile, in the post-reform era, China has adopted a market-conforming economic system and participated in GVCs by exploiting its endowment of abundant labour. Participating in GVCs creates massive employment opportunities, and marketisation leads to the more efficient allocation of resources. China also makes efforts to create a competitive advantage in more value-added, capital-, and technology-intensive sectors. However, China's convergence with the production-oriented growth pattern in the post-reform era is incomplete, as financial speculation diverts economic resources from productive activities and decreases the wage share.

4.5 Evaluating the growth patterns in the pre-reform and post-reform eras

The foregoing comparative analysis of pre-reform and post-reform history sheds light on questions such as "What factors contribute and reinforce the urban–rural divide in pre-reform China?", and "What should be blamed for the failure in the pre-reform China, the discriminatory effect of industrial policy, the deficiency of the planned system, a combination of both, or the negative effects of industrial policies that were magnified in the planned economy, while its positive effects were diminished in the Cold War historical context?".

First, by providing an overview of the systemic dualism in pre-reform China, this chapter demonstrates that inequality existed, primarily in the form of an urban–rural divide, in the planned economy, although class antagonism was supposed to be absent. There is a widely used research method to conduct comparative studies of the pre-reform and post-reform eras by investigating what factors have changed between the two periods. For example, researchers often argue that marketisation widens income inequality as a market economy has replaced the planned economy in the reform era. It

is true that marketisation increases skill premiums, but this argument is premised on the notion that inequality was low in pre-reform China, which overlooks the institutional inequalities such as dualism between urban and rural sectors embedded in the planned economy. The analysis of institutional inequalities in pre-reform China provides an alternative insight into the uneven distribution of social resources among individuals, and individuals' relative positions within the social groups determine how much they can get in distribution. If there is a hierarchical system determining individuals' relative positions and the provision of services and benefits, inequality exists regardless of the absence of a market economy. The market economy and planned economy are both methods to allocate resources, but the assumption that a planned economy must bring about more equitable distributional outcomes than a market economy is groundless; rather, it depends on how hierarchical the planned system is, and how skewed the resources are distributed among individuals.

Meanwhile, another line of research stresses that deploying the heavy industry-oriented development strategy violates what China's comparative advantage dictates, causing distortion in the industrial structure while depressing the economic growth rate and living standards (Lin, 2003). However, the heavy industry-oriented development strategy is widely adopted by late developers and is considered crucial to build industrial capabilities and to move up the GVC. The experience of Asian tigers shows that developing competitive advantages requires going beyond a country's own natural endowment. Industrial policies deployed by East Asian tigers include (1) price distortion, subsidies and credit, and state interventions where there is market failure. When companies struggled to compete with market-determined prices in global markets, the government intervened to adjust relative prices (e.g., through currency

devaluation and subsidies) to boost industrialists' profits and thereby encourage more investment. (2) Nurturing a "leading sector". Taiwan and South Korea organised private entrepreneurs into investments that they may not otherwise have made (Rodrik, Grossman, and Norman, 1995). Taiwan's Fourth Plan (1965–1968) stated that "for further development, stress must be laid on basic industries (such as chemical wood pulp, petrochemical intermediates, and large-scale integrated steel production) instead of end-product manufacturing or processing" (Wade, 1990a, p. 240). (3) Coordinating a big push. As Amsden (1989) puts it, "[The South Korean government] was responsible for the Big Push into heavy machinery and chemicals in the late 1970s". Therefore, violating what natural endowments dictate is a common practice for late developers to develop industrial capabilities. The question is, why do certain countries achieve successful outcomes without experiencing severe social consequences?

Some researchers argue that the heavy industry-oriented development policy that channelled resources from rural areas to the urban sector was responsible for the urban–rural divide in pre-reform China (Lin and Chen, 2014; Yang, 1999). It is true that industry policy has distributional outcomes, and pre-reform China is no exception. Shifting attention away from the successful practice of industrial policy in a small number of East Asian countries, it is noteworthy that many instances of industrial policy implementation are less than satisfactory, and the distortion of prices and resource allocation depressed agricultural production in the long run, such as the case of Africa (Bates, 1981). The Soviet Union and China followed this common practice of a government-deployed non-market allocation mechanism to allocate scarce resources to strategic/heavy industry. In the meantime, the urban–rural divide was maintained to safeguard this industrial structure, provide low-cost food, and generate economic

benefits for urban residents who could provide political support to the state. The discriminatory effects of industrial policy lie not only between sectors that receive preferential treatment and those that do not, but also between sectors that receive subsidy and those whose surplus have been extracted. Of course, industrial policy can take various forms, not creating the obvious winners and losers. But in essence, "all economic policies are in the end political actions, in the sense that they are partial; they favour one group over another, one ideology over another, or even one culture over another", and hence conflict management is needed (Chang and Andreoni, 2020). Despite their various forms and claims of good governance, all the above-mentioned industrial policies share one commonality – favouring a selected sector over other sectors, with resources channelled from somewhere else. The social costs brought by industrial policy are considered inevitable costs. And resistance to discriminatory policy requests "conflict management", either by compensating the losers or suppressing opposition through state power. Therefore, a strong state that ensures the implementation of industrial policy and manages conflicts is essential for late development. Concentrating resources on a specific sector at the expense of certain groups' short-term interests can be justified by the public good it serves or the higher growth rate that will spill over into other sectors. Khan (2012) justifies this preferential industrial policy by stating the concept of a "net benefit" or "social optimum".

> In the context of particular policies, the aim should be to ensure that the resource cost of rent seeking and any distortion in policy is not so great that the net effect of the policy becomes negative … But aiming for zero rent seeking is equivalent to aiming for zero carbon emissions to save the environment (Khan, 2000). The social optimum here too is to maximise the net benefit.

Then, how to explain the dramatic success of a small number of East Asian countries and unsuccessful experiments in other countries? This is often attributed to their capability of managing policy-induced rents which can serve as incentives and opportunities for achieving new capabilities, rather than as unconditional gifts that could be captured by the powerful (World Bank, 1993). However, this conclusion cannot be directly applied to the China case, as it overlooks the difficulty of increasing output in the context of domestic under-consumption and no foreign trade. Based on the foregoing discussion, alternative explanations can be proposed.

First, the problem with pre-reform China and the Soviet Union deploying a heavy industry-oriented development strategy may be the high extent of rural surplus extraction in supporting heavy industries, which caused excess burden on rural residents. The experience of China and the Soviet Union shows that when implementing industrial policies, those countries facing limited accumulation and demand constraints must make a trade-off between investments and consumption. This competition for resources means that investment in one sector must be offset by a reduction of investment in another, or worse, a reduction of consumption. Both the Soviet Union and China increased the rate of accumulation before realising that economic expansion was under severe constraints. According to Erlich (1960, p. 25),

> The main criterion determining the volume of the permissible expansion of the fixed capital and setting the maximum limit for investment, is the availability of commodity reserves provided by the economic activity of the preceding period or imported on the basis of loan.

Given the precarious level of these reserves in the Soviet economy around the end of 1925, the “maximum limit” had to be kept correspondingly low (Erlich, 1960). In China, a high-ranking official, Bo Yibo (1992), also suggested keeping the proportion

of accumulation at approximately 20% of GDP, a state budget revenue of 30% of GDP, and investing 40% of the state budget expenditure in public basic construction (*jiben jianshe zhichu*), which seems to be expansion limit without suppressing consumption. However, for political reasons, the balanced growth strategy was abandoned in both China and the Soviet Union. Tightening the string too much by increasing the accumulation rate to such a degree that it suppresses consumption leads to disastrous results, for instance, the Great Leap Forward followed by the Great Famine in China.

Another possible explanation is that countries that successfully implemented industrial policy also adopted an outward-looking strategy, allowing them to overcome demand constraints and make the policy effective. Rapid accumulation from both trade surpluses and foreign capital inflow can quickly fix the distortions caused by selective industrial policy. Compared with countries that adopt an outward-looking strategy, the former socialist countries were not integrated into the capitalist world system, and thus faced more severe demand constraints. In post-reform China, labour-intensive exports have become a new growth engine, which facilitates accumulation and makes revenues from primary exports pale in significance. Therefore, extracting rural surplus is no longer an important source of accumulation; instead, taxes from the industrial sector can support the agricultural sector, leading to an overall improvement in wellbeing. As labour-intensive industrialisation has created abundant job opportunities and the surplus labour has been transformed into productive workers, dualism can be broken. Rural areas develop very fast, although at a slower rate than the urban sector.

4.6 Conclusion

In terms of the comparative analysis of growth patterns in pre-reform and post-reform China, implementing developmental policies without participating in GVCs is constrained by limited domestic markets. As capital-intensive industries may not be job-creating, developing heavy industries is unable to induce structural change and break dualism. Since creating sufficient employment opportunities in the modern sector is crucial for absorbing surplus labour from the subsistence sector, participating in globalisation with its abundant factor of a semi-skilled or unskilled labour force can facilitate the dismantling of dualism and promote higher income and better living standards. However, labour-intensive industries alone are not sufficient to move up the GVC; a development strategy that includes both the labour-intensive and high-tech sectors is more suitable for a developing country like China. The state's inclusive and redistributive policies are also essential for improving the welfare of the rural society.

5. A Local Production System and its Labour Dimension – The Case of Yuhuan City

5.1 Introduction

Nowadays, international production has become increasingly fragmented; consequently, most developing economies seek industrial development and catch-up through integrating with global value chains (GVCs). However, this mode of dependent catch-up has some limitations. First, GVC participation does not necessarily promote local industrial capability in terms of building backward linkages. The difficulty of building backward linkages through GVC participation primarily stems from (1) the lack of opportunities for local manufacturers to engage in sourcing and design, which are reserved for multinational corporations' (MNCs') first-tier suppliers, leaving local firms to produce solely based on the design specifications provided to them; (2) the large variety in material specifications combined with small order quantities, which impedes local suppliers' ability to achieve economies of scale (Wuttke 2022). Second, it is uncertain whether participation in GVCs or even productivity growth will translate into wage growth, particularly for those specialising in the lower tiers of GVCs and subject to value extraction by MNCs that dominate GVCs.

In this chapter, I explore these two issues by investigating the local production system (LPS) and its labour dimension in Yuhuan, a small industrial county-level city in coastal China. First, I investigate how an LPS can address the challenges of building backward linkages. Specifically, an LPS allows most small and medium-sized enterprises (SMEs) within this system to achieve scale efficiency by pooling society-wide demand. Benefiting from the LPS, medium-sized local enterprises successfully penetrate GVCs with a "components supermarket" business model, supplying a large variety of products

in small order quantities. This approach enables them to occupy a specific niche, avoiding direct competition with the highly automated sectors in developed economies or the labour-intensive sectors of low-wage emerging countries. Instead of relying solely on GVCs to build backward linkages, the local industrial system and productive capabilities are initially developed by integrating with national value chains (NVCs), with GVC participation further fuelling its growth.

Second, I examine whether industrial development translates into income growth. I find a rapid wage growth, revealing labour market dynamics beyond productivity growth. For example, the phenomenon of "labour shortage" signals that the local economy is operating near full employment, which pushes up labour's wage. The dynamics of labour markets affect how profits are distributed between workers and business owners. Both the Lewis (1954) model and the Marxist model (Dutt 1990) indicate how gains are distributed between capitalists and labour. When there is surplus labour, the Lewis model predicts that the distribution will favour capitalist. The Marxist model proposes that a large reserve army of labour allows capitalists to keep wages at the subsistence level. However, as expanding investments absorb all the surplus labour, the Lewis model suggests that the distribution will begin to favour labour, and the Marxist model becomes neoclassical, since there will be upward pressure on real wages when the economic growth rate exceeds the labour growth rate. Therefore, productivity growth may promote wage increases, but only large-scale investments across society that exhaust surplus labour will consequently exert pressure on wages. Under this circumstance, late developers' disadvantageous position in the international division of labour is more likely to squeeze profits rather than racing to the bottom.

This research selects Yuhuan City to conduct case study. The significance of the Yuhuan case includes: First, Yuhuan effectively integrates with GVCs by leveraging the local production system. Relying on grassroots assets and local capabilities, Yuhuan has achieved phenomenal industrial development from a rural and semi-rural background, illustrating the effectiveness of Marshallian industrial districts. Second, Yuhuan, a manufacturing town, demonstrates employment's impacts on wages. Despite a relatively low per capita GDP, Yuhuan's per capita urban disposable income is close to that of major cities like Shanghai and Beijing, while its per capita rural disposable income is higher than in these two cities, showing manufacturing as a social equaliser (See Table 7). Starting with labour-intensive activities and low-to-medium level technologies, Yuhuan witnesses fast wage increases rather than wage squeezes. This provides a good case for investigating the labour dimension of such an LPS.

The chapter is organised as follows. Section 5.2 delves into the literature on GVC participation, industrial districts, and alternative economic models concerning wage growth. Following that, Section 5.3 provides a synthetic framework. Section 5.4 presents the characteristics of the LPS in Yuhuan, including local capabilities, business models, and upgrading patterns. Section 5.5 investigates the labour dimension of the production system in Yuhuan, and Section 5.6 wraps up this chapter.

5.2 Literature review

Challenges in late catch-up through GVCs participation and potential strategies for addressing them

In recent decades, multinationals have shifted their focus towards innovation and product strategy, marketing, and the most value-added segments of manufacturing and

services (Gereffi, Humphrey, and Sturgeon 2005), while outsourcing "non-core" functions to less developed regions. This has resulted in a more fragmented and globalised production process, leading to the emergence of concepts such as global value chains (GVCs), global commodity chains (GCCs), and global production networks (GPNs). For developing countries, compared with the old development strategies of export orientation and import substitution, GVC participation alleviates export difficulties, allowing emerging economies to specialise in specific production tasks and export components. However, scholars point out the limitations of catch-up through GVC participation (Andreoni 2019; Andreoni, Lee, and Torreggiani 2021). First, it is difficult for firms in developing economies to integrate with higher tiers of GVCs and perform high-value-added activities. Instead, they often adopt the original equipment manufacturer (OEM) strategy. However, this OEM strategy is unsustainable, because if the OEM sites lose wage and cost competitiveness, production orders may shift to lower wage countries (Lee 2005). Once the developing economies seek to move up the value chain and threaten the interests of established players, particularly the MNCs that dominate GVCs, these latecomers may face delinking or decoupling. MNCs may use their power to exclude potential competitors, for example, by ceasing to give OEM orders to companies that start selling their competing brands (Lee, Song, and Kwak 2015).

Second, while building linkages is crucial for developing local production systems, GVC participation does not necessarily facilitate backward linkages with local suppliers. An earlier view of upgrading focuses on functional upgrading, which seeks to move up to the extremes of the "smile curve," a concept proposed by Shih (1996). However, Andreoni (2019) stresses the importance of horizontal linkages that connect

players operating at the same stage of the sectoral value chain or across different sectors. Nonetheless, Wuttke (2022) points out two technical reasons why it is so difficult for developing countries participating in GVCs to build backward linkages. First, MNCs often adopt follow-sourcing and follow-design, so that local manufacturers either produce based on design specifications from the MNCs or assemble components supplied by the MNCs' tier-one suppliers. Second, the large variety in material specification reduces the possibility for local suppliers to achieve economies of scale.

Therefore, to overcome the challenge of linkage building, Lee, Szapiro, and Mao (2018) proffer the "in-out-in again" strategy for developing countries to catch up. This strategy specifically involves initial integration with the GVC to learn from external sources, followed by separation and independence at the middle stage to develop local value chains, and culminating in an advanced stage where indigenous firms and value chains go global. The core of the "in-out-in" strategy is to create their own value chains until they develop the capabilities to compete internationally.

Moreover, industrial policy can facilitate linkage building by ensuring that the economies of scale are reached. In Taiwan, the government ordered the four private producers of polyvinyl chloride (PVC) to merge in order to adopt a more advanced production method (Wade 1990). Big firms in South Korea, with government support, created forward linkages to protect themselves from demand vagaries. For example, when Hyundai Heavy Industries (HHI), a shipbuilding subsidiary company of the Hyundai Group, missed the contract deadline to deliver ships to buyers, the Hyundai Group founded a company to absorb HHI's undelivered vessels. The government not

only provided financial guarantees and subsidies for infrastructure but also mandated that all business of crude oil deliveries to South Korea be carried by this company (Amsden 1989). The cases of South Korea and Taiwan illustrate that big companies with sufficient resources can enter related markets and build linkages through merger and acquisition or by making investments. However, they fail to shed light on circumstances where grassroots enterprises, lacking sufficient resources and state backing, face challenges – a plight common in many developing countries and regions.

Industrial districts or innovation systems

The concept of clusters can be traced back to Marshallian industrial districts (Marshall 2013). The early discussion of clusters focuses on the homogeneity of firms, while recent studies stress heterogeneity and complementarity among firms (see, for example, Andreoni 2018). While there is extensive literature discussing industrial ecosystems or innovation systems (Andreoni 2018; Best 2015; Lundvall 1992; Pitelis 2012; Reynolds and Uygun 2018), the primary focus lies in examining the source of their capacity to create value, identify opportunities, facilitate innovation, and promote industrial renewal, particularly in the context of developed countries. It is an emerging trend to integrate the frameworks of GVCs and innovation system/local industrial clusters (Andreoni 2019; De Marchi, Di Maria, and Gereffi 2018; Lee, Szapiro, and Mao 2018; Lundvall 2016). Many studies stress the positive interaction between GVCs and industrial clusters/innovation systems. For example, developing country clusters can improve capabilities by participating in GVCs (Gereffi 1999; Pietrobelli and Rabellotti 2011). Regarding the capabilities of clusters to be resilient in GVCs, De Marchi, Gereffi, and Grandinetti (2017) suggest the importance of home-grown Global Leading Firms (GLF) within industrial districts or foreign GLFs (multinationals) that invest in

the clusters, as well as Local Dynamic Actors (LDAs) including specialised suppliers and local institutions. Meanwhile, Lee, Szapiro, and Mao (2018) stress the significance of knowledge creation through national innovation systems for increasing domestic value-added in a country's exports. However, the literature on integrating GVCs and innovation system/industrial clusters framework has yet to explore how grassroots industrial clusters, particularly those without global leading firms, could assist developing countries in overcoming specific challenges in GVC participation such as building linkages or achieving economies of scale with small batch orders.

On the other hand, the existing research on rural-based clusters in China, particularly that concerning the Wenzhou model or Wen Tai model (which encompasses both Wenzhou and Taizhou), overlooks the potential of such clusters in addressing challenges in GVC participation. Nonetheless, since Yuhuan and Wenzhou share similar early development paths due to their locational proximity, the literature on the Wenzhou model effectively explains the rise of such rural-based clusters, characterised by household workshops, black markets, and private shareholding credit unions, all supported by local institutional innovations that broke away from the legacy of the planned economy (Parris 1993; Webber 2008). Wei et al. (2007) depicts the original Wenzhou model as

> centred on small-scale, manufacturing-centred, family enterprises that are characterised by market-oriented flexible production and endogenous development, with locally based distribution networks and grounded on years of local capitalism and thick local institutions.

However, in recent years, as firms in Wenzhou seek restructuring, diversification, and business relocation, researchers attempt to reconceptualise Wenzhou as moving toward "a mixed model with renewed institutional support, emerging large firms and industrial

groups, and extended external networks," and "challenge the economic geography literature's overemphasis on small firms and local assets or institutions" (Wei, Li, and Wang 2007). Nonetheless, the decline of the Wenzhou model does not mean that Marshallian industrial districts have lost their glamor, or that local assets and capability are no longer important. The case of Yuhuan suggests a possibility of creating new growth potential by leveraging networks among small firms and local assets or institutions. Moreover, looking from the big picture about China's production system, Yuhuan has evolved into an important component provider, forming a crucial link in the domestic supply chains that support the advanced industrial sectors in big cities.

Various strands of research discussed above offer valuable insights into GVCs, industrial clusters or ecosystems, and the labour dimension. I contribute to the discussion by elaborating how a local production system plays its role. It enables SMEs to share resources and capabilities, and their interdependent demand and supply allow them to achieve economies of scale, thereby addressing the challenge of building backward linkages in GVC participation. Moreover, its grassroots entrepreneurship-driven production system offers an alternative to state-initiated approaches facilitated by industrial policies. In addition, I explore the labour dimension of this LPS, investigating the mechanism that translates productivity growth into wage growth.

5.3 Towards a synthetic framework

Motivated by the discussion above, I advocate a synthetic approach that integrates the GVC and LPS frameworks to research the industrial development of Yuhuan and its labour dimension. To explore this integration, this chapter proposes a two-dimensional synthetic framework to investigate the LPS in Yuhuan, connecting the global and the

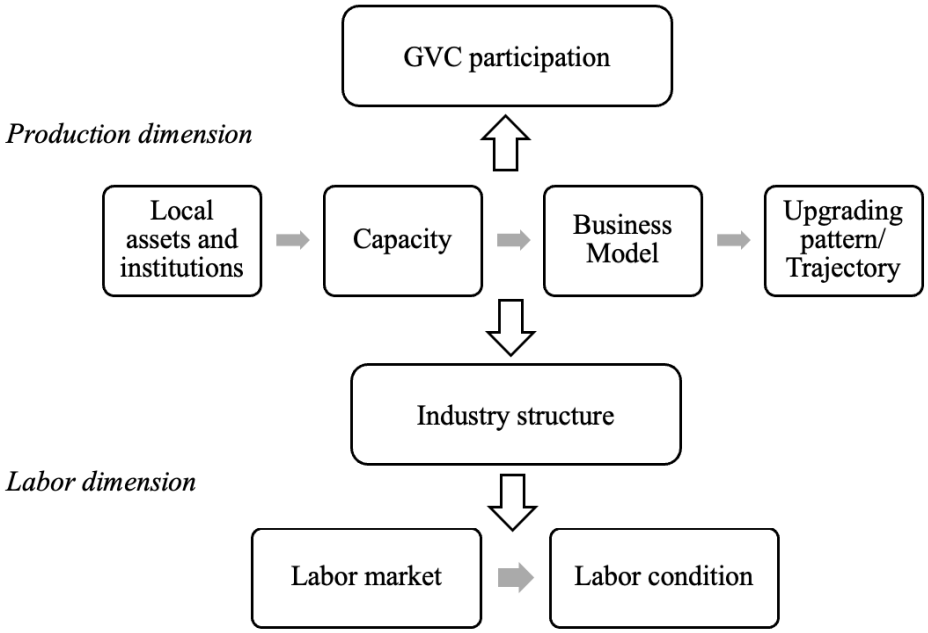
local: (1) The production dimension demonstrates how the interaction of external factors and local assets shapes the landscape of the local production system. Navigating challenges in GVC participation, firms leverage local production systems to develop distinct business models and fit into specific market niches, which in turn impact their upgrading patterns. The characteristics of an LPS, which encompass factors including cluster size, composition, network cooperation, market positioning, and supporting institutions, could be exploited to shape local capabilities. Different business models require varied resource and capability configurations. While this study delves into a specific configuration forming a distinct business model, it also underscores the broader relevance of this framework in understanding the importance of exploiting geographic advantages in various resource configuration that give rise to different business models.

(2) The labour dimension. The specificity of the industrial dimension in the LPS can influence labour markets, thereby determining labour condition. The mechanism bridging the industrial dimension and the labour dimension is the industrial structure, which includes factors such as the quantity and type of labour demanded by local industries. First, the scarcity of labour is a relative term. Insufficient investment leads to a large reserve army of labour, as only large investments across society exhaust surplus labour and thereby push up wages. Second, industrial structure influences the labour structure. Many SMEs in Yuhuan adopt the labour-intensive and capital-intensive business model, resulting in a sustained high demand for labour.

This framework acknowledges the significance of linking micro, meso, and macro levels, facilitating a connection of the global and the local. It also connects the production dimension with the labour dimension. The improvement of the labour

condition hinges on the production dimension. Failure to achieve economic success in the industrial sector or shifting away from a production-oriented growth pattern that ensures sufficient employment could adversely affect labour conditions.

Figure 17: A local production system that participates in GVCs.



Source: The author.

5.4 A local production system in Yuhuan

5.4.1 The context of industrial development in Yuhuan

Yuhuan is a county-level city, affiliated with Taizhou Prefecture in Zhejiang Province. In the 1950s, Yuhuan barely had any industries except farming, fishery, and salt production, and it remained an agricultural county in 1978. From 1978 to 2020, the secondary sector registered a phenomenal 662-fold growth (in nominal terms) as Yuhuan became an industrial city, registering a total GDP of 63.26 billion yuan in 2020.

Booming manufacturing has created massive job opportunities and attracted migrant workers from central and western regions. In 2020, manufacturing in Yuhuan employed 125,205 people, representing around 86.2 percent of the total employed persons. Approximately one-third of the long-term residents in Yuhuan are migrants. Although Yuhuan's per capita GDP is much lower than that of Shanghai and Hangzhou, the two key cities in Eastern China, the per capita disposable income of urban residents in Yuhuan was higher than that of Hangzhou, while the rural per capita disposable income was higher than in Shanghai.

Table 7: Comparison of per capita GDP and disposable income for various cities.

	Per capita disposable income of urban residents	Per capita disposable income of rural residents	Per capita GDP
Yuhuan	74,492	37,645	98,377
Shanghai	76,437	34,911	155,768
Beijing	75,602	30,126	164,889
Hangzhou	68,666	38,700	136,617
Taizhou	62,598	32,188	79,889
Wenzhou	63,481	32,428	71,766

Source: Taizhou Statistical Yearbook 2021.

Note: Data on per capita income and GDP are based on long-term residents rather than the household population

First, the industrial development in Yuhuan city features the rise of numerous SMEs. At the end of 2020, there were 10,436 registered industrial entities in Yuhuan City, among which only 876 enterprises generated a main business revenue above twenty million yuan. According to the standards set by the NBS of China (2017), among these

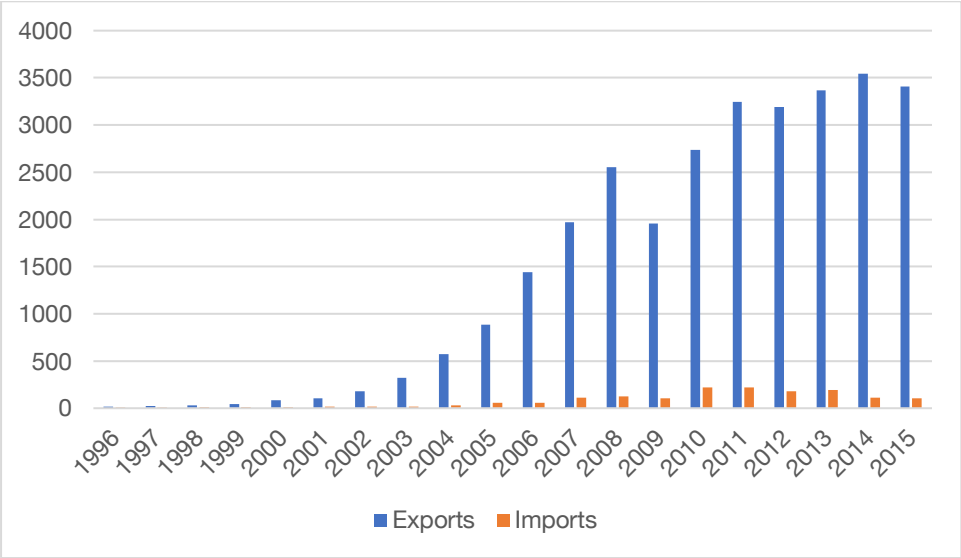
876 industrial enterprises, 16 were micro firms, 772 small scale, 68 medium scale, and only five were big businesses (Taizhou Statistical Yearbook 2021).

Second, with minimal productive capabilities in the 1960s and 1970s, Yuhuan developed more complex technical capabilities since the 1980s. Yuhuan currently hosts several sectoral value chains, with two pillar industries –valves and auto parts– contributing approximately 48.6 percent and 32.9 percent of exports in 2023, respectively. Other notable industries including furniture, solar panels, glass accessories, construction machinery, and pharmaceutical packaging.

Third, most local enterprises are labour-intensive, competing in the middle market niche. They produce durable consumer goods such as pressure cookers, sewing machines, and furniture, or provide components such as automobile parts and valves. These industries have the following features: (1) Unlike high-tech industries that require talent and knowledge reserves, these industries need medium-to-low technology that suits the collective capabilities of local enterprises, making it easy to create backward linkages. (2) Large demand, whereby these enterprises' products are necessary for ordinary households, increasing the likelihood of achieving economies of scale. (3) They target the low and middle market. In the initial stage of the reform era, SMEs in Yuhuan developed to fill the market gap left by decades of negligence in consumer goods production. During this time, most of the population lived at a subsistence level, and imported consumer goods were unaffordable for Chinese consumers. These SMEs targeted the low and middle market, making low-cost, acceptable-quality industrial goods accessible to the poor population.

Fourth, there is relatively little foreign capital presence in Yuhuan. The five-year (2018-2022) average number of firms with foreign capital in Yuhuan was 8.6, with an annual total foreign investment of 0.07 billion US dollar. Yuhuan is not an ideal destination for foreign investment due to a lack of labour reserve, its long distance from major cities such as Shanghai, and inconvenient railway and airline transportation. Therefore, Yuhuan's industrial development is characterised by local businesses and local capabilities. Moreover, compared to exports, Yuhuan's imports are negligible, indicating that Yuhuan predominantly uses domestic materials for manufacturing (see Figure 18).

Figure 18: The exports and imports in Yuhuan (Unit: million US dollar)



Source: Taizhou Statistical Yearbook 2020.

Note: To maintain data consistency, this figure presents the exports and imports values in Yuhuan up to 2015, as the unit changed from US dollars to RMB in 2016.

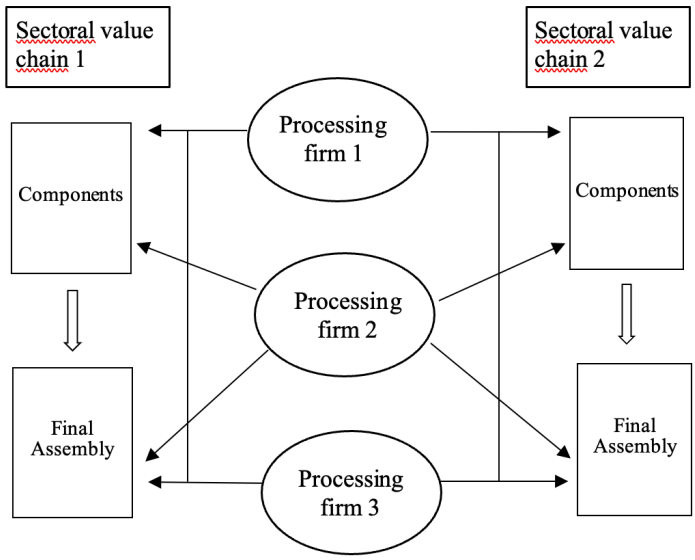
5.4.2 A local industrial ecosystem that participates in GVCs

Regarding the difficulties of building backward linkages through GVC participation – namely, (1) local manufacturers only produce based on design specifications from

MNCs or assemble components from MNCs' first-tier suppliers, and (2) the large variety in material specifications but small order quantities impede local firms in achieving economies of scale by providing components (Wuttke 2022) – I argue that developing a local production system can facilitate scale efficiency for local suppliers. Such an LPS develops with relative independence from GVCs.

First, an LPS often consists of several sectoral chains, with overlapping demand for certain industrial inputs or services. Suppliers can achieve economies of scale by pooling demand from SMEs across society. In the case of Yuhuan, there is a high degree of division of labour along the sectoral value chain, as these SMEs often specialise in one or several processes. Production within this local production system is fragmented so that each task provider can aggregate demand across society. For example, the two pillar industries in Yuhuan, the automobile components and the valves industry, share industrial resources and capabilities in machine tools and components such as springs, screws, and nuts, rubber and plastic components, and services such as smelting, forging, and moulding, mechanical processing, surface treatment, and plating. As most local firms are small and medium-sized and may not engage in large-scale production, it is the cluster of SMEs with similar demand for certain components or processes that facilitates scale efficiency for component and service providers.

Figure 19: Pooling demand and sharing resources by several sectoral value chains



Source: The author

Note: Such a production network enables complementary firms to achieve economies of scale by pooling society-wide demand and sharing resources

Table 8: Clusters of production sectors and shared resources by several sectoral value chains in Yuhuan

Clusters of production sectors	**Shared resources and capabilities**
Valves	Steel, copper, and aluminium industry
Pipe system	Machine tools
Bathroom fittings & sanitary ware industry	Moulding manufacturing
	Machine parts manufacturing
Heating system	Automatic machinery
Automation and control	Logistics
Automobile components	Packaging
Automobile braking system and engine parts	
Vehicle suspension system	
Medical devices	
Pressure cookers	
Sewing machines	
Solar panels	

Source: The author

Second, the size and diversity of the LPS determine its capability to serve the needs of SMEs, meet the challenges of industrial renewal, and remain resilient to external shocks. Diverse business entities that specialise in different niches are more likely to create a comprehensive value chain, increasing both the homogeneity and complementarity among firms. In terms of homogeneity, the more firms demand similar production tasks or components, the easier it is for the providers to achieve economies of scale. This homogeneity does not require firms to be in the same industry, but rather that they demand similar components or services. In terms of heterogeneity and complementarity, increasing diversity across firms is more likely to support a complex multi-dimensional structure and better serve the different needs of SMEs. Therefore, it is difficult for these SMEs to survive alone in the market; the large size and diversity of the industrial ecosystem provide crucial support for them. In terms of the resilience of the LPS and its potential for industrial renewal, its size and diversity are also significant factors. Marshall (2013, 227) indicated that:

> A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling-off in the demand for its produce, or of a failure in the supply of the raw material which it uses. This evil again is in a great measure avoided by those large towns or large industrial districts in which several distinct industries are strongly developed. If one of them fails for a time, the others are likely to support it indirectly; and they enable local shopkeepers to continue their assistance to workpeople in it.

The interdependence between firms poses a risk that the collapse of one lead firm could damage an entire sectoral value chain. However, a diverse ecosystem (e.g., one where a supplier supplies to multiple value chains) can mitigate these risks, since complementary firms can shift their capacities to other value chains. An industrial ecosystem is constantly undergoing renewal as the economy grows and people's

demands change; by shifting towards new productive capabilities and fostering industrial renewal, the ecosystem can remain resilient.

Business models

Such a local production system allows producers/production service providers to accumulate knowledge and invest in a whole gamut of machine tools to produce different types of products, so that business entities can produce small batch orders of a whole gamut of products at a relatively low cost and develop a business model of a "components supermarket". At present, there are more than 1,700 auto and motorcycle parts manufacturers in Yuhuan, who can produce more than 37 categories including 6,000 products such as shock absorbers, gears, and steering wheels. Yuhuan has thus become an "auto parts supermarket" for global buyers, creating a comprehensive sectoral chain and an annual output value of over 400 billion yuan. For example, to meet the small batch orders with large variety requirements, Zhejiang Lizhong Automobile Chassis Parts Co., Ltd has built a three-dimensional warehouse, containing nearly 70,000 boxes which can stock 40 million pieces. The firm also adopts the ERP database management technologies, including the FRP material needs management system, the PRM product life cycle management system, the WMS warehouse management system, and the AGV trolley, which can alert for inventory at risk and automatically sort and batch. These measures have reduced the minimum order quantity from 300–500 pieces to about 20 or 30. ADD Industry (Zhejiang Zhengyu Industrial Co., Ltd.) has ranked as the top exporter of automotive shock absorbers in China. This firm can manufacture nine categories and over 9,000 types of automotive shock absorbers, matching a wide range of vehicle models worldwide, and supplying to clients including AutoZone, Tenneco, and ZF Friedrichshafen. Taizhou Yihong Industrial Co.,

Ltd, a manufacturer of automobile water pumps in Yuhuan, supplies a full range of water pumps (over 3,000 types) and fan clutches (500 types) to both global markets and domestic OEMs, with a flexible production system guaranteeing fast delivery.

Relative independence from GVCs

An UNCTAD (2022) report argues that "China does not go for the whole set of recommendations of either import substitution (ISI) or export oriented (EOI) but chose to develop a mixed strategy." The central government implemented protection policies in the 1990s to improve the self-sufficiency of automobile components. However, since China joined the WTO, many of these industrial policies have been prohibited (Zhao 2013). For example, the 2005 policy that taxed imported auto parts at the same rate as a vehicle (Ministry of Justice, 2005) was repealed due to a WTO ruling. Consequently, the limit on the percentage of a vehicle that can be comprised of imported parts and components, previously set at 60 percent, has been removed.

However, by the early 2000s, national value chains (NVCs) had already taken shape, and indigenous industrial ecosystems had blossomed before China joined the WTO. Put differently, in the initial stages, indigenous productive capabilities and backward linkages developed independently of GVC participation, though WTO accession further fuelled China's exports. For example, in the 1980s, Yuhuan's automobile component industry began with start-ups and family workshops supplying simple auto parts such as screws, nuts, and bolts to the domestic automotive after-market. Some enterprises later sought opportunities to become the suppliers to domestic automobile manufacturers (e.g., Changhe, Changan, Dongfeng, Beiqi, Chery, and Zotye) or joint ventures such as SAIC–GM–Wuling. These brands, primarily producing microvan or

economy vehicles, met the demand for low-cost, acceptable-quality vehicles and filled the market gap left by high-end imported cars.

Producing industrial goods for the low and middle market nurtures indigenous productive capabilities. Indigenous vehicle brands and technological capabilities laid the groundwork for their own value chains, enabling their suppliers to build local backward linkages, improve product standards, and even engage in design work. Put differently, NVCs led by indigenous brands encourage their suppliers to grow alongside them rather than merely acting as assemblers. The close relationship between domestic brands and local suppliers fosters their own value chains, reducing reliance on MNC-dominated GVCs.

China's large domestic market further supports the creation of diverse and large-scale demand. This allows numerous small businesses to specialise in specific niches, forming a comprehensive industry value chain and achieving scale efficiency. Leveraging productive capabilities and networks developed through NVCs, local suppliers are able to penetrate GVCs. However, the "components supermarket" business model means that Yuhuan's participation in the GVCs is limited to the aftermarket phase, as they are not chosen by MNCs as assemblers (due to a lack of labour cost competitiveness) or first-tier suppliers (due to a lack of technology/design advantage or close relationships with MNCs).

Upgrading patterns

Based on the studies of firms in Latin America, Giuliani, Pietrobelli, and Rabellotti (2005) argue that process or product upgrading is more common than functional and

intersectoral upgrading. In Yuhuan, upgrading often takes the form of incremental improvement in product quality, management efficiency, and productivity growth, achieved by accumulating tacit knowledge and adopting universal technologies, while firms seldom enter a different territory. As wage rates rise, a concern is that new, cheaper labour sites may replace China's position in the GVCs if firms do not move up to higher value-added activities. However, the business model of the "components supermarket" targets a specific niche within the GVC: the automobile aftermarket, which is both capital- and labour-intensive but not a highly automated sector. It is capital-intensive because firms need to invest in a range of moulds to match different categories of components; it is also labour-intensive, requiring workers to switch between different component types. On the one hand, to avoid direct competition with established firms from developed countries in highly automated sectors, which require independent R&D and marketing capabilities and have a high risk of failure, the SMEs in Yuhuan still stick to the labour-intensive sector. On the other hand, based on the comprehensive sectoral value chains and high labour efficiency, the SMEs in Yuhuan avoid direct competition from other emerging countries with lower wages and costs.

Like many small cities, Yuhuan faces constraints in talent supply and research capability for technology upgrading. The local government attempts to facilitate cooperation between universities and businesses by pooling firms' research needs and establishing technology transfer centres and research institutes with universities located in big cities. However, a survey of the valve industry in Yuhuan conducted by Wang (2011) indicates the learning and innovation patterns across local firms: technology consultancy with universities and research institutes (13.11 percent); collaboration with universities in research and innovation (4.92 percent); technology transfer from

universities (1.64 percent); employment of talent from universities and other enterprises (21.31 percent); negotiation and discussion about new products, services, and financing tools with other businesses within the district (18.03 percent); and collaboration with other businesses within the district on service and financing arrangements, as well as the development of new products (13.33 percent). The survey shows that linkages between firms within the industrial districts are stronger than those with college research institutes. The limited application of scientific research in business may constrain firms' innovative capabilities, influencing the direction of firms' upgrading activities, such as reliance on business networks rather than moving to highly technical sectors.

Furthermore, the policy focus for SMEs is not to alter their upgrading trajectories but to help develop their specialties, nurture comprehensive supply chains, and lower the cost of the entire production system. At the central government level, policies towards selected SMEs that are *zhuan* (specialised), *jing* (sophisticated), *te* (distinctive), and *xin* (new) include fiscal subsidies, credit support, and tax rebates. Subnational government support focuses on nurturing local supply chains, helping small complementary firms reduce operating costs to lower the total production costs of the local value chain. For example, small complementary businesses receive (1) fiscal subsidies, and (2) service provision. For instance, the Yuhuan government has set up the Metal Industry Ecological Park, providing pollution treatment solutions and other services to highly pollutive small businesses that focus on surface treatments such as pickling, phosphating, blackening, and electrophoresis. This initiative helps lower the operating costs for SMEs and pushes them to meet environmental standards.

5.5 The labour dimension – increasing productivity and wages, and decreasing profit rate

The concept of social upgrading encompasses employment, standards, and rights at work and in social protection and social dialogue (ILO 1999; Barrientos, Gereffi, and Rossi 2011). Gereffi and Lee (2016) propose several paths for social upgrading: market-driven, corporate social responsibility-driven, labour-centred, cluster-driven, and public governance. However, during my fieldwork in Yuhuan, business owners admitted that the most important reason behind increasing wages and benefits is labour shortage[13], which increases the bargaining power of labour, so that businesses must offer competitive wages to attract workers. First, high productivity growth does not automatically translate into wage growth. Firms often employ workers at industry-average wages. When there is an abundant labour supply, the distribution tends to favour capitalists, meaning productivity growth is more likely to translate into profit than wage growth. Second, wage growth can be asynchronous with productivity growth. At certain stages, wage growth can outpace productivity growth due to the labour market dynamics, squeezing profit margins. One business owner noted that the wage bill has doubled within two or three years with little growth in the number of workers, while output per capita has not kept pace. Rapidly increasing labour costs hurt the competitiveness of these labour-intensive enterprises, which are price-takers in both the labour market (as a buyer) and the product market (as a seller). In this situation, rising wages squeeze the profit margin of SMEs. In the case of Yuhuan, wage growth is driven by the following conditions: (1) significant investments by numerous SMEs, which exhaust local surplus labour and attract many migrant workers; (2) a focus on labour-intensive and capital-intensive business model, maintaining a high demand for labour; and (3) productivity growth, which provides the foundation for wage increases.

This section examines the wage differential between four categories of employees, namely, management, assemblers, technicians, and administrative departments including planning, procurement, logistics, and quality control. In a leading auto parts enterprise (Firm A), the annual salary levels for management, technicians, ordinary workers (assemblers), and administrative employees in 2021 were 75,237 yuan, 82,433 yuan, 71,432 yuan, and 59,310 yuan, respectively. The annual salaries for these four categories in 2013 were 39,632 yuan, 39,528 yuan, 40,141 yuan, and 34,440 yuan, respectively, demonstrating notable wage increases over the eight-year period. The administrative workers' average wages were the lowest among the four groups in both 2013 and 2021. While the wage gaps between the groups were quite small in 2013, the gaps gradually widened till 2021. The assemblers' average wages were the highest in 2013, but in 2021 they were second to the technicians' wages. The administrative staff not only earned the lowest wages among the four groups, but also their wage increase was the smallest. This indicates that the so-called "labour shortage" was a shortage of industrial workers. Put differently, administrative workers, who often received a better education than assemblers, were not in short supply relative to the demand determined by the industrial structure.[14] I conducted a survey in another auto parts enterprise (Firm B), which reported similar wage trends (see Table 9). It suggested that education and hukou were not the determining factors of wages in local manufacturing firms. Instead, the responsibilities and conditions of the job determined the pay.

Table 9: Information on salaries, education, and hukou for the four groups of employees in Firm B

	Management	Administrative departments (planning, procurement, logistics, and quality control)	Assemblers	Technicians
Average monthly salary 2021 (yuan)	6,733	4,686	4,957	5,702
Local hukou	44%	50%	0	12%
College diploma or bachelor's degree	78%	36%	0	6%
High school or occupational school education	11%	36%	0	29%
Junior middle school level or below	11%	28%	100%	65%

Source: The author

Based on the survey of Firm B, wage comparisons across different indicators such as hukou, education, and gender (excluding job roles) reveal the following features. First, migrant workers did not earn lower wages than their urban counterparts. Migrant workers composed more than 80 percent of the employees in the firms interviewed. They often earned higher wages than local employees because they take labour-intensive jobs such as assemblers or technicians that are more exhausting but also pay well, while local employees tend to fill administrative roles such as cashiers, marketing, administration, and procurement. In the survey I conducted in Firm B, out of 96 respondents, 22 are local employees and 74 were migrant workers. The average monthly wage of the migrant workers was 5,418 yuan, slightly higher than the 5,372-yuan average wage of their local counterparts.

Second, my survey also finds that education made little differences to employees' wages. The average wage for employees with a bachelor's degree was 6,260 yuan, while college diploma holders earned the lowest wage of approximately 5,022 yuan, and the average monthly wages for high school, junior middle school and elementary school leavers were 5,357 yuan, 5,381 yuan, and 5,114 yuan, respectively. This was generally because college diploma holders mainly filled administrative roles that paid the lowest among all the groups. It also showed that labour-intensive manufacturing acted as an equaliser, whereby a worker with a high school education or below could earn a relatively good salary. The proportion of employees holding a bachelor's degree, either fulfilling the roles of managers or technicians, was very small in the firms interviewed. They were considered to create more value for the company and received the highest salaries among all the groups.

Third, the wage differential between male and female was not very significant. Among the respondents in Firm B, 57 employees were male and 39 were female; the average monthly wage for females was 5,125 yuan, compared to 5,657 yuan for the male employees, with an approximately 10 percent wage differential.

Fourth, the wage gap between the industrial coastal area and the interior was the main reason for attracting migrant workers. Thirty-five respondents reported an estimated monthly wage gap between Yuhuan and their hometown, which could be up to 5,000 yuan, with the average estimated wage gap being 2,225 yuan.

All the workers surveyed were covered by either social insurance or commercial insurance, and all the migrant workers who needed to rent accommodation could receive a monthly rent subsidy of 150 yuan.

5.6 Conclusion

This chapter investigates how Yuhuan leverages its rigorous local production system to penetrate GVCs, and how its industrial development impacts the labour dimension. It provides insights into small industrial towns like Yuhuan, which are not only important links in the NVCs but also play a significant role in China's urbanisation by developing labour-intensive industries and providing ample job opportunities for surplus rural labour.

First, in the case of Yuhuan, the LPS accommodates several sectoral value chains with overlapping demand for certain production tasks and components, which can facilitate scale efficiency for local service or component providers by aggregating society-wide demand. This addresses the difficulty in establishing backward linkages encountered by some other developing countries. Since a large LPS with diverse demand can support more comprehensive value chains, the policy implication for emerging economies struggling to build backward linkages is to increase production activities. This can be achieved by engaging more in OEM through different GVCs, which may create greater demand for local suppliers to achieve scale efficiency.

Second, the comprehensive sectoral value chains in Yuhuan support the business model of a "components supermarket," meeting the demand for small batch orders with a wide variety of material specifications when local firms participate in GVCs. Such a business

model occupies a specific niche in the GVCs, allowing it to avoid competition from low-wage emerging economies and highly automated sectors in developed countries.

Third, the relative independence from GVCs is based on the brands and capabilities of big indigenous firms. Although SMEs can create local production systems and penetrate GVCs, their development in the initial stage and technology transfer mainly depend on large indigenous firms. Creating own value chains and then going global is still the way forward.

Fourth, small industrial towns like Yuhuan are not only important links in the NVCs but also play a significant role in China's urbanisation by developing labour-intensive industries and providing ample job opportunities for surplus rural labour. Through a survey of wage rates for various roles, as well as the education and residential status of workers, this research identifies how the industrial structure influences labour market supply and demand, which then determines the wage structure. While productivity growth offers the possibility for wage growth, it does not necessarily guarantee wage increases, a common phenomenon in developing countries. Only when large investment makes labour a scarce factor does labour's bargaining power increase. Consequently, wage growth may exhibit asynchronous patterns with productivity growth, with wage spikes often occurring in the late stages of industrial development. Nonetheless, business decisions regarding upgrading patterns and the proportion of capital and labour in production are not solely based on relative prices but also encompass a comprehensive assessment of market niches within GVCs, comparative advantages, and geographic advantages. In Yuhuan, despite rising labour wages, firms remain focused on a labour-intensive and capital-intensive upgrading pattern, fitting

into specific niches within GVCs. Under this circumstance, late developers' disadvantageous position in the international division of labour is more likely to squeeze profit rather than race to the bottom.

6. Green Transition and Inclusive Growth - The Case of Alxa League

6.1 Introduction

Environmental cost, treated as an externality by mainstream environmental economics, is not only a persistent market failure, but also one of the causes and manifestations of inequality. The costs of environmental degradation are usually borne by poor populations whose livelihoods and security depend on nature. This case study investigates how Alxa, a League in Inner Mongolia, achieved three key goals – economic growth, environmental protection, and a more equitable distribution – by pursuing a green growth pattern. On the one hand, Alxa has rich reserves of coal and raw salt; therefore, it would be natural to follow a resource-dependent growth pattern, and indeed the mining sector is the biggest contributor to the GDP of Alxa. On the other hand, the natural conditions of Alxa are harsh: drought and little rain, where evaporation exceeds precipitation. It features a unique desert landscape composed of one-third desert, one-third Gobi, and one-third arid grassland; and the ecological environment in Alxa deteriorated considerably in the twentieth century. Such a configuration of abundant resource endowment and fragile ecosystems may lead to polarised income distribution, but through green transition Alxa has remarkably improved people's income as well as the natural environment. The state has implemented environmental protection projects and poverty reduction policies and invested in infrastructure and human capital. Resource revenues create the fiscal space for conducting these social projects. Moreover, green agricultural practices, including planting *Haloxylon ammodendron* to combat desertification and grafting the commercially valuable *Cistanche deserticola*, help herders and peasants increase their income.

First, I argue that an environmentally sustainable growth pattern is more equitable and inclusive, as environmental justice brings about economic benefits and wellbeing, particularly to vulnerable populations. Previously, the resource-dependent growth pattern in Alxa provided limited jobs, created few winners, and caused environmental degradation. People whose livelihood depended on nature were highly exposed to environmental harm, some of whom became ecological outmigrants (both voluntarily and involuntarily). Since the green transition and structural changes, a virtuous cycle is taking shape as the rural society realises the investment opportunities in green agriculture and tourism, with the aid of government subsidies and micro-credit. Hence, a green transition and economic diversification can have more desirable socio-economic effects than a resource-dependent growth pattern.

Second, pursuing environmental justice is not necessarily at the expense of economic growth. It is often considered that environmental conservation requires halting the exploitation of natural capital, which entails a trade-off between the environment and growth. But in certain circumstances, this trade-off diminishes as people find economic opportunities in the process of environmental conservation, and the utilisation of renewable resources is maintained a sustainable level. For example, in Alxa, green agriculture incentivises residents to engage in afforestation, and desert tourism provides extra economic benefits.

Third, a well-designed and implemented green transition scheme is crucial to protect the vulnerable groups' benefits and ensure a just transition for all. This chapter evaluates the context-specific green growth strategies from local perspectives and

suggests some principles for successful green transition as follows: (1) environmental conservation should not be at the expense of the poor population, while sufficient government subsidy is crucial for green transition; (2) adequate compensation to every person affected is essential for the fairness of the transition scheme; and (3) the creation of a new livelihood for the poor population, so that government subsidy may be phased out after it reaches a sustainable stage.

This chapter is organised as follows. Section 6.1 provides an introduction. Section 6.2 reviews the literature on unequal ecological exchange, including both the strong and weak version of green growth, as well as degrowth. It also discusses the reasons for adopting the green growth approach. Section 6.3 provides a framework for state–society cooperation in advancing green transition. Section 6.4 presents the context of the green transition: prior market outcome without intervention. Section 6.5 investigates the state's role in the green transition and industry development. Section 6.6 examines the roles of social entrepreneurs and rural society in the green transition, and Section 6.7 provides a conclusion.

6.2 Literature review

Mainstream economics treats ecosystem services as externalities. Conventional economic indicators, such as GDP, fail to reflect the extent to which economic activities draw down natural capital (UNEP, 2011). Pollution and carbon emissions are greatly mispriced. In contrast, ecological economics seeks to internalise environmental externalities in monetary terms within the orthodox framework (Dzeraviaha, 2018). The total value of the world's ecosystem services estimated by Costanza et al. (1997) was 1.8 times the global GNP.

Hence, the concept of green growth has emerged in public debate. Its core idea is that economic growth can lead to significant environmental protection (Jacobs, 2013). The standard or weak green growth is based on the trade-off between economic growth and the environment but acknowledges the existence of win–win opportunities (Smulders et al., 2014). In contrast, the strong green growth view debunks the trade-off between environmental sustainability and economic progress and claims that "environmental protection could increase growth compared with the counterfactual in the short term as well as the long term" (UNEP, 2011, p.16). The United Nations Environment Programme (UNEP) stresses that green growth can bring about equitable outcomes because environmental justice benefits poor populations. For example, providing affordable and sustainable energy services to the poor population can reduce energy poverty (UNEP, 2011). Regarding how environmental conservation can promote higher GDP growth, arguments include: (1) the Keynesian perspective suggests that "green" technology, equipment, and infrastructure can stimulate additional investment and boost growth, especially during recession; (2) green policies can correct market failures such as insufficient R&D investment, poor infrastructure provision, resource misallocation, and over-exploitation of natural capital; and (3) firms and nations may seek a competitive advantage in green industries, which are deemed "strategic" in the next wave of technology change (Bowen and Hepburn, 2014; Jacobs, 2013).

However, the above arguments overlook the power dynamics among the capitalist world system. Drawing on the theories of unequal exchange (Emmanuel, 1972), dependency (Frank, 1967), and the world system (Wallerstein, 2011a, 2011b, 2011c), unequal ecological exchange theory suggests that developed countries exploit the

ecosystems in developing countries to externalise their consumption-based environmental costs (Chen, 2022; Foster and Holleman, 2014; Jorgenson, 2006; Rice, 2007). Core countries benefit by manipulating the capitalist world system to exploit mispriced natural capital in peripheral countries with less stringent environmental regulations. The under-valuation of natural capital is less about market failures than appropriation; the power relationship of capitalism lies behind "ecological imperialism" (Rice, 2007). Unequal ecological exchange acts as a mechanism that reproduces international inequality through the concentration of wealth in core countries and limited growth opportunities in peripheries (Hornborg, 1998).

To cease the destruction caused by unequal ecological exchange, researchers propose a transforming the socio-ecological relationships of production to prevent core countries from absorbing natural resources and cheap labour from the periphery (Foster and Clark, 2004). Schmelzer et al. (2022) suggest that degrowth studies should focus on transformational changes in six areas: (1) democratising the economy, (2) redistribution and social security, (3) democratising technology, (4) revaluing labour, (5) democratising social metabolism, and (6) international solidarity. These aims are more aspirational than actionable. A bolder proposal calls for going beyond capitalism, which fails to ensure environmental justice or equitable wealth distribution (Mailhot and Perkins, 2022). Moreover, proponents of degrowth emphasise the need for redistribution from rich nations to poor nations, either by creating fairer rules for the global economy or through direct income transfers (Hickel, 2019). Regarding the question of "degrowth", views among degrowth theorists diverge significantly. Raworth (2017) remains "agnostic" about whether degrowth is necessary, while other researchers argue that wealthy nations – regardless of economic growth – must reduce

their biophysical footprints as they exceed planetary boundaries (Hickel, 2019; O'Neill et al., 2018). Degrowth is not applicable to Global South economies that do not overconsume resources and energy (Hickel, 2021).

Despite the criticism that green growth is impossible due to its inability to decouple from material throughput (Hickel et al., 2020), I adopt the strong green growth approach for the following reasons. First, I investigate Alxa, a developing region where growth is essential for increasing income and welfare. Green growth emphasises energy and material-efficient production, providing a suitable framework for research on Alxa. Second, green growth entails a transition from a brown to a green economy, which can be sustained thereafter. Green growth shall not be limited to the greening of the incremental part of the economy – GDP growth – without transforming the existing economic structure. The entire economy can function more efficiently (e.g., reducing daily energy consumption) even if additional output requires material throughput. Third, green growth also highlights the need for redistribution. For instance, the green new deal requires investing between 1.5 and 2 percent of global GDP to improve energy efficiency and increase clean renewable-energy supplies (Pollin, 2018).

It is also noteworthy that environmental policies have distributional implications, and only those well-designed and carefully implemented climate change mitigation policies have the potential to generate social and economic co-benefits that can reduce poverty and provide opportunities to address gender, health, and economic inequalities (Markkanen et al., 2019). For example, while carbon pricing by itself is not necessarily regressive, a low-carbon energy policy may nevertheless restrict the access of the poor to energy services in the absence of mitigating national policy or climate-related

financial transfers at the international level (Bowen et al., 2014). Lamb et al. (2020) propose three mechanisms by which environmental policies exacerbate inequalities. First, policy financing may be passed on to households through increases in electricity prices and renewable procurement obligations. Second, the costs of policy compliance may increase the economic burden for poorer households, such as taxes on fuels, or appliance and building standards. Third, policy benefits may accrue to wealthier households, who can afford the capital investments required to gain access to subsidies.

As most of the empirical ex-post policy research focuses on industrialised countries and the wealthy population (Lamb et al., 2020), the case of Alxa contributes to the debate by providing context-specific research on the green transition in ethnic minority communities and the poor population. To investigate questions such as "Can green growth deliver a higher growth rate and equitable distributional outcome?" and "Why is economic growth necessary for a green transition in underdeveloped regions?", I also discuss the constraints and conditions faced by Alxa, the schemes experimented, and the policies implemented.

6.3 An Analytical framework

How can a green transition be initiated, since it does not occur automatically? In the context of no external intervention, investments would remain confined to the areas of natural endowment/comparative advantage – the resource sectors in the case of Alxa. From a Schumpeterian perspective, entrepreneurship can develop new technologies and new products, creating new growth opportunities and changing the options' matrix faced by a society. From an industrial policy perspective, the emergence of new industries involves risks that private individuals may not be able to afford alone, and

positive externalities not fully captured by the original investors (Rodrik, 2014). In this sense, state intervention is important by providing subsidies to smooth out the process of green transition and remedy market failures, facilitating changes to happen and ensuring the outcome is just and equitable for all.

To find a proper scheme for green transition, the local government and NGOs in Alxa both experimented with various schemes before they focused on developing green agriculture and tourism. I propose the state–society cooperation framework for investigating the green transition in Alxa. State–society cooperation follows the pattern of "Research – Experiment – Rollout – Subsidy Phase-out". I identify multiple actors: the state, NGOs, enterprises, and the rural society. The NGOs and enterprises conduct experiments with rural communities to explore the market potential of the green industry, helping rural residents earn a sustainable livelihood. Only successful experiments can attract large follow-up investment from governments, who use the state capability to roll out successful practices. Besides, the state is responsible for social protection and poverty reduction, infrastructure building, afforestation, and desertification control. The rural society does not play a passive receiving role; rather, peasants and herders are rational persons. Before the green transition, poverty in rural communities contributed to their dilemma; environmental conservation aligns with their long-term interests, but their immediate livelihood needs lead to the depletion of natural capital, and they lacked the capability to break that "vicious cycle". As green transition requires coordinated actions, the execution of selected interventions (e.g., afforestation, green agriculture) depends on the collective actions of the rural society. Thus, the rural society has frequent conversations with the NGOs and government, to ensure their concerns are addressed and interests protected. A civil society is growing

in the transition process that involves developing new social practices and organisations.

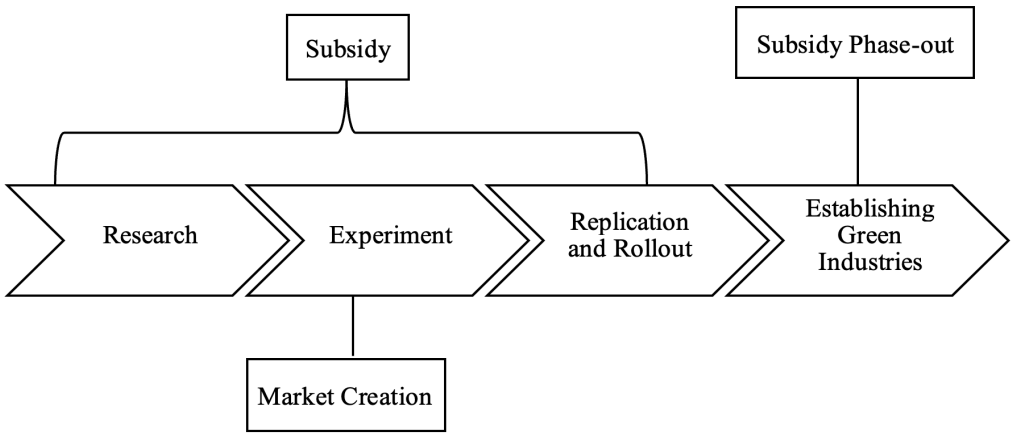
To ensure the green transition is also a just transition for all, I proffer the following principles: (1) environmental conservation should not be at the expense of the poor population, while sufficient government subsidy is crucial for green transition; (2) adequate compensation to every person affected is essential for the fairness of the transition scheme; and (3) create a new livelihood for the poor population, so that government subsidy may be phased out after a sustainable stage is achieved.

Table 10: Stakeholder entities in green transition and their roles in creating sustainable livelihood

	STAKEHOLDER ENTITIES	**RESPONSIBILITY**
STATE	Local governments	Environmental protection
		Redistribution
		Industry development
SOCIETY	Enterprises	Experiment and market creation
	Rural community	Rural revitalisation through embracing a sustainable livelihood

Source: The author

Figure 20: The process of creating a sustainable livelihood



Source: The author

6.4 The context of green transition: prior market outcomes without intervention

Located in the western Inner Mongolia Autonomous Region, Alxa League covers an area of 270,000 square kilometres, with three counties: Zuo Qi, You Qi, and Ejina Qi. Alxa has an urban population of 198,400 and a rural population of 52,300. There are 28 ethnic groups including Mongolian, Han, Hui, and Man, with Mongolian accounting for 28 percent of the total population.

The natural environment of Alxa had been deteriorating in recent decades prior to the green transition. First, the ecological burden increased not only due to rising human activities driven by population growth (Table 11) but also because of a reliance on traditional irrigation methods and wood fuel. It is estimated that two-thirds of farms in Alxa used traditional flood irrigation methods before the green transition. Furthermore, rural residents' use of traditional wood fuel resulted in an estimated annual consumption of 200 million tons of *Haloxylon,* a desert plant capable of fixing sand (Yang, 2012). In the 1950s, the *Haloxylon* forest covered 1.133 million hectares, which had dropped to 556,000 hectares by the 1980s.

Table 11: Increasing ecological burdens and deteriorating environment in Alxa

	1950s	2006
Population	34,100	214,200
Domestic animals (sheep, camels, and others)	350,000	2.19 million
Grassland coverage rate	10%	4.5–8%
Grass yield	225–300 kg/hectare	150 kg/hectare

Source: SEE Conservation (2023), Yang (2012), Alxa Statistics Bureau (2007).

Second, the market mechanism incentivised people to increase the number of livestock animals. Since the second half of the 1980s, a tenfold increase in the price of cashmere induced almost every household to expand their goat herds (Kikuchi, 2014). This trend may have contributed to over-grazing.

Moreover, changes in institutional arrangements affect people's behavioural patterns. In the 1980s, the "household responsibility policy" was introduced in pastoral areas, leading to the division of public land into small pastures that were allocated to herder households. The positive aspect of the "household responsibility policy" is that it grants herders a certain level of property rights over the pastures. However, it disrupts the traditional nomadic and rotational grazing methods, as herders now graze animals on their own small pastures. The traditional nomadic and rotational grazing method can relieve grazing pressure by adjusting the grazing routes according to a certain sequence and climatic factors. Scholars (Dalintai et al., 2005, 2012) claim that the increasing number of livestock may not accentuate the sustainability issue; instead, it is grazing on a small pasture that causes over-grazing. The pastures around the settlements thus became severely trampled by animals.[15]

Fourth, since many reservoirs had been built on the upper stream of the Heihe River, the streamflow running through Ejina Qi has sharply declined, severely disrupting the ecosystem in Alxa.[16]

The costs of environmental degradation are borne by the vulnerable groups. The author interviewed a herder and *Cistanche* cultivator, who reported:

In the past, there were frequent sandstorms. The ecosystem was so fragile that one out of three years, my pasture would become unsuitable for grazing. All the money saved was spent on buying fodder to feed sheep.

Therefore, in 2004, the interviewee had to give up grazing and sought a life away from the hometown as a migrant worker.

The other side of the story of Alxa is the concentration of wealth among a few capitalists due to the resource-dependent growth pattern. Table 12 shows the income distribution from the mining sector in Inner Mongolia, and Alxa epitomises Inner Mongolia's reliance on the mining sector. It shows that private capital receives the biggest share of revenues from the mining industry, followed by the central- and subnational-level governments in the form of taxes and fees. Central and subnational SOEs also share the mining revenue.

Table 12: Income distribution among stakeholders in the mining industry in Inner Mongolia

	Income (100 million yuan)	Percent (%)
Private capital	629.9679	39.78
Tax revenue of central government	486.0581	30.70
Tax revenue of subnational government	274.4941	17.34
Central SOEs	96.4662	6.09
Subnational SOEs	96.4662	6.09
Employees in the mining industry	125.98	N/A

Source: Dalintai and Yu (2015)

6.5 State's role in the green transition and industry development

6.5.1 Desertification control

(1) Ecological relocation scheme

In the 1990s, the subnational governments adopted a relocation scheme to promote ecological restoration. The Helan Mountains Nature Reserve was set up in 1992, and 36,000 Alxa residents were compensated to leave this area and resettle in a region bordering Ningxia Province (Alxa League Forestry and Grassland Bureau, 2020a). The literature documents that relocation schemes occurring in various countries often cause resettled families to suffer from mental and physiological health problems because of community breakdown, ecological changes, and the loss of land and livelihoods, and thereby the provision of adequate compensation is essential (Lerer and Scudder, 1999). Since the one-time compensation given to ecological migrants in the 1990s might be low compared with today's standard, now each resettled person can continue to receive an annual compensation of 5,000 yuan.

(2) The Three-North Shelter Forest Programme

The Three-North Shelter Forest Programme that started in 1983 is considered the most effective way to hold back the expansion of the desert. According to the Alxa League Forestry and Grassland Bureau (2020b), the programme had afforested 6.07 million mu by 2019, including 2.2 million mu through artificial afforestation, 2.48 million mu through the grazing ban, and 1.37 million mu through aerial seeding. Among the three types of afforestation, the scheme of aerial seeding lacks a direct poverty reduction function, while grazing ban, limited grazing, and artificial afforestation combines environmental replenishment with social protection and poverty reduction by paying the rural poor to engage in environment protection. It is estimated that the ecological

compensation has lifted 6,647 people out of poverty (Alxa League Forestry and Grassland Bureau, 2020a).

Grazing ban and limited grazing

The grazing ban requires the prohibition of sheep grazing in designated areas,[17] while limited grazing restricting the number of sheep according to the condition of the grassland. The annual ecological compensation for the grazing ban is 15,000 yuan per person in Zuo Qi, 30,000 yuan in Ejina Qi, and 20,000 in You Qi[18], respectively. The annual compensation for limited grazing is 5,000 yuan per person (Alxa League Forestry and Grassland Bureau, 2020b). If herders plant *Haloxylon* on their pastures where grazing is banned, they will receive an extra subsidy for artificial afforestation. Moreover, every household affected by the grazing ban can have one member employed as a forest ranger, with an annual salary of 18,000 or 36,000 yuan, depending on the financial capability of the local government. The entire League employs 3,083 forest rangers with an annual average salary of 23,000 yuan, including 121 registered poor, and 1,718 people from 635 households that receive ecological compensation (Alxa League Forestry and Grassland Bureau, 2020b).

Aerial seeding

From 1984 to 1992, aerial seeding in Alxa was limited due to technology bottlenecks. However, a breakthrough eventually enabled aerial seeding in arid areas with an annual rainfall of less than 200 mm.[19] Thereafter, aerial afforestation gradually increased from a few thousand acres per year to 500,000 acres in 2011 (National Forestry and Grassland Administration et al, 2018), totalling 6.32 million mu (Alxa League Forestry and Grassland Bureau, 2020b).

Artificial afforestation

After 2015, all the fiscal funding for artificial afforestation had been used to subsidise farmers and herdsmen to engage in afforestation. The per-mu subsidy for afforestation has increased to 200 yuan. Afforesting at a rate of 0.9–1 million mu a year and with a three-year survival rate of approximately 65 percent, artificial afforestation has reached 5 million mu, and compensation totals 450 million yuan. If herders plant *Cistanche* and *Cynomorium songaricum*, they will receive a one-time subsidy of 30–60 yuan per mu. Large-scale afforestation is the basis for developing the sand industry.

Paying the rural poor to engage in the grazing ban and afforestation is not only a project to restore natural capital, but also a scheme for social protection and poverty reduction. It is estimated that ecological compensation has lifted 6,647 people out of poverty (Alxa League Forestry and Grassland Bureau, 2020a).

Table 13: Comparison of environmental policies, resident compensation, and conditions.

	Number of people receiving compensation	Annual compensation distributed	Specific Compensation and conditionalities
Aerial seeding	NA	NA	NA
Grazing ban	55,611	558 million yuan	Grazing Ban compensation: (1) 15,000 yuan per person in Zuo Qi, 30,000 yuan in Ejina Qi, 20,000 yuan in You Qi, (2) Providing one ranger job for each household affected. Annual salary: 18,000 or 36,000 yuan Limited Grazing compensation: 5000yuan/per person
Artificial afforestation	17,000	367 million yuan	(1) Subsidy for planting Haloxylon: 200 yuan/ mu: Conditionality: To mitigate moral hazard, residents need to afforest before receiving compensation. (2) Subsidy for grafting Cistanche or Cynomorium songaricum on Haloxylon: 30–60 yuan/mu Conditionality: The subsidy is one-time.

Source: Alxa League Forestry and Grassland Bureau, 2020b; Information obtained from fieldwork.

6.5.2 Inclusive policies

(1) Social security

Ecological migration and the grazing ban have changed the lifestyle of farmers and herdsmen and facilitated urbanisation. Alongside these environmental protection measures are inclusive policies such as the provision of social security to rural residents (since 2006) and free schooling (from kindergarten to high school) for their children (Alxa League Administration, 2019). Now, nearly 100 percent of the rural residents are provided with old-age insurance and medical insurance, plus a subsistence allowance for the poor. Compulsory education for children has reached 100 percent coverage. Expenditures on livelihood support programmes account for more than 70 percent of the fiscal expenditure of the local governments. Alxa's indicators for social welfare such as subsistence allowances, old-age care, and medical care for urban and rural residents are among the best in Inner Mongolia (Alxa League Administration, 2014).

(2) Rural infrastructure

In 2014, the provincial government of Inner Mongolia proposed the "Ten Full Coverage" policy that provides ten major public services in all rural and pastoral areas in Inner Mongolia. The ten public services include (1) renovating dilapidated houses; (2) implementing safe drinking water projects; (3) surfacing streets and lanes; (4) building a grid-connected system that ensures all villagers have access to electricity; (5) providing access to radio, television, and telecommunication networks for every villager; (6) constructing and renovating schools; (7) establishing standardised clinics;

(8) creating village cultural rooms; (9) setting up convenience stores; and (10) offering social security, including old-age insurance, medical insurance, and a subsistence allowance for rural residents.[20]

6.5.3 Industry development

The Alxa government encourages the development of tourism through inviting entrepreneurs to develop local projects and promoting a regional tourism brand. Now, Alxa attracts not only tourists but also brands and commercial events. These business activities have trained many local professionals.

A cross-country road trip is an activity that has gained popularity in recent years. The annual event of the "Cross-Country e-Family Heroes' Club" has been held since 2006. In 2011, the Alxa government signed an agreement with the Beijing Media Company, which obtained the exclusive rights to hold the desert-crossing event and renamed the event the Cross-Country e-Family Alxa Heroes' Club. In 2011, this event only lasted for three days, with 16,000 participants and 4,800 vehicles, creating a revenue of 220,000 yuan. However, in 2018 it lasted one month, attracting 1,199,900 tourists and 333,300 vehicles, and registered an income of 0.49 billion yuan (He, 2018). Desert crossing has been combined with activities such as the Tengger International Music Festival, a car exhibition, a modified car parade, mixed-martial arts fighting, and kart/utility vehicle racing.

Desert crossing has facilitated the growth of related industries. Every year during the event, hotel and homestay occupancy rates can reach 100 percent, with prices increasing by more than 100 percent; while in ordinary times, occupancy is typically

60–80 percent at standard rates. Other industries, such as restaurants, nightclubs, bars, internet cafes, massage services, car repair, fuel stations, express delivery, electricity, and communications, also benefit from this event, creating more than 13,000 jobs directly and indirectly (He, 2018).

6.6 The role of social entrepreneurs and rural society in green transition

SEE is a non-profit organisation founded in 2004, dedicating to environmental protection and desertification prevention. Most of the members are successful businesspeople who have the ambition to save the environment with their entrepreneurship. Before 2010, to seek a feasible and effective green transition path, SEE had conducted rounds of experiments.[21] Moreover, both SEE and the local government conducted in-depth scientific research and social governance surveys, which provided a profound understanding of the desert environment in Alxa and how to develop innovative methods for environmental protection and poverty reduction.[22] Later, SEE repositioned its strategy to concentrate efforts on desertification control.

6.6.1 Desertification control combined with Cistanche farming

Haloxylon plays an important role in sand fixation and has a high survival rate in desert environments. Each *Haloxylon* plant can fix ten square metres of sand. *Cistanche*, the so-called "Ginseng of the desert" with high commercial value, is a parasitic plant living on *Haloxylon*. One kilogram of (fresh and undried) *Cistanche* can be sold for 30 to 40 yuan. Some herders have tried to graft *Cistanche* onto the root of *Haloxylon*. Song Jun, an entrepreneur and founding member of SEE,[23] entrusted the Institute of Botany of the Chinese Academy of Sciences (2009), with aid from local experts, to develop the technique of grafting *Cistanche* onto *Haloxylon*. It is a great leap forward from

collecting wild *Cistanche* to grafting *Cistanche* onto *Haloxylon*, which would enable the large-scale farming of *Cistanche*. Therefore, since 2010, SEE has focused on planting *Haloxylon* as the primary method for fixing sand and encouraging herders to graft *Cistanche* onto *Haloxylon* to increase their income. SEE has provided funds, technology, seeds, tutorial videos, and technical manuals, and has invited experts to give on-the-spot guidance and trainings to rural residents. SEE also sponsored community representatives to go to Ordos (Inner Mongolia) and Qinghai Province to learn techniques for afforestation and sand industry development.

In 2014, SEE launched the "Planting 100 million *Haloxon* within 10 Years" project, aimed at preventing the expansion and merging of the Ulan Buh, Tengger, and Badain Jaran Deserts. Based on thorough analyses of the distribution of traditional habitats for *Haloxylon*, soil, and meteorology, SEE carefully selected the areas for building a five-kilometre long, two-kilometre wide "shelter belt" of *Haloxylon* forest which totals 15,000 mu.[24] SEE also launched online charity programmes and, together with the China Green Foundation, Ant Financial, and other partners, raised a total of 380 million yuan from the public for desertification control (SEE Conservation, 2019). The raised funds were given to herders as a subsidy for the afforestation of *Haloxylon*.

Rural society

Rural residents are the main force in afforestation and green industry development, rather than merely playing a receiving role. The following example illustrates how the shift in production has occurred from the perspective of a rural household. The transition from planting *Haloxylon* to harvesting *Cistanche* spans six years, during which subsidies from the government and NGOs often served as the only source of

income, guaranteeing people's livelihoods throughout the transition. As *Cistanche* generates sustainable income for residents, the allowances and subsidies will phase out. Below is a discussion from an interviewee regarding the allowances and subsidies he received from the government and SEE, as well as the income generated from Cistanche farming:

> *Since 2008–09, the government promulgated a grazing ban and provided an annual allowance of 13,000 yuan per person, which has now increased to 15,000 yuan. I began planting Haloxylon in 2012. I own 16,000 mu of land; and by planting Haloxylon on 10,000 mu of land, the net income [subsidy minus planting costs] amounts to 600,000 yuan per year. As it takes six years from planting Haloxylon to harvesting Cistanche, the subsidy often served as the only income source during this period. In 2017, I harvested 8 tons of Cistanche deserticola from 2,000 mu of land, generating an annual income of 200,000 yuan. After deducting labour and other costs, the annual net profit was approximately 100,000 yuan.*

Table 14: Composition of subsidies received by herder households

1. Per mu subsidy for planting *Haloxylon*, including:	140 yuan
1.1 Afforestation subsidy from the Forest Bureau	100 yuan
1.2 Subsidy from the Agriculture and Animal Husbandry Bureau	10 yuan
1.3 Subsidy from SEE	30 yuan
2. The per mu cost of planting *Haloxylon*	80 yuan
3. Net income from planting *Haloxylon*	60 yuan
Gross income from *Cistanche* farming	30,000–40,000 yuan per ton (fluctuating)

Source: The author, based on information from the fieldwork.

The rural society is evolving as residents establish cooperatives, elect their own leaders, and actively participate in sand industry businesses. These cooperatives focus on drying and storing *Cistanche* to prevent sharp price drops during the harvest season and to strengthen their bargaining power.

6.6.2 The implementation of water-efficient agriculture

Alxa is an extremely water-deficient area, but it has a history of developing oasis agriculture, specifically corn farming, which consumes excessive amounts of water. Developing water-saving agriculture also follows the pattern of "Research – Experiment – Rollout –Subsidy Phase-out".

(1) Shift from flood irrigation to drip irrigation

Drip irrigation can save 40 percent of water consumption in corn farming. To promote water-saving farming, SEE and the Alxa League government jointly funded a drip irrigation experiment as early as 2007. The cost of the drip irrigation pipe is 110 yuan/mu, which is shared between the peasants (40 yuan) and the government (70 yuan). The useful life of pipes is only one year; therefore, the government continues to subsidise the pipelines annually. To monitor and control water usage in irrigation, SEE learned the irrigation quota practice from Ningxia Province and assisted the local government in carrying out a pilot experiment in Barunbieli, Alxa. After the initial rounds of experiments, the local government promoted a larger-scale replication drawing on the successful experience. In early 2010, the Alxa League Administration Office issued the "Notice on Water-saving Agriculture Scheme [No.1, 2010]",[25] requiring the shift to drip irrigation and applying the irrigation quota on 20,000 mu of

farmland. Based on the estimated sustainable water consumption level that avoids depleting underground water, the initial water quota was set at 550 cubic metres/mu[26], but it has since been reduced to 380 cubic metres/mu. People with unused their "water quotas" can sell them to those who need additional quota. Now, Barunbieli has completely transitioned to drip irrigation, transforming both production methods and peasants' lives. The operation of drip facilities is simple and labour-saving, eliminating the need for manual work associated with traditional irrigation. Farmers only need to swipe a card to activate the irrigation system and control water usage. Planting and harvesting are also mechanised.

(2) Seek water-saving crops

Corn farming is considered to consume excessive groundwater. In 2009, SEE invited the Zhangjiakou Academy of Agricultural Sciences to experiment with a hybrid millet in Alxa as a replacement for the traditional corn crop. SEE also published a standard manual outlining planting techniques for desert millet and providing guidance on quality control. SEE requires that peasants participating in the experiment adopt organic farming practices, both for environment protection and to meet the standards for high-end markets, which can guarantee higher prices than non-organic products. SEE set up a non-profit organisation – Beijing Weixi Agriculture Co., Ltd – that specialises in the marketing and brand-building of the desert millet, developing millet products including millet-baked chips, millet cakes, and millet vinegar which are sold through both supermarkets and online channels such as Taobao, JD.com, and Juhuasuan. Weixi also protects peasants from market vagaries by purchasing millet at a pre-agreed price. In contrast, the price of corn fluctuates, creating uncertainties for those choosing to engage in corn farming. As an additional benefit for shifting towards millet farming, SEE

provides peasants with a commercial insurance including a regular health insurance and a critical illness policy, as well as a public transportation insurance free of charge. Thus, the average household earns 40,000 to 50,000 yuan a year from cultivating desert millet, which is comparable to the income from corn farming. However, this income is more stable because NGOs, acting as intermediaries, help mitigate market vagaries for peasants as a condition for transitioning to water-saving millet farming.

By the end of 2019, a total of 1,625 hectares of water-saving millet had been planted, with a total output of 6,924 tons. Moreover, 556 households have planted the millet, saving more than 12 million cubic metres of water (SEE Conservation, 2019).

6.6.3 The result of green transition

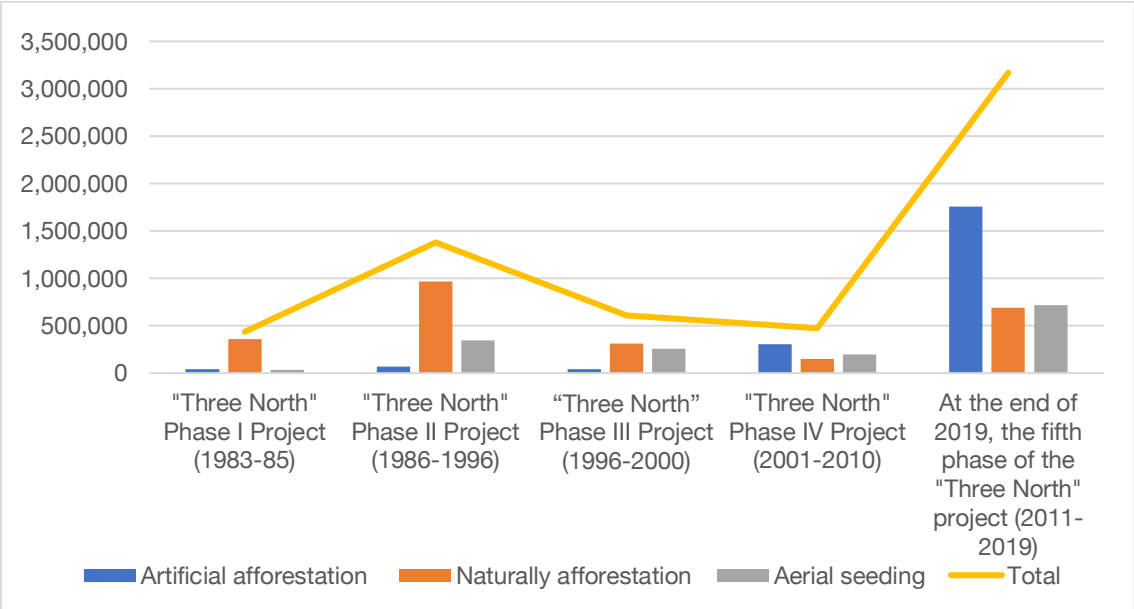
The green transition in Alxa has achieved notable results in desertification control, water conservation, social protection, and income growth for the poor community. It is estimated that Alxa has controlled desertification on 77.59 million mu of land and increased grassland vegetation coverage from less than 15 percent at the founding of the League to 23.68 percent, while forest coverage has risen from 2.96 percent to 8.01 percent. A sand-blocking forest has been built on the edge of the desert, preventing the convergence and expansion of the three deserts (Alxa League Forestry and Grassland Bureau, 2020a). Figure 21 shows a sharp increase in artificial and naturally afforestation, as well as aerial seeding, from 2011 to 2019, confirming the effectiveness of Alxa's desertification control practices.

