

The background of the cover is a photograph of a construction site. It shows multiple rows of rebar cages (scaffolding made of steel bars) laid out on a reddish-brown soil. The cages are arranged in a perspective that leads towards the background. In the lower right, a blue hard hat is visible on one of the cages. The overall scene is brightly lit, suggesting a sunny day.

Chinese firms and employment dynamics in Africa: A comparative analysis

Synthesis Report

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Acronyms

AGOA	African Growth and Opportunity Act
CSA	Central Statistical Agency
EIC	Ethiopian Investment Commission
EIZ	Eastern Industrial Zone
ETB	Ethiopian birr
FDI	Foreign direct investment
ILO	International Labour Organisation
OF	Other Foreign
PPP	Purchasing Power Parity
SOE	State-owned enterprise
SSA	Sub-Saharan Africa



Executive summary

This report presents the synthesis of the main findings of *the Industrial development, construction and employment in Africa* (IDCEA) research project. This research project www.soas.ac.uk/idcea set out to explore comparative evidence on working conditions in emerging construction and manufacturing sectors in Africa. The initial aim was to probe widespread perceptions in media and by some commentators that Chinese firms tend to rely on Chinese expat labour, that working conditions in Chinese firms are poor, and that their contribution to training is limited. The study challenges these popular perceptions through an extensive desk review and a combination of quantitative and qualitative methods to gather detailed comparative evidence. An additional aim of the study was to analyse the characteristics of an emerging industrial workforce in countries with different economic growth patterns. Ethiopia and Angola provide two useful contrasting contexts for these questions.

The findings are based on 4 years of fieldwork-intensive research on employment patterns and outcomes in the infrastructure construction and manufacturing sectors in Angola and Ethiopia, where large-scale surveys of workers and extensive

qualitative research were conducted between 2016 and 2018. The research concentrates on two sectors where the employment contributions of foreign, including Chinese, firms are particularly important: manufacturing and construction (for the latter, specifically in road infrastructure).

We adopted a research design based on a sequential mixed methods approach that was operationalised through a carefully designed comparative framework. An international research team completed extensive qualitative scoping research, desk reviews and two large-scale surveys of workers in Ethiopia (837 workers) and Angola (682) in March-August 2017 and September 2016-March 2017 respectively. These workers were distributed in 37 firms in Angola and 40 companies in Ethiopia, roughly half of them being of Chinese origin. Qualitative data collection continued until July 2018, firm management surveys were completed in 2018, and subsequently additional longitudinal data were collected through phone surveys in late 2018 and early 2019. The approach was to compare like with like as much as possible, selecting all the leading Chinese, other foreign, and domestic firms within specific and highly relevant sub-sectors. In other words, we compared workers in

leading Chinese firms with the best of the rest, not with the average.

Overall the project shows that national, sector and economic context are more important in understanding labour conditions in Africa than the country origin of the firm itself.

On the question of job creation and the proportion of national (Ethiopian and Angolan) workers in the labour force we find that workforce localization rates are substantially higher than usually assumed in media perceptions. In Ethiopia these rates were 90% of all workers (and 100% for low-skilled workers) and in Angola, where rates are usually much lower due to skill shortages, estimated rates were 74%. In Angola we found that localization had grown significantly in the previous 10 years as Chinese firms settled in that market context. Given that Chinese contractors have dominated the road construction market in Ethiopia and Angola, they have been the main contributors to job creation in absolute terms, especially in recent years.

Different sectors and firms employ heterogeneous workforces. **In both countries we found evidence of significant labour force segmentation, especially in Angola**, where we could distinguish between two clear segments: a) poorer migrant workers with lower education levels and much less relevant sector work experience dominate the workforces in many Chinese firms in both construction and manufacturing; b) a relatively higher-skilled segment of workers, with education levels above the average urban worker, and more work experience in construction and manufacturing, who are older and enjoy more stable work arrangements, is concentrated in Angolan and other foreign firms, especially in Angolan factories in Luanda and firms operating in a major dam project. These segments reflect the different employment dynamics in Chinese firms that on average entered the Angolan market only 10 years ago in contrast with Angolan and other foreign firms that have a more consolidated position in the country. They also reflect the reaction of Chinese managers to the perceived lack of discipline and reliability of Luanda-based workers, which encourages them to effectively set up a 'dormitory labour regime', to improve labour control, as it is also common in many parts of

China. Perhaps more striking is the fact that this kind of practice is rare in Ethiopia, where only few Chinese firms opt to have worker dormitories, while other foreign companies appear to be contemplating this option as a way of combatting high labour turnover. In both countries the presence of migrant labour is, however, conspicuous, especially in manufacturing firms.

Segmentation among Ethiopian workers has different characteristics. Among the low-skilled workers, employees of Ethiopian companies are much older than workers in Chinese or other foreign-owned firms, where workers are very close to one another in average age and also have markedly lower levels of education. While women form the majority of the low-skilled labour force across all company types, this is most pronounced in other foreign firms, including Chinese firms. Factory work is highly gendered in Ethiopia, with dominance of women workers especially in textile, garment and shoe factories, whereas Angolan factories producing building materials are entirely male-dominated. Sector and country matter a lot in defining the patterns of segmentation.

In order to explore working conditions, we first compared take-home wages for workers by skill-group (low-skilled and semi-skilled) and by sector across different firms by origin. A combination of descriptive and statistical regression analysis reveals that there is significant variation in wages and that the main determinants are, for Ethiopia: skill level of workers; working in construction (higher wages); job tenure; education; work experience; socio-economic status and location, like being located in an industrial park, where wages are slightly lower. In Angola the main determinants of wages are: skill level of workers; job tenure; work experience; socio-economic status; specific location effects; and an indicator of sample bias. **Once we take all these factors into account the origin of a firm does not impact on wages on average.** In other words, wages in sampled Chinese firms were broadly similar to other top firms in the same sectors, once other worker and company characteristics are taken into account. An interesting finding is that in Angola many Chinese firms adopt a migrant 'dormitory labour regime' by employing relatively poorer workers from the Centre-South of the country, where employment opportunities are

scarce. Therefore, these workers also obtained food and accommodation and managed to save more from their wages than workers employed in other firms, especially in Luanda, where living costs are high. While firms benefited from the weaker bargaining power of these workers it is also true that they offered more stable and better paid jobs to poorer labour market entrants in Angola.

Reported wages are not 'poverty wages' in the strict sense. In Angola and Ethiopia, even the lowest-paid low skilled workers receive wages that are above the extreme and moderate international poverty lines. In Angola, all workers earn wages that are above the sector minimum wage and a majority of workers earn well above minimum wages. However, most workers complained that their wages were too low when compared with relatively high living costs, especially for migrants who had to face high housing and food costs in those cases where accommodation and food were not provided by employers.

Sector specificities and country context are also crucial to understand differences in the non-wage benefits workers obtain, which vary substantially, as well as the degree of 'formality' in labour arrangements. What was common to both countries was the absence of labour intermediaries and complex labour recruitment systems. In Angola, Chinese firms are more likely to offer free food and accommodation whereas other firms reflect more formalization in labour arrangements through higher incidence of benefits like sick leave, holidays, and medical assistance. In Ethiopia the differences are less systematic but both Chinese and other foreign employers are more likely to offer meals in factory sites. Occupational hazard, especially reported injuries and work accidents are broadly similar across firms by origin, although more common in construction sites and less common in Chinese firms.

We find evidence that in Ethiopia sampled Chinese firms contribute to training and skill development at least as much as other firms in the same sector, but it is in the manufacturing sector where training is widespread and considered as much more necessary by firms.

In Angola, all firms have to provide different forms of informal on-the-job training given the severe skill shortages in the country especially for workers lacking relevant experience and education, but national firms and some foreign firms tend to have some more formal types of initial induction training. In any case, the contribution to skill upgrading, whether through formal or informal means, is beyond doubt, especially for workers with very limited prior experience in these sectors.

In relation to labour relations at the workplace we find evidence that generally leading national firms are more used to having trade union presence, whereas foreign firms, including Chinese companies, are more reluctant to engage with unions and tend to adopt different management styles. However, we also found that there was no difference in the level of labour conflict across firms in both countries as all kinds of firms were similarly affected by strikes over wages, especially in the Ethiopian manufacturing sector. Labour conflict is not only manifested in strikes and tense encounters at the workplace. It is also reflected in forms of passive resistance such as absenteeism and theft, which was reported to be common in Angola but not in Ethiopia. Instances of abuse by managers and supervisors, more widely reported in Ethiopia, and poor communication, a feature found in both countries, reflect some of these workplace struggles. There is also a clash of expectations between an emerging industrial working class with aspirations of well-paid and stable jobs, and new investors in search of a low-cost and docile labour force. The weakness of labour institutions in both Angola and Ethiopia and especially the lack of a sector-relevant minimum wage in Ethiopia contribute to some of these tensions at the workplace.

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. Overall, the study shows that context, both national and sector contexts, as well as the circumstances of the economies and countries when surveys were conducted, are more important determinants of labour outcomes and labour relations than the origin of a firm.

1 Introduction: manufacturing and construction growing in Africa



Emerging economies in sub-Saharan Africa (SSA, or Africa hereafter) have experienced accelerated growth and – varying degrees of – structural change in recent years, especially since the early 2000s. In some countries, such as Ethiopia, growth has been resilient, even during the post-2008 global recession. Ethiopia has been a hub for foreign direct investment (FDI) into the manufacturing sector for the past ten years and is seen today as the leading example of a new industrialization drive in Africa. Angola, on the other hand, is growing rapidly on the back of years a commodity boom and high oil prices, combined with the peace dividend of the postwar reconstruction effort since 2002.

However, prevailing employment structures in Africa are still characterised by a lack of higher-productivity jobs and a reliance on low-productivity agricultural and 'informal' service activities, with relatively high unemployment rates in large urban centres, improvements since the 1990s notwithstanding.

Limited structural change and industrialization in most of SSA are reflected in substantial underemployment in rural areas and low-return informal jobs. Therefore, accelerated growth in infrastructure development and higher productivity manufacturing are important aspirations for many African countries. Ethiopia, for example, has translated those aspirations into an ambitious industrial strategy, aimed at generating manufacturing jobs through a combination of state-led investment in infrastructure and FDI-driven growth in the export-oriented manufacturing sector. Angola, on the other hand, has focused on rebuilding after decades of war and has only recently begun a slow process of economic diversification in order to reduce its oil dependence and attenuate associated risks, which were illustrated by the economic crisis that hit the country in 2015-17.

In this context China's economic engagement in Africa is attracting widespread attention, and has generated debates across the continent, and beyond, about the implications for Africa's economic development. An optimistic view sees Chinese engagement as an act of South-South solidarity, which offers African countries the opportunity to create jobs, increase trade, and expand their manufacturing capabilities, or at least as a sound

business opportunity likely to generate benefits for both Africans and their Chinese partners. By contrast, a more pessimistic view paints China as a rising imperial power seeking to use its newfound economic clout to exploit African resources and workers for its own benefit. Regardless of the interpretation, Chinese investments and construction activities have grown rapidly in recent years.

Understanding the emergence of Chinese actors in African countries, especially of state-owned enterprises (SOEs) and private firms in construction and manufacturing, requires an understanding of the contextual dynamics of transformation and rapid growth that have shaped the phenomenon of China's 'going out' (*zou chu qu*), since the early 2000s (Lo, 2018; CICCPS, 2016). There are important shifts in the pattern of growth and development strategies in China towards a 'new normal' that should see a greater role for domestic demand, innovation, and the globalization of Chinese firms. Meanwhile, there are also important labour market trends that are changing the prevailing labour regimes in China, driven by rapid wage growth above productivity growth since the early 2000s (Lo, 2018), more significant labour militancy, and greater government concern for the welfare of workers (Xu and Chen, 2019; Luthje et al., 2013). These labour market trends are shaping the nature of 'going out' processes among different varieties of state and private capital in China, and driving the dynamics of expansion and relocation of low-wage productive segments overseas, including towards Africa. Therefore, the globalization of Chinese firms has implications for developing countries, which are a primary destination of their productive investments and construction services.

In 2017, Africa represented 30% of total overseas revenues for Chinese infrastructure contractors, up from 13% in 2000 (SAIS-CARI, 2019). In the same year, 60% of the contract revenues of the top 250 international construction contractors in Africa was accounted for by Chinese firms, up from 15% in 2004 (Wolf and Cheng, 2018). In a prominent report McKinsey (2017) estimated that over a thousand Chinese firms involved in construction and real estate represent nearly 50% of African markets. Chinese FDI flows to SSA has continued to expand and between 2012 and 2017 Chinese FDI stock to SSA doubled from around \$20bn to nearly \$40bn (SAIS-CARI database).



The McKinsey report (2017: 30) estimated that there are 10,000 Chinese firms operating in Africa, most of which are private enterprises. Of these firms 31% are in manufacturing, 25% in services, 22% in trade and 15% in construction and real estate. According to SAIS-CARI data, the share of manufacturing in the Chinese FDI stock in Africa is around 14%, but the Chinese share in the number of projects (rather than the volume of investment) is significantly higher (Shen, 2015).

Angola and Ethiopia 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. Second, they are different contexts of Chinese engagement in terms of their political economy, employment dynamics and industrial development. Therefore they offer a significant contrast that is useful for analytical and empirical purposes. Angola is the top recipient of Chinese official loans in Africa in the period 2000-17 with 30% of total value of loans, followed by Ethiopia with 10%. As a result, both countries are at the top in terms of shares of Chinese infrastructure contract revenues in Africa, with roughly 14% each on average in the

2012-17 period. Angola reached a peak of 26% of Chinese contractor revenues in Africa in 2009, when the country was enjoying an oil and infrastructural bonanza (calculations based on data from SAIS-CARI database). According to the same sources, Chinese FDI to Angola grew rapidly in the 2014-17 period, with construction and mining receiving the lion's share (around 25-30% each). In Ethiopia, Chinese FDI stocks doubled between 2014 and 2017, to over \$2bn, representing 5% of total Chinese FDI stock to SSA (calculations based on data from SAIS-CARI database). Moreover, in Ethiopia a large proportion of Chinese private investment has gone to manufacturing, unlike in other African countries.

However, the available evidence on employment patterns and outcomes associated with Chinese firms in Africa is limited.

While there is a heated debate about wages and working conditions in Chinese companies operating in the continent (Jenkins, 2019; Baah and Jauch, 2009; HRW, 2011; Sautman and Yan, 2011), the available literature on these issues has a number of limitations. First, there is not enough evidence comparing conditions in Chinese firms to those in other companies. Second, we lack quantitative evidence for large samples of randomly selected workers across different firms. Third, we need more integrated qualitative and quantitative evidence, aimed at explaining not only outcomes but also reasons for such outcomes. This report focuses on the main findings of the first comparative quantitative surveys conducted in African countries with large samples of workers employed by domestic and foreign (including Chinese) firms in infrastructure construction and manufacturing. The synthesis brings new evidence on patterns of workforce localization (i.e. reliance on national African workers), the characteristics of the emerging labour forces in construction and manufacturing, wages, non-wage working conditions, patterns of skill development and workplace labour relations. The report does not provide an exhaustive inventory of the evidence collected for this project, as there are other outputs dealing with different aspects and more in-depth analysis at country level. The aim is to bring the

survey results from Ethiopia and Angola together, highlighting some common patterns as well as a range of differences.

The remainder of the report is structured as follows. Section 2 summarizes the research questions and analytical framework informing the design and analysis of this research. In Section 2 we review the available literature and evidence before Section 3 provides an overview of the research design and main sample and firm characteristics. Section 4 introduces the political economy of the national contexts of Angola and Ethiopia, where workers' and firm surveys were conducted. This is followed by an analysis of comparative evidence on the characteristics of workers by sector, skill level and origin of firms, and the patterns of segmentation found in each context in Section 6. The analysis of working conditions, in their different dimensions (wages, benefits, working hours, security), is the focus of Section 7, which also presents some of the most salient findings with regards to labour relations and management-worker interactions, as well as training. Section 8 concludes with a summary of main results.



2 Research questions and analytical framework

This study focuses on the dynamics of employment creation in the emerging sectors of infrastructure building and manufacturing, and particularly on the employment conditions found therein.

This section presents the main research questions and the core analytical framework, with an emphasis on the need to transcend 'methodological nationalism' inherent in some of the literature on working conditions in Chinese firms in Africa, in the attempt to understand variations in working conditions as well as the drivers of job creation, in light of the combined effects of a wide range of factors at global, national and local level, beyond – but obviously not excluding – firm origin.

Research Question 1

What are the patterns and determinants of job creation (and labour localization) in manufacturing and infrastructure development in Sub-Saharan Africa and specifically in Ethiopia and Angola?

The focus is on *direct* job creation. While indirect and induced job creation are also clearly important to understand contributions to employment, the scope of this project could not extend to such ambitious aims. This question focuses particularly on the balance between the use of local/national and expatriate labour and the conditions that shape variations in job creation across sectors and firms and over time. A subsidiary question is whether workforce localization rates in Chinese firms are significantly different than other firms and why.

Research Question 2

What are the *extrinsic (objective)* working conditions in the *leading* firms of the infrastructure construction and manufacturing sectors in Angola and Ethiopia?

This is the main focus of the research. We focus in particular on the range of factors affecting variation in wages, as well as the nature of labour regimes in different sectors and for different firms. Given the interest in comparisons among firms of different origin, we analyse contrasting results between Chinese, national and other foreign firms.

Research Question 3

To what extent and how do foreign and domestic companies contribute to skill development for African workers in these sectors?

Linked to the question on working conditions, particular attention is given to the incidence, patterns and variation in processes of skill development as well as how firms, especially foreign companies, deal with skill shortages in emerging non-agricultural sectors. Skill development and better working conditions are linked to social upgrading of African workers and this study provides evidence on these aspects.

Research Question 4

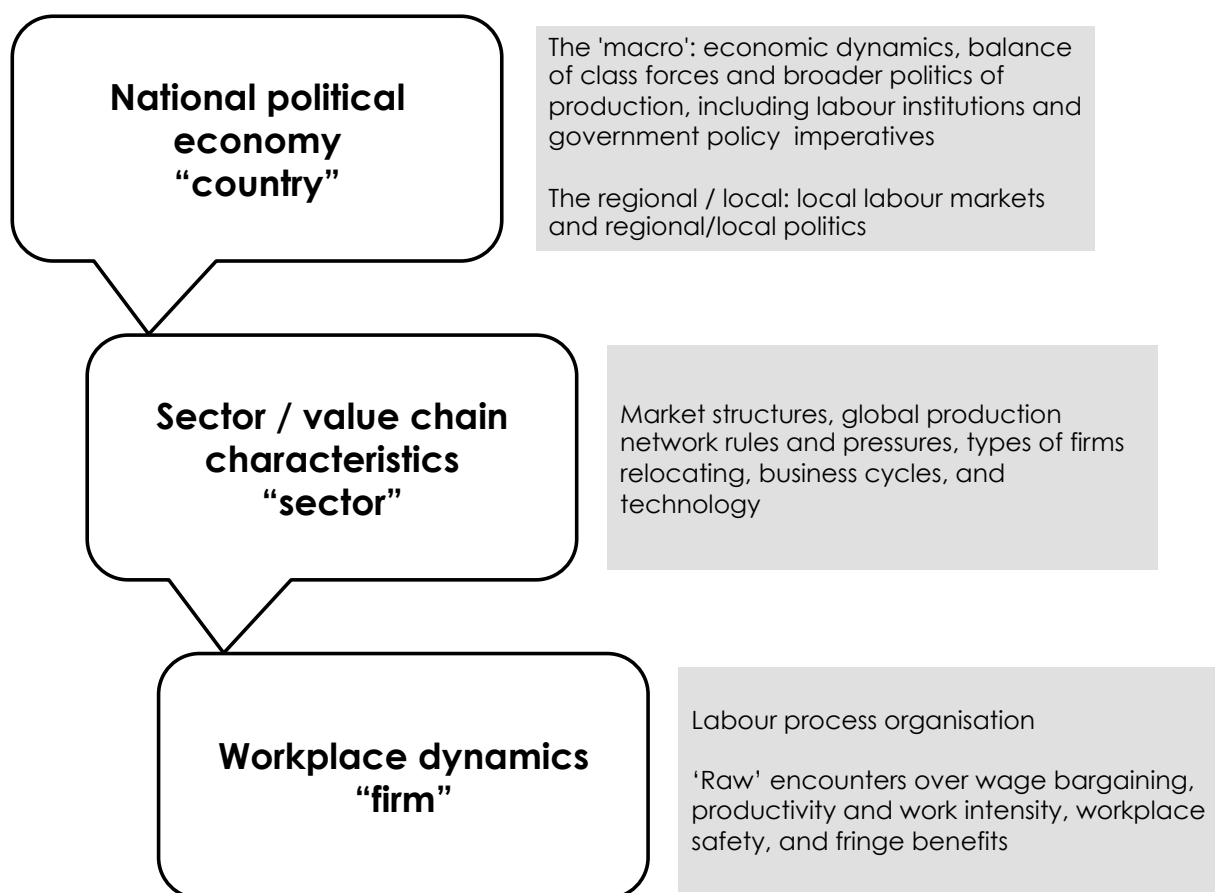
What are the characteristics of the emerging non-agricultural workforce and their implications for future structural transformations?

We are interested in the long and uneven process of building an industrial labour force. The study aims to provide emerging profiles of workers in sectors that are expected to generate a significant number of jobs and draw labour from low-productivity sectors, especially agriculture.

To answer these questions we adopt an analytical framework that builds on different strands of literature spanning the following topics: (a) labour process theory and labour regimes in contemporary capitalism; (b) the geography of global value chains and production networks, and the new international division of labour configurations; (c) the effects of FDI on employment outcomes and skill development; and (d) the role of Chinese firms in the dynamics of structural transformation and employment creation in Africa.

Based on insights from these different conceptual traditions, our analytical framework combines three different and interconnected levels of analysis to explain the multiple determinants of labour outcomes in a given context (see Figure 1). 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 (Smith et al., 2018; Baglioni, 2018).

Figure 1 – Multi-scalar labour regime configuration



First, beginning at the bottom, are the micro-level workplace dynamics and 'raw' encounters between employers and workers over wages, productivity imperatives, safety, effort, and labour time. The theoretical framework we draw on in our explanation is based on the notion of labour regimes, i.e. "the interrelations of (segmented) labour markets and recruitment, conditions of employment and labour processes, and forms of enterprise authority and control, when they coalesce in sociologically well-defined clusters with their own discernible 'logic' and effects" (Bernstein, 2007: 7). In addition, labour regimes incorporate the institutions of social reproduction which, taken together, ensure that workers can be mobilised, motivated, utilised in production, and reproduced (Taylor and Rioux, 2018).

Second are the characteristics and dynamics of a particular sector or global production network, which cut across national boundaries and generate specific imperatives of labour control and standards, through market structures, competition, global chain rules, and technology, and which are intimately linked with skill requirements, the spatial dimensions of labour processes, and even prevailing work culture and management ethos (Anner, 2015). Integration into sophisticated global production networks serving consumer markets in high-income countries is different to 'simply' exporting goods. While all exporting companies are exposed to the 'disciplining' effects of international markets, the pressures they face are very different to those found in the global production networks that produce relatively high-quality goods for sale in the US and EU. These networks are organised and controlled by powerful and demanding lead companies that impose rapid turnaround times and low profit margins on their suppliers. For suppliers tied into such global production networks these pressures result in a very different organisation of the labour process, by which we mean the conversation of labour power, which is a person's capacity to work over a given time period, into realised work (Taylor and Rioux, 2018). *A priori*, we expect labour processes in companies tied into global production networks to be subject to much more detailed managerial interference, and managers to rely on more sophisticated – and often harsher – labour control regimes.

Third is the national political economy, and particularly the macroeconomic dynamics shaping economic transformations and structural change alongside the macro-level politics of production and state–society relations which shape labour supply dynamics and the arenas of different struggles, whether over the extent of commodification, the limits to labour reproduction, or claims over representation. In this case, the national-level politics of production in terms of the relations between state, capital, and labour, as well as the institutions that underpin these relations are critical to understanding labour outcomes in any given sector across countries (Lee 2017; Anner 2015). Through this analytical lens, it is possible to explore the combination of a wide range of factors in determining labour standards for a particular firm and sector.

Considering such a variety of factors is necessary to avoid methodological determinism when particular issues are in focus, such as the nationality of firms, the country of operation or the global value chain. Much of the early literature on Chinese firms in Africa has focused on the labour practices in these firms as if they were unique, culturally driven, and detached from the economic realities and imperatives of the sectors and labour markets they are part of. There are already some important contributions that have questioned the 'Chinese exceptionalism' in labour studies in other contexts (Chan, 2015).

The variety of labour regimes present in China across sectors, varieties of capital, and locations, should question the validity of narratives of 'Chinese labour practices' (Luthje et al, 2013).

The specific combinations of factors considered in this multi-scalar labour regime configuration constitute a framework where the origin of a firm is just one of many determinants. Moreover, firm origin is likely to be associated with other sector, firm and contextual attributes, which together account for variation in wages and other working conditions.

3 What do we know from existing literature and data?



Before we lay out the findings of our own empirical work we present a review of key published sources and data that have contributed to the debate on labour issues in relation to Chinese firms in Africa. The literature on these questions, albeit limited, has grown rapidly in the past ten years, but there is still excessive reliance on media sources and anecdotal evidence.

While China is seen as a popular partner for African countries, primarily because of its contribution to infrastructure development,¹ Chinese employers do not enjoy the same popularity (Sun, 2017). Although the literature on labour-market effects of Chinese firms in Africa is still in its infancy, there are three types of common claims and perceptions that are

often found in media reports, some academic publications, and indeed when interviewing different kinds of respondents in business and government settings. First is the claim that Chinese firms mostly or often employ large numbers of Chinese workers in positions that should be filled by African workers. In other words, Chinese firms allegedly have particularly low rates of labour force localization. Second, it is often reported that working conditions are sub-standard and especially exploitative in Chinese firms in Africa. Third, the limited localization is compounded by very limited efforts to develop the skills of local workers. This section will discuss each of these claims in turn and compare with the best available evidence.

3.1 Workforce localization: do Chinese firms rely on Chinese labour?

Given the pervasive underemployment in most African countries and significant unemployment especially in Southern Africa, foreign investors and contractors are expected to make important contributions to job creation. However, there is a perception, especially common in media reporting, that Chinese firms rely

on Chinese labour and make only limited use of local labour (French, 2014).² At one extreme of this widespread narrative are lurid stories about the alleged use of Chinese prison labour in Chinese construction sites in Africa.³ This kind of story continues to be reproduced by journalists and even researchers (see

¹ <https://edition.cnn.com/2016/11/03/africa/what-africans-really-think-of-china/index.html>

Sautman and Yan, 2016, for some examples). Such rumours are now fortunately more widely questioned thanks to the growing availability of evidence to the contrary,⁴ even if such claims persist among uninformed commentators, firm managers, journalists, and even some African government officials, as we encountered in our own research in Angola and Ethiopia in 2016–17.

Claims of uniquely low localization rates in Chinese enterprises are sometimes bolstered by selectively reporting statistics on the number of Chinese workers in Africa. One oft-cited statistic claims there are 'one million Chinese workers in Africa' (French 2014). However, we now have a more accurate idea of numbers thanks to more reliable statistics compiled by SAIS-CARI. These do show a marked increase in Chinese expat labour between 2001 (nearly 47,000 workers) and 2016 (227,000 workers) with a peak of over 263,000 in 2015. These numbers may underestimate the true figures, as not all migrants are registered, but are more likely to be close to realities of Chinese labour in construction projects and other formal arrangements. The proportion of Chinese workers in the sub-Saharan part of Africa has been steadily declining from a peak of 78% in 2011 to only 58% in 2016, so that North Africa now is home to a disproportionate share of Chinese workers and lower levels of localization. In absolute terms, after years of growth, the number of registered Chinese workers in SSA declined by nearly 20% between 2015 and 2017, a sign that workforce localization has been gaining force both in absolute and relative terms.⁵ Given the stable pattern of trends in the presence of Chinese workers in the continent between 2009 and 2016, combined with the rapid increase in Chinese FDI and construction projects (Wolf and Cheng, 2018) which allows us to safely assume a similar or higher rate of growth in total job creation, most of the expansion in employment during that period must have gone to African workers.

Thus, the big question is not the numbers of Chinese expat labour in SSA but whether there is substantial job creation for African workers and whether the rates of

workforce localization (i.e. proportion of employment given to African workers as opposed to expat labour) are low or high. There are already a number of large studies and plenty of specific case studies suggesting that levels of workforce localization (as proportions of African workers in Chinese firms in Africa) are higher than usually assumed, and have been increasing across several countries in the past 10-15 years (Shen 2013; Sautman and Yan 2015, McKinsey, 2017; Jenkins, 2019). The most recent and comprehensive source of evidence on workforce localization is the survey of over 1,000 Chinese firms in eight countries conducted by McKinsey (2017). This report shows how these firms largely rely on local labour (i.e. African workers), despite some significant variation by project and sector. The average rate of localization is 89%. The sector of operations matters and localization rates are higher in some sectors than in other. In the manufacturing sector, for instance, the proportion of local workers is about 95% (McKinsey, 2017: 41). This is consistent with another large-scale compilation of more than 400 cases of firms and projects from several hundred interviews and thousands of documents (Sautman and Yan, 2015), which concludes that the average localization rate in Africa is 85%, with most firms clustered within the 80–95% band. About two-thirds of these cases and studies had localization rates exceeding 80%. Comparisons between firms of different (foreign) nationality are rare, but in one such study Rounds and Huang (2017) provide evidence of roughly similar rates of localization between Chinese and American firms in Kenya (78 and 82% respectively) even though these firms are not in the same sectors. There is still a lack of studies comparing the proportion of expatriate labour in non-Chinese firms (which we call 'other foreign' in this report) and Chinese firms in Africa. We present our own comparative empirical evidence on this question in Section 6.

Besides higher than expected localization rates, the above-cited surveys and compilations of case studies and localization data also show high levels of variation across African countries. National contexts matter and a generalised singular narrative about Chinese

² See also some examples of such reports in Brautigam's excellent critical blog <http://www.chinaafricarealstory.com/2012/01/africas-new-au-building-how-many.html>

³ The origin of this bizarre claim can be traced back to a New York Times column in 1991 <https://www.nytimes.com/1991/05/11/opinion/l-china-has-used-prison-labor-in-africa-540291.html>. See also Brautigam's blog on the matter <http://www.chinaafricarealstory.com/2010/08/is-china-sending-prisoners-to-work.html>

⁴ <https://www.reporting-focac.com/5-china-africa-myths.html>

⁵ All these calculations are based on analysis of data provided by SAIS-CARI at <http://www.sais-cari.org/data-chinese-workers-in-africa>



firms in Africa and their workforce localization fails to provide an accurate picture. Certain countries like Angola, Algeria or Equatorial Guinea receive more Chinese labour in absolute and relative terms compared to other countries where the presence of Chinese expat labour is much more limited. This has also implications for the scale of contribution of Chinese firms to job creation. In Ethiopia, where localization rates appear to be much higher, Cheru and Oqubay (2019) show that Chinese FDI created many more thousands of manufacturing jobs (nearly 40,000 between 2000 and 2016) than other foreign companies. Sinkala and Zhou (2014) report similar trends in Chinese FDI in mining and construction in Zambia. While Chinese firms have created a large number of jobs in Africa they do use some Chinese labour for strategically critical positions. Especially in the early period of expansion of construction projects and FDI, Chinese firms find it advantageous to use Chinese workers for management, engineering, and skilled positions. Chinese workers were more familiar with “companies’ organization and process”, could install new equipment imported from China more quickly, and help make sure the first projects, which often had political significance, were completed in very short timeframes, especially when compared

to competitors (Tang, 2016: 110). However, such hiring practices can change over the course of just a few years. In one study on Chinese SOEs in Ghana, Kernan and Lam (2014: 1053) conclude that Chinese SOEs have significantly increased the proportion of Ghanaian workers they employ and that ‘the localization experience is similar to those of Western companies in Africa where complete workforce localization takes a long time to achieve’.

What factors underpin this variation in rates of localization and job creation for African workers in Chinese firms? The first, and probably most significant factor, are differences in the requirements set out by host country governments on which positions can be filled by foreign workers and the concomitant enforcement of such work visa regulations (Sautman and Yan, 2015). Some countries (e.g. Ethiopia) have strict visa policies and only selected categories of foreign workers are allowed to obtain work visas. The enforcement of these regulations may also be stricter. The high localization rates we observe in Ethiopia suggest this is an important policy tool that can determine the rate of localization by imposition.

Second, some countries are more severely affected by shortages of suitable local workers for technically demanding construction projects, or have a limited pool of suitable workers when competition for labour becomes tighter due to, for example, rapid expansion in infrastructure projects. For example, countries like Angola or Equatorial Guinea are more affected by skill shortages in the labour market than countries with better education and training systems such as South Africa, Ghana, or Kenya. In a country like Angola Chinese firms may thus find it harder to compete with much more established Western or local companies for scarce skilled or semi-skilled labour.

Third, ownership type, i.e. whether a company is private or state-owned, seems to have mixed effects. Our own analysis of several cases of construction projects suggests that state-owned enterprises tend to employ relatively more local workers, partly due to their greater degree of compliance with legal requirements when these are set by host countries, and partly because of the costs of hiring Chinese labour in SOEs. However, the aforementioned McKinsey report (2017) finds the opposite for their sample of firms across different sectors, where

private firms tend to rely more on local labour (92%) than SOEs (81%). This difference is driven by the sector of operation, as private firms are more likely to be engaged in manufacturing and services, where localization rates are higher. In these sectors, barriers to entry for African workers are often lower compared to many technically complex infrastructure projects. Moreover, some infrastructure projects also suffer from the imperative of timely project completion, which reduces the scope for reliance on less experienced and therefore less well-trained local workers. Of course, project timelines, especially in infrastructure construction, are often set by local governments. In other words, sector matters and the specific technology used by a firm also shapes the need for expat labour in foreign firms.

Fourth, the longer Chinese companies operate in a country, the more settled they are, the more they rely on local workers (Tang, 2016; Lam, 2014; Sautman and Yan, 2015; Corkin, 2012). There are different forces at play in this case. On the one hand, as Chinese firms settle in new markets and gradually build a core local labour force, their recruitment

processes adapt to the new context and the skills developed among local workers pay off after an initial transitional period. On the other hand, since the early 2000s, the rapid growth in labour costs in China has meant that Chinese workers have become increasingly expensive and less affordable for companies operating overseas (Jenkins 2019).

In short, African agency is critical in determining localization rates.

We see the same Chinese firms adapting and operating very differently in different contexts. In addition, Chinese firms in Africa are highly heterogeneous and the varieties of Chinese capital display a number of different adaptation strategies. Overall, the evidence reviewed here unambiguously shows that Chinese firms have created large numbers of unskilled and semi-skilled jobs for African workers. These new jobs contribute to the gradual building up of an industrial labour force and therefore have significant implications for processes of structural transformation in Africa.

3.2 Working conditions

There are still large gaps in the available evidence on working conditions in Chinese companies in Africa. Most available empirical studies suggest that Chinese firms comply with national minimum wage legislation but in some cases offer lower wages than their competitors. This does not mean that wages are lower than national or sector averages, just that pay may be lower than other firms in the same sub-sectors. However, overall the evidence is not conclusive and lacks comparative quantitative rigour as this section shows.

Some of the most critical reports on working conditions in Chinese firms in selected African countries lack comparators, methodological rigour or reliable quantitative data from workers' surveys (examples are Baah and Jauch., 2009; HRW 2011; Shelton and Kabemba, 2012). A number of these reports, which suggested wages were even lower

than minimum wages, have been questioned by other more in-depth studies (Lee, 2017; Yan and Sautman, 2013). There are few studies that have attempted to compare wages in Chinese firms with those in other firms across a range of sectors. Tang (2016) provides various examples where reported wages were 'low' in relation to the 'national average' or other foreign firms.⁶ Baah and Jauch (2009) 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. However, most case studies underpinning this widely cited report were essentially based on qualitative interviews, secondary sources and selected company-level data from company documents, but did not draw on large-scale quantitative surveys of workers within a systematic comparative framework. Likewise, a much-debated HRW report on Zambian mines (2011) emphasized that Chinese-owned copper mines

⁶ 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.

offered the lowest salaries compared to other OECD-owned mines despite paying above the national minimum wage, but these comparisons have been criticized for lack of empirical rigour (Sautman and Yan, 2016; Lee, 2017). Very often the small number of studies that offer comparative evidence on working conditions by firm origin are based on interviews with top-level managers and not on large-scale quantitative surveys of workers. Coniglio et al. (2015) have relatively more rigorous statistical methods that attempt to control for some firm-level attributes, like sector and capital and skill intensity and find that wages in Chinese firms are lower than both other foreign and domestic firms, whereas overall foreign TNCs tend to pay higher wages. A limitation of this study is that there is substantial heterogeneity, as all sectors are considered, and the econometric analysis can only control for firm-level attributes and not individual worker characteristics. Moreover, cross-country regression analyses only superficially account for country context, which is an important determinant of firm behaviour on labour issues. The lack of sufficient consideration of a wider range of confounding factors is also a limitation of many other studies that report on wages based on company management interviews only, as in the cases of Rounds and Zhang (2017) who mainly discuss wage gaps between local and expatriate workers in Kenya.

Not all studies report lower wages in Chinese firms. There are also examples where wages are not as low as expected. A very recent survey in the Eastern Industrial Zone in Ethiopia suggests that average wages among Chinese factories in the zone are considered 'low' by workers but they are well above a reported national average in the formal sector (Fei, 2018). 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). 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 and Cooke, 2011). Moreover, in some cases wages may be lower but this is 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 (mines in Zambia), tighter profit margins for small-medium firms subject to fierce global competition, or reliance on more labour-intensive methods (Tang, 2016). By contrast, other firms opt to pay wage premia and out-compete other players in the sector to attract higher-quality workers, as observed in some companies in Ethiopia's industrial zones. The relative strength of labour institutions, especially unions, also contributes to wage equalization among foreign firms in the same sectors, as in South Africa (Huang and Ren, 2013).

Going beyond wages, there is some evidence of difficult working conditions in terms of long working hours, lack of written contracts, casualization, resistance to unionization, and more frequent breaches of labour regulations in Chinese firms compared to other foreign companies (McKinsey, 2017; Rounds and Huang, 2017; Lee 2017; Jenkins, 2019). At first glance, labour conflicts seem more frequent in Chinese-owned firms, but this may reflect the greater attention these firms have received compared to companies of other nationalities and especially domestic ones, as well as a reliance on a limited number of cases like the mining sector in Zambia (Rounds and Huang, 2017; Sautman and Yan, 2016). More conflictual relations have also been blamed on a perceived resistance by Chinese employers to the presence of unions and generally on communication barriers (Sautman and Yan, 2016; Tang, 2016; Brooks, 2010). In Zambia, such tensions arose as workers previously used to Zambian state textile companies confronted stricter labour regimes and casualization brought by new Chinese owners, giving rise to frequent disputes and strikes, which eventually led to the closure of the factory (Brooks, 2010). Evidence on management-employee communication is patchy and few studies report on instances of abuse or communication clashes (HRW, 2011; Shelton and Kabemba, 2012) but Tang and Eom (2019) offer arguments to account for such instances beyond culturalist explanations. Based on a study of 87 Chinese manufacturing firms across Ethiopia, Ghana, Tanzania and Nigeria, from 2012 to 2014, Tang and Eom (2019) conclude that these workplace tensions, sometimes reflected in reports of abuse, are the manifestation of the arrival of a new work ethic of industrial capitalism based on rigid clock time, in contexts where different work ethics prevail, something that is well known from the histories of

industrial capitalist development in other contexts (Oya, 2019). Language barriers may of course exacerbate such tensions (Tang, 2016; Fei, 2018). Thus a 'culturalist explanation of Chinese and African work ethics is ahistorical' and fails to appreciate the extent to which such tense encounters evolve over time as African workers interact with the expectations of time management, discipline and lifestyles expected in a rigid industrial capitalist environment (Tang and Eom, 2019: 16).

Various studies have shown that Chinese private firms may start operations with relatively unfavourable non-wage conditions but can adapt over time to meet demands from organized workers or from the host states (Lee, 2017; Tang, 2016). It is also worth noting that there are different kinds of non-wage benefits that are offered and much depends on the level of formalisation of labour relations, so some studies may focus on fringe benefits associated with formal contracts (such as paid sick leave, holidays, social security payments) whereas in other cases the main non-wage benefits are limited to provision of accommodation, transport and food, which may nonetheless be highly valuable to workers. Indeed, there seems to be a tendency among Chinese employers to offer accommodation and meals as way of facilitating labour control and retention of migrant workers, following a practice that is also common in some labour regimes in China (Lutje et al, 2013). In any case, studies that report on these issues in African contexts are not sufficiently systematic and tend to selectively report on some aspects and not on other possible benefits. Moreover, the lack of comparative evidence on management-worker interactions drives attention towards the nationality of managers and workers away from the role played by industrial capitalist work logics and sector specificities.

Context also matters in terms of the prevailing policy and labour market environment that foreign investors find in different parts of Africa. Therefore, some of the findings on working conditions should also be put in perspective and understood within the wider context of labour market deregulation and privatization following structural adjustment reforms since the 1980s (Fraser and Larmer, 2010). All African countries, after decades of structural adjustment and waves of liberalization and privatization, have experienced a systematic weakening of labour institutions and

mass informalization and casualization of labour, particularly notable in urban labour markets (Lee, 2017; Brooks, 2010; Meagher, 2016; Roubaud and Torelli, 2013). The majority of Chinese firms entered African markets at the peak of neoliberal hegemony on the continent. Conditions found in Zambian mines, for example, are more strongly linked to the crisis and reforms in the sector in the 1990s than to the nationality of foreign firms (Lee, 2017). Similarly, working conditions found in emerging industrial parks in Africa, especially in globally integrated production networks, may be driven by the cost pressures and tight margins intrinsic to such networks, especially in light manufacturing, which are facilitated by contexts of weakened labour institutions (Anner, 2015; Gereffi, 2018).

On balance, the available literature suggests working conditions may be worse in Chinese firms when compared to other companies, whether in relation to wages or non-wage working conditions, but there is also evidence pointing to higher or similar wages in Chinese companies in some contexts.

The main problem with the available evidence is that there is lack of systematic and rigorous comparisons, and few studies attempt to control for factors other than the origin of the firm.

As suggested in our analytical framework, various contextual factors, at national, sector, firm and worker level, are likely to account for some of the observed differences, but there are no available studies that attempt to control for a wide range of factors across these different levels of analysis for Chinese firms in African contexts. In particular, there is lack of sector-level evidence for like-with-like comparisons. In consequence, some of the published evidence is misleading and there is a dearth of research trying to explain the main causes of observed differences in working conditions.

3.3 Skill development

Sometimes low wages in early processes of industrialization are 'compensated' for by the prospect of acquiring new skills and more stable jobs (Fei, 2018). Hence skill development is seen as one of the potential contributions from new Chinese and other foreign investors, especially in manufacturing. While construction projects provide mostly short-term transferable capabilities, especially for low-skilled workers, factories have the advantage of contributing to long-term capability development. However, there are some claims that Chinese firms make a very limited contribution to skill development (Baah and Jauch, 2009). More recent survey work suggests that training is provided but training provision does not live up to the expectations of workers, although those working for globally integrated firms receive substantial and comparatively frequent training. The literature almost unanimously confirms that, contrary to popular belief, Chinese firms do engage in labour training (e.g., Bashir, 2015; Shen, 2015; Corkin, 2012; Tang, 2016; Lampert and Mohan, 2014; Rounds and Huang, 2017; Fei, 2018; Lam, 2014; Kerner and Lam, 2014). According to McKinsey (2017), nearly two-thirds of over 1,000 surveyed Chinese firms in Africa train local employees (43% in the form of apprenticeships), while in construction and manufacturing, where skills are particularly important for African workers, 73% of firms offer training or apprenticeships. Fei (2018) reports that many Ethiopian workers were attracted by the opportunity and experience offered by Chinese high-tech companies, so skill development was more important than wages for their decision to join these firms.

Variation among Chinese firms is important and useful policy lessons can be extracted from these differences. First, some sectors tend to be more skill-intensive and firms in those industries necessarily engage in more training, whereas basic assembly jobs in light manufacturing produce a more limited range of skill transfer (Chen et al., 2016). Second, larger and more globally integrated firms have fairly sophisticated training systems, including combinations of local training centres, periods of intensive learning and skill development in China (especially for managers, skilled personnel, and semi-skilled workers), and continuous on-the-job training with career

development programmes (Tang, 2016; Sun, 2017).⁷ Third, modalities of training vary a lot, with foreign transnational corporations (TNCs) more likely to use formalised mechanisms, and domestic firms and some Chinese companies relying more on on-the-job training and more informalised and sometimes 'militaristic' modalities to improve both technical and 'soft skills' (Tang and Eom, 2019; Coniglio et al., 2015; Bashir, 2015). However, the literature shows that both formal and informal training mechanisms contribute to skill upgrading. Fourth, building local skills and capabilities is also a way of meeting expectations from host states, which are important for the accumulation logic of many Chinese SOEs (Lee, 2017). Fifth, in some countries the state (through investment agencies and labour institutions) and lead firms in global production networks (GPNs) exert pressure on suppliers to boost skill formation in host countries and thereby contribute to the gradual development of skill development 'systems' associated with priority sectors. Sixth, contribution to skill development is strengthened as firms increase workforce localization rates and are compelled to invest in training local workers to maintain their competitive position (Kerner and Lam, 2014; Tang 2016).

One important reason why firms feel compelled to train their new workers is dissatisfaction with existing technical and vocational education and training (TVET) systems in host countries, which makes managers prefer to "hire someone off the street who's a blank slate" and directly invest in the most relevant skills for the company (McKinsey, 2017: 40). The fact that existing TVET programmes fail to deliver for the aspirations of accelerated industrial development in countries like Ethiopia is an important wake-up call to rethink training systems and their connections with industrial investors. In fact, this strategy of skill building from scratch is common to many other foreign investors, especially in export-oriented factories. Indeed, job experience is the most effective form of training in the long-term process of industrial development (Amsden, 2001). Gerschenkron (1962) recognized long ago that the availability of cheap labour in late industrialising countries was no guarantee of rapid industrialization, because in most agrarian-based economies the kind of labour force that

⁷ Apart from the training efforts of individual companies, the Chinese government contributes to education and training in Africa through scholarships, professional courses, infrastructure investments, and various other forms of partnership projects (Bashir, 2015). It is however beyond the scope of this report to discuss the impact of these programmes.

suits the demands of industrial factory work (in terms of time management, discipline, effort, reliability, etc.) is actually scarce (see also Oya, 2019). Thus, besides the existence or not of formal training programmes, these experiences suggest that hundreds of thousands

of African workers who are often migrants finding entry-level non-agricultural jobs, are learning the basic skills of the occupations that are likely to grow in the next decades, thereby making a contribution to the prospects of further structural transformation.

3.4 Summary

This section has taken stock of the available evidence on labour outcomes in Chinese enterprises in Africa. The literature on labour issues and outcomes within the broad 'China in Africa' field is still in its early days. The first main conclusion of this review is that much more empirically grounded analysis is needed. Many of the debates and claims that have dominated the headlines in the intersection of media representation and some academic research lack solid empirical foundations. While an emerging body of ethnographic and qualitative research has helped debunk some myths (Lee, 2017; Tang, 2016), there is still a lack of rigorous quantitative evidence.

There are three main issues with the existing literature, despite notable exceptions:

1. Many claims are made without an adequate comparative framework. Comparisons are either lacking or unbalanced, given the heterogeneity of firms and contexts. An important problem with the way labour issues (and many other aspects) in the 'China in Africa' field have been analyzed is the 'methodological nationalism' which assumes intrinsic characteristics that apply to all Chinese actors in Africa. Rigorous comparative evidence is needed to overcome biases and empirically test the notion of Chinese 'exceptionalism', which has already been questioned in the labour studies literature elsewhere (Chan, 2015).
2. Much of the available evidence emerges from (a) qualitative research; (b) small-sample surveys with no comparators; (c) firm management-level interviews where outcome measures are based on interviews with managers and not workers. To our knowledge there is no large-scale comparative quantitative survey of working conditions from the perspective of labour, i.e. workers' surveys rather than self-reported data from company management, looking at conditions in both Chinese and non-Chinese companies.
3. The literature review also shows striking variations of findings for the three core questions on workforce localization, working conditions and skill development. This heterogeneity gives credence to the value of a multi-layered framework of labour regime configurations, incorporating national political economic dynamics, sector-level issues and micro-level workplace encounters, where the origin of an enterprise is one of multiple factors that affect employment outcomes.

Therefore, any analysis of working conditions must achieve at least two goals:

- a. Consider a wide range of factors that may affect variation in working conditions, including macro context, sector-level features, firm attributes and individual worker characteristics.
- b. Try to explain reasons behind observed differences, whether these relate to the origin of the firm, sector or different labour market segments.

Based on this review of the literature the next section presents the main features of our research design, which endeavours to tackle the three main problems identified above.

4 How did we approach the questions? Research design



In light of the main research questions, the analytical framework, and the findings from the desk review, we adopted a research design based on a sequential mixed methods approach that was operationalised through a carefully designed comparative framework.

As argued in the introduction and in Section 3, one of the problems with the existing literature on labour issues in Chinese firms is the lack of adequate comparators and contextual evidence.

With this in mind, and considering the different levels of analysis of our analytical framework, our research design was organised around a 2-by-2-by-3-by-2 comparative framework:

- two countries (Ethiopia and Angola);
- two sectors (manufacturing and construction) and specific sub-sectors within each of these;
- three origins (national/domestic, Chinese and other foreign);
- whenever possible, two varieties of Chinese capital were considered (private and state-owned), with distributions relevant to each sub-sector. Chinese state-owned enterprises are mainly found in infrastructure construction and private firms mostly in manufacturing.

The choice of only two countries and two relevant sectors was obviously also determined by the budgetary limits of the project.

In order to reduce excessive variation in outcomes and explanatory variables, the surveys focused on the type of workers that represent the vast majority of jobs created in the target sectors, especially by foreign companies. According to evidence collected through interviews with managers and HR departments in selected companies in target sectors, most jobs created for national workers in Ethiopia and Angola are in the low-skilled or semi-skilled categories. Many semi-skilled workers have been upgraded from low-skilled status through on-the-job training and direct work experience. Typically, eight out of ten jobs created by firms in these sectors are within these target skill categories. We therefore sampled only low-skilled and semi-skilled workers. The identification of low- and semi-skilled categories was based on a combination of two criteria, namely (a) specific job title and tasks as specified/reported by worker, and (b) qualifications in terms of education level and total number of schooling years. These classifications were also cross-checked against broad salary scales for consistency purposes. This approach was more precise and less crude than other attempts at classifying workers by skill groups

as in 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'. As data presented in section 7 will show, most of our workers could be classified across these three schooling categories but their skill-group location was primarily determined by the nature of the job they performed as there were cases of workers in low-skilled occupations (factory line production workers) who had higher education completed.

To be able to depict how the labour force dynamics result from interactions across the three dimensions identified in the analytical framework, i.e. the country, the sector and the firm, we collected an integrated mixture of quantitative and qualitative primary data. We used four main data collection tools: structured quantitative interviews with workers, a structured quantitative firm questionnaire, semi-structured qualitative interviews with key informants, including policy makers, company managers and trade unionists, and semi-structured work-life history interviews with selected workers.

Table 1 - Comparative framework

National contexts	Angola			Ethiopia		
	Sectors	Road building and dams	Manufacturing of building materials		Road building	Textile and garment, leather products (footwear, etc.)
Firms	National (Angolan)	Chinese (SOEs, Private)	Other foreign (OF)	National (Ethiopian)	Chinese (SOEs, Private)	Other foreign (OF)

Source: Author elaboration.

4.1 Sampling process and outcomes

We sampled firms in the relevant target sectors and then representative samples of low- and semi-skilled workers within each firm. All of the workers we sampled were nationals of Angola or Ethiopia. While selection within each firm was randomised, the sampling of firms was purposive. Firm selection followed analytical and empirical criteria, starting from the rationale for target sub-sectors:

- ✓ Sectors where job creation for low- and semi-skilled workers had been very significant in the previous decade.
- ✓ Sectors where there was a large enough pool of comparable firms of the categories needed for this research: Chinese, domestic and other foreign.
- ✓ Sectors where more low-skilled or semi-skilled labour can be hired, i.e. where barriers to entry are lower, in order to capture some new labour market entrants in such sectors.

In Ethiopia these criteria led us to select three sub-sectors: textiles and garments as well as leather products for manufacturing, and road building in the construction sector, the latter linked to the scaling up of state investment in infrastructure. In Angola, the selected sectors were the building materials sector for manufacturing, and road and hydroelectric dam building in the construction sector.

Once specific sub-sectors were selected, we conducted extensive scoping research to gather the necessary information for company selection. Our sample of companies was chosen according to the following criteria in this order of importance:

- ✓ Firms had to be important generators of employment, i.e. the largest and more significant job creators within each subsector, according to official data and interviews with sector experts and company managers.
- ✓ We included firms that were considered as among the most important in each sector (based on interviews in the scoping phase) and were active at the time of the survey. This was an important constraint for the road construction sector, where activity and employment depend on active projects. Additionally, for logistical reasons we prioritised construction projects that were not in the most remote areas of each country.
- ✓ We included both large and medium firms, but not small-scale firms, using the scale standards within each sector.
- ✓ We ensured that we selected at least some examples of enterprises that were known for best practice in labour standards, so that the sample had a 'top benchmark' against which other firms could be compared, instead of a sector 'average' for which there was no secondary information.

The final sample included all of the most analytically important firms across the three subsectors, according to these criteria. We compared the leading Chinese firms with the leading other foreign and domestic firms in same sectors, and not to

the 'average'. An 'average' sample would have necessitated more complete sample frames and would have unnecessarily added heterogeneity to comparisons, by including firms of very different sizes and capacities.

One aim of the project was to try to obtain *representative samples within each company or site*. In the manufacturing sector the sample was restricted only to workers directly involved in production, so as to exclude cleaners, security guards and other ancillary staff, as well as clerical and administrative workers. This meant following a number of basic principles for selection protocol:

1. First, there should be a large enough absolute sample size for each site/firm: it was decided that sample sizes within each firm/site would range between 20-30 depending on the relative size of total employment in the firm/site. Larger samples sizes within same firm/site would not add much statistical precision and would add to costs unnecessarily. Moreover, the aim was to cover a reasonable number of firms/sites, as variation was expected to happen more between than within them.
2. Second, we aimed to work with precise and unbiased sampling frames (i.e. lists of workers) as far as possible. In order to construct suitable local sampling frames, field supervisors were trained in and employed a variety of procedures, including making on-site lists of workers in sections of the factory or site, working with employee lists provided by the company which were then independently checked for completeness by field supervisors, or using systematic random sampling, which obviated the need for precise sampling frames.
3. Third, independent of how sampling frames were constructed, interviewed respondents were randomly selected by field supervisors, who used laptops or tablets to generate random numbers for each of the two relevant worker strata, low-skilled and semi-skilled.

Generally sampling protocols were strictly followed in Ethiopia, so samples are comparable according to expectations. In Angola, teams encountered some challenges in a number of Angolan and other foreign firms (i.e. non-Chinese firms), where field teams had to stratify and randomly select workers from relatively restricted sample frames that may not have included temporary workers or recent hires, and represent mainly a *core labour force*. In the construction sector, a crisis in Angola affected some firms more than others. As a result of a national fiscal squeeze during the time of the survey, project execution was hampered and several Angolan and other foreign firms were operating below capacity, with mostly their core permanent employees, whereas most Chinese firms in the sample were operating at higher intensity and initiating projects financed by the new China Credit Line approved in 2015. Therefore, their workforces were more mixed and included temporary project workers and new hires in greater proportions than other comparable firms in the same sector. This sample bias is therefore acknowledged as a limitation but was unavoidable given the circumstances of Angola at the time of the survey, especially for the infrastructure construction sector. This experience also shows the methodological challenges in trying to achieve fully comparable samples in research on these sectors, especially given the impact of volatile business cycles. In any case, since the potential bias was captured, we use this information to conduct a more precise statistical analysis and qualify some of the findings for Angola in Section 8.

Table 2 - Ethiopian sample

Sector	Chinese	Other foreign	Ethiopian	Total
Manufacturing	167	197	170	303
Construction	124	59	120	534
Total	291	256	290	837

Source: IDCEA survey, 2017

Table 3 - Angolian sample

Sector	Chinese	Other foreign	Angolian	Total
Manufacturing	144	85	68	297
Construction	167	120	98	385
Total	311	205	166	682

Source: IDCEA survey, 2017

The total size of samples for both countries was large enough for an adequate representation of low-skilled and semi-skilled workers in the target sectors, given total employment levels and the number of leading firms active at the time of surveys. The balance between sectors was also designed to capture the relatively greater significance of manufacturing in Ethiopia and infrastructure

construction in Angola for research questions on employment outcomes in Chinese and other firms in these two countries. The manufacturing sector in Ethiopia has created many more jobs than factories in Angola, whereas the infrastructure construction boom and associated jobs have been relatively more significant in Angola (see Tables 2 and 3).

4.2 Firm characteristics

Firms were purposively selected because of the significance of the target sectors for Angola's and Ethiopia's economic development and because they were leading players in these sectors. All the firms included in the sample are therefore important within the public works and industrial landscapes of both countries.

Given the different economic and social contexts of Angola and Ethiopia, the characteristics of these firms vary substantially. In Angola, we find relatively large infrastructure construction companies with access to good technology and high quality machinery, capable of the most demanding infrastructure projects, both in road building and dam construction. The firms in the Angolan sample included several well-known transnational contractors from Europe and Latin America with vast overseas markets. The Chinese sample also included some of the top Chinese overseas state-owned contractors with significant presence in Africa. For these companies African markets are critical to their overseas expansion. Like in Angola, firms selected for this study in Ethiopia included only top-grade contractors. In Ethiopia all road construction firms are graded by the Ethiopian Roads Authority (ERA) and the grade a company receives is supposed to reflect its capabilities in terms of equipment, staffing, finance, and experience. The types of road projects we looked at, asphalt and gravel roads, are always awarded to grade

one contractors. Hence firms in the Ethiopian construction sample also included some important Chinese contractors with operations in several African countries, as well as other transnational contractors from the Middle East and Europe.

The manufacturing sectors in Ethiopia and Angola are very different and the firms sampled therefore differ significantly. In Angola, the limited industrial growth the country has experienced has been concentrated in the beverage industry (which we did not cover because few Chinese firms are active in the sector) and in the manufacture of building materials, which grew rapidly on the back of increasing demand for construction materials spurred by the rapid reconstruction effort in the period 2002-15 (Wolf and Cheng, 2018). Employment in manufacturing did not grow as fast in Angola as in Ethiopia, where the government's industrialization drive and the arrival of dozens of foreign investors to its light manufacturing sector acted as important catalysts. In Angola, the persistent dependence on imports of building materials hampered more rapid growth in domestic industries. Moreover, according to most interviews with managers, factories in Angola also suffered from significant supply constraints that drove costs up, namely unreliable and expensive electricity, foreign exchange constraints, weak transport infrastructure and difficulties in servicing industrial machinery. Some of the factories we sampled were on the, arguably

ill-defined, frontier between the informal and formal sectors. Although they were all registered in existing industrial censuses, their operations were not always characterized by formal arrangements in terms of contracts and licences, especially in the case of some 'translocal' Chinese firms.⁸ By contrast, all domestic Angolan and other, non-Chinese, foreign industrial firms sampled in Angola were essentially formalised

at all levels. Although they were large in relation to their own sub-sectors, the average number of permanent workers in these firms does not exceed 400 (see Table 4). The outliers in terms of size are cement factories, the biggest of which were all included in the study. At the time of the survey many of these firms had laid off workers as a result of the crisis in the sector.

Table 4 - Main characteristics of sampled firms in Angola

Construction of infrastructure			
	Angolan	Other foreign	Chinese
% private	100	100	10
Number of permanent workers (average)	1162	1820	1055
Dominant type of firm	Large-scale domestic firm	Transnational corporation	State-owned enterprises (transnational)
Prevailing nationality of management	Brazil and Angola	Portugal	China
Main markets	Angola	Europa and Africa	China and Africa
Experience / time in Angolan market (average years)	12	24	10
Building materials industry			
	Angolan	Other foreign	Chinese
% private	100	100	100
Number of permanent workers (average)	336	248	373
Dominant type of firm	Mixed: large privatized SOEs and medium-size firms	Medium-size FDI	'Translocal' and medium-sized FDI
Prevailing nationality of management	Angola and Portugal	Portugal	China
Main markets	Angola	Angola	Angola
Experience / time in Angolan market (average years)	22	12	10

Source: IDCEA firm-level survey, 2018

Comparatively, the Ethiopian manufacturing sector is much better developed. While Ethiopia is still a heavily agrarian economy, the country embarked on an ambitious industrialisation drive, backed by state

investment and, more recently, overseas loans, in the early 2000s. Our sample included the leading firms in the textile & garment and leather product sectors (e.g. shoes) for the three ownership categories. The sample

⁸ Rounds and Zhang (2017: 6) drawing on Sautman and Yan (2016) define 'translocal firms' as 'firms that are started, owned and/or run by foreign nationals, and may have a board of advisors in a foreign country, but are exclusively registered locally'.

is a mix of enterprises in terms of market orientation, but, unlike Angola, an important part of the sample included companies that are integrated into global production networks. These are all foreign firms that recently established themselves in the country, most after 2010. As shown in in Table 5, by 2018 both Chinese and other foreign manufacturing companies had only been in active in Ethiopia for an average of four and five years, respectively, though some of the companies only arrived in 2016. By contrast most of the sampled Ethiopian manufacturing firms have a long history in the country, some having been former SOEs. The average age of Ethiopian manufacturing companies in 2018 was 43 years. Both Chinese and other foreign manufacturing companies are also notably larger than Ethiopian firms. This discrepancy is likely to grow wider as the more recently arrived foreign firms are still in the process of expanding their operations.

All road contractors in Ethiopia were the top infrastructure builders in terms of technical capabilities and experience, and all are relatively large in terms of the number of employees. Chinese companies have been active in Ethiopia for around 15 years on average (see Table 5). Chinese contractors tend to dominate the market, so there was a limited pool of other foreign companies available to sample at the time of surveys. Ethiopian contractors are well established, with an average company age of 26 years, and have substantially upgraded in the past 15 years on the back of numerous public work contracts. Both Ethiopian and Chinese contractors are on average very large, though the distribution in both cases is skewed somewhat by very large SOEs, while other foreign firms are much smaller on average and operate on a smaller number of projects.

Table 5 - Main characteristic of sampled firms in Ethiopia

Road construction			
	Ethiopian	Other foreign	Chinese
% private	83	66	0
Number of workers (average)	4,020	370	3,970
Dominant type of firm	Large-scale private firms, one SOE	Transnational corporations (TNCs) and transnational SOEs	Transnational SOEs
Prevailing nationality of management	Ethiopian	Middle East, India	China
Main markets	Ethiopia	Middle East, India	China, Asia and Africa
Experience / time in Ethiopian market (average years)	26	5	15
Textile & garment, leather products manufacturing			
	Ethiopian	Other foreign	Chinese
% private	87.5	100	100
Number of workers (average)	815	2,545	1,845
Dominant type of firm	Large private firms, one SOE	TNCs	TNCs
Prevailing nationality of management	Ethiopia	Mixed	China
Main markets	Ethiopia, Turkey, EU	US, India and EU	US and EU
Experience / time in Ethiopian market (average years)	43	5	4

Source: IDCEA firm-level survey, 2018

5 Angola and Ethiopia: different patterns of growth



The first layer of our multi-scalar labour regime configuration framework requires analysis of the macro-dynamics concerning the national and regional-level contexts in which employment takes place. This section provides an overview of the macro-economic and social contexts of Angola and Ethiopia, with particular focus on their different growth patterns, investment dynamics, sector trends and labour market structures. Later on, Section 7 will further flesh out some of the national contextual factors most directly relevant to the discussion of labour outcomes.

Angola and Ethiopia have been two of the fastest growing African countries in the post-2000 period. Angola's economy grew at an annual rate of 6.4% between 2000 and 2017, and at over 8% if we consider the boom period from 2002 to 2014, before the oil price crisis hit the economy. Ethiopia has maintained high growth rates for over a decade, and grew at 9.2% in 2017. In both countries growth has been partly driven by high investment rates, especially so in Ethiopia which increased its gross capital formation as a percentage of GDP from 20% in 2000 to around 40% in the years 2015-17. Yet, growth patterns and structural economic conditions in Ethiopia and Angola differ substantially. Angola

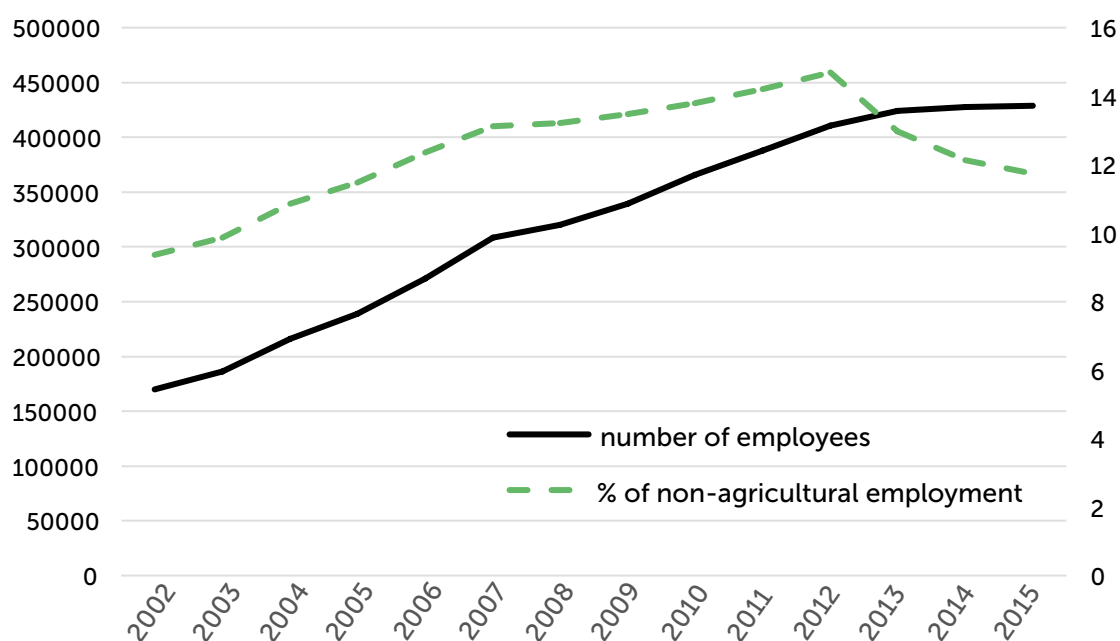
is an oil exporter and much of its GDP growth is determined by trends in oil prices and the impact these have on linkages between the size of oil rents and other economic activities (Wanda, 2016). Structural change in Angola has been driven by the vagaries of the oil sector in terms of shares of GDP, but manufacturing and especially the construction sector experienced high growth rates in absolute terms during the postwar national reconstruction phase. Ethiopia is not rich in natural resources but has a large agricultural sector that still influences growth variation. However, in the past two decades growth in other sectors and structural change have gained pace (Martins 2017). Both manufacturing and services have expanded particularly rapidly in the recent period of high economic growth.

Angola came out of a protracted civil war in 2002 with the military victory of the ruling party MPLA over UNITA. The legacies of decades of destructive civil war included large numbers of internally displaced people, dilapidated infrastructure, and a severe dependence on the oil sector. Poverty was widespread, especially in rural areas and large urban slums that hosted thousands of internal refugees, and levels of inequality were very high. The post-conflict political settlement reflected the reinforced

power of the MPLA regime at a time where the imperative to 'deliver' on economic development became increasingly urgent. The early phase of the national reconstruction efforts coincided with a global commodity price boom, which resulted in very high oil prices and allowed the Angolan state to increase public investment in economic and social infrastructure. A construction boom ensued with important implications for employment dynamics. This was reflected in the expansion of public sector employment by nearly 18,000 additional jobs per annum in the 2002-12 period (Instituto Nacional de

Estatística, 2013), and the ambitious reconstruction programme which created more than 250,000 direct jobs in the construction sector via public works, along with indirect and induced employment (Figure 2). Construction was, until 2015, the most dynamic non-agricultural sector in terms of the speed of direct employment creation. Arguably, despite the absence of official estimates, indirect and induced employment creation associated with the expansion of construction and public works is likely to also have been rapid, especially in the period 2005-15.

Figure 2 - The growth of employment in construction in Angola



Source: Author elaboration based on data from INE (2013)

Like Angola, Ethiopia experienced a devastating civil war, with ethnically-based rebel groups fighting a centralised military dictatorship. By the late 1980s, military rule and a planned economy, exacerbated by the ongoing conflict, had turned Ethiopia into an economic basket case. The end of the country's civil war in 1991 brought into power a series of governments dominated by the victorious Ethiopian People's Revolutionary Democratic Front (EPRDF), who turned towards a market economy, while maintaining autocratic control of the political system and mass media. The EPRDF sought political legitimacy through economic development and from the mid-2000s, articulated a strategy of state-led industrialisation

(Weis, 2016). This strategy evolved over successive governments and today rests on two key planks: the use of experienced foreign firms to drive manufacturing development, and strategic investment in basic economic infrastructure financed both through overseas loans and Ethiopian government funds. Consequently, as shown in Figure 3, Ethiopia has seen a rapid expansion of both construction and manufacturing, especially in the post-2010 period. According to the National Bank of Ethiopia (NBE) the share of the construction sector in industry reached over 70% in 2017/18 (NBE, 2018). The growth in public works is reflected in the rapid expansion of the Ethiopian road network, which tripled in both overall

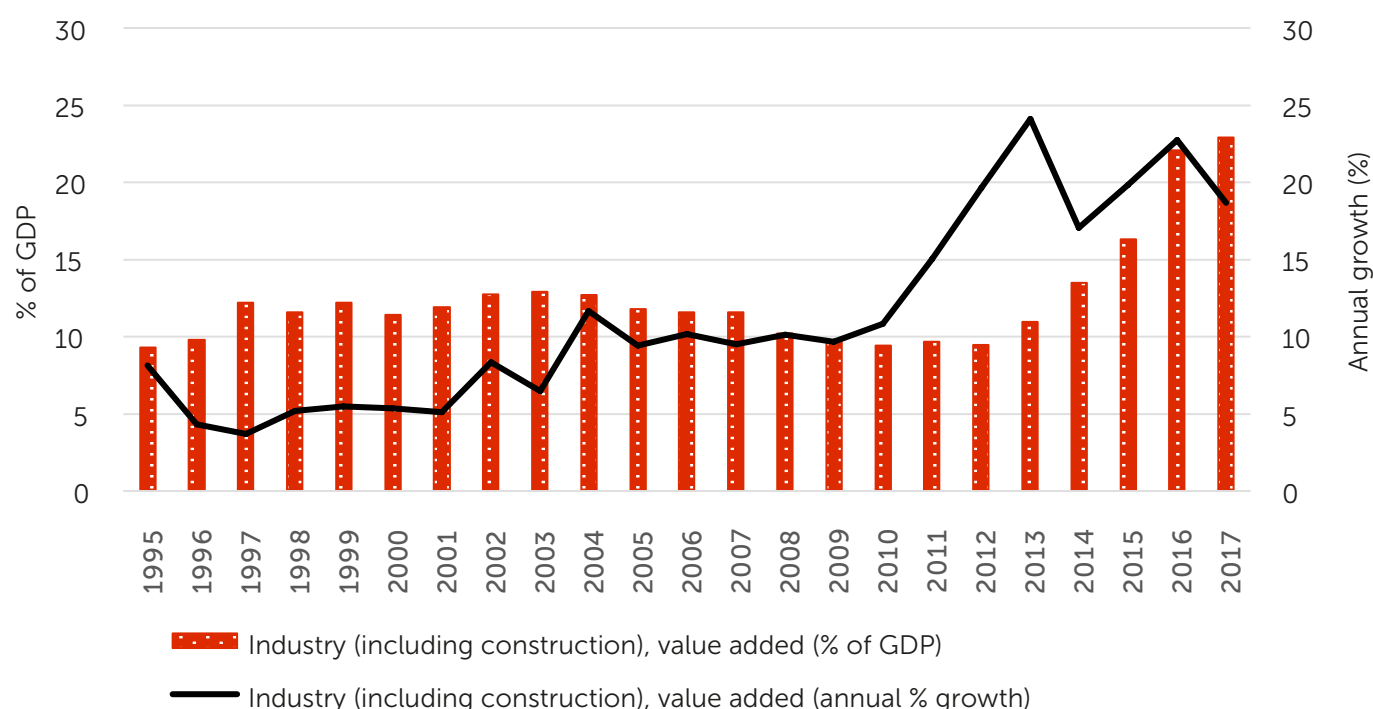
length and in terms of the length of asphalt roads between 2005 and 2018 (NBE, 2018: 19).

There are important differences between the two countries in terms of labour market structures and their determinants.

The first main difference is labour force size. According to the latest available labour force survey for Ethiopia, 43 million people were economically active in 2013, 72.7% of whom in the agricultural sector, 1.9% in construction, and only 4.5% in the manufacturing sector. According to demographic projections the labour force in 2017-18 exceeded 50 million people. Despite the dominance of agricultural employment in official statistics, recorded wage employment (primarily in formal

sector occupations) almost doubled in the period 2007-17, while the labour force grew by 40% in the same period (ILO, 2018a). Unemployment and underemployment rates in Ethiopia have declined in both urban and rural areas since the 1990s (World Bank, 2016: 33), and labour force participation rates have increased, while dependency ratios declined (EEA, 2016). Despite accelerated urbanisation, the Ethiopian rural population grew by 23 million between 2001 and 2014, of whom 13.1 million are of working age (EEA, 2016), hence adding to the employment challenge the country currently faces. There are no signs yet of significant labour market tightening, at least in the 'formal' sector, largely because of the substantial pool of new labour market entrants. Studies of real wages in urban Ethiopia show a worrying decline, with significant fluctuations as a result of food price inflation dynamics (ILO, 2018b).

Figure 3 - Economic transformation in Ethiopia: industrial and construction growth, 1995-2017



Source: Authors' elaboration from World Bank Development Indicators (2019)

By contrast, Angola, according to the 2014 population census, only had 5.5 million people in employment, nearly 92% of whom were evenly distributed between agriculture and – predominantly informal – services. By 2017 the size of the projected labour force was 12 million potential workers, making it much smaller

than Ethiopia's. There are severe shortages of skills across all sectors. In the early post-conflict years the Angolan labour market was characterised by high levels of unemployment in urban areas and expanding informality, which reflected the need for the poorest segments of the Angolan population to survive by

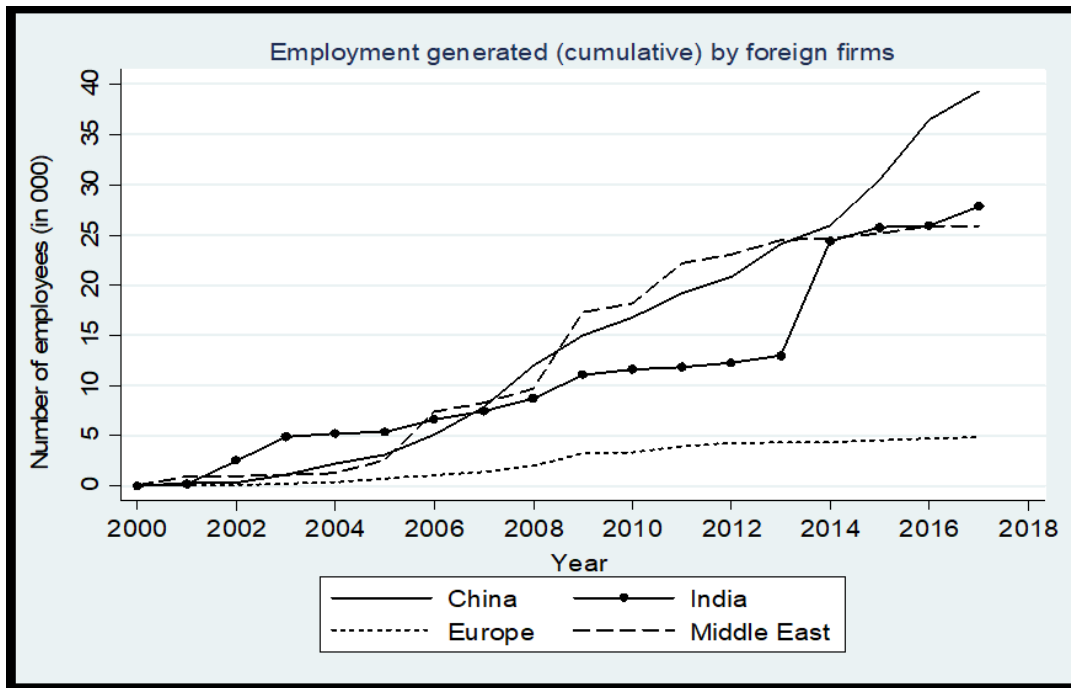


any means. During the war refugees flocked to urban centres. This war-driven accelerated urbanization led to an excess supply of labour which pushed up levels of informality in the main urban centres. Angola shares with many other African countries a widespread dominance of informality in urban labour markets (Roubaud & Torelli, 2013). Moreover, current unemployment rates remain stubbornly high, compared to other African countries, at between 25% and 30%, and nearly 50% for youth (INE, 2019). The expansion in jobs in construction and other non-agricultural activities led to some labour market tightening, despite the prevailing high unemployment rates, reflecting the segmentation of the labour markets. Official statistics suggest a significant increase in real wages between 2002-12 in the construction sector and public administration, a trend that was likely reversed by the stagnation of the 2015-17 period. The same sources also show wide gaps between average wages in construction and public administration and what is reported for trade, which includes the bulk of informal trade activities often employing large numbers of very poor people.

In both Angola and Ethiopia, the government's growth strategy relies, in part, on Chinese funding and the expertise provided by Chinese companies and businesspeople. During the past decade, both

countries have usually ranked among the top 5 recipients of Chinese official finance for infrastructure, as markets for Chinese contractors, and as destinations of Chinese FDI in Africa. In particular, the presence of Chinese contractors, especially state-owned enterprises, is very strong in both countries, compared to contractors of other origins. Ethiopia relies heavily on overseas contractors in building up basic infrastructure. Consequently, Ethiopia is an important recipient of Chinese contracted overseas projects, and, as in many parts of Africa, Chinese construction contractors have been very successful in winning contracts in Ethiopia. In 2016 alone, Chinese contractors reported USD 4.7 billion worth of project revenue in Ethiopia, equivalent to 6.7% of Ethiopian GDP, and 26 of the 32 international contractors operating in Ethiopia in 2017 were Chinese (Wolf and Cheng, 2018). While most Chinese manufacturing companies in Ethiopia are private enterprises, Chinese construction companies are either national or provincial SOEs. Chinese FDI into Ethiopia grew rapidly after 2008 and by 2017 annual flows had reached USD 181 million, while stocks stood at USD 1.75 billion. Chinese investors in Ethiopia have been especially drawn to the construction and manufacturing sectors, unlike in other African countries where mining and services attract a larger proportion of investments. Such investment volumes obviously generate new employment. According to data provided Cheru and Oqubay (2019), who draw on Ethiopian Investment Commission (EIC) data and other sources, foreign investors created around of 183,000 manufacturing jobs in the period 2000-2017, with Chinese firms accounting for 21% of these new jobs, as shown in Figure 4 below (Cheru and Oqubay, 2019). Our own inventory of EIC manufacturing investments between 2010 and 2017 also confirms that Chinese firms rank first as source of manufacturing jobs created by FDI, with one third of permanent employment created during this period. Another study estimated the number of jobs created by Chinese FDI across different sectors at over 100,000 in the 2000s (Nicolas, 2017). These are significant numbers in both the Ethiopian and more broadly African contexts. In the period 2013-17 many of these jobs were created in new industrial parks which form a key plank of Ethiopia's industrial strategy. Job creation in Ethiopian industrial parks has been rapid and around 65,000 jobs had been created across all parks by 2018.

Figure 4 - Manufacturing employment generated (cumulative) by foreign firms in Ethiopia, 2000-2018



Source: Ethiopian Investment Commission (2018) unpublished; reproduced from Cheru and Oqubay (2019: 292)

The picture in Angolan manufacturing is different both in terms of growth and in terms of sectoral patterns. While there are Chinese firms active in the Angolan manufacturing sector, these tend to be ‘translocal’ firms established by private Chinese entrepreneurs. These businesspeople are part of the growing Chinese diaspora in Angola. The biggest wave of Chinese immigration into Angola occurred in the early reconstruction period, especially in the early 2000s, when over 100,000 Chinese migrants are estimated to have settled in the country. Most came to work in construction, but some also to establish small- and medium-sized businesses, especially in services, and, to a lesser extent, also in manufacturing. None of the Chinese manufacturing firms in Angola are globally integrated suppliers and FDI to manufacturing is

still limited, even if our interviews did suggest that a significant share of the limited manufacturing employment in Angola is in firms that are either foreign or ‘translocal’.

In sum, Angola and Ethiopia face important employment challenges, in terms of the need for both substantial job creation and for accelerated structural change with higher productivity and higher wage jobs. The following sections of this report will shed light on (a) the extent to which Chinese and other firms generate employment, in particular the contentious issue of workforce localization rates in infrastructure construction and manufacturing; (b) the patterns of the emerging labour force in these sectors; and (c) the quality of these new, much needed, jobs.

6 Do Chinese firms hire local workers? Myths and realities on workforce localization



One of the main advantages of FDI is the potential for rapid job creation. However, local workers will only be able to find jobs in FDI firms if these companies are willing to localise their workforces, that is, to employ local labour. There is a common perception that Chinese firms in Africa rely mostly on Chinese labour and only hire local labour to a limited extent, as discussed in Section 3.1. In this section we provide evidence from our own desk review of a wide range of published sources and surveys of firms and add findings from our own firm surveys in Angola and Ethiopia.

As part of the desk review we collected all available evidence on rates of workforce localization in Chinese firms operating in African countries. We compiled nearly 60 databases, studies and cases across the wide spectrum of projects from very low to very high levels of localization covering a period of more than ten years, and arrived at a weighted average of 85% (see Appendix A for an illustrative selection of these sources). About two-thirds of these cases and studies estimated localization rates exceeding 80%. There are striking differences

between countries like Angola or Equatorial Guinea, which received more Chinese labour in both absolute and relative terms, compared to other countries where the presence of Chinese expat labour is very limited.

Even in countries where localization rates were relatively lower, overall local job creation was not meaningless. For example, one of the flagship projects in Angola, the development of a new satellite town with 20,000 apartments by CITIC Construction (Kilamba-Kiayi phase I) employed cumulatively 36,000 Angolan workers in different stages over 54 months, representing just 60% of the total labour force in a single project (Bo 2014). This project applied particularly labour-intensive methods, which generated more jobs as a result. The type of construction project also matters: we observed in Angola that in flagship infrastructure projects with demanding technical standards firms had no option but to bring in specialized experienced workers in order to meet the tight time schedule and the quality expectations of the client (i.e. the Angolan authorities). In the absence of strong local

government requirements for workforce localization, companies instead operated under the pressures of time and technical demands. The segmentation of the Angolan infrastructure construction market may have contributed to lower localization rates among Chinese contractors. In several interviews it was reported that Chinese firms had been subject to particular stringent timeframes and strong pressure to complete projects, especially prior to elections, given the political expediency associated with the process of national reconstruction. These firms also prioritised their competitive advantage of faster completion even if at the expense of hiring and training more local workers.

What do our own firm surveys show in terms of workforce localization rates in 2016-17? According to our firm-level surveys and qualitative interviews, rates of localization in Chinese firms in Ethiopia are very high. Even in the construction sector, where the presence of foreign labour is common in other African countries, localization rates were above 90%. The differences with other foreign companies, especially in the manufacturing sector, were not significant. In Ethiopia, Chinese construction firms hire local managers for middle-management positions, whereas in Angola this practice was much rarer. In Ethiopian construction sites Chinese employees were found only in financial management and in some key technical positions requiring highly specialist skills. As shown in Section 5, in the manufacturing sector Chinese firms have been the leading contributors to job creation since 2000. Arguably, given the dominance of Chinese road contractors in the road building sector at the time of the survey, we can conclude that these firms also led the volume of job creation in this segment.

The picture in Ethiopia is in line with a strategy of minimising operating costs, as expatriate workers are much more expensive than Ethiopian workers in

the same position. From our qualitative interviews we learnt that a common pattern for newly-arrived foreign investors is to bring in some expatriate staff in semi-skilled positions to assist with start-up and to help train Ethiopian workers. These expatriates are generally drawn down as soon as they can be replaced with Ethiopian workers. When firms struggle to fill these positions with local managers, they may be forced to operate below capacity given the high costs of bringing additional foreign staff to increase the number of shifts, as was reported by some export-oriented factories in new industrial parks. To an extent high localization rates in Ethiopia are due to the government's firm stance in preventing the use of expatriate labour for positions that could be filled by Ethiopians. As noted above, visa restrictions and monitoring of labour hiring in Ethiopia are contributing to higher localization rates than many other African countries.

In contrast to Ethiopia, Angola is considered one of the countries where the dependence on Chinese workers is greatest, partly because of the speed and scale of reconstruction projects, partly because of the binding constraints in access to workers with relevant experience and qualifications, most of whom were already employed in existing Angolan and other foreign firms when Chinese contractors arrived in the country. Data from our firm surveys and qualitative research suggest that localization rates are on average lower in Chinese firms, but the differences are not as large as expected, and most Chinese firms have rates that are higher than reported in earlier studies (Tang 2010). The average localization rate for Chinese firms is 74%, whereas it is 88% for non-Chinese firms (see Table 6). If we only consider low-skilled and semi-skilled workers, the proportion of Angolan workers in Chinese firms is around 85%, with many firms not employing any Chinese workers for low-skilled positions anymore.

Table 6 - Workforce localization rates in Angola

<i>Average sample localization rates (%)</i>	Not Chinese	Chinese	Total	No. firms
Construction	86	71	79	19
Manufacturing	92	78	84	15
total	88	74	81	34

Source: IDCEA survey, 2017

These differences are however not as large as expected given the tendency of Chinese firms to hire more Chinese workers in certain positions, including skilled workers. The difference between localization rates in Chinese firms vs non-Chinese firms in Angola is statistically significant for the construction sector but not for the manufacturing sector. Heterogeneity within the sample of Chinese firms in Angola is substantial and greater than in Ethiopia, where the localization of the workforce is more uniform across companies. Particularly for the manufacturing sector in Angola we found both the lowest and the highest localization rates, a divergence that can be explained by a combination of reasons, including the time since production operations began (i.e. set-up stage), the type of technical skills needed, and corporate management preferences. In the case of non-Chinese firms there was also some variation, with 20% of firms reporting less than 85% localization, somewhat lower than expected for that segment of firms.⁹

The results of our own firm survey are broadly consistent with data shared by different Angolan government departments involved in public works, which suggest that Chinese contractors increased localization rates from 60% to 73% between 2011 and 2014, according to data provided by the Angolan Road Authority. This increase in localization rates is the most important finding in relation to Angola. Most Chinese managers acknowledged a rapid change in recruitment patterns, with a move from localization rates of around 50% during the reconstruction boom (2002-10), to about 75% in 2017. These figures are consistent with the range of localization rates, between 75% and 80%, we found in our survey. These trends are also consistent with comparisons between our survey results and estimates from studies of the pre-2010 years in Angola. For example, Tang (2010) reported an average localization rate of 60% across different sectors, but between 38% and 43% in more technically demanding infrastructure projects. Data from the Angolan Ministry of Finance on projects financed by the first two Chinese credit lines to Angola in 2004 and 2007 yield a range between

56% and 64% of Angolan workers in the total workforce of construction projects (Corkin 2012). A number of respondents in Chinese firms pointed out that in the 2002-10 period some projects that had tight timelines might employ a majority of Chinese labourers, including in basic tasks, something that now is neither acceptable nor affordable.

According to management interviews, the three main reasons for this important development were (a) the adaptation of these firms to the Angolan context, after more than 10 years in the market; (b) the larger pool of trained workers compared to the years after the end of the war, and (c) the growing costs and demands of Chinese expatriate labour. This is in line with evidence from other studies that have captured a similar pattern elsewhere, as discussed in Section 3.1.

These trends also translate into substantial contribution to direct job creation. As reported in Oya and Wanda (2019), data from the Angolan Ministry of Construction suggest that in the period 2014-18 the share of *new* public work jobs created by Chinese firms ranged from 33% to 99% of all new jobs in this sector, with an average of 65% per year. Particularly during the period of crisis, after 2015, Chinese contractors were the main contributors of new jobs (whether casual or permanent) thanks to the emergency credit line approved in 2015.

On balance, therefore, the primary data collected through firm surveys reveal that the contribution of Chinese firms to the creation of low-skilled and semi-skilled jobs for African workers and to the building of an industrial labour force has been sustained and substantial in the past 15 years in both Angola and Ethiopia.

Localization rates have generally increased over time but still vary across the two countries due to the very different economic, policy and labour market contexts.

⁹ For example, according to our own interviews, three well-established Angolan road contractors employed 5%, 20%, and 30% of expat labour in 2016 respectively, with differences related to the relative scarcity of projects during that period and the particular technical needs of each project.

7 Labour force segmentation: who are the workers?



The development of an industrial workforce and the incorporation of workers to new non-agricultural sectors is an uneven and protracted process. Emerging workforces in construction and manufacturing are likely to be highly heterogeneous. Like many low- and middle-income countries, both Angola and Ethiopia have highly segmented labour markets that offer very different conditions of employment to different groups of workers.

We explore the characteristics of the new industrial and construction labour forces found in Angola and Ethiopia in the leading companies of these sectors. For this purpose we rely on two main sources of data: large-scale quantitative surveys and work life histories of workers. The main aspects that characterise and differentiate groups of workers in these sectors

are (a) individual and household demographic characteristics, such as gender, age, household size and marital status; (b) migration and residential status; (c) education levels; and (d) socio-economic status.

By looking at these sets of characteristics we can distinguish different segments of the labour force surveyed in our study of leading firms operating in the infrastructure construction and manufacturing sectors. The nature and degree of segmentation vary substantially between Angola and Ethiopia, but in both countries evidence of segmentation is clear. Different factors matter to distinguish between different segments of the labour force in each country. These differences are driven by wider labour market structures, historical legacies, and the kinds of sectors and firms in which people work.

7.1 Angola: labour force characteristics and segmentation

The demographic composition of the sampled labour force in Angola suggests that construction and manufacturing workers are in the 20-35 age bracket and are mainly men. The presence of women in the construction and building materials sector in Angola is negligible, and our random sample barely found any women.

Segmentation of the workforce is immediately visible in terms of age, despite the overall relative youthfulness of construction and industrial workers. In Angola, the average age was similar across sectors and, around 30 years, much higher than in Ethiopia. This difference is primarily explained by the large proportion of young women in Ethiopia's

new factories. For Angola there were variations in terms of the skill group of workers and the origin of the firm. The youngest workers, with an average age of around 25 years, were low-skilled manufacturing workers in Chinese factories, many of whom were recent migrants from the Centre-South provinces of Angola, a point to which we return below. The oldest and also most experienced workers were found in Angolan factories and among semi-skilled construction and manufacturing workers in non-Chinese firms (see Table 7 for more details). These age differences between the two segments (Chinese vs non-Chinese companies) also translated into important contrasts for marital status, where the proportion of unmarried male workers was substantially higher in Chinese firms, especially in manufacturing. Therefore, basic demographic characteristics reveal a clear segmentation between workers employed by Chinese firms and workers in Angolan and other foreign companies, which is also reflected by contrasts in other variables, such as educational attainment and socio-economic status.

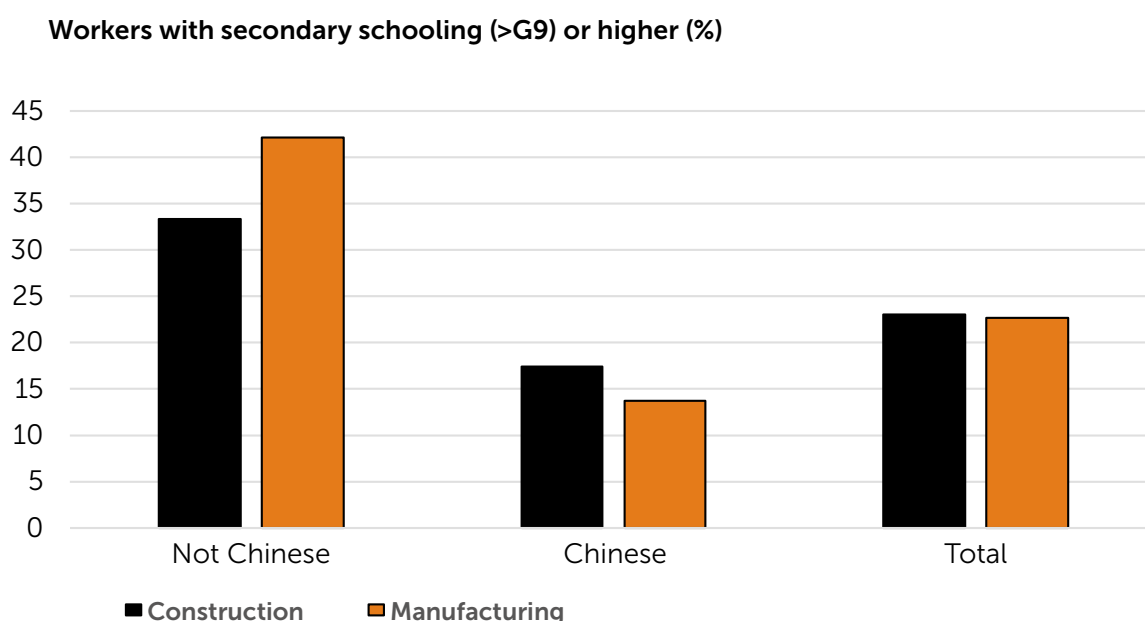
Education is often a primary source of labour market segmentation. Education levels in our samples vary greatly. In Angola, education levels split two distinct labour force segments in the survey: on the one hand, a group of more educated workers with more sector relevant work experience, mainly concentrated in Angolan and other foreign companies; on the other hand, a group of much less educated workers, usually migrants from rural areas, and with very limited relevant work experience and skills. Table 7 and Figure 5 shows a stark contrast between workers in Chinese firms in both sectors and employees (many of whom are permanent workers) in Angolan and other foreign firms. In the former, workers tend to have only primary schooling, whereas in the latter the proportion of those who have completed lower secondary school and beyond is far greater. This is not simply a matter of age differences. Rather, these are different workforces in terms of education levels and qualifications. Compared to Chinese companies, leading Angolan and other foreign firms in both sectors were more demanding in terms of the minimum education levels required from workers and their labour force was more likely to be more experienced.

Table 7 - Demographic and education characteristics of workers by country, sector, and skill-group, Angola

	Low-skilled manufacturing			Semi-skilled manufacturing			Manufacturing Total
	Chinese	Other foreign	Angolan	Chinese	Other foreign	Angolan	
Age	24.8	30.6	26.5	29.3	36.1	34	29.1
Never married (%)	45.2	22.6	0	14.3	3	8.5	27
Education (%)							
None or primary incomplete	42.7	17	25	19.1	9.1	6.4	25.9
Primary (year 6) completed	43.6	39.6	50	47.6	30.3	38.3	40.8
Secondary (G9) or more completed	13.7	43.4	25	33.4	60.6	55.3	33.3
	Low-skilled construction			Semi-skilled construction			Construction total
	Chinese	Other foreign	Angolan	Chinese	Other foreign	Angolan	
Age	27.3	33.3	37.7	31.1	33.3	35.5	31.7
Never married (%)	27	12.1	3.3	12.5	8	11.9	15.2
Education (%)							
None or primary incomplete	36.5	24.2	26.7	12.5	10.2	7.1	21.4
Primary (year 6) completed	46.1	39.4	43.3	37.5	21.6	52.4	38.8
Secondary (G9) or more completed	17.5	36.3	30	50	68.2	40.5	39.9

Source: IDCEA survey, 2017

Figure 5 - Contrasting education levels by firm ownership origin, Angola.



Source: IDCEA survey, 2017

The results of the survey suggest many Angolan workers are internal migrants. Half the total sample in Angola reported having migrated for their current job. The contrasts by company origin are striking. The proportion of 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. These are very significant differences that again confirm the existence of two separate workforces operating in different segments of the construction and manufacturing sectors in Angola. Moreover, we observe that Chinese firms not only hire a large proportion of migrant workers but also tend to reveal a preference for relying on migrant workers from the Centre-South of the country. Nearly 60% of the whole workforce in sampled Chinese firms, regardless of where interviews took place and in which sector, come from the Centre-South, and particularly from Huambo-Huila provinces, which are widely regarded as labour reservoirs in Angola (Figure 6). The proportion is even higher in factories. Many of the workers from these areas come from poor rural backgrounds.

In part this reflects a stereotype, which has been internalized by Chinese managers, about workers

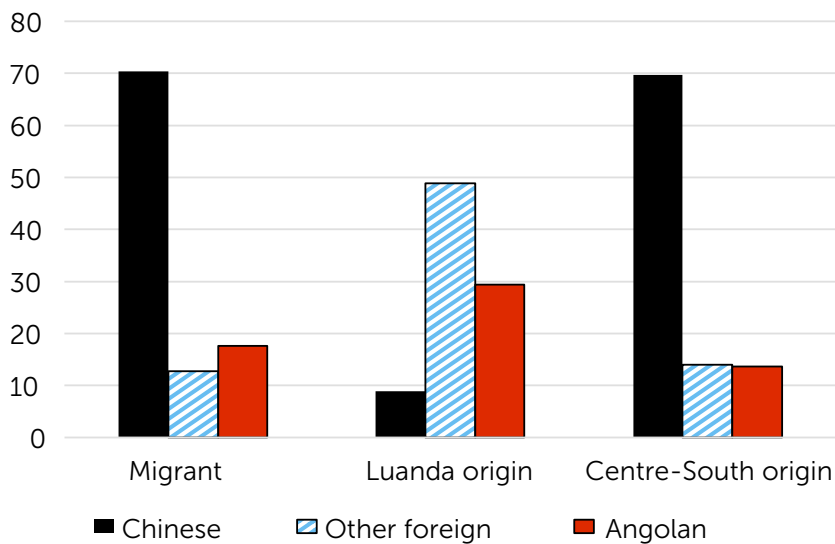
from these areas being more hardworking and disciplined, and shows the priority accorded by these managers to labour control and discipline above other considerations. Indeed, the main complaints about Angolan workers raised by Chinese managers in both sectors were absenteeism, lateness, lack of work discipline, and theft. Chinese managers frequently raised high labour turnover as a major constraint on their training and localization efforts. Rather than considering whether working conditions were to blame, their understanding was that workers from certain places lacked the discipline and work ethic, a cliché that is all too common not only among Chinese managers but also more generally among foreign and even domestic investors (see also Tang and Eom, 2019). The migrant labour recruitment system, with its focus on the central and southern provinces of Angola, seems to be a direct response to these concerns.

A related particularity is that a large proportion of Chinese manufacturing firms located in Luanda operate a 'dormitory migrant labour regime', similar to experiences in parts of China's Sunbelt (Pun and Smith, 2007). Figure 7 below illustrates this pattern.

Such a labour regime has two main consequences. First, it enhances labour control and discipline and helps firms count on a more reliable labour force where absenteeism and lateness is rare. Second, it creates space for lower wage demands from workers

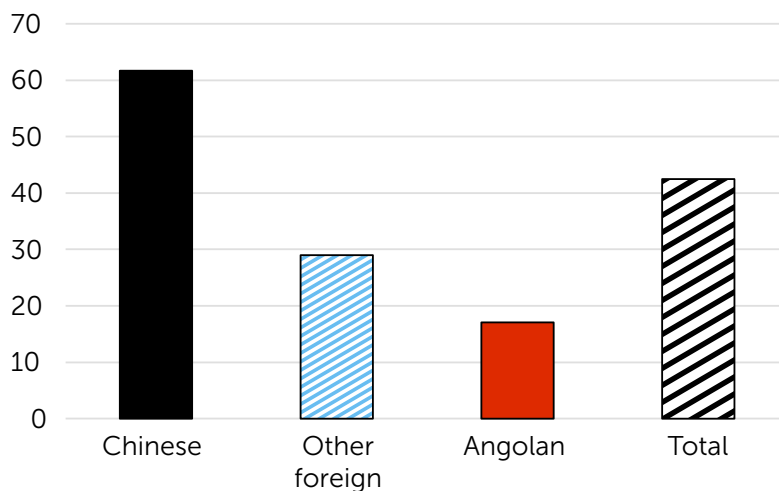
given that accommodation and food costs are covered, i.e. the additional 'social wage' meets the basic need of workers in the capital city. Overall, the revealed preference for a 'dormitory migrant labour regime' in many Chinese firms in Angola does not simply reflect the adoption of labour practices that resemble the labour regimes in low-wage sectors in China, but arises as a mechanism of adaptation to local labour market conditions and driven imperatives of labour control. This is then also possible because of the existence of 'labour reservoirs' in poorer provinces of the Centre-South of Angola where recruitment of migrant labour has deep historical roots.

Figure 6 - Migration and workers' origin in Angola's industrial firms (%)



Source: IDCEA survey, 2017

Figure 7 - Workers living in company dormitory in Angola by origin of firm (%)



Source: IDCEA survey, 2017

Given the differences in education levels and migrant origins it is not surprising the two labour force segments are also different in terms of socio-economic status, or levels of poverty. We measure socio-economic status through a simple unweighted socio-economic index that scores higher the more basic commodities or non-food wage goods a worker owns (see more details in the country reports, Schaefer and Oya, 2019 and Oya and Wanda, 2019, and Sender, 2019, for a similar methodology for poverty proxies). Workers employed by Chinese firms are significantly poorer (with socio-economic index scores over 40% lower) than workers in other companies. These differences are not surprising as they reflect two basic facts about the samples: (a) sample biases in Angolan and other foreign firms, where the majority of workers belonged to a core permanent labour force, as opposed to Chinese firms where many workers, especially in construction, were still temporary and had been hired much more recently; (b) a large proportion of workers in Chinese firms were migrants or were hired in and from poorer areas of the country..

Differences in socio-economic status may also be important if they affect the quality of jobs for different segments of the labour force. Arguably poorer workers, in particular recent migrants from rural areas, may have lower reservation wages and more limited bargaining power, especially if they

are new to industrial or construction jobs. They are also more likely to accept dormitory labour regime arrangements as their chances of finding adequate accommodation and afford to live in Luanda are slim.

In sum, there is substantial labour force segmentation in Angola that is strongly correlated with company origin, and we can therefore distinguish two distinct segments:

- a) Poorer migrant workers with lower education levels and much less relevant sector work experience dominate the workforces in many Chinese firms in both construction and manufacturing;
- b) A relatively higher-skilled segment of workers, with education levels above the average urban worker, and more work experience in construction and manufacturing, who are older and enjoy more stable work arrangements, is concentrated in Angolan and other foreign firms, especially in Angolan factories in Luanda and firms operating in a major dam project.

Understanding the existence of these structurally different labour force segments is essential to understanding the differences in labour outcomes that will be presented in Section 8.

7.2 Ethiopia: labour force characteristics and segmentation

In contrast to Angola, labour markets in construction and manufacturing in Ethiopia are highly gendered. Factories in Ethiopia employ predominantly women, especially for low-skilled jobs, where they represent nearly 80% of the samples of workers. This is partly to do with the kind of manufacturing that is emerging in Ethiopia: light labour-intensive industries where female labour participation tends to be high on a global scale. We also observe a 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 (which is part of the service sector).

In terms of basic demographic characteristics and especially age, there are important differences between companies of different origins, i.e. Chinese, other foreign and Ethiopian, for both low- and semi-skilled workers. Among the low-skilled workers, employees of Ethiopian companies are much older than workers in Chinese or other foreign owned firms, where workers are very close to one another in average age, and also have markedly lower levels of education. While women form the majority of the low-skilled labour force across all company types, this is most pronounced in other foreign firms (see Table 8).

Like in Angola, differences in terms of education levels are also striking, but follow a different pattern, which is more sector-driven. 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. The main differences for the latter can be found in contrasts between employees of Chinese and other foreign industrial firms, who are more educated than those employed by Ethiopian firms, the opposite result to the prevailing pattern in Angola. Age differences are an important driver of this gap, especially for low-skilled workers.

Table 8 - Demographic and education characteristics of workers by country, sector, and skill-group, Ethiopia

	Low-skilled manufacturing			Semi-skilled manufacturing			Manufacturing Total
	Chinese	Other foreign	Ethiopian	Chinese	Other foreign	Ethiopian	
Age	21.7	22.4	29.8	24.6	24.3	36.7	25
Female (%)	71.5	91.7	72.3	15	82.1	50	75.3
Never married (%)	79.2	75.6	48.7	70	75	40	67.6
Education (%)							
None or primary incomplete	10.4	12.5	34	5	3.57	1	16.8
Primary (year 8) completed	5.6	8.9	16.7	0	7.14	15	9.9
Year 10 or more completed	84.1	78.6	48.3	95	88.17	80	73.3

	Low-skilled construction			Semi-skilled construction			Construction total
	Chinese	Other foreign	Ethiopian	Chinese	Other foreign	Ethiopian	
Age	24.3	27.7	24.8	27.7	29.7	33.8	26.9
Female (%)	10.5	25.7	33.7	0	0	0	15.2
Never married (%)	64.5	31.4	62.79	43.8	29.2	32.4	50.5
Education (%)							
None or primary incomplete	47.2	50	59.32	16.7	20.8	40	41.5
Primary (year 8) completed	18.1	15.6	25.4	27.8	12.5	23.3	21.1
Year 10 or more completed	34.8	31.25	15.29	56.1	66.7	36.7	37.1

Source: IDCEA survey, 2017

In terms of socio-economic status, manufacturing workers are relatively better off, with a socio-economic index score that was 28% higher than for construction workers. Many construction workers in the survey samples were locally hired in rural areas and had low education levels, limited experience and lower living standards.

Within the manufacturing sector we find large differences between workers in Ethiopian firms, the best-off subset of the sample, and workers in Chinese and other foreign firms. This difference may also be related to the age difference and the longer industrial employment histories of workers employed in Ethiopian factories.

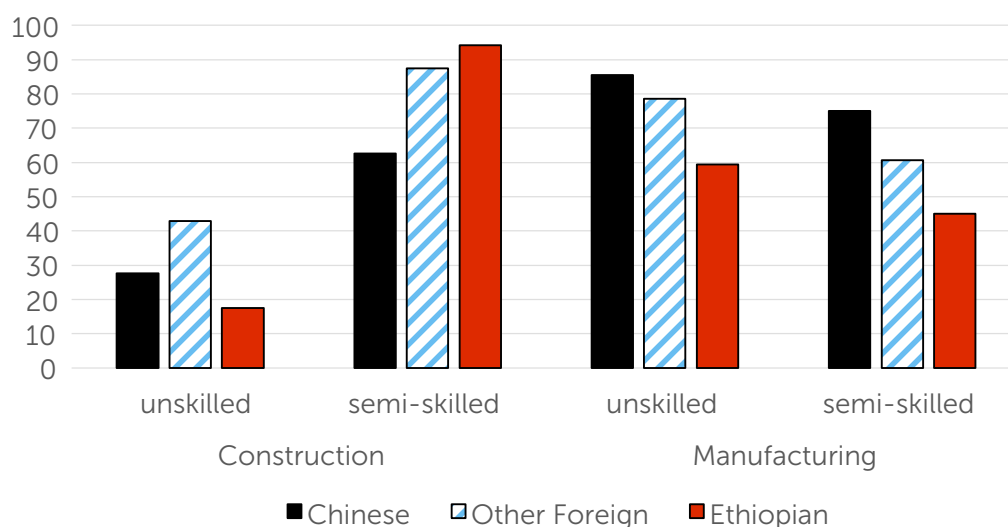
An important similarity with Angola is that a large segment of the labour force is constituted by internal migrants.

However, there are distinct patterns that differentiate countries, sectors and types of workers. In Ethiopia, persistent un- and underemployment in many parts of the country, as well as low returns to labour in agriculture, make labour migration a common feature among young jobseekers in most areas of the country. Recent violent conflict in a number of areas inside Ethiopia have also led to large numbers of internally displaced people. All this is especially reflected in very high migration rates for jobs in factories (Figure 8). In the construction sector, migration patterns are related to the way in which road projects are organised, which dictate hiring practices. Thus semi-skilled construction workers are more likely to migrate for their jobs and 'move' with the projects, because they have qualification and specialist skills to operate machinery. For all construction firms the proportion of semi-skilled workers who migrate ranges between 60% and over 80%. Slightly lower rates are found among manufacturing workers. Compared to Ethiopian firms, Chinese and other foreign manufacturing companies employ higher rates of migrants. 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. All of the Ethiopian companies we surveyed were located in or near large population centres, which made it easier for Ethiopian firms to hire locally.

However, an important difference with Angola is the absence, at least at the time of the survey, of a 'dormitory labour regime'. Furthermore, the share of migrants among low-skilled workers in construction was also relatively lower. According to interviews with company management and government officials, these facts are associated with policy priorities. First, firms were under pressure from central and sub-national authorities to create jobs for local workers in construction projects, which limited the extent to which they could 'travel' with large numbers of low-skilled workers from other regions. Second, the government discouraged the building of dormitories inside industrial parks despite the fact that the vast majority of workers were migrants, and some came from relatively long distances and therefore needed accommodation. There was expectation that workers could find suitable private accommodation in the vicinity of parks and that this would protect their freedom from employers' excessive control over their lives and time if they had been housed inside factories. However, as discussed in section on wages, 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.

Figure 8 - Migration for current job by sector, skill level and firm ownership in Ethiopia (%)



Source: IDCEA survey, 2017

8 Labour outcomes: wages and working conditions in comparative perspective



This section presents the main set of findings regarding working conditions. The primary focus is on wages and their determinants. We provide detailed evidence on whether origin of firms matters or not, and, if so, why. Drawing on the second level of analysis of the labour regime configuration, we discuss the role of sector specificity in wage determination. This analysis is complemented by

a descriptive analysis of other non-wage working conditions, issues of collective action, and structural impediments to better conditions. The section also reports on patterns of training provision and their effects. In order to understand variation in working conditions it is important to bear in mind the observed differences between labour force segments described in Section 7.

8.1 Job security and formality

We found substantial differences between Angola and Ethiopia in terms of the levels of formality and job security. Some of these differences were due to sample bias in some of the non-Chinese firms in Angola, where only the core permanent workforce was captured, as discussed in Section 4. We assess formality by looking at whether workers are in a direct employment relationship with the companies they work for, or whether they are subject to brokerage. We also look at whether workers have a written contract, and whether, in the absence of a written contract, workers have had key aspects of the implicit contract explained to them verbally.

We find that in both countries direct employment relationships prevail.

The vast majority of workers report being employed directly by the sampled company. Complex subcontracting systems and reliance on labour intermediaries/brokers or agencies are not common among large companies in these countries. This contrasts with practices in other regions of the world, and especially in China and India, where the role of labour brokers and informal labour relations is conspicuous, especially in the construction sector (Swider, 2015; Lerche et al., 2017).

In Ethiopia levels of formality, measured by the prevalence of written contracts, differ greatly by sector. Workers in construction are in less formal labour arrangements than manufacturing workers. Especially low-skilled construction workers are frequently hired on a temporary basis from the local area around the project site. Engagement can be for the entire project length, a portion thereof, such as the phases that require greater labour inputs, or even just for the duration of a specific task. Thus, looking across all firm origins, 65% of construction workers report having no written contract, in contrast to factory workers, a majority of whom (69%) do have a written contract. While most construction workers (60%) without a written contract had key elements of their contract verbally explained, fully 25% of our total construction sample in Ethiopia was working without a clear contractual relationship. In the Ethiopian construction sector there were no clear differences by company origin.

This is in sharp contrast with Angola, where the availability of written contracts is more correlated with the origin of the firm and less with the sector. Workers in Chinese firms in both sectors were less likely to have a written contract. Overall the proportion of low-skilled employees with a written contract was low, at 35% for both sectors combined, in contrast with 76% of the Angolan semi-skilled workers in the survey, the sub-group for which awareness of a written contract was greatest. So, part of the difference between firms by origin is driven by a much larger proportion of low-skilled workers in Chinese firms compared to non-Chinese firms, and particularly to Angolan manufacturing enterprises where the sample consisted primarily of semi-skilled permanent workers. We observed that many workers hired by medium-sized Chinese-owned factories in Luanda had no ID cards and were therefore 'informally' recruited. Under formal labour arrangements, and certainly in most 'formal' enterprises, employers require ID cards in order to hire workers and sign contracts. Many migrant workers from more remote parts of Angola declared that they did not have ID cards and that the process to obtain them was cumbersome. There might be other reasons but these were not reported. Although workers without ID cards

were clearly aware of the terms of their labour relationship with their employers, they did not have a written contract or were not aware of one. This group of workers explains a large part of the difference between Chinese and non-Chinese firms in our Angolan samples.

More significantly for the purposes of our comparative analysis, there are important differences in terms of job tenure and work experience within each country and by origin of firm (see Table 9 and 10). In Ethiopia, workers employed by Ethiopian enterprises had been in the job much longer than workers in Chinese and other foreign firms, especially in manufacturing. In Angola we find a similar pattern, but the contrast lies between Chinese firms on the one hand, where job tenure was shorter, and Angolan and other foreign companies on the other hand, where workers had longer tenures, particularly in manufacturing. The average tenure of workers in Angolan and other foreign firms is more than double that of workers in Chinese companies (Table 10). The lack of tenure is particularly acute for the bottom half of the sample of construction workers in Chinese firms, who had only been working for between one and four months since they were first hired. In short,



several workers in a number of Chinese road building sites had been recently recruited in nearby villages. These were new jobs. The differences in job tenure in Angola are also associated with large differences in the years of experience workers had accumulated in relevant sectors (i.e. construction and manufacturing). Our data shows that the relevant work experience of workers in Angolan and other foreign construction

companies was nearly double that of employees in Chinese firms. Manufacturing workers in Chinese firms barely had any prior relevant work experience in factories, less than 6 months on average, and the bottom 50% of such workers had no relevant prior experience at all (see Oya and Wanda, 2019). These results are consistent with the evidence on labour force segmentation presented in the previous section.

Table 9 - Job tenure by sector and ownership, Ethiopia

	Construction			Manufacturing		
	Chinese	Other foreign	Ethiopian	Chinese	Other foreign	Ethiopian
Job tenure (years)	1.4	1	2.6	1.1	1.5	7.5

Source: IDCEA survey, 2017

Table 10 - Job tenure by sector and ownership, Angola

	Construction		Manufacturing	
	Other foreign / Angolan	Chinese	Other foreign / Angolan	Chinese
Mean	2.6	1.4	5.8	2.0

Source: IDCEA survey, 2017

8.2 Wages

The wages paid to workers depend on a number of factors, including the productivity of workers as well as the structural and associational power they are able to bring to bear on wage negotiations (Silver, 2003). Both productivity and workers' bargaining power are determined in part by the sector in which the company is active. We therefore make all wage

comparisons within sectors, or control for the sector of activity. We first compare wages across different skill groups, before we turn to a comparison of wages across different company origins. Due to the substantial differences between both national economies, data for Angola and Ethiopia are analysed separately.

8.2.1 Wages in Angola

Semi-skilled workers enjoy a large wage premium in both countries, though the difference between the construction and manufacturing sectors is much more pronounced in Ethiopia than in Angola

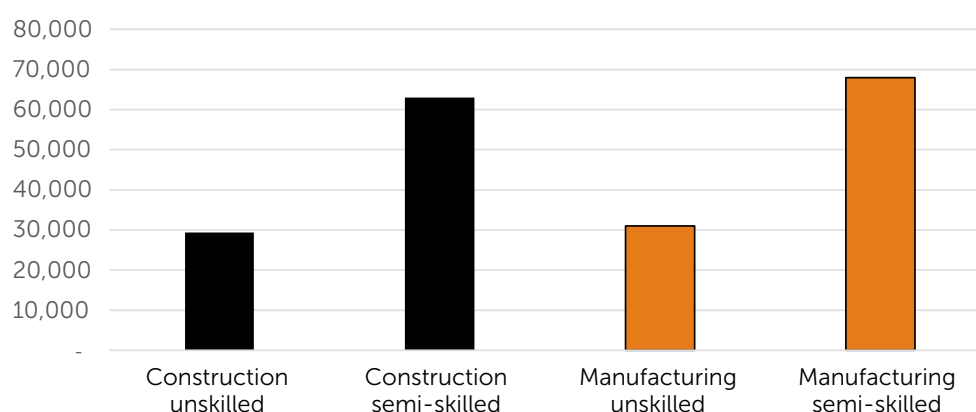
(compare Figure 9 and Figure 11). Looking across both sectors in Angola, semi-skilled workers received on average 64,805kz, compared to 30,157kz per month for low-skilled workers.¹⁰ The differences by sector are

¹⁰ In purchasing power parity (PPP) \$ terms these salaries were equivalent to \$633 and \$295 respectively (exchange rate of 102.40kz/PPPUS\$ at time of survey). The PPP conversion factor (or exchange rate) takes differences in price levels between countries into account. In terms of market exchange rate, the monthly wages are equivalent to \$391 and \$192 respectively (exchange rate of 165.90kz/US\$ at time of survey).

not that clear-cut, with relatively similar premiums paid to semi-skilled workers in both sectors (Figure 9). This reflects the fact that there are some similarities and connections between the work performed by semi-skilled operators in building material factories and those in construction. The salaries received by semi-skilled workers in both sectors are quite high compared to average wages in the sector. One would also expect wages to be

higher for low-skilled construction workers compared to factory workers, but this is not the case. Instead, we observe similar wage levels across both sectors, due to the higher living costs of Luanda (where all factory workers were based) and the concentration of construction workers in other provinces near the road or dam building sites. In other words, location effects also affect these comparisons.

Figure 9 - Monthly wages by sector and skillgroup, Angola (Kz)



Source: IDCEA survey, 2017

The answer to the question whether firm origin matters for wage levels depends on several factors and results are generally mixed. We first start by observing simple differences in means without considering other confounding factors. This is however only the initial step in understanding wage differentials and we complement this simple descriptive analysis with more statistical analysis below.

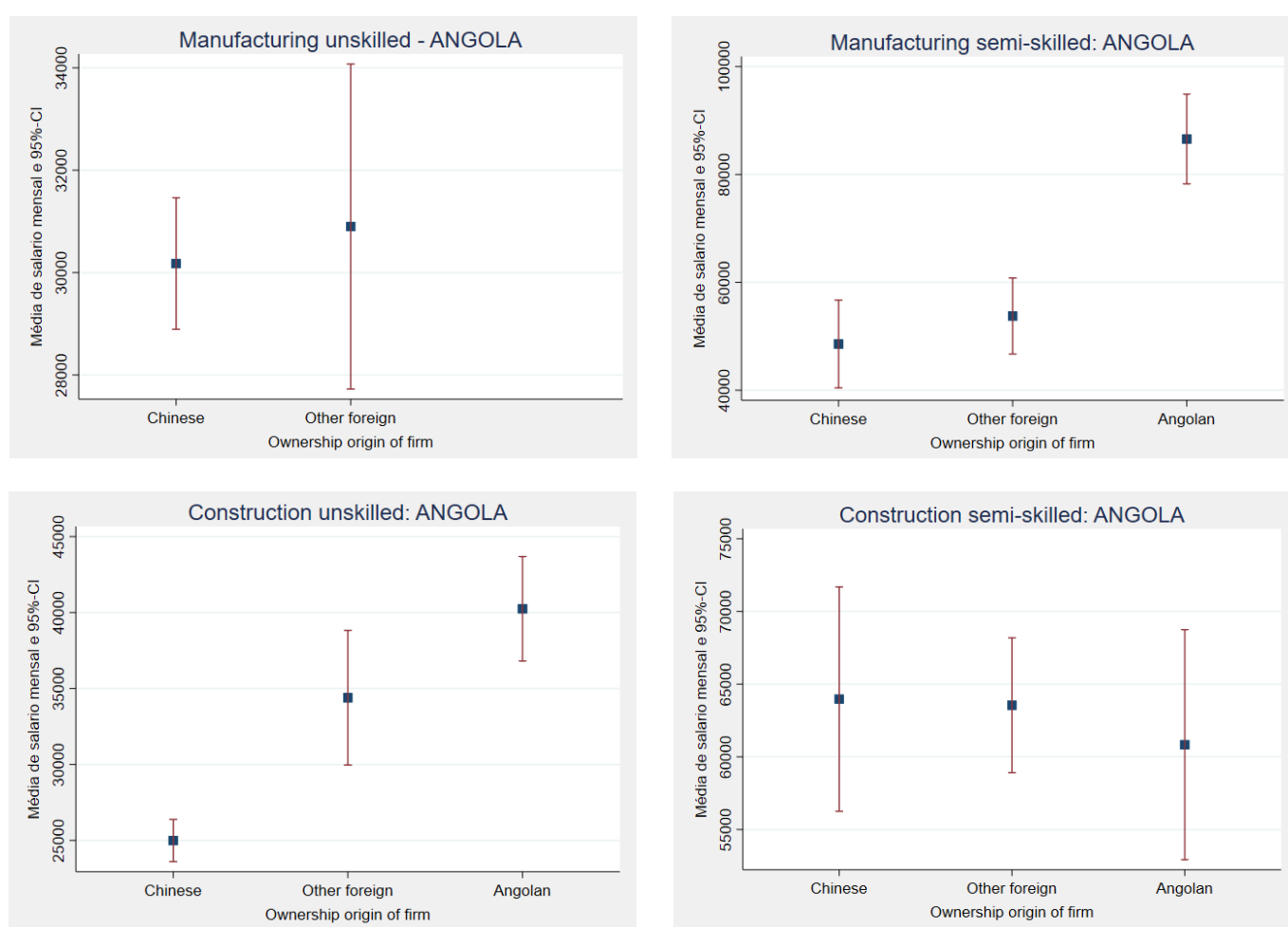
In Angola, wages paid in Chinese firms tend to be lower on average for some categories of workers, but there is significant variation. We find differences for two out of four categories of workers. Monthly wages paid by Angolan and other foreign firms were, on average, roughly one third higher than wages in Chinese companies for low-skilled workers in construction and for semi-skilled workers in manufacturing (Figure 10). For the latter there is no difference between Chinese and other foreign firms, while the sampled workers in Angolan factories (who were mostly part of the permanent labour force) receive higher wages. On the other hand, we did not find statistically significant differences for two groups of workers: semi-skilled workers in construction and low-skilled factory employees (Figure 10).

Given the observed heterogeneity in the composition of labour forces across firms by origin, as well as the sample bias discussed in Section 4, these simple comparisons are insufficient to draw firm conclusions about differences between Chinese and other companies. The descriptive differences are also not sufficiently large to conclude they are statistically meaningful. Therefore, it is important to consider the confounding factors that underpin these observed differences. One such factor is the existence of a sub-sample of workers in Angolan and other foreign firms employed in the country's flagship infrastructure project, where we find the 'top benchmark' of wages and working conditions. Workers in this dam project were part of a high-quality workforce (regardless of skill group) particularly selected by companies for this project. Many of these workers had long work experience in the sector and had been working for the contractors in previous projects before. The effects of this factor partly affect the differences observed in the boxplot representation of wage differences for low-skilled construction workers. The other key factor is related to sampling frames: the predominance of recently and locally hired labourers in Chinese road building sites in contrast with the predominant 'core'

permanent labour force found in other firms. In other words, the different sampling frames and workforces present at the time of surveys explain part of the observed differences in the construction samples, especially for low-skilled workers. Finally, the adoption of a 'dormitory labour regime' where some basic expenses are paid by the Chinese employer may also contribute to lower monthly cash wages for some of these workers, especially for semi-skilled industrial employees.

As for differences among semi-skilled manufacturing workers, the sample for workers in Chinese firms is too small to draw dependable conclusions, but it is clear that the sample of workers in Angolan factories was drawn from a group of core permanent workers with much longer job tenure. Besides sampling issues, wage differences are driven by the different characteristics of the labour force, i.e. the fact that workers in Chinese firms seem to be part of a different segment of labour supply, as argued in Section 7.

Figure 10 - Monthly cash wages by firm ownership, sector and skillgroup, Angola (kz)



Source: IDCEA survey, 2017

To go beyond the descriptive analysis presented so far we use regression analysis to help us unpack the combinations of determinants that affect wage variation. We use OLS regressions with either robust standard errors or standard errors clustered at firm level and control for a range of individual and firm characteristics, including age, gender, educational background, job tenure, work experience, migrant status, sector of operation, firm size, location effects, type of infrastructure project (dam vs road) and for specific sampling frame characteristics. Our dependent variable across all specifications is the log of monthly wages (in Kz).

The full results of the regression analysis are presented in Appendix A and are discussed in more detail in our Angola country report (Oya and Wanda 2019). The analysis suggests that, other things being equal, the particularities of each segment of labour force impact on average wage levels. The concentration of poorer rural migrants in Chinese firms is captured by the socio-economic index variable in the regression model, which reduces and practically eliminates the partial effect of being employed by a Chinese firm instead of an Angolan or other foreign firm. The statistical significance of the fact of being employed by a Chinese firm also disappears when we use clustered standard errors, which provide better estimates of variation, considering sampling methods at firm level.

The other variables that have a greater effect on wages than the origin of the firm are:

- whether a worker is semi-skilled (+)
- socio-economic status proxy (+)
- job tenure (+)
- relevant work experience (+)
- employment scale (+)
- working at dam construction (+)
- whether part of a core permanent labour force (+)
- having migrated (+)

Therefore, the particular individual characteristics of workers, including their job tenure, work experience, education and socio-economic status, combined with sector, skill-level of jobs and sample frame issues help us explain a significant proportion of variation in nominal wages, whereas the origin of a firm does not have a significant independent effect.

Arguably, part of the observed segmentation is driven by recruitment preferences and practices among firms, and Chinese firms may specifically target types of workers who have lower reservation wages. The reason they opt for a migrant quasi-dormitory labour regime, however, may lie less in the ability to pay lower wages and more in questions of labour control and discipline, as argued in the previous section.

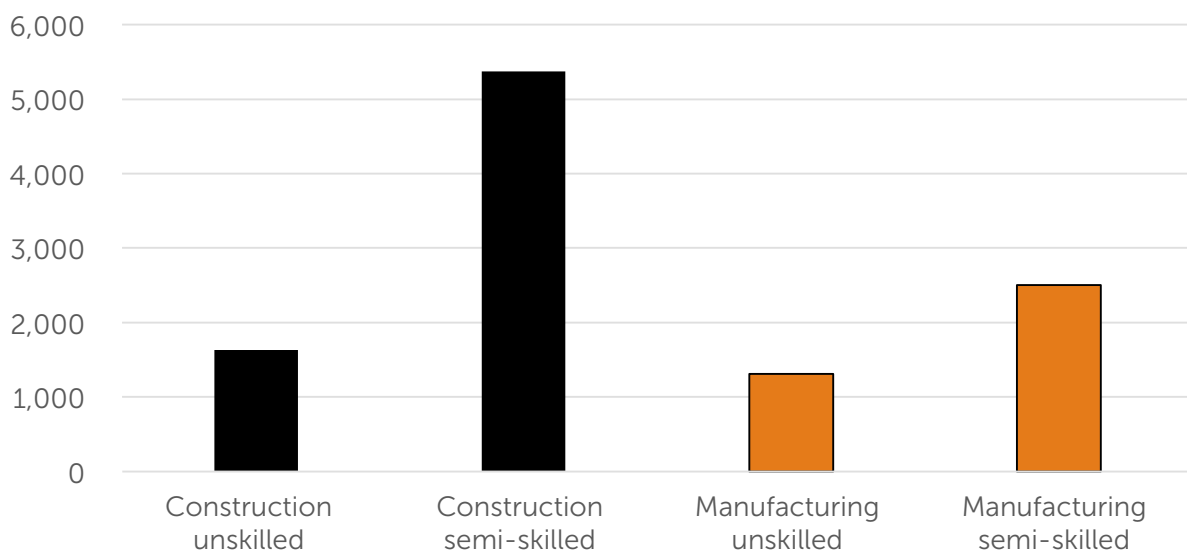


8.2.2 Wages in Ethiopia

In Ethiopia, there are also substantial differences in wages by skill-group across the construction and manufacturing sectors (see Figure 11). Average monthly wages for low-skilled workers in construction range between ETB1,500 and ETB1,700, whereas in manufacturing they range between ETB1,250 and ETB1,450.¹¹ The wage premium for semi-skilled workers is particularly high in the construction sector. Semi-skilled construction workers have comparatively rare skills, which require years of training and in some cases certification in the form of particular licences, e.g. for construction machine operators. Several managers reported that there had been an increase in the number of machine operators for road construction but competition for more experienced workers was still strong, so some firms opted to offer higher 'efficiency' wages to attract and retain the most experienced and competent semi-skilled workers. These workers, also due to these much higher wages, are more likely to follow the firm from project to project and be less prone to leave.

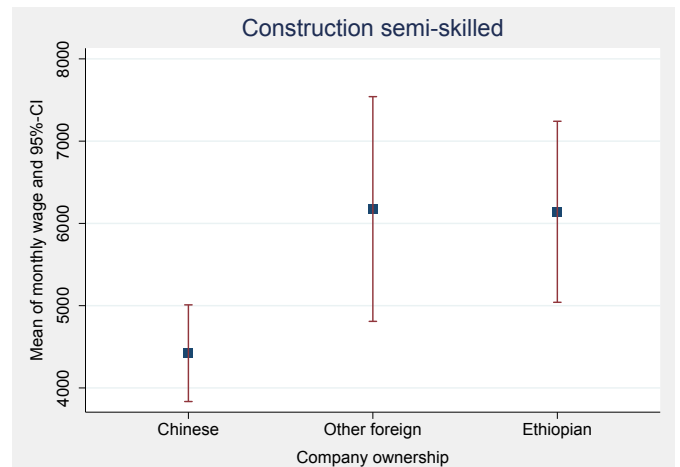
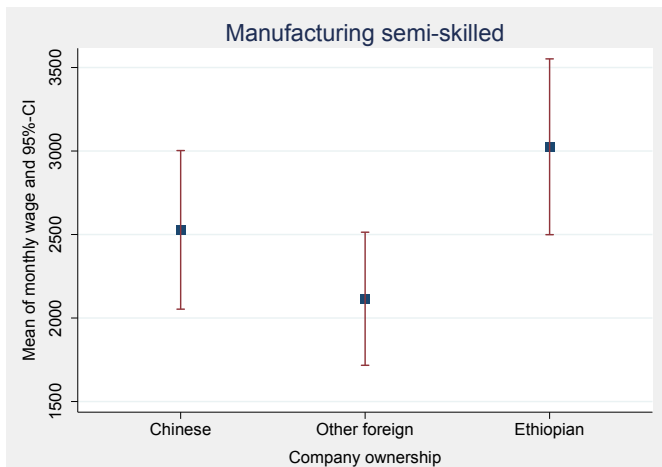
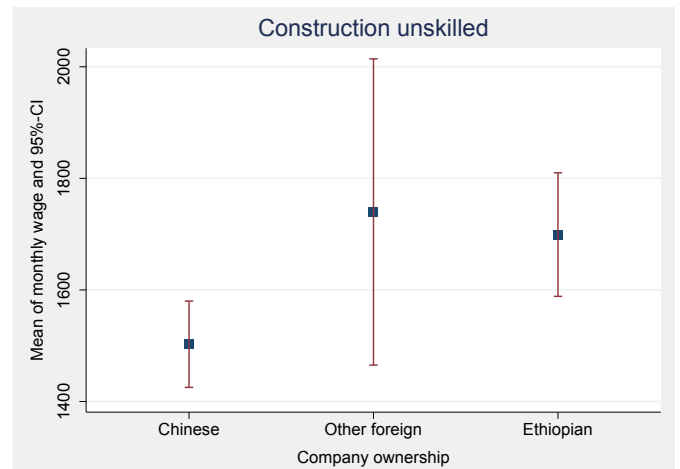
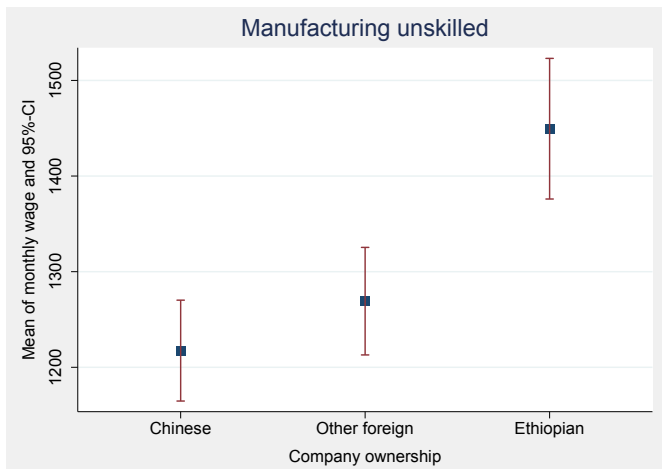
As shown in Figure 12, the main differences in wages paid by firms of different origins are also very dependent on the sector in which firms operate and the skill level of the workers. In the manufacturing sector, low-skilled workers in both Chinese and other foreign firms are paid less than in Ethiopian companies. Among semi-skilled manufacturing workers other foreign companies pay the lowest wages, though these differences are not statistically significant. In the construction sector, low-skilled workers in Ethiopian companies receive the highest average wages, while the difference between the wages of workers in Chinese and other foreign companies is not statistically significant, given wide dispersion in wages in other foreign companies. At a simple descriptive level workers in Chinese firms are on average paid somewhat less than counterparts in other foreign and Ethiopian firms. As discussed above for the case of Angola, these simple descriptive differences do not take into account a range of variables that affect wages besides the origin of a firm.

Figure 11 - Monthly wages by firm sector and skillgroup, Ethiopia (ETB)



Source: IDCEA survey, 2017

¹¹ Equivalent In purchasing power parity (PPP) \$ terms respective ranges of \$161-182 and \$134-155 (exchange rate of ETB 9.33/PPPUS\$ at time of survey). In terms of market exchange rate, the monthly wages are equivalent to ranges of \$63-71 (construction) and \$52-61 (manufacturing) respectively (exchange rate of ETB 23.9/US\$ at time of survey). Semi-skilled worker salaries in construction were much higher as Figure 1 shows, i.e. \$575 in PPP terms and \$225 in market exchange rate terms.



Source: IDCEA survey, 2017

As above we perform regression analysis to explore the main determinants of wage variation and whether differences by origin of firm persist after controlling for other observable factors or not. Our dependent variable across all specifications is the log of monthly wages in ETB. For the full regression results please see Appendix B. In our preferred specification, which uses clustered standard errors, there are a number of variables with statistically significant effects on wages, especially individual worker attributes:

- Whether semi-skilled (+)
- Male (+)
- Schooling (+)
- Job tenure (+)
- Work experience (+)
- Migrant (+)
- Socio-economic status index (+)
- Location effects, especially sited in industrial park (-)
- Construction sector (+)

If we only consider individual worker attributes, average wages in Chinese firms are still slightly lower, but once we consider location effects and especially whether companies are located in an industrial park, the independent effect of the origin of the firm is no longer statistically significant.

The fact that wages are lower in industrial parks, other things being equal, has to do with a number of possible explanatory factors. First and foremost is the nature of industrial parks as particular spaces of wage setting and labour control, which in turn results in part from their integration into particular, and highly demanding, global production networks, as explained in our Ethiopia country report (Schaefer and Oya 2019). Workers located in an industrial park, receive wages that are almost 19% lower than those that do not. Second, some of this difference is also due to a location effect, as most workers sampled in industrial

park worked in areas outside Addis Ababa, while most Ethiopian manufacturing firms, where wages were higher, were mainly located within Addis perimeter. Third, the experience of firms in the Ethiopian market matters too, as many of the sampled foreign firms in industrial parks had recently begun operations, and in some cases only a few months before the survey, therefore at initial stages when labour productivity is especially low.

Qualitative interviews with workers and managers suggested that problems with high turnover and low retention rates as well as high absenteeism were linked to the perception of low wages on the part of workers. Many of these workers had only limited experience in factory work and a significant sub-sample of them were in industrial park firms in their early stages of operations and therefore functioning at low productivity levels. There is now some consensus that the starting levels of wages in new industrial parks were too low (at the time of the survey) and there is evidence that most companies have increased wages in the past two years in order to tackle labour recruitment and retention difficulties. It is still too early to say whether these changes are having a lasting effect on employment stability in the industrial parks.

The absence of a minimum wage may have contributed to low starting wages especially in more recent industrial parks. The absence of an adequate benchmark, the limited information of real living costs in areas around industrial parks, and the assumption that such a large pool of potential workers would

keep wages low all contributed to this problematic low-wage scenario. Several factory managers, and indeed representatives of brands sourcing from these parks, were in favour of a minimum wage, precisely to avoid these problems and have some 'proof' that basic ILO labour standards were respected. However, the government has been up until now reluctant to commit to an official minimum wage. There was a perception among some officials that a minimum wage could be a deterrent to foreign investors, something that was not really consistent with information from management interviews.

A more plausible reason is the complexity of agreeing on a national minimum wage that could work for everyone. Given the vast heterogeneity in working conditions across sectors and types of firms, a minimum wage that was too low might be irrelevant to foreign investors in industrial parks. On the other hand, a minimum wage set at a level consistent with practices in export-oriented manufacturing might be too high for the bulk of small and medium enterprises in other sectors. At the time of writing, a new Labour Law draft had been approved by Parliament but there was no announcement of a minimum wage, rather the establishment of a mechanism to assess the pertinence and level of prospective minimum wages. Given the diversity of sectors, firms and therefore jobs, it would certainly make sense to stipulate different minimum wages for different purposes, and especially for spaces/sectors where foreign investors need meaningful national benchmarks.

8.2.3 Wages and living costs in Angola

The previous section has focused on comparisons of wages by sector, skill-group and origin of firm. These comparisons do not, however, tell us whether the wages are high or low relative to existing conventions and workers' living costs.

As noted above, a common stipulation applied to several global framework agreements¹² by leading brands, states that wages must be above the statutory relevant minimum wage in the producing country. In Angola the average wage across all sampled firms

was substantially higher than the stipulated 18,754kz national minimum wage for construction and manufacturing at the time of our survey in 2016/17. On average, the group of lowest paid workers, i.e. low-skilled construction workers operating on some Chinese road sites, many in rural areas of the centre of Angola, earned around 25,000kz, one third higher than the minimum wage. Only temporary labourers hired in local areas surrounding road construction sites for the early phases of a road rehabilitation project were paid salaries that were close to, but

¹² See examples in <http://www.industrial-union.org/issues/confronting-global-capital/global-framework-agreements>

nevertheless always above, the sector minimum wage. As pointed out in several qualitative interviews, however, these wages, even for the lowest paid workers, were higher (and more stable) than what many casual workers earn in the urban informal sectors, especially in petty trade. In fact, particularly the poorest workers in our samples seemed to welcome earning a stable monthly income at a higher level than what they used to earn before in irregular informal work.

Besides comparisons with a minimum wage, an important question is whether wages are high enough to ensure that workers are not living in poverty. Indeed some IndustryAll Global Framework Agreements with brands, as cited above, do refer that wages should always be enough to meet at least the basic needs of workers and their families. To understand the commodity bundle a particular cash wage can purchase it is useful to adjust wages to take account of local purchasing power. Commonly, such adjustments are undertaken using so-called purchasing power parity (PPP) adjustment factors, which take differences in price levels between countries into account. The international poverty line of \$1,90 a day in PPP terms would mean a monthly income of about \$58 and the next poverty line of \$3.20 (for middle income countries) would imply a monthly income of around \$96. In the Angola sample wages in PPP terms range between the lowest found among low-skilled workers in some Chinese firms (25,000 kz, i.e. \$244 in PPP terms) and the highest average found among semi-skilled workers in Angolan factories (73,000 kz, or \$713 in PPP terms).¹³ Most low-skilled workers in our Angola sample earn wages above \$300 in PPP terms. These wage levels confirm that Angola's labour market is characterized by comparatively high wages when using PPP exchange rates, which also reflect the high living costs in the country. In these terms, they are certainly not 'poverty wages'.

Nonetheless, even when wages are above international poverty lines and higher than remuneration in the lowest paid informal activities in any given country, workers may still perceive that wage levels are low in relation to their living costs. In fact, in many interviews most workers in

both countries complained that the wages they received were not sufficient to cover their monthly expenditures. However, there are some striking and paradoxical differences between the two main segments of the labour force in Angola. As shown in Table 11, the lower paid workers in Chinese firms, especially low-skilled workers, actually managed to save money, in contrast with workers employed by Angolan and other foreign firms, whose monthly cash wages were higher for both skill categories. This result reflects the existence of a 'dormitory labour regime' in many Chinese firms in both construction and manufacturing, which adds accommodation and food provision as a 'social wage', and therefore significantly reduces the monthly expenses workers incur. This is especially important for Luanda-based workers, who face high living costs, particularly for housing, food and transport. In the case of low-skilled workers in Angolan and other foreign firms, their wages, despite being higher than the sample average, are not enough to cover all these expenses, and these workers are the only category with negative savings. This does not necessarily mean that workers in Chinese firms are better off. In part their lower monthly expenses are due to a frugal lifestyle, and not just to the fact of having free accommodation and food, whereas workers employed by other firms may have a slightly higher standard of living which their wages barely allow them to sustain.

In sum, the paradox is that although on average Chinese firms pay lower wages for two out of four categories of workers, they are employing poorer workers with less education and experience and complementing their salaries with a 'social wage' consisting of accommodation and food, which allows these workers to keep their expenditure lower than most other workers and save money for the family back in the villages.

This finding is significant because of its implications for labour regime configuration and the evidence of poverty reduction. While employing relatively

¹³ The 2017 PPP conversion factor for private consumption in Angola was Kz 102 to \$1 (PPP).

poor workers through a 'dormitory labour regime' may enhance employer's labour control and take advantage of the low bargaining power of these workers, it is also true that these firms are creating jobs for some of the most vulnerable labour market entrants in Angola. These are workers with very limited employment opportunities in their areas of origin, where low-return small-scale agriculture and insecure and poorly remunerated urban services

may constitute their only chances of survival. As many workers in this situation reported, after finding these jobs, they enjoyed a stable monthly income for their first time since they entered the labour market. Thus, the combination of these relatively lower cash wages and the 'social wage' of accommodation and food seemed to contribute to their escape from poverty.

Table 11 - Monthly wages and living costs: purchasing power of wages in Angola

	Net cash wage after monthly expenses - kz	Monthly expenses in % of wage	Monthly wage (kz)
Low-skilled workers in Angolan/OF firms	-881	110%	35.250
Low-skilled workers in Chinese firms	8.130	73%	27.659
Semi-skilled workers in Angolan/OF firms	12.318	93%	66.540
Semi-skilled workers in Chinese firms	16.197	77%	59.284

Source: IDCEA survey, 2017

8.2.4 Wages and living costs in Ethiopia

As noted above, in Ethiopia there is no official minimum wage, so it is not possible to compare reported wages with such a basic convention. The lack of a statutory minimum wage has contributed to low starting wages in new industrial parks, as both government and new investors were assuming relatively low wages would still be enough to attract poor migrant workers. Some managers mentioned that the lowest wages were above the national poverty line, which is used for individuals only and as a measure of extreme poverty. Therefore, the national poverty line is not a good benchmark for firms willing to pay 'living wages'.

We probe this and compare estimated wages to the relevant international poverty lines, like we do for Angola. We find that, in PPP terms, no workers in the Ethiopian sample earn less than the \$3.20 poverty line and all workers earn more than twice as much as \$1.90 per day, which is the reference for poorer countries. Low-skilled manufacturing workers earn between \$130 - \$155 per month in PPP terms, while low-skilled construction workers are paid

between \$161 and \$187 in PPP terms.¹⁴ Semi-skilled workers range between \$227 and \$324 per month in manufacturing, and between \$447 and \$662 in construction, again in PPP terms. In short, they are not technically 'poverty wages' as it has been frequently claimed.

However, this does not mean sampled workers considered wages to be sufficient to cover living costs. Unlike in Angola, in Ethiopia there is no such clear contrast by origin of firm, as Chinese firms there do not generally practice a 'dormitory labour regime', so most workers face similar patterns of expenditure. For most respondents in Ethiopia food is the largest expenditure item, with 56% estimating the food share of their monthly expenditure at more than half of their total expenditure, of whom 20% report that they spend three-quarters of their income on food. Despite the high share of food in total monthly expenditure, half of our respondents in Ethiopia report that they do not consume meat or dairy products on a weekly basis. In the manufacturing sector, just 27% of

¹⁴ The 2017 PPP conversion factor for private consumption in Ethiopia was ETB 9.33 to \$1 (PPP).

low-skilled workers and 41% of semi-skilled workers state that their earnings are sufficient to cover their monthly cost of living. The situation is a little better in the construction sector, but still only 42% of low-skilled construction workers report sufficient monthly incomes. Semi-skilled workers construction are the most secure group in terms of livelihoods and 75%

8.3 Non-wage working conditions

The firms we examined differ greatly in terms of the non-wage working they offer their employees. In this section we look at the provision of fringe benefits, including meals, transport and medical care, as well as at interactions between managers and

report sufficient earnings. Therefore, sampled workers may not be in a situation of extreme poverty and receive a stable income above poverty lines, but many seem to struggle to make ends meet. Their main perception is that by and large, wages are not at the level of a 'living wage', which should sustain a family of four or five.¹⁵

workers in the workplace. As with other aspects of the employment relationship we find marked differences between Angola and Ethiopia, but each country context will be analysed separately.

8.3.1 Non-wage working conditions in Angola

In Angola, we find that differences between the construction and manufacturing sectors are relatively modest, while Chinese firms seem to offer fewer benefits than firms of other origins. Less than half of all workers, across both skill groups, benefit from a range of benefits usually associated with formal labour relations (Figure 13). Almost all workers do have access to meals at work though, especially in factories. The provision of transport allowances depends on workplace characteristics, whether it is a road construction site with locally hired workers, a factory, or a workplace with a dormitory. Looking across firm origins, survey results for Angola confirm significant differences between Chinese and other firms. The sample of workers in Chinese firms in both construction and manufacturing are characterised by more informal relations, especially for low-skilled workers, which translates into a lower likelihood of receiving paid leave, paid medical assistance or access to a social security card, i.e. formal incorporation into the national social security system (for pensions, for example). Qualitative interviews with company managers confirmed that in many Chinese firms there was no awareness that workers expected these rights to be fulfilled, especially considering that the workforce was employed on comparatively informal terms

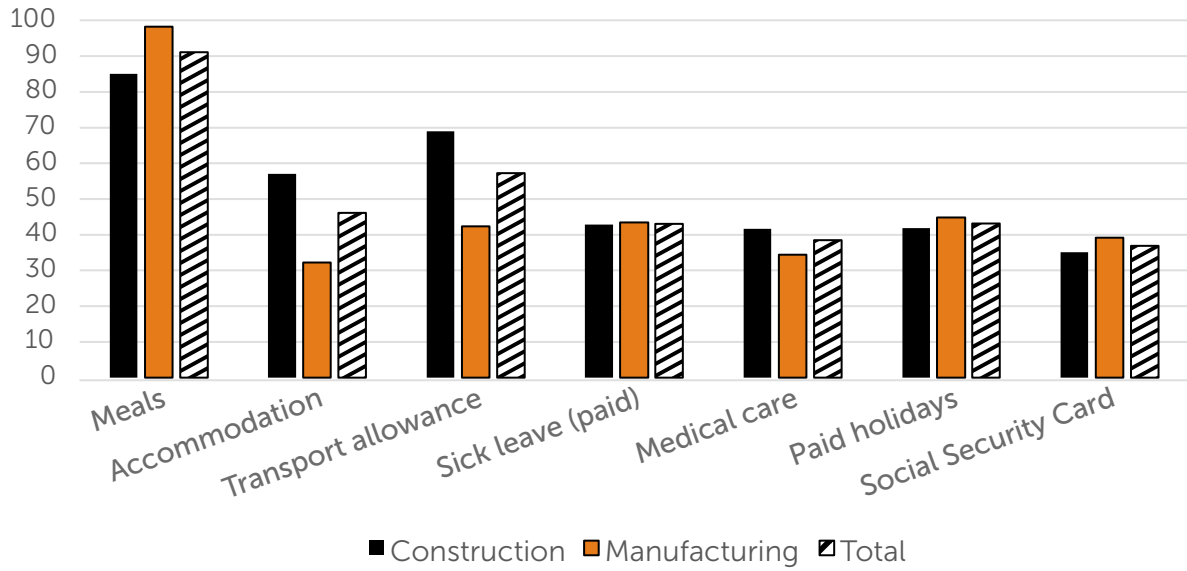
and on fixed-term contracts. We found cases where firms had formally incorporated 'dormitory' workers in the social security system, but workers had either not been informed or had not received the card. It was therefore difficult to establish to what extent some of these entitlements were provided, but many workers certainly seemed unaware.

Despite the different degrees of informality across groups of firms, a striking finding is that virtually no workers reported payment delays, an issue that is common in more exploitative forms of employment.

An aspect that is frequently mentioned in reports on poor working conditions in China and Chinese firms more broadly is the incidence of accidents and work-related injuries. The results of our survey do not confirm this expectation in Angola (Figure 14). In fact, the overall the incidence of any kind of work related injury or health problem was higher in non-Chinese firms. In addition, in Chinese firms fewer workers reported having witnessed a colleague being seriously injured. This is despite the fact that across a range of indicators of health and safety (H&S) Chinese firms usually performed worse, as in the frequency of H&S training, the provision of first aid facilities, the presence of a safety officer, and the use of safety clothes.

¹⁵ For the only available estimate of a 'living wage' in Ethiopia see Melese (2015).

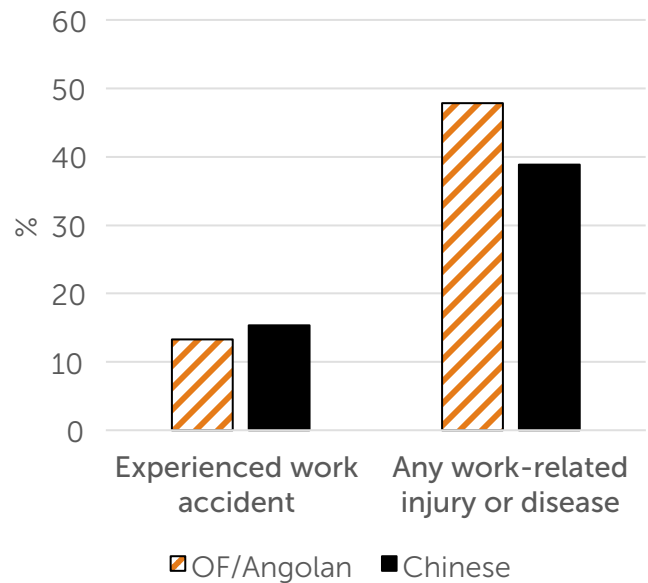
Figure 13 - Selected non-wage benefits by sector in Angola



Source: IDCEA survey, 2017



Figure 14 - Workers reporting work-related accidents or injury or health problem in Angola (%)



Source: IDCEA survey, 2017

8.3.2 Non-wage working conditions in Ethiopia

In Ethiopia, there were stark differences between the construction and manufacturing sectors in terms of fringe benefits (see Table 12).

Workers in the manufacturing sector are much more likely to receive fringe benefits such as paid holidays, paid sick leave, or clean showers, and have better access medical care and health checks.

However, there is also substantial variation by firm origin within each sector. In the construction sector Chinese firms appear to offer the fewest benefits to their employees. Workers at Chinese construction firms have less access paid holidays, health checks, medical care and sick leave, compared to their counterparts in other foreign and Ethiopian companies. In the manufacturing sector, these differences are somewhat less pronounced. Here,

Ethiopian firms perform best across most categories of service provision, followed by other foreign and Chinese firms. However, Chinese firms do outperform other foreign firms and Ethiopian firms in some categories, in particular the provision of meals and accommodation, although the latter is rare across all firm types. This is partly a strategy to help with labour retention, and especially to maintain work discipline and time efficiency, as reported by many managers. The provision of high-calorie food was considered very important by many Chinese managers as a way of improving workers' productivity and efficiency. It was expected that well-fed workers in factory canteens were more likely to sustain the pressures of high-pace production lines and less likely to fall ill and be absent. This has also been increasingly flagged by government officials as a desirable practice, given the low nutrition levels of some of the most vulnerable workers.

Table 12 - Non-wage working conditions by sector and firm origin, Ethiopia

	Construction			Manufacturing		
	Chinese	Other foreign	Ethiopian	Chinese	Other foreign	Ethiopian
Meals	4.9	0	2.5	84.8	64.3	13.1
Accommodation (or allowance)	19.4	13.6	16	7.4	0.5	2
Transport (or allowance)	71.8	55.9	88.3	82.8	74.9	54.2
Paid holidays	12.9	33.9	21.9	72.5	76.2	88
Health checks at workplace	1.7	18.6	19.3	24.1	42.8	44.9
Medical care	13	39	52.9	30.3	58.7	70.1
Paid sick leave	22.8	35.6	41.2	54	64.4	89.2
Clean showers	10.5	11.9	18.5	39.8	27.7	39.3

Source: IDCEA survey, 2017

The provision of accommodation was substantially less likely than in Angola. In part, this reflected a policy preference for avoiding factory dormitories, as noted in section 7.2. The government initially discouraged companies from building dormitories and housing workers inside industrial parks. However, during the time of the survey and especially in 2018, when we conducted several interviews with managers and government officials, it was clear that housing had become a major problem and a reason for unexpected

challenges in recruiting and retaining labour, especially in new industrial parks, which did not benefit from adequate surrounding urban eco-systems. Thus, many migrant workers faced higher than expected living costs, especially because of housing, and consistently complained about their wages going to pay for the housing and food that they did not require to pay for before migrating. Provision of affordable and subsidized housing, whether from companies, industrial parks or local government has become

a critical issue and a policy priority for the success of new industrial parks. The planned expansion of employment in these parks, with thousands of more migrant workers in need for accommodation, leaves little alternative choice. Chinese firm managers were certainly in favour of providing free accommodation to confront problems of absenteeism, lateness, discipline and indeed labour retention.

Finally, like Angola, the record in terms of safety seems to be better in Chinese firms, especially compared to Ethiopian companies.

Across sectors accidents and injuries are somewhat more frequent in construction, while comparisons by firm origin suggest that occupational hazard is slightly lower in Chinese firms compared to other firms, particularly to Ethiopian firms. For example, construction workers in Chinese and other foreign companies report having suffered injury following an accident during the last 12 months at very similar rates, 4% and 3% respectively, but reported accident-related injury rates are much higher in Ethiopian companies, where 14% of workers have been injured by an accident at work.

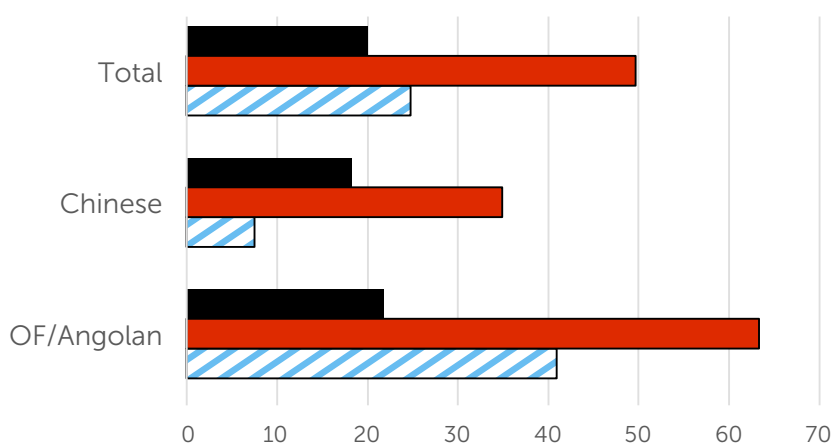
8.4 Labour relations, conflict and institutions

The state of labour relations and labour market institutions, including trade unions, is determined by both the country and the sector in which a firm operates. Overall, we find higher rates of unionisation and collective bargaining in Angola than in Ethiopia, where the workers in the construction sector have almost no trade union coverage and the manufacturing sector is bifurcated into companies with strong links into low-margin global value chains. While in Angola the largest differences are found between Chinese companies on the one hand, and other foreign and Angolan companies on the other, in Ethiopia Chinese and other foreign companies are quite similar to one another but very different to Ethiopian enterprises. Unionisation levels are much higher in Ethiopian firms, which are more established

in the country and are far more accustomed to tripartite dialogue than foreign investors.

In Angola we found that average levels of unionization were very low, well below 15-20% in the construction sector, according to local trade union sources. However, our sample of Angolan and other foreign firms seemed to have more engagement with unions than the average and certainly compared to Chinese firms where unionization rates are low and closer to the national average. Given this lower presence of trade unions, the frequency of collective bargaining in Chinese firms was higher than expected, but still lower than in highly formalized Angolan and other foreign firms.

Figure 15 - Presence of trade union and strikes, Angola (%)



Source: IDCEA survey, 2017

■ Strike ■ Collective bargaining □ Presence of trade union at work

Chinese managers often argued that the presence of trade unions drives conflict. Instead, they prefer to resolve tensions by talking directly to employees. Our data suggest that the incidence of strikes is lower in Chinese firms compared to other companies in the same sector. This is unlikely to be related to lower unionisation given that trade unions in Angola are not particularly active. The incidence of strikes is also likely to be associated with the nature of the workforce. A more educated, better-off and more vocal labour force, as present in non-Chinese firms, may be more capable of organising strikes and more prone to taking action.

In Ethiopia, the contrasts between firms in terms of attitudes towards workplace organising and trade union are somewhat different from Angola. The biggest differences occur between Ethiopian companies and foreign companies, both Chinese and non-Chinese. What sets Ethiopian companies apart from both Chinese companies and other foreign companies is the much greater prevalence of trade unions among Ethiopian companies. These differences are driven by the manufacturing sector. In the road construction sector, where firms rely on a small core of permanent semi-skilled workers and large numbers of temporary low-skilled workers, unionisation is almost non-existent, regardless of company origin.

Among manufacturing workers, 55% of respondents in Ethiopian firms report that their workplace has a trade union, while only 26% of employees of foreign firms and 17% of workers in Chinese companies say the same. In part, these differences in unionisation rates are due to the fact that Chinese and other foreign companies are more likely to be sited in one of Ethiopia's new industrial zones, which were established to attract FDI (Weldesilassie et al., 2017). While globally there is no systematic evidence that companies in industrial parks or other special economic zones necessarily have lower rates of unionisation than companies outside (Cirera and Lakshman, 2017), companies in low-skilled labour-intensive value chains frequently seek out countries where labour institutions are weak (Anner, 2015), and unions are hardly present in some of Ethiopia's industrial parks. Among manufacturing workers based in Ethiopian industrial parks just 13% report that a union exists in their company, compared to 56% of

manufacturing workers outside of industrial parks. Our interviews with trade unionists at both national and local levels indicate that many foreign companies, both Chinese and non-Chinese, are especially hostile to the establishment of local union branches.

Some Chinese and other foreign firms seem to consciously discourage the formation of labour unions because they believe unions will lead to escalating conflicts.

Their preference is to settle disputes through direct negotiation with unrepresented workers or go to court, especially in the case of construction companies. Managers also reported that local labour laws and courts tend to overprotect the local workers and these firms usually lose lawsuits against the workers. Therefore, from the point of view of firms, this solution does not seem to help with favourable conflict resolution.

Even where labour organisers manage to establish union branches at the enterprise level, convincing workers of the value of union membership in the face of an often hostile management can be a challenge, and many workers choose not to become union members. Qualitative interviews show that reasons range from a lack of knowledge about the role and function of trade unions to concerns about ability or willingness of union leaders to defend the interests of workers. Of all the workers who report having a union branch in their enterprise only 49% became union members themselves.

Given the low rates of unionisation in the manufacturing sector and the near-absence of unions in road construction companies, it comes as no surprise that we find very low rates of collective bargaining between workers and management in Ethiopia. Across the entire sample, just 13% of workers report that their wages are determined through collective bargaining, while 55% say that there is no such agreement in place. Interestingly, a large proportion of workers, 31%, do not know whether or not their wages are determined through collective bargaining. One can easily imagine how such a lack of understanding can greatly facilitate wage suppression. Collective bargaining is low in both the construction

and manufacturing, with the share of workers reporting such agreements hovering around 8-9% in both sectors for Chinese and other foreign firms. Workers in Ethiopian firms report higher rates of collective bargaining in both sectors, with 13% of construction workers and 27% of manufacturing workers stating that their wages were collectively negotiated.

The absence of unions and collective bargaining arrangements does not, however, imply the absence of strike action, which is widespread in Ethiopia (Admasie, 2018) and near-universal among the firms we sampled. Indeed, strike action was far more common in Ethiopia than in Angola, which also reflects different work mobilisation cultures across countries. Workers in all but two companies in our sample reported strike action having taken place during their tenure. In the construction sector, workers at Ethiopian companies were most likely to report having witnessed strike action during their tenure, while Chinese companies were the least likely. A quarter of employees at Ethiopian companies reported work stoppages, compared

to 15% at other foreign companies and 14% at Chinese construction firms. In the manufacturing sector the situation is quite different. Here workers at Ethiopian companies are the least likely to have witnessed a strike, while the employees at other foreign companies reported the most strikes. In other foreign firms 55% of workers reported strikes, compared to 36% in Chinese companies and only 19% in Ethiopian enterprises. Strikes were more likely to occur in industrial parks, where companies were universally non-Ethiopian. Inside industrial parks 48% of workers reported strikes, but outside of parks only 25% did.

Compared to Ethiopia, labour conflict and strikes may not be common in Angola but that does not mean that labour relations are more 'harmonious'. Interviews with managers suggested that absenteeism and theft (of equipment, safety clothes, money) were common problems. Although this was a frequent complaint across firms, Chinese managers were more likely to raise it. In part, their justification of a 'dormitory labour regime' was also linked to attempts to minimise such incidents.

8.4.1 Management-worker interactions

Strikes and forms of passive resistance, such as absenteeism and theft, are indicators of workplace tensions. Across both countries we found evidence of conflicts between workers and managers, in particular between foreign managers, both Chinese and non-Chinese, and local workers. However, while in Ethiopia there were large differences across firms of different ownership types, we found that in Angola firm origin was not a good predictor of conflictual relations between workers and management.

There is evidence of work culture and communication clashes in foreign firms, including Chinese companies.

In Ethiopia, workers in Chinese companies appear more likely than their counterparts in other foreign-owned and Ethiopian companies to feel abused by managers. In the construction sector, 45% of workers in Chinese companies report having suffered verbal abuse. The comparable percentages in Ethiopian and other foreign-owned firms are 20% and 22%

respectively. The pattern in the manufacturing sector is quite different. Here there is little difference between Chinese and other foreign companies, but both of these are quite different to Ethiopian companies. In Chinese companies 62% of workers report verbal abuse, as do 58% of workers in other foreign companies, but this number drops to 35% for Ethiopian companies. In qualitative interviews it was suggested that perceptions of verbal abuse could be due to clashes in communication styles, especially when instructions or criticisms were given by supervisors and managers. The abrupt style of factory managers, whether Chinese or other foreign origin, does not necessarily reflect a particular cultural trait, but are certainly related to the work cultures of high-pressure industrial capitalism that have developed in parts of Asia (Tang and Eom, 2019). Interestingly, Ethiopian workers seemed more sensitive to such communication clashes than Angolan workers, who did not generally report verbal abuse. However, compared to Ethiopia, the work environment in

Angolan factories did not seem particularly stressful, as building materials factories in Angola tend not to set time efficiency targets.

In Angola, management-worker relations were not particularly conflictual in Chinese firms, but, as mentioned above, Chinese managers frequently complained about the unreliability of workers and instances of theft. Safety issues were a major concern among Chinese managers, and sometimes disgruntled workers were blamed for cases of burglary in factories and construction

8.5 Training and skill development

Job creation in infrastructure construction and in manufacturing contributes to the protracted process of building an industrial labour force in a country embarking on structural change. Angola and Ethiopia are, of course, different in terms of their patterns of industrialization and structural change, but in both countries jobs in these sectors have contributed to skill development that will be critical to the prospects for further industrial-led economic transformations. Given predominant narratives of low workforce localization rates in Chinese firms in Africa, discussed in Section 6, there is a common perception that Chinese firms do not contribute much to skill upgrading of African

8.5.1 Training provision in Angola

In Angola the picture is mixed and contrasts reflect the segmentation of the labour force by sector and origin of company and different degrees of formalization in labour relations. By contrast, in Ethiopia we observe clear differences between sectors. This is partly to do with the different nature of factory work in Angola (building materials) and the labour process there compared to globally integrated firms in textile and garment production in Ethiopia. In Angola about a third of workers reported having received some manner of 'formal' training. Employees of Angolan and other foreign firms were more likely to report having received such training (Figure 16). The kind of training they were referring to was a *formal induction*, usually conducted by HR managers and H&S officers, which essentially focused on basic aspects of health and safety at work and main rules at

sites. Workers did not report many incidences of verbal or physical abuses and there were no discernible differences across companies. Qualitative interviews and life histories, which are better suited to eliciting such information, suggest abuses did occur but there was no pattern in terms of firm origin. However, communication barriers between Chinese supervisors and low-skilled workers led to complaints about Chinese 'management style', even though Angolan workers sometimes displayed a similar degree of mistrust or disdain vis-à-vis Portuguese managers.

workers. However, our desk review showed that, against this frequent perception, all reviewed studies give evidence of training provision, even if the most dominant forms tend to be informalised and on-the-job (McKinsey 2017; Tang 2016; Bashir 2015). It would be difficult for Chinese firms to operate in these new emerging sectors in African countries without engaging in some form of training, especially considering the lack of skills and experience of many of the workers hired by these companies, as discussed in Section 7. The data collected among workers about their own reported experience of training in sampled firms is discussed below.

the workplace. This training usually happened at the beginning and there was no subsequent continuous systematic training.

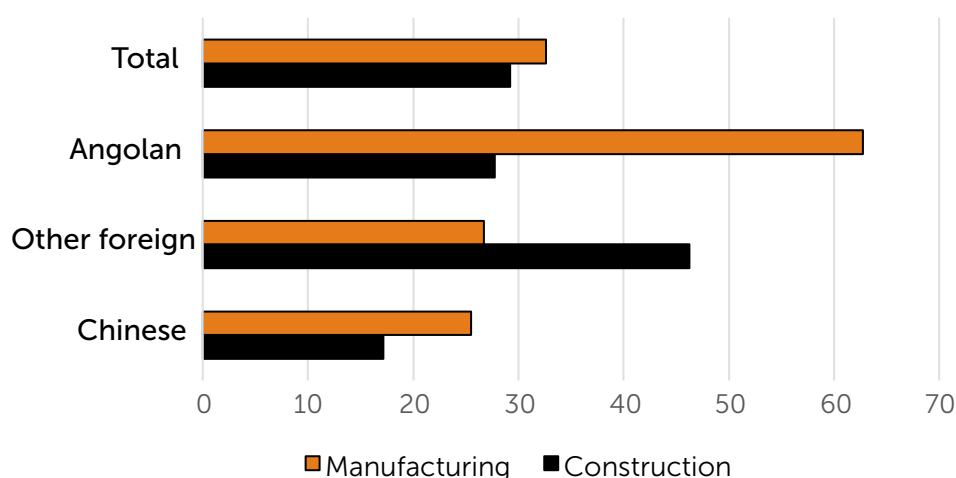
Such training does not capture all types of skill transfer and development. Despite what is reported in Figure 16, most workers at Chinese firms, in both sectors, did refer to the importance of skills acquired in new jobs in factories and construction sites. This was especially the case for the most inexperienced workers entering these sectors for the first time. Qualitative interviews with Chinese managers confirmed that informal mechanisms of continuous training were the usual *modus operandi*. Managers placed greater training focus in the initial weeks, so that workers could be assigned to specific tasks. Once workers were considered 'reliable' and less likely

to leave, some of them were offered additional training for new tasks and the possibility of promotion. There was less formality in the delivery of such training and less focus on H&S issues. Especially on construction sites technical training and basic 'learning by doing and by observing' was the rule. There were some larger companies that had invested in vocational training centres, and training here included trips to China to give workers direct and relevant experience. However, the proportion of graduates from these courses who eventually worked for the Chinese firm offering this training was relatively low, as trainees would often look for stable jobs in the Angolan civil service. Many Chinese managers in fact complained about the high turnover of trainees and its detrimental impact on the incentive to formalize and expand training for new hired workers.

Overall, training provision varies in terms of its degree of 'formality', how systematic it is and on what aspects it is focused.

Sector matters, not only in terms of contrasts between manufacturing and construction, as observed in Ethiopia, but also in terms of sub-sectors and market orientation. Medium-sized firms oriented towards domestic market, such as many Angolan factories, and globally integrated manufacturing companies like in Ethiopia behave very differently. In Ethiopia, Chinese firms contribute to training at similar rates as other foreign firms do, once we consider sector and skill group, but in Angola their training mechanisms contrast with the more formalized and systematized efforts observed in Angolan and other foreign firms.

Figure 16 - Workers having received *formal* training, by sector and firm ownership, Angola (%)



Source: IDCEA survey, 2017

8.5.2 Training provision in Ethiopia

In Ethiopia, the provision of training differs greatly across the construction and manufacturing sectors. Figure 17 gives an overview of training provision by sector, worker skill level and firm ownership. There are two main patterns. First, training provision is much higher in the manufacturing sector, where around 80% of workers report having received training, than in the construction sector, where between 20% and 40% have been trained in their current job.

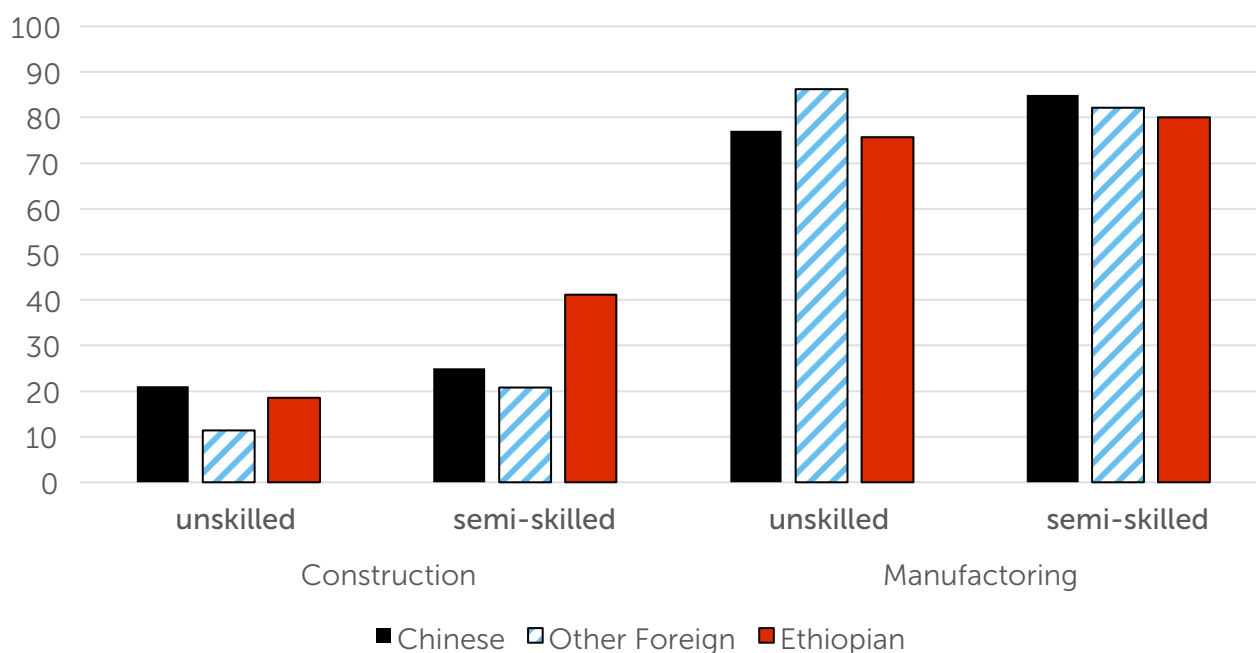
The kind of disciplined and tightly organised labour process that companies deem necessary to generate profits in low-value added sectors such as garments and leather products can only be achieved if workers fit seamlessly into their production lines and perform the required operations quickly and with minimal errors. All of which requires training. Some of the best examples of systematic and intensive training were indeed found in some Chinese firms that were

tightly integrated in GPNs. Hundreds of Ethiopian workers were sent for several months for 'deep immersion' in the production operations and labour processes of parent Chinese firms with the aim of speeding up the process of transition of labour practices in Ethiopia-based factories. Part of the training in Ethiopian factories focuses on 'soft skills', such as punctuality, behaviour at work, and compliance with targets and performance monitoring, but also covers issues such as personal hygiene and basic financial literacy. Training to improve work discipline and efficiency were regarded by managers as critical to the production process and required to ease the transition from farm to factory for their employees. Although this kind of training was also practiced in some Angolan factories, it was not a significant focus of training efforts.

In the construction sector in Ethiopia, we found that no Chinese company offered systematic training for its Ethiopian employees, apart from short introductory classes about firm regulations and

safety practices. Normally the firms let workers learn the work skills on the job, by working in teams with more experienced workers and supervisors. Learning by doing is seen as the primary mechanism of skill development. The longer the employee stays in the company the wider the range of skills developed and the greater the opportunities to move up to semi-skilled positions of greater technical responsibility. There has been a notable improvement in the availability of machine operators in Ethiopia, significantly more so than in Angola. As more and more Ethiopians have acquired the licenses needed for driving and operating construction machines, Chinese firms now mainly hire certified local workers for these positions. Generally such semi-skilled workers in will be expected to demonstrate their skills in a test shift. In Angola, managers are much more mistrustful of the skills of licensed machine operators and always require both proof on the job and additional training before allowing workers to control complex road construction machinery.

Figure 17 - Provision of any form of training by sector, skill level and firm ownership, Ethiopia (%)



Source: IDCEA survey, 2017

9 Conclusions and summary of main findings

This project set out to analyse the labour dynamics of Chinese firms in sub-Saharan Africa, in sectors that are expected to spearhead the structural transformation of African economies. China's well known 'go out' drive has manifested in a rapid expansion of overseas operations of infrastructure builders, mostly SOEs, as well as in a dramatic growth in FDI, particularly to developing countries. Sub-Saharan Africa is an important destination of many of these firms. Some countries have received a substantial share of Chinese FDI and overseas contracted projects, Angola and Ethiopia being two salient examples. This has happened at the same time as many countries in the region revived their aspirations to transform their economies and industrialize. Ethiopia is a leading example of that renewed drive.

The economic and social transformation that is often represented by the growth of non-agricultural sectors bringing new forms of production, technology and new jobs affects the lives of millions of new labour market entrants, many of them young, more educated than previous generations and eager to find new, better paid, and more secure jobs. However, employment challenges in Africa remain formidable, manifested in pervasive underemployment, high youth unemployment and the predominance of low-remunerated activities, especially in agriculture and informal services. The demographic 'dividend' is not paying off yet. In such a context, the arrival of hundreds of new firms seeking to expand infrastructure building, general construction services and the manufacturing base of countries that have so far failed to industrialize is received with some excitement. At the same time, as workplace encounters between new investors and African workers become more common and visible, concerns have been raised about the working conditions offered by these new jobs. A relatively pessimistic narrative has prevailed in some academic circles and especially in media reporting about the exploitative conditions facing young African workers in new factories and construction sites.

The main findings of our surveys of more than 1,500 workers employed by leading domestic and foreign firms in Angola and Ethiopia show that the picture is more nuanced and diverse than widespread perceptions suggest. There is significant variation in working conditions between and within countries

and sectors, especially with regards to wages. Only a combination of several factors, including individual worker characteristics, sector specificities, local context, and a range of firm attributes, including the origin of ownership, help us explain some of the variation in wages in both countries. Regression analysis suggests, for both countries, that the individual attributes of workers, firm size, the location of firms and skill levels are more important predictors of wage levels than the origin of the firm, despite the fact that basic descriptive comparisons show lower wages in Chinese firms, especially for low-skilled workers. These differences are limited and can be largely explained by other factors.

Reported wages are not 'poverty wages' in the strict sense. In Angola and Ethiopia, even the lowest-paid low skilled workers receive wages that are above the extreme and moderate international poverty lines. In Angola, all workers earned wages that were above the sector minimum wage and a majority of workers earned well above minimum wages. Yet, in both Angola and Ethiopia most workers complained that these were not 'living wages', in the sense that many struggled to meet normal monthly expenditures. Some workers needed additional sources of income, especially in Ethiopia, and as a result some were in debt. In Angola an interesting paradox arises: workers who receive lower wages but are housed and fed by their employers, mostly Chinese firms, managed to save a much higher proportion of their salary than their counterparts employed by other firms on higher wages. Their living costs, especially in a very expensive city like Luanda, were high enough to consume their wages. Angolan migrant workers residing in company dormitories were therefore more likely to be associated with the 'eating bitterness' metaphor that has often been used to characterize the lives of Chinese migrant workers.

The observed differences in wages and working conditions, especially in Angola, reflect a striking segmentation of the labour force, which is associated with firm origin. In Angola we find two distinct segments: (a) poorer migrant workers with lower education levels and much less relevant sector work experience dominate the workforce in many Chinese firms in both construction and manufacturing; (b) a relatively higher-skilled segment of workers, with

education levels above the average urban worker, and more work experience in construction and manufacturing, who are older and enjoy more stable work arrangements, is concentrated in Angolan and other foreign firms, especially in Angolan factories in Luanda and firms operating in a major dam project. These segments reflect the different employment dynamics in Chinese firms that on average entered the Angolan market only 10 years ago in contrast with Angolan and other foreign firms which have a more consolidated position in the country. They also reflect the reaction of Chinese managers to the perceived lack of discipline and reliability of Luanda-based workers, which encourages them to effectively set up a 'dormitory labour regime', to improve labour control, as it is also common in many parts of China. Perhaps more striking is the fact that this kind of practice was rare in Ethiopia, where only few Chinese firms opt to have worker dormitories, while other foreign companies appear to be contemplating this option as a way of combatting high labour turnover.

Segmentation among Ethiopian workers has different characteristics. Among the low-skilled workers, employees of Ethiopian companies are much older than workers in Chinese or other foreign-owned firms, where workers are very close to one another in average age and also have markedly lower levels of education. While women form the majority of the low-skilled labour force across all company types, this is most pronounced in other foreign firms, including Chinese firms. Factory work is highly gendered in Ethiopia, with dominance of women workers especially in textile, garment and shoe factories, whereas Angolan factories producing building materials are entirely male-dominated. Sector and country matter a lot in defining the patterns of segmentation.

Sector specificities and country context are also crucial to understand differences in the benefits workers obtain, which vary substantially, as well as the degree of 'formality' in labour arrangements. What was common to both countries was the absence of labour intermediaries and complex labour recruitment systems. Most workers were directly employed by the firms in the survey. Their labour relation was recognized even if the incidence of written contracts was variable and particularly low

among Chinese firms in Angola. Nonetheless, by and large, the terms of contracts were known by most workers.

Finally, survey evidence and selected qualitative data show that management-worker relations are often fractious in these sectors, but much more so in Ethiopia than Angola. While union presence is limited, particularly in Chinese firms and especially in construction, in both countries, labour conflict occurs across sectors and different firms. In the Ethiopian manufacturing sector labour strikes have become significantly more common in recent years and union presence has increased despite some private firms' resistance to unionization and the government's discouragement of unions in industrial parks. Labour conflict is not only manifested in strikes and tense encounters at the workplace. It is also reflected in forms of passive resistance such as absenteeism and theft, which was reported to be common in Angola but not in Ethiopia. Instances of abuse by managers and supervisors, more widely reported in Ethiopia, and poor communication, a feature found in both countries, reflect some of these workplace struggles. There is also a clash of expectations between an emerging industrial working class with aspirations of well-paid and stable jobs, and new investors in search of a low-cost and docile labour force. The weakness of labour institutions in both Angola and Ethiopia and especially the lack of a sector-relevant minimum wage in Ethiopia contribute to some of these tensions at the workplace.

In sum, 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 (a) national level political-economic and social patterns that shape labour market dynamics in each country; (b) sector specificities that shape organization of production and labour processes, leading to different practices and patterns of labour segmentation; and (c) the everyday workplace encounters of employers and workers at firm level, which 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.

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Appendix A – Table A1. Workforce localization rates in SSA

Study	Year	Country	Sector	Firm/ project	African workers	Chinese workers	African workers (% total)
Akorsu and Cooke (2011)	2009	Ghana	manufacturing	GUMCO	250	3	99%
Baah and Jauch (2009)	2008	South Africa	manufacturing	FIDA, IINCOOL, KaRITA (all clothing)	958	27	97%
CARI-SAIS (Survey by Chinese official)	2011	Rwanda	construction	China Road & Bridge Corp. (Road building)	2,000	110	95%
Lee (2017)	2007	Zambia	mining	Chambishi copper mine	2,063	189	92%
Chen et al. (2016)	2018	Nigeria	manufacturing	16 Chinese firms (cumulative number of workers)	5,656	540	91%
Warmerdam and Dijk (2013)	2012	Uganda	various	42 companies in Kampala	9,845	1,004	91%
World Bank (2012)	2011	Ethiopia	manufacturing, services, and construction	Survey of 69 Chinese firms	23,723	2,728	90%
CARI-SAIS (Reuters)	2011	Zimbabwe	mining	Anjin: Joint venture diamond mining	1,700	210	89%
McKinsey report (2017)	2016–17	8 countries	various	Survey of over 1,000 companies	300,000	37,079	89%
Brautigam and Tang (2012)	2011	4 countries	manufacturing	Firms in 4 Special Economic Zones	13,592	1,979	87%
CARI-SAIS (Hans E. Petersen and Sanne van der Lugt's report)	2011	DRC	construction	DRC Reconstruction of Lubumbashi (NI) – Kasenga (Zambian Border) Road Reconstruction	600	100	86%
Sautman and Yan (2015)	2007–13	12 countries	various	Surveys and reports for over 400 firms/projects	N/A	N/A	85%
CARI-SAIS (China Africa Business Council)	2013	Africa	various	193 Chinese companies in Africa	34,000	6,400	84%
Baah and Jauch (2009)	2008	Ghana	construction	Bui hydroelectric dam (Sino Hydro)	560	110	84%
Huang (2013)	2012	S. Africa	various	16 companies	4,160	779	84%
Baah and Jauch (2009)	2008	Angola	construction	Sinohydro	715	312	70%
CARI-SAIS (The Africa Report)	2010	Mozambique	construction	Mozambique stadium	1,000	500	67%
Tang (2010)	2007	Angola	various	55 companies	5,482	3,353	62%
CARI-SAIS (Enrique Martino reports)	2013	Equ. Guinea	construction	China Road and Bridges	60	600	10%

Source: Author's elaboration based on sources reported in first column; CARI-SAIS sources are available from their database at <http://www.sais-cari.org/data-chinese-workers-in-africa>

Appendix B – Regression results

OLS regression of monthly wages, Ethiopia

Dependent variable: log of monthly wages (ETB)

	(1) Individual controls	(2) Individual and firm controls	(3) Individual, firm and location controls
Respondent's age	0.00135 (-0.002)	0.00115 (-0.0016)	0.000533 (-0.0017)
Male	0.0732 (-0.0382)	0.0885 (-0.0332)	0.0893 (-0.0322)
Migrated	0.158 (-0.0358)	0.164 (-0.0362)	0.172 (-0.0349)
Years in education	0.014 (-0.0043)	0.0178 (-0.0044)	0.0169 (-0.0043)
Semi-skilled	0.638 (-0.0538)	0.636 (-0.0507)	0.644 (-0.0518)
Years in job	0.0133 (-0.0046)	0.0109 (-0.0046)	0.00939 (-0.0046)
Constuction experience	0.043 (-0.0141)	0.0439 (-0.0139)	0.0446 (-0.0142)
Manufacturing experience	0.011 (-0.01)	0.00993 (-0.0093)	0.00849 (-0.0096)
Socio-economic index	0.0436 (-0.0095)	0.0401 (-0.0085)	0.0354 (-0.0076)
Manufactuing sector	-0.442 (-0.043)	-0.427 (-0.0426)	-0.302 (-0.0546)
Chinese		-0.139 (-0.0509)	-0.0468 (-0.0544)
Other foreign		-0.0691 (-0.0663)	0.019 (-0.0605)
Employment (log)		0.0287 (-0.0219)	0.0402 (-0.0192)
Industrial park			-0.213 (-0.064)
Adjusted R ²	0.688	0.698	0.712
F	45.95	45.3	50.34
Observations	817	817	817

Standard errors in parentheses. SEs clustered at firm level. P-values <0.05 in bold.

OLS regression of monthly wages, Angola

Dependent variable: log of monthly wages (kz)

	1 Basic specification	Robust SE 2a Including core workforce variable	3 + socioeconomic status	Clustered errors 2b Model 2a with CE
Variables	coef.	coef.	coef.	coef.
semiskilled worker	0.59 (0.03)	0.59 (0.03)	0.56 (0.03)	0.59 (0.05)
manufacturing sector	0.12 (0.03)			
socioeconomic status (index)			0.05 (0.01)	
Chinese firm	-0.12 (0.04)	-0.08 (0.04)	-0.01 (0.04)	-0.08 (0.08)
employment scale (log)	0.05 (0.01)	0.03 (0.01)	0.03 (0.01)	0.03 (0.02)
age (log)	0.06 (0.07)	0.05 (0.07)	0.01 (0.07)	0.05 (0.08)
schooling years	0.00 (0.00)	0.01 (0.00)	0.00 (0.01)	0.01 (0.01)
tenure in job (years)	0.02 (0.00)	0.02 (0.00)	0.02 (0.00)	0.02 (0.01)
construction experience (years)	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)
manufacturing experience (years)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
migrant worker	0.08 (0.03)	0.07 (0.03)	0.06 (0.03)	0.07 (0.04)
dam worker	0.08 (0.05)	0.07 (0.05)	0.09 (0.05)	0.07 (0.11)
core workforce		0.10 (0.03)	0.09 (0.03)	0.10 (0.05)
constant	9.60 (0.27)	9.74 (0.25)	9.75 (0.24)	9.74 (0.35)
N	625	625	625	625
F	78.8	76.7	76.5	29.3
R ²	0.57	0.57	0.59	0.57

Standard errors in parentheses. Standard errors clustered at firm level. P-values <0.05 marked in bold.

