



Do Chinese firms in Africa pay lower wages? A comparative analysis of manufacturing and construction firms in Angola and Ethiopia

Carlos Oya ^{a,b,*}, Florian Schaefer ^{c,d}

^a Department of Development Studies, SOAS University of London, 10 Thornhaugh Street, Russell Square, London WC1H 0XG, UK

^b College of Humanities and Development Studies, China Agricultural University, Beijing, China

^c Department of International Development, King's College London, Bush House, North East Wing, 40 Aldwych, London, WC2B 4BG, UK

^d School of Social Sciences & Global Studies, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK



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ABSTRACT

This paper analyses wage differences between Chinese and non-Chinese firms in Angola and Ethiopia. The growing engagement of Chinese firms in sub-Saharan Africa has generated debates about the working conditions offered to African workers. However, the evidence for many of the claims made about wages in Chinese firms operating in sub-Saharan Africa is unconvincing. In this paper the authors identify problems with the existing literature and provide new comparative evidence on wages in Chinese, other foreign and domestic firms in Angola and Ethiopia. Drawing on over 1,400 worker-level interviews the authors find that Chinese firms do not consistently pay less than comparable firms. Using a multi-scalar labour regime framework the authors show that a combination individual worker characteristics, sector specificities, and firm attributes are necessary to explain variations in wages in both countries. The national origin of firms by itself cannot explain the observed differences in wages.

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1. Introduction

The presence of Chinese firms in sub-Saharan Africa (SSA) has expanded rapidly since the early 2000s, which has led to a debate over the developmental outcomes of increased Chinese engagement. Chinese companies operate in a wide spectrum of economic activities across SSA, but their investment is most concentrated in infrastructure construction and in manufacturing. While the effects of these investments on the prospects for industrialization are beginning to be appreciated (Calabrese & Tang, 2023, Oqubay and Lin, 2019, Wolf, 2017), the employment effects are yet to be ascertained in depth. The extent to which Chinese firms create jobs for African workers or how these jobs compare in terms of quality remain important questions that have received much media attention but for which there is still limited evidence.

The emerging literature on labour relations in Chinese enterprises in Africa suffers from three shortcomings in the areas of

research design, data collection, and analytical methods. First, most studies are characterised by the absence of suitable comparative frameworks, which are needed to probe the implicit claim of Chinese exceptionalism in working conditions. Such claims should be assessed by comparing outcomes in Chinese firms to similar firms operating in the same country and sector. Second, most studies draw on interviews with company managers rather than on large-scale quantitative surveys based on interviews with workers. Where worker-level data is used, the samples tend to be small and statistically unrepresentative. Third, most studies do not adequately account for the wide range of contextual factors underpinning variation in working conditions in highly differentiated and segmented labour markets.

In this article we present new evidence on wages in Chinese and other comparable firms operating in sub-Saharan Africa.¹ We ask how wages in Chinese firms in Angola and Ethiopia compare to those in other comparable foreign and domestic firms in the same

* Corresponding author at: Department of Development Studies, SOAS University of London, 10 Thornhaugh Street, Russell Square, London WC1H 0XG, UK.

E-mail address: co2@soas.ac.uk (C. Oya).

¹ Of course, Angola and Ethiopia are not representative of sub-Saharan Africa. We maintain the terminology around 'Africa' here to reference a set of debates that have been couched in terms of 'China-in-Africa'.

countries and sectors, or, in other words, whether the nationality of the firm is a critical determinant of wages and working conditions. To answer this question, we adopt an analytical framework that builds on insights from labour process theory, global production network analysis and historical political economy. This framework combines three interconnected levels of analysis – the national political economy, the sector, and the firm – to explain the multiple determinants of labour outcomes in a given context. Variants of this multi-scalar approach have been deployed in recent research on local labour regimes, labour standards and competitive pressures in global value chains (e.g. Smith, Barbu, Campling, Harrison, & Richardson, 2018; Baglioni, 2018). We collected comparative quantitative data on 1,449 workers in leading Chinese, other foreign and domestic firms in the manufacturing and construction sectors of Angola and Ethiopia. To our knowledge, this is the largest scale survey of workers that has looked at comparable working conditions in Chinese and other firms in the same sectors in African countries. These surveys were supplemented by quantitative firm-level data and paired qualitative interviews with workers and managers at firms included in the labour survey, as well as with trade union representatives and government officials. Our analytical approach moves sequentially from a descriptive illustration of wage heterogeneity, to regression analysis to identify core drivers of variation, to the inclusion of qualitative data to outline the mechanics of the labour regimes at play.

2. Chinese firms and employment conditions in sub-Saharan Africa

Despite the growing interest in the developmental outcomes of China's engagement in Africa, labour issues remain a blind spot in much of the current literature. Overall, the evidence regarding job quality is mixed. Although early reports suggested worse working conditions in Chinese-owned establishments (Baah & Jauch, 2009; Brooks, 2010; Gadzala, 2010; Human Rights Watch, 2011), subsequent studies have reported contradicting findings. While it may theoretically be possible that labour standards in Chinese firms improved in response to early negative reports, this appears unlikely. The typically negative media reporting, which most directly affects Chinese company behaviour and public relations (Li & Wang, 2023), has not substantially changed since those early studies. A more likely explanation is that the better quality of more recent studies explains some of the differences in findings.

The most cited – and most widely discussed – literature on working conditions in Chinese firms in Africa tends to emphasise poor and often 'worse' working conditions, even when it is not clear what the comparator is, whether 'average' conditions in the host country or comparable foreign firms. Tang (2016) provides a review of various examples where reported wages were 'low' in relation to the 'national average' or other foreign firms² and Brautigam (2011) suggested the main complaint were the poor working conditions. Baah and Jauch (2009), one of the most widely cited reports on employment conditions in Chinese firms in Africa, also conclude that Chinese firms in Angola, Ghana, Namibia, South Africa, and Zambia tended to pay the lowest wages when compared to local and other foreign firms, a claim echoed by others (Gadzala, 2010). Other studies focus on sources of workers' discontent and implications for labour conflict in Chinese firms (Wethal, 2017). Finally, another frequently debated source, a Human Rights Watch report on Zambian mines, suggested the reported wages were much lower than in competitor firms, based on two Chinese firms (Human

Rights Watch, 2011). Many Africa-China studies that make claims on employment outcomes suffer from a methodological nationalism that attributes apparently unique features to Chinese firms. However, the narrative of 'Chinese exceptionalism' in labour practices has already been questioned by a rich body of work that has analysed China's labour regimes and 'varieties of capital' among Chinese firms both inside and outside of China (Chan, 2015; Lee, 2017; Lüthje, Luo & Zhang, 2013).

Not all studies report lower wages or worse working conditions in Chinese firms. A recent survey in the Eastern Industrial Park in Ethiopia suggests that average wages among Chinese factories in the zone are considered 'low' by workers but are well above a reported national average in the formal sector or above other sector standards (Fei, 2018; Giese & Thiel, 2015). In a 2012 World Bank survey of firms in Ethiopia, median wages in Chinese firms were 60% higher than in domestic firms (Bashir, 2015: 8). In a more recent study on Ethiopia Chu and Fafchamps (2022: 4), using a large-scale representative survey of manufacturing firms in and around Addis Ababa, find no statistically significant differences in wages and other working conditions between foreign, Chinese and domestic firms. At GUMCO, a Chinese ceramic manufacturer in Ghana, wages of Ghanaian workers (ranging between US\$2.2 and US\$10 per day) were both above the national minimum wage of US\$1.9 per day (as of 2008) and also above the Indian comparator plant offering US\$1.9 per day (Akorsu & Cooke, 2011). Similarly, Cezne and Wethal (2022) show that labour grievances were connected to low wages in infrastructure mega-projects, but affected both Brazilian and Chinese contractors. Moreover, in some cases lower wages are compensated for by greater job stability, as the study of mining enterprises in Zambia by Lee (2017) shows. Where wages are lower than comparators, there are different reasons, such as low initial profitability after important capital investments (e.g. in mines in Zambia), tighter profit margins for small-medium firms subject to fierce global competition, or reliance on more labour-intensive methods (Tang, 2016).

Differences in wages and other labour practices, positive or negative, are highly contextual. The relative strength of labour institutions, especially unions, contributes to wage equalization among foreign firms in the same sectors, as in South Africa (Huang & Ren, 2013). Other studies have shown Chinese firms following and adapting to 'local norms' especially for local workers, even if that means departing from practices in other foreign firms or practices back in China (Fei 2018; 2020; 2022; Shen, 2007; Xing, Liu, Tarba, & Cooper, 2016; Yan & Sautman, 2013; Chu & Fafchamps, 2022). A number of highly contextualised and micro-level studies present a nuanced and evolving picture of a 'variegated labour regimes' in Chinese firms (Fei, 2020; Fei, Samatar, & Liao, 2018; Geary & Nyiawung, 2022; Yang, 2022). Taken together, these suggest a range of factors affecting labour outcomes, including the nature of work (e.g. construction, mining, or manufacturing), the particular origins and preferences of each firm, the relations with host country institutions (governments, union, local authorities), the relative weakness of labour institutions, and the coexistence of Chinese and African workforces. Even the most critical reports of Chinese labour practices in Africa provide evidence of substantial variation across Chinese firms, including within the same country (Baah & Jauch, 2009).

The main challenge in assessing the available literature reporting on outcomes in Chinese firms are widespread and considerable methodological weaknesses in the evidence base, which limit the internal and external validity of many of the claims published thus far. There are four important limitations. First, the majority of studies rely on purely qualitative methods, such as reporting from key informants (who are not usually workers), company data and managers (Rounds and Huang, 2017; Xing et al., 2016; Fei et al., 2018), or semi-structured interviews with limited groups of workers

² An important limitation of some of these comparisons is that data on wages in most African countries are scarce and typically representative of the most advanced formal enterprises, i.e., excluding the informal activities where most jobs are found. Therefore a 'national average' may be very high compared to the average conditions of most workers in the country.

(Wethal, 2017), without a clear indication of the characteristics of the samples concerned and whether comparisons were appropriate. It is not clear how many workers, in what categories, and based on what sampling protocols, were interviewed to infer the results of many studies, especially (Baah & Jauch, 2009; Human Rights Watch, 2011).³ Most studies do not appear to follow best practice in survey design, such as creating random samples of workers from suitable sampling frames, considering other observable characteristics, and focusing on the most relevant categories of workers (low and semi-skilled) to ensure like-with-like comparisons. Notwithstanding these limitations, some of these qualitative and mixed method studies are very useful in-depth explorations of labour practices in specific Chinese firms or projects (Fei, 2020; Wethal, 2017) but do not aim to produce accurate statistical estimates of wages and other nonwage benefits. These methods and the lack of systematic quantitative data collection of workers' perspectives substantially limit the reliability and usefulness of the evidence for quantitative claims about wages.

Second, studies that seem to overcome this limitation with large-N datasets and adequate statistical power (Isaksson & Kotsadam, 2018; Adolph, Quince, & Prakash, 2017; Wegenast, Krauser, Strüver, & Giesen, 2019) rely on indirect evidence, i.e. on location data, whereby they link the 'presence' of Chinese aid projects (not firms) or trade relations with employment outcomes, including unemployment levels (collected through non-labour focused polls like Afrobarometer), trade union involvement (also through Afrobarometer⁴), or even trade patterns. Besides the intrinsic interest of such findings, they do not really probe actual working conditions at workplace level, and do not report on wages.⁵

Third, the most important weakness is the lack of a suitable comparative framework. A number of critical reports on working conditions in Chinese firms in selected African countries lack suitable comparators, i.e. other firms in the same sectors and with similar characteristics with similar samples (examples are Baah & Jauch, 2009; Shelton & Kabemba, 2012; Wethal, 2017; Human Rights Watch, 2011). It is not clear how we can discern the extent to which reported conditions are different from existing sector norms or practices in *comparable* enterprises. Some of these reports have claimed that wages were even lower than minimum wages (Gadzala, 2010), but these claims have been questioned by other more in-depth studies (Chu & Fafchamps, 2022; Lee, 2017; Yan & Sautman, 2013; Sautman & Yan, 2011). Evidence of workers' 'discontent' is frequently reported (Gadzala, 2010; Wethal, 2017; Shelton & Kabemba, 2012) but this is not contrasted with incidence of workers' discontent and resistance in other workplaces in the same countries and it is not clear how representative of the workforce those perceptions are. One of the most statistically robust studies, including comparisons by firm ownership, is a cross-country regression analysis by Coniglio, Prota, and Seric (2015), which attempts to control for some firm-level attributes, like sector and capital and skill intensity, and finds that wages in Chinese firms are slightly lower than both other foreign and domestic firms. However, this study is based on existing secondary data,

resulting in substantial heterogeneity as all sectors are considered, while the econometric analysis can only control for few firm-level attributes and not for individual worker characteristics, which may be quite important in contexts of workforce segmentation, as shown in this article.

Finally, with the exception of some high-quality qualitative studies (Fei, 2020; Fei et al., 2018; Lee, 2017) findings are often insufficiently contextualised, especially in relation to the importance of specific national, local and sector dynamics possibly shaping the reported evidence and its interpretations. More statistically robust studies like Coniglio et al. (2015) only superficially account for country context, which is an important determinant of firm behaviour on labour issues, as other studies suggest (Jackson, 2014; Lee, 2017; Fei et al., 2018, Fei, 2020; Jackson & Horwitz, 2018; Giese & Thiel, 2015; Chu & Fafchamps, 2022) and our findings in this article show.

3. Labour regimes and wages: An analytical framework

Wages are subject to a wide range of influences. A common starting point in thinking about what determines wages is the productivity of the workers receiving the wage. This productivity of course depends in part on attributes the worker possesses such relevant skills and knowledge, developed through education, experience and training, and the effort expended. Other determinants of labour productivity are situated at the firm level, such as the way in which the production system is organised, the technology adopted, and the quantity and quality of products made, or services provided. What products are made and sold and the prices at which they can be sold depends not just on the factory but on its customers. These are frequently lead firms in large global production networks or have other sources of monopsony power allowing them to dictate prices, terms, and conditions, thereby effectively setting profit margins for supplier companies and service providers. Given levels of labour productivity and prices of goods sold or services provided do not determine wages directly but rather place limits on what a firm can afford to pay – at least in the short term. The wage levels that actually prevail will depend on the firm managements' willingness to pay, and this will generally be higher when an organised labour force is able to disrupt or slow down production or service delivery. The extent to which workers are willing and able to organise will depend on national labour legislation and its enforcement, the prevailing political balance of power between employers and employees, worker grievances, and the resources and structures available for mobilisation.

In short, our empirical analysis needs to consider the macroeconomic and political context, sector-level features, firm attributes, and individual worker characteristics. We propose that these varied determinants of wages can be best understood through the analytical category of labour regimes. A labour regime connects workplace labour processes and employment relations to the wider politics of capital-labour relations by considering the level and character of state intervention in the workplace, as well as how the political activities of both workers and employers influence the norms guiding interactions between firms, workers and the state (Burawoy, 1985; Lee, 1999). The labour process, meaning the transformation of a person's capacity to work over a given time period into realised work (Thompson, 1989), is fraught with tensions over work effort and intensity, the timing of work, the tasks to be performed, and the choice of technology (Smith, 2006, Taylor & Rioux, 2018). A labour regime is therefore constituted by the mechanisms that drive the mobilisation (recruitment), reproduction, motivation, control, and utilization of labour for the production process, including the control necessary for the extraction of surplus value (Baglioni & Mezzadri, 2020; Taylor & Rioux, 2018;

³ Most case studies in this widely cited study are based on one or few Chinese companies, sometimes with no comparators, and for small samples of workers with no description of sampling methods and no clear statistical analysis.

⁴ A fundamental problem with such Afrobarometer surveys is that they are not really designed to capture employment issues rigorously and aim for a wide range of general opinions on different issues. They are also not designed to be statistically representative at lower administrative levels while the data points from the geocoded areas with Chinese 'presence' tend to refer to specific locations. Correlating these different data points from such different data sources requires a big leap of faith.

⁵ An exception is Chu and Fafchamps (2022), which is based on large representative survey of manufacturing firms in an area of Ethiopia. However, reported wages and working conditions are sourced from management interviews rather than worker surveys.

Bernstein, 2007). The extent to which workers are able to co-determine labour regimes in their favour depends in part on the structural and associational power workers are able to mobilise (Wright, 2000; Selwyn, 2013; Alford, Barrientos, & Visser, 2017).

Our analysis investigates the labour regimes found in the Angolan and Ethiopian manufacturing and construction sectors using a multi-scalar framework that combines three interrelated levels of analysis. First, are the direct encounters between firms and workers in workplace that generate struggles over wages, productivity, safety, effort, and labour time. At this level we consider workplace-level determinants of working conditions, including workers' individual characteristics and firm specificities such as scale, production regime, labour control mechanisms, and familiarity with the local context.

Second are the characteristics and dynamics of a particular sector or set of global production networks (GPN), which cut across national boundaries and generate specific imperatives of labour control and standards (Coe & Yeung, 2015, Wickramasingha & Coe, 2022). These are intimately linked with skill requirements, the time and spatial dimensions of labour processes, and prevailing work culture and management ethos (Anner, 2015; Lee, 2017). Workplace dynamics are shaped by pressures on firms that are determined by specific sector characteristics such as relations with buyers in industrial GPNs (Amengual, Distelhorst, & Tobin, 2020) or subcontracting arrangements in the case of the construction industry. Labour relations in manufacturing companies exporting to global markets will be strongly shaped by the time efficiency, flexibility needs, quality demands, and compliance requirements of GPNs (Hammer & Plugor, 2019; Helfen, Schüßler, & Sydow, 2018; Alamgir & Banerjee, 2019) whereas work in infrastructure construction will be affected by the scale of projects, their cycles, the need to 'move' with the job, frequent subcontracting arrangements, and skill premia for key tasks (Swider, 2015).

Third is the national political and economic context, where we focus on two aspects: the macroeconomic dynamics shaping economic transformations and structural change alongside the macro-level politics of production and state-society relations. The latter shape both where and how workers are mobilised and the arenas of different struggles, whether over the extent of commodification, the limits to labour reproduction, or claims over representation. Therefore, the focus of this level of analysis is on relations between state, capital, and labour at the national and sub-national levels, as well as the institutions that underpin these relations (Lee, 2017; Anner, 2015). A critical factor here are the ways in which (sub-)national resources are mobilised in order to attract investments from firms already linked into GPNs (Yeung 2009; 2022) and the ways in which various fractions of the state apparatus act to enable and support such processes of capital accumulation (Smith, 2015).

A combination of these levels of analysis and their different analytical categories complicates the empirical analysis but helps avoid the determinism that results when a single factor, such as the nationality of firms, the institutions in the host country, or the specific global value chain, is accorded *a priori* analytical primacy. The combinations of factors considered in this multi-scalar labour regime constitute a framework where the origin of a firm is just one of many possible determinants, in contrast with studies characterized by 'methodological nationalism' as noted by Lee (2017).

4. Methodology and data

Our research design was organised around this multi-level comparative framework. The first level contrasts two countries: Ethiopia and Angola. These countries were selected for this study for

two main reasons. First, both feature among the most important markets for Chinese contractors in infrastructure building in Africa, as well as among the top recipients of Chinese FDI and Chinese official finance.⁶ Second, they offer very different contexts of Chinese engagement in terms of their political economy, employment dynamics and industrial development. Ethiopia has been often characterised as a 'developmental state' with a pro-active industrial policy, a commitment to job creation and a significant development of its light manufacturing industry (Cheru & Oqubay, 2019; Clapham, 2018; Hauge & Chang, 2019; Whitfield, Staritz & Morris, 2020). Angola is often presented as a contradictory case of successful agency in the use of oil rents and Chinese finance for postwar reconstruction on the one hand (Corkin, 2016; Ovadia, 2018; Power & Alves, 2012) and elite plunder and lack of a coherent developmental and industrial policy, which has hampered efforts to translate oil rents into sustained economic diversification (Ovadia, 2018; Soares de Oliveira, 2015; Wanda, 2021; Power & Alves, 2012). Therefore, they offer a significant contrast that is useful for analytical purposes. In each country we look at two sectors that are vital to economic development and have been leading recipients of Chinese investment, manufacturing and construction, and specific sub-sectors within each of these. Within each sector we consider three firm origins: national/domestic, Chinese, and other foreign. See Table 1 for an overview.

To depict the three dimensions identified in the analytical framework, i.e. the country, the sectors and the firm, we collected a mixture of both quantitative and qualitative primary data. We used four main data collection tools: detailed structured quantitative interviews with workers, typically taking 90–120 minutes, a structured quantitative firm questionnaire, semi-structured qualitative interviews with key informants, including government employees, company managers and trade unionists, semi-structured work-life history interviews with a sub-set of the sample of workers, and direct workplace observations. We therefore are able to pair quantitative worker- and firm-level data with qualitative interviews with managers in the same firms. Fieldwork took place in different phases from the end of 2015 to the end of 2018.

The surveys focused on low-skilled and semi-skilled workers directly engaged in production, who represent around eight out of ten jobs created in the target sectors.⁷ The identification of low- and semi-skilled categories was based on a combination of three criteria, namely specific job titles, main tasks as reported by workers, and qualifications measured by total year of schooling.⁸ In manufacturing, semi-skilled workers were typically line supervisors or operators of complex machines, while in construction semi-skilled workers included supervisors, craftspeople such as carpenters and masons, and operators of heavy construction machines. We excluded a number skilled workers whose job descriptions clearly placed them outside of the semi-skilled worker category. This mainly affected the Angola manufacturing sample.

Our sampling priority was to compare the selection of Chinese firms in each segment against other *leading* firms in the same segment. As the sampled Chinese firms were among the largest firms in each sector this sampling design was necessary to ensure that Chinese firms are evaluated against comparable enterprises, whether foreign or domestic. Given the substantial heterogeneity of firm types and the large numbers of small and relatively unproductive companies in both countries, a comparison against a

⁶ See loan and FDI data in SAIS-CARI databases <https://www.sais-cari.org/>.

⁷ This choice was informed by the desk review as well as the results of the initial phases of scoping research with company managers and government officials.

⁸ For another, simpler classification see Teal (2016, 9), who defines 'unskilled' as 'those with no education or incomplete primary', 'low skill' as 'those with primary complete and secondary incomplete' and 'medium skill' as those with secondary complete or tertiary incomplete'.

Table 1
Sample composition by country, sector and firm origin.

Ethiopia								
Sector	Chinese		Other foreign		Ethiopian		Total	
	Workers	Firms	Workers	Firms	Workers	Firms	Workers	Firms
Manufacturing	164	8	196	9	168	8	528	25
Construction	124	6	59	3	120	6	303	15
Total	288	14	255	12	288	14	831	40
Angola								
Sector	Chinese		Other foreign		Angolan		Total	
	Workers	Firms	Workers	Firms	Workers	Firms	Workers	Firms
Manufacturing	145	8	86	6	38	3	269	17
Construction	162	9	119	6	68	4	349	19
Total	307	17	205	12	106	7	618	36

national sector average would have overstated relative wages in Chinese firms. Moreover, such a sectoral or national average wage is not available, due to the weaknesses of labour market statistics in Angola and Ethiopia. The low frequency of relevant government surveys means that many key firms in the highly dynamic sectors we examine here were not yet in operation at the time of the last official survey round. Our sampling design means that conditions in sampled Chinese firms should be regarded in contrast with conditions in the largest foreign and domestic firms within the same sector.

Data collection teams were deployed to work premises and implemented a stratified random sampling protocol. Great care was taken in compiling accurate sampling frames at each site. Negotiating access and ensuring random samples of eligible workers was often challenging due to resistance by some employers.⁹ All worker interviews took place away from managers and other workers. For every firm included in the worker sample we also conducted matched management interviews and in-depth qualitative interviews with a sub-sample of workers. Company managers for all sampled firms were interviewed to complete a firm questionnaire (for basic company attributes) and for more extended conversations on the company's profile, experience in the country, and industrial relations. In total, 76 firms participated in the study across both countries (of which 31 were Chinese-owned, and 42 operated in the manufacturing sector), and we obtained a usable sample of 1,449 workers (see Table 1).

5. Results

5.1. Who are the workers? Evidence on labour market segmentation

Much of the literature on employment outcomes in Chinese firms in sub-Saharan Africa treats African labour as a homogeneous category, often comparing them to Chinese expatriate workers (Fei, 2020). However, any analysis of variation in wages needs to take into account individual worker characteristics. We collected detailed information on workers' demographic, household, educational and economic characteristics. This section briefly presents the most salient aspects of observed variation. For an overview of descriptive data on worker characteristics see Table A1 in the appendix. Before moving on it is worth pointing out that the firms in our sample have created a substantial number of jobs in both Angola and Ethiopia. In Angola, Chinese companies in our sample employed 2,584 people in manufacturing and 7,442 in construction. Other foreign firms in the sample had created 1,263 jobs in manufacturing and 17,759 in construction. Angolan firms had cre-

ated fewer jobs, just 1,165 in manufacturing and 4,648 in construction. In Ethiopia, sampled Chinese firm created 11,909 jobs in manufacturing and 24,357 in construction, compared to 20,510 manufacturing and 1,100 construction jobs for other foreign firms and 5,267 manufacturing and 24,130 construction jobs for Ethiopian firms. Overall Chinese investors led among foreign investors in terms of cumulative manufacturing job creation in the period 2013–17, before our survey started (Cheru & Oqubay, 2019: 292). The figures for Ethiopia in particular are substantial given that the Ethiopian government estimated total employment in large- and medium-scale apparel firms at just 40,728 in 2015 (Csa, 2017). Moreover, the rates of workforce localization in Chinese firms were generally higher than typically assumed and not too different from other foreign companies, especially in Ethiopia, as we show in (Oya & Schaefer, 2019).¹⁰

In both Angola and Ethiopia migrant workers form an important segment of the workforce in both manufacturing and construction, but with some particularities in each context. In Ethiopia, persistent un- and underemployment, as well as low returns to labour in agriculture and violent conflicts, make labour migration a common feature among young jobseekers. In factories located in Ethiopia, both Chinese and other foreign firms had a larger proportion of internal migrant labour than domestic firms. This pattern reflects the predominance of Chinese and other foreign firms in industrial parks, which attract large numbers of migrants in search of work, partly driven by local government agencies that actively support such recruitment (Oya & Schaefer, 2021). All of the Ethiopian-owned companies we surveyed were located in or near large population centres, especially Addis Ababa, which made it easier for Ethiopian firms to hire locally.¹¹ In the construction sector, in both countries, migration patterns are related to the way in which road project are organised, which dictate hiring practices. Semi-skilled construction workers are more likely to migrate for their jobs and 'move' with the projects, because they have qualifications and specialist skills to operate machinery that are difficult to replace. Workers for the lowest skilled jobs tend to be hired on a temporary basis from the area surround the project sites, especially in Ethiopia, where the government requires contractors to hire locally.¹²

¹⁰ The issue of workforce localization was one of the key research questions in our project. We analyse this question in more detail in the various IDCEA reports and in a forthcoming paper focused on this issue specifically. See <https://www.soas.ac.uk/research/industrial-development-construction-and-employment-africa-idcea-comparative-analysis>. See also Sinkala and Zhou (2014) for the case of Zambia.

¹¹ The workers employed by Ethiopian manufacturing firms in the sample had also much longer tenure in their companies, thus were less likely to be recent migrants to the area.

¹² Interview with government official, Addis Ababa, 12 March 2018; interviews with Chinese construction managers, Addis Ababa, 9–14 July 2018.

⁹ See Oya, 2019 for a full account of the research design and process.

In Angola, the contrasts between Chinese and non-Chinese firms in relation to the presence of migrant labour were particularly striking. The proportion of *recent* internal migrants in Chinese firms is around 70% in both sectors, compared to 29% for construction employees in Angolan companies, and only around 15–20% in the case of factory workers in both Angolan and other foreign firms.¹³ These differences reflect the segmentation of the construction and manufacturing workforce in Angola. Moreover, Chinese firms were particularly keen to hire migrant workers from the Centre-South of the country. Nearly 60% of the workforce in sampled Chinese firms, regardless of where these firms were located and in which sector they operated, originated from the Centre-South Huambo and Huila provinces, which are historically regarded as labour reservoirs. The proportion is even higher in factories. Many of the workers from these areas come from poor rural backgrounds. By contrast, workers employed by Angolan and other foreign companies in the manufacturing sector are overwhelmingly from Luanda, where much of the sector is clustered, and have been working in the company for much longer than their counterparts in Chinese firms. Related to this segmented pattern, a large proportion of Chinese manufacturing firms located in Luanda operated a 'dormitory migrant labour regime', similar to experiences in parts of China's sunbelt (Pun & Smith, 2007; Smith & Pun, 2006). Such a labour regime strengthens labour control and discipline and tends to lower wage demands from workers, given that accommodation and food costs are covered, and generally workers' 'compound' life is cheaper in Luanda.

However, the preference for a 'dormitory migrant labour regime' in many Chinese firms in Angola does not simply reflect the adoption of labour practices common in low-wage sectors in China. Rather, it is an adaptation to local labour market conditions and is driven by imperatives of labour control, like in China, but only after local (Luanda-based) labour supply was found unreliable. The same practice was not found in Ethiopia, where manufacturing workers, whether migrants or not, were not housed by their employers. The Ethiopian government discouraged the building of dormitories, despite the fact that the vast majority of workers were migrants who needed accommodation. Instead, the government expected workers to find suitable private accommodation in the vicinity of industrial parks. In interviews government officials insisted this would protect workers from excessive control by their employers.¹⁴ The envisioned private sector-led housing programmes failed to provide adequate supply and housing costs have become a significant problem for many workers in industrial parks, eroding the purchasing power of their wages and contributing to high labour turnover and tensions (Oya & Schaefer, 2021, Hardy & Hauge, 2019).

A second aspect of labour market segmentation is gender where differences between Angola and Ethiopia were marked. In both Angola and Ethiopia, labour markets in construction and manufacturing are highly gendered. In Angola the labour forces in both the manufacturing and construction sectors were almost entirely male, while women were more common in both sectors in Ethiopia. Factories in Ethiopia employed predominantly women, especially for low-skilled jobs, where they represent nearly 80% of the sample of workers. This is largely to do with the kind of manufacturing that is emerging in Ethiopia: light labour-intensive industries where female labour participation tends to be high globally, compared to building materials industries, where women presence is

generally very low, outside administrative positions (which we did not sample). Another factor is the Ethiopian state, which played a deliberate and very active role in mobilising women from rural areas for employment in apparel export industry (Mains & Mulat, 2021). We also observe a somewhat higher presence of women in construction in Ethiopia compared to Angola, reflecting how gender norms with regard to employment vary across countries. Women's labour force participation in Angola is overwhelmingly concentrated in agriculture and services, and, to a lesser extent, in public sector employment (Instituto Nacional de, 2019).

Finally, the workforce in both countries is segmented by skill and education levels. In Angola, there was an important contrast between workers employed by Chinese firms and workers in Angolan and other foreign firms. Workers in Chinese firms in both construction and manufacturing, many of whom were migrants from rural areas, had much lower levels of education than workers in other foreign and Angolan firms who were part of the 'permanent' workforce segments. The latter had education levels above the average urban worker in Angola, had more work experience in construction and manufacturing, were older and enjoyed more stable work arrangements than their counterparts in Chinese firms. In short, these two sets of firms employed distinct workforces at the time of our survey, a point to which we return below. In Ethiopia, education differences are driven by sector. Low-skilled construction workers have particularly low education levels, with 47% of such employees in Chinese firms, 50% in other foreign firms, and nearly 60% in Ethiopian firms not having completed primary education. By contrast, manufacturing workers tend to have at least some years of secondary education, especially the younger workforce segments who are employed in foreign firms, including most Chinese companies. These differences, driven in parts by variations in labour regimes, can confound comparisons of wages across firms if not taken into account.

5.2. Wages among leading firms in construction and manufacturing

In this section we present our analysis of wages and their drivers. The answer to the question whether firm origin matters for wage levels depends on a number of contextual factors. Results are mixed. For each country we begin with a descriptive comparison of mean wages by sector, skill group and firm origin. The descriptive data shows considerable heterogeneity across the different skill groups and firm origins. We explore the reasons for this heterogeneity further using OLS regressions to better understand the impacts of the confounding factors outlined above. In the discussion section that follows we combine these quantitative results with qualitative findings to produce four stylised labour regimes that help explain the observed variations. We analyse wages separately for Angola and Ethiopia as the structural differences in conditions across the two national economies and the resulting make-up of the construction and manufacturing sectors in each country make direct comparisons difficult. All our wage data comes from worker interviews.

5.2.1. Wages in Angola

Figure 1 shows mean monthly wages (in Kz) by sector, skill group and firm ownership. Our estimates of mean wages in Angola are affected by small sample sizes for some categories of workers (see Table 1 in the appendix) which is reflected in wider confidence intervals for some groups. In both sectors semi-skilled workers earn substantially more due to their more advanced training and the comparative rarity of their skills. Management interviews in both sectors indicate that firms often struggle to recruit and retain semi-skilled workers and hence are willing to pay higher wages to attract qualified candidates. The differences by sector are less clear-cut, with relatively similar premiums paid to semi-skilled

¹³ It is clear that the history of protracted war in Angola created mass displacement and therefore most people living in Luanda come from different parts of the country. However, what we captured in our survey was migrants who had recently moved to Luanda and in some cases had been directly recruited from central and southern provinces by Chinese firms and moved to the various construction projects or factories in and around Luanda.

¹⁴ Interviews with government officials, Addis Ababa 6–12 March 2018 and 3 July 2019.

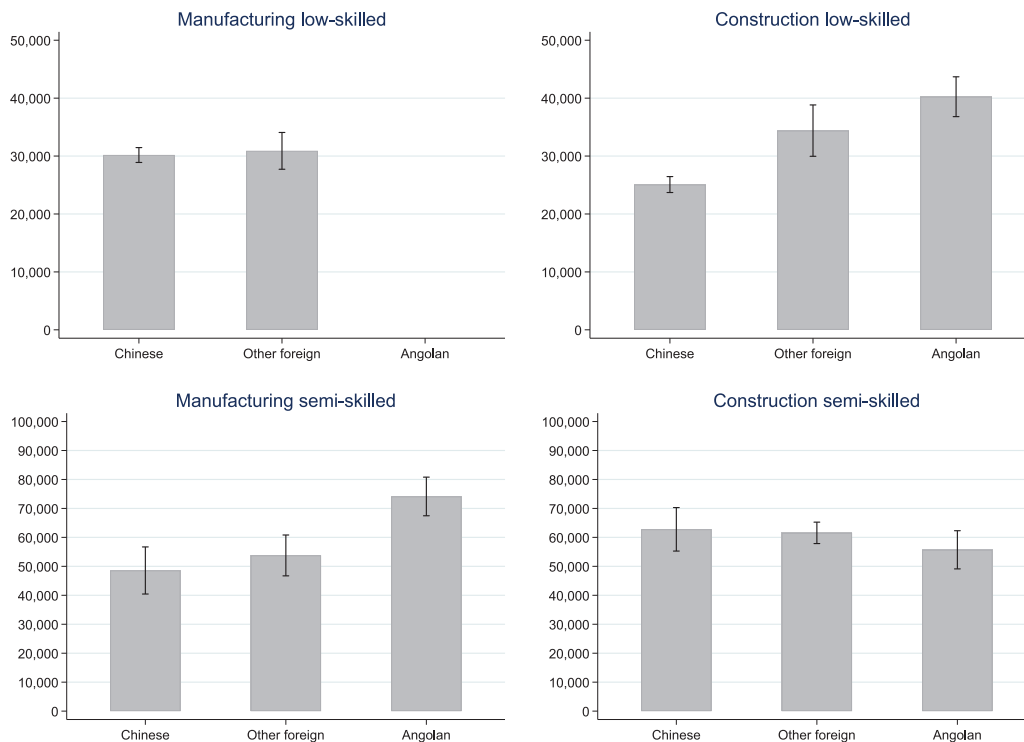


Figure 1. Mean monthly wages in Angola by sector, skill group and ownership (in Kz). Source: Own survey, 2017.

workers in both sectors. Given experiences in other settings, we expected to find that low-skilled construction workers would be better paid than similarly qualified manufacturing workers, but this is not the case.

Looking across firm origins average wages paid in Chinese firms are lower for some categories of workers, but there is significant variation, and many differences are not statistically significant. In the manufacturing sector there are few differences between the wages paid by Chinese and foreign firms for low-skilled or semi-skilled workers and none of these differences are statistically significant.¹⁵ However, semi-skilled workers in Angolan-owned manufacturing firms are paid substantially more than their counterparts in Chinese or other foreign firms. In the construction sector semi-skilled workers receive very similar pay across all three ownership categories. However, average wages for low-skilled construction workers in Chinese firms are markedly lower than in other foreign or Angolan firms and this difference is statistically significant. Some of this variation is driven by contextual factors. Part of our sample of construction workers in Angolan and other foreign firms worked on Angola’s flagship infrastructure project, a large hydroelectric dam, where wages and working conditions were superior to road building projects.

To better understand how the different drivers, including the origins of the firms, impact wage levels across ownership categories we use OLS regressions. Table 2 presents the results of our analysis. Our dependent variable is the log of monthly wages (in Kz), though model IV uses an adjusted wage to account for the provision of worker dormitories in some firms. In all models we control for individual and company-level characteristics and cluster standard errors at the level of the firm. Individual level controls include the respondent’s age (in years), gender, whether they have

migrated for the current job, total schooling (in years), their skill group (low- or semi-skilled), as well as a socio-economic index to capture relative wealth or deprivation.¹⁶ At the level of the firm we control for the log of total employment to capture firm size and for whether or not the firm is in the construction sector. Our main variables of interest are the dummy variables for Chinese or Angolan ownership (using other foreign ownership as a reference category). Gender has no effect in any of the models, which is not surprising given that the sample is overwhelmingly male (99%). Similarly, the lack of an age effect is explained by the narrow age range of sampled workers, which in turn is a result of hiring preferences in the sectors under consideration. In model 2 we add additional controls to capture respondents’ tenure at their current employer (in years) and their previous experience in the manufacturing or construction sector prior to starting their current job (also in years). In model 3 we drop the general control for the sector of employment and instead seek to capture not only whether respondents worked in the construction sector, but also whether they were part of the aforementioned large dam project (using two dummies: construction dam and construction not dam).

As expected, being semi- rather than low-skilled has the largest impact on pay. It appears that direct work experience matters more than education, though the effects are small. While education has no significant effect, an extra year of experience is associated with around 1% higher monthly pay in the construction sector and around 2% in manufacturing. The limited independent impact of education is explained by the large effect of skill-group on pay, as semi-skilled workers are also on average better educated. The skill-group variable therefore captures much of the impact of a longer education. Better off workers also appear to earn more, probably reflecting higher reservation wages. A one-point increase

¹⁵ The category of low-skilled workers in Angolan firms was omitted from Figure 1 due to the small sample size in this particular segment.

¹⁶ For a similar but more simplified economic deprivation index see also Sender, Cramer, and Oya (2018).

Table 2
Drivers of wages in Angola. **Dependent variable: log of monthly wages (in KZ) (I, II, III), adjusted log of monthly wages (IV).**

	(I)	(II)	(III)	(IV)
Respondent's age	0.00347 (0.0023)	-0.000462 (0.0025)	-0.000317 (0.0025)	-0.00171 (0.0024)
Migrated	0.103* (0.0457)	0.101* (0.0450)	0.0595 (0.0373)	0.110* (0.0438)
Years in education	-0.00789 (0.0060)	-0.00572 (0.0056)	-0.00772 (0.0057)	-0.0109 (0.0058)
Semi-skilled	0.541*** (0.0466)	0.519*** (0.0460)	0.510*** (0.0497)	0.498*** (0.0503)
Asset index	0.0535*** (0.0128)	0.0495*** (0.0114)	0.0525*** (0.0117)	0.0496*** (0.0113)
Chinese	-0.0509 (0.0697)	-0.0308 (0.0715)	0.0389 (0.0774)	0.0598 (0.0742)
Angolan	0.138 (0.0768)	0.157 (0.0814)	0.182 (0.1032)	0.179 (0.1007)
Employment (log)	0.0321 (0.0285)	0.0398 (0.0290)	0.0348 (0.0228)	0.0260 (0.0225)
Constr. sector	-0.0837 (0.0702)	-0.0612 (0.0676)		
Years in job		0.0177** (0.0061)	0.0192** (0.0065)	0.0167* (0.0066)
Constr. experience (yrs)		0.00804* (0.0032)	0.00757* (0.0029)	0.00683* (0.0029)
Manu. experience (yrs)		0.0192 (0.0097)	0.0219* (0.0099)	0.0186 (0.0097)
Constr. dam worker			0.110 (0.1535)	0.0741 (0.1492)
Constr. non-dam worker			-0.0829 (0.0590)	-0.0864 (0.0596)
R ²	0.564	0.582	0.592	0.551
Adjusted R ²	0.557	0.573	0.583	0.541
F	32.27	29.21	29.48	21.28
Observations	618	605	605	605

Standard errors clustered at firm level and displayed in parentheses: **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

in the individual asset index is associated with a 5% increase in pay. Company size has no statistically significant impact, but it should be remembered that all companies in the sample were comparatively large.

Looking at company ownership, the dummy for Chinese ownership is not significant in any specification. Point estimates are small and negative in models I and II and small and positive in the other specifications. However, we do see that both Chinese and other foreign companies pay less than Angolan firms on average. The effect is large but measured with low precision, meaning the estimates are not statistically significant. In model III, workers in Chinese and other foreign firms earn about 14% and 18%, respectively, less than in Angolan companies. However, the 'premium' observed in Angolan firms is somewhat idiosyncratic since it reflects a mixture of specific location effects, such as the predominance of permanent Luanda-based workers in sampled Angolan road projects, and temporary shifts in labour force composition. In particular in two large Angolan factories, estimated wages were unusually high due to highly specialist roles of sampled semi-skilled workers, and low production at the time of survey meant that temporary low-paid unskilled workers were much less present than in other comparator factories, thus driving the average wage up.

Furthermore, wage calculations only include cash wages and not the components of 'social wage' received by workers who are housed by their employers, i.e. food and accommodation. While most construction workers in Chinese and other foreign firms were living in company compounds, in the manufacturing sector only Chinese companies housed and fed their migrant Angolan workers, thus operating a 'dormitory labour regime'. Given the high living costs in Luanda, where these factories were located, these benefits largely compensated for the difference in nominal wages. In our

preferred specification, model IV, we account for these differences by adjusting the monthly wage of all workers with access to dormitories upward (see the final section for details of the adjustment). This has little impact on the estimated effect of Chinese ownership on wages but enhances the impact of the variable capturing migrant worker status, primarily because of migrant workers living in Luanda being the main beneficiaries of the social wage.

Considering the regression results, it is therefore not the case that Chinese firms offer uniquely low pay. Rather, the wages they offer are in line with those in comparable firms from other countries and the nature of their workforce was different from sampled workers in Angolan firms at the time of the survey.

5.2.2. Wages in Ethiopia

As above, we begin our analysis of wages in the Ethiopian manufacturing and construction sectors with an overview of mean monthly wages by sector, skill group and firm ownership, shown here in Figure 2. We again observe substantial differences in mean wages between semi-skilled and lower skilled workers in both sectors. Unlike in Angola, the premium for semi-skilled workers is much higher in the construction sector. According to data collected from management interviews, this difference is driven by the comparative rarity of skills these two groups possess. Semi-skilled manufacturing workers in our sample were typically line supervisors, whose primary responsibility is to ensure production targets are met by variously assisting and cajoling lagging workers. This means that they require comparatively few technical skills not possessed by 'simple' production workers. The situation in the construction sector is quite different. Semi-skilled construction workers are typically operators of heavy construction machinery or craftspeople such as carpenters or masons, meaning they possess much more advanced technical skills than lower-skilled construc-

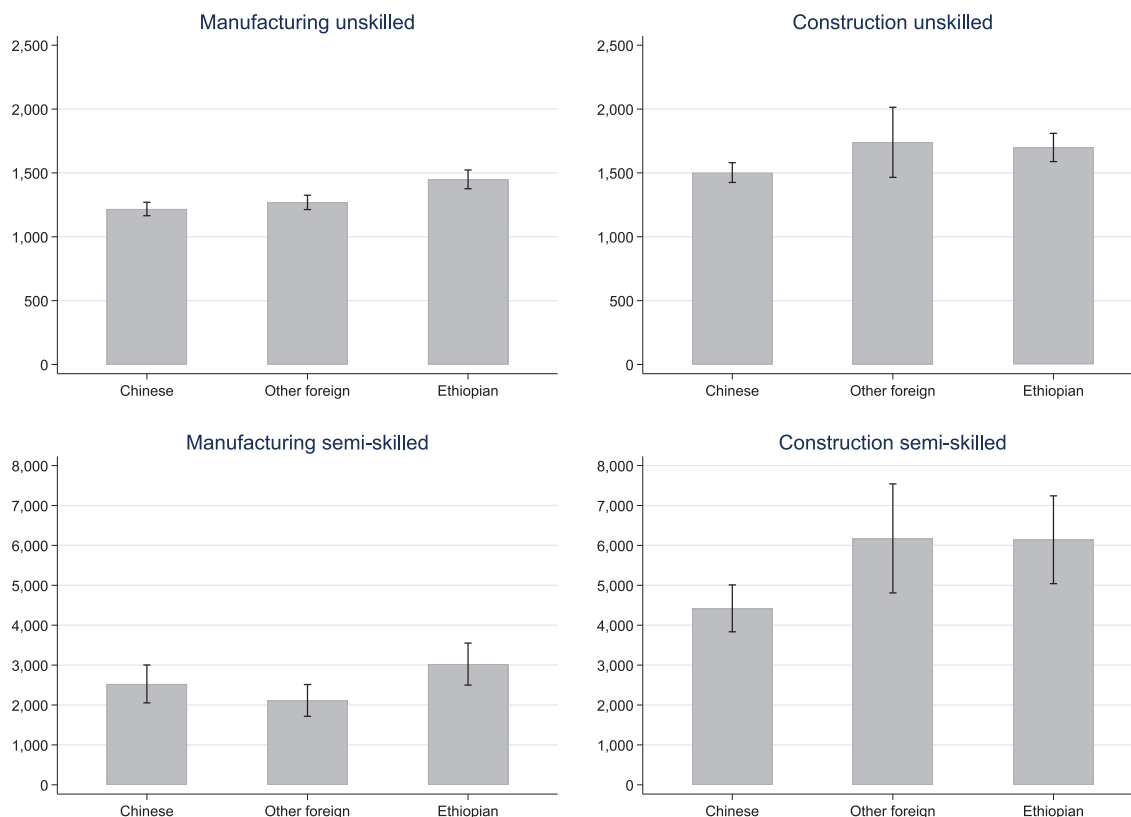


Figure 2. Mean monthly wages in Ethiopia by sector, skill group and ownership (in ETB). Source: Own survey, 2017.

tion workers. In addition, managers reported that the increase in infrastructure construction in the years before our survey drove up demand for semi-skilled workers which induced firms to offer higher wages. Comparing low-skilled workers across the two sectors, we find that construction workers are paid more than manufacturing workers, which is in line with expectations.

If we compare wages across firms of different ownership within each sector, we see that Chinese firms pay less than Ethiopian firms, but that differences between Chinese and other foreign firms are not statistically significant, though the point estimates for Chinese firms are lower apart from semi-skilled manufacturing. In both sectors Chinese and other foreign firms serve comparable markets, consumer markets in high-income countries in the manufacturing sector and internationally financed road building projects in the construction sector, while Ethiopian firms operate in a different market segment. This means that the most direct comparisons should be made between Chinese and other foreign firms. The difference in low-skilled manufacturing wages between Ethiopian and both Chinese and other foreign firms is statistically significant. The higher wages in Ethiopian firms result from a mixture of location effects, the much longer tenure that workers enjoy in the much older Ethiopian firms, and the lower pressures on costs in Ethiopian firms who serve less demanding buyers. In the construction sector, the sample size for other foreign firms is small, which results in a wide confidence interval for the estimated mean for that category. In consequence the difference between Chinese and other foreign firms is not statically significant despite the large difference in point estimates.

These estimated means fail to take a wide range of factors that may affect wage levels into account. As in the Angola case above, we therefore explore the drivers of wages differences further using

OLS regressions and the analysis proceeds along very similar lines. The results are shown in Table 3. Our dependent variable is again the log of monthly wages, measured here in ETB. We again control for individual- and company-level characteristics and cluster standard errors at the level of the firm, using the same controls as above, though in this case the sector reference category is the construction sector. As above, the main variables for interest are the dummies capturing whether the firm is owned by Chinese or Ethiopian owners (using other foreign ownership as the reference category).

In model 2 we again add controls for job tenure and previous experience. As expected, the biggest difference in pay comes from being semi-skilled rather than low-skilled. The next largest difference comes from being in the manufacturing sector, which results in substantially lower wages. This is followed by a substantial premium earned by workers who migrated for the job. Unlike in Angola, our Ethiopia sample contains large numbers of both men and women, which allows us to compare their wages. In a clear sign of discrimination, men earn around 9% more than women with the same education and experience. The coefficient for Chinese ownership, which compares wages in Chinese firms to those in other foreign firms is negative at around 7% but is not statistically significant. The corresponding figure for Ethiopian ownership is positive, also at around 7%, though again this coefficient is not statistically significant. It appears that in Ethiopia, once important contextual factors such as firms and worker characteristics are taken into account, the national origin of a firm is no longer an important determinant of wage levels.

Our preferred specification is model 3. As noted above, Chinese and other foreign firms in Ethiopia are heavily, though not exclusively, concentrated in a series of new industrial parks. The firms

Table 3
Drivers of wages in Ethiopia. Dependent variable: log of monthly wages (in ETB).

	(I)	(II)	(III)
Respondent's age	0.00690** (0.0025)	0.00115 (0.0016)	0.000533 (0.0017)
Male	0.0958** (0.0326)	0.0885* (0.0332)	0.0893** (0.0322)
Migrated	0.174*** (0.0384)	0.164*** (0.0362)	0.172*** (0.0349)
Years in education	0.0178*** (0.0048)	0.0178*** (0.0044)	0.0169*** (0.0043)
Semi-skilled	0.687*** (0.0562)	0.636*** (0.0507)	0.644*** (0.0518)
Asset index	0.0455*** (0.0084)	0.0401*** (0.0085)	0.0354*** (0.0076)
Chinese	-0.0654 (0.0622)	-0.0698 (0.0605)	-0.0658 (0.0465)
Ethiopian	0.0896 (0.0690)	0.0691 (0.0663)	-0.0190 (0.0605)
Employment (log)	0.0304 (0.0228)	0.0287 (0.0219)	0.0402* (0.0192)
Manu. sector	-0.438*** (0.0468)	-0.427*** (0.0426)	
Years in job		0.0109* (0.0046)	0.00939* (0.0046)
Constr. experience (yrs)		0.0439** (0.0139)	0.0446** (0.0142)
Manu. experience (yrs)		0.00993 (0.0093)	0.00849 (0.0096)
Manu. firm in IP			-0.515*** (0.0450)
Manu. firm not in IP			-0.302*** (0.0546)
R ²	0.683	0.703	0.717
Adjusted R ²	0.679	0.698	0.712
F	54.07	45.30	50.34
Observations	821	817	817

Standard errors clustered at firm level and displayed in parentheses: **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

in these parks are linked into leading global production networks that supply consumer markets in the EU and US.¹⁷ Membership of such networks requires firms to adapt labour regimes to tightly control production costs (Oya & Schaefer, 2021). In model 3 we therefore drop the sector dummy and replace it with controls for manufacturing sector firms both inside and outside of these industrial parks (keeping the construction sector as the reference category). The dummies for Chinese and Ethiopian ownership remain statistically insignificant. However, location in an industrial park is associated with much lower wages: manufacturing workers in such parks earned around 21% less than manufacturing workers outside of such parks. Our data captured the early stages of operation for many Chinese and other foreign firms, but at that stage at least the firms in industrial parks, who all produced for leading apparel production networks, paid much lower wages than Ethiopian firms in the same sector. Some of this difference is likely due to a location effect, as many workers sampled in industrial park worked in areas outside of Addis Ababa, while most Ethiopian manufacturing firms, where wages were higher, were mainly located within the Addis Ababa perimeter.

As the Ethiopian manufacturing sector employs large numbers of women, especially in the comparatively low-paid unskilled job category, we re-estimated our preferred specification separately for women in the manufacturing sector. There are few substantive differences to the full sample regression. Most notably, the years of

tenure in the current job no longer have a statistically significant effect on wages, meaning that women face slower pay progression. In addition, the effect of being located in manufacturing park is now even stronger, with an implied wage loss of over 30% compared to firms outside parks, suggesting that the largely international firms in the industrial parks, including Chinese firms, have a stronger segmentation of skill-groups by gender than the firms outside the parks, which includes all of the Ethiopian firms in our sample.

In summary, there is little evidence for systematic differences by firm ownership once firm and workers characteristics are controlled for. However, in the Ethiopian manufacturing sector, foreign firms located in industrial parks, including Chinese firms, pay lower wages than Ethiopian firms. This effect is driven by the location of most of these firms in industrial parks that serve sophisticated global production networks and facilitate the payment of comparatively low wages, though many firms had only recently started operations and were anticipating higher wages in the future. The wages paid by Chinese manufacturing firms operating in industrial parks are comparable to those paid by other international firms. Descriptive statistics suggest that Chinese construction firms pay lower wages than both Ethiopian firms and other foreign firms, though the effect is mainly observable among the better-paid semi-skilled workers, and differences are likely to reflect location effects and different project cycle stages given the particularities of different infrastructure projects led by Chinese and comparator firms.

6. Drivers of variations in wages across sectors and firm origins

The regression analysis of wage determinants suggests a number of important stylised facts. First, skills and experience matter a lot. Coefficients capturing both a semi-skilled status and years of experience in the sector are generally strong, positive and highly significant whereas years of schooling seem to have only a weakly positive effect. Second, relatively better-off workers (measured by a socio-economic status index) tend to command higher wages, other things being equal. This is especially significant in the case of Angolan workers. This effect may reflect the lower reservation wages and weaker bargaining power of poorer workers. By contrast, migrant workers do not receive lower wages on average, and are more likely to receive higher wages, especially in the Ethiopian and Angolan construction sector, where locally hired workers are usually engaged for simple tasks and migrant workers travel with the projects and receive a wage premium for their experience and skills. Third, the nationality of ownership does not have a consistent effect on wages. Once a range of confounding factors is controlled for, we find that in both countries the origin of the company is not a statistically significant determinant of wages. However, we do find evidence suggesting the presence of variegated labour regimes, such as descriptive statistics suggesting that domestic firms pay higher wages for some categories of workers, and regression results showing wage differentials between firms located inside and outside industrial parks, and between skill groups and project types in the construction sector.

Insights from field reports, observations from work sites, and in-depth interviews with workers and government officials, as well as paired interviews with firm managers, help us understand the operations of distinct labour regimes in both countries. The contours of labour regimes are determined partly by sector specificities, partly by company choices in relation to recruitment and labour control, and partly by the national political economy context. Below we highlight five labour regimes that illustrate why wages differ between sectors, firms of different origins, and segments of workers.

¹⁷ Exports to the US were greatly reduced following Ethiopia's suspension from the African Growth and Opportunity Act (AGOA) and the loss of preferential market access in January 2022.

Within the construction sector in both countries, we find that the workforce is highly segmented into two broadly distinct categories of workers and their respective labour regimes. First are permanent or 'stand-by' construction workers 'travelling' with projects when contractors win new bids. This was particularly important in the context of crisis-hit Angola. When construction tenders dried out, most firms, especially Angolan and some non-Chinese foreign firms, operated with only their 'core' workforces and did not hire new temporary workers. As temporary workers are more likely to be lower-skilled and therefore tend to receive lower wages, the construction crises eliminated the lowest paid workers in the most affected firms. In both Angola and Ethiopia semi-skilled construction workers across firms of different origins tended to command higher wages. Compared to low-skilled construction workers, semi-skilled workers had more years of experience in the sector as well as specialist skills that made them particularly attractive to employers. High demand for comparatively scarce experience and skills pushed firms to retain such workers even when projects became scarce. Such workers are typically housed in construction camps alongside foreign workers, though their housing is often of lower quality than that of 'expats'. Many of these workers were not prepared to work for lower wages and they managed to negotiate longer term contracts despite the project-based nature of much of construction employment.

Second, low-skilled construction workers face very different, and much more localised, labour regimes. Low-skilled workers are mostly local residents who are hired casually or for specific project phases, usually for more labour-intensive segments of a road project that do not require much experience or specific skills. Their comparative lack of skills and experience in the sector, and few opportunities in local labour markets leave them with very weak bargaining power and very limited alternative job opportunities. This is especially true of those living in more remote rural areas alongside road projects. This kind of employment was pervasive in Ethiopian construction sites and also a relatively common regime among Chinese and some other foreign contractors (and their sub-contractors) in Angola and Ethiopia, which is reflected in the lower wages found in firms on such projects. Interviews with government officials and company managers in both countries suggested that several contractors, especially Chinese state-owned enterprises, were put under pressure to maximise local labour hiring in road projects, thus adding more workers to this casualised low-wage labour regime. For example, when the survey took place in Angola, most Chinese contractors were in the early phases of new road rehabilitation projects, financed through a renewed Chinese credit line, at a time of crisis and employment squeeze in the sector.¹⁸ Some of these firms had recently arrived in the country, and therefore were more reliant on locally hired low-skilled workers compared to other contractors. In Ethiopia, most foreign contractors were often strongly encouraged to hire local workers, even if on temporary contracts, in order to spread employment opportunities in areas where waged employment was scarce. This was especially the case for those Chinese contractors that operated the largest road projects and consequently tended to work in more remote areas. Not surprisingly, these workers received the lowest wages among all the sampled contractors.

The third distinct labour regime was found in Angola, as a 'dormitory labour regime', whereby companies directly recruited migrant workers from particular areas in South-central Angola (*su-*

lanos), providing them with housing and meals.¹⁹ This type of labour regime was particularly common among a group of Chinese firms, mostly in factories in the capital, Luanda, but also in a subset of state-owned contractors with municipal road projects. Cash wages in these companies were relatively lower, partly reflecting the lower reservation wages of migrant workers coming from some of the poorest areas of the country. These low cash wages were however partly compensated by a 'social wage' in the form of accommodation and meals, which we estimated at roughly 11,000kz per month, which other companies did not offer to the same extent for Luanda-based workers. Given that different companies also offered meals without accommodation and that the cost of extra meals could not be easily imputed, we added a conservative and bare estimate of 'social wage' for workers in dormitories estimated at 6,000kz just for the accommodation. This was particularly important for workers housed in or near Chinese-owned factories in Luanda, where living costs are very high by both local and regional standards. As a result, workers in such dormitory labour regimes received lower cash wages but were able to save more money at the end of the month than their counterparts in other factories who received higher wages but also faced much higher living costs. It is important to note that Chinese-owned industrial firms in Ethiopia did not implement a dormitory labour regime, so this peculiarity is not simply associated with the common practice of dormitory labour regimes in China's manufacturing sector.

A fourth labour regime operates in some (but not all) of the leading Angolan manufacturing enterprises, characterised by the presence of a segment of local 'labour aristocracy'. These firms mostly produce building materials for the domestic market. Workers in such companies tend to have longer term contracts, significant tenure in the company, longer sector and labour market experience, higher wages for both low-skilled and semi-skilled workers, and superior non-wage benefits. Parts of these wage differentials can be explained by differences in living costs among distinct labour forces. Workers in leading Angolan manufacturing firms also faced higher living costs than informal workers living in the most precarious slums of Luanda. Nonetheless, the labour regime in these Angolan factories was quite different from those found in Chinese and other medium-sized foreign firms. The superior working conditions in local manufacturing firms appear to be associated with the relative market protection and easier access to finance many of these companies enjoyed. Most of these top Angolan manufacturing firms (especially in cement and cement products), were sector 'leaders' with significant political exposure, as they had strong links to the ruling elite of former President Dos Santos' network. They operated in a more financially secure environment, partly thanks to generous access to loans from Sonangol, the national oil company, and local banks dominated by the same elites.²⁰

Finally, a fifth type of labour regime was in operation in light manufacturing in Ethiopia's new industrial parks. This is a labour regime common to many foreign-owned GPN-linked apparel firms in low-wage countries like Ethiopia, Bangladesh or Madagascar. Most of the sampled firms located in industrial parks were integrated into GPNs where a 'double squeeze' of profits and orders means labour control is tighter and wages repressed unless overtime work and performance bonuses contribute substantial additional remuneration. However, the 'industrial park' effect found in the regression analysis does not simply reflect an 'external' effect, in the form of a tighter labour control regime common among suppliers to GPNs. Indeed, many of the sampled firms were

¹⁸ This new credit line included a record commitment of USD 16bn in 2016, at the peak of the economic crisis in Angola, but this figure included a significant refinancing of previous loans and some debt relief, therefore not all new fresh funding for new projects, as shown by Acker, Brautigam, and Huang (2020).

¹⁹ For research on the importance of 'dormitory labour regimes' in China see Smith and Pun (2006).

²⁰ See Wanda (2021) Ferreira and Soares de Oliveira (2019) and Ovidia (2018) for analyses of state and domestic business connections in Angola.

newly established firms of a variety of foreign origins, some having started operations only months before our worker surveys, thus many of the workers included in the study were recent hires with very limited experience and operating at fairly low productivity levels. It is therefore important not to neglect this important difference with Ethiopian and some other foreign firms that were either more established in the Ethiopian market or did not export through GPNs. Furthermore, specific location effects, especially in the industrial parks located further away from the Addis Ababa area, contribute to lower initial wages. Whether low-wage GPN-linked labour practices in apparel, location-specific effects or the limited experience of the firms in Ethiopia account for a significant share of these wage differences, this labour regime was the most strongly contested. Low wages fuelled the emergence of grievances and associated labour conflict in these early stages of investment, as discussed in more detail in [Oya and Schaefer \(2021\)](#).²¹

7. Conclusions

The growing presence of Chinese firms in Africa raises important developmental questions, especially about their employment outcomes. Using survey data on over 1,400 workers from Ethiopia and Angola, we explore variation in wages across different sectors, skill levels and types of firms in manufacturing and infrastructure construction. The article ascertains the extent to which the national origin of a firm is associated with higher or lower wages. The results of our analysis show that there is substantial variation within and between firms of different origins in Angola and Ethiopia. A combination of several factors, including individual worker characteristics (age, socio-economic status, work experience, schooling, skills, and migration status), sector specificities, location, and a range of firm attributes, including the origin of ownership, help us explain much of the variation in wages in both countries. While we find slightly lower wages in Chinese companies in some segments, there is no clear evidence that Chinese firms consistently pay less than comparator firms within same sector and countries. Differences are either statistically insignificant, inconsistent across sub-samples, or can be explained by a range of contextual factors. The observed differences in wages and working conditions, especially in Angola, to an extent reflect a striking segmentation of the workforce, which is partly associated with firm origin, and primarily a marker of local contextual circumstances. These segments reflect the employment dynamics in Chinese firms that on average entered the Angolan market much more recently than either Angolan or other foreign firms. In Ethiopia, wage differences primarily concern newly established apparel foreign firms located in industrial parks, and are driven by individual worker characteristics, location effects, and sector of employment. In both countries a focus on the origin of the firm as a key determinant of wages is generally misleading.

Understanding labour outcomes and employment dynamics in the emerging construction and manufacturing sectors in African countries requires a careful analysis of a multi-layered configuration of labour regimes. Outcomes are therefore a function of the combination of national level factors that shape labour market dynamics in each country, as well as sector specificities that shape organization of production and labour processes, leading to different practices and patterns of labour segmentation, and finally, the

everyday workplace encounters of employers and workers at firm level. These depend on a further array of individual worker and company attributes of which the origin of the firm is only one and not particularly significant on its own. The upshot is that the kind of 'methodological nationalism' that has dominated in previous research on labour relations in Chinese firms in Africa is analytically and empirically unhelpful.

Despite the wide range of determinants of wages and the importance of specific contextual configurations of labour regimes, there are salient policy implications. The weakness of labour institutions in both Angola and Ethiopia and especially the lack of a sector-relevant minimum wage in Ethiopia contribute to low wages and some of the observed workplace labour conflict ([Oya & Schaefer, 2021](#)). For different reasons, the governments of Angola and Ethiopia were mainly focused on getting infrastructure projects completed in short timeframes or on attracting more foreign investors towards the emerging manufacturing sector, and the new jobs created therein, while broadly neglecting considerations of wages and working conditions. By not prioritising the quality of jobs, there is a risk that pressures from lead firms, a proliferation of highly mobile investors, and limited labour regulation will render employment gains unsustainable. Job creation in new sectors like manufacturing and modern construction is much needed, but compromising on the quality of new jobs may significantly reduce the appeal of such jobs among new labour market entrants and limit the contribution of these emerging sectors to the wellbeing of the working population and their families.

CRedit authorship contribution statement

Carlos Oya: Conceptualization, Investigation, Methodology, Supervision, Visualization, Writing – original draft, Writing – review & editing. **Florian Schaefer:** Conceptualization, Data curation, Investigation, Methodology, Visualization, Writing – original draft, Writing – review & editing.

Data availability

Raw dataset deposited at UK Data Service, link available here <https://reshare.ukdataservice.ac.uk/853951/>

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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²¹ See also [Hardy and Hauge \(2019\)](#) and [Chu and Fafchamps \(2022\)](#).

Appendix

Table A1
Sample descriptive statistics.

Variable	Angola		Ethiopia	
	Const.	Manu.	Constr.	Manu.
Respondent's age (mean)	31.6	28.9	26.9	25
Share of male workers (%)	98.9	99.3	84.8	24.2
Migrated for current job (%)	55.6	44.6	44.2	72.3
Years in education (mean)	7.9	7.5	6.9	10.1
Share who are semi-skilled (%)	51	32.7	35	12.9
Asset index (mean)	4.1	4.0	2.5	3.2
Tenure in current job (mean years)	2	3.6	1.8	3.3
Previous construction experience (mean years)	4.3	2	1.4	0.1
Previous manufacturing experience (mean years)	0.2	0.5	0.2	0.6

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