Emerging industries such as the sand industry, tourism, clean energy, and logistics have been growing rapidly in recent years and are changing the economic structure. For

example, sand industries engaging rural residents have developed in Alxa; 65 sand industry innovation platforms have been established, which have developed more than 60 mid-to-high-end products, obtained 37 patents, nurtured 48 sand industry enterprises, and created 60,000 jobs for farmers and herdsmen who can receive an annual average income from 30,000 to 50,000 yuan, and some herdsmen could earn 100,000 to 300,000 yuan. Sand industries in the Alxa League created an output of 3.26 billion yuan in 2018 (Alxa League Forestry and Grassland Bureau, 2020a).

Three industries in Alxa have witnessed rapid development since 2000s (see Table 15). Thriving industries increase people's income. In 2022, the per capita disposable income was 26,666 yuan for the rural residents, ranking first among the twelve Leagues of the Inner Mongolia Autonomous Region.

Figure 21. The implementation of the "Three North" Project in Alxa (unit: mu)



Source: Alxa League Forestry and Grassland Bureau, 2020b.

Table 15: Indicators for socio-economic development in various years

	Primary Sector GDP (billion yuan)	Secondary Sector GDP (billion yuan)	Tertiary Sector GDP (billion yuan)	Urban disposable income (yuan)	Rural disposable income (yuan)	Ranking of rural disposable income in the twelve Leagues of Inner Mongolia	Forest coverage rate
2000	0.269	0.838	1.128	5,164	2,434	5	2.58%
2010	0.812	9.445	5.515	19,111	7,836	7	5.04%
2022	2.452	26.173	12.104	49,629	26,666	1	8.37%

Source: Alxa Statistical Yearbook 2023, Alxa Statistical Yearbook 2011, Alxa Statistical Yearbook 2001.

6.7 Discussion and conclusion

This chapter contributes to the debate between green growth and degrowth, illustrating with the case of Alxa that shifting towards an environmentally sustainable growth pattern holds the potential to deliver a higher growth rate and fairer market outcomes. For poor areas, the challenges lie not in excessive consumption but in the inefficient use of energy and resource associated with traditional production methods and lifestyles. Therefore, Alxa's green transition focuses on developing sustainable livelihoods and adopting modern technologies and energy-efficient methods. Growth opportunities stem from rural revitalisation, economic diversification, and investments in transforming consumption and production patterns. Moreover, the transition to green practices can result in fairer market outcomes for several reasons. First, vulnerable groups, whose livelihoods depend on nature, benefit the most from environmental conservation. Second, rural development and economic diversification offer great economic opportunities to rural communities compared to the previous mining-led growth pattern. Third, a green transition necessitates "redistribution and social security". In Alxa, carefully designed green transition practices include compensating

and subsidising affected residents, along with improved provision of social security and services such as healthcare, education, and housing, thereby effectively combining environmental conservation and poverty reduction.

The state and society play different roles in the green transition of Alxa. The NGOs and enterprises conduct experiments, build brands, and nurture the green industries. The NGOs' experiments leveraged government investment. Second, the state is responsible for environmental conservation, social protection, and infrastructure provision. Local governments encourage SEE's trials and experiments and roll out the successful practices on a large scale. Third, the rural society does not merely play a passive role; it serves as the main participating force in afforestation and rural revitalisation.

Alxa implemented a combination of green policies during the green transition, encompassing green subsidies with conditionalities, green public investment, social protection policies supporting a smooth transition, and the creation of green new jobs in sustainable agriculture. Green subsidies are 'carrots' that incentivise participation and facilitate the process of green transition, while also being crucial to supporting residents' livelihoods during the transition phase. Green subsidies typically associate with conditionalities and are not designed to last indefinitely. For example, herders planting the sand-fixing plants must ensure certain survival rates to avoid moral hazard. Irrigation quotas are enforced to ensure that peasants meet the water-saving target. When promoting the planting of *Cistanche*, government provides subsidies as a one-time measure, which will cease once this commercial crop can generate sustainable income, thereby reducing the fiscal burden. Green public spending refers to the funding for R&D in green technologies, fiscal expenditures on green subsidies, and investment

in green infrastructure. The spending is supported by tax revenue from the mining sector. Additionally, the creation of green new jobs in sustainable agriculture and tourism is crucial for a successful green transition. For rural residents whose livelihoods depended on nature, it is only possible for them to abandon their old livelihoods once new livelihoods have been developed and can generate sustainable income.

The case of Alxa also illustrates the prudent use of the 'stick' policies for poor communities causing the depletion of natural capital. Without providing alternative options of efficient energy and resource use, imposing 'stick' policies or publishments on poor communities may have adverse economic and distributional effects and cannot, by itself, lead to a significant change in consumption and production patterns. This also sheds light on the debate between degrowth and green growth. As poverty is a key reason for the over-exploitation of natural resources in underdeveloped regions, the case of Alxa indicates that income growth and livelihoods development enable the poor population to abandon traditional, inefficient consumption and production patterns.

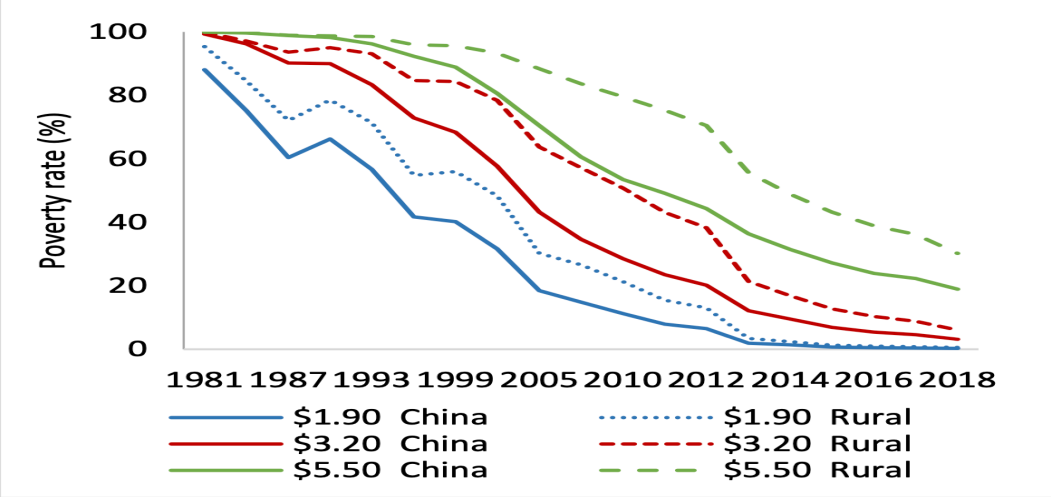
7. Poverty Reduction in Linxia Hui Autonomous Prefecture

7.1 Introduction

China's poverty reduction campaign has achieved phenomenal results. In a broad sense, China's rapid economic growth during the reform era has lifted most of its population out of poverty. According to World Bank data, the poverty headcount ratio at $1.9 a day (2011 purchasing power parity-adjusted) decreased from 66.2% in 1990 to 11.2% in 2010 and 0.7% in 2015,[27] and the poverty headcount ratio at the national poverty line decreased from 17.2% in 2010 to 3.1% in 2017. In 2021, China announced that extreme poverty had been eliminated by the end of 2020. The reduction of rural poverty is also noteworthy (see Figure 22). Building upon Amartya Sen's (1976) approach of a multi-dimensional perspective on poverty, Zhan et al. (2019) develop a multi-dimensional poverty indicator system encompassing education, health, living conditions, assets and income, and employment. They use this system to track changes in multi-dimensional poverty in rural China, and their findings affirm China's success in poverty reduction. Specifically, they discover that China's rural multi-dimensional poverty decreased by nearly 90% from 1995 to 2013, aligning with a substantial reduction in income poverty. Moreover, as the national Gini coefficient of income decreased slightly from 0.486 in 2007 to 0.433 in 2013, the contribution share of the urban–rural gap to the overall national income gap dropped from 38% to 15% (Zhu et al., 2018). Data from NBS also indicate a slight decrease in the per capita urban and rural income gap after 2010. Several factors are responsible for the development of rural regions and poverty reduction in China: large-scale poverty reduction programmes in rural areas, industrialisation and structural changes, the exhaustion of surplus labour that increases workers' bargaining power, and improved social security and public services. For example, the research by Zhan et al. (2019) identifies key factors contributing to the

reduction of rural poverty including the alleviation of medical expense burdens and improved access to safe drinking water. These improvements correspond to the implementation of the New Rural Cooperative Medical Insurance System and safe drinking water projects in the Eleventh Five-Year Plan and the Twelfth Five-Year Plan periods.

Figure 22: Poverty reduction in China based on international poverty lines, 1981–2019



Source: Lugo, Niu, and Yemtsov (2021)

In mainstream economics, "the true ingredients of persistent economic growth remain mysterious", and "there is no accepted recipe" for factors that contribute to growth, except the understanding that misallocation saps growth (Banerjee and Duflo, 2020). Improving the efficiency of resource allocation can improve economic performance, but the gains from enhancing allocation efficiency tend to diminish. As the goal remains to improve the quality of life, development research employing randomised controlled trials (RCTs) focuses on clearly defined interventions so that researchers can experiment with them, abandon the ones that do not work, and improve the ones that work. First, research deploying the RCT approach in development is based on neoliberalism/market fundamentalism. Because these researchers do not believe that

the economic system has certain inherent laws governing growth, they stop seeking poverty reduction through economic growth in poverty-stricken regions. Instead, they focus directly on improving people's living standards and welfare. Second, in terms of research methods, rejecting a single-factor approach to studying growth does not imply that one must adopt an agnostic stance, where growth is treated as unknown. In the real-world practice, this agnosticism results in their poverty reduction programme lacking a theoretical guidance, as well as macro-level initiatives. A single intervention policy may be effective only when combined with other policies in a package. Therefore, some policies considered ineffective in one situation may yield favourable results under different conditions. And without government involvement, employing the RCT approach to experiment with effective growth-fostering intervention policies becomes challenging.

However, neoliberalism is far from achieving dominance in the economic community. Regarding the question of fostering growth, Schumpeter (1992) suggests that growth is not merely:

> a quasi-automatic increase in population and capital or [due] to the vagaries of monetary system […; instead,] the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organisation that capitalist enterprise creates.

The Lewis model of a dual economy emphasises the structural transformation of the economy and employment during the development process. Compared with a neoclassical model, the Lewis model reveals that the essence of development lies in integrating idle resources and surplus labour into the capitalist system and modernising them. Furthermore, the capability approach suggests enhancing the capabilities of both

individuals and the society. Compared with Amartya Sen's human capabilities approach (Sen 1985, 1999) which focuses on the capabilities of individuals as consumers and citizens, Andreoni et al. (2021) emphasise the two dimensions of capability – collective and productive capability – and propose a "productionist" perspective of development. A low level of development indicates a lack of capability to organise efficient production, and engaging in productive activities and cultivating industries will develop collective and productive capabilities. Moreover, leftist economists highlight the challenges that vulnerable groups would encounter, induced by factors over which they have no control (Roemer 1995). This argument reveals the systematic exclusion of opportunities for the poor, and promoting equal opportunity requires compensation for the handicaps suffered by vulnerable groups.

The role of the government has also been debated. Neoclassical economics claims that the state should focus on curing market failure, providing non-rivalrous and non-excludable public goods that private enterprises would not supply. In contrast, development economics proposes that the state should play an active role in implementing industrial policies and facilitate economic development (Amsden, 1989; Wade, 1990b). Weiss (2000) identifies three criteria of a developmental state: their strategic priorities, organisational arrangements, and the institutional links with organised economic actors. Burlamaqui (2020) extracts from Schumpeter an analytical framework where development "can be" forged, facilitated, and accelerated by state action. State-guided selective intervention, entrepreneurial leadership, the encouragement of "investment cartels", efficiency and productivity improvements, and industrial rationalisation are the elements stressed in Schumpeter's positive account of the German economic policy and industrial strategy of the 1930s (Burlamaqui, 2020).

However, in the context of China, Xu (2011, 2015) suggests that the officials' incentive to boost economic growth originates from the arrangement that regional competition links to officials' promotion, while the "regionally decentralised authoritarianism" enables subnational governments that control economic resources to deploy them to pursue economic objectives. This argument highlights the incentives of subnational governments and the economic resources they control, but it lacks thorough analysis of the operation of the bureaucratic system, the macro-level development consensus, industrial policy, and the dynamic interaction between the state and society.

In this chapter, I examine the rural development within the context of Linxia Prefecture, a poverty-stricken region in Gansu Province, and uncover how it managed to break free from the poverty trap. The state's role in poverty reduction is also investigated. The remainder of this chapter is organised as follows. Section 7.2 will examine the macro-level poverty alleviation policies in China and propose a framework of "condition, capability, industry, and benefits" to encapsulate China's poverty reduction strategy. Section 7.3 will investigate the case of Linxia Prefecture, the various present growth modes, and multiple methods to generate income, while section 7.4 will provide an understanding of poverty reduction from multiple perspectives and explore the governance structure of the state in poverty reduction.

7.2 The context of poverty reduction in China

Unlike the RCT that tests a single factor's correlation with poverty occurrence or simply focusing on improving living standards through redistribution, poverty reduction measures in China are more comprehensive. Geall et al. (2017) suggest that the poverty alleviation programmes in China are typically designed with two major

criteria: “precision” and the “industrial” requirements. The former emphasises that government subsidies and assistance are targeted at specific households or villages. The latter industrial approach stresses the improvement of the industrial or productive capabilities of underdeveloped regions, so that growth can become self-sustaining in the long run.

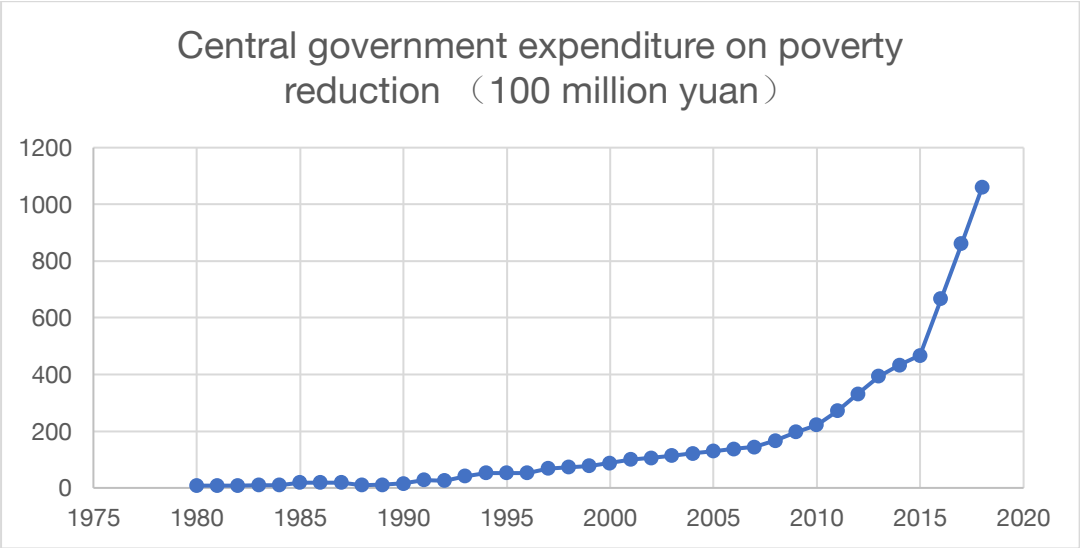
Compared with redistribution, alleviating poverty in China is primarily through economic growth. Economic growth is a powerful instrument for reducing poverty, particularly at the initial stages of economic development. Economic growth “would raise the consumption of the mass of lower income groups to levels higher than would result from [the] redistribution of all the excess resources currently accruing to top income groups”, especially during the early stages of development (Hirsch, 1976).

To promote balanced regional growth, the Jiang–Zhu administration initiated the Western Development programme, while the Hu–Wen government introduced the “Rise of the Central Regions”. Moreover, China has a history of implementing poverty alleviation policies targeted at underdeveloped regions, by supporting the development of various industries, with the state acting as a coordinator of development and provider of infrastructure. In the early 1980s, the central government established the “Development Fund for Supporting Underdeveloped Regions”. In 1984, the state issued a “Notice on Accelerating the Transformation of Impoverished Areas”, emphasising the need to reduce poverty by developing agriculture and infrastructure, promoting household responsibility policies, supporting township enterprises, improving education, encouraging market economy, and easing tax burdens for rural residents.[28] Over three decades of poverty reduction efforts, policies have evolved to

include supporting the voluntary relocation of impoverished populations from ecologically vulnerable areas, facilitating the construction of small-scale infrastructure, enhancing social services and cultural facilities, improving basic education in poverty-stricken regions, providing non-agricultural employment training for local labour forces and assisting in out-of-area employment, offering technical training and dissemination, promoting the development of key industries, providing small loans to families, and promoting the growth of agricultural enterprises in impoverished areas (Wang, 2008b). In 2011, the State Council issued the "Rural Poverty Alleviation and Development Programme in China (2011–2020)", which set the goal of eliminating absolute poverty in rural areas by 2020. To achieve this goal, in 2016, the State Council issued a "Notice on the Thirteenth Five-Year Plan for Poverty Alleviation". This notice outlined a new round of poverty reduction measures that can be grouped into four areas: (1) Industrial development and job creation: This includes the development of industries such as agriculture, tourism, and e-commerce, as well as job creation through migration and relocation. (2) Social welfare and services: The measures encompass providing essential social welfare and services such as education, healthcare, and social security. (3) Fiscal transfer, infrastructure, and ecology: This involves fiscal transfers, infrastructure development, and ecological improvement in poverty-stricken regions. (4) Social mobilisation: Focusing on social mobilisation efforts to fight poverty, the initiatives include selecting and sending officials to help poor villages, involving state agencies, public institutions, and SOEs in poverty reduction tasks, and promoting economic cooperation between eastern and western regions. (5) Guarantee measures: Regular inspections are implemented, and a strict third-party independent evaluation process is used to ensure the effectiveness of poverty alleviation efforts. To ensure the efficient allocation of resources to genuinely needy households, the Chinese

government carried out multiple checks on the identified registered poor farmers. This approach aimed to minimise the likelihood of poverty reduction resources being misallocated and not reaching those truly in need.

Figure 23: Central government's special expenditure on poverty reduction (Unit: 100 million yuan)



Source: Yearbook of China's Poverty Alleviation and Development 2019, China Agriculture Publishing House, pp. 897–898

This new round of poverty reduction projects launched by the Xi government features a sharp increase in investment and an improvement in targeted poverty reduction measures. Since 2015, the central government has dramatically increased the amount of special poverty alleviation funds, reaching nearly 106.09 billion yuan, approximately 4.76 times the size of the funds in 2010 (see Figure 23). The improved measures include the precise identification of poor households, an analysis of the root causes of their poverty, and the implementation of policies tailored to address issues in rural development. In 2014, the Chinese government introduced a comprehensive household registration system for impoverished households nationwide. The government

deployed officials to villages to gain insights into the underlying factors of persistent poverty. These efforts aimed to formulate strategies to lift poor households out of poverty, considering their specific circumstances and the unique social environment of each region. Moreover, the government harnessed a substantial pool of human resources for poverty reduction efforts. For instance, 963,000 officials were selected and dispatched to impoverished villages. State organs, public institutions, and SOEs were also mobilised for the tasks of assisting in poverty reduction.

I propose a framework of "Condition, Capability, Industry, and Benefits" to encapsulate the measures of poverty alleviation in China. "Condition" refers to preparing the prerequisites for viable private investment and facilitating transformative changes, including constructing infrastructure such as roads and industrial parks, as well as amenities such as schools and hospitals. "Capability" means that the government helps rural residents gain skills, develop work habits, and enhance their employability. "Industry" refers to nurturing industries in underdeveloped regions, creating jobs and generating income through industrial development. For instance, the government invites labour-intensive firms from coastal provinces to set up local workshops, subsidises firms for the low efficiency of these novice workers, develops industry brands and provides micro-credit for small businesses, as in the case of Lanzhou Ramen (see below). "Benefits" indicates the transfer of income and social benefits received by residents, including access to solar photovoltaics (PVs) and all sources of income, such as equity income from agricultural cooperatives.

Table 16: Comprehensive measures implemented in poverty reduction

	Measures
Condition	Construct infrastructure
Capability	Provide vocational training to residents to enhance their work skills
Industry	Promote the relocation of industries from coastal areas to the local region
	Develop industry brand
Benefits	Enhance living conditions and amenities
	Transfer income
	Equity income (e.g., from agricultural cooperatives)
	Income from poverty alleviation jobs

Source: The author

7. 3 Case study in Linxia Prefecture, Gansu Province: Poverty reduction policy

How can the low-level equilibrium trap be broken? In Linxia Prefecture, traditional poverty alleviation efforts mainly focused on infrastructure, such as road construction. Since 2014, multiple poverty alleviation projects have been launched, and investment in poverty reduction has increased significantly.

7.3.1 Infrastructure

Dongxiang County

Dongxiang County, situated in Linxia Prefecture, Gansu Province, was once plagued by poverty. By the end of 2013, there were 24,900 families, totalling 109,100 people, living below the poverty line in Dongxiang County, presenting a formidable challenge for poverty reduction in this region. However, at the end of 2019, the number of individuals living below the poverty line had dropped to 12,800, resulting in a noteworthy decline in the poverty rate from 38.74% to 4.25%.

Bulengou Village, located amidst the mountains of Dongxiang County, faces particularly harsh natural conditions. The evaporation rate (1,485 mm) surpasses the precipitation rate (290 mm), and there is no underground water. As a result, residents previously relied on water cellars to collect rainfall or journeyed great distances to procure water. A striking 80% of residents inhabited poor-quality adobe houses. To address the issue of clean water supply, an investment of over 500 million yuan has been made since 2018. The Dongxiang government has initiated the construction of eight rural safe drinking water projects, established more than 4,000 kilometres of pipelines, and upgraded 2,026 kilometres of existing pipelines. Currently, tap water pipelines have been installed in 97% of rural households, ensuring water supply availability 95% of the time.[29] This development has provided 380,000 residents with access to clean tap water.

Apart from ensuring a reliable drinking water supply, the government has also invested significantly in road infrastructure and public transportation. During the three years preceding 2020, approximately 816.5 kilometres of village roads, roadways, and household drives were paved. By the end of 2019, a total of 184 roads, spanning 1,501 kilometres, had been constructed within the county. By the end of 2018, all 24 towns and 229 administrative villages within the county had access to paved roads. Moreover, comprehensive bus services are now available in administrative villages. The establishment of one county-level passenger station, 11 township bus stations, and 182 bus stops has extended coverage to 45.8% of townships and 79.4% of villages. All 229 administrative villages within the county now have access to public transport as well as postal services.

7.3.2 Industrial development – poverty alleviation

Mode 1: "Land circulation and commercialisation of agriculture"

In a case study from Hezheng County, Gansu Province, a company that focuses on mushroom cultivation, processing, and marketing has established a red matsutake planting base, covering 1,500 mu through land circulation. The company pays an annual land transfer rent of 500,000 yuan to farmers, resulting in an average income increase of over 2,150 yuan per household. The company hires seasonal labour, reaching 62,000 people, and pays a total wage bill of 5 million yuan, generating a per capita income of over 15,000 yuan. The company also hires 300 workers under long-term contracts, 130 of whom are from registered poor households. These workers can earn an annual income of more than 20,000 yuan.

Figure 24: Aligning interests and sharing mechanisms for poverty alleviation through land assetisation

Source: Guo et al. (2021)

Guo et al. (20201) indicate that land assetisation incentivises different stakeholders through a benefit-sharing mechanism, effectively promoting rural poverty alleviation and development. On the one hand, the more effective use of land by the leading

companies leads to the commercialisation of agriculture. On the other hand, it facilitates the transfer of farmers to secondary and tertiary industries and increases their income through land assetisation.

Mode 2: “Cooperatives + Households”

In Sanping village, Hezheng County, a noteworthy initiative involves distributing 20,000 yuan of poverty alleviation funds to each household. These funds serve as equity shares in a livestock-raising cooperative, aimed at encouraging villagers to collectively raise cattle and sheep. Villagers who participate in the cooperative also receive a salary for their work. Previously, each household had one person responsible for raising a small number of livestock. By developing agricultural cooperatives, surplus labour can be freed up, providing additional income. Moreover, these cooperatives prove more efficient at epidemic prevention and livestock management. Since 2018, the cooperatives in Sanping Village have distributed dividends twice, amounting to a total of 250,000 yuan.

In another case, village leaders or town officials mobilise villagers to cultivate cash crops. A small government-funded factory handles the processing, packaging, and marketing of mushroom products. The factory acts primarily as a service provider, not engaging in contract farming or employing villagers as wage labourers.

Producer associations in developed countries play multifaceted roles, including providing goods and services to farmer members, advocating for policies, setting standards, financing research, managing programmes, and overseeing local resources such as water (Fulton, 2005). Compared with these mature and independent

cooperatives that address market and government failure, the cooperatives in Sanping Village focus on increasing income and improving efficiency for villagers. Unlike cooperatives with high human capital (experienced leaders and educated members), which tend to provide good service without needing government intervention to enhance service provision (Huang et al., 2010), the cooperatives in Sanping Village rely on government support for their establishment, including the provision of start-up funds and human capital. As the case of Sanping Village illustrates, government support is crucial to bridge the financial- and service-level gaps in poverty-stricken regions.

Mode 3: poverty alleviation workshops and labour transfer

The Lewis (1954) model of a dual economy underscores "the reallocation of surplus labour" from the subsistence sector to the modern sector as a means to dismantle dualism. Initially, surplus labour migration occurred towards coastal regions due to the dearth of indigenous industries in western provinces. However, the availability of surplus labour is dwindling, posing labour-intensive industries with a choice between upgrading or tapping into the remaining reservoir of unskilled labour. In Linxia Hui Autonomous Prefecture, where unskilled surplus labour still exists, labour transition from the subsistence sector to the modern sector takes two forms: (1) labour migration, and (2) moving labour-intensive industries to these underdeveloped areas. The state orchestrates this shift by encouraging SOEs and private firms to set up factories and workshops in underdeveloped areas. Simultaneously, the government has invested in infrastructure and facilitates the resettlement of mountain residents to newly built residential compounds equipped with amenities such as schools and medical facilities, while also ensuring convenient access to these new workspaces.

The population of Sanping Village totals 1,400, with 600 of them being migrant workers, accounting for approximately 80% of the labour force. Over 60% of the income is generated through labour. Residents participating in poverty alleviation workshops garner an average income of 2,000 yuan, while those who seek employment outside the village can earn monthly wages ranging from 4,000 to 5,000 yuan.

(1) Poverty reduction workshop

Women, particularly housewives responsible for family care, face challenges in migrating. Local governments invite state and private enterprises to establish factories and workshops. Facing rising labour costs in coastal regions, these firms are drawn to the available cheap labour reserves in Gansu Province.

In 2016, Sanping Village launched a relocation project with an investment of 45 million yuan. The mountain residents (116 households) moved to a newly built residential compound with amenities such as a primary school and a hospital, along with easy access to poverty reduction workshops. In the four poverty alleviation workshops I visited in Hezheng County, three were bag manufacturers and one produced sporting goods. These labour-intensive businesses cater primarily to women who cannot migrate. This employment opportunity allows them to balance work with family responsibilities and provides an income that lifts female workers out of poverty, fostering independence and enhancing family wellbeing.

Regarding the wage structure, there were variations among companies. One company adopted a piece-rate wage system, while others offered a combination of a base salary and piece-rate wages. The monthly incomes for workers across the workshops ranged

from 1,000 to 3,000 yuan, with most workers earning approximately 2,000 yuan per month. The government provided an additional 400 yuan per month to each worker. While significantly lower than the wages in developed coastal regions, such a salary remains highly competitive compared to the local income level. Factory managers acknowledged that the allure of low labour costs in Gansu Province was a primary reason for relocating factories here. However, one factory manager noted that local workers were less efficient than their costal counterparts. Maintaining local wages at the current level necessitated paying them 3–4 times the piece rate of coastal workers, causing wage bills to exceed output and resulting in operational losses.

(2) Labour skills training + Micro-credit + Specialty industry

Lanzhou Ramen, named after Lanzhou City in Gansu Province, is a popular traditional Muslim dish. Although numerous Lanzhou Ramen franchise brands exist, they have become a fast-food industry brand with consistent flavours and a standardised menu. Consequently, opening a Lanzhou Ramen restaurant does not entail franchise fees, and the market remains nearly perfectly competitive. To strengthen the brand identity, the Lanzhou City government introduced the “Lanzhou Beef Ramen Local Standards” and the “Lanzhou Beef Ramen Restaurant (Store) Graded Local Standards” in 2000 and 2003, respectively. Supporting policies include small loans to help entrepreneurs enter the ramen business, as well as training programmes for ramen chefs provided by vocational schools.

In Dongxiang County, the Guoqiang Vocational and Technical School offers training in various vocational skills, including cooking (primarily for making Lanzhou Ramen), beauty services, and construction excavation. In 2020, the school trained over 1,500

individuals, including 800 registered poor. Government subsidies, covering tuition, food, and accommodation costs, amounted to 3,000 yuan per person. Moreover, Dongxiang County has provided 1.01 billion yuan in start-up business loans to 13,780 households. These efforts have yielded notable results, with over 3,400 restaurants in Dongxiang County creating more than 30,000 jobs. Ramen chefs typically earn 4,000–5,000 yuan per month, while small ramen restaurants can generate profits of around 150,000 yuan annually.

7.3.3 Social protection and social services

In Dongxiang County, inclusive policies such as subsistence allowances, the New Rural Cooperative Medical Insurance, New Rural Pension, and free education from kindergarten to high school are provided to rural residents.

Social assistance:[30] As of October 2020, 40,315 people (9,816 households) in this county were receiving Dibao, along with 1,239 households (1,587 people) identified as extremely impoverished. Social assistance benefits were extended to 13,401 people (3,105 households), including 7,389 people (1,759 households) who still fell below the poverty line, 4,276 people (981 households) near the poverty line, and 1,736 people (365 households) with unstable conditions. Moreover, community jobs, such as village road maintenance, cleaning, and care services, are provided to registered poor households lacking migrant labour opportunities.[31] These roles offer a monthly salary of 500 yuan, with 4,979 jobs created since early 2020.

Housing provision: Government funded projects, with some household contributions, have renovate dilapidated 18,934 unsafe houses. During the Thirteenth Five-Year

Plan's poverty alleviation programme, 5,255 households (over 28,000 people) relocated to newly built residential compounds with supporting facilities and industrial support measures that created jobs for 12,500 of the relocated individuals. On average, 2.3 people per household are employed.

Medical care: Dongxiang County has established a medical system that includes a second-class first-grade general hospital, a township health centre, standardised village clinics, and enhanced medical support services such as remote diagnosis and treatment for rural residents.

Education: Tuition and miscellaneous fees from kindergarten to high school are waived, with allowances for students in financial need. Since 2013, 1.015 billion yuan has been invested in the construction, renovation, and expansion of 441 schools. Each village has a kindergarten, and every township has boarding schools. The enrolment rate for elementary school is 100%, and for junior high school is 99.2%, with the average years of schooling increasing from 5.2 to 8.3.[32] Additional support policy is available for students in vocational schools and colleges (see Appendix C).

7.3.4 Solar PV industrial policy combined with poverty alleviation

The solar PV industry in China has experienced exponential growth, driven by active industrial policy. Solar PVs are also utilised in poverty reduction to alleviate energy poverty, contributing to industry's expansion. Chen (2018) outlines four phases of industrial policy for solar PVs. Initially, from 2004 to 2008, the focus was on the supply side, specifically PV manufacturing. This then switched to the demand side, concentrating on deploying concentrating solar power (CSP) systems from 2009 to

2011. However, trade disputes with the US and EU[33] led to declining exports and plummeting prices, severely impacting the solar industry. To boost domestic consumption, from 2012 onwards, subsidies were introduced for both distributed PV (DPV) and CSP, with a notable shift towards DPV after 2016. Measures include government pilot programmes, feed-in tariffs, subsidies, and concessional bidding projects (Chen, 2018). Additionally, efforts were made to address challenges such as grid infrastructure limitations, electricity transmission issues, and restrictions on net metering.

Compared to typical industrial policies, China's solar PV industry policy has the following features:

(1) Initially, subsidies were extended to all producers meeting technical requirements to boost capacity. The "Golden Sun Demonstration Scheme", a pivotal initiative launched by the central government, even offered upfront subsidies before power generation, but this led to corruption, fraud, and negligence, prompting a shift to energy-based subsidies.

(2) Public bidding processes now ensure government contracts are awarded transparently, reducing corruption and subsidy fraud.

(3) Subsidies have been gradually reduced, pushing producers to upgrade. As a result, small and medium enterprises (SMEs) faced wage cuts, layoffs, suspensions, and bankruptcies, while larger companies with technological advantages expanded market share.

All these measures that increase capacity and encourage competition among firms have led to dramatic decreases in the costs of solar PVs, enabling widespread residential use. In China, the residential and commercial sectors' solar PVs levelised cost of electricity (LCOE) decreased from $0.162 per kWh in 2012 to $0.067 per kWh in 2019, and from $0.180 per kWh in 2011 to $0.064 per kWh, respectively. And the LCOE for commercial PVs up to 500 kW in China is the second lowest in the world, slightly higher than in India where the LCOE was $0.062 per kWh in 2019 (IRENA, 2020).

(4) Demand-side subsidies combine poverty reduction programmes with solar PV development, helping poor households to access solar products, reduce energy poverty, and utilise solar capacity. Solar PVs, especially their off-grid applications, can efficiently increase the resilience of energy systems and improve energy security in remote rural areas lacking electrical grids or facing high connecting costs. However, from 2013 to 2016, distributed PV projects developed relatively slowly due to high risks, high investment costs, deterring investors. While poor households demand solar PVs, they often lack the purchasing power to afford PV products or raise funds for solar power stations. It is through state subsidies that solar PVs have been put into wide use in rural China; the substantial demand for poverty reduction initiatives absorbs the capacity of solar PVs. In 2016, the Development and Reform Commission issued the "Opinions on Implementing Solar Energy for Poverty Alleviation Programme", aiming to deploy PV power in 35,000 registered poor villages across 16 provinces, ensuring an annual income increase of over 3,000 yuan for 2 million registered poor households. Local governments are encouraged to supplement addition national subsidies for DPV projects. Technological and power transmission challenges have been addressed; and financial institutions are now providing flexible financing services for DPV projects

(Hu and Liu, 2018). The rapid decline in PV product costs promotes local electricity consumption and generates revenue for poor households by selling power to the state grid at subsidised rates.[34]

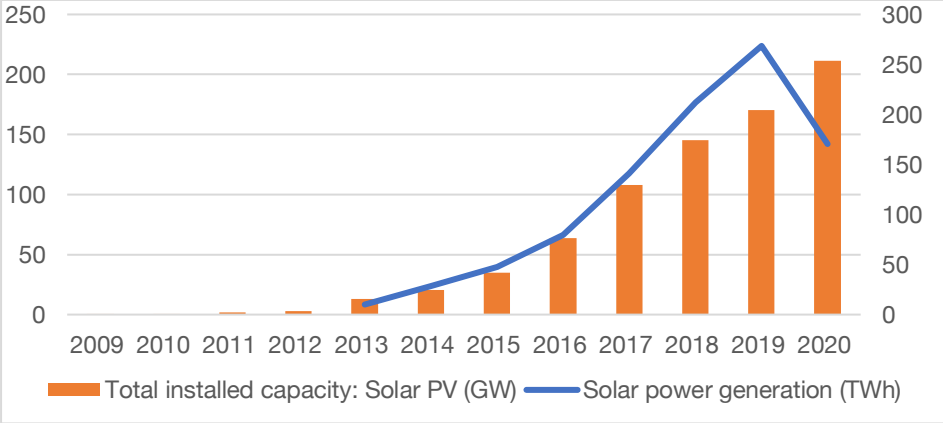
Liao and Fei (2019) found that the solar PV poverty alleviation programme in China emphasised the establishment of small-scale PV stations and confirmed that PV-based poverty reduction programme can potentially deliver PV systems to poor regions, benefiting numerous poor households. By the end of 2020, the total solar PV installation reached 253.43 gigawatt (GW), and the "Solar Energy for Poverty Alleviation Programme" (SEPAP) contributing 8.6%. My fieldwork indicates that Dongxiang County has installed solar PV on agricultural greenhouse roofs, installing PVs in 915 greenhouses with a total capacity of 127 MW, generating an annual income of 113.5 million yuan. In Sanping Village, Hezheng County, 86 households have rooftop PV panels, selling power to the grid at a 0.3 yuan/kWh, supplemented by a state subsidy of 0.7 yuan/kWh.

Table 17: The Solar Energy for Poverty Alleviation Programme

	Date of release	Solar PVs installed by SEPAP (kW)	Solar PVs that received poverty reduction subsidy (kW)	Number of households benefitting from SEPAP
The first round and second round	Updated on 5 August 2020	10,595,009	7,017,022.2	1,482,700
The third round	25 February 2020	11,177,698.31	7,052,568	1,263,285
Total		21,772,707.3	14,069,590	2,745,985

Source: Data from the websites of the Central People's Government and the Ministry of Finance of the P.R.C.[35]

Figure 25: Total installed capacity of solar PVs and the amount of solar power generated



Source: CEIC; original data from the NBS of China and the China Electricity Council

7.3.5 Multiple sources of income for a household

The comprehensive poverty reduction measures in Linxia Prefecture create multiple sources of income for rural households. The income sources include: (1) dividends from livestock breeding cooperatives, (2) income from rooftop solar PVs and solar PV stations in the village, (3) earnings from poverty alleviation workshops, (4) agricultural income, and (5) remittances. Among these, remittances are the primary income source, while government-supported programmes, such as cooperatives, the solar PV poverty reduction initiative, and poverty reduction workshops, also play important roles.

Table 18 presents information about a household in Sanping Village that has recently been lifted out of poverty. It includes details such as age, education, occupation, income composition, benefits, and transfer income received. As demonstrated in the table, relying on a singule source of income is insufficient to lift families above the poverty threshold. Even with a transition to cash crop cultivation, family farming only sustains

families at subsistence levels due to the small scale of operation. Additionally, older generations of peasants, characterised by limited education, frequently engage in the informal sector, taking seasonal jobs that yield modest earnings.

Therefore, a multifaceted approach has been deployed to combat poverty, generating multiple sources of income and enhancing livelihoods, thereby bolstering the financial stability of poor households. Registered poor households benefit from a range of transfer income sources, including dividends from agricultural cooperatives and other forms of financial assistance. Measures designed to improve their living standards include providing better housing, essential facilities, and access to utilities such as water and energy. Essentials such as education for the young generation and social security are also provided at no cost.

Table 18: A typical household that has been lifted out of poverty in Sanping Village

Basic information of the family	Number of people: 4	Husband: WZWu, 50 years old, primary education, healthy Wife: WML, 48 years old, primary education, healthy Son: WZWen, 23 years old, high school education, healthy Daughter: WJJ, 21 years old, college education, healthy
	Registered poor	Lifted out of poverty in 2018
	Land	Arable land: 5.5 mu; woodland: 4 mu
	Access to electricity	Yes
	Old-age insurance	Three people participate in the old-age insurance programme
	Loans	Poverty reduction loan of 50,000 yuan

	Arable land and machinery	Means of production: Field for growing corn: 5 mu Field for growing rapeseed: 0.5 mu Agricultural machinery: one grass grinder
"Two assurances and three guarantees"	Income	In 2019, the total wage income was 40,000 yuan, operating income was 12,920 yuan, net property income was 1,807.62 yuan, and net transfer income was 2,633.76 yuan. The disposable income of the household was 57,361.38 yuan, and the per capita disposable income was 14,340.3 yuan.
	Access to drinking water	Reliable water supply. The water quality meets the standard and has a water quality appraisal certificate from the Water Affairs Department.
	Medical insurance	All four people participate in the New Rural Cooperative Medical Insurance
	House	The family was relocated to this newly built residential community in August 2018. This is a brick house, with a total area of 98 square metres, that is, 24.5 square metres per capita. The housing standard is appraised at Grade B, with an appraisal certificate from the Housing Department.
Benefit policies	1. Support projects that were participated in from 2014 to 2019 include: 5,000 yuan support for the household income-generating activities; 4 ewes (4,000 yuan); 10,000 yuan for cooperative equity; 15,000 yuan for cooperative loans; 52,900 yuan for relocation subsidies; and a 1,800 yuan subsidy for courtyard hardening. 2. Results of the support projects from 2014–2019: agricultural subsidies: 1,247.75 yuan; dividends from the cooperative: 1,200 yuan; other subsidies: 2,800 yuan; disaster compensation: 2,000 yuan; subsidy from the "Yulu Plan" (for labour skill training): 3,000 yuan. The bonus for meeting the development requirements is 10,000 yuan. The salary of the community job (village cleaner) reaches 6,000 yuan/year.	

Income and benefits for 2020	1. Planting 5 mu of corn (expected income: 4,000 yuan) 2. Raise 1 cattle in Fuming Cooperative (expected income: 2,000 yuan) 3. WZWen has worked in Lanzhou for more than 10 months, with an estimated income of 30,000 yuan, and WZWu's income from working in the county is about 10,000 yuan. 4. Participation in the New Rural Cooperative Medical Insurance, where the government has waived 640 yuan of premiums and 400 yuan for the old-age insurance premium. 5. A dividend of 2,000 yuan will be distributed from the cooperative, and 5,000 yuan for meeting some of the development requirements. 6. WML has been offered the job of a cleaner in the village, with an annual income of 6,000 yuan.

Source: The author's fieldwork

Evaluating the sustainability of poverty reduction programme and the risks of relapsing into poverty

However, it is noteworthy that there are risks of relapsing into poverty. Two reasons contribute for this concern. First, fiscal resources and social support mobilised may be unsustainable after achieving the goal of poverty reduction in the probation period. Subsequently, once governments encounter financial difficulties, these fiscal transfers and social support may be withdrawn. The second reason is that economic downturns may lead to the shutdown of poverty reduction workshops and job losses. These concerns are valid, and future research should focus on monitoring the long-term effects of the poverty reduction programmes. However, the advantage of having multiple sources of income is that the disruption of one source of income may not stop all of a family's income. If some poverty reduction actions have already established sustainable growth dynamics, fiscal difficulties may not severely affect people's income and livelihood. Moreover, infrastructure construction and skill training are lasting investments. Regardless of subsequent economic conditions, the infrastructure built

during the economic boom will not be demolished, and houses built for the poor will still provide a decent living place. Skills learnt cannot be unlearn, and people who have gained skills from training schools and rural cooperatives can continue to employ their skills to generate income. The issue lies in whether macroeconomic conditions can generate sufficient business and employment opportunities. If industries in China were widely bulldozed by economic crises or trade wars, the bottom percentiles would be the first to feel the brunt. Based on criteria such as reliance on persistent fiscal transfers, resilience to market vagaries, and establishment of sustainable growth dynamics, the following table evaluates the resiliency of the documented poverty reductions measures.

Table 19: Evaluating the resilience of poverty reduction measures

Infrastructure	
Drinking water supply	Resilient
Road infrastructure and public transportation	Resilient
Industrial development	
Land circulation and commercialisation of agriculture	Medium risk of disruption
Agricultural Cooperatives	Resilient
Poverty reduction workshop	Medium risk of disruption
Labour skills training + Micro-credit + Specialty industry	Resilient
Social protection and social services	
Social welfare： Dibao, community jobs, free education, medical care	Medium risk of disruption
Housing provision:	Resilient
Solar PV	Resilient
Other income sources	
Household farming	Resilient
Income from employment or casual labour	Medium risk of disruption

Source: The author.

7.4 Conclusion

The case of Linxia Prefecture in Gansu Province represents one of the most underdeveloped regions in China. Before the implementation of poverty reduction projects, Linxia Prefecture was characterised by a low-level equilibrium, marked by insufficient capital, technology, human capital, and infrastructure. The comprehensive poverty reduction policies featuring "condition, capability, industry, and benefits" prepare the conditions for development, develop capabilities, create employment opportunities through industrial development, and provide benefits and transfer income to improve living standards. This case offers multiple perspectives to understand poverty and the strategies to dismantle the poverty trap.

First, from the angle of structural change, a low-level equilibrium can be viewed as an economy with substantial idle resources that achieves full employment in the sense that surplus labour, due to its unemployability, is not considered part of the labour force. For example, housewives are not included within the labour force since they lack the necessary skills or hiring them is not economically viable. These barriers are not insurmountable, though it requires orchestrated investment and development strategies to utilise these idle resources. Development and structural change can be viewed as processes that transform surplus labour into productive workers and utilise idle resources in modern capitalism.

Second, from the capability approach perspective, China's poverty reduction projects enable residents to acquire working skills and modern perspectives, as well as to develop collective capabilities through production and coordination. Individuals

cultivate their livelihoods and industries flourish, leading to self-sustaining growth in the long run. Capabilities are acquired through productive activities.

Furthermore, from the angle of the constraints and handicaps encountered by vulnerable groups, the case of Linxia reveals that poverty results from a combination of factors, including regional geographic constraints and micro-level family circumstances. Persistent poverty itself is also a handicap, which impairs both human resources and capital that could be utilised in development. It highlights the importance of state intervention in breaking the low-level equilibrium. Rather than waiting for the trickle-down effect to reach the poorest, inclusive development requires a high-level consensus over development and orchestrated action to support industrial development, strengthen the capabilities, and eliminate the hindrances to economic development.

The state has exhibited efficiency and accountability in poverty reduction and industrial development. How can we perceive the sources of efficiency within the governance system? The incentives stem from commitment. With the Xi administration's commitment to eradicate extreme poverty by 2020, poverty reduction becomes a priority for officials at all levels. Moreover, this system requires officials to shoulder unlimited responsibility in clearly defined projects.

This chapter also illustrates the functioning of the bureaucratic system in implementing poverty reduction policy and the dynamic interaction of the state and society. Regarding the organisational arrangements, there are three levels of initiatives. (1) The grassroots government, whereby the comprehensive poverty alleviation programme has been decomposed into measurable components, requiring the participation and coordination

of multiple departments (see Appendix B). The grassroots initiatives are community-based approaches aimed at identifying income boosters according to the specific conditions of poor households. Grassroots officials record information about poor households' education, health, and income sources, communicate state policies and subsidies with the villagers, and assist them in devising methods to increase their income. They are also responsible for implementing tasks such as establishing agricultural cooperatives and industrial parks and organising community resettlement. These officials also demonstrate great patience and make tremendous efforts through the poverty alleviation programme, which involves painstaking work. For example, to persuade villagers to relocate into the newly built residential compounds, both grassroots officials and officials dispatched from higher level governments visited villagers' homes several times every week. (2) The provincial government coordinates meso-level resources, while nurturing and facilitating the development of industries. For example, the provincial government mobilises firms in coastal provinces to establish local workshops, nurtures the industry brand of ramen restaurants through establishing the industry standards, provides free skill training, and facilitates micro-credit initiatives. (3) The central government is responsible for redistributing resources to western provinces and integrating the poverty alleviation programme with industrial policy and the development agenda. Also, a monitoring system is used to ensure the effectiveness of the programme and prevent corruption and the misuse of poverty alleviation funds. Chen and Lees (2016) describe this mechanism as "hook responsibility", which delegates responsibility and liability downwards from central to subnational governments, helps the central government limit ex-post opportunism, and ensures that subnational governments effectively implement the mandated policies.

8. Conclusion

The components of inclusive growth defined by UNCTAD include the "economy, living condition, equality, and environment", but how these goals can be achieved in development remains an open question. This research focuses on "economic growth, distribution, environment, and poverty reduction" for pursuing inclusive and sustainable growth and argues that developing countries can achieve these goals by implementing proper strategies for globalisation and adopting specific development patterns. This poses challenges to the mainstream economics from the following perspectives.

The mainstream economics does not examine the potential existence of different development patterns that have varying social and economic implications. I suggest that different configurations of resources may have similar growth rates but diverging implications for social development and economic distribution. Therefore, it is possible to pursue a development pattern with fairer distributional outcomes without lowering economic growth rates.

This research identifies the challenges and power dynamics that underlie the market economy, including power relations between capital and labour, a hierarchical labour division in the global economy, with developed countries obtaining a larger surplus compared to those lower down the GVC hierarchy, mispriced environmental costs that create "unequal ecological exchanges", and persistent poverty as a handicap that impairs both human resources and capital which could be utilised in development. Correcting these "market failures" and restraining the excessive market power of capital will not trigger a trade-off between economic growth rates and distributional

outcomes. The inclusiveness and sustainability can be achieved without harming growth potential by overcoming challenges underlying the capitalist world system, seizing opportunities in GVC participation, nurturing advanced productive capabilities, mitigating the negative impacts of unequal ecological exchange, and breaking persistent poverty traps. By doing so, this research provides some guidelines (not exhaustive) for fostering inclusive and sustainable growth, following general principles while adapting to local conditions and constraints.

One pattern of inclusive development is through the full employment of surplus labour and idle resources. The mainstream growth models assume the full utilisation of available labour within an economic system. However, the common practice of estimating full employment in the real world excludes those who are not actively seeking a job or lack the skills for employment. Economies with low labour participation rates could be considered as "full employment" in practice. The significance of incorporating surplus labour and idle resources into production systems is to move towards the production potential/frontier of the country. For mature economies, the gap between the theoretical and practical full employment may be negligible, while this gap could be substantial for a developing country with a large surplus labour that is not included in the labour force. This research provides a new angle that "development" requires to utilise idle productive resources and moving towards its production potential/frontier. By creating sufficient quality jobs in the modern sector and transitioning surplus labour into productive workers or middle-class employees, structural change can be triggered, and this development process typically involves a high economic growth rate. Developed countries can also pursue more inclusive growth by exploiting idle resources and employing surplus labour, typically

by pursuing a production-oriented growth pattern rather than devoting capital to fictitious activities.

Increasing employment also has the potential to generate fairer market outcomes. The inequality debate has long been disconnected from the discussion of distribution, overlooking distributional conflicts as a systematic cause for inequality. When there is surplus labour or a large reserve army of labour, both the Lewis model and the Marxist model predicts that the distribution will be pro-capitalist. Full employment of surplus labour can enhance the bargaining power of workers and improve distributional outcomes. The power relations between capital and labour underlies the rise and retreat of welfare states in mature economies and the rising bargaining power of labour in China. In this vein, Koo (2020) argues that manufacturing is a great social equaliser: when manufacturing industries are thriving, people without advanced education can still earn a decent living.

However, the degrees of inequality observed in the real world are influenced by policy choices and a complex interplay of social, historical, and institutional factors. These factors intertwine and offset each other, making it very difficult to ascertain the significance of a single contributing factor. For example, China has performed well in terms of increasing employment, diminishing market segmentation, and removing certain institutional barriers, which tends to reduce inequality, while rapid economic growth can increase the "skill premiums" for some individuals, and China is no exception to the trend of financialisaton which worsens distributional conflicts. Therefore, it is notable that improving a single contributing factor may not reduce the overall inequality. However, it is still worthwhile to examine the distributional

implications of specific factors.

Redistribution policies, including progressive taxes and equal service provision, are crucial for addressing inequality and are employed by most countries as the primary tool to achieve this goal. China has historically faced challenges in implementing progressive taxes and ensuring equal service provision. In pre-reform China, the provision of essentials and services were according to the hierarchy of work units. The state sector had been given priority over the collective sector in the supply of finance, material, and labour, allowing the provision of higher wages and benefits in the state sector (Bian, 1994; Guo, 2006). Rural areas, situated at the bottom of the hierarchy, provided surplus to support the development of urban industries. During China's reform process, although the agricultural tax and the restrictions on regional migration were abolished, unequal service provision between rural and urban residents still exists, hindering the development of rural areas.

Furthermore, inclusive development emphasises the need to compensate individuals for disadvantages they endure because factors leading to their poverty are beyond their control. In addition to improving access to essential services, the state is expected to play a role in mitigating these adversities through active development policies such as investing in infrastructure, cultivating industries, and developing productive capabilities.

Another criterion for inclusive development is environmental sustainability. The mainstream economics considers environmental impacts as externalities and hence removes the environmental costs from the agenda. It will cause the appropriation of

those whose livelihoods depend on nature and the deterioration of terms of trade for primary exporters. Unequal ecological exchanges exist both internationally and domestically. Internationally occurring unequal ecological exchanges between countries may be alleviated by improving trade terms and pricing mechanisms. However, it often shifts the issue to a domestic level, creating conflicts between capitalists who receive environmental compensation and uncompensated ordinary people. The latter includes those whose lives are affected by environment deterioration and those whose livelihoods depend on nature. Therefore, to address climate issues, this research emphasises the importance of collective and proactive environmental conservation efforts from both the state and society.

By applying these criteria for inclusive development, this research employs a comparative analysis of development strategies in pre-reform and post-reform China and conducts cases studies in three rural regions to investigate how to pursue inclusive development. The comparative analysis of the development strategies employed in pre-reform and post-reform China focuses on whether economic growth engages surplus labour. The heavy industry-oriented development strategy employed in the pre-reform era developed productive systems and indigenous productive capabilities, but it failed to absorb surplus labour, leading to stagnant living standards for the majority. In the post-reform era, the labour-intensive development pattern has absorbed surplus labour, triggered structural change, and dismantled dualism. Yet, engaging surplus labour in productive activities faces a constraint of limited domestic demand that can be overcome through participation in GVCs, which allows China to create sufficient employment in the modern sector. Limited domestic markets pose constraints primarily in the early stage of development, where the domestic population has low purchasing

power. As people's income levels increase, domestic consumption can better support the development of domestic industries.

However, developing countries' participation in GVCs faces a second dilemma, which is how to avoid falling into the trap of racing to the bottom. The Yuhuan case investigates the question of how SMEs manage to avoid racing to the bottom when participating in GVCs. The local production system supports the business model of a "components supermarket", catering to the demand for a wide variety of material specifications but small order quantities. Such a business model occupies a specific niche in the GVCs, where it can avoid competition from the next tier of emerging economies with lower wages and prevent confronting developed countries that focus on highly automated sectors. Productivity growth offers a possibility for wage growth, but it will not necessarily translate into wage growth. This research also suggests the following conditions that drive up wage growth. (1) Massive investment made by a large number of SMEs in Yuhuan exhausts the local surplus labour. (2) The SMEs in Yuhuan primarily adopt a labour-intensive and capital-intensive business model, which sustains its high demand for labour. Large investment makes labour the scarce factor, and full employment increases labour's bargaining power. In this context, the industrial structure affects the labour market supply and demand, which determines the wage structure.

The case of Alxa investigates the pursuit of green transition and its implications for the economy and society. Alxa is a resource-abundant but environmentally fragile area, where the impairment of natural capital would lead to immediate consequences that cannot be neglected. Taking environmental costs into the cost–benefit consideration,

the original development pattern before the green transition, which was based on the endowment of natural resources, is no longer optimal. This “mining-led growth” pattern transfers environmental costs to those whose livelihoods are dependent on nature, worsening distribution and people’s welfare. In contrast, green transition and economic diversification through developing green agriculture and tourism creates new sustainable livelihoods for the residents, facilitates the replenishment of natural capital, and improves people’s wellbeing. The case study indicates that despite facing the same conditions and constraints, it is viable to pursue a distinct development pattern which is environmentally sustainable and yields more favourable distributional outcomes without lowering economic growth rates.

The case of Linxia Prefecture in Gansu Province represents one of the most underdeveloped regions in China, where there is a lack of capital, technology, human capital, and infrastructure. It highlights the importance of state intervention in breaking the low-level equilibrium. The state’s poverty alleviation programmes featuring “condition, capability, industry, and benefits” is necessary to dismantle the poverty trap. Such comprehensive poverty reduction programmes prepare the necessary conditions that induce viable private investment, help rural residents gain skills and develop work habits, nurture industries that can create jobs in underdeveloped regions, and enhance the living conditions for rural residents through in-kind benefits, income transfers, and social welfare programmes. The Linxia case not only illustrates how surplus labour is integrated into the labour force in fostering inclusive development, but also demonstrates the importance of state assistance in mitigating the handicaps and constraints faced by vulnerable groups, which may not be overcome without external support.

This research debunks the view in mainstream economics that narrows the state's role to providing non-rivalrous and non-excludable public goods that private enterprises would not supply, suggesting that the state should play a pivotal role in promoting inclusive development. First, the state should act as a growth facilitator, developing comparative advantages, facilitating firms to move up the GVCs, and navigating the unequal world system. Yet, the state should carefully select suitable growth strategies and pay attention to the potential negative impacts caused by preferential industrial policy. Second, the state should promote equality not only via redistribution and service provision, but also through capability enhancement for vulnerable groups. Instead of waiting for trickle-down effects to reach the poorest, the state should implement active development policies targeting impoverished regions and vulnerable groups, thereby promoting inclusive and balanced development. Third, the state should mitigate market failures such as mispriced environmental costs. The Alxa case discusses the joint environmental conservation efforts by the government and society, including afforestation and the adoption of water-saving practices through collective actions, compensation for rural residents adversely affected by environmental degradation, and transition to sustainable livelihoods. Fourth, in addition to demonstrating the role the government can play in pursuing inclusive and sustainable development, this research also shows how the government achieves these goals – specifically through the state's governance practices and policy innovations. These include state–society cooperation in Alxa, where social entrepreneurship conducts experiments and governments subsidise large-scale replication, as well as the comprehensive poverty reduction programmes in Gansu province that involve

grassroots-level implementation, regional cooperation at the provincial level, along with resource transfer initiatives led by the central government.

[1] Data are from *Taizhou Statistical Yearbook 2022*, accessed September 10, 2023, http://zjzd.stats.gov.cn/tz/dcsj/ndsj/202212/t20221226_106729.shtml; *Statistical Bulletin on the National Economy and Social Development of Alxa League* in 2021, accessed September 10, 2023, http://www.tjcn.org/tjgb/05nmg/37198.html; *Statistical Bulletin on the National Economy and Social Development of Linxia Prefecture* in 2021, accessed September 10, 2023, http://www.tjcn.org/tjgb/28gs/37095.html

[2] The competition for the top fifty strongest counties (cities) excludes tier one and tier two cities. In 2021, the top five included Yiwu, Yuhuan, Kunshan, Jiangyin, and Zhangjiagang.

[3] Data are from Taizhou government website. Accessed July 1, 2024, https://www.zjtz.gov.cn/col/col1229502868/index.html

[4] "Three Regions and Three Prefectures" are deeply impoverished areas at the national level and are the toughest "hard bones" in China's poverty reduction campaign. The "Three Regions" refer to the Tibet Autonomous Region, Tibetan areas in the provinces of Qinghai, Sichuan, Gansu, and Yunnan, as well as the four regions in southern Xinjiang: Hotan Prefecture, Aksu Prefecture, Kashgar Prefecture, and the Kizilsu Kyrgyz Autonomous Prefecture. The "Three Prefectures" refer to Liangshan Prefecture in Sichuan, Nujiang Prefecture in Yunnan, and Linxia Prefecture in Gansu.

[5] "Two Prefectures and One County" refer to Linxia Prefecture, Gannan Prefecture, and Tianzhu County.

[6] Covering 118 countries, Rodrik (2013) estimates that the coefficient of unconditional convergence (beta) is 2.9% a year. This implies that industries that are one-tenth of the way to the technology frontier (roughly the bottom 20% of the industries in the sample) experience a convergence boost in their labour productivity growth of 6.7% per annum.

[7] Fuyao chose the US as one of its production sites due to the difficulty of transporting glasses, as well as lower energy prices and taxes. A characteristic of the glass industry is to locate production sites near their markets.

[8] The distortion stems from China's industrial structure being heavy-industry oriented in the pre-reform era. However, based on China's comparative advantage, the pre-reform era should have focused more on developing labour-intensive industries and consumer goods, significantly improving people's living standards.

[9] Labour force data are from the World Bank website. Accessed July 21, 2023. https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=CN

[10] The *Interim Measures for the Integration of Urban and Rural Pension Insurance Systems* was issued by Ministry of Human Resources and Social Security of the P.R.C. (2014).

[11] Five Guarantees households were those who lacked the capacity to work, supporters, or other sources of income. In such cases, the collective provided them with assistance in the form of food, clothing, fuel, education (for the young), burial (for the deceased), and other expenses, but the benefit levels were extremely low (Wu, 2015).

[12] China also followed this heavy industry-oriented development strategy in the pre-reform era. The central government repeatedly mobilised resources to facilitate economic growth (see, for example, the CCCPC Publicity Department, 2023).

[13] Since the labour market is not a single, homogeneous entities where wages are equalised nationwide; rather, regional labour markets vary in demand and supply, influenced by regional economic development levels, resulting in different regional wage levels. Therefore, a "labour shortage" refers to a shortage of local and migrant employable workers; not indicating that China has eliminated surplus labour.

[14] Another explanation was that the salaries of the assemblers and technicians included overtime pay. However, due to the concern about violating China's labour laws that limit the workday to eight hours, all the firms I interviewed refused to disclose any information on overtime hours. Therefore, I used the wage income, which may include overtime pay, in my research.

[15] One possible solution would be to reach an agreement among herders that allows them to graze livestock animals on each other's pastureland. However, the residents have not yet reached an agreement after years of negotiations.

[16] In 2000, the State Council decided to balance the water resource of the Heihe River between the upper stream and downstream areas. Since the 17th of July 2002, water has flown into the east Juyanhai (lake), which had been dry for 10 years. The water has rescued the Ejina Oasis, and now the groundwater level in the Juyanhai Delta has risen by an average of 40 cm (Alxa League Forestry and Grassland Bureau, 2020a).

[17] Herders are free to graze camels and horses because camels and horses do not cause severe harm to the grassland. For example, raising camels is tiresome work, and one household can raise at most 60 camels. Camels can trample rat burrows and are very important for maintaining the grassland ecosystem.

[18] The amount of ecological compensation a household can receive is according to the number of family members, rather than the area of the pasture it owns.

[19] A long-held view was that areas with an annual rainfall of less than 200 mm were not suitable for aerial seeding and afforestation.

[20] Although there were negative comments, many residents indicated their satisfaction with the "Ten Full Coverage" policy. For example, one interviewee showed me his house: "*This house with access to tap water and electricity was built in 2015. Thanks to the Ten Full Coverage policy, the costs for the house and some other housing facilities were shared between households and the government.*

For example, I only paid tens of thousands of yuan for this house, as people only need to pay 500 yuan for something worth 3,000 yuan".

[21] Yang (2012) documents that SEE explored various environmental protection methods, including the potential of ecological migration. SEE conducted a survey indicating that residents might accept migration with sufficient compensation. However, the compensation costs were too high for an NGO like SEE, and migration would potentially cause negative emotions. As a result, SEE shifted its focus to rural development by facilitating the formation of project management committees comprising village peasants and herdsmen. These committees liaised with SEE, proposed projects, and applied for funding. For instance, in 2008, two application rounds resulted in 19 projects with a total investment of 921,750 yuan. Apart from self-raised funds, SEE also received aid from international organisations. An evaluation report highlighted the success of projects such as firewood-saving initiatives and solar water heaters funded by the Australian Aid Office, while projects like biogas digesters, solar cookers, and gasifiers funded by SEE did not achieve the desired outcomes (Yang, 2012). The successful projects funded by SEE were wind power and PV power generation.

[22] In 2009, SEE launched six investigation projects: "Remote Sensing Investigation Project of *Haloxylon ammodendron* Forest in Ulan Buh Desert", "Scientific Investigation Project of Natural *Haloxylon ammodendron* Forest in Ulan Buh Desert", "The Situation of Rat Damage in Ulan Buh Area, the Mechanism, and the Prevention Measures", "Research Project of Groundwater Resources in Ulan Buh Desert and its Ecological Environment Effects", "Ulan Buh Desert Pictures Project", and "The Pilot Project of Reforming the Collective Ownership of Forests". The Development and Reform Commission of Alxa League government also initiated the "The Demonstration Project of Ulan Buh *Haloxylon* Forest Protection".

[23] At that time, some other business groups were also seeking to control desertification and develop the sand industry such as *Cistanche* farming, for example, the Elion group in Ordos, Inner Mongolia.

[24] SEE will exit the afforestation project once the goal of desertification control is achieved, since its aim is not to transform all desert into grassland, but to achieve a harmonic coexistence between the desert and human activities. As *Haloxylon* absorbs water vapour, groundwater, and nitrogen, the accumulation of which is particularly slow in arid regions, planting too much *Haloxylon* may have adverse effects on environmental conservation.

[25] For the Notice on Water-saving Agriculture Scheme [No.1, 2010], see http://fsou.com/html/text/lar/171837/17183702.html.

[26] One estimate suggests that sustainable water consumption for farming in Alxa is 550 cubic metres per mu, without depleting underground water. Household water usage is not subject to this irrigation quota.

[27] Data are from the World Bank website. Accessed September 6, 2023. https://data.worldbank.org/indicator/SI.POV.NAHC?view=chart

[28] Notice from the Central Committee of the Communist Party and the State Council on Accelerating the Transformation of Impoverished Areas. Accessed September 6, 2023. https://www.gov.cn/gongbao/shuju/1984/gwyb198425.pdf

[29] Dongxiang County government work report 2021. Accessed August 10, 2021. http://www.dxzzzx.gov.cn/XxGk/Content?ItemID=7ea90f5c-9395-4526-906a-2676902bf47d

[30] Social assistance in China is via a means-tested programme.

[31] To maintain the welfare nature of such jobs, Dibao recipients and relatives of village cadres are excluded from obtaining such positions.

[32] Dongxiang County government work report 2021. See http://www.dxzzzx.gov.cn/XxGk/Content?ItemID=7ea90f5c-9395-4526-906a-2676902bf47d

[33] The anti-dumping measures implemented by the EU expired in September 2018. See https://ec.europa.eu/commission/presscorner/detail/en/MEMO_13_497

[34] There are three modes of operation as well as benefit distribution. (1) The village collectives build the solar power stations with funding from the government, distribute most of the income to eligible poor households, and keep a small amount as public welfare funds. (2) Households install solar PV systems on the rooftops or courtyards and keep all the income generated. (3) Local governments and private firms jointly fund the solar power stations, and governments or their investment entities act on behalf of poor households and distribute the equity income to the poor households on a monthly (or quarterly) basis. (see the Opinions on Implementing Solar Energy for Poverty Alleviation Programme).

[35] See the Notice Regarding the Adjustment of Subsidy Catalogue for Renewable Energy Electricity Price Surcharge, available at http://www.gov.cn/zhengce/zhengceku/2020-08/26/content_5537487.htm, and the Notice Regarding the Announcement of Subsidy Catalogue for Renewable Energy Electricity Price Surcharge, available at http://jjs.mof.gov.cn/tongzhigonggao/202002/t20200224_3473549.htm

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Appendix

Appendix A: Planned purchase of Agricultural Output

Year	Percentage of state purchased amount in total output (%)	Percentage of net purchase (%)	Year	Percentage of state purchased amount in total output (%)	Percentage of net purchase(%)
1952	20.3	17.2	1966	24.1	17.9
1953	28.4	21.5	1967	22.7	17.3
1954	30.6	18.6	1968	23.3	18.1
1955	27.6	19.7	1969	22.1	16
1956	23.6	4.9	1970	22.7	17.5
1957	24.6	17.4	1971	21.2	15.9
1958	29.4	20.9	1972	20.1	14.1
1959	39.7	28	1973	21.2	15.5
1960	35.6	21.5	1974	21.2	16
1961	27.4	17.5	1975	21.4	15.4
1962	23.8	16.1	1976	20.3	14.2
1963	25.9	17	1977	20	13.3
1964	25.3	17	1978	20.3	14
1965	25	17.3			

Source: Ministry of Agriculture of the P.R.C. (1989, p. 410-411).

Appendix B: Governance structure in poverty reduction: Hezheng County

	Government Officials	Responsibilities
County Government Leaders	Deputy Secretary of the CPC County Committee	Poverty reduction, agriculture/rural areas, and drinking water supply
	Member of the Standing Committee of the CPC County Committee, and Secretary of the Political and Legal Affairs Commission	Responsible for the renovation of dilapidated houses, civil affairs, law enforcement, emergency management, the petition system, veterans, transportation, etc.
	Member of the Standing Committee of CPC County Committee, and Minister of the Publicity Department	Responsible for education, labour skills training, tourism, etc.
	Member of the Standing Committee of CPC County Committee	Responsible for public health, healthcare, disability assistance, electricity, etc.
	Deputy County Governor A	Responsible for civil affairs, transportation, environmental protection, disability assistance, relocation, and other work
	Deputy County Governor B	Education, public health, healthcare, labour services, etc.
	Deputy County Governor, and Director of County Public Security Bureau	Maintain social stability, justice, veterans, petition system, market monitoring, etc.

County Government Departments and Bureaus	Director of County Office of Poverty Alleviation	Monitor the number of people living in poverty and provide household assistance.
	Director of Educational and Science Bureau	Implement education policies and the management of teachers and students.
	Director of County Health Bureau	Management of county hospitals, township hospitals, village clinics, village doctors, etc.
	Director of County Healthcare Bureau	Responsible for medical reimbursement, financial aid for serious diseases, and issuing medical aid cards for chronic illnesses.
	Director of Housing and Construction Bureau	Responsible for the renovation of dilapidated houses.
	Director of Civil Affairs Bureau	Provision of Dibao, "Five Guarantees", emergency relief, etc.
	Director of Human Resources and Social Security Bureau	Monitor labour transfer, skills training, old-age insurance, disputes over migrant workers' wages, and start-up business loans.
	Director of Agriculture and Rural Affairs Bureau	Responsible for peasants' cooperatives, providing industry support and subsidies, agricultural insurance, etc.
	Director of Water Affairs Bureau	Responsible for safe drinking water and stable water supply, etc.
	Head of County Drinking Water Station	Responsible for installing water taps at households, water fee collection, pipe network maintenance, etc.
Town level	Secretary of the CPC Town Committee	Implement welfare policies in the town.

	Mayor	Implement welfare policies in the town.
	Town-level village leaders	Implement welfare policies in the village.
	Director of the Town Police Station	Maintain social stability, household registration management, etc.
	Dean of Town Health Centre	Provide public health services, diagnosis, and treatment of common diseases.
Village level	CPC Village Branch Secretary, and Director of Villagers' Committee	Implement welfare policies in the village.
	Leader of the Village Support Team	Implement welfare policies in the village.
	Village doctor	Provide public health services, diagnosis, and treatment of common diseases.

Source: The author, based on information from the fieldwork.

Appendix C: Comprehensive poverty alleviation policies in Hezheng County, Linxia Prefecture

Social assistance	1. Rural Dibao allowance: 335 yuan per month for the first category, 318 yuan/month for the second category, 84 yuan/month for the third category, and 58 yuan/month for the fourth category. 2. Standards of assistance for disabled persons are as follows: 200 yuan/month per person for the degree 1 impairment of intelligence, mental, physical condition, vision, and degree 2 impairment of intelligence and spirit; 50 yuan/month for degree 1 impairment of hearing, speech level one and degree 2 impairment of physical condition, vision, hearing, and speech. 3. Subsidy for nursing care for severely disabled persons: A subsidy of 800 yuan will be granted to individuals with intellectual and psychological disabilities who were registered before December 31, 2017. 4. Orphan assistance: The basic living expenses for scattered living orphans are 800 yuan/month per person, and 1160 yuan/month for each orphan living in orphanages. 5. Relief for people in extreme poverty: Scattered living rural residents in extreme poverty can receive a subsidy of 5226 yuan/year per person. 6. Basic pension for urban and rural residents: A minimum of 108 yuan/month per person. 7. Old age assistance: 100 yuan/month per person for those over 100 years old, 60 yuan/month for ages 90-99, 25 yuan/month for ages 80-89. 8. Funeral subsidy: A funeral subsidy of 1,236 yuan will be given after the death of a person who had participated in the Pension Scheme for Urban and Rural Residents.

	9. Renovation of dilapidated houses: Registered poor households, Dibao households, scattered living extremely poor individuals, poor families with disabled persons, and special care recipients can receive a subsidy of 20,000 yuan/household. 10. Renovation of dilapidated houses: Other rural households are eligible to receive a subsidy of 10,000 yuan. 11. Renovation of dilapidated houses: Different levels of subsidies are provided to the poor households unable to build houses. The specific subsidy standards are determined by policies of the county government. 12. Poverty alleviation through relocation: For those eligible for relocation will follow these steps: application by poor rural residents, preliminary review and public notice by the village committee, review and public notice by the township government, final confirmation by the county government, signing of relocation agreements by rural residents, and relocation through centralised or scattered resettlement. Relocation projects will provide essential facilities such as water, electricity, roads, and public service such as education, health, and entertainment. The per capita subsidy for registered poor individuals is 57,740 yuan, with a co-payment limit of 2,500 yuan. 13. Subsidy for demolishing old houses. 14. Subsidy for renovating dry toilets and paving courtyard for the registered poor households
Poverty reduction through education	15. Pre-school education stage: Exemption of pre-school childcare and education fees according to actual costs, which amounts to 1,000 yuan per year per person. 16. Compulsory education stage: Exemption of textbook fees, tuition, and miscellaneous fees.

	17. Compulsory education stage: Living allowance of 1,000 yuan per year per person for boarding students with financial difficulties in elementary school, and 1,250 yuan per year in junior middle school. 18. General high school stage: Exemption of textbook fees, tuition, and miscellaneous fees. 19. General high school stage: Students with financial need will receive a stipend of 2,000 yuan per year. 20. Secondary vocational education: Exemption of tuition 21. Secondary vocational education: Students majored in agriculture in their first and second years and students with financial difficulties in other majors will receive a grant of 2,000 yuan per year. 22. Higher education stage: Full-time students enrolled in independent undergraduate colleges, higher vocational schools, and colleges for student loans not exceeding 8,000 yuan per year. Graduates can apply for student loans not exceeding 12,000 yuan/year. 23. Higher education stage: Higher-level vocational schools, colleges and universities within the province will exempt or subsidise tuition and textbook fees for college students from registered poor families, with a standard subsidy amount of 5000 yuan per year. 24. "Yulu Plan": Students from registered poor households, first-year students in technical schools, and first-year or second-year students in secondary technical schools, colleges and vocational schools can receive 1500 yuan per semester.
Poverty reduction through medical insurance	25. Full subsidy for medical insurance premiums for urban and rural residents: The medical insurance payment standard in 2019 is 220 yuan per person, and a full subsidy is provided to the first and second categories of rural Dibao recipients, the extreme poor, and orphans.

	26. Fixed subsidy for medical insurance premiums for urban and rural residents: A fixed subsidy of no less than 30% for the personal payment is provided to the third or fourth categories of Dibao recipients, urban Dibao recipients, and the registered poor. 27. “One-stop” reimbursement of medical expenses: the registered poor individuals hospitalised at all levels of medical institutions are eligible for the “one-stop” policy, allowing them to see a doctor first and make payments later. No cash deposit is required by the hospital. Their actual payment should not exceed the amount of copayment. 28. Removal of the requirement of a hospitalisation deductible line for registered poor individuals at all levels of designated medical institutions. The reimbursement rate for common diseases increased by 5%, and the reimbursement rate for 50 major diseases is increased from 70% in 2016 to 75%. 29. Urban and rural medical assistance: People from households that receive minimum living allowances, the extreme poor who receive assistance, registered poor households, elderly individuals from low-income families, minors, severely disabled and seriously ill patients, and others facing special difficulties can receive reimbursement and assistance according to the policies of "basic medical insurance + critical illness insurance + medical assistance". The assistance ceiling is suggested to be 30,000 yuan, and 60,000 yuan for serious diseases. 30. Preferential policies for serious illness insurance: The threshold for serious illness insurance reimbursement for the poor, Dibao recipients, and the extremely poor has been reduced to 2,000 yuan. For expenditures above the threshold, the medical insurance will reimburse 72% of expenses not exceeding 10,000 yuan (including 10,000 yuan), 77% for expenses from 10,000 to 20,000 yuan, 82% for expenses from 20,000 to 50,000 yuan, 87% for expenses from 50,000 to 100,000 yuan, and 90% for expenses exceeding 100,000 yuan.

	31. Chronic disease card: Insured individuals suffering from one of the chronic diseases covered by the medical insurance and meeting the basic diagnostic criteria can receive a chronic disease card if their application be approved, and they will receive subsidies for expenditures on drugs.
Poverty reduction through job creation and skill straining	32. Work skills training: Training offered to registered poor households includes car driving, loader operation, and a one-time subsidy of 2,000 yuan for car driving trainees after obtaining a driver's license. Trainees who receive training on bricklaying, electric welding, and other skills can receive a living allowance of 30 yuan and a transportation allowance of 20 yuan per day. Individuals who pass the skills appraisal examination will receive the professional vocational qualification certificate. 33. Vocational skills training for junior middle school and high school graduates who are unwilling to receive further formal education. Education and training will last 2-3 years, and funding will be provided during this period. 34. Training for migrants. 35. New professional farmer training. Courses include basic agricultural knowledge, professional skills, ability development, practical operation, and agricultural technology. Policy support and follow-up services will also be provided. The training will last 7-15 days. 36. Training given by rural entrepreneurs and skilled masters in areas such as farming, livestock breeding, construction, and catering services. 37. On-the-job skill training for migrant workers with a work contract of more than 6-months.

	38. Training for starting up small business. The program includes business registration, tax registration, personnel management, capital management, marketing, and other skills. The training will last for 10 days. 39. Social workers jobs, such village road maintenance, cleaning, and care services, are provided for registered poor households with no migrant labour, no job, and an inability to be lifted out of poverty by themselves (Dibao recipients and relatives of village cadres excluded), with a monthly salary of 500 yuan. 40. If individuals from registered poor households migrate to Xiamen and work for more than 3 months, the company will reimburse workers for one-way train tickets.
Poverty reduction through industry development	41. Subsidies for registered poor households engaged in livestock raising. 42. The government funds agricultural cooperatives and provides equity shares to each registered poor household. 43. Enhance farming and livestock breeding practices. Provide subsidy to assist rural households in cultivating cash crops and increasing livestock numbers. 44. The distribution of income generated through the Solar PV poverty alleviation projects. Revenue from selling power generated by Solar PV power stations to the national grid will be used to support poor households and develop the village's collective economy. 45. Dividends from agricultural cooperatives. Agricultural cooperatives and village collectives supported by financial special poverty alleviation funds must calculate dividends based on households' equity shares and distribute them if any benefits are generated.

	46. Agricultural insurance. Insurance premiums are shared between the provincial government, county government, and rural households according to a ratio 4:4:2. 47. To boost peasants' income, implement a project of enabling all poor households to shift from producing food corn to field corn. 48. Free plastic film is distributed to farmers to promote the technology of corn cultivation with plastic film. 49. Short-term training in planting and livestock breeding
Poverty reduction through inclusive finance	50. Targeted poverty alleviation loans. 51. Loans for members of village-level industry development mutual aid cooperatives. Each household can borrow 5000-20000 yuan per year. 52. Loans for starting up small businesses. Rural entrepreneurs can borrow discounted loans of 50,000 to 100,000 yuan.
Poverty reduction through environment protection	53. The new grassland ecological subsidy policy: The subsidy standard is 4.62 yuan per mu for grassland subject to grazing ban, and 2.67 yuan per mu for those limiting the number of livestock. 54. The new round of subsidies for returning farmland to forests: The subsidy standard is 1,600 yuan per mu, paid in three installments: 900 yuan in the first year, 300 yuan in the third year, and 400 yuan in the fifth year. 55. Policy for the national key ecological public welfare forest: The annual compensation for state-owned forests is 10 yuan per mu, while compensation for public welfare forests owned or operated by collectives (village collectives) and individuals (farmers) is 14.75 yuan per mu. 56. Ecological forest ranger: The salary is 8,000 yuan per year. 57. Grassland administrators: The one-time subsidy is 2,000 yuan.

	58. Agricultural support and protection subsidies: The original crop seed subsidies, direct subsidies for planting farmers, and comprehensive agricultural material subsidies are consolidated into agricultural support and protection subsidies. The subsidy standards are subject to actual calculations. 59. Subsidies for purchasing agricultural machinery. 60. Subsidy for using machinery for deep loosening the land: 20 yuan per mu.

Source: The author, based on information from the fieldwork.

Appendix D: Survey questionare

Please tick ☑ in the box, or fill in the horizontal line.

1. Native place (place of birth):
2. *Hukou:* Urban *hukou* ☐, Rural *hukou* ☐
3. Gender: Male ☐, Female ☐
4. Date of Birth:
5. Education: Junior high school ☐, High school ☐, Technical secondary school ☐, Junior college ☐, Undergraduate degree ☐, others, please fill in
6. Earliest year to start working:
7. First job monthly salary:
8. Year you entered Lizhong and the monthly salary at that time
9. Current job position/type of work:
10. Current monthly salary:
11. Total income last year:
12. What kind of insurance do you have (multiple choices):

☐ Social endowment insurance for urban and rural residents in the place of household registration (resident pension insurance in the hometown) ☐,

☐ Basic medical insurance for urban and rural residents in the place of domicile registration (resident medical insurance in the hometown) ☐,

☐ Social endowment insurance for urban employees in the place of work (employees in Yuhuan Endowment insurance) ☐,

□ Basic medical insurance for urban employees in the place of work (employee medical insurance in Yuhuan) □,

□ No social insurance, but commercial insurances such as work-related accident insurance are provided □,

□ Other (please specify):

13. Total Family Population:

14. Gross household income: Yuan per month, or Yuan per year

15. If you do not go out to work, how much income do you make in your hometown?

16. Current rental situation:

□ Company-provided accomodation □,

□ Renting a house outside □,

□ Living in your own home □,

□ Other (please specify):

17. Monthly rental expenses in Yuhuan:

18. The monthly rental subsidy given by the company:

19. Total annual living expenses in Yuhuan: