

LABOUR MARKET AND SECTOR ANALYSIS:

Baseline Study for Cameroon, Ethiopia, Ghana,
Nigeria, Togo, and Tunisia

REPORT: GHANA



Acknowledgements

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1 Introduction

The Skills Initiative for Africa (SIFA) is an initiative of the African Union Commission (AUC) and the African Union Development Agency (AUDA-NEPAD) supported by the German Government and the European Union. SIFA promotes occupation prospects of young Africans through the support of innovative skills development programmes and close cooperation with the private sector as an integral key stakeholder in the creation of jobs.

In line with this, GIZ has tasked DