

Evaluation of labor market supply and demand in Timor-Leste

Literature review findings report prepared for the
Millennium Challenge Corporation

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Acronyms and abbreviations

BAS	Business Activity Surveys
EESE	Enabling Environment for Sustainable Enterprises
ESS	Enterprise and Skills Survey
GDP	Gross Domestic Product
GOTL	Government of Timor-Leste
INDMO	National Labour Force Development Institute
ILO	International Labour Organization
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification of All Economic Activities
IT	Information Technology
LF	Labor Force
LFPR	Labor Force Participation Rate
LFS	Labor Force Survey
LMI	Lower Middle Income
NEET	Not in Education, Employment, or Training
NGO	Non-government Organization
SEPFOPE	Secretary of State for Vocational Training Policy and Employment
TLDHS	Timor-Leste Demographic and Health Survey
TLCLS	Timor-Leste Survey of Living Standards
TVET	Technical and Vocational, Education and Training
USD	United States Dollars
WDI	World Development Indicators
WEF	World Economic Forum

Definitions

LFPR	Labor force participation rate (LFPR) = Number of employed and unemployed persons as a share of the total population ages 15 and over
NEET %	The share of young people who are not in employment, education, or training (NEET), as a percentage of the total number of young people in the corresponding age group. NEET youth can be either unemployed or inactive and not involved in education or training.
Youth	Persons ages 15 – 24 years old
Young population	Persons aged 15 – 29 years old
Unemployed	Not working and actively seeking employment

1.0 Project overview

1.1 Project purpose/objectives

The goal of this analysis is to assess the demand for and supply of skilled labor in the economy and the nature of that demand to develop a clear understanding of how shortages in either skills, jobs, or both affect the amount of high-skilled labor available in Timor-Leste.

2.0 Findings overview – Is there a supply-demand labor gap in Timor-Leste?

In general, there appears to currently be a supply-demand labor gap in Timor-Leste, resulting from a number of factors driven by the overall level of economic activity (employer- and industry-driven demand) and the skills and workforce readiness of Timor-Leste's population (worker supply). This section outlines some of the key findings and areas where further investigation is likely required to disentangle the underlying drivers behind observed trends.

Economic factors driving employer demand

- **Timor-Leste is transforming from low-productivity agriculture to an industrial and service-based economy, yet employment growth is concentrated in construction.** The non-oil economy of Timor-Leste has experienced recent growth driven by the construction and trade sectors, much of which has been driven by public infrastructure projects, rather than manufacturing. Construction employment grew by 16% between 2010 and 2015 to more than one third of the overall employment in Timor-Leste. For this industry, labor market issues are likely to be demand-related. The significant role of public spending in the sector's growth also suggests this trend may be temporary.
- **Timor-Leste is still in the early stages of structural change.**¹ While the GDP share from agriculture has fallen over time (from 29% of non-oil GDP in 2000 to 17% in 2016), nearly 30% of the working-age population is still engaged in agriculture, according to the most recent census.² This indicates that there may be additional workers available as people continue to move away from agriculture into other types of employment. However, these workers may be older and less skilled, with lower levels of educational attainment. A larger share of employed women are working in agriculture, compared to men (46% vs. 38%). Structural shifts away from agriculture may, therefore, have a greater impact on working women.
- **Hiring of foreign workers in 2015 was concentrated in construction and other non-technical positions.** The largest number of foreign workers hired was in the construction sector, with 862 bricklayers and related employees hired in 2015. Given the rapid growth of the construction sector, this is an intuitive result that suggests a large portion of 2015 foreign hiring was driven by a demand issue (rapid construction employment growth) rather than a supply issue (quality or quantity of workers).
- **Non-construction sectors have not grown rapidly, suggesting labor issues experienced in these sectors are more likely labor quality issues.** Within accommodation and finance, employment declined between 2010- and 2015. Other sectors had moderate annual employment growth rates that only slightly exceed the

¹ International Labour Organization, "Structural Transformations and Jobs in Timor-Leste," 2016.

² Timor-Leste 2015 Census, "Timor-Leste National Accounts," 2016.

population growth rate. In 2016, the manufacturing sector contributed less than 1% of national GDP.³

- **The number of jobs added each year is less than the number of potential new workforce entrants.** As reported in the 2017 Enterprise and Skills Survey (ESS-2017), the private sector added 4,000 jobs between 2016 and 2017. Based on the 2015 Census, an average of 30,000 Timorese will enter the working-age population each year over the next decade (without accounting for migration). Assuming a labor force participation rate of 40% (based on recent WDI reports), there will be 12,000 new entrants to the labor market each year. Just considering these figures, there does not seem to be enough current development in the economy to increase labor force participation rates or prevent youth unemployment, even before considering retirements and labor market exits.⁴

Changing population behavior

- **The labor force participation rate (LFPR) in Timor-Leste remains low.** In 2017, only 39% of the working-age population in Timor-Leste was in the labor force, compared to 58% for lower middle income countries (WDI, 2017) in the region. The LFPR has increased over the past decade but low participation rates for women and economic idleness for youth (neither in the labor force nor in education) continue to drive this result.
- **High unemployment rate for educated youth raises questions regarding high returns to higher education.** Within the youth population segment, the unemployment rate rises with the level of education. While this finding does not superficially support the thesis that there are outsized returns to higher education, it may be a selection issue since those who pursue higher education are more discriminating about accepting employment and less likely to be a dependent due to their age (e.g. tertiary graduates of 20+yrs old as opposed to 15-18 years old for pre-secondary completion). Given the implications for understanding the returns to higher education, more investigation of this result is required.
- **The 2013 Labor Force Survey (LFS) shows a declining share of the population enrolled in school, suggesting competing employment opportunities or low perceived returns to education.** The Labor Force Surveys⁵ show the overall share of working age population enrolled in school declined from 24.2% to 22.7% between 2010 and 2013. While the absolute number of enrolled students in this period grew, the growth was slower than the growth in working age population. This result and the hypothesis contained in the Survey deserves further investigation since it suggests perceived low returns to further educational attainment.

³ Timor-Leste 2015 Census, "Timor-Leste National Accounts," 2016.

⁴ Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

⁵ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

- In the 2007 Timor-Leste survey of Living Standards (TLSLS-2007), the share of youth citing work as the reason for never attending school declined from 30% in 2001 to 6% in 2007, while the share citing “no interest” increased from 37% to 49%. This change seems counter to other data reviewed by this study. Detailed information from the TLSLS-2014 and revised TLSLS-2007 is needed to assess whether this trend continued in the most recent survey.
- **The 2013 Labor Force Survey (LFS) finding of secondary education with higher monthly earnings on average than those with a tertiary education is driven by outliers.** An independent analysis of the LFS 2013 survey data performed by EY shows that this abnormality in the wage differential between secondary and higher level education is driven by outliers that exist in the earnings data. When ten outlier observations are removed, the analysis shows that the workers with secondary education make 40% less on average compared to the workers with tertiary education.

Changing employer needs

- **The literature consistently finds employer-reported skills gaps.** The ILO 2016 EESE Survey found that nearly 60% of respondents reported a minor deficit in worker skills demanded by businesses in Timor-Leste. Only 22% of respondents indicated that workers generally have the required skills. Consistent with other studies, the most commonly-cited challenges related to staff included work ethic (60%), technical skills (51%), language skills (44%), and a lack of desire to learn (37%).⁶
- **The Timor-Leste Labor Market Outlook supports the finding that the labor demand-supply ratio varies significantly across types of vocational training and other skills.** A recent analysis comparing supply of vocational graduates in Timor-Leste to job postings identified relative balance of postings vs job seekers in the administrative management and public administration area. Other sectors that offered training programs (like construction and hospitality) exhibited a greater number of job postings in excess of demand – and these graduates were generally able to find jobs more quickly in the Tracer Study.⁷
- **Employers engage in less training than would be expected given stated employee skill gaps.** The share of employers recruiting from vocational programs is low and employers rarely sponsor training of their employees.
 - **Employers infrequently recruit from technical and vocational (TVET) programs.** Only 12% of employers recruit from TVET programs, potentially due to a lack of information or a perceived lack of value in the training received through these programs. Construction and masonry are the most common

⁶ International Labour Office, Geneva, "The Enabling Environment for Sustainable Enterprises in Timor-Leste," 2016, p60.

⁷ Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018, p12.

technical/vocational skills sourced from a TVET program, accounting for 55% of total TVET recruitment.

- **Employer-sponsored training programs are not prevalent but tend to be concentrated in specific skill areas.** While only 10% of businesses responded that they finance internal or external employee training courses, those companies that do finance training most frequently provide IT, management, and accounting courses, in addition to basic courses to familiarize new employees with business operations.⁸
- **Employment of foreign nationals was concentrated in higher-wage craft/trade, managerial and professional roles.** High-wage positions are generally the most likely to employ foreign workers and despite recent improvements in school enrollment, educational attainment, and literacy, the pool of experienced managers is likely small. There have been some indications that the share of management positions occupied by foreign workers has been in decline, which would lend support to the hypothesis that new graduates and workforce entrants could be expected to eventually replace the need for foreign workers in management positions, as they gain work experience. However, significant variations in the data describing the share of foreign workers across years and across studies raise questions about its quality.

Outstanding questions on skills gaps

- **Improving literacy rates may obscure true proficiency deficits and mismatches between language spoken and language demanded.** The ESS-2016 and 2017 found that oral communication skills and knowledge of a foreign language were among the most-frequently-cited employee skill limitations. While literacy is generally increasing in Timor-Leste, students still may not have working literacy in the languages requested by businesses (English and Korean in addition to Portuguese and Indonesian).⁹ The two official languages of Timor-Leste are Portuguese and Tetum. The new national curriculum recently formalized the use of Tetum Dili as the official language of instruction, after the 2008 Education Act legalized Portuguese and Tetun as the official languages of education.¹⁰ However, Portuguese is spoken by less than 10% of the population and two additional languages (Indonesian and English) are also accepted as working languages in Timor-Leste.¹¹ If students are not learning communication skills in the primary language of business, then the learned skills may not transfer beyond the classroom. Additional analysis of language proficiency of work visa applicants will be useful.

⁸ SEPFPOPE, "Enterprise and Skills Survey (ESS) 2016," 2016.

⁹ International Labour Organization, "Structural Transformations and Jobs in Timor-Leste," 2016.

¹⁰ "Lessons Learned from an Early Assessment (2017) of Two Innovations in Basic Education in Timor-Leste."

¹¹ International Labour Office, Geneva, "The Enabling Environment for Sustainable Enterprises in Timor-Leste," 2016, p34.

- **Certain skilled occupations are hard to fill, but small in number.** In general, occupations requiring greater skills such as accounting, engineers, plant operators, and mechanics are reported as “hard-to-fill” positions, but there are relatively few positions open in these areas (low vacancy ratio).¹² Job openings for less skilled occupations such as civil construction laborers and retail sales assistants are approximately 10 times more prevalent than the more skilled occupations, but employers report these positions as being easier to fill. Employers hiring for construction positions understand how to access TVET resources and certain skills may be relatively easy to train on the job. Further, the jobs with the highest vacancy ratios are generally in construction trades, which reflect the significant increase in demand. Positions with lower vacancy ratios but reported as hard-to-fill could indicate that employers are more selective in hiring for these positions or are unable to find employees that meet the qualifications. The Enterprise and Skills Survey, which is the source for this information, included questions asking employers why certain positions are hard to fill. In the ESS 2016, approximately half of employers reporting hard-to-fill positions responded to the question citing the reason why they were struggling to hire these roles (11 out of 20 firms). The majority of firms answered that positions were hard to fill because of too much competition from other employers, which is consistent with the types of jobs that were cited as hardest to fill in that year’s survey (civil engineering laborers, cooks, and motor vehicle mechanics) and the overall economic growth trends. This question was not asked in the ESS 2017.
- **Vocational graduates with administrative training require longer to be hired than their automotive or construction counterparts.** While this finding is based on a limited sample of vocational training recipients surveyed in the recent SEPFOPE Tracer Study, it reveals possible differences in the balance of supply and demand for these skills. The study reports on outcomes after participating in training programs, showing that over half of graduates from administration programs in the study took more than six months to find a job after graduating, while automotive program graduates generally had the shortest wait – with the median graduate finding a job within 2 months. For graduates from hospitality and construction programs, the median was 3-4 months.¹³

¹² In the ESS 2016, 20 of 233 employers (9%) responded that certain roles were hard to fill. In the 2017 survey, 44 out of 210 companies (21%) answered that they struggled to fill certain positions.

¹³ SEPFOPE, “Tracer Study SEPFOPE, Timor Leste 2015,”2015, p20.

3.0 Understanding worker labor supply in Timor-Leste

3.1 Who participates in the Timor-Leste labor force?

While Timor-Leste has been experiencing fairly rapid population growth over the past decade and the beginnings of structural transformation, as workers shift into non-agricultural sectors, its labor force continues to be marked by low labor force participation (particularly among women) and high rates of idle youth (neither in employment nor education).

Further to this, employment in the non-oil sectors have generally not kept pace with the number of new entrants to the labor market, which has resulted in increased unemployment. Increased literacy and educational attainment within the population may not have the desired impact on youth labor force participation if new graduates are unable to find employment and become discouraged, thus leaving the formal labor market and remaining underemployed in subsistence agriculture or elementary occupations.¹⁴

According to the most recent WDI estimates, less than 40% of Timor-Leste's working-age population was employed or currently looking for work – a significantly lower labor force participation rate (LFPR) than comparison countries in the region (68%) and at a similar income level (57% for Lower Middle Income countries, worldwide).

This is, in part, driven by a particularly low participation rate for women. Only one in four working-age women participate in the labor force, compared to over half of all men (52%). While a gender disparity is also observed within the region and income class, the participation rate for women in Timor-Leste falls well below the comparison aggregates. While the male LFPR is fairly consistent across the comparison aggregates (75-78%), there is more variation for women. The worldwide average is 49%, with a nearly 60% LFPR for women in South Asia & Pacific countries. Lower Middle Income countries have the lowest average female participation rate at 37%, which is still 50% higher than the rate in Timor-Leste.

Timor-Leste also has a relative low youth labor force participation rate at 13%. This is less than half of the average youth participation rates for other LMI countries (38%) and countries in South Asia and the Pacific (48%). Nearly a quarter of this age group are economically idle (neither employed nor in school also known as NEET).¹⁵ NEET rates for young persons (under 30) increase by age, as students leave school. The LFS-2013 found that this rate fell for young persons in their upper 20s since 2010.

¹⁴ This report considered employment and population data from a variety of sources, including the Timor-Leste Economic and Housing Census (census) from 2004, 2007, and 2015, Labour Force Surveys (LFS) from 2010 and 2013, Business Activity Surveys (BAS), Enterprise and Skills Surveys (ESS), and World Bank World Development Indicators (WDI), which include projections modeled by the International Labour Organization (ILO). This section discusses general trends and areas where the data does not align.

¹⁵ International Labour Organization, "Structural Transformations and Jobs in Timor-Leste," 2016.

Table 1. Population and labor force, Timor-Leste, East Asia & Pacific, and World
Data for 2017, or latest comparable year as noted

	Timor-Leste	Lower Middle Income	East Asia & Pacific	World
Population growth (2005-17 avg. annual rate)				
Total population	2.0%	1.5%	0.7%	1.2%
Working-age population (Ages 15-64)	2.7%	1.9%	0.7%	1.3%
Labor Force Participation				
Labor force participation rate (LFPR), 2017	38.8	57.6	68.0	61.9
Unemployment rate	3.4	4.5	4.1	5.5
Female, % of LF	31.7	32.0	43.2	39.3
LFPR, by gender				
Male (% of male LF)	52.3	77.6	76.6	75.2
Female (% of female LF)	24.9	37.3	59.2	48.7
Youth indicators (ages 15-24)				
Youth LFPR	13.0	37.6	47.5	43.2
Youth unemployment rate	11.6	12.4	10.3	13.6
Literacy Rate, 15+ (2010)	58.3%	72.7%	95.1%	84.6%

Source: World Bank, World Development Indicators (WDI), 2018.

Note on the comparability of data sources

The analysis compared reported labor force statistics from the Timor-Leste 2015 Census, the World Bank WDI, and the 2013 Timor-Leste LFS. This report includes values from each of these sources even though they are not directly comparable because they illustrate the impact of different aspects of Timor-Leste's economy, particularly those engaged in agriculture.

For example, the overall labor force participation rate from Census is 56.1%, but the same indicator from WDI and the LFS-2013 is 39.2% and 30.6%. The analysis found that the higher reported LFPR in the Timor-Leste 2015 Census relates to the inclusion of the country's approximately 180,000 subsistence foodstuff producers as formally employed.

In 2013, ILO adopted a revised methodology for calculating the labor force, which excluded persons engaged in subsistence farming who, to that point, had been counted in the employed population.¹⁶ While using this revised definition is necessary to be able to compare Timor-Leste to other benchmark countries, the Census results may better reflect the potential formal labor force, as those who are currently engaged in subsistence agriculture may look to switch to the formal economy with increased private sector employer demand.

Further, as more women than men are engaged in subsistence agriculture, this definitional change would have a greater impact on the reported labor force participation and employment

¹⁶ See: ILO, Resolution concerning statistics of work, employment and labour underutilization, adopted by the 19th International Conference of Labour Statisticians, ILO, Geneva (2013).

rates for women, compared to men. This is evidenced by the lower female share of the labor force reported by WDI and LFS-2013 (31% and 34%, respectively), compared to the Timor-Leste Census (41%).

While the WDI and LFS-2013 use the same employment definition, there may be some differences due to timing, sampling approach, and other factors. We have presented results from both surveys – WDI for comparability to other countries, and LFS-2013 for its detailed assessment of the Timor-Leste labor market. While the two sources do not report exactly the same values, they generally result in the same conclusions.

Table 2. Comparison of data observations for Timor-Leste
Data for 2015, or latest comparable year

	Timor-Leste Census (2015) ¹⁷	World Bank WDI (ILO estimates for 2015)	Timor-Leste Labor Force Survey (2013) ¹⁸
Working-age population (15-64)	652,424	695,347	696,200
Total labor force	362,095	272,576	213,200
Total employed	343,175	263,581	189,800
Total unemployed	18,920	8,995	23,400
<i>Subsistence foodstuffs producers</i>			178,900
Labor force composition			
Labor force participation rate (LFPR)	NR	39.2%	30.6%
<i>LFPR including subsistence</i>	55.5%	NR	56.3%
Unemployment rate (% of LF)	5.2%	3.3%	11.0%
Female (% of LF)	41.0%	31.8%	34.2%
LFPR, by gender			
Male LFPR	65.0	52.9	39.7
Female LFPR	45.7	25.2	21.3
Youth			
Youth LFPR (15-24 years)	23.8	12.9	14.2
Youth unemployment	12.3	11.5	21.9

NR: Not Reported; Source: World Bank, World Development Indicators (WDI), 2018; Census 2015; TLS 2013

Another consideration is the mix of public- and private-sector employment. The Business Activity Surveys (BAS) and Enterprise and Skills Surveys (ESS) only consider:

All private non- financial businesses excluding those engaged in agricultural production, private financial businesses, public non-financial and financial businesses where more than 50 per cent of the revenue is generated from trading activities, and not-for-profit institutions earning more than 50 per cent of their revenue from trading activities. The survey excludes general government agencies

¹⁷ Timor-Leste Census, "Housing and Population Census," 2015.

¹⁸ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

(administration, education, health, etc.), and informal economic activities conducted by households.

The BAS and ESS generally estimate approximately 62,000 – 68,000 employees in the private, non-financial sectors. The BAS excludes oil-producing businesses and the public sector. According to the 2015 Timor-Leste census, there were nearly 37,000 public sector employees and 232,300 people working in the primary sectors (agriculture and mining).¹⁹

The BAS 2015 is comprised of a non-petroleum producing businesses from across the country, but mainly located in the major towns. It includes “all public and private financial enterprises (banks and insurance companies) as well as all public and private non-financial businesses, with a few major exceptions: general government agencies (administration, health, education, etc.), agricultural production and other informal economic activities conducted by households. Not- for profit institutions (NGOs, charities, churches etc.) were surveyed only if they earned more than 50 percent of their income in 2015 from trading activities.”²⁰

3.2 Sectoral employment and structural change

Changing composition of GDP. Between 2010 and 2013, the non-agricultural sector added approximately 36,000 jobs, which is three times more than the number of new agriculture jobs. While the employment share in the non-agricultural sector such as the wholesale and retail sector saw an increase in the percentage of employment, the employment share remained unchanged in the agricultural sector.²¹ From 2006 to 2013 the non-oil GDP share of agriculture (in real dollars) fell, relative to other sectors. The economy experienced significant growth in the construction sector and public administration.

The structural shift implies a change in the Timor-Leste economy. However, rapid structural transformations can lead to a mismatch of skills in the economy. For example, the demand for high-skilled labor required in the booming sector would increase, while the skills that were once necessary for the agricultural sector would become irrelevant.

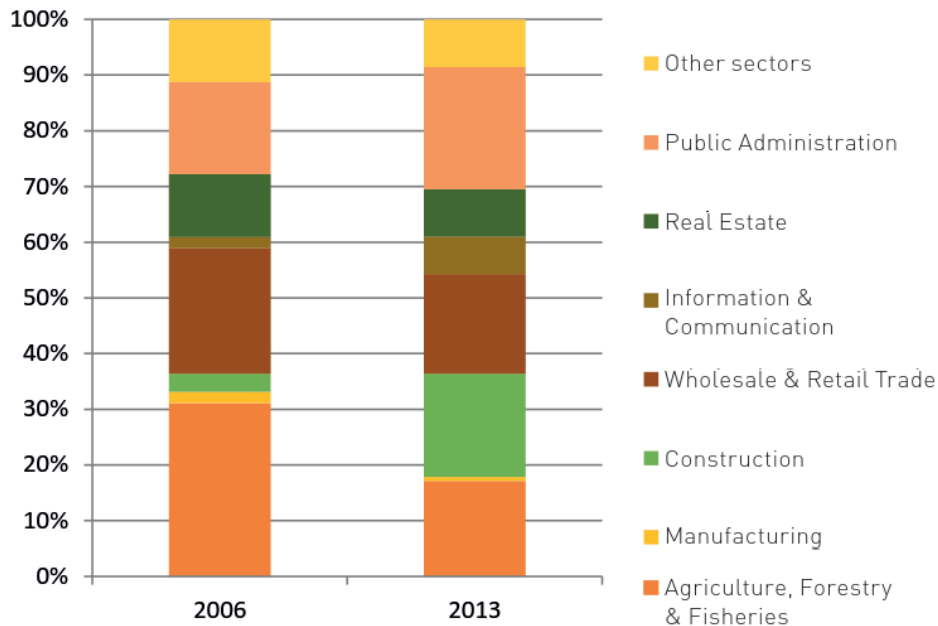
This changing segment mix may have a differential effect on women, compared to men. The LFS-2013 reports that 46% of employed women were in agriculture in 2013, compared to 38% of employed men. As the economy shifts away from the agricultural sector, women may need to seek jobs in other fields.

¹⁹ Note that the Timor-Leste Census includes subsistence farmers in the agricultural sector.

²⁰ General Directorate of Statistics, "Business Activity Survey 2015," 2015.

²¹ International Labour Organization, "Structural Transformations and Jobs in Timor-Leste," 2016.

Table 3. Value added to non-oil GDP by sectors in percent terms
Constant USD



Source: Calculated and reported by ILO based on data from the national accounts from Timor-Leste GDS, 2015.

Private sector. Overall, private, non-oil producing employment in Timor-Leste grew 36% from 2010 through 2015 – adding 16,900 jobs over the period and averaging 3,380 new jobs each year.²²

This growth was driven by a more than doubling of the construction sector and a 40% increase in trade. The construction sector grew at an annual rate of 7% between 2010 and 2015. However, this dominance in the construction sector could be somewhat problematic for the Timorese economy. Construction work is driving job growth, however, this growth is tied closely to public spending and is producing seasonal workers rather than permanent employment opportunities. This temporary nature of the construction sector combined with its relative size in the economy leaves a significant proportion of workers vulnerable.

The BAS has found that the manufacturing sector has shown some limited growth, adding 300 employees from 2010 to 2015 but only making up 5% of private-sector employment in 2015 (2,900 employees). While the ESS-2017 estimated a significant expansion in manufacturing employment, relative to the ESS-2016 and BAS, it is important to note that the manufacturing sector only accounts for a small proportion of the total employment. This indicates that the industry is still in its infant stage despite seeing an increasing trend in the recent years, and Timor-Leste has a long way to go. It is also important that the structural transformation in many

²² General Directorate of Statistics, "Business Activity Survey 2015," 2015.

developed and developing countries in Asia is led by the job creation in the manufacturing sector. In general, the manufacturing industry has historically played a vital role in economic transition. The fact that Timor-Leste has not yet made a substantial leap in creating jobs in the manufacturing sector could be troublesome.²³

Table 4. Total employment - non-oil producing businesses

	2010	2011	2012	2013	2014	2015	Annual growth rate	2015 share
Total	46,400	56,500	61,500	59,100	61,200	63,300	6%	100%
Dili	39,200	48,100	51,300	49,000	51,200	52,000	6%	83%
Municipalities	7,200	8,300	10,300	10,100	10,100	10,600	8%	17%
By gender								
Male	32,400	41,600	45,500	44,200	46,100	48,000	8%	76%
Female	14,000	14,900	16,100	14,900	15,100	15,300	2%	24%
Total								
Manufacturing	2,600	2,300	2,700	2,500	2,800	2,900	2%	5%
Construction	10,000	16,600	16,800	16,900	19,700	21,300	16%	34%
Retail and Wholesale Trade	12,800	18,300	21,100	18,600	17,800	17,900	7%	28%
Transportation and Storage	900	700	1,200	1,000	1,000	1,000	2%	2%
Accommodation & Food Services	6,300	6,300	6,500	5,300	5,000	5,300	-3%	8%
Financial and Insurance	700	500	500	600	600	600	-3%	1%
Other industries	14,000	12,500	13,900	12,900	13,000	14,300	0%	23%

Source: Business Activity Survey 2015, Statistics Timor-Leste

3.3 How has structural change affected labor force participation?

The LFS found that labor force participation has risen since 2010, as well as the unemployment rate (Figure 1). This indicates that although more people are actively seeking jobs, many are unable to find employment.

The Timor-Leste census shows an increasing LFPR, but falling unemployment rate. This is likely due to the census' treatment of subsistence farming as employment (approximately 180,000 people).

This section excludes a discussion of the World Bank WDI modeled estimates of labor force participation and unemployment in Timor-Leste due to a lack of comparability with other findings. WDI's modeled estimates indicate that both labor force participation rate and unemployment rate have been declining slowly over time, counter to both the LFS and census reports. Based on an initial review, it seems this is primarily driven by a strong population forecast. More research would be needed to understand which data observation years are driving the WDI forecast models, which were produced by ILO.

²³ General Directorate of Statistics, "Business Activity Survey 2015," 2015, P15.

Figure 1. Labor force participation and unemployment in rural and urban areas

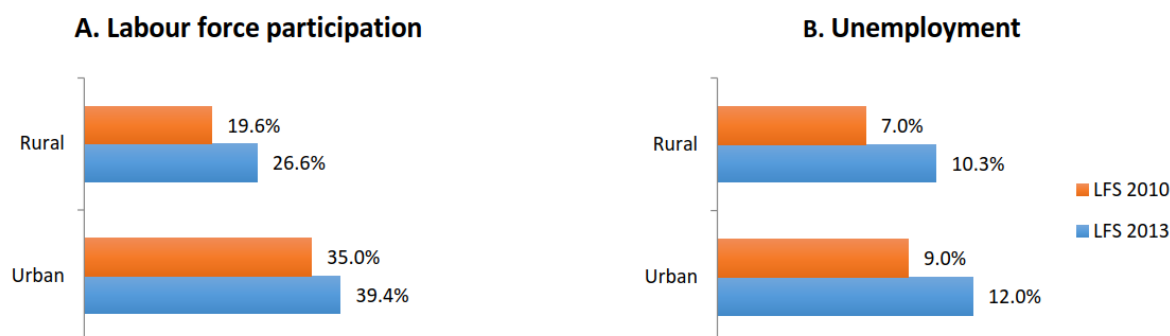


Table 5. Comparison of LFPR and Unemployment rates, 2010 and 2013

	Timor-Leste Census (2015) ²⁴	Timor-Leste Labor Force Survey (2013) ²⁵
	Including subsistence agriculture	Revised definition excluding subsistence agriculture
LFPR (15+)		
2010	46.4	24.0
2013*	56.1	30.6
Unemployment rate		
2010	10.4	7.8
2013*	5.2	11.0

*Data shown for 2013 from the Timor-Leste Census is for 2015.

3.4 What does the youth labor force indicate about the future of the labor market?

From 2010 to 2013, the number of youth ages 15-24 engaged in subsistence farming fell by nearly 30%, compared to a 9% reduction for adults over 25.²⁶ The share of the youth population engaged in subsistence farming fell six percentage points – from 20% in 2010 to 14% in 2013.

Correspondingly, the youth labor force participation rate increased from 8.5% to 14.2% over three years and youth school enrollment and educational attainment has been increasing. Still, many youth remained unemployed or out of the labor force, not pursuing education.

This section reviews the recent studies and report findings as they relate to youth in Timor-Leste, and what this may mean for the future of worker skills and availability in the country over the coming decade.

²⁴ Timor-Leste Census, "Housing and Population Census", 2015. Note: Census collect population aged ten years older.

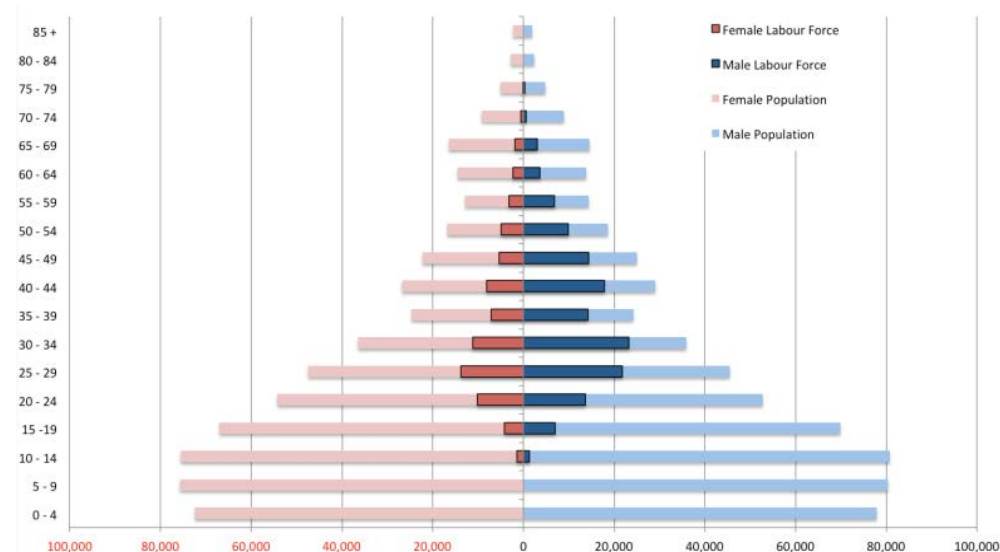
²⁵ International Labour Organization, "Structural Transformations and Jobs in Timor-Leste," 2016.

²⁶ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

3.4.1 Youth unemployment

Based on the 2015 Census, an average of 30,000 Timorese will enter the working-age population each year over the next decade (without accounting for migration). Assuming the current labor force participation rate of 40%, there will be 12,000 new entrants to the labor market each year. As reported in the 2017 Enterprise and Skills Survey (ESS-2017), the private sector added 4,000 jobs between 2016 and 2017. Just considering these figures, there does not seem to be enough current development in the economy to increase labor force participation rates or prevent youth unemployment.²⁷

Figure 2. Population pyramid showing labor force, 2015²⁸



Source: Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

The 2015 Census found higher rates of youth unemployment for those with university degrees, compared to the overall rate for all youth (ages 15-24). There are a number of potential explanations for this finding related to income, age, education quality, skills/degree match to labor market, and others. This finding should be investigated further to fully understand the drivers behind higher unemployment for more educated workers. While it may appear that youth unemployment rates are lower for those with less education/who are illiterate, this may not be the best outcome for Timor-Leste, as these workers may be employed in less-productive activities (subsistence farming is included as employment in the TL Census) or not be actively looking for work (out of the labor force).

Further analysis of the youth unemployment rates would be necessary to distinguish education effects from age effects within the youth population. Youth with university diplomas may be older, on average, which may reflect the desire to be formally employed and no longer in school

²⁷ Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

²⁸ *ibid.*

as one gets older while 15 year olds are perhaps working for parents, or otherwise not in need of formal employment as much as older people.

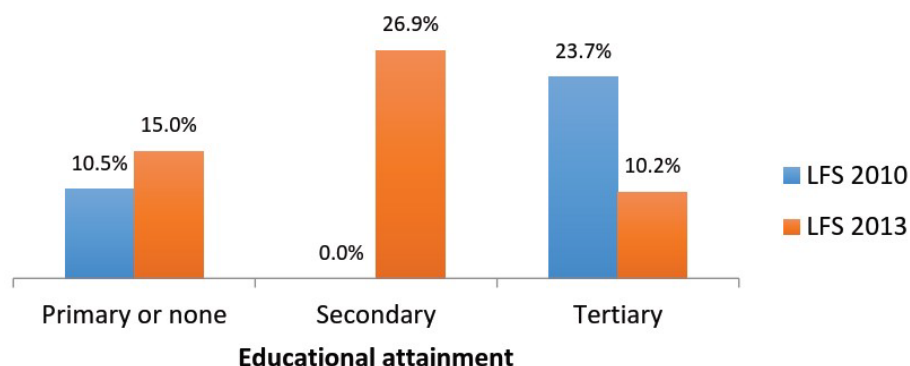
Table 6. Youth unemployment rate, by educational attainment, 2015

Unemployment rate, Youth (ages 15-24)	12.3%
Unemployment rate, Youth with secondary education	18.1%
Unemployment rate, Youth with University diploma	20.0%

Source: Timor-Leste Population and Housing Census 2015 *Analytical Report on Education*, 2017.

The census results conflict with the findings from the 2013 LFS, which found the highest rates of unemployment for those with secondary education and a declining youth unemployment rate for those with university degrees. It should be noted that the LFS includes persons ages 25-29 in the reported “young population” unemployment rates, by educational attainment. This is likely a better indication of the true unemployment rate for tertiary/university graduates, who have had sufficient time to find employment after graduation. It appears that there was a change in reporting between the 2010 and 2013 LFS for secondary and tertiary education. This raises questions on the validity of the comparison between the two surveys.

Figure 3. Young population (ages 15-29) unemployment rate, 2010-2013



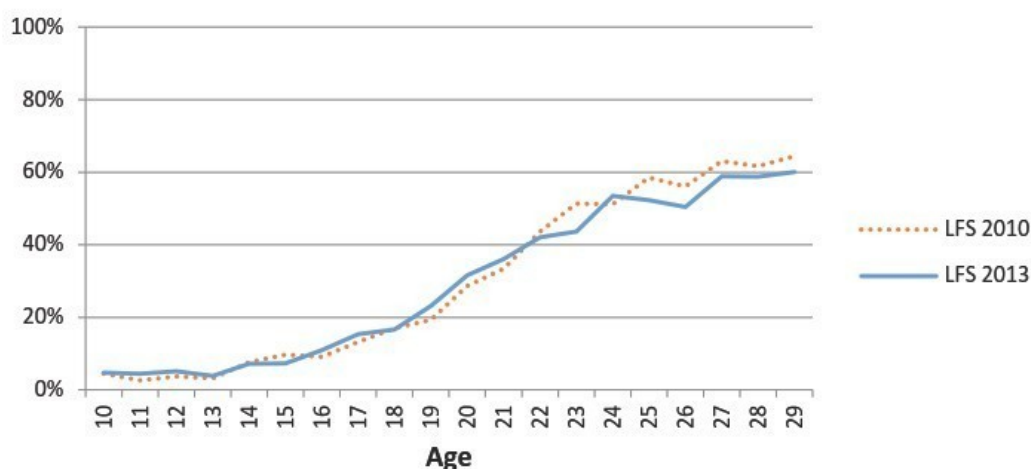
Source: ILO, LFS-2013.

3.4.2 Idle youth

An important consideration when assessing youth labor force participation is also participation in education and training. The rate of youth neither in employment, nor in education or training (NEET) is a better indication of the youth labor force participation, because it represents the share of youth that are economically idle (including those who are unemployed and those who are not seeking employment), accounting for those who are not working because they are still pursuing education.

The LFS-2013 analyzes NEET for persons ages 15-29 as an expanded definition for “young persons,” which includes youth ages 15-24 plus young adults ages 25-29. In 2013, 60% of youth in their upper-20s were economically idle, with the majority engaged in subsistence farming. As shown in Figure 4, the rate of economic inactivity (NEET) fell somewhat for those over 21 over the three-year period between studies.

Figure 4. Youth neither in employment, nor in education or training (NEET)



Source: ILO, *Timor-Leste Labour Force Surveys 2010 and 2013*

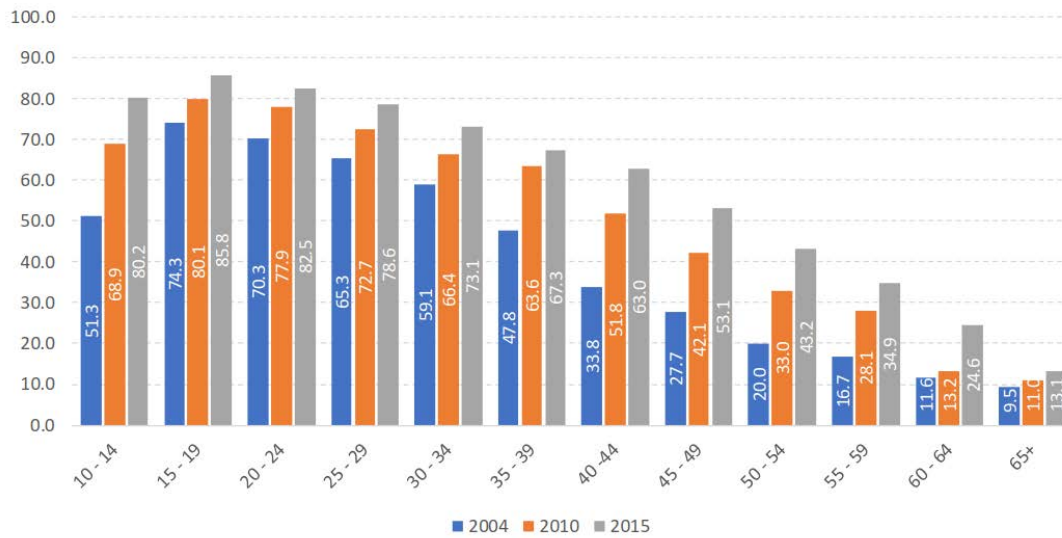
3.4.3 Youth literacy and educational attainment

Literacy is strongly connected to labor force participation – 17.2% of literate youth are NEET versus 36.6% of illiterate youth.²⁹ Overall, literacy has been rapidly increasing in Timor-Leste over the past decade, as higher historical youth literacy rates age through the population. As reported in the 2015 Census, literacy rates have increased across all ages, relative to 2010.³⁰ Observed literacy rate differentials were particularly high for the youngest age cohort (10-14), which could indicate longer school enrollment and higher future educational attainment rates.

²⁹ Timor-Leste Population and Housing Census 2015, "Analytical Report on Education," 2017, p80.

³⁰ United Nations, *Principles and Recommendations for Population and Housing Census* (2008). A literate person is defined as someone who can both read and write, with understanding, a short simple statement on his/her everyday life. In this report, literacy is measured for any one of the four working languages in Timor-Leste: Tetun, Portuguese, Bahasa Indonesia and English.

Figure 5. Literacy levels, by age group, 2004-2015³¹



Source: Timor-Leste Population and Housing Census 2015, "Analytical Report on Education," 2017.

Besides the improving literacy rate, overall educational attainment is increasing. Comparing the results from the LFS 2010 and 2103, there was a shift in the overall distribution from primary-level education to higher levels. Post-primary categories gained 11 percentage points in share (from 36% to 47%), while primary lost 9 percentage points in overall share (from 21% to 11%).

The 2015 Census reports educational attainment similar to the LFS for the population share with post-secondary education, but reports nearly 60% of the population with no education or partial primary education, compared to 42% for the same categories in the LFS-2013. The notes to the educational attainment findings reported in the 2015 Timor-Leste census indicate that the quality of the information for this question is ambiguous and is inconsistent with other findings due to question complexity and other factors.³²

Table 7. Education attainment of working age population, 2010-2013³³

	2010	2013	Abs. Change	% change
None/Pre-primary	273,330	292,493	19,163	7%
Primary	130,714	79,063	-51,651	-40%
Pre-secondary	95,048	115,903	20,855	22%
Secondary	108,589	156,778	48,189	44%
Post-Secondary	20,663	52,018	31,355	152%

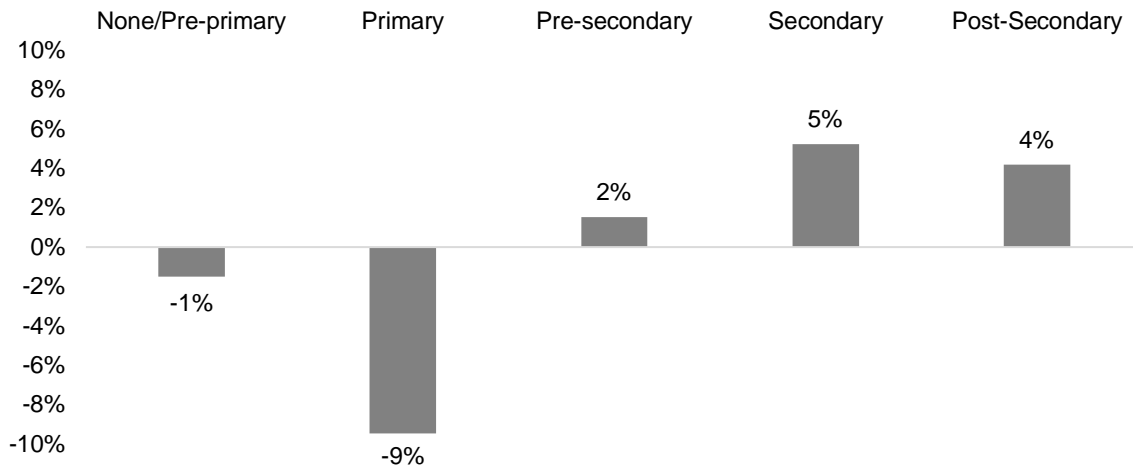
Source: Timor-Leste Population and Housing Census 2015

³¹ Timor-Leste Population and Housing Census 2015, "Analytical Report on Education," 2017.

³² Timor-Leste Population and Housing Census 2015, "Analytical Report on Education," 2017, p62.

³³ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

Figure 6. Change in distribution shares of working-age population by educational attainment, 2010-2013³⁴



Source: Timor-Leste Labour Force Survey (LFS) 2013

Absolute school attendance in Timor-Leste increased from 151,800 persons in 2010 to 157,700 in 2013, but the relative enrollment rate fell slightly over the period from 24.2% to 22.7%. The LFS suggested that this finding could indicate that people are choosing to forego schooling either in favor of new work opportunities or because of a perceived lack of return to schooling.³⁵ Further analysis is needed to distinguish this impact from an age and population growth effect.

3.5 Women in the labor force

From 2010 to 2013, the number of women engaged in subsistence farming fell by 18%, compared to a 9% reduction for men.³⁶ The share of the female population engaged in subsistence farming fell eight percentage points – from 32% in 2010 to 24% in 2013.

Correspondingly, the female labor force participation rate increased from 14.5% to 21.3% over three years, with a slight overall decline in the female unemployment rate (although the absolute number of unemployed was higher).

This section reviews the recent studies and report findings as they relate to women in Timor-Leste, and what this may mean for the future of worker skills and availability in the country over the coming decade.

³⁴ General Directorate of Statistics and SEPOPE, "Timor-Leste Labour Force Survey (LFS) 2013."

³⁵ *ibid.*

³⁶ *ibid.*

3.5.1 Trends in female labor force participation and activity

Historically, women in Timor-Leste are over-represented in informal employment, agriculture, and as own-account workers, but there are some signs that this may be changing.³⁷ From 2010 to 2013, more than 17,000 women in Timor-Leste moved out of subsistence agriculture and nearly 28,000 women joined the labor force. The number of employed women grew by 25,481 – compared to 25,162 for men. In relative terms, female employment grew twice as fast as male employment over the period, narrowing the gap somewhat but not reaching parity.³⁸

WDI show a similar structural trend away from employment in agriculture toward services, particularly for women. These differential growth rates indicate significantly better labor market outcomes for women over the period and could signal continued expansion in women's participation and a move closer to gender parity. However, social and cultural norms and health outcomes could impact this trend. Studies have cited difficulties for women in accessing productive employment due to household and childcare workloads and social gender norms and expectations.

Table 8. Main labor force indicators by gender, 2010-2013³⁹

	Male		Female		Abs. change (2013 vs. 2010)		Pct. change (2013 vs. 2010)	
	LFS-10	LFS-13	LFS-10	LFS-13	Male	Female	Male	Female
Working age population (15+)	317,592	353,593	310,812	342,663	36,001	31,851	11%	10%
Labor force	105,911	140,320	45,017	72,903	34,409	27,886	32%	62%
Employed	99,329	124,491	39,815	65,296	25,162	25,481	25%	64%
Unemployed	6,582	15,829	5,202	7,608	9,247	2,406	140%	46%
Outside the labor force	211,681	213,273	265,795	269,760	1,592	3,965	1%	1%
Subsistence foodstuff producers	107,793	98,279	98,501	80,644	-9,514	-17,857	-9%	-18%
LFPR	33.3%	39.7%	14.5%	21.3%	6.3 pt.	6.8 pt.	19%	47%
Employment-Population Ratio	31.3%	35.2%	12.8%	19.1%	3.9 pt.	6.2 pt.	13%	49%
Unemployment rate	6.2%	11.3%	11.6%	10.4%	5.1 pt.	-1.1 pt.	82%	-10%

Source: LFS 2010 and 2013

³⁷ Timor-Leste VI Constitutional Government. "National Employment Strategy 2017-2030: Productive Employment Shall Be a Central Means of Nation Building and Wealth Creation." June 2017.

³⁸ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

³⁹ *ibid.*

Table 9. Composition of employment, by gender and sector, 2010 & 2016⁴⁰

	Total		Male		Female	
	2010	2016	2010	2016	2010	2016
Share employed in:						
Agriculture	50.8	24.8	51.1	23.5	50.2	27.6
Industry	9.3	14.1	10.2	17.8	7.4	6.0
Services	39.9	61.1	38.7	58.7	42.5	66.3
Total, all sectors	100%	100%	100%	100%	100%	100%

Note: the industry sector consists of mining and quarrying, manufacturing, construction, and public utilities (electricity, gas, and water), in accordance with divisions 2-5 (ISIC 2) or categories C-F (ISIC 3) or categories B-F (ISIC 4).

Table 10. Employment, total vs. non-agriculture (thousands)

	Value			% of total	
	Female	Male	Total	Female	Male
Total employment	65.3	124.5	189.8	34%	66%
Non-Agriculture	35.3	77.6	112.9	31%	69%
Agriculture	30.0	46.9	76.9	39%	61%
<i>Agriculture % of total</i>	46%	38%	41%		

Source: ILO. Timor-Leste Labor Force Survey 2013; Informal employment and informal sector by sex, harmonized series.

3.5.2 Gender gap in educational attainment

The TL census also reports that the educational attainment gap for men and women with at least pre-secondary education has been shrinking over time. The difference in 2004 was 6 percentage points between men and women (17% vs. 11% with at least pre-secondary education). By 2015, this gap had narrowed to 1.3 percentage points, with overall shares increasing for both groups (29.5% for men; 28.2% for women).⁴¹

As more women become educated, they are more likely to enter the former labor force and the labor force participation rate differential between men and women may also diminish.

3.5.3 Health outcomes as they relate to education & labor force participation

According to the Timor-Leste Demographic and Health Survey (TLDHS), teenage mothers are more likely to experience adverse pregnancy outcomes and are more constrained in their ability to pursue educational opportunities than young women who delay childbearing.⁴¹ Age at first birth appears to be increasing compared with the 2009-10 TLDHS which reported 14% of

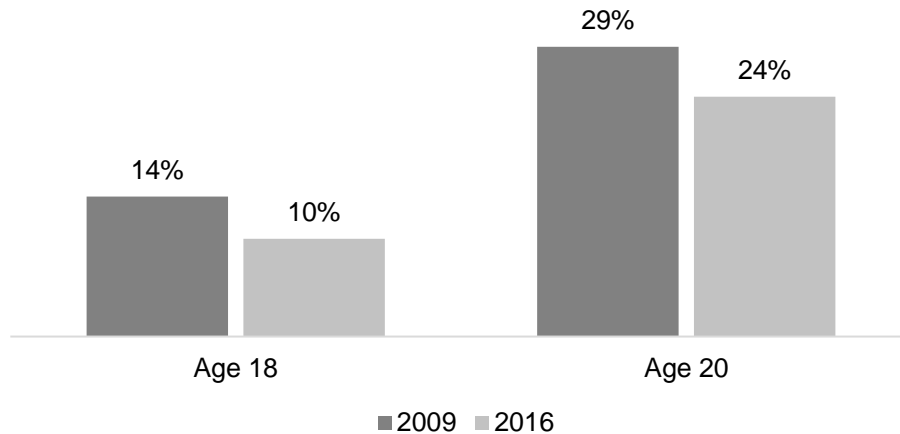
⁴⁰ WDI.

⁴¹ GDS and ICF, "Timor-Leste Demographic and Health Survey 2016 (2016 TLDHS)," 2017.

women wage 25-49 had given birth by age 18 (9.8% in 2016) an 29% by age 20 (24.0% in 2016).

Fertility rates also appear to be in decline – with 4.2 births per woman in 2016, compared to 7.8 in 2003.⁴² Declining fertility rate could also be a result of delayed childbearing and leave women with more time to pursue education or work opportunities.

Figure 7. Percentage of women who had given birth, by age, 2009 and 2016



Source: GDS and ICF, 2016 TLDHS.

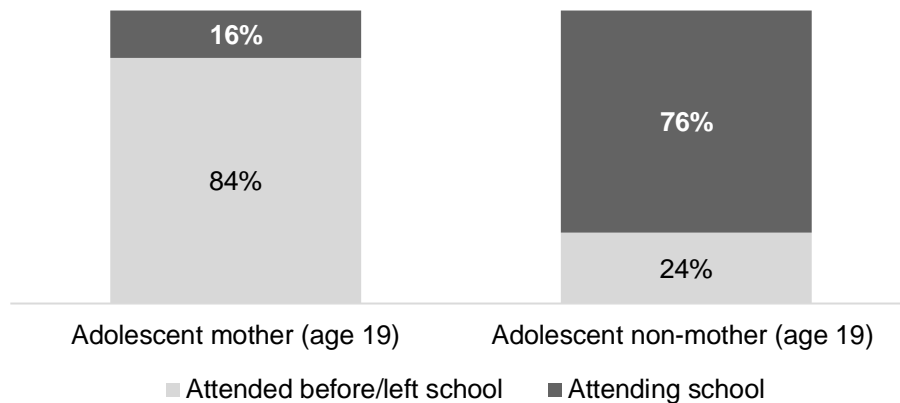
According to the *Analytical Report on Education*, “Many pregnant adolescent girls either drop out of school or are no longer allowed to continue their education.” The 2015 Census shows a clear trend that adolescent mothers (ages 15-19) are far less likely to be attending school compared to non-mothers of the same age.

Of those that ever attended school, the inverse relationship appears for current school attendance between mothers and non-mothers of the same age. For mothers age 19 at the time of the Census, 84% of those who had ever attended school had since left school, compared to 24% of women the same age who were not mothers.

⁴² *ibid.*

Figure 8. Percentage of adolescent girls by school attendance and whether they have given birth or not, 2015

Current attendance of 19-year-olds that have ever attended school



Source: Timor-Leste *Analytical Report on Education*, 2017.

3.6 Informal employment, informal sector employment and vulnerable employment

Evaluating trends in overall employment may be misleading due to the number of workers who work outside of the formal sector. In the 2013 Labor Force Survey (LFS-2013), 41% of workers were wage and salary employees – with only 15% of these employees working for formal sector enterprises (registered businesses). This is consistent with the number of wage and salary employees reported in the 2013 Enterprise and Skills Survey (ESS-2013), which estimated approximately 14,000 wage and salary employees of registered enterprises. Overall, this represents a small portion of the potential workforce, considering those who are currently in informal employment.

3.6.1 Informal employment

In 2013, 72% of employees in Timor-Leste would be considered in informal employment – totaling 136,600 workers. As defined in the LFS-2013, informal employment includes own-account workers and employers in informal sector enterprises (50%), contributing family workers (25%), and workers with no formal relationship with their employers – defined as those who do not benefit from paid sick or annual leave (25%).

Informal employment includes those employed in informal sector enterprises (generally, non-registered small or own-account businesses) as well as informal employees that do not receive sick or annual leave working at informal or formal enterprises.⁴³

Informal employment increased from 67.8% of total employment to 72.0% in 2013, with increases in the absolute number of informal employees across all categories. The largest

⁴³ LFS 2013.

percentage change was for workers in formal sector enterprises, which increased 6.4% from 2010 to 2013.⁴⁴

Employees with no paid sick leave and paid annual leave declines from 33.9% of the informal employment to 25.1%, but the total informal employment is increasing. This means that informal wage employment is increasing at a slower rate than informal employment.

Excluding agriculture, the informal employment rate was 54% in 2013, with only 39% of workers employed outside of the formal sector – see Table 12.⁴⁵

Table 11. Composition of informal employment, LFS 2010 - 2013⁴⁶

	Total		% of informal employment	
	LFS-10	LFS-13	LFS-10	LFS-13
Total employment	139,144	189,787		
Total informal employment (% of total employment)	94,280	136,600	67.8%	72.0%
Employees with no paid sick and paid annual leave	31,938	34,300	33.9%	25.1%
Employers of informal sector enterprises	1,109	2,500	1.2%	1.8%
Own-account workers in informal sector enterprises	39,430	65,900	41.8%	48.2%
Contributing family workers	21,803	33,900	23.1%	24.8%

Source: TL LFS-2013.

Table 12. Informal employment, non-agriculture (thousands)

	Total		Non-agriculture	
	2013	% of employment	2013	% of employment
Total employment	189.8	100%	112.9	100%
Informal sector employment				
Employment in the formal sector	71.3	38%	69.4	61%
Employment outside the formal sector	118.5	62%	43.5	39%
Informal employment				
Formal employment	53.9	28%	52.3	46%
Informal employment	135.9	72%	60.6	54%

Source: ILO. Timor-Leste Labor Force Survey 2013; Informal employment and informal sector by sex, harmonized series.

⁴⁴ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

⁴⁵ The harmonized series for informal employment and informal sector are derived using the same set of criteria across countries to improve comparability. The criteria used are based on employment status, institutional sector, destination of production, bookkeeping, registration, social security contribution, places of work and size.

⁴⁶ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

3.6.2 The demographics of informal employment

Overall, the LFS-2013 found that women were much more likely to be in informal employment – 76% of employed compared to a 70% informal employment rate for men. In 2013, 43% of women were classified as own-account workers.

The Timor-Leste EESE states that women often enter the informal economy as micro entrepreneurs. An estimated 43% of such enterprises are female-owned. The non-farm private sector is nearly completely made up of informal household activities.⁴⁷

The LFS-2013 reports that 46% of employed women were in agriculture in 2013, compared to 38% of employed men. See Table 13.

Table 13. Informal employment, non-agriculture (thousands)

	Value			% of employment		
	Female	Male	Total	Female	Male	Total
Total						
Total employment	65.3	124.5	189.8	34%	66%	100%
Informal sector employment	47.3	71.2	118.5	25%	38%	62%
Informal employment	49.9	86.0	135.9	26%	45%	72%
Non-Agriculture						
Total non-agriculture employment	35.3	77.6	112.9	19%	41%	59%
Informal sector employment	17.6	25.9	43.5	9%	14%	23%
Informal employment	20.2	40.4	60.6	11%	21%	32%

Source: ILO. Timor-Leste Labor Force Survey 2013; Informal employment and informal sector by sex, harmonized series.

Informal employment is split between informal employment in formal and informal sector enterprises. According to EESE, informal enterprises are nearly always household ventures.⁴⁸ Many Timorese try to work as self-employed in the informal sector to earn sufficient income. However, many end up accepting jobs as informal employment. For example, they might work as an apprentice, a temporary part-time employee, a casual worker without a contract, or a home-based producer.⁴⁹

Contributing family workers takes the second largest share of informal employment (24.8%). Despite that, 36% of the young people (15-24 years old) worked as contributing family workers, often combining schooling and work on the family farm or for the household enterprises. As age increases, the relative number of contributing family workers declines (Figure 9) and the relative number of employees increases. This is because young people leave school and enter the labor market as formal employment.⁵⁰

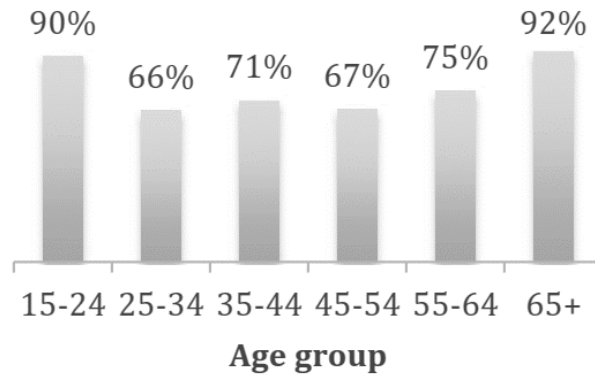
⁴⁷ International Labour Office, Geneva. "The Enabling Environment for Sustainable Enterprises in Timor-Leste." 2016.

⁴⁸ International Labour Office, Geneva. "The Enabling Environment for Sustainable Enterprises in Timor-Leste." 2016.

⁴⁹ General Directorate of Statistics and SEFPOPE, "Timor-Leste Labour Force Survey (LFS) 2013."

⁵⁰ *ibid.*

Figure 9. Informal Employment by age⁵¹



Source: LFS 2013

3.6.3 Vulnerable employment

Vulnerable employment is defined as the combined proportion of own-account workers and contributing family workers in total employment.⁵² Employees under such category are particularly vulnerable to both economic risk and strength of the institutional arrangement. They are more likely to: (1) lack job security; and (2) lack social security, health or unemployment coverage.⁵³

Over the three-year period, Table 14 shows that vulnerable employment is increasing faster than the total employment. It increased from 47.7% of total employment in 2010 to 54.5% in 2013.

LFS-2013 shows that more than half of the employment are vulnerable jobs (55%). The share of vulnerable employment in total employment was higher for women (69%) than for men (47%), and almost across all age groups.⁵⁴

Table 14. Employment status, LFS 2010 - 2013

Status in employment (ICSE-93)	LFS 2010	LFS 2013	LFS 2010	LFS 2013
			%	%
Total	139144	189787	100.0%	100.0%
Employee	68760	78972	49.4%	41.6%
Employer	3042	5191	2.2%	2.7%
Own-account worker	44635	69639	32.1%	36.7%
Contributing family worker	21749	33857	15.6%	17.8%
Member of a producer's cooperative	438	534	0.3%	0.3%
On military service	520	1337	0.4%	0.7%
Not classified, Blank	0	256	0.0%	0.1%

Source: LFS 2010 and LFS 2013

⁵¹ *ibid.*

⁵² ILO, "Guide to the new Millennium Development Goals Employment Indicators," 2009.

⁵³ General Directorate of Statistics and SEFPOPE, "Timor-Leste Labour Force Survey (LFS) 2013."

⁵⁴ General Directorate of Statistics and SEFPOPE, "Timor-Leste Labour Force Survey (LFS) 2013."

4.0 Understanding employer labor demand in Timor-Leste

This section discusses findings from recent employer and business activity surveys describing industry demand and employer experiences in Timor-Leste.

4.1 Skills and occupational demand from employers in Timor-Leste

In general, the literature has found two general types of supply-demand gaps:

- Job vacancies due to worker scarcity and rapid sector expansion
- Skills deficiencies resulting in lower worker productivity or reduced ability to fill jobs

Rapid expansion in the construction and trade sectors have led to increased hiring requirements and, as a result, an increased number of vacancies for construction-related jobs. In the ESS-2017, there were nearly 1,400 vacancies for building construction laborers, 230 open jobs for carpenters, and more than 100 openings for civil engineering laborers.⁵⁵

While enterprises are recruiting construction and masonry employees directly from TVET providers, it does not appear that these graduates fully meet the demand.

The most recent ESS found the following were the top skills in demand and hardest vacancies to fill:

- Civil engineering laborers (Construction sector)
- Shop sales assistants (Trade and repair services)
- Earthmoving and related plant operators (Construction sector)
- Other building workers (Construction sector)
- Shop keepers (Trade and repair services)
- Accounting and bookkeeping clerks
- Motor vehicle mechanics and repairers (Trade and repair services), and
- Air conditioning and refrigeration mechanics.⁵⁶

Most of these top jobs can be classified within the construction or trade sectors (where trade includes motor vehicle maintenance and repair). It should be noted that these are merely the largest number of openings in positions which is driven in part by the relative size of the industries. More than one-third of the enterprises in the business sector were either in construction (36%) or in wholesale and retail trade including repair of motor vehicles and motorcycles (31%) which also account for a significant share of overall employment.⁵⁷

Both the ESS-2016 and ESS-2017 asked employers to identify certain roles that they struggled to fill ("hard-to-fill positions"). In 2016, approximately 10% of firms indicated they had hard-to-fill positions (20 of 233 respondents) – in 2017, this share had doubled (44 of 210 respondents). This section discusses the results of these surveys, noting that the small sample size and

⁵⁵ SEPFOPE, "Enterprise and Skills Survey (ESS) 2016, Enterprise and Skills Survey (ESS) 2017," 2016 - 2017.

⁵⁶ *ibid.*

⁵⁷ SEPFOPE, "Enterprise and Skills Survey (ESS) 2016," 2016.

response rate may limit the ability to identify trends across years or broader statements about the workforce overall. Currently, some employers in Timor-Leste report that they are struggling to fill jobs in more skilled industries with the labor pool within the country. Many of these jobs while not necessarily needing higher level education at least require training and potential certifications. According to the survey, the vacancies for cooks, civil engineering laborers, and accounting and booking clerks were hard to fill not because of the scarcity of workers but because of skill gaps in those occupations.⁵⁸ This finding is consistent with other reports which found firms having difficulty filling positions in finance and business and hospitality sectors. In the ESS-2016, employers identified motor vehicle mechanics, cooks, and civil engineering laborers among the hardest-to-fill positions, citing competition from other employers as the primary reason for hiring difficulties. This finding from the ESS-2016 is consistent with recent rapid employment growth in the construction and retail sectors.

Table 15. Reasons positions were hard to fill, ESS 2016

Reasons positions were hard to fill (C.13)	Number of firms who cited the reason
Too much competition from other employers	8
Not enough people interested in doing this type of job	2
Salaries/payments demanded for this occupation are too high	1
Low number of applicants qualified for the job	1
Remote location / poor public transport	1
Poor terms and conditions (e.g. pay) offered for post	0
Job entails shift work / unsociable hours	0
Seasonal or timely limited work	0
Others	0

Note: Responses are unweighted
Source: ESS-2016.

It should be noted that less than 5% of all firms indicated a reason for positions being hard to fill. This data is also poor in its reporting as the raw results do not appear to conform to the question that was presented. The question asks the respondent to indicate for each occupation that was hard to fill why it was hard to fill. The data, however, does not show what job the respondent's indicated reasons applies to and further does not report enough reasons for each respondent to equal the number of occupations they listed as hard to fill. One occupation that stands out is the need for accounting and bookkeeping clerks, which was identified as the position with the highest number of employees with training needs in both the 2016 and 2017 surveys.⁵⁹ In the ESS-2017, 273 people employed as accounting and bookkeeping clerks were identified as requiring additional training. Enterprises hired 100 accountants in 2017, with 80 additional vacancies.

⁵⁸ Ibid.

⁵⁹ Ibid.

These jobs were also cited as having the highest number of separations in 2015, further evidence that this job is in high demand but employees lack the required skills leading to high numbers of firings and other separations.⁶⁰ This is consistent with other reports which indicated that employers believed training in finance and account related occupations would be most important for the future.⁶¹ It is also in line with issues presented in the Labor Market Outlook report of 2018.⁶²

Travel guides are also among the top five hard-to-fill vacancies, yet they do not appear among the occupations with skill gaps reported by employers. This is explained by the fact that the vacancy ratio for travel guides is extremely high (197 vacancies per 100 employee jobs) and therefore it is not due to the lack of skill that the vacancies cannot be filled, but the extremely limited labor supply in that occupation.⁶³ It is also possible that this supply is extremely low due to employees self-sorting themselves out of the occupation. In the ESS-2016, some firms cited not enough interest in the occupations as a reason vacancies were hard to fill. These tourism occupations will likely require literacy and competency in foreign languages which is fairly low in the country.⁶⁴

Clerical support workers, who typically require mid-level skills and formal education, earned (US \$163) which is less than plant and machine operators and assemblers (USD \$201) and crafts and related trades workers (US \$195). This indicates that jobs requiring higher levels of technical expertise are being more highly valued than those that require softer office skills.

4.2 What is driving this skills gap?

The literature consistently finds employer-reported skills gaps. The ILO 2016 EESE Survey found that nearly 60% of respondents reported a minor deficit in worker skills demanded by businesses in Timor-Leste. Only 22% of respondents indicated that workers generally have the required skills. Consistent with other studies, the most commonly-cited challenges related to staff included work ethic (60%), technical skills (51%), language skills (44%), and a lack of desire to learn (37%).⁶⁵

4.2.1 Workforce readiness of secondary school graduates

Approximately 80% of first-time job seekers who had completed secondary school were cited by employers as lacking job-specific skills and competencies. As many as 7 out of 10 were said to have poor work ethics and lacked personal attributes to perform their work effectively.⁶⁶

First-time job seekers' most prevalent missing skills were:

- Lack of initiative (12.7%),

⁶⁰ *ibid.*

⁶¹ SEPFOPE, "Enterprise and Skills Survey (ESS) 2013," 2013.

⁶² Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

⁶³ SEPFOPE, "Enterprise and Skills Survey (ESS) 2016," 2016.

⁶⁴ Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

⁶⁵ International Labour Office, Geneva. "The Enabling Environment for Sustainable Enterprises in Timor-Leste." 2016, p60.

⁶⁶ SEPFOPE, "Enterprise and Skills Survey (ESS) 2014," 2014.

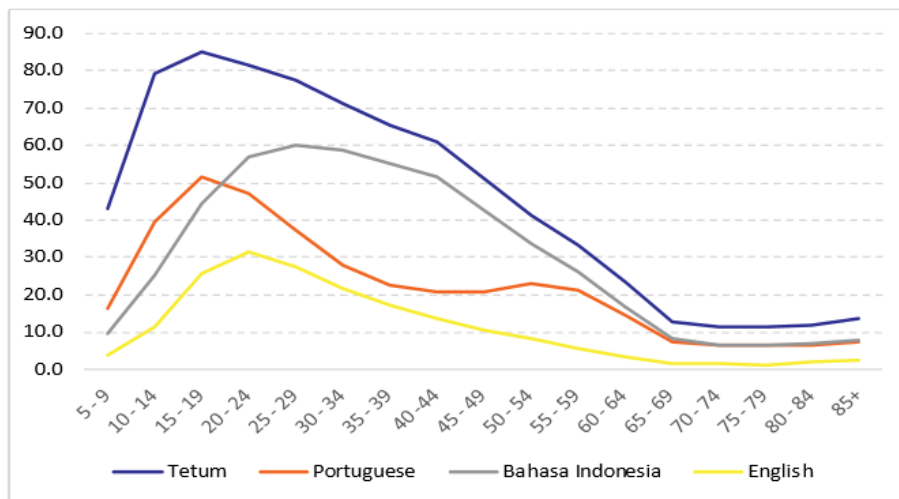
- Low literacy (10.9%),
- Low information technology (IT) knowledge/literacy (10.9 %),
- Lack of manual dexterity (10.9%),
- Inability to work as part of a team (9.1%), and
- Lack of management skills (9.1%).⁶⁷

Nearly 9 out of 10 of employees with secondary education lacked work and life experiences, and maturity which includes general knowledge and common sense required to perform their work.⁶⁸ 85% of those workers lacked motivation or had poor attitude, 57% lacked maturity and 47% had limited literacy and numeracy.⁶⁹

A recent study found that students' understanding of Portuguese, one of the national languages, is very low with 78% of students understanding little to none.⁷⁰ In some regions this true for the language Tetum as well, Timor-Leste's other national language.⁷¹ The literacy rate in the country was 67.3% in 2015.⁷²

Improving literacy rates may obscure true proficiency deficits and mismatches between language spoken and language demanded. While literacy is generally increasing in Timor-Leste, students still may not have working literacy in the languages requested by businesses (including English and Indonesian). If students are not learning communication skills in the primary language of business, then the learned skills may not transfer beyond the classroom. Additional analysis of language proficiency of work visa applicants will be useful.

Figure 10. Percentage of persons literate in a particular language, by age, 2015



Source: Timor-Leste Census 2015.

⁶⁷ Ibid.

⁶⁸ SEFPOPE, "Enterprise and Skills Survey (ESS) 2016," 2016.

⁶⁹ Ibid.

⁷⁰ Lena Lepuschuetz, "Building Evidence, Shaping Policy: Findings of the 2012 Timor-Leste Education Survey," 2013.

⁷¹ Ibid.

⁷² Timor-Leste Population and Housing Census 2015, "Analytical Report on Education," 2017.

4.2.2 Workforce readiness of technical/vocational school graduates

Workers from technical and vocational schools were slightly more prepared for work but lacked other needed skills such as literacy. 94% of job seekers coming from technical and vocational schools possessed the job-specific skills needed, however, employers also noted that their performance was affected by limited literacy and numeracy skills.⁷³

4.2.3 Workforce readiness of university graduates

One would expect that graduates from tertiary education would be the most prepared to enter the job market but employer experiences differ. While the most prepared for work, half of the employees with a university degree were classified as having very poor work attitudes. This lack of motivation may also lead to an undermining of trust in the education system and lead employers to seek more foreign talent. In addition, 25% of workers with university degree were lacking basic education skills bringing up major questions as to the quality of higher education in Timor.⁷⁴

Nearly all employers (95%) would like to hire staff with tertiary degrees while 64% also prefer staff with a technical qualification.⁷⁵ According to the LFS-2013, a small percentage of the labor force have either a vocational/polytechnic diploma (5.3%) or a university degree (8.9%).⁷⁶ As previously discussed, a more thorough analysis of the unemployment rates for the young population at different levels of educational attainment would be required to assess differential employer demand, by degree type.

Educational attainment is increasing in Timor according to the 2010-2013 LFS. The percentage of the population 15 years old and over with tertiary education more than doubled from 1.8% in 2010 to 3.9% in 2013.⁷⁷ The percentage with vocational/ technical training has also doubled from 1.6% in 2010 to 3.6% in 2013.⁷⁸ The largest increase took place among those with secondary education which equaled 17% of the working age population in 2010 and 22.5% in 2013.⁷⁹ This is promising as the stock of higher education individuals showed increases in prior years.

4.2.4 Labor market returns to education

The Timor-Leste 2013 Labour Force Survey (LFS-2013) included questions on worker educational attainment and wages. One of the key findings cited by this report was the seemingly significant finding that workers with secondary education appeared to earn more than those with tertiary/university education. The study went on to suggest that this indicated higher demand for secondary degrees compared to tertiary graduates.

However, EY's analysis of the survey microdata revealed that this result was primarily driven by a few outliers with exceptionally high reported earnings. Table 16 shows the sample averages,

⁷³ SEPFPOE, "Enterprise and Skills Survey (ESS) 2014," 2014.

⁷⁴ SEPFPOE, "Enterprise and Skills Survey (ESS) 2014, Enterprise and Skills Survey (ESS) 2016, Enterprise and Skills Survey (ESS) 2017," 2014- 2017.

⁷⁵ SEPFPOE, "Enterprise and Skills Survey (ESS) 2013," 2013.

⁷⁶ Farhad Mehran, "Timor-Leste Labor Force Surveys (LFS) 2010 and 2013," 2016.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

calculated using all observations and excluding ten observations with reported monthly earnings over \$15,000. Overall, excluding outliers reduces the average monthly earnings across all workers from \$531 to \$366. Of all observations, the analysis noted that the average was \$531 while the median was \$272, with a very large standard deviation – factors which indicated the likely presence of outliers skewing the results upward.

Seven out of these ten outlier observations were coded as secondary education, which significantly reduced the average earnings for workers in that category, when excluded. When all observations are included, workers with secondary education earn, on average, 12% more than the average worker with tertiary education. When outliers are removed, the average for secondary education is 40% less than tertiary, which is a more intuitive result. See Table 14.

Table 17 presents the overall summary metrics for the total data set and removing outliers (number of observations, mean, standard deviation, and spread).

Table 16. Timor-Leste average monthly wages, by educational attainment

	All observations		Without outliers*	
	Total observations	Average earnings	Total observations	Average earnings
Primary	438	\$459	437	\$388
Secondary	687	\$644	680	\$324
Tertiary	291	\$575	290	\$542
Education missing	203	\$239	202	\$209
Total	1,619	\$531	1,609	\$366

*Removed ten observations with monthly earnings greater than US\$15,000.

Note: The “Primary” category includes no education, Pre-primary, Primary, and Pre-secondary; “Secondary” includes Secondary and Technical Secondary; “Tertiary” includes Vocational course, Polytechnic/Diploma, and University.

Source: EY Analysis of the LFS-2013 survey microdata.

Table 17. Timor-Leste Labor Force Survey, summary of survey sample data and variables

USD	Number of obs.	Mean	Standard Deviation	Min	Max
Monthly earnings, monthly	1,619	\$531	\$2,842	\$0	\$66,900
Earnings – Secondary education	658	\$648	\$4,062	\$0	\$66,900
Earnings – University	176	\$539	\$440	\$85	\$4,420
Earnings – Foreign	14	\$246	\$174	\$0	\$500
Monthly earnings, excluding outliers*	1,609	\$366	\$811	\$0	\$15,000
Earnings – Secondary education	651	\$314	\$495	\$0	\$9,050
Earnings – University	176	\$539	\$440	\$85	\$4,420
Earnings – Foreign	14	\$246	\$174	\$0	\$500

*Observations above \$15,000 Removed observations with monthly earnings greater than US\$15,000.

Source: EY Analysis of the LFS 2013 Survey data

A detailed breakdown of average earnings by occupation and education breakdown suggests that the most of the wage differentials within education levels can be attributed to occupations such as professionals and plant and machine operators.⁸⁰ EY reviewed the distribution of average monthly earnings across various education level and occupations (see Table 18). After correcting for outliers, EY found that the average earnings of professionals and plant and machine operators with secondary education are lower compared to those with university education. However, even after correcting for outliers, the average earnings of professionals is higher for technical secondary level compared to workers with university education. It is important to note that the sample size of workers with technical secondary education working as professionals is comparatively small relative to the sample size of workers with university education (See Table 19). The unusual pattern of wage differentials may be attributed to small sample size.

Table 18. Timor-Leste monthly earnings by education level and occupation, LFS-2013
Excluding outliers

	Pre- primary	Primary	Pre- secondary	Secondary	Technical Secondary	Vocational course	Polytechni c/Diploma	University	None	Total*
Armed forces occupations			\$250	\$278						\$272
Managers		\$208	\$168	\$293	\$253	\$1,000	\$405	\$627	\$238	\$319
Professionals		\$412	\$349	\$368	\$890	\$426	\$500	\$576	\$210	\$446
Technicians and associate professionals		\$243	\$216	\$434	\$364		\$1,192	\$566	\$137	\$476
Clerical support workers		\$1,254	\$210	\$369				\$414	\$250	\$423
Service and sales workers	\$120	\$220	\$603	\$223	\$323		\$387	\$241	\$983	\$322
Skilled agricultural, forestry and fishery workers	\$93	\$1,713	\$115	\$265					\$118	\$396
Craft and related trades workers	\$300	\$283	\$428	\$304	\$380				\$364	\$305
Plant and machine operators, and assemblers		\$251	\$260	\$241	\$272		\$230	\$381	\$187	\$234
Elementary occupations		\$178	\$390	\$145				\$4,420	\$83	\$290
Total	\$144	\$383	\$398	\$314	\$564	\$435	\$572	\$539	\$399	\$366

Source: EY Analysis of the LFS 2013 Survey data

Note: Removed observations with monthly earnings greater than US\$15,000.

⁸⁰ LFS Report, Table 46, pp 131

**Table 19. LFS-2013 observations by education level and occupation with earnings
Excluding outliers**

	Pre- primary	Primary	Pre- secondary	Secondary	Technical Secondary	Vocational course	Polytechni c/Diploma	University	None	Total
Armed forces occupations			1	3						4
Managers		18	18	57	1	1	11	31	5	162
Professionals		23	9	187	15	18	65	80	5	416
Technicians and associate professionals		13	10	79	5		13	24	3	155
Clerical support workers		8	7	35				19	1	72
Service and sales workers	1	42	48	154	5		5	15	17	312
Skilled agricultural, forestry and fishery workers	2	10	4	15					7	66
Craft and related trades workers	1	48	33	57	2				26	243
Plant and machine operators, and assemblers		22	26	43	1		1	2	13	126
Elementary occupations		3	7	14				1	3	37
Total	4	188	164	651	29	19	95	176	81	1,609

Source: EY Analysis of the LFS 2013 Survey data

Note: Removed observations with monthly earnings greater than US\$15,000.

The earnings differentials within education levels can be further tested using econometric modeling. The LFS-2013 report includes a regression model based on the Mincer equation. The results reported signals a positive relationship between educational attainment and monthly earnings. The Mincer equation is specified as follows:

$$w = \beta_0 + \beta_1 \text{sex} + \beta_2 \text{age} + \beta_3 \text{age}^2 + \beta_4 \text{educ} + \varepsilon$$

Here, **w** represents the logarithm of earnings, **sex** represent gender where 1 represents female and 0 represents male, **age** represents the age variable, **educ** represents the educational attainment (-1 for primary education to 0 and 1 for second and tertiary education, respectively), and ε represents a residual.

In the LFS-2013 Mincer regression, the education variable is treated as a continuous variable. A linear scale result presented in the report for the education variable assumes that the average effect of obtaining secondary level education over primary education is equal to the average impact of obtaining tertiary level education over secondary level education. In reality, the marginal benefit of receiving a higher level of education may vary between different education levels. Thus, categorical variables such as educational attainment should always be converted to indicator variables (dummy variables) where each variable will indicate the specific education level.

This study attempted to replicate this model using the raw survey data and the model specifications as defined in the LFS-2013, noting the issue with treating education as a continuous variable. The result is presented in the following table.

Table 20. Replication of Mincer equation, monthly earnings of employees, LFS 2013

	EY models: Observations unweighted				EY models: Observations weighted				LFS-2013 report
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	
Sex	-0.0332	-0.0138	-0.0039	0.0123	0.0541	0.0834	0.0948	0.0786	-0.2202***
Age	N/A	0.0099***	0.0570***	0.0389***	N/A	0.0102***	0.0552***	0.0509***	0.0574***
Age*age	N/A	N/A	-0.0006***	-0.0003	N/A	N/A	-0.0006***	-0.0004*	-0.0005***
Education	N/A	N/A	N/A	0.3557***	N/A	N/A	N/A	0.3879***	0.2084***
Constant	5.4306***	5.0394***	4.1618***	4.4202***	5.4608***	5.0607***	4.2297***	4.2288***	4.362***
Observations	1,589	1,589	1,589	1,395	1,589	1,589	1,589	1,395	8,281
R-squared	0.0003	0.0150	0.0266	0.1409	0.0008	0.0173	0.0281	0.1741	0.078

Although this analysis followed the model specification mentioned in the LFS-2013 report, the coefficient estimates varied slightly for age and education variables, and the estimates varied to a greater extent for the gender variable. While this replicated analysis also found a positive relationship between educational attainment and earnings, the coefficient estimates for the educational attainment in this analysis (0.3879) is larger than the result of the LFS-2013 report (0.2084).

While there is an observed difference in the average earnings for men and women in the LFS-2013 survey, this analysis found that, when controlling for age and education, on average, there is no statistically significant difference between earnings of males and females.

Table 21. Timor-Leste Labor Force Survey, monthly earnings of employees by gender

Gender	Average earnings	Total observations
Male	\$553	1,235
Female	\$461	384
Total	\$531	1,619

4.3 How are employers filling the gaps?

4.3.1 Training (TVET, Employer-sponsored, informal)

One might expect employers to seek to address worker skills gaps through internal and external training or by recruiting directly from TVET providers.

However, only 10% of employers financed internal or external training for employees and 12% reported directly recruiting from TVET providers.⁸¹

Employer-sponsored training programs are not prevalent but tend to be concentrated in specific skill areas – the most popular skills developed in training are learning to drive motor vehicles, operating heavy equipment, and masonry.⁸² While only 10% of businesses provide training, those

⁸¹ SEFPOPE, "Enterprise and Skills Survey (ESS) 2016, Enterprise and Skills Survey (ESS) 2017," 2016- 2017.

⁸² International Labour Office, Geneva, "The Enabling Environment for Sustainable Enterprises in Timor-Leste," 2016, p59.

companies most frequently provide IT, management, and accounting courses, in addition to basic courses to familiarize new employees with business operations.

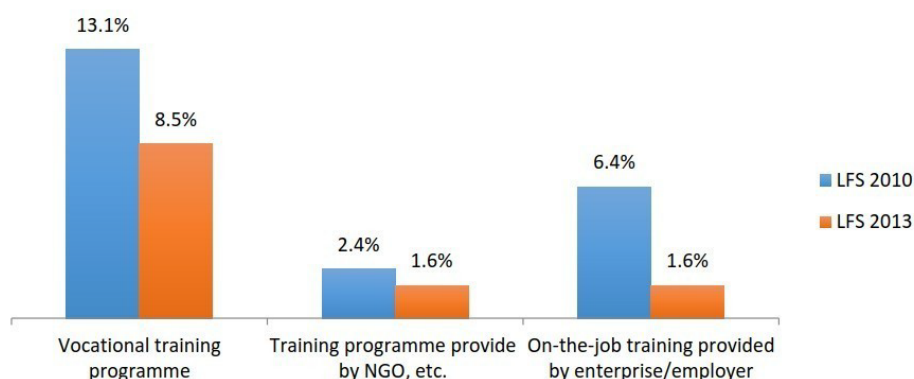
One explanation for the low reported employer-sponsored training might be the framing of the question, which asks about training courses “financed” by the enterprise. Employers who engage in on-the-job training without offering a specific course may not have considered these activities as “financed” training.

The table below summarizes findings from a World Economic Forum survey asking business leaders to comment on the investment in training and human capital development in selected countries. Timor-Leste consistently ranked among the lowest countries in the survey for employer training and human capital development.

Extent of staff training	2011	2012	2013	2014	
<p>The World Economic Forum (WEF) Survey asked the business leaders to provide their expert opinions on the following: “The general approach of companies in your country to human resources is: (1=to invest little in training and employee development, 7=to invest heavily to attract, train, and retain employees)”.</p> <p>Source: World Economic Forum, The Global Competitiveness Report.</p>	Timor-Leste	3.10	3.10	3.20	3.00
	Cambodia	3.60	3.90	4.00	3.90
	Cabo Verde	3.30	3.20	3.40	3.70
	Indonesia	4.10	4.30	4.60	4.70
	Rwanda	4.10	3.90	4.00	4.00
	Vietnam	3.50	3.30	3.70	3.90

The 2013 LFS found a declining share of workers were involved in employer-sponsored on-the-job training. While the number of people receiving training has increased, it has not increased proportionately to overall employment growth, resulting in a decline in the relative share of employees receiving training.⁸³

Figure 11. Participation in training programs, Timor-Leste LFS 2010-2013



Source: ILO, LFS-2013.

⁸³ General Directorate of Statistics and SEPFOPE, "Timor-Leste Labour Force Survey (LFS) 2013."

Further to these reports, the World Bank Enterprise Survey found that Timor-Leste is lagging considerably in the number of firms offering training to employees as well as the number of employees those firms train. Timor-Leste had only 2% of firms in the survey providing training compared to 57% in the East Asia region. From those firms offering training no employees had actually received any.⁸⁴

The low employer recruitment rate from Technical and Vocational, Education and Training (TVET) providers is somewhat surprising. The National Labour Force Development Institute (INDMO) is charged with developing industry-driven TVET qualifications and curricula that is informed by industry sub-commissions on finance, construction, tourism, and hospitality, and automobiles. This curricula is reported to promote not only technical and hard skills required by business, but also to address commonly-cited gaps in “soft” skills – life skills, leadership/teamwork, work readiness, and basic language and numeracy proficiency.⁸⁵

However, employers infrequently recruit from technical and vocational (TVET) programs. Only 12% of employers recruit from TVET programs, potentially due to a lack of information about the programs or a perceived lack of value in the skills gained. Construction and masonry are the most common technical/vocational skills sourced from a TVET program, accounting for 55% of total TVET recruitment. The relatively low reliance on TVET as a source of skilled labor is consistent with an ILO survey finding that 87% of respondents thought that Timor-Leste’s TVET system did not meet some or most of employers’ needs.⁸⁶

4.3.2 Foreign workers

The SEPFOPE Enterprise and Skills Surveys provide information on the types of jobs that are filled by foreign workers. Results from the ESS indicate that occupations requiring the highest levels of education and expertise are being filled by a large share of foreign workers. In the latest survey (ESS-2017), approximately 10% of all jobs were filled by foreign workers – with nearly a quarter of manager positions filled by foreign workers.⁸⁷ While there appear to be certain reporting discrepancies and inconsistencies in this data, the surveys consistently find a high proportion of professional and managerial positions are filled by foreigners, as shown in Table 22.

While the 2014 survey may not be directly comparable to the ESS-2016 and ESS-2017, there does appear to be somewhat of a downward trend in the share of managers and professionals that are foreign. If this trend continues in future surveys, this could indicate that companies were temporarily filling experienced and supervisory positions with foreign workers because of a shortage of experienced workers in Timor-Leste but would seek to switch to employing Timorese with enough experience.

⁸⁴ World Bank, "Enterprise Surveys Timor-Leste 2015 Country Profile."

⁸⁵ UNESCO, "TVET Reform in Timor-Leste," 2012.

⁸⁶ International Labour Office, Geneva, "The Enabling Environment for Sustainable Enterprises in Timor-Leste," 2016, p59. Of respondents, 40% felt that the TVET system did not meet most of employers' needs and 47% felt it only met some needs.

⁸⁷ SEPFOPE, "Enterprise and Skills Survey (ESS) 2017," 2017.

Recent gains in education enrollment and attainment and workforce participation could mean that the Timorese economy will begin to produce enough experienced workers in the future. In the 2007 TLSLS, 48% of persons ages 35-44 had never attended school, compared to 28% for those ages 25-34, and only 18% for those ages 18-24.⁸⁸

The surveys also indicate a large number of foreigners hired into craft and trade related positions, yet the share of these positions filled by foreigners varies significantly across years raising questions about the validity of the data.

While the SEPFOPE Enterprise and Skills Surveys do not provide great detail about the expected length of tenure of foreign employees, the large number of foreign employees hired into certain positions on an annual basis as compared with the total number of foreign employees in that position suggests rapid turnover in certain occupations (e.g. construction) which may suggest these foreigners are being hired for short-term employment.

The large number of foreign craft and trade related employees may be a result of local demand related to infrastructure development, yet the studies reviewed do not clearly speak to the types of employers who are filling positions with foreigners. However, the top 5 positions for which foreign employees were hired, as identified in the Enterprise and Skills Survey (bricklayers and related, construction supervisors, heavy truck drivers, receptionists, and motor vehicle mechanics) all suggest that these positions are being filled in response to increase in “local” sectors (non-export), versus traded sectors producing final goods for export.

In some cases, employers in Timor-Leste are filling skills and experience gaps with foreign workers – perhaps as a result of a lack of confidence in the Timorese TVET system and as an alternative to investing in on-the-job training/re-training. As noted in the 2016 ILO report on sustainable enterprises, “a representative from the extractive sector pointed out that the engineering skills of a local worker who has a relevant degree still lags behind the market standard on the job and is therefore less competitive to foreign workers.”⁸⁹

Table 22. Share of foreign workers by occupation
Green = higher share of foreign workers

% foreign				
Occupation	Education	2014*	2016	2017
Craft & related trades workers	Substantial training	24.7%	12.0%	32.0%
Manager	Grad/postgrad	59.1%	30.4%	24.0%
Professionals	Grad/postgrad	25.5%	23.3%	20.0%
Associate Professionals	Upper secondary/ tertiary	48.9%	4.3%	17.0%
Clerical support workers	Lower secondary	7.3%	7.8%	14.0%
Plant and machine operators & assemblers	Formal training	7.5%	4.7%	7.0%
Service and sale workers	Lower secondary	25.1%	8.0%	6.0%
Elementary occupations	None	19.4%	0.2%	1.0%
Totals			8.6%	9.5%

*Results from the ESS-2014 may not be comparable to later studies due to survey and reporting/sampling methodology changes.

⁸⁸ General Directorate of Statistics, “Timor-Leste Survey of Living Standards,” 2007.

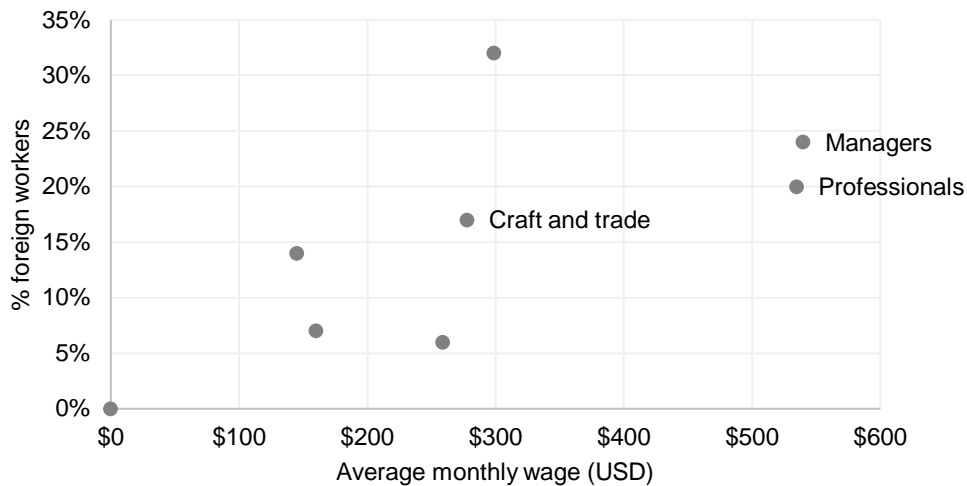
⁸⁹ International Labour Office, Geneva, “The Enabling Environment for Sustainable Enterprises in Timor-Leste,” 2016, p59.

Looking at this data over time shows foreigners hired for management and professional positions. In all four years from 2011 through 2014 foreign workers held an outsized share of management and associate professional jobs.⁹⁰ In all years but one foreigners held an outsized share in professional jobs as well. If we extend this analysis further it can be seen that there is some improvement in the share of foreign workers in 2016 and 2017 with only 1 in every 10 being a foreign employee.⁹¹ While declines in the share of foreign workers also take place in the management, professional, and associate professional occupations there is still an outsized share of foreign employees.⁹²

Foreign employees are most prevalent in high-wage jobs. As shown in Figure 12, management, professional, and associate professional jobs are consistently the three highest paid occupations which each have a large share of foreign employment.⁹³ The 2017 survey found a weak statistical correlation between increases in the share of foreign workers and the increases in wages paid to those workers between 2016 and 2017.⁹⁴

The surveys and studies we reviewed do not provide information on the nature of the companies hiring foreign workers (e.g. domestic or foreign companies), the characteristics of those workers (age, income level, education level), or the tenure of those employees. If such information is available from raw survey data or work visa records, it would likely prove useful in understanding the drivers of demand for foreign workers.

Figure 12. Observed relationship between foreign workers share of employment and average wages, 2017



Source: ESS-2017.

⁹⁰ SEPFPOE, "Enterprise and Skills Survey (ESS) 2014," 2014 January.

⁹¹ SEPFPOE, "Enterprise and Skills Survey (ESS) 2016, Enterprise and Skills Survey (ESS) 2017," 2016- 2017.

⁹² Ibid.

⁹³ SEPFPOE, "Enterprise and Skills Survey (ESS) 2014, Enterprise and Skills Survey (ESS) 2016, Enterprise and Skills Survey (ESS) 2017," 2014- 2017.

⁹⁴ SEPFPOE, "Enterprise and Skills Survey (ESS) 2017," 2017.

Table 23. Foreign workers share of employment and average wages, by occupation, 2017

Occupation	Education	Average monthly wage (USD)	% foreign workers
		2017	2017
Manager	Grad/postgrad	\$540	24%
Professionals	Grad/postgrad	535	20%
Craft & related trades workers	Substantial training	299	32%
Associate Professionals	Upper secondary/tertiary	278	17%
Service and sale workers	Lower secondary	259	6%
Plant and machine operators & assemblers	Formal training	160	7%
Clerical support workers	Lower secondary	145	14%
Elementary occupations	None	129	1%

Source: ESS-2017.

The ESS-2017 found that 72% of enterprises have fewer than 15 employees.⁹⁵ The IMF has commented that minimum wages in Timor-Leste are relatively high compared to regional peers which may hinder the country's ability to attract foreign investment.⁹⁶ This is evidenced the cost of agricultural labor being estimated to be 5USD/day, double the rate in neighboring West Timor creating low labor competitiveness (high wages and low productivity relative to competing nation).⁹⁷

A review of the LFS-2013 results determined that this survey should not be used to analyze wage differentials for Timorese and foreign workers. Of the 1,619 respondents, only 14 were foreign workers with reported earnings. Given this low response rate, it is unclear whether the survey included respondents who were temporarily in Timor-Leste on short-term worker visas, which would likely be the population with the greatest wage differentials (as covered in the ESS). However, this data may be able to be used to assess earnings differentials for all employees, by educational attainment (see Section 4.2.4).

⁹⁶ Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

⁹⁷ Timor-Leste VI Constitutional Government, "National Employment Strategy 2017-2030: Productive Employment Shall Be a Central Means of Nation Building and Wealth Creation," June 2017.

Table 24. Timor-Leste Labor Force Survey, summary of survey sample data and variables

Variable	Number of obs.	Mean	Standard Deviation	Min	Max
Earnings (USD, monthly)	1,619	\$531	\$2,842	\$0	\$66,900
Earnings (USD, monthly) excluding outliers*	1,609	\$366	\$811	\$0	\$15,000
Earnings – Foreign	14	\$246	\$174	\$0	\$500

*Removes observations with monthly earnings greater than US\$15,000; Source: TL LFS-2013.

5.0 What will be the impact of future growth on the Timorese labor market?

5.1 Can the labor demand keep up with increases to the labor pool?

Job growth in Timor-Leste has been significant with the country increasing employment as much as 4000 jobs, 10 times the level of job creation a decade earlier.⁹⁸ However, as noted earlier, the country is facing a significantly growing labor force issue due to structural changes in the economy as well as a very large youth cohort which will be entering the labor market over the next several years. This is particularly concerning when considered alongside the current industry breakdown in the country which is dominated by sectors dependent on government expenditures. In 2016, two main branches of economic activity dominated the non-agricultural economy, which makes up about 41% of employment, more than one-third of the enterprises in the business sector were either in construction (36%) or in wholesale and retail trade (31%).⁹⁹ This is consistent with results from previous enterprise surveys though previous studies lacked the randomized sampling.¹⁰⁰

This dominance in the construction sector could be somewhat problematic for the Timorese economy. Construction work is driving job growth, however, this growth is tied closely to public spending and is producing seasonal workers rather than permanent employment opportunities. From 2012 to 2013 the construction sector grew by 40% the largest growth of any industry in the country.¹⁰¹ Investment in the development initiatives, and infrastructure, which drives construction growth are dependent on government spending which is financed by petroleum revenues.¹⁰²

For both 2012 and 2013 construction was the largest employer according to the Enterprise and skills survey accounting for around than 10,000 employees in 2012.¹⁰³ Of these 10,000 almost 6,000 were temporary workers.¹⁰⁴ Thirty percent of all wage and salaried employees were working as temporary staff in 2014, often in construction positions due to the seasonal and contract-based nature of construction work.¹⁰⁵ This is problematic alone as a high degree of temporary workforce leaves these individuals highly vulnerable. This is exacerbated further as many infrastructure projects in Timor-Leste are financed by the government.¹⁰⁶ In Covalima, the government was setting up a supply base for oil and gas exploration which might be a possible reason for businesses expecting to expand their services there.¹⁰⁷ This issue is described in the Timorese employment strategy stating that “economic growth has been driven by the oil sector,

⁹⁸ Department of National Labour Market Information, “Market Outlook Timor-Leste Edition 7,” 2018.

⁹⁹ SEPFOP, “Enterprise and Skills Survey (ESS) 2016,” 2016.

¹⁰⁰ SEPFOP, “Enterprise and Skills Survey (ESS) 2013, Enterprise and Skills Survey (ESS) 2014,” 2013- 2014.

¹⁰¹ SEPFOP, “Enterprise and Skills Survey (ESS) 2013,” 2013.

¹⁰² International Labour Office, Geneva, “The Enabling Environment for Sustainable Enterprises in Timor-Leste,” 2016; SEPFOP, “Enterprise and Skills Survey (ESS) 2014,” 2014.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ SEPFOP, “Enterprise and Skills Survey (ESS) 2014,” 2014.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

which does not generate significant employment. The non-oil economy is driven by government spending, which contributes to a high cost structure in the economy".¹⁰⁸

Timor-Leste has historically built its economy around oil production where the government derives most of its revenues (90%).¹⁰⁹ While the country began a petroleum fund in 2005, it is still estimated that oil revenues will drop to 0% economic contribution by 2022.¹¹⁰ This puts the government on an unsustainable expenditure path that will inevitably need to decrease. It then becomes likely that without further economic diversification in the private sector a large portion of Timorese jobs will be lost as the construction sector shrinks.

¹⁰⁸ Timor-Leste VI Constitutional Government. "National Employment Strategy 2017-2030: Productive Employment Shall Be a Central Means of Nation Building and Wealth Creation." June 2017.

¹⁰⁹ MCC, "Timor-Leste Constraints Analysis."

¹¹⁰ MCC, "Timor-Leste Constraints Analysis"; Department of National Labour Market Information, "Market Outlook Timor-Leste Edition 7," 2018.

6.0 Bibliography

This analysis reviewed surveys and statistical reports published by the Timorese Government and established research organizations including the World Bank and International Labour Organization (ILO). Citations and brief summaries are included in the following pages.

6.1 MCC. "Timor-Leste Constraints Analysis."

The Timor-Leste constraint analysis was written to address what issues are facing the country of Timor-Leste which might impede its economic development. The report is written using the results of several studies in order to provide a complete summary of the main issues facing Timor. The report lays out four main issues facing the Timorese economy: low sustainability and effectiveness of fiscal expenditures, uncompetitive real exchange rate, weak policies and institutions to enable market transactions, poor nutritional outcomes and a lack of higher skilled labor.

6.2 Lepuschuetz, Lena. "Building Evidence, Shaping Policy: Findings of the 2012 Timor-Leste Education Survey." 2013.

The education survey was undertaken in order to understand and present the issues facing the Timorese education system and to discuss policy initiatives in place which may or may not be having success. This survey is a census style survey and includes all 1372 schools in Timor-Leste. This includes both public schools as well as private schools. Survey field work took place from September to November of 2012 with some school revisits in December 2012.

The survey indicates that student absenteeism is major concern with more than half of students being absent any given day. The survey also finds that even after several years of schooling students understanding of Portuguese, one of the national languages, is very low with 78% of students understanding little to none. In some regions this true for the language Tetum as well, Timor-Leste's other national language.

The survey also suggests that education levels for teachers is quite low with most 77% having achieved a secondary education or less.

6.3 GDS and ICF. "Timor-Leste Demographic and Health Survey 2016 (2016 TLDHS)." 2017.

The Timor-Leste Demographic and Health Survey of 2016 was undertaken with the main purpose to provide the data needed to monitor and evaluate population, health, and nutrition programs on a regular basis. The TLDHS provides a comprehensive overview of population and maternal and child health issues. The 2016 TLDHS covers household and respondent characteristics, fertility and family planning, infant and child health and mortality, maternal health and maternal and adult mortality, child and adult nutrition, malaria, HIV/AIDS, disability, early childhood development, non-communicable diseases, and gender-based violence. The survey also included measuring the height and weight of children and adults and testing children and adults for anemia in order to provide data for the analysis of nutrition indicators in the country.

The survey was undertaken from September 16 through December 22, 2016. 11,829 households were surveyed with additional separate questions for certain portions of the

household members based on gender and age. The households were selected with probabilities proportional to the size of the enumeration area in which they were located in order to provide a representative sample of the entire country.

Some key results from the survey indicate that a majority of respondents live in rural areas (over 67%) about half had a secondary education and about one fifth had no education at all.

6.4 Timor-Leste Population and Housing Census 2015. "Analytical Report on Education." 2017.

This analytical report was produced with purpose of analyzing and disseminating the information and data from the 2015 census of Timor-Leste so that it may be used to inform policy making and development planning. The report is developed from data taken directly from the 2015 census focusing on variables related to education.

The study finds that 11.3% of children aged 6-14 have never attended school and that many of those students who have did not enroll at the appropriate age. Net attendance of the compulsory and state funded pre-secondary school was only 44.2% while gross attendance was 83.3% indicating that a large proportion of students older than the normal pre secondary age. This is most true in Dili where the gross enrolment rate is greater than 100%. For secondary school net attendance was 32.8% while gross attendance was more than 2 times higher again indicating a large proportion of students are older than the secondary school age level.

66.7% of all students engaging in higher education are in the municipality of Dili. Nearly one third of all people age 19-24 in Dili are pursuing a tertiary degree. In 2015 net attendance in higher education was 16.3% more than double what it was 5 years earlier.

The literacy rate in the country was 67.3% in 2015. Unsurprisingly, literacy for women were considerably lower than men, especially in the older age groups. For younger age groups (<20) the gender parity index was near one indicating improvements for the future generation. That being said Timor-Leste still faces considerable regional differences in literacy which may impact working skills shortages. 26% of the population over age 6 had never attended school as of 2015 and this is much higher in rural areas of the country. More than 25% of population attended primary school but did not complete it.

Interestingly, for the youth population unemployment was much higher for those that were literate than for those that were not. This may be driven by the poorest of society being forced to find work or being in subsistence farming.

6.5 International Labour Office, Geneva. "The Enabling Environment for Sustainable Enterprises in Timor-Leste." 2016.

This report assesses the business environment in Timor-Leste in terms of the economic, social, political and environmental aspects of doing business. It synthesizes the findings of the enterprise perception survey, data collection and a literature review, assessing the enterprise environment against 17 key elements for enabling sustainable enterprises.

Timor-Leste has had strong GDP growth in the years leading up to the 2016 report based on exploitation of its oil reserves. The oil sector accounted for most of the economic activity in the country. This leads to significant economic disparity as a majority of the population still earns its

living from subsistence farming. This growth has not let widespread job formation as the country lacks the capital intensive processing capacities. The public sector accounts for about half of non-agricultural employment, and the formal labor market remains underdeveloped.

Investment in the development initiatives, and infrastructure are dependent on government spending which is financed by petroleum revenues. Despite considerable reductions, the minimum capital requirement for establishing a business remains equal to more than the average annual income in the country.

Private sector development has been slow because of gaps in infrastructure, weaknesses of the legal system, poor regulation, low levels of productivity, the persistent shortage of skilled labor, and other human capital. Electricity production and consumption are very low, which is both a cause and a result of low industrial capacity. Internet connectivity is extremely sparse; as of 2014 there were an estimated 12,000 internet users in Timor-Leste which is about 1.00% of the population.

In 2016 32.8% of the population is urban and 61.84% are under the age of 24. At that time Timor-Leste had a total fertility rate of 2.42, the 30th highest in the world, as well as a life expectancy of 67.72 years which ranked 165th in the world.

6.6 SEPFOPPE Enterprise and Skills Surveys, 2013, 2014, 2016, 2017.

6.6.1 SEPFOPPE. "Enterprise and Skills Survey 2013." 2013.

The survey was designed to assess current and future needs for employment and vocational training and the responsiveness of this supply to national labor market demand. The survey was also intended facilitate policy development to assist the entry of youth in the labor force so that they are properly equipped and trained.

The survey was carried out in thirteen districts from May to June 2013 and responses were received from employers across Timor-Leste. Data was collected from enterprises in the services, automotive, trade, hospitality/tourism, construction, and manufacturing sectors. The survey covered 807 businesses almost 80% of which were from the trade and construction sectors. This high representation of trade and construction could be due to their relative size in the economy or be a sign of data bias.

The overall number of workers in the enterprises fell by 18% from November 2012 to May 2013. This was mostly driven by declines in temporary workers especially in the construction industry which declined by 26% while the number of permanent employees across all industries increase by 2.5%. 75% of the workers in the survey were between the ages of 15-39 indicative of the young age structure in the country.

The survey showed a drop of 3.3% in the number of foreign workers in the manufacturing sector in the six months leading up to the survey, but overall there was a 3.5% increase in the number of foreign workers. The largest increase in the number of foreign workers was in the trade sector which increased from 0.3% to 9.5% while the automotive sector had the highest percentage of foreign workers (16%).

The survey also found that 95% of employers would like to hire staff with tertiary degrees while 63.6% also prefer staff with a technical qualification. That being said employers also said that an

applicant's prior work experience and job skills were more important than academic qualification during the hiring process.

Businesses that were planning to grow their operations and increase hiring were most concentrated in urban areas or in areas where large government spending initiatives had been announced. This is indicative of evidence from other reports which indicates that much of the growth in the construction industry is driven by changes in government spending.

6.6.2 SEPFOP. "Enterprise and Skills Survey 2014." January 2014.

The primary objective of ESS 2014 was to assess employment situation in the enterprises: recruitment patterns by industry and occupations, demand for occupations, skills gaps, and training opportunities for the workforce. The survey was designed to provide insights into the labor market in selected sectors by analyzing growth trends, impact of this growth on job creation, and type of skills that are in short supply or experiencing greater demand. The survey used a stratified random sample targeting a total of 381 registered enterprises and was taken from the list of businesses targeted under the Business Activity Survey. This list is described as small and medium sized businesses with a tax identifier number in the country.

In 2013, close to 40% of the managers and 30% of the professionals were foreign nationals. A high percentage of foreign nationals working as managers and professionals seem to suggest potential skills gaps. Around 40% of the enterprises hired new staff from 2012 to 2014. The recruitment pattern showed a distinct demand for jobs in the construction and services industry. Shopkeepers, motor vehicle mechanics, receptionists and secretaries, bartenders, bricklayers showed the most consistent demand as well as having much higher turnover rates. Jobs that require specialized training or certifications, truck drivers, electricians, pharmaceutical and midwifery associates, and motor vehicle technicians, were cited as the most frequent vacancies and as the hardest jobs to fill. In ability to fill these jobs was cited as a main cause preventing these industries from developing new products and taking on new orders.

Growth in non-oil GDP fell from 13.2% in 2011 to 5.5% in 2012 which may have been the cause of an 8% decrease in the total number of workers employed during 2012. This rebounded to create 13.8% increase in employment from 2012-2014 (23.4% growth from 2012-2013). Sale and services related occupations saw an increase of 76% from 2011 to 2013. The number of associate professional also increased 36% during this period. Structural changes were taking place in the economy over this period leading to growth of the services and construction sectors which created more jobs in these sectors. However, many of these jobs are at the lower level positions which likely require less specialization.

6.6.3 SEPFOP. "Enterprise and Skills Survey 2nd Round." October 2014.

The purpose of the Enterprise and Skills survey is to understand and present data related to skills gaps by interviewing firms to understand their hiring trends and concerns. A total of 253 businesses were surveyed largely drawn from businesses in selected non-agricultural sectors that are mainly domiciled in Dili.

Ownership of businesses shows that 53% of businesses were owned by Timorese, 58% were jointly owned by Timorese and foreign partners, while 42% were solely owned by foreigners.

Compared to 2013, there was a significant drop in the number of new businesses established in 2014. The growth of new companies established dropped from 10.3% in 2013 to 6.2% in 2014. The number of workers declined from 4811 in January 2014 to 4735 in October 2014. This decline mainly affected men (-119 wage workers) while there was an increase in the number of female workers (+43 workers). Fewer construction workers were hired. 30.7% of all wage and salaried employees were working as temporary staff (1424 out of 4735) which reflects the volatility of jobs in general and in particular the temporary nature of work in the construction sector. On average, senior managers received a monthly salary of US\$ 540, professionals US\$ 270 and technical and associate professionals US\$ 233. Clerical support workers, with monthly average earnings of US\$ 163 and elementary occupations with monthly average earnings of US\$ 146 had the lowest monthly average wages when compared with other occupational groups. Only 36.7% or 93 of 253 businesses have hired new staff in the last two years which perhaps suggests a slowdown of the economy. There were also 11.4% employee separations. Moreover, many businesses (61.9 %) surveyed are not planning to hire new staff in the next 12 months. Roughly, 8 out of 10 first time job seekers who had completed secondary school were lacking job specific skills and competencies e.g. IT skills, problem solving skills and ability to work in a team. And, as many as 7 out of 10 were said to have poor work ethics and lacked personal attributes to perform their work effectively. The main skills deficiencies in the new recruits were: lack of initiative (12.7%), low literacy (10.9%), information technology (IT) knowledge/literacy (10.9 %), lack of manual dexterity (10.9%), inability to work as part of a team (9.1%), and lack of management skills (9.1%).

6.6.4 SEPFOPE. "Enterprise and Skills Survey 2016." 2016.

The Enterprise and Skills Survey 2016 which was conducted from June to July 2016. The survey was undertaken with an aim to better understand job specific skills needed by businesses in Timor-Leste. A sample of 529 businesses was randomly selected from across the country with the goal of allowing statistical inferences to be made for the country as a whole.

The percentage of enterprises owned wholly or partly by foreign employers was 36%, a net reduction from October 2014. As estimated from the survey results, occupations with the highest vacancies were: building construction laborers (1387 vacancies), heavy truck and lorry drivers (461 vacancies), carpenters and joiners (229 vacancies), motor vehicle mechanics and repairers (140), and civil engineering laborers (109). Occupations with the highest labor demand in terms of number of hiring in 2015 were: bricklayers and related workers (1445 hiring in 2015), floor layers and tile setters (688 hiring), cleaners and helpers in offices, hotels and other establishments (609 hiring), heavy truck and lorry drivers (588 hiring), and shop sales assistants (357 hiring). Jobs firms planned to fill with foreign workers were sales and marketing managers as well as specialist medical practitioners.

Areas with the highest skills gaps, based on jobs that were hardest to fill remained fairly consistent with prior years the top five being: cooks (222 hard-to-fill vacancies in 2015), civil engineering laborers (142 hard-to-fill vacancies), motor vehicle mechanics and repairers (80 hard-to-fill vacancies), accounting and bookkeeping clerks (58 hard-to-fill vacancies), and travel guides (56 hard-to-fill vacancies). This is consistent with other reports which found firms having difficulty filling positions in finance and business sectors as well as tourism and hospitality

sectors. Some of these difficulties were due to a lack of workforce but, according to eh survey, the vacancies for cooks, civil engineering laborers as well as accounting and booking clerks were hard-to-fill not because of the scarcity of workers but because of skill gaps in those occupations.

6.6.5 SEPFOP. "Enterprise and Skills Survey 2017." 2017.

The Enterprise and Skills Survey 2017 which was conducted from June to August 2017. The survey was undertaken with an aim to better understand job specific skills needed by businesses in Timor-Leste.

The survey results show a modest growth in enterprises and about 3.7% growth in employment from January 2016 to October 2017. Though 58% were micro enterprises with less than 10 workers, there is a trend towards larger enterprises, with the average number of employees growing from 12.6% to 13.1%. More than one-third of enterprises were either in construction or in wholesale and retail trade, repair of motor vehicles and motorcycles. Construction continues to dominate the economy, with a slight rise in proportion of enterprises in the sector from 35% to 38% compared to 2016.

Enterprises and employment shifted considerably out of Dili, where it had historically dominated, to the municipalities shifting from a 74-24% split to a 60-40% split between Dili and the municipalities. This may reflect the dominance of the construction sector providing employment outside of Dili. It was noted that during the survey they experienced relatively lower response rates in Dili, which may skew the data in favor of the municipalities.

6.7 International Labour Organization. "Structural Transformations and Jobs in Timor-Leste." 2016.

The Structural Transformation Report is focused on analyzing and understanding the broad structural changes taking place in the Timorese labor market.

Between 2010 and 2013, significantly larger number of jobs were added in the non-agricultural sectors (36,560) compared to the agriculture sector (12,070). In wholesale and retail trade alone 16,553 jobs were added. The employment share of agriculture has more or less remained unchanged. The number of subsistence food producers decreased from 206,300 in 2010 to 178,900 in 2013. The economy of Timor-Leste is not creating enough productive jobs to absorb the increasing number of entrants in the labor force. As a result, unemployment in the country increased from 7.8 percent in 2010 to 11 percent in 2013. Only 30.6 percent of the working-age population is in the labor force which is much lower than the average of 75 percent for least developed countries. Low level of education and skills may be limiting job opportunities for young Timorese who have been historically struggling to make the transition from school to work. Nearly a quarter of the youth population is unproductive economically as they are neither in the labor force nor in education.

6.8 World Bank. "Enterprise Surveys Timor-Leste 2015 Country Profile."

The main goal of the World Bank Enterprise surveys is to evaluate the business environment in a country to determine whether it is friendly to private investment and poised to allow private business to flourish. The surveys covers topics that include infrastructure, trade, finance,

regulations, taxes and business licensing, corruption, crime and informality, access to finance, innovation, labor, and perceptions about obstacles to doing business. Business owners and top managers in 126 firms were interviewed from September 2015 to June 2016. The survey covered the entire manufacturing sector and most services sectors: retail, wholesale, automotive repair, hotels and restaurants, transportation, storage, communications, construction, and IT. Public utilities, government services, health care, and financial services sectors are not included in the sample. The survey was entirely of businesses located in the capital region of Dili.

Interesting, while the survey indicates that underrepresentation of female employees in the firms (31%) relative to other countries in the East Asia and Pacific region (38%), Timor-Leste outperforms East Asia more generally in terms of female participation in top management positions (27% to 21%) and female participation in ownership (64% to 54%).

Timor-Leste is lagging considerably in the number of firms offering training to employees as well as the number of employees those firms train. Timor-Leste had only 2% of firms in the survey providing training compared to 57% in the East Asia region. From those firms offering training no employees had actually received any.

Timor also lagged behind in infrastructure reliability with firms experience significant sales losses due to power outages as well as inadequacies in the supply of water to manufacturing firms. Power outages were estimated to have caused a loss of 3.6% of sales compared to 0.2% in East Asia and 2.1% in lower middle income countries globally. Timor-Leste also had an average of at least one water insufficiency for manufacturing across all firms every month.

Timor-Leste's trade outlook was also mixed with 39% of firms exporting their products compared to only 19% in the East Asia and Pacific region while 56% of firms were also importing foreign made inputs compared to 17% in the East Asia region. This seems to imply both a lack of input supply as well as finished good demand in the country compared to their East Asian counterparts. This could possibly be due to their nature as small island based economy.

Government corruption was also identified as a major constraint as 81% of firms indicated that they received requests for gifts or informal payments in order to receive government contracts nearly double the rate for the East Asia Pacific region and more than double compared to other lower middle income countries.

Access to finance was also a considerable obstacle to growth of smaller and medium sized firms with 68% of firms surveyed being financed internally and less than 3% receiving bank financing. As noted in the report on sustainable enterprises the cost of establishing an enterprise in the country exceeds the average annual income.

6.9 Mehran, Farhad. "Timor-Leste Labor Force Surveys 2010 and 2013." 2016. The Timorese labor force surveys were designed to better understand the make-up of the labor force as well what changes and trends are taking place in the labor market. The survey was a sample of 4,665 households drawn with fixed probabilities from a sample of 300 census enumeration areas originally selected and updated for the Timor-Leste Survey of Living Standards 2007.

The Timorese labor force is transitioning from subsistence farming to more value added industries. From 2010 to 2013 subsistence foodstuff producers decreased from 206,300 to 178,900. During this period the labor force increased from 150,900 to 213,200, number of employed increased from 139,100 to 189,300, and unemployment also increased from 11,800 to 23,400. This indicates that subsistence food producers are moving into the labor force. As this transition takes place some find employment while others lack the skills to enter the job market. This leads to an increase in both the number of employed as well as an increase in unemployed. Labor force participation and the employment-to-population ratio both increased by 6.6 and 5.2 percentage points, respectively, while simultaneously the unemployment rate and labor underutilization also increased. This corresponds to the decrease in subsistence farming. As this transition from food production outpaces the rate of job growth and less skilled labor enters the workforce unemployment is driven up.

The share of agriculture in total employment has slightly decreased, 26.3% in 2010 to 25.6% in 2013. This excludes subsistence farmers who are treated as out of the labor force. Over the same period, employment in manufacturing, in transport and communication, wholesale and retail trade, financial and insurance activities, professional, scientific and technical activities, and administrative and support service activities increased both in absolute and relative terms. This indicates that employment is transitioning from low value added agriculture into higher value added industries which will require greater training and skills.

The share of employees in total employment has substantially decreased, from 49.4% in 2010 to 41.6% in 2013. "It is possible that as subsistence foodstuff producers moved to the labor force, not all found paid employment, and as a result many had to establish their own business in the form of own-account workers or work in a family business as contributing family workers." This is corroborated by an increase in vulnerable employment from 47.7% in 2010 to 54.5% in 2013. As workers transition from subsistence farming and seek formalized employment they are increasing the overall labor force but many are unable to gain traditional employment forcing them into more vulnerable employment types i.e Own account/ family work. In 2013 72% of all employment was in an informal sector job up from 67.8% in 2010. This is driven by the high number of own account workers (48.2% of informal employment in 2013)

Relatively modest increases of the labor force participation rate, between 2010 and 2013, in urban areas has not been sufficient to absorb the large reduction of subsistence foodstuff production, perhaps due to the added effect of rural-urban migration during the period. Subsistence farming in urban areas has decreased over 11% while the labor force participation rate has only increased 4.5%. Unemployment rates also tend to be higher in urban areas indicative of the rural to urban migration pattern that is taking place as workers move from subsistence rural farming to the cities in search of higher wage employment.

6.10 Timor-Leste Survey of Living Standards (TLSLS-2 and TLSLS-3)

6.10.1 General Directorate of Statistics, "Timor-Leste Survey of Living Standards." 2007.

This report is list of cross tabulated results from the Timor-Leste Living Standards 2007 survey which was extended to 4,500 households. The TLSLS was launched on 27 March, 2006. The survey was designed to run over a period of a full year in order to better account for any

seasonal variation in different indicators. However, after about eight weeks of fieldwork, the survey had to be suspended due to the outbreak of conflict in the country. The survey was resumed on January 9, 2007, and survey operations progressed without interruption until the conclusion of fieldwork in January, 2008.

The report includes tables of results related to demographics, housing, access to facilities, durable goods, education, health, employment, social capital, and subjective well-being. These results are broken down by regional area and urban vs rural as well as by gender. Some key indicators relate to educational attainment and literacy as well as unemployment and hours worked.

6.10.2 “Poverty in Timor-Leste 2014.”

This report is a detailed assessment of the poverty related indicators from the Timor-Leste Survey of Living Standards 3 (TLSLS-3) undertaken from April 2014 to April 2015. It involved a survey of 5,916 households. The report uses a consumption based poverty index as this data is more readily available and provides a more comprehensive understanding of poverty. The index is derived as a sum of the food poverty line, the rental poverty line, and the non-food non-rent poverty line. Each defined as the average cost of essential necessities such as cost of caloric intake, cost of good quality dwelling with access to infrastructure, and the average non-food expenditure of those households who are near the food poverty line.

Between 2007 and 2014, per capita consumption expenditure at least doubled in nominal terms for all households except for those poorest 5% of households. This increase was largely driven by increases in rental expenditures especially for those in the bottom 50%. This cost increase was associated with considerable improvements in the quality of dwellings and public infrastructure.

Over the same period the national poverty line grew by 84.5% from just over \$25 per person per month to over \$46. This was highest in the urban center of Dili. Despite this the incidence of poverty decreased 9 percentage points from 50.5% of the population to 41.8% which still is a very high proportion.

6.11 World Bank. “Doing Business Report 2018: Economy Profile Timor-Leste.” 2018.

The Doing Business report provides objective measures of business regulations and their enforcement in Timor-Leste. It provides quantitative indicators on regulation for starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. The report scores a country between 1 and 100 in each of these categories as well as providing a global rank out of the 190 countries reviewed. This is then used to provide an average score for the country.

The report ranks Timor-Leste 178 out of 190 global economies in terms of its ease of doing business. Timor-Leste is ranked low in almost all categories with only two breaking the top 100, protecting minority investors (81) and trading across borders (98). Timor-Leste is ranked especially low with regard to resolving insolvency (168), getting credit (170), registering property (178), and enforcing contracts where it was ranked last of all countries (190). Some of these low

scores are due to a complete lack of any legal structure to deal with certain business related issues such as property registration and resolving insolvency. While the systems technically exist to handle contract disputes they are inefficient and extremely time costly and time consuming.

6.12 SEPF OPE. "Tracer Study SEPF OPE, Timor-Leste 2015." 2015.

The focus of the Tracer Study was to evaluate the results of the accredited professional training program for those students who had frequented the training during 2013 and 2014. The survey was an attempt to collect data from students who had ultimately completed the training program. The survey was conducted from September to December 2015 and covered 381 respondents chosen from the 2,877 graduate pool.

In general respondents had positive views of the training centers, most of them stating that facilities were adequate and that the training centers helped them to master the required skills. Respondents were also satisfied with split of classes between practical experiences as well as in class learning and most were involved with an internship which they felt was helpful.

Respondents left the program very excited to apply for new jobs, however, over 41% who applied for a job waited greater than 6 months to actually get a job. In total 41% of respondents who applied for a job successful in getting those jobs. Of the respondents surveyed only 17% were employed in permanent positions though 86% of respondents were working full time jobs.

Most respondents believed that their competences improved after the completion of the training programs. These competences were found suitable with those needed in real work situations. However, they also believed that they needed to take further training or study to get better competence, better career, higher salary, or to work abroad.

6.13 Department of National Labour Market Information. "Market Outlook Timor-Leste Edition 7." 2018.

The purpose of this report is to provide a broad overview of trends in the Timorese economy and highlight challenges that exist moving forward.

Oil revenues are declining the country and estimated to drop to 0% economic contribution by 2022. This will likely have considerable impacts on government spending into the future. Diversifying the economy will be essential. This diversification will be important to shift the agricultural economy into more value added industry. Currently 41% of the workforce is employed in agriculture while the industry only contributes 6% to GDP.

Consumer Price Inflation has been near 0% since 2014 while wages jumped 10% in 2017. The IMF has commented that minimum wages in Timor-Leste are relatively high compared to regional peers which may hinder the country's ability to attract foreign investment. This is coupled with issues in access to credit for businesses.

Fertility rates in the country are decreasing, however, Timor-Leste is in the face of a large youth bulge which will add over 300,000 people to working age population in the next 10 years. This will put significant strains on an already struggling education system making providing skills for these young people even more difficult. Assuming a constant 30% labor force participation rate, which is quite low, it is expected that 9,000 new entrants will enter the labor market every year

while only about 4,000 jobs per year are being created. While this level of job creation is significant compared to 10 years earlier (10 times) it will still leave 5,000 young people in search of work and a total of 26,000 young people little or no economic opportunity every year. This is coupled with already high dependency rates currently at 81%. This means that, when combined with unemployment rates (11%), only 190,000 people in the population of 1.2 million are currently employed.

Significant gaps exist in labor demanded for sales, construction, hospitality, and language related jobs. Based on job postings online demand is highest for business related occupations such as finance and economics as well jobs in health and social work.

6.14 Timor-Leste Ministry of Education. "National Education Strategic Plan 2011-2030." 2011.

The goal of the National Education Strategic Plan 2011-2030 to comprehensively analyze the situation of education in Timor-Leste. It identifies challenges that affect the Ministry of Education's ability to meet the country's education obligations, as well as its commitment to the Millennium Development Goals for 2015 and other National Priority targets.

The report identifies major institutional barriers to improved education including the distribution of facilities in the country, discrepancies in language teaching and understanding, deficiencies of teachers, and issues of enrollment across regions and demographic groups.

The plan focusses on how to improve efficiencies and structure within the education system. This includes creating quality standards and assessments for schools as well as retraining teachers to provide better instruction. It also includes plans to handle the high rates of repetition in the system as well as overage students by developing accelerated learning programs as well as providing schools with the materials they need to such as textbooks and other education materials. The program also lays out goals to improve the system from 'bottom-up' beginning with primary school and working up in order to quickly improve completion rates.

6.15 Timor-Leste VI Constitutional Government. "National Employment Strategy 2017-2030: Productive Employment Shall Be a Central Means of Nation Building and Wealth Creation." June 2017.

The National Employment strategy is written as an accompaniment to the Strategic Development Plan 2011-2030. The purpose of the report is to guide employment action plans by setting out the general direction that actions. The report relies on information and data presented in other reports such as the Timor-Leste Labour surveys.

Demand side constraints are outlined in the report. Economic growth has been driven by the oil sector, which does not generate significant employment. The non-oil economy is driven by government spending, which contributes to a high cost structure in the economy. In real terms the agriculture and manufacturing sectors have shown limited growth. The productive sector growth is constrained by a lack of land tenure certainty leading to limited markets in land. Low labor productivity stemming from low levels of general education and limited working experience have also contributed to slowing economic growth. Labor competitiveness is low (high wages and low productivity relative to competing nation) the cost of agricultural labor is estimated to be 5USD/day, double the rate in neighboring West Timor. Low firm level productivity resulting from

weak coordination amongst businesses and a lack of businesses to supply inputs and provide business support services. Weak contract enforcement and uncertainty relating to undeveloped labor regimes. Concentration of economic activity in the capital and small domestic market.

The three main policy areas the report seeks to address are to present ways of creating more and better employment opportunities for the existing labor force, creating new employment for young people entering the labor force who are otherwise struggling to find employment, and to create more opportunities for women who are underrepresented and underutilized in the labor force. To do this the report presents ways of increasing labor market demand as well as strengthening the labor supply.

The report suggests strengthening property laws, identifying competitive advantage industries for targeted investment, encouraging manufacturing investment, improving access to credit especially for women and marginalized communities. They also suggest improving labor transfer schemes to allow more Timorese to work abroad in countries like Australia and South Korea and developing methods of enticing skilled Timorese labor living abroad back to the country in order to utilize their skill sets.

Recognizing the considerable role that government spending plays in employment and employment growth the report sets out objectives to improve the efficiency of this spending so that the employment can be maximized. One method discussed to increase infrastructure spending as a means of employment as well as to provide needed improvements to the country's infrastructure.

The report also sets out plans to strengthen the labor supply through improvements and expansion of the countries higher education and technical training institutions.

6.16 "Lessons Learned from an Early Assessment (2017) of Two Innovations in Basic Education in Timor-Leste."

This report was designed to address the success of innovations to the education system following the 2009 Early Grade Reading Assessment which presented considerable weaknesses in the education system. These first of these two innovations was the development of a new national education curriculum ("*New Curriculum*") implemented in 2016. The *New Curriculum* designated Tetum the primary language of instruction in Timor-Leste. The second innovation also launched in 2016 was the Professional Learning and Mentoring Program focused on institutional level development for administrators and teachers. In 2017 an evaluation of the preliminary results of these changes was undertaken.

The results of the evaluation showed modest improvement as compared to the 2009 EGRA with improvements in reading comprehension being the largest. Improvements in math were more mixed with class 1 students improving well while class 2 students performed considerably lower.

Schools involved in the PLMP program showed strong gains compared to those not involved in the program. Across all indicators schools involved in the PLMP outperformed those not in the PLMP group. These schools also showed greater impact with those students characterized as low-performers.

The largest constraint to implementation of these initiative was determined to be students understanding of the Tetun language. As such the report recommends this be the primary focus of improving the curriculum moving forward.

6.17 General Directorate of Statistics. "Business Activity Survey 2015." 2015.

The Business Activity Survey (BAS) 2015 comprises a sample of 3,131 out of 7,632 businesses of the kind considered in this study. These non-petroleum producing businesses are spread out across the country and mainly located in the major towns of each district. The BAS includes all public and private financial enterprises (banks and insurance companies) as well as all public and private non-financial businesses, with a few major exceptions. Not-for-profit institutions (NGOs, charities, churches etc.) were surveyed only if they earned more than 50 percent of their income in 2015 from trading activities. The GDS aims to produce high quality data from BAS while minimizing the reporting burden on the businesses. The data were obtained from the sample of businesses. The report included tables of key structural data (employment, income, expenses, profit) and tables of economic items (industry value added and compensation of employees).

6.18 General Directorate of Statistics and SEPOPE. "Timor-Leste Labour Force Survey (LFS) 2013."

The Labour Force Survey (LFS) 2013 is the second such survey that has been carried out in Timor-Leste since 2002. It sent out the questionnaires to a sample of populations and collected data from their responses. The particularity of this survey is the use of the new international standards concerning the statistics of work, employment and labor underutilization adopted by the 19th International Conference of Labor Statisticians (Geneva, October 2013).

The main results show that in 2013 the economically active population comprised of 213,000 employed and unemployed persons that translates to a labor force participation rate of 30.6%.

Another main result of the 2013 survey is the identification and quantification of a substantial number of subsistence foodstuff producers (178,900) who were not considered employed according to the new international labor statistics standards. Only a few subsistence foodstuff producers were engaged in labor market activity, either as unemployed (seeking work for pay or profit), or as employed, having a secondary job.

Also, the survey collected data of occupation breakdown in 2013. The top four occupations were mainly in agriculture and sales and services.