Employment patterns and conditions in Angola

A comparative analysis of the infrastructure construction sector and building materials industry

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Acronyms

FDI	Foreign direct investment
FECUAN	Faculdade de Economia – Universidade Agostinho Neto
GEPE	Gabinete de Estudo, Planeamento e Estatística
ILO	International Labour Organisation
INE	Instituto Nacional de Estatistica
LCC	Linha de Crédito da China (China's Credit Line)
OF	Other Foreign
PPP	Purchasing Power Parity
SOE	State-owned enterprise
SSA	Sub-Saharan Africa

Executive summary

The labour market in Angola is by and large characterized by high unemployment rate, including disguised unemployment of those who have given up looking for jobs, high level of informality at the work place, underemployment in the rural areas where to the poorest unemployment is not an option. Although the main reason for this deficit at the labour market is the scarce job offer in the formal sector of the economy with better wages, there is also a deficit of skilled, i.e., well trained labour force, due to the low level of school education, taking into account the country's per capita GDP.

Our qualitative research highlighted this persistent deficit of skilled labour in both the construction and manufacturing sectors, despite the observed growth in these sectors during the period 2002-15. However, thanks to the employment created in these sectors, today there is a pool of better prepared labour force, but still insufficient, especially in some specific areas such as electricians, welders, carpenters, heavy machinery operators, etc. The Angolan vocational education system has not generated enough candidates with the relevant skills. Therefore, companies in these sectors still represent very important sources of formal and informal mechanisms for workers to acquire skills and abilities particularly relevant to public works construction and construction materials manufacturing.

Since 2002 there has been some substantial job creation for unskilled and semi-skilled labour in the construction / public works sector. Despite the stagnation of employment in this sector during the crisis of 2015 and 2016, the number of full-time workers was more than double of what was officially reported in 2002.

Most of the construction companies and factories in our sample reported a significant fall in employment since 2015 and particularly in 2016. This was mostly evident in the Angolan companies and other foreign companies (OF) that operated at the minimum of their capacity with their core permanent labour force.

In contrast, several Chinese companies were able to start new projects or finalize ongoing projects and thus employ new workers due to the availability of new funds from the new Chinese credit line to the Angolan government approved in 2015. Therefore, it is important to stress the crucial role public investment and credit lines for infrastructure play in job creation in public works construction. The impact of the crisis on manufacturing companies is also highlighted in two ways: (a) the lack of demand for construction materials from construction contractors; (b) the lack of foreign exchange, with a consequent impact on the operations of companies that still rely heavily on imports of intermediate inputs, equipment and spare parts for machines. In this context all companies in our sample, faced a significant reduction in their activity.

The post-war reconstruction in Angola, particularly in the early stages, allowed for the recruitment of an expat

labour force in order to cover for the skilled labour deficit in large scale public works construction projects in the context of high pressure for quick execution of projects. This was the case of Chinese contractors, which started operations in Angola after 2002, and depended to a greater extent on expat workers. This study collected updated data on the actual use of Angolan labour in these sectors during the period of the survey, i.e., in 2016 and 2017. The research revealed the following:

1. The localization rate was lower in Chinese firms, in both construction and construction manufacturing materials, However, non-Chinese firms also depend on expat personnel for some technical and management positions. These localization rates differ from those observed in other African countries, particularly in Ethiopia, where the average is close to 90% and there is no recruitment of expat labour for unskilled and semi-skilled labour.

2. The number of Angolan workers in Chinese firms has been growing over the last 10 years. Three key factors explain this trend: (a) as the companies consolidate their presence in the market they find a higher number of more qualified workers; (b) the costs with Chinese workers has increased significantly; (c) new requirements from the Angolan government for companies to hire more local workers.

3. The best examples of the use of national workers in public works construction (90% or above) come from companies with long experience in the Angolan market and a highly developed training policy that is directly linked to the retention of the most experienced and skilled workers in the company and in the sector.

Regarding the patterns and conditions of employment, there is a significant variation by sector, type of worker, origin of the labour force and origin of the company. These are the main findings:

1. The research identified a highly segmented workforce with three main segments:

   i A semi-skilled workforce with more work experience and better qualifications in the relevant sectors, much more concentrated in the Angolan companies and in the main non-Chinese foreign companies.

   ii. A low-skilled workforce but with formal employment relationships, with more work experience and longer job tenure in companies, mainly Angolan and most foreign non-Chinese firms.

   iii. A migrant workforce from the Centre-South region of Angola, low-skilled with a very low educational level and a lower socio-economic status strongly concentrated in Chinese companies, both in construction and in manufacturing.

2. In aggregate and nominal terms, monthly salaries are relatively higher in non-Chinese enterprises, especially for the low-skilled group in public works construction and semi-skilled in manufacturing of construction material. For the low-skilled groups in factories and semi-skilled in road works, the study did not find significant wage differences. However, when there are significant differences in direct comparisons, they disappear and are therefore explained when we take into account the following control factors:

   i. The skills group to which the worker belongs.

   ii. The educational level and the worker's working experience in the sector.

   iii. The length of time the worker stays in the company (job tenure).

   iv. The socioeconomic status and relative poverty of the worker.

   v. The size of the firm.

   vi. The geographical origin of the migrant workers and whether they live in the company's dormitory.

   vii. The sampling protocol followed in companies (higher wages in companies where access was limited to permanent workers and core workforce).

3. On average Chinese enterprises pay lower nominal wages for some categories of workers and offer less "formality" in employment, but they also employ poorer workers, many of them from the Centre-South region of Angola, who save more of these wages and send back home as remittances. This is largely possible because the cost of living faced by these migrant workers is greatly reduced by the fact that they have accommodation and food provided by the company. These workers therefore do not usually incur in housing, food or transportation expenses, which are very important especially for those working in and around Luanda (65% of the total study sample).

4. Therefore, workers in Chinese firms, given the characteristics indicated above, are younger, have more informal employment relationships and benefit less from certain welfare benefits (paid leave, sick-leave, etc.) but receive more in terms of "social wage" for maintenance costs derived from residing in company dormitories (paid accommodation and food).

5. The construction sector is characterized by longer working hours, around 10 hours, while in building materials factories most workers work around 8-9 hours. We did not find statistically significant differences between Chinese, Angolan and other foreign companies' working schedules, but the 6-day week was more prevalent in Chinese companies, especially in construction at times of tight project completion deadlines.

6. In relation to labour relations and company-worker negotiation there are some important differences by sector and origin of the company. In general, trade union presence is very weak (25% of workers) although the sampled firms are particularly important in the sectors in which they operate. In the construction sector trade union presence is weaker and in both sectors it is lower in Chinese firms, which have a reputation for avoiding trade unions at the workplace and favour negotiations with workers on an individual and ad hoc basis. This is reflected in a low presence of collective agreements in Chinese firms. However, survey data suggest that labour conflicts and strikes do not differ between companies by origin (in fact, less frequent in Chinese firms) and are more frequent in the industrial sector. There are also no differences in work related accident rates (about 15% of workers surveyed) and occupational injuries or health problems (40 to 48% incidence) by origin, but accidents are relatively more frequent in the construction sector where the risks are greater.

1 Introduction

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. These growth experiences have been diverse. Angola represents the reality of a post-conflict growth recovery combined with years of commodity boom and high oil prices. Although the non-oil sector has shown clear signs of recovery its development has not translated into substantial structural change yet. Yet, aspirations of structural change and industrialization are becoming more common in Africa. Calls for economic diversification, broad-based economic growth, and reduced dependence on oil revenues are also increasingly voiced by Angolan government and civil society.

International investors and contractors from different parts of the world have contributed to these dynamic processes as they tap into growing opportunities for business growth in Africa. Angola has been an important destination for such investment flows, as well as for the increasing number of international construction contractors, especially from China, who have been building much needed economic infrastructure since the early 2000s. China's growing economic engagement in Africa is attracting widespread attention, and is generating debates both in the continent and beyond about the implications for Africa's economic development. In 2017, Africa represented 30% of total overseas revenues for Chinese contractors, up from 13% in 2000 (SAIS-CARI, 2019). In the same year, 60% of contract revenues by the top 250 international contractors in Africa was accounted for by Chinese firms, up from 15% in 2004 (Wolf and Cheng, 2018). A peak had been reached in 2015 with US$55 billion in contract revenues compared to only US$2 billion in 2002. Chinese FDI to Africa has also increased from only US$74 million to US$5.49 billion in 2008 and US$4.1 billion in 2017. In stock terms this means US$43.3 billion in 2017 compared to US$4.46 billion only ten years before.[1]

There is no doubt that China played a substantial part in the process of Angolan post-war reconstruction as US$21.2 billion in Chinese official finance for infrastructure went to Angola in the period 2000-14 out of a total of US$86.3 billion to Africa (Brautigam and Hwang, 2016). 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%. 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). Chinese FDI to Angola, though less important than infrastructure project, revenues has also played a meaningful role in this period, and Angola has typically ranked among the top 5 African destinations of Chinese FDI since the mid-2000s (Wolf and Cheng, 2018). The largest proportion of these investments concentrated in the construction sector, where several

[1] http://www.sais-cari.org/chinese-investment-in-africa

Chinese SOEs and private entreprises established subsidiaries to develop many infrastructure and real estate projects. These investments potentially play an important role in bringing technology, physical capital and organizational capabilities, which may generate positive spill-over effects on the rest of the economy. Moreover, they can also contribute to ease balance of payments constraints through exports or import substitution (the latter in the case of Angola), and to generate much needed jobs in economic activities that produce higher returns to labour (INE, 2019).

This project focuses on the employment implications of these economic dynamics, focusing on the leading firms in manufacturing and infrastructure construction sectors. A number of aspects of employment dynamics that are relevant. First is the creation of much-needed jobs in contexts of rapidly growing numbers of labour market entrants, especially youth (INE, 2019). There is an opportunity to substantially expand labour demand in higher-productivity non-agricultural sectors, which may contribute to building an industrial workforce in Africa. Jobs in modern construction services and manufacturing can be mutually reinforcing in terms of relevant skill development. On this issue, a contentious question is whether Chinese firms create substantial number of jobs or largely rely on expat labour, an issue that has attracted a heated debate with wide variation in estimates of workforce localization rates (Sautman and Yan, 2015; Jenkins, 2019; Baah and Jauch, 2009).

Second, the creation of new jobs does not necessarily mean 'decent work'. Therefore, an important question is whether the working conditions found in these sectors, and specifically among these emerging employers are better than existing norms in African countries and how they vary across different types of employers and investors. The existing evidence base for this important question is limited. There has been substantial media attention and advocacy around working conditions in Chinese firms in Africa and Angola (Baah and Jauch, 2009; HRW, 2011; Santos and Quintao, 2011), strikingly more than overall employment conditions in local firms or other foreign firms. But overall the evidence base on comparative working conditions is very limited or biased. Much research is based solely on qualitative evidence and company management interviews (McKinsey, 2017). 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. In particular, there is lack of substantial sector-level evidence for comparisons. Important variables are not sufficiently controlled for, and, as a result, these studies do not shed sufficient light on comparative working conditions. This project aims to fill this research gap.

This report presents the main findings of our research on employment dynamics and effects in the infrastructure construction and building materials manufacturing sectors in Angola. The focus is on the results of a quantitative survey of 682 workers employed by leading road and dam construction and manufacturing firms in Angola. Key insights from extensive qualitative research are also included, but a more thorough analysis of qualitative results will be published in separate reports and articles. The report is organised as follows. Section 2 presents the research questions and briefly introduces the conceptual framework underpinning the research design and analysis. Section 3 contains the main features of the research design and process as well as the main sample characteristics. This is followed by Section 4, which provides a contextual overview of Angola's current economic dynamics with a special focus on the main features of the labour market. Section 5 presents the first set of findings from the surveys of firms and workers, with special emphasis on the workforce localization, as well as on social and demographic profiles of sampled workers. Section 6 contains the main results of our research on working conditions, with particular focus on wages and their determinants. This section also includes evidence on non-wage working conditions, unionisation, and skill development issues. The report concludes with a summary of findings and some avenues for policy implications.

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 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.

2.1 Research Questions

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?

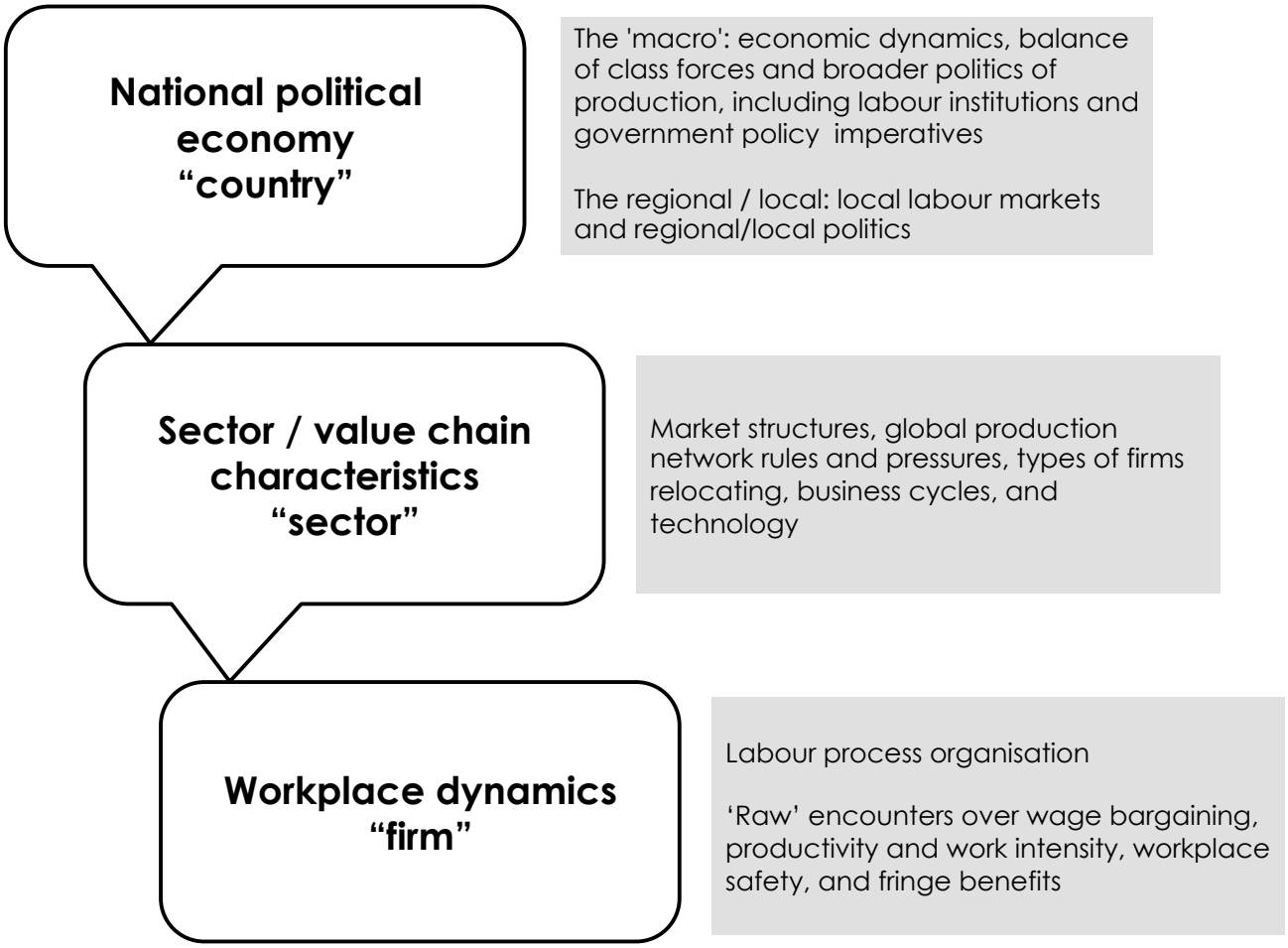
We are interested in the long and uneven process of building an industrial labour force. The study aims to provide emerging profiles of workers in sectors that are expected to generate a significant number of jobs and draw labour from low-productivity sectors, especially agriculture.

2.2 Analytical Framework

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; Chan, 2015).

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 Research design and sample characteristics

3.1 Overall research design and comparative framework

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, one of the key problems with the existing literature on labour issues in Chinese firms is the lack of adequate comparators and contextual evidence.

Overall, the labour surveys at firm level were carried out in a 2-by-2-by-3-by-2 comparative framework (Table 1):

- 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;
- two varieties of Chinese capital (private and state), e.g. Chinese state-owned enterprises that are mainly found in infrastructure construction and private firms mostly in manufacturing.

Table 1 - Comparative framework

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

Source: Author elaboration.

In order to reduce excessive variation in outcomes, the surveys focused on the type of workers, namely unskilled and semi-skilled labour, that represent the vast majority of jobs created in the target sectors.[2] According to evidence collected through interviews with managers and HR departments in selected companies in target sectors, most jobs created for national workers in Angola are in low-skilled or semi-skilled categories, with many semi-skilled workers having been upgraded from unskilled 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. For example, the largest infrastructure contractor in Angola directly employed 5,000 workers in 2014 and 75% were low-skilled or semi-skilled employees and 20% were "*tecnicos*" i.e. what we consider skilled labour. In other smaller companies in the same sector the shares of low-skilled and semi-skilled workers hovered around 80-85% of the total workforce in most cases. 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:

1. Specific job title and tasks as specified/reported by workers. Thus, manual tasks or jobs that required very basic skills and limited training were classified as 'low-skilled' (or unskilled), whereas a machine operator able to use a machine without continuous supervision or assistance would be considered part of the semi-skilled category. The semi-skilled group also includes certain workers who require some qualifications and/or sufficient work experience to refine skills such as master carpenters and electricians.

2. Qualifications in terms of education level and total number of schooling years. These classifications were also cross-checked against broad salary scales and job descriptions for consistency purposes, given that some workers might be performing low-skilled jobs despite relatively high education qualifications.

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.

In order to account for the three key empirical dimensions discussed in Section 2.2, i.e. the country, the sectors and the firm, we collected an integrated mixture of both 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, and semi-structured work-life history interviews with selected workers. Prior to beginning primary data collection we conducted extensive literature reviews of the academic and policy-oriented literature and compiled the existing secondary data from line ministries (Construction and Industry in particular) and the *Instituto Nacional de Estatistica* (INE).

The qualitative research component was implemented in two intensive phases. The first was devoted to scoping, understanding the context of the country, sectors and relevant firms and to prepare the ground for the quantitative surveys of workers and firms. The second phase was focused on follow-up research, after quantitative components had been completed, and to acquire key qualitative evidence from work-life histories of selected sub-samples of workers and from semi-structured and open interviews with company managers, government officials and trade union representatives. We also used interviews with company managers to explore the structure of value chains and production networks across the two sectors. Table A3 gives an overview of the qualitative interviews we conducted, while our main quantitative sample is discussed in the next section.

Most of our primary data collection was focused at the level of the company. Overall, we pursued five separate, but interrelated, avenues of data gathering. First, we conducted quantitative interviews with workers across a carefully selected sample of firms. Our sampling procedure for the quantitative survey is outlined below. Second, we conducted qualitative semi-structured interviews with company managers and local trade union representatives, as noted above. Third, we administered a quantitative firm questionnaire to collect firm-level characteristics. Fourth, we conducted in-depth qualitative work-life histories with selected workers from the main quantitative questionnaire. And fifth, we conducted a quantitative brief follow-up survey

[2] We use the terms unskilled and low-skilled interchangeably.

with 126 workers across both sectors focused on job turnover and changes in earnings.

It is worth noting that the bulk of data on working conditions is derived from workers' surveys and therefore reflects what workers reported anonymously, in carefully conducted interviews away from supervisors' presence. The factual evidence they reported may contrast with what managers report. Company management were given the opportunity to provide data on employment-related questions, which could be triangulated with workers' surveys, especially in relation to wage levels. Unfortunately a significant number of managers opted not to report some employment data, and especially wage levels, or even refused to complete firm questionnaires altogether, because of 'confidentiality' concerns, despite our assurances that data would always be protected and treated anonymously. Failure to complete firm questionnaires (either totally or partially) was much more common among Angolan and other foreign firms, compared to Chinese firms, which had a very high response rate.

3.2 Sampling process and outcomes

Which firms were selected for the workers' surveys and why?

The sampling of firms was purposive and followed the following analytical and empirical criteria:

- ✔ Firms in sectors where job creation had been very significant in the last decade, i.e. road building and building materials factories in Angola, linked to the important construction boom, which was a major driver of growth.
- ✔ Firms in sectors where there was a large enough pool of firms of the categories needed for this research: Chinese, domestic and other foreign.
- ✔ Firms in 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.
- ✔ Once specific sub-sectors were selected, the following criteria applied:
    - Important generators of employment, i.e. the largest and more significant job creators within each subsector (e.g. road building, cement, bricks, steel products etc.);
    - Firms that were considered as among the most important in each sector (from interviews in scoping phase) but were also active at the time of the survey, especially important for the road construction sector, since activity and employment depend on active projects.
    - Both large and medium firms but not small-scale firms, given scale standards within each sector.
    - At least some examples of entreprises 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 sampling process took several months as it was necessary to negotiate access at both government and entreprise level. The expected initial reluctance of firms required multiple visits and documentation to reassure that this project followed strict protocols of confidentiality and anonymity. There was no pattern in such resistance, and indeed non-Chinese firms were in some subsectors more resistant than Chinese firms to accept workers surveys in their premises. The time and effort invested in this process paid off since we managed to include *all* the most important companies, or the most relevant ones, following the criteria described above, in each subsector, allowing for some meaningful comparisons matching the research design protocol.

In all cases, explicit authorization for the study was sought from employers, and workers were interviewed either inside or outside the premises of their

workplaces, depending on the realities and access in each case. In any case, when interviews happened at the workplace, survey teams made every effort to stay out of sight from managers and supervisors in order to ensure independence and privacy.

One aim of the project was to try to obtain representative samples within each company or site.

This meant following a number of basic principles for selection:

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 15-30 depending on the relative size of total employment in the firm/site. Larger samples sizes within same firm/site would not add much 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 up-to-date and unbiased sampling frames (i.e. lists of workers). In order to construct suitable local sampling frames, enumerators were expected to conduct PDA-GPS censuses of potential respondents, including asking some basic questions to allow for stratification of the final samples. However, this approach was not always possible given often difficult conditions in access and restrictions imposed at construction/factory site management, as it is shown below.

A potentially important confounding factor for the results on wages and working conditions are a set of differences in the final implementation of sample protocols, which are correlated with firm origin. The economic crisis at the time of the survey and the different approaches and understanding of firm managers about academic research meant that the sample protocol had to be adapted to the circumstances of each visit and, in the case of construction, the particularities of each road or dam project. Although an attempt was made to reduce these potential biases, in practice problems of accessibility and the crisis hitting the sector at the time of the survey meant that options were limited for controlling all sampling process parameters. 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 the sector 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 (LCC) 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.

To be sure, all firm samples were based on random selections of low-skilled and semi-skilled workers. In all cases, field teams tried to capture both sets of relevant workers. While teams were able to randomise selection and stratify by skill categories they sometimes faced limited options in terms of the *sample frames* found in each site because of company restrictions over the lists of workers, the time agreed to complete the survey, or the fact that only a core labour force was operational at the time of the survey. The problem was that these limitations were not randomly distributed across firms

by origin. Rather a pattern emerged whereby Angolan and other foreign firms either were only operating with a core labour force or exerted more control over the sample frames than would have otherwise been desirable. We distinguish between three types of sample protocol implementation based on the sampling frames available:

- An open count, based on a site census conducted by field teams in order to them stratify and randomise selection;
- Availability of a full list of workers at time of survey by the target firm;
- A restricted sample frame (list) provided by the firm, which could not be sufficiently verified and which might be biased towards including only well-established permanent workers.

Sampling that was conducted through open counts on site is more likely to include more vulnerable non-permanent workers and better represent the reality of employment in the firm, whereas sampling based on restricted lists will represent the realities of the best jobs in the company (within the relevant skill categories). The distribution of the samples across firms by origin and sample frame features clearly shows that non-Chinese firms were far more likely to have samples representing permanent or "core" labour forces. Most companies followed the preferred routes of open census on site or full inclusive lists obtained from HR departments/ site supervisors (59% and 19% of firms respectively). However, sampling in Angolan and other foreign firms was more likely to include *restricted* lists with core/permanent workers only or lists that were likely to exclude casual workers or employees on probation as Table 2 below shows. While 83% of Chinese firms followed an open count sampling process, this could only happen in less than 40% of the non-Chinese firms, where HR managers and site supervisors were more prepared and managed to partly shape the sample framing. The effect of the crisis and the nature of sampling frames meant that 63% of the workers sampled in Angolan and other foreign firms were likely to be permanent workers, in contrast with workers found in Chinese construction sites, more than 80% of whom had been recently hired or were only part of a temporary project workforce. This was linked to the effects of the 2015 Chinese credit line which helped Chinese contractors start new projects at the time of the survey, after a period of relative calm. These differences may have an obvious effect on wages and other working conditions since they are different kinds of workers in terms of their status in the company.

Table 2 - Sample frame basis (% within firm origin)

Firm origin	full company list	restricted list	open count	Total
Other (Angolan or other foreign)	26%	37%	37%	100%
Chinese	11%	6%	83%	100%
Total	19%	22%	59%	100%

Source: IDCEA survey, 2016-17

The final sample consisted of 682 workers distributed in 37 firms with roughly one third employed by Chinese firms and the rest in Angolan and other foreign (OF) firms (Table 3 and Table 4). Statistical analysis was then focused on 638 workers after (skilled) workers not really belonging to our target categories had to be excluded (see Table A1).

Table 3 - Sample of firms by sector and origin in Angola

Companies in ANGOLA	Manufacturing	Construction	TOTAL
Chinese	8	10	18
Other Foreign	5	5	10
Angolan	4	5	9
TOTAL COMPANIES	17	19	37

Source: IDCEA survey, 2016-17

Table 4 - Sample of workers by sector and origin of firm in Angola

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

Source: IDCEA survey, 2016-17

3.3 Firm characteristics

Firms were purposively selected because of the significance of the target sectors for Angola'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 Angola (Table 5). Nearly half of the 37 firms that were part of the sample were Chinese-owned (and 9 of these SOEs) and the other half included leading Angolan and other foreign firms.

The three types of firm by origin were distributed in two main sub-sectors: (a) public works, mainly road construction, while few non-Chinese firms were involved in a major hydropower dam project; (b) manufacturing of building materials (bricks, steel products, cement and other building materials).

Table 5 - Sampled firms by sub-sector

Sub-sector	Angolan	Other foreign	Chinese	Total
Construction – roads	3	3	10	16
Construction- hydropower dam	1	3	0	4
Bricks and other cement products	1	2	6	9
Steel products	0	1	1	2
Cement	2	0	1	3
Other building materials	1	2	0	3
Total	8	11	18	37

Source: IDCEA firm-level survey, 2018

In the infrastructure building sample we find relatively large contractors with access to good technology and high quality machinery, capable of the most demanding infrastructure projects, both in road building and dam construction. The sampled firms 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. All these firms were selected for being the leading firms in these sub-sectors and also active at the time of surveys, despite the ongoing crisis.

With regards to the manufacturing firms, 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). 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 several 'translocal' Chinese firms.[3] By contrast, all domestic Angolan and other, non-Chinese, foreign industrial firms 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 6). 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.

Most Chinese manufacturing firms were active in the brick and other cement products, for which domestic demand was particularly strong compared to other building materials. There were few firms active in the steel sub-sector, which meant choice was limited. All firms in this sectors were producing essentially for the domestic market, hence they were generally not part of global production networks. Only 4 companies exported to regional markets, albeit small fractions of their total production. Some differences can also be observed in relation to the experience in the Angolan market. Chinese firms were mostly new in the market with an average of 10 years in Angola (until 2017) for both sectors, whereas other foreign contractors had 24 years of Angola presence, similar to Angolan firms in the manufacturing sample. This shows that a significant number of Angolan and other foreign firms were leading and well established companies in the Angolan market.

Table 6 - 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 entreprises (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-sized firms	Medium-sized 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

[3] 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'.

4 The Angolan economic context post-2002: labour market structures, trends, labour institutions, and sector dynamics

Angola came out of a protracted civil war in 2002 with the military victory of the ruling party MPLA over UNITA. The post-conflict scenario started with the legacies of the civil war, i.e. a mass of internally displaced people, dilapidated infrastructure and severe dependence on the oil sector. Socially this scenario was characterised by widespread poverty, especially in rural areas and large urban slums that hosted thousands of internal refugees, and very high levels of inequality. 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. This was reflected in the expansion of public sector employment, which expanded by 17,798 jobs per year until 2012 (INE, 2013), and the ambitious reconstruction programme which also created thousands of jobs in public works.

The labour market context of the early post-conflict years was one of acute skill deficits, high unemployment levels in urban areas and expanding informality, which reflected the need for the poorest segments of the Angolan population to survive by any means.

Already during the war, levels of informality had soared, when in 1990, over two thirds of the employed population survived on irregular informal jobs, while most of the remainder were distributed in the army, in jobs in government and SOEs (Queiroz 2016). Given the context of war, the agricultural sector was severely disrupted and this contributed to additional urbanization that led to the excess labour-supply which pushed up informality levels that prevailed in the main urban centres. This war-driven urbanization that was highly concentrated in Luanda followed previous waves of rural exodus in the colonial period: first, as a result of mainly men avoiding contract and forced labour in agriculture before the 1960s; second, attracted by incipient industrialization in Luanda combined with the effects of the liberation war that was particularly affecting rural areas (Rodrigues 2006).

The urban employment landscape has since then generated a familiar range of distress-driven urban informal jobs in petty trade (*zungueiros*), foreign exchange parallel markets (*kinguilas*), and transport (*candongueiros*), which have coexisted with the remnants of a formal sector that had recorded significant employment growth during the late colonial period, across manufacturing and services (Queiroz, 2016). Many of the jobs found in informal activities are irregular forms of wage employment, as a large proportion of total wage employment in Luanda is accounted for by informal small and micro-entreprises (Rodrigues 2006).

Fast economic growth in the period 2002-15 did not translate into commensurate job creation, whereas the economic crisis during 2015-18 certainly led to important job losses, especially in the construction sector. For a country with widespread poverty the recorded unemployment rate is very high, at nearly 29% for 15-64 year-old population (24% according to the 2014 Census), and up-to 52.4% for youth in the 15-24 age bracket (INE, 2019). These unemployment rates are well above usual African standards, at 7% on average according to ILO data (ILO, 2018). High youth unemployment may represent youth who *can* afford to be unemployed in the absence of an effective social protection system. Other census data suggest that the labour participation rate stays at 52.8%, i.e. a large proportion of working age population (15+) is outside the labour market, especially women (55%). Given the large number of people outside the school system this may also reflect disguised unemployment of discouraged workers who are not actively seeking work. It is of course quite possible that the high unemployment and non-activity rates mask the reality of many people who do casual work but who do not report that as employment. This is plausible given that, in a country like Angola, many people, especially those living in poverty, need to do something to survive. Such contradictions are reflected in discrepancies between different data sources. Census data contrast with official estimates of employment as recorded in National Accounts. Thus in 2014 the total number of officially employed population was over 6.2 million people, according to National Accounts, compared to around 5.5 million according to Census data. This is not a negligible gap and remains to be explained. For the purposes of analysis of trends it is necessary to work with National Accounts data and take the stock of Census 2014 numbers as a different source.

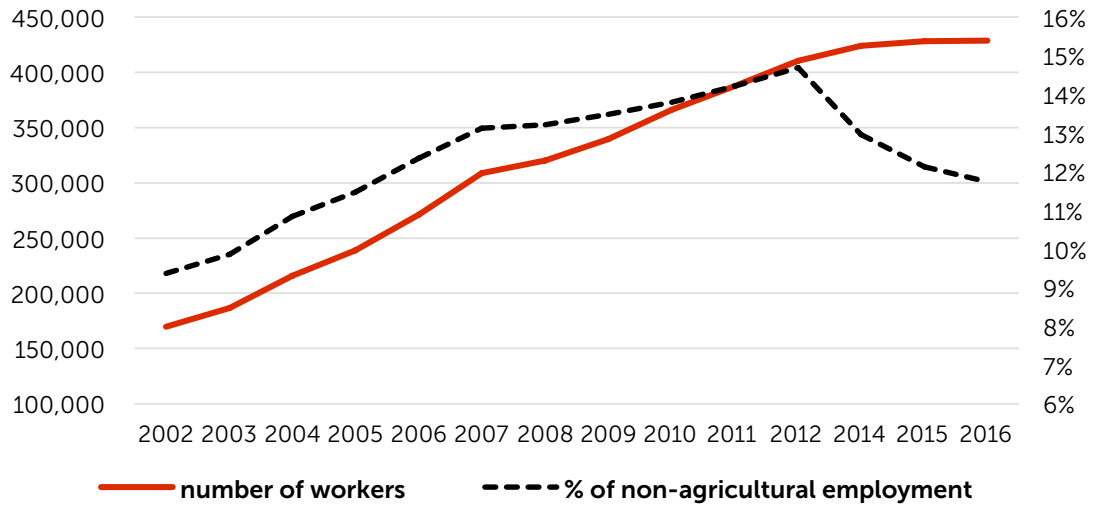
According to National Accounts, agriculture (including livestock and forestry) accounted for more than 50% of the employed labour force, followed by trade and construction (INE, 2013 and 2014). More recent sources suggest the agricultural sector now employs 46%, followed by services with 45.3%, manufacturing, construction, water and energy altogether representing 8.1% (INE, 2019). These numbers exclude the possibility of active people being involved in multiple activities, across trade, construction and agriculture, as is the norm in many African countries where livelihood diversification is a common coping strategy.

The lack of robust official data on employment requires the implementation of complementary data collection efforts to better understand the dynamic trends in non-agricultural employment, and specifically in construction and manufacturing, which seemed to create large numbers of jobs since the end of the conflict in 2002. Furthermore, beyond numbers on the quantity of employment, i.e. number of new jobs, better data is needed on the quality of new jobs in these sectors.

The overall bleak picture of the labour market found in the 2014 Census and recent official sources (INE, 2019) does not however change the fact that the post-conflict reconstruction boom and overall recovery of economic activity among existing and new private firms in construction, manufacturing and services led to substantial 'formal' job creation between 2002 and 2016, according to official statistics. Thus construction jobs between 2002 and 2016 grew by a cumulative 153% nearly tripling the employment stock in 2002, whereas in manufacturing employment expanded by a cumulative 133% until 2016 and only 33% until 2012 (Wanda 2017; UCAN, 2017).

In absolute terms, however, the sectors adding more jobs to total employment were trade, agriculture and transport, and, given the nature of these sectors, a very large proportion of these jobs were of an informal character. The construction sector did add around 260,000 net jobs between 2002 and 2016, period when the construction boom was at its peak, which resulted in an increase in its share of total *non-agricultural* employment from 9% to nearly 15% in 2012 (Figure 2). More recent data until 2016 suggest relative stagnation in the construction sector, combined with a surge in jobs in energy/ electricity which could be associated with the large-scale construction of new dams (therefore, still construction jobs) and impressive growth in manufacturing employment from around 73,000 to over 130,000 employees, paradoxically coinciding with the beginning of the crisis triggered by the collapse of oil prices since 2015.

Figure 2 - Employment trends in construction: 2002-16

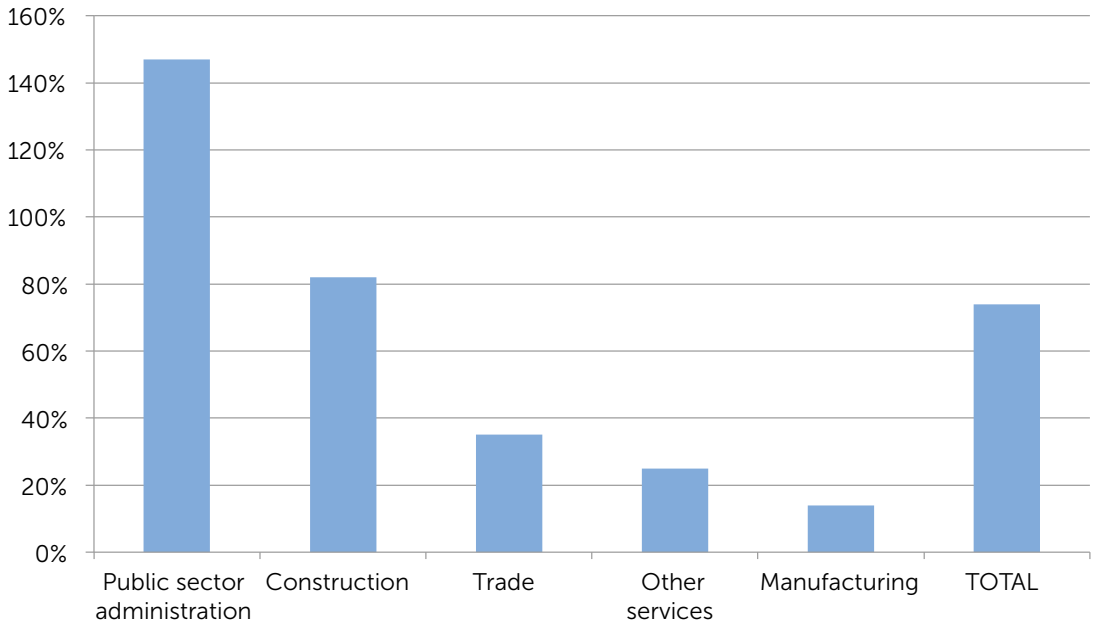


Source: Contas Nacionais 2012 and UCAN (2017)

It is difficult to assess labour remuneration trends across sectors given the weak evidence base. The only consistent source for time series is the estimates for wage bill (annual estimates per sector) provided by the National Accounts until 2012. The basis for such estimates is not entirely clear but tax records may be one of them. In any case, these data on wages would essentially cover formal sector employment, i.e. a fraction of the labour force that is paid according to formal contractual terms on taxable pay slips. Based on this source, we estimated the *monthly* value of salaries in constant 2012 Kz (using the main GDP deflator as a more reliable proxy for inflation given existing data)[4] and divided by the number of officially recorded workers per sector.

In ten years, average real wages increased by a cumulative 74% in the period 2002-12, equivalent to a compound annual growth rate of 5.7%, but trends in the construction sector were more positive with 82% cumulative increase and 6.2% growth per annum, much higher than in manufacturing (1.3%) and trade (3%) (Figure 3 and Figure 4). These upward trends are consistent with the high growth rates of the Angolan economy during this period and a significant tightening of the labour markets in those sectors where labour demand expanded rapidly against a limited supply of labour with sufficient skills. ILO (2018), by contrast, suggest a real wage decline between 3 and 5.4% based on two or three data points between 2000 and 2017, whereas UCAN (2017) reports that real wages increased during this period. ILO estimates may be incorporating evidence from the post-2015 period when the crisis hit growing sectors and labour demand dropped substantially. It is quite possible that wages recorded in 2016-17 were in real terms lower than the wages attained in 2012 in most sectors, but especially in construction, which was particularly hit by the economic crisis and the sudden fiscal squeeze that accompanied it.

Figure 3 - Wage growth by sector: cumulative 2002-12



Source: Contas Nacionais 2012

[4] We assumed 13 payments per year as conventional norm in formal sector employment in Angola.

Figure 4 - Wage levels and trends, by sector: 2002-12

Source: Contas Nacionais 2012

With the aim of paying more attention to employment dynamics, the Angolan government approved a number of regulation acts such as the Vocational Training Regime and the framework for Institutions for Vocational Training and Employment Promotion (*Regime de Formação Profissional* and *Estruturas e Órgãos de Formação Profissional e Promoção do Emprego*). During this period the National Plan for Professional Training (*Plano Nacional de Formação de Quadros*) for the 2013-20 was also approved, in addition to amendments to the Labour Law (*Lei Geral do Trabalho*) and a plan to 'formalise' informal activities. The impact of these different regulatory initiatives is unclear but there are question marks over the implementation and enforcement of some of these acts and plans.

There is a minimum wage in Angola, which is periodically revised albeit after long intervals. The latest revision took place in 2017 when the minimum wage for the public sector was increased to 33,000Kz (from 21,000Kz), whereas the lowest minimum wage applies to the private sector in agriculture at a current level of 21,454Kz, up from 16,503Kz.

In order to monitor development in the labour market a multi-sector technical group was created with the mandate of producing and updating employment figures and therefore report on job creation and employment patterns over time. However, the reliability of these official statistics is questionable. This research team spent much time trying to obtain consolidated employment statistics for stock and not just flows (i.e. government reports on job creation by the Multi-sector Technical Group for Employment Statistics, GMTE for the Portuguese acronym). Nevertheless, consistent series were hard to come by and there were indications that national accounts statistics were based on dubious estimates done at ministerial level without the backing of regular entreprise surveys, let alone labour force or household surveys with adequate employment modules in their questionnaires. Therefore, whether from company-level or household-level data, it is hard to present an accurate nationally representative picture of employment patterns and trends.

This is a critical challenge that the Angolan government will need to face in order to properly account for employment trends and the impacts of policies on employment. A basic requirement is the combination of high-frequency (annual) company and sector-level data with household survey data, which will necessitate the coordination of different organizations, including the Ministry of Labour (MAPTSS), the planning and statistics departments of each Ministry, and the National Statistics Institute (INE). Additional resources would also need to be devoted to more frequent labour force surveys so that long-term employment trends are captured.

5 Job creation and labour supply characteristics

One of the main advantages of FDI and construction projects is the potential for rapid job creation. However, local workers will only be able to find jobs in foreign 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 the Synthesis Report of this project. In this section we provide evidence from our own firm surveys in Angola.

5.1 Workforce localization patterns

We collected data from firm surveys to estimate the employment effects in terms of numbers of workers and the share of Angolan workers in the workforce overall.

The results show, as expected, some differences between Chinese firms and other firms in these sectors. This is consistent with the evidence that Chinese firms have traditionally struggled to fill most positions with Angolan workers for reasons to be explored below. The differences, however, are less substantial than what widespread perceptions among government officials, researchers and industry informants would suggest. Indeed, the common narrative in most policy and private sector circles is that Chinese firms employ a 'majority' of Chinese workers, especially in infrastructure projects. During scoping research multiple respondents even suggested that Chinese SOEs were expected to "create jobs" for Chinese workers given the "labour market situation in China". This section is divided into a discussion of findings on localization at management level and overall workforce localization.

5.1.1 Management localization

Given that most companies in the sample are either FDI, foreign contractors or *translocal* (set up in Angola by foreign residents with local partners) the presence of expat management is expected. This is not unique to Angola as foreign managers in foreign-owned firms have been common across African contexts and also in other developing regions.

Depending on whether firms are Chinese or not, middle and high management positions are usually

taken by Chinese, Portuguese or Brazilian managers. All Chinese firms have Chinese management in the main positions whereas only 7 firms out of 34 have Angolan managers, half of which combine Angolans with Portuguese or Brazilians in these key positions. In other words, expat management is the norm in Angola for the sectors we covered and top tiers within these sectors (i.e. main firms in terms of importance and scale). Only two foreign firms out of 30 have some notable presence of Angolan managers, combined with Portuguese, whereas all the rest rely on expat managers. Angolan companies also employ a substantial number of expat managers: more than half employ Brazilians and Portuguese in top and key middle-level management positions. In total, only 3 companies out of 34 that reported on management workforce had predominantly Angolan management in upper-level positions. This pattern, which is common across major firms in Angola (especially multinational corporations - MNCs - operating in different countries overseas), reflects the shortage of adequate management-level labour force as well as the preferences of leading firms in these sectors to rely on experienced managers with either international experience of deep knowledge of own company systems and corporate culture.

Despite these preferences, during the period we were conducting interviews between 2016 and 2018, many firms reported to struggle with keeping a significant expat management workforce. This was particularly due to the severe foreign exchange constraints, which meant expat managers could not be paid in foreign currency for several months, leading to an increased turnover in this period. As a result, several foreign and Angolan companies adopted a more pro-active strategy to hire Angolan managers in upper level positions. Some Chinese firms also reported these constraints and growing difficulties in retaining Chinese expat labour for longer periods of time.

5.1.2 Employment localization

While management positions are somewhat unsurprisingly filled by expat managers in most companies, including many leading Angolan firms, an important question is the extent to which domestic and foreign firms employ Angolan workers for their overall workforce, including the bulk of low-skilled and semi-skilled labour which constitute the majority of jobs created.

The dominant narrative is that Chinese employ low proportions of Angolan workers generally whereas other firms, whether Angolan or other foreign only rely on local labour. Data from our firm surveys and qualitative research suggest that localization rates are indeed on average lower in Chinese firms but the differences are not so substantial and most Chinese firms have rates that are higher than usually reported in early studies (Tang, 2010; Corkin, 2012). On average 17 Chinese firms reported detailed employment data compared to 17 domestic or other foreign firms.

The average localization rate for Chinese firms is 74%, lower than 88% for non-Chinese firms.

If we only consider low-skilled workers, the proportion of Angolan workers exceeds 85%, with many firms not employing any Chinese workers for low-skilled positions anymore. These differences between firms based on origin 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 is statistically significant for the construction sector, but not for the manufacturing sector. Indeed heterogeneity within the sample of Chinese firms is substantial, particularly for the manufacturing sector where we find the lowest and the highest localization rates for a range of rather idiosyncratic reasons.

The observed total difference masks some important variation across sectors, subsectors and types of firms. For example, localization rates are higher in the manufacturing sector for all sets of firms, 84% of Angolan workers, compared to 79% in construction, which is not surprising given that skill shortages are usually more severely felt in infrastructure building projects than in factories. For Chinese companies, 78% of the workforce is Angolan in building materials factories compared to 71% in construction firms, with respective maximum values of 95% and 85%. For Angolan and other foreign firms the shares are 86% for construction compared to 92% for manufacturing (Table 7). The greatest variation seems to happen within the Chinese sample of companies in manufacturing

where the range is 55-95%. Two special 'outlier' cases of the Chinese manufacturing firms with localization rates below 60% are relatively new to the market (new setting up in Angola) and initially required skilled Chinese workers for all technical positions and most machine operators. In the last fieldwork visits there was already evidence that many of these positions were being taken up by newly hired Angolan workers. Another 'outlier' case was sampled before terminating its manufacturing business in Angola (while keeping the construction wing) and at the time of the survey they had made redundant a significant proportion of their Angolan workforce. Before the crisis, this company manufacturing bricks and other cement products had a share of Angolan workers that was closer to 80%. In the case of non-Chinese firms there were also some (about 1 in 5) with less than 85% of localization, somewhat lower than expected for that segment of firms, and including one Angolan contractor, with significant presence in the Angolan infrastructure market. Its participation in relatively demanding engineering projects may explain its higher reliance on expat semi-skilled and skilled workers.

Table 7 - Workforce localization rates by origin of firm and sector

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

Source: IDCEA Inquérito 2016-17

These rates are consistent with other data provided by the Road authority (INEA) and confirm the trend towards increased workforce localization among Chinese contractors. Thus between 2011 and 2014, a few years before our survey was conducted, localization rates had increased from 60% to 73%. Rates around 70% are also consistent with directives from the Angolan government over the past few years, which has recommended 70% 'localization' in infrastructure projects funded by the last Chinese Credit Lines, although this is not only about localization of workforce but also includes incorporation of Angolan firms as subcontractors.

Indeed in virtually all interviews with management and government officials it was clear that Chinese firms were now employing much higher proportions of Angolan workers than in the early years of the post-conflict reconstruction boom.

For example, comparing those years with the new current standards, several managers reported that in the period 2002-08 a common ratio was 1:1 (one Chinese worker per one Angolan worker) per project whereas it now usually ranges from 1:3 to 1:4, i.e.

consistent with 75% and 80% as found in our survey. The two main reasons for this significant trend were: (a) the adaptation of these firms to the Angolan context and the larger pool of trained workers in 2017 compared to 2005; (b) the growing costs and demands of Chinese expat labour, especially in the 5-10 years prior to our survey. These reported trends are consistent with comparisons between our survey results and the estimates from previous studies of the pre-2010 period. 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, like the ones included in our study. According to data from the Ministry of Finance about projects financed by the first two Chinese credit lines in 2004 and 2007 workforce localization rates ranged between 56% and 64% of Angolan workers in 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 labour including in basic tasks in order to comply with the demanding technical and time execution expectations of the Angolan government, whereas these practices are now neither acceptable nor affordable for Chinese contractors.

Besides these trends, there is some variation across firms within the same sector. Scale does not seem to matter so much in terms of workforce localization rates, just with slightly higher rates for both Chinese and non-Chinese firms in the 100-500 employment bracket. What matters most is the relative difficulty of the project and the phase. Therefore, for more labour-intensive phases and in less technically demanding projects, the proportion of Angolan workers tends to be significantly higher across all firms. During our scoping research it was also observed that projects that were subject to tighter timeframes and higher quality requirements incorporated a higher share of expat labour especially in semi-skilled positions. Several Chinese managers considered these two as critical factors affecting localization rates.

Furthermore, although it is often assumed that SOEs are more likely to have higher localization rates, in this sample the average is almost identical between SOEs and private Chinese firms, i.e. around 75%. This result is partly driven by the sector effect, i.e. predominance of private firms in manufacturing where localization rates were higher. Disaggregating within the construction sample, we only find two private or quasi-private Chinese contractors and both indeed have much lower localization rates than the SOEs in the same sector (about 60% vs 74%). Whether this is because SOEs have been present in the Angolan market or because of higher commitment to employing more Angolans, it is not entirely clear. In any case, if the Angolan government was set as a priority the employment of Angolan workers it would be expected that Chinese SOEs would also internalize such priority as their goal is to forge a close long-term relationship with the Angolan government besides making profits, as suggested by research in Zambia (Lee, 2017).

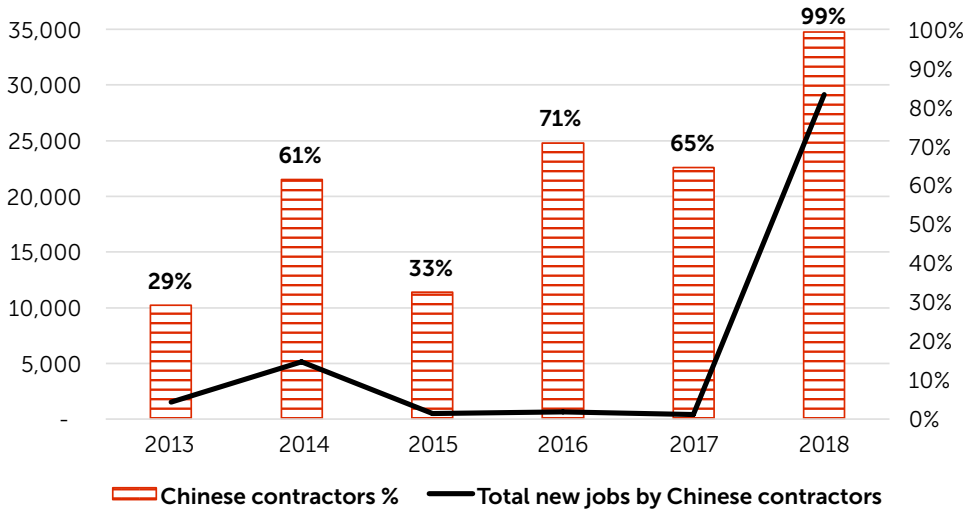
Beyond this variation among Chinese firms, it is necessary to consider some reasons underpinning lower localization rates in Chinese firms compared to the leading foreign and Angolan companies in the same sector (14 percentage points). Here is a list of possible explanations, based on extensive interviews with managers and key informants in these sectors:

- Continuous reliance on Chinese skilled workers for some critical positions where firms do not trust or cannot find adequate local workers.
- Less time in the Angolan market compared to the most established Angolan and other foreign firms, as all firms started with low localization rates and they are still catching up; according to our firm-level surveys, Chinese firms had on average been in Angola for 10 years (with a maximum of 18 until 2017) whereas other firms had on average more than 18 years of experience in Angola, with a maximum of 62.
- The difficulty in finding semi-skilled and skilled workers who can quickly adapt to Chinese technical standards, given that most workers in that pool can easily find well paid jobs in other sectors or more established foreign MNCs. When many Chinese firms arrived in the mid-2000s the pool of semi-skilled and skilled workers was limited, at a time of high demand for this workers, and the main foreign and Angolan contractors had already employed the best from the available pool.
- Reputation of Chinese firms could have also contributed to their difficulties in competing with other firms for the scarce pool of well trained and experienced workers, given that many prospective workers thought Chinese firms would pay lower wages or demand longer hours, and these expectations may have discouraged Angolan workers with higher skills.
- Language barriers were often mentioned as a constraint, especially for semi-skilled and skilled workers who would have been expected to communicate in Chinese-Mandarin in order to better execute technical guidance and understand machinery instructions.
- More urgency of Chinese-built projects (e.g. roads ahead of elections), as the Angolan government converted Chinese credit lines into a series of public work projects with very demanding timeframes, usually shorter than most other projects implemented by non-Chinese firms.
- Mistrust of Luanda-based workers among Chinese managers because of perceived unreliability, absenteeism and conflictual nature of these workers according to some Chinese managers who were in favour of bringing migrant labourers from other parts of Angola or simply Chinese workers in order to avoid these labour control problems.

Localization rates per se do not tell us, in any case, whether the contribution of different firms to job creation is more or less important. This depends on the number of projects, and how labour-intensive the approach is and on the availability of employable workers in different locations. There are no systematic data on the number of total jobs in absolute terms created by Chinese and other firms comparatively, but some indications suggest that Chinese firms have indeed generated a very large number of *new* jobs despite having lower localization rates. According to data from the Ministry of Construction, Chinese firms have usually contributed large proportions of new jobs in public works in the period 2013-18 (Figure 5). With the new Chinese credit line coming to disbursement in 2017 this contribution reached a peak of 99% of all new public works jobs in 2018.[5]

[5] For list of approved projects, see Diário da República de 7 Junho 2016, I Série- Nº 91, Diário da República de 8 Junho 2016, I Série- Nº 92, Diário da República de 14 Junho 2016, I Série- Nº 96.

Figure 5 - New jobs created in public works and contribution of Chinese contractors



Source: Data provided by the GEPE of the Ministry of Construction and Public Works, 2019

At the time of the 2017 survey 17 Chinese firms (construction and manufacturing) employed 12,476 Angolan workers, and nearly 10,000 were employed by 9 road contractors only, a very large number at a time of crisis when there were few road projects compared to the peak period of 2005-2012. Given the numbers of jobs recorded in official statistics commented in section 4 of this report, and the significant and growing presence of Chinese firms in Angola since 2002, it is possible to infer that their contribution to overall employment in construction and manufacturing has been very important.

5.2 Labour force characteristics

This section presents the basic characteristics of the relevant sample of workers surveyed in the two target sectors. The statistical results presented in this and subsequent sections cover a sample of 638 workers, after excluding a number of out-of-sample workers who were in the high-skill segment or in administrative positions, and therefore not comparable to our target worker samples (Table A1). We focus on a number of key attributes of individual workers, which describe the basic characteristics of the labour supply in these sectors: demographic characteristics; migration; education and skills; socio-economic status.

The overarching finding is that we captured two distinct segments of the working population in the road/dam building sectors and in industries of construction materials. One is a segment of relatively low-skilled, younger, migrant workers (from rural areas) straddling between agriculture, informal jobs and the jobs covered in this study. The other group represents a segment of more established, experienced, more skilled and older workers whose jobs are more representative of standard 'formal' labour relations in the Angolan context. The first segment is disproportionately concentrated in Chinese firms whereas the second labour market segment is more typical of the sample of other foreign and Angolan firms covered in this project. There are a number of indicators that confirm this broad picture, as analysed in the following sections.

Besides quantitative data from the large-scale workers' surveys, this evidence is complemented with qualitative research, especially in the form of work/life histories of 23 Angolan workers who were selected from the quantitative dataset to build a diverse set of worker profiles and their labour market experiences. These qualitative worker profiles ranged from individuals with limited education (e.g. less than two years of schooling) and new entrants in the labour market, to workers with more than 20 years of relevant work experience and formal technical qualifications. They all share a common experience with migration, at different stages of their lives and in different moments of Angolan history, including the war period. Family shocks (including divorce, forced displacement, family conflict, etc.) are key factors that help us understand their working lives,

especially their entry into the labour market. These experiences also show the centrality of access to these kinds of new non-agricultural jobs for their skill development, including important social skills for time management and work discipline, which are essential for a future of work in manufacturing and construction.

5.2.1 Demographic features

Almost all workers (99%) are male. This is not entirely surprising given that these sectors are overwhelmingly dominated by jobs that are usually taken by male workers, both in construction and manufacturing. In the case of manufacturing, the types of factories included in the samples, i.e. building materials like bricks, tiles, cement products, steel or cement, are indeed very male dominated, in contrast with light industries such as apparel or food processing.

Workers' age varies across sectors, skill levels and origin of companies. Understandably low-skilled workers tend to be younger (28.3 years) than semi-skilled workers (33.4) for whom experience is important to access these jobs and they learn more employable skills at work than at school. By sector, workers in construction firms are older with almost 32 years of age, whereas average age in manufacturing was 29 (Table A4 and A5 in Annex).

However, differences are more striking when we consider the origin of firms. As Tables A4 and A5 show for both low-skilled and semi-skilled jobs in both sectors, workers employed in Chinese firms are significantly younger than those employed in other foreign and Angolan firms. For example, on average, low-skilled construction workers in Chinese firms are 27 years old compared to those in Angolan firms who are nearly 38. Those employed in manufacturing, especially Chinese brick factories, are the youngest with less than 25 years of age.

These differences are consistent with marriage patterns. In Chinese firms single workers who have never married abound, 45% for low-skilled workers in Chinese-owned factories and 27% in road construction. By contrast both low-skilled and semi-skilled employees in other foreign and Angolan firms tend to be married/cohabiting (more than 90%).

The observed differences in terms of age and marital status are consistent with evidence on household size. There are generally important differences between this study sample and comparable data from official statistics on urban population (Table 8). The larger household size in the IDCEA sample compared to nationally representative surveys (such as the 2015-16 IIMS - *Inquérito de Indicadores Múltiplos e de Saúde*) can be partly explained by our adoption of an 'economic' definition of the household, which also includes any significant contributing members not permanently residing at the household's main residence. Results also suggest that household size and the number of contributing adults is lower for workers employed in Chinese firms. This is consistent with their lower average age and marital status compared to workers in other firms. This may be also evidence of a poorer socioeconomic status as they are less able to support a larger household.

Table 8 - Household size and other demographic characteristics of sampled workers

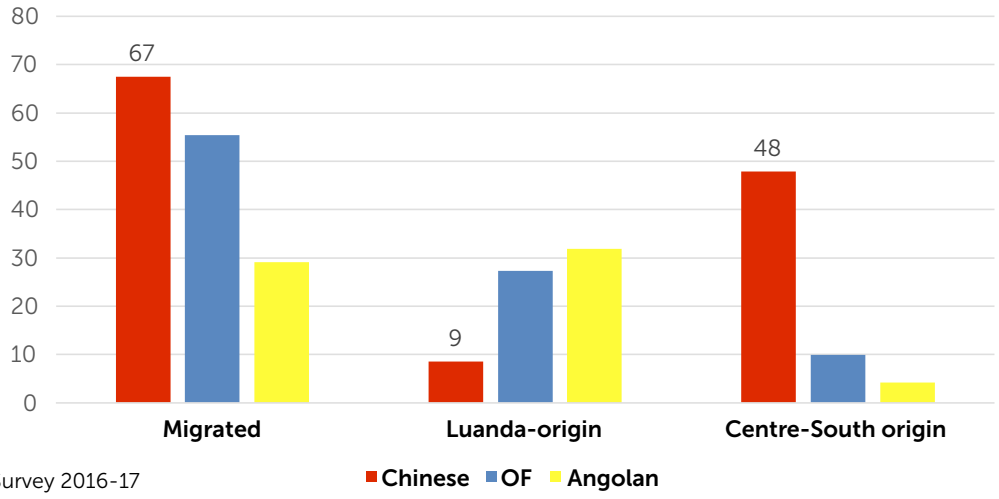
Sub-sample	Household Size	Contributing adults (financially) in addition to main respondent	Number of dependent household members	Children
Full IDCEA sample	5.7	2.1	4.6	2.6
Chinese firms	5	1.1	3.8	2.2
Other firms	6.3	1.1	5.3	3
IIMS 15-16 urban	5	..	..	..
Census 2014 urban	4.8	..	..	..

Source: IDCEA Survey 2016-17; INE (2017); INE (2016)

5.2.2 Migration

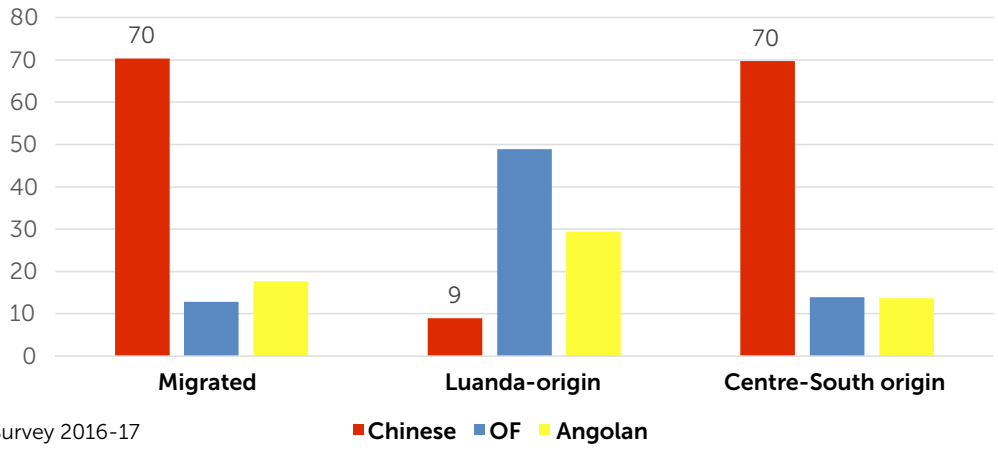
Many Angolan workers are internal migrants. Luanda and other Angolan urban centres have a long tradition of hosting waves of migrants from other provinces, especially during the civil war, when the number of internally displaced people shot up. Half the total sample in Angola reported having migrated for their current job, 56% in the case of construction workers. 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 (Figure 6 and Figure 7). These are very significant differences that confirm the existence of two separate workforces operating in different segments of the construction and manufacturing sectors in Angola. Chinese firms seem to operate with the predominantly migrant segment of the labour force. 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 (Table 9). The proportion is even higher in factories. Many of the workers from these areas come from poor rural backgrounds. This is in contrast with the finding that workers in Angolan and other foreign firms were more likely to be resident in the locations surrounding the workplaces or at least from the same city, especially in the case of the manufacturing sample.

Figure 6 - Migration and origin among construction workers, by company origin



Source: IDCEA Survey 2016-17

Figure 7 - Migration and origin among manufacturing workers, by company origin



Source: IDCEA Survey 2016-17

Table 9 - Area of origin of workers (%)

Origin of workers	Not Chinese	Chinese	Total
Luanda area	34	9	22
North (Uige-Zaire)	20	7	14
Centre-North (Cuanzas, Malange)	35	26	31
Centre-South	**10**	**58**	**33**
Total	100	100	100
N (samples)	330	308	638

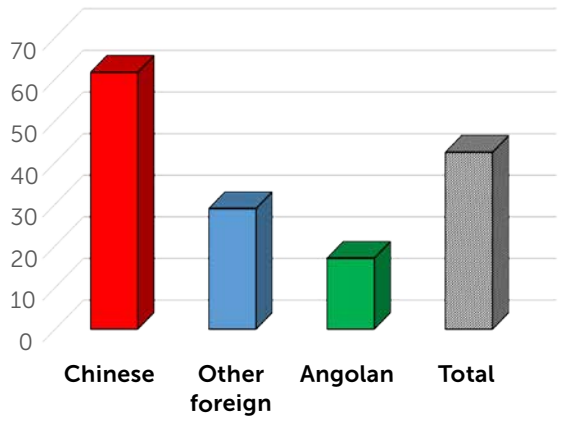
Source: IDCEA Survey 2016-17

In part this tendency 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 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 also 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.

The reliance on workers from distant provinces is associated with the large proportion of Chinese manufacturing firms located in Luanda operating a 'dormitory migrant labour regime', similar to experiences in parts of China's Sunbelt.
(Pun and Smith, 2007)

Figure 8 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 are 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. We will come to this important point in the analysis of wages below. 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 8 - Workers living in company dormitory by origin of company (%)



Source: IDCEA Survey 2016-17

The evidence from the quantitative surveys was corroborated by life histories of workers. A majority of workers employed at Chinese road construction sites came from deprived rural origins, not only those who were housed in dormitories but also workers who were employed locally in the provinces of Kwanza Sul and Kwanza Norte. Many of these workers still kept a foot in the land and were reported to be active in their household farms whenever construction projects ended or whenever they could take leave. When asked about the facilitators of their migration adventures, many reported receiving help from siblings who had also previously migrated, or even from parents. Family networks in expensive cities like Luanda were indeed a crucial source of help in their early stages of familiarisation with a new city and until they got a more stable job like the one they had found in factories. For many of these younger migrants an overriding priority was to save and bring some money back home a soon as they could.

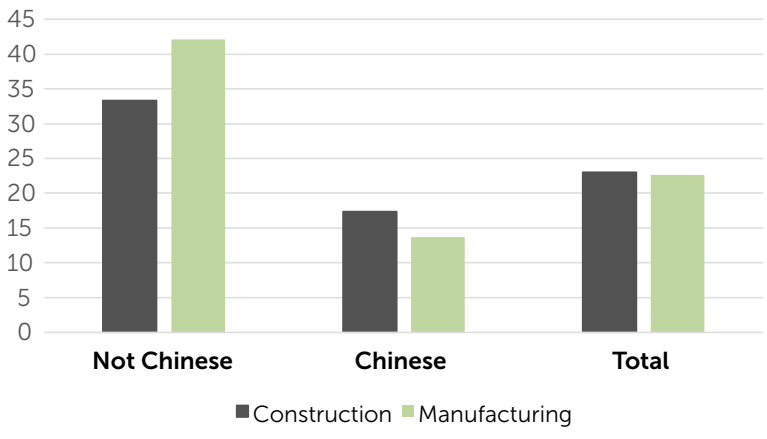
5.2.3 Education and skills

The diversity of workers in this study is also reflected in the wide disparities observed in terms of education levels. Survey results on skill levels and education attainment confirm that Chinese firms employed a different segment of the labour force. Thus there is a significant sample imbalance whereby Chinese firms have a much greater proportion of low-skilled workers than other foreign and Angolan firms combined (78% vs 36%), i.e. more than double (see also Table A2 for a Chinese vs Angolan firm contrast). This imbalance partly reflects the fact that (a) other foreign firms in construction included contractors working in one of the most technically demanding infrastructure projects in the country (hydropower dam) and (b) some other foreign and Angolan firms operated with their 'core' permanent labour force as a result of the crisis hitting the sector, which meant that works were slow and lacking intensity and urgency with ongoing construction projects. By contrast, most Chinese firms were involved in road projects that were taking off at full steam after months of delay, at more intensive phases, employing large numbers of new hired local workers on a temporary basis, driven by their access to a new source of finance (the Chinese credit line – LCC- of 2015-16) and the political urgency of finishing their projects ahead of the 2017 elections.

The contrast between these different segments of workers is particularly stark for low-skilled workers. Tables A4 and A5 show results at more disaggregated levels.

The proportion of low-skilled workers in Chinese firms who had higher than lower secondary education (G9) was only around 15% in both sectors, compared to 42% of industrial workers and one third of construction workers in non-Chinese firms (Figure 9).

Figure 9 - Low-skilled workers with lower secondary and above (>G9) (%)



Source: IDCEA Survey 2016-17

In comparison with average population characteristics the general educational level of sampled workers is higher, especially in the case of workers employed by Angolan and other foreign firms. However, if we only consider low-skilled workers, many concentrated in Chinese firms, their levels of schooling are below those of men in urban areas but not too different from those of the poorest quintiles of the national demographic and health survey 2015-16. In fact, the least educated workers in our sample have education levels that would correspond to the population between the two poorest quintiles according to the nationally representative IIMS 2015-16 survey (Table 10).

Table 10 - Schooling levels for IDCEA low-skilled workers compared to national urban averages (%)

Origin of sample firm or national survey	None or primary incomplete	Primary completed
Chinese	40	45
Other foreign	20	40
Angolan	26	21
IIMS 2015-16 urban (men)	17	7
IIMS 2015-16 quintile 2 (from poorer to richer)	55	11

Overall, the data presented above confirm that the three groups of firms (Chinese, OF and Angolan) had qualitatively different workforces:

- Poorer, migrant, less educated, less experienced and less skilled workers in Chinese firms.
- A more skilled, permanent, older and better educated workforce in other foreign and Angolan firms, particularly in hydropower dam construction and most industrial factories in Luanda.

These characteristics may also indicate different socioeconomic status for these two segments of the labour force. Next section explores this issue.

5.2.4 Socio-economic status

We measure socio-economic status through a simple unweighted socio-economic index that scores higher the more commodities or non-food wage goods a worker owns. This index is an indicator of longer-term status as possession of these basic goods is not usually subject to the kinds of fluctuations reported for revenues or consumption expenditure. These basic non-food wage goods are also easier to collect and measure, as they are also directly observable. Table 11 below presents a selection of high-value wage goods and the distribution of their ownership by firm and survey. These numbers suggest two things. First, overall our average sample is relatively close to the IIMS 2015-16 urban population standards in terms of possession of this selection of goods. Second, there is evident segmentation between workers employed by Chinese firms, who seem substantially poorer than their counterparts in Angolan and other foreign companies. This second segment is also more prosperous, in terms of these goods, than the average urban population in a comparable 2016 survey.

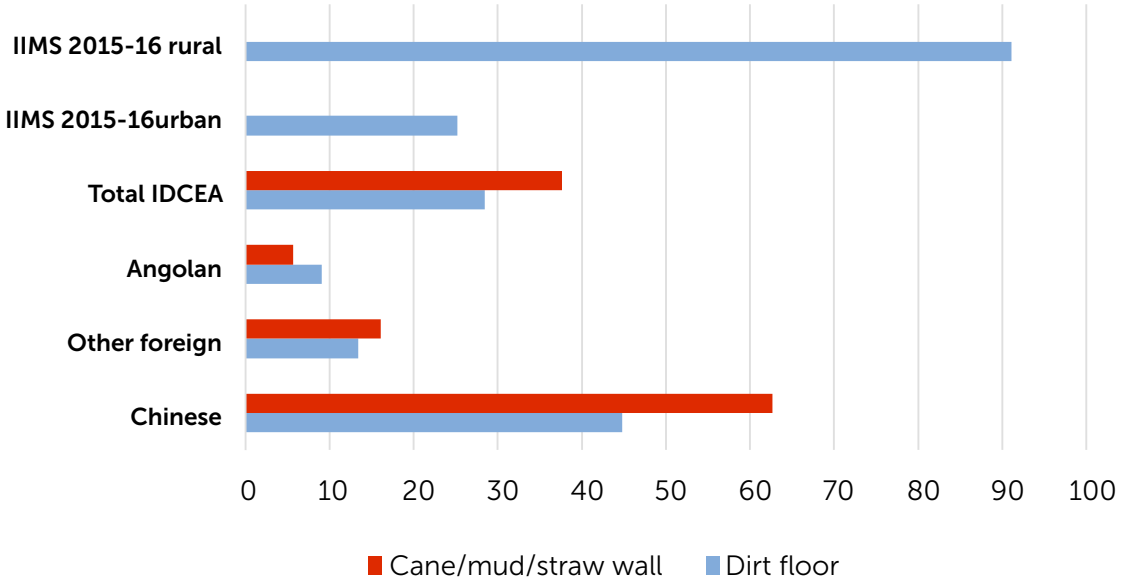
Table 11 - Possession of non-food wage goods by origin of firm and general population (%)

	Mobile phone	Fridge	TV	Computer	Car
Chinese	74	32	65	9	3
Other foreign	91	72	94	20	9
Angolan	94	80	97	25	13
Total IDCEA	84	54	80	16	7
IIMS 2015-16urban	83	56	75	20	17
IIMS 2015-16 rural	31	4	14	1	1

Source: IDCEA Survey 2016-17; INE (2017)

A comparison between workforce segments in terms of their housing conditions also yields similar results. For 478 workers who reported having a permanent residence somewhere, we asked about the basic conditions of the house, especially the materials used for their construction, which typically reflect the socioeconomic status of households. As shown in Figure 10, workers in Chinese firms are much more likely to have low-quality material for the walls and floor or their main residential units, compared to the workers in Angolan and other foreign companies, who also seem better off, in this respect, than the average population in urban areas (according to the national IIMS 2015-16 data). Moreover, a much smaller proportion of workers in Chinese firms have access to electricity in their family residence, close to 34% compared to 78% of workers in other firms. This also suggests their residential units tend to be located in poorer areas with less basic infrastructure.

Figure 10 - Use of precarious material for main residence in workers' household (%)



Source: IDCEA Survey 2016-17; INE (2017)

If we consider an aggregate goods possession index, including some basic non-food wage goods and some with higher value and less common, differences in socioeconomic status across different workforce segments are also clear (Table 12). 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 a significant share 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

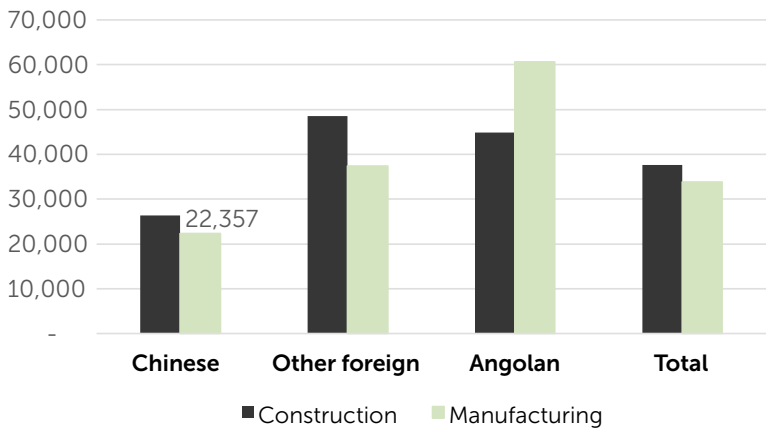
much more recently; (b) a large proportion of workers in Chinese firms were poorer migrants or were hired in and from poorer areas of the country. These differences in socioeconomic indices are also consistent with differences in terms of reported monthly cash expenditure, as shown in Figure 11. Workers sampled in Chinese firms reported much lower monthly expenses than workers sampled in Angolan and other foreign firms, with insignificant differences between sectors. These differences reflect the different segments of the workforce as demonstrated by other indicators but also reflect the fact that a large proportion of workers in Chinese firms live in company dormitories and therefore face lower monthly expenses given that food and accommodation, two items that consume a large proportion of workers' incomes, are directly provided by the employers. The implications for wage comparisons will be explored in subsequent sections of this report.

Table 12 - Socioeconomic status index (goods/assets index)

	Mean	Median	Quintile 1	N
Chinese	3.0	3.0	2.0	308
Other foreign	5.1	5.0	4.0	207
Angolan	5.3	6.0	5.0	123
Total IDCEA	4.1	4.0	3.0	638

Source: IDCEA Survey 2016-17

Figure 11 - Workers' average monthly consumption expenditure (Kz)



Source: IDCEA Survey 2016-17

What are the possible implications of these socioeconomic and demographic differences between the segments of the labour force by origin of firms? These differences may 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, Chinese and other firms seem to operate with different kinds of workers, in terms of their basic demographic, education, origin and socioeconomic characteristics.

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 6 below.

6 Labour outcomes: wages and working conditions in comparative perspective

This section presents the main set of findings regarding working conditions. The section starts with a consideration of patterns in job tenure and levels of formality in labour relations. However, 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. Sector specificity for wage determination is also discussed, so that the second level of analysis of the labour regime configuration is brought to light. 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 discusses results of our analysis with respect to patterns of training provision and their effects.

6.1 Job tenure, formality and work experience

In general it is expected that infrastructure construction is more dependent on project cycles and therefore likely to operate with a significant non-permanent labour force. In countries with very large construction sectors and deep contractor networks (Europe, China) subcontracting and use of agency workers and labour intermediaries is conspicuous. These practices tend to increase the distance between the primary contractors and workers on the ground and reduce the scope for 'direct' employment relationships.

In Angola half the sampled firms reported the 'normal' use of subcontractors, rising to 66% in the case of other foreign firms operating in the country. However, this did not result in a significant proportion of sampled workers being 'indirectly' employed through subcontractors or agencies. In fact, almost all workers included in this study did have a direct employment relationship with the project contractor. There was indeed not evidence of the existence of labour brokers, as is often the case in China's construction sector (Swider, 2015). Thus both main contractors and their specialised subcontractors employed their workers directly. We also found some unusual practices. For some Chinese SOEs a 'fleet' system was deployed whereby a leading SOE 'centralised' the hiring and management of a large workforce, including both permanent and temporary project workers, for purposes of human resource management and reporting, to then make them available to their own subcontractors, especially in large-scale infrastructure projects. This modality was adopted in order to reduce red-tape and facilitate the arrival of new Chinese specialised subcontractors which did

not have the human resource management capacity yet established in Angola.

A direct employment relationship does not however necessarily imply the existence of a written contract or at least the awareness on the part of the worker of such written contract. Overall and despite many on the study samples being 'core' permanent workers, the proportion of low-skilled employees with a *written contract* was rather low at 35% for both sectors combined, in contrast with 76% of the 279 semi-skilled workers in the survey. Given the much larger proportion of low-skilled workers in Chinese firms, the percentage of workers with a written contract was lower in these firms. Combining all samples, the proportion of low-skilled employees in Chinese firms with written contracts was only 16% compared to 74% in other foreign/Angolan firms, and 23% and 93% respectively for semi-skilled workers, reflecting the greater degree of informality in the jobs captured in Chinese firms.

For construction workers, part of this difference is certainly explained by the sampling bias in non-Chinese firms where a significant proportion of sampled workers were part of the 'core' permanent labour force and therefore much more likely to be aware of a written contract, after years in the job. However, it is striking that the informality of lack of written contracts is more acute in factories, where only 10% had written contracts in Chinese firms, many of which were of the 'translocal' type described in section 3.3. For workers who have written contracts the differences between firms in terms of whether contracts are in hand or verbally explained are not significant, so once the employment relation is formalised there are no real differences between companies. Moreover, despite the low proportion of awareness of written contracts among workers of Chinese companies, most of them had been verbally provided with basic information about their contract, in terms of wage expectations, working hours, leave policy and any benefits. Chinese SOEs, especially the largest ones, were much more 'formal' than private manufacturing firms in the management of contracts and the contract conditions being explained to hired workers.

The level of wages and more informal nature of labour relations in sampled Chinese firms is also associated with much shorter job tenure and experience in the relevant labour market. Indeed 12% of the overall sample of workers in Chinese firms were recent hires who had been on the job only a few days/weeks, and especially in the road construction projects that were starting off in 2017 at the time of last phases of the survey. Angolan and other foreign firms practically had no recently hired workers in the sample. Summary statistics in table 13 below show a clear picture. Chinese firms had a much larger proportion of workers with very little time in the job (i.e. recently hired). The median for construction is 0.34 which corresponds to about 4 months, and 25% of workers in these firms had not exceeded one month in the company. By contrast, employees in Angolan and OF firms had been in the job for much longer: over 2.5 years in construction and nearly 6 years in manufacturing, while the bottom 25% in terms of job tenure were just below 15 months in manufacturing (Table 13). Thus, most employees in Angolan and OF firms were part of the permanent labour force with longer job tenure, whereas many of those employed in Chinese companies were recent hires and with few months of job tenure. This pattern is especially clear in the case of low-skilled workers in Angolan and other foreign construction entreprises. In the former, average job tenure is three years, whereas in the latter it is more than two years, in contrast with low-skilled workers in Chinese construction firms who only have around one year of job tenure on average, with a large proportion being employed for less than three months. It is worth noting that this is not necessarily evidence of greater 'casualization' in Chinese contractors, but rather reflects the important differences found at the time of the survey between Chinese firms that were starting new projects at high speed and therefore hiring new project workers, and other firms that were operating well below capacity.

In the case of building materials factories job tenure is unsurprisingly longer than in construction, especially in Angolan and other foreign firms as Table 13 shows. At a more disaggregated level of analysis, low-skilled workers in Chinese-owned factories have been in the job for 1.8 years on average, compared to 4 years job tenure for low-skilled factory workers in non-Chinese entreprises. Semi-skilled workers have even longer job tenures, with 3.5 years on average at Chinese factories and 8.3 years and 6.4 years in the cases of other foreign and Angolan firms respectively.

In sum, the majority of low- and semi-skilled workers in Angolan and other foreign companies were part of a core permanent workforce with longer job tenure, in contrast with workers at Chinese firms, many of whom were recently hired and therefore had shorter job tenure at the time of survey.

While the main explanatory factor of this structural difference was the way the economic crisis hit firms of different origin differently, with Chinese firms partly shielded by the new credit line after 2015, there is evidence that some leading Angolan and other foreign firms were also able to capitalise on retaining more experienced and skilled workers, given the scarcity of this labour force in Angola.

Table 13 - Job tenure of workers by sector and origin of firm

	Construction		Manufacturing	
time in job (years)	Other foreign/ Angolan	Chinese	Other foreign / Angolan	Chinese
Mean	2.55	1.38	5.75	2.05
Median	1.45	0.34	3.62	0.66
Bottom 25%	0.69	0.09	1.27	0.32

Source: IDCEA Survey 2016-17

More experienced workers with relevant labour market history are also more likely to command higher wages and better conditions. We collected detailed information about the employment histories of each respondent and managed to estimate full-time-equivalent years of experience in each sector. Table 14 below shows that half the workers in Chinese construction firms had very limited experience in construction work (less than one year) and almost 20% had no experience at all, in contrast with Angolan and other foreign firms, which had a mean of 5.2 years of prior construction work experience and 50% of the workers had more than 3.5 years in the sector. In the manufacturing sector prior experience is almost insignificant across most firms, but especially for workers employed in Chinese firms, as the bottom 50% got these jobs with no prior relevant experience at all and on average nearly 50% less relevant previous experience than those working for other firms. These results also reflect that construction work is much more common in the Angolan labour market than manufacturing work. For most industrial workers in our sample, the current jobs were their very first factory jobs. Furthermore, Chinese firms were more likely to employ workers with prior experience as peasant farmers or agricultural workers (over 50%) than non-Chinese firms (less than 20%). Therefore, observed patterns of job tenure and work experience will be factors for consideration in the analysis of wage determinants in the following section and also linked to the evidence on contract terms presented here.

Table 14 - Work experience among workers by sector and origin of firm

	Construction		Manufacturing	
Years of prior experience in relevant sector	Other foreign/ Angolan	Chinese	Other foreign / Angolan	Chinese
Mean	5.2	3.3	0.76	0.37
Median	3.5	1	0	0
Bottom 25%	1	0.25	0	0

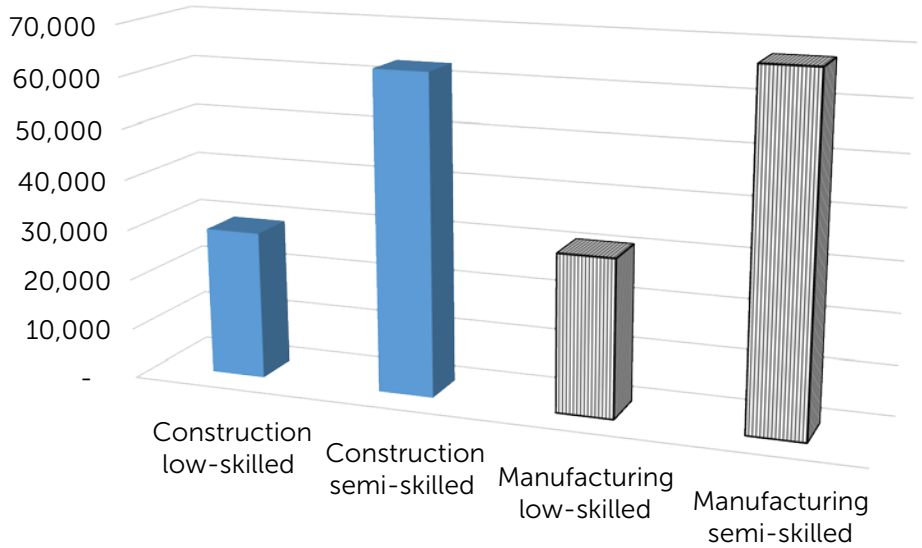
Source: IDCEA Survey 2016-17

6.2 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). Qualitative research interviews confirmed that most workers and their representatives focused on wage bargaining ahead of other considerations. In situations of labour conflict the primary cause also tends to be the level of wages and their trends over time. 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.

Monthly salaries display substantial variation between and within skill categories. Low-skilled workers across sectors receive on average 30,157Kz per month while semi-skilled workers doubled that figure with 64,805Kz. The differences by sector are not that clear-cut, with relatively similar premiums paid to semi-skilled workers in both sectors (Figure 12). This reflects the fact that there are some similarities and connections between the work performed by semi-skilled operators in building materials factories and those in construction. 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 12 - Monthly wages by sector and skill-group, Angola (Kz)



Source: IDCEA Survey 2016-17

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 further statistical analysis below. Given the sample imbalances across firms in terms of proportions of low-skilled and semi-skilled workers it is also necessary to break down the descriptive results by sector and skill-group.

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 (Table 15 and Figure 13). For the latter there is no discernible difference between Chinese and other foreign firms, while the sampled workers in Angolan factories (who were mostly part of the permanent labour force) receive uncharacteristically higher wages than the rest of other companies. Indeed, the sample for semi-skilled workers in Angolan factories is limited and potentially biased towards workers with long tenure, seniority and part of the core permanent labour force in their factories. This pushes average wages for semi-skilled factory workers in non-Chinese firms up to 73,034Kz, a rather high level for Angolan standards. Thus their wages seem high with respect to the industry norms reported by key informants during our qualitative research and four times the sector minimum wage. 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 13).

Table 15 - Monthly cash wages by firm origin, sector and skillgroup, Angola (Kz)

Construction (N=356)		Mean	median	Std. Err.	[95% Conf.	Interval]	N
Low-skilled	**Other**	37,181	38,000	1,485	34,261	40,101	63
	Chinese	24,993	24,000	708	23,601	26,386	115
Semi-skilled	**Other**	62,671	59,350	2,060	58,619	66,723	130
	Chinese	63,971	58,500	3,938	56,226	71,715	48
Manufacturing (N=282)		**Mean**		**Std. Err.**	**[95% Conf.**	**Interval]**	
Low-skilled	**Other**	32,767	30,000	1,802	29,219	36,315	57
	Chinese	30,177	30,000	655	28,887	31,467	124
Semi-skilled	**Other**	73,034	75,000	3,409	66,323	79,745	80
	Chinese	48,571	45,000	4,150	40,401	56,741	21

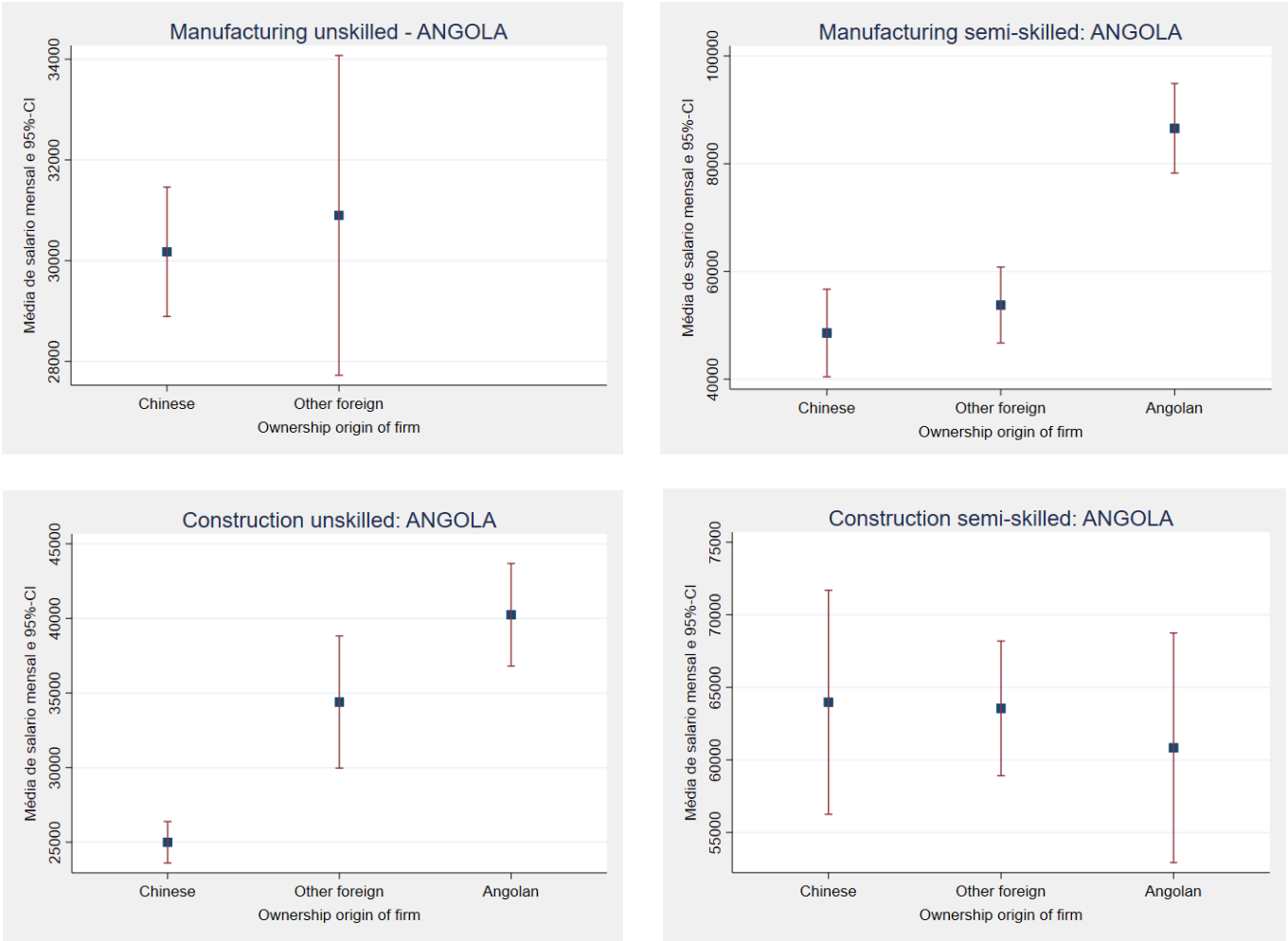
Source: IDCEA Survey 2016-17

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 some low-skilled workers in construction and most industrial employees. For example, low-skilled construction workers in Chinese Luanda road sites were overwhelmingly migrant in contrast with workers in non-Chinese firms, who were predominantly Luanda residents. Many construction workers in Chinese firms operating in Luanda sites were therefore accommodated in dormitories paid by the company and were receiving lower salaries (on average about 26,000Kz) compared with non-migrant workers who did not live in dorms (about 36,000Kz). House rental is an important expense in Luanda so workers living in their own private accommodation would not accept lower wages.

Figure 13 - Monthly cash wages by firm origin, sector and skillgroup, boxplots, Angola (Kz)



Source: IDCEA Survey 2016-17

In the manufacturing sector, differences among semi-skilled workers are affected by both the small sample of such workers in Chinese firms, and the fact that most workers in Angolan factories were drawn from a group of core permanent workers with much longer job tenure. Therefore, on balance, a combination of sampling issues, and the different characteristics of the labour force segments in different groups of firms by origin is likely to account for a large share of observed descriptive differences in reported wages.

The consideration of various 'confounding factors' that may affect wage distribution across companies suggests the need for going beyond the descriptive analysis presented so far and moving towards 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, 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 the Statistical Annex (Table A6). The analysis suggests that, other things being equal, the particularities of each segment of the 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 (Table A6). The other variables that have a greater (positive or negative, according to specified sign) 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.

Overall, the evidence from regression analysis shows that wages are broadly comparable across firms by origin, once the independent effects of a series of individual and firm-level characteristics are taken into account.

Apart from the significance or not of differences in wage levels across firms, it is also important to analyse how reported wage levels compare to statutory minimum wages as well as to living costs. As noted above, a common stipulation applied to several global framework agreements by leading brands[6], 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, even 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.

[6] See examples in http://www.industriall-union.org/issues/confronting-global-capital/global-framework-agreements

Only some 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 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 for the first time in their labour market experience 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 that 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 IDCEA sample wages in PPP terms range between the lowest found among some 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).[7] 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 workers complained that the wages they received were not sufficient to cover their usual monthly expenditures. However, there are some striking and paradoxical differences between the two main segments of the labour force. As shown in Table 16, 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 is linked to the existence of a 'dormitory labour regime' in many Chinese firms in both construction and manufacturing, which adds free 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.

Table 16 - Monthly wages and living costs: purchasing power of wages in Angola

	Net cash wage after montly 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 2016-17

[7] The 2017 PPP conversion factor for private consumption in Angola was Kz 102 to $1 (PPP) in 2017.

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 free 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 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, they enjoyed a stable monthly income for the first time since they entered the labour market after finding these jobs. Thus, the combination of these relatively lower cash wages and the 'social wage' of free accommodation and food seemed to contribute to their escape from poverty.

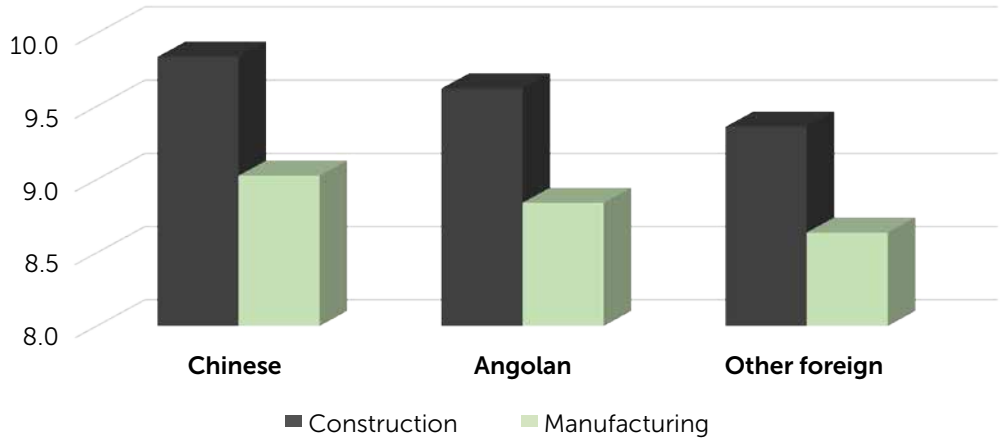
6.3 Non-wage working conditions

Wage differences are partly related to the different labour force segments Chinese and other firms focus on. However, this labour force segmentation can also explain some differences we observe in relation to non-wage benefits. Overall 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. Workers on less formalised labour arrangements or not being part of a core permanent labour force are less likely to have access to a range of benefits that firms may provide, such as paid leave and sick leave. They are also potentially less likely to have a social security card. They may also work longer weeks and days.

Data on days worked in the last month corroborate that many workers in a number of non-Chinese construction companies in the sample and many non-Chinese factories, all based in Luanda, worked 5-day weeks, which reflected two things. First, these workers were part of the core permanent labour force and eligible to conditions that matched the strictest application of the labour law in terms of weekly hours. Second, our qualitative research and observations during survey visits confirmed that in the case of road contractors, the intensity and speed of work was significantly lower than normal, due to the crisis in the sector and the lack of or delays in payment from infrastructure clients (government departments). The lower intensity work was reflected in 5-day weeks for most of the core permanent workers deployed in these sites, compared to longer 6-day weeks in most other construction projects, including all Chinese firms and other foreign and Angolan firms operating outside Luanda.

Given the evidence of long working days in China's labour market, it was expected that working hours would be long at Chinese firms in Angola too. However, we find that differences between Chinese and other firms are not statistically significant. The main differences are found between sectors whereby working days are longer in construction sites. In construction sites 10-hour working days are more common whereas in factories the typical range is 8-9 hours per day, which is close to what the Labour Law stipulates for formal employment in Angola (Figure 14).

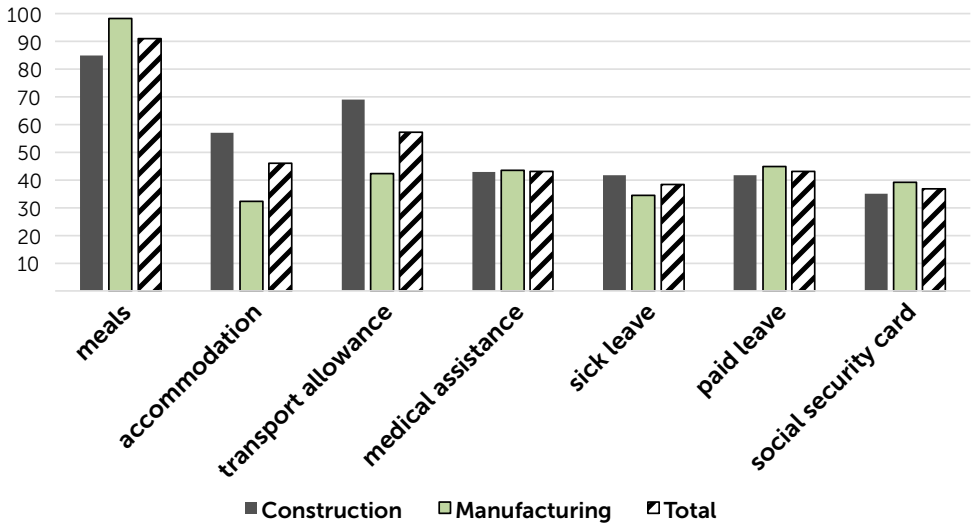
Figure 14 - Daily work hours by sector and firm origin



Source: IDCEA Survey 2016-17

The distribution of non-wage benefits is somewhat more uneven. Less than half of all workers, across both skill groups, benefit from a range of benefits usually associated with formal labour relations (Figure 15). 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.

Figure 15 - Selected benefits by sector: all workers (%)



Source: IDCEA Survey 2016-17

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), as shown in Table 17.

Table 17 - Selected non-wage benefits and formalisation of labour relations by firm origin and sector

All % unless indicated	**Construction**			**Manufacturing**		
Low-skilled workers	*OF/Angolan*	*Chinese*	*Total*	*OF/Angolan*	*Chinese*	*Total*
meals	94	64	75	98	99	99
accommodation	29	64	52	0	60	41
transport allowance	90	40	58	74	6	27
medical assistance	62	19	34	54	20	31
sick leave	59	17	32	51	9	22
social security card	56	7	24	60	5	22
N (sample size)	63	115	178	57	124	181

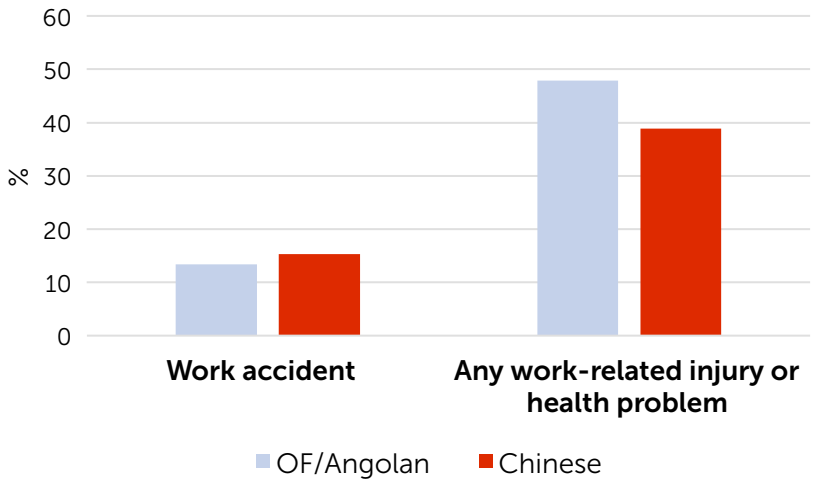
Source: IDCEA Survey 2016-17

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. However, Chinese employers were more likely to offer accommodation, confirming the preference for a dormitory labour regime, both in construction and manufacturing, in contrast with other employers who normally did not offer accommodation and preferred to offer transport allowance for commuting workers. Generally all employers also offered meals at work, though most workers complained about the quality of food provided across all types of firms.

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. In fact, the overall incidence of any kind of work related injury or health problem was higher in non-Chinese firms (Figure 16). 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. Angolan and other foreign firms had a remarkable record of H&S standards, even if not 100% across all indicators but certainly much higher than the average construction job in the country. This reminds us that this set of comparator firms constitute the top benchmark in Angolan labour market in these sectors, as expected, and not the average. Keeping this in perspective, the proportion of workers of Chinese firms wearing relevant safety equipment is significant (e.g. around 60% in construction).

Figure 16 - Accidents and injuries at work (%)



Source: IDCEA Survey 2016-17

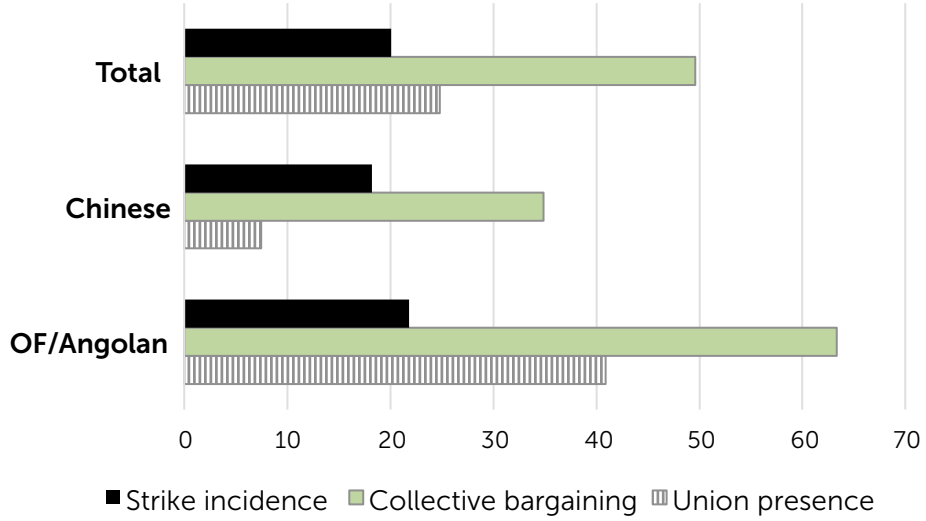
6.4 Unions, bargaining and labour conflict

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 (Figure 17). 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.

The significant presence of unions in the sampled Angolan and other foreign firms is also consistent with some of the findings on non-wage working conditions presented in the previous section. Indeed, various interviewees from firm-level unions in Angolan and non-Chinese foreign firms reported that some of the main gains from collective bargaining in recent years were on H&S standards and wage increments for permanent workers with seniority, precisely a segment of the workforce that dominated our sample of workers in these firms.

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. Some Chinese managers even reported that labour conflict was more significant with Chinese expat workers and almost negligible with Angolan employees. 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.

Figure 17 - Trade unions and labour conflict (% of workers reporting incidence)



Source: IDCEA Survey 2016-17

In Angola, management-worker relations were not particularly conflictual in Chinese firms, but 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 sites. Workers did not report many incidences of verbal or physical abuses and there were no discernible differences across companies in this regard. 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, i.e. not more frequent in Chinese firms compared to other companies. However, there was evidence that 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.

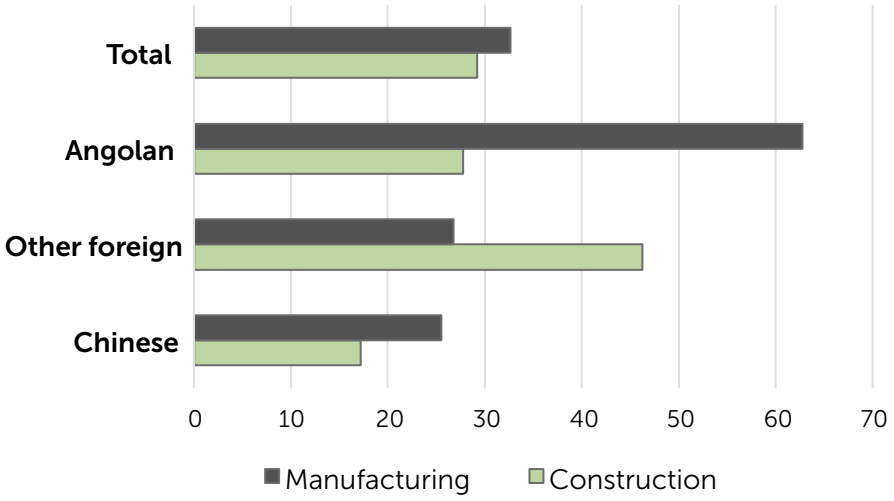
6.5 Training and skill development

Job creation in infrastructure construction and in manufacturing contribute to the protracted process of building an industrial labour force in a country embarking on structural change. In Angola, the construction sector, due to its size and capacity to create jobs in the post-war reconstruction boom, was more likely to contribute to substantial skill development compared to the still underdeveloped manufacturing sector. Clearly most of the new skills for Angolan workers are obtained on-the-job rather than on formal vocational training facilities. This normally happens through imitation of more experienced colleagues as well as from supervisors. But firms can also introduce formalised systems of skill upgrading and career progression. This study, through quantitative and qualitative methods, attempted to capture these different forms of training.

According to the responses to survey questions 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 18). 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 the workplace. For more than 60% of beneficiaries, this type of training was compulsory and requirement for probation towards permanent employment. Given the large share of permanent employees in the samples of Angolan and other foreign firms these results are therefore not surprising. This training usually happened at the beginning and there was no subsequent continuous systematic training.

Figure 18 - Workers having received formal training, by sector and firm origin, Angola (%)



Source: IDCEA Survey 2016-17

Such training does not capture all types of skill transfer and development happening at workplace level. 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 their usual *modus operandi*. Managers placed greater 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, especially to positions that required operation of more complex machinery. 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 Chinese companies that had also invested in vocational training centres, and training there 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, therefore, 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, but also in terms of sub-sectors and market orientation. It appears that construction firms in Angola had contributed more to skill development through on-the-job training and formal schemes than the domestically oriented manufacturing sector.

7 Conclusions and policy recommendations

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 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 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.

This report presents the main findings of the largest employment-focused survey hitherto conducted in Angola since the end of the civil war, with a focus on two sectors of substantial relevance for current calls for economic diversification in the wake of the oil-related economic crisis since 2015: infrastructure construction and manufacturing. The construction sector in Angola has been particularly important in terms of creation of new jobs for an emerging non-agricultural labour force, with nearly 260,000 additional jobs generated between 2002 and 2016. The bonanza of the commodity boom period and the construction sector came to a halt after 2015 and since then both construction and manufacturing have struggled. In this regard it is important to emphasise the critical role played by public investment and official finance lines from Chinese creditors to sustain the fast growth experienced in the 15 years following the end of the conflict.

The study tried to respond to two basic questions: (a) trends and determinants of job creation and especially patterns of workforce localization by sector and firm origin; (b) comparative working conditions (wages, non-wage benefits, security) across leading national and foreign firms operating in the infrastructure construction and manufacturing sectors.

On the first question, the main conclusion is that workforce localization rates are higher than usually perceived in Chinese firms, with nearly 75% of Angolan workers in the total workforce on average, but lower than Angolan and other foreign firm comparators, which have rates exceeding 85%. However, there is also significant variation across Chinese firms with some revealing workforce localization rates that are similar to other firms in the same sectors. The other finding is that these rates have increased rapidly in the past 10 years, showing the dynamic nature of labour recruitment patterns, the adaptability of Chinese firms to new contexts and the obvious economic imperative of relying more on Angolan workers over time. Overall, Chinese firms have substantially contributed to job creation in absolute terms, especially given their dominant presence in some segments of the construction market.

On the question about working conditions, we find that there is significant variation in working conditions between and within 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. Chinese firms seem, at first glance, to pay slightly lower wages for two out of four categories of workers, but they also employ a different segment of the Angolan labour force and tend to house and feed large proportions of workers, adding to the 'social wage' they receive. Indeed, statistical regression analysis suggests that individual attributes of workers (age, socioeconomic status, job tenure, work experience, and whether they are part of the 'core' permanent workforce), firm size, location of firms and skill level are more significant predictors of wage levels than the origin of the firm. Once these various factors are taken into account, wages are broadly comparable across Chinese, Angolan and other foreign firms in both sectors.

Reported wages are not 'poverty wages' in the strict sense. Even the lowest-paid low skilled workers receive wages that are above the extreme and moderate international poverty lines in PPP international dollar terms. In Angola, all workers earned wages that were above the sector minimum wage and a majority of workers earned well above minimum wages.

An interesting paradox arises in relation to remuneration and purchasing power: workers on lower wages but 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 by and large reflect a striking segmentation of the labour force, which is associated with firm origin. 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 OF firms with 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.

Labour institutions are weak in Angola and trade union density tends to be particularly low at national level. Many of the leading Angolan and other foreign firms covered in this survey were exceptions as generally having a higher than average trade union presence. Meanwhile Chinese firms have been more resistance to unionisation in the early stages of their presence in the Angolan economy. Yet, strikes have been very similar across firms, regardless of origin, partly reflecting the labour force segmentation already noted above. However, 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 many work sites.

In sum, understanding labour outcomes and employment dynamics in the emerging construction and manufacturing sectors in Angola, as in other 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, including internal migration dynamics; (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 factor on its own.

Policy recommendations

From the analysis of these findings and the complementary interviews conducted with government officials, company managers and trade union representatives, we have also concluded with a series of concrete policy recommendations, organised around two headings, namely policies to contribute to job creation, and policies to improve working conditions.

1. For job creation:

a. Improve the national data collection system for labour market indicators, with higher frequency and a more systematic approach, in order to monitor trends and changes in the labour market and employment conditions. Better and more up-to-date knowledge of employment patterns and dynamics are critical ingredients for realist and effective employment promotion policies.

b. Strengthen the use of the sovereign fund as a counter-cyclical mechanism to address the negative employment outcomes of crises associated with oil-price slumps. This would imply adopting a more counter-cyclical approach to public investment for public infrastructure so that employment does not suffer from severe fluctuations that severely damage prospects for construction workers.

c. Strengthen inter-sector linkages in order to expand indirect and induced employment. During periods of bonanza in the construction sector, prior to 2014, there were missed opportunities in relation to the promotion of manufacturing activities linked to the construction sector, and the concomitant reduction in dependence on imports of building materials. A more aggressive industrial policy during that period would have substantially increased industrial employment and jobs in ancillary activities while reducing future balance of payment constraints through import substitution.

2. In order to improve working conditions:

a. Improve the national data collection system for labour market indicators, with a special focus on annual updates on wages at more disaggregated sector level.

b. Reduce the degree of labour market segmentation by facilitating the 'formalisation' of the most vulnerable migrant workers. For example, making the availability of ID cards easier would open up access to more formal contractual arrangements to a significant segment of vulnerable young migrant workers.

c. Strengthen collective bargaining arrangements at sector level and the role of trade unions in this process, so that wage levels are adjusted to the real living costs workers face in different locations of the country. Collective bargaining should be extended to all workers at sector level, whether they are formally unionised or not.

d. Strengthen systems of skill development with a focus on relevant skills for emerging sectors that are expected to play a leading role in the economic diversification of the country.

e. Incorporate clauses of labour conditions and skill development to public procurement and infrastructure contracts. This will have some implications for how bids are assessed and contracts monitored and audited, since both job creation and the quality of jobs would become contractual conditions. In order to make these clauses realistic, contractors would need to be given adequate time and budgets so that greater job creation and more systematic skill development are achieved in public infrastructure projects. Another positive outcome would be better articulation of skill and innovation systems between companies and national training institutions so that skill upgrading becomes a concerted national effort.

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Statistical Annex

Table A1 - Sample distribution by origin of firm and sector (%)

% within sectors	Construction	Manufacturing	Total
Chinese	45.8	51.4	48.3
Other Foreign	34.0	30.5	32.5
Angolan	20.2	18.1	19.3
Total (N)	356	282	638

Source: IDCEA Survey 2016-17

Table A2 - Distribution of workers by skill-group and origin of firm (%)

% within origin of firm	Chinese	Angolan	Total
Low-skilled (%)	78	28	56
Semi-skilled (%)	22	72	44
Total (N)	308	123	638

Source: IDCEA Survey 2016-17

Table A3 - Qualitative interviews in Angola

Category of respondent	Number	(%)
Government officials	19	19
Company managers	69	70
Trade Unions	4	4
International Organizations	5	5
NGOs	1	1
Total	98	100

Source: IDCEA Survey 2016-17

Table A4 - Characteristics of workers in Construction sample (demographic and education attributes)

	Low-skilled construction			Semi-skilled construction			Construction total
Origin of firm	**Chinese**	**Other foreign**	**Angolan**	**Chinese**	**Other foreign**	**Angolan**	
Age (years)	27.3	33.3	37.7	31.1	33.3	35.5	31.7
Never married (%)	27.0	12.1	3.3	12.5	8.0	11.9	15.2
Migrated for current job (%)	61.7	42.4	20.0	81.3	60.2	35.7	55.6
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
Basic secondary completed (G7-G9)	12.2	24.2	20.0	35.4	36.4	9.5	22.8
Secondary, Vocational or higher completed	5.3	12.1	10.0	14.6	31.8	31.0	17.1

Source: IDCEA Survey 2016-17

Table 2 - Characteristics of workers in Manufacturing sample (demographic and education attributes)

	Low-skilled manufacturing			Semi-skilled manufacturing			Manufacturing Total
Origin of firm	**Chinese**	**Other foreign**	**Angolan**	**Chinese**	**Other foreign**	**Angolan**	
Age (years)	24.8	30.6	26.5	29.3	36.1	34.0	29.1
Never married (%)	45.2	22.6	0.0	14.3	3.0	8.5	27.0
Migrated for current job (%)	71.0	15.1	0.0	66.7	9.1	19.2	43.3
Education (%)							
None or primary incomplete	42.7	17.0	25.0	19.1	9.1	6.4	25.9
Primary (year 6) completed	43.6	39.6	50.0	47.6	30.3	38.3	40.8
Basic secondary completed (G7-G9)	11.3	18.9	25.0	19.1	27.3	34.0	19.2
Secondary, Vocational or higher completed	2.4	24.5	0.0	14.3	33.3	21.3	14.1

Source: IDCEA Survey 2016-17

Table A6 - OLS regression of monthly wages, Angola

Dependent variable: log of monthly wages (Kz)

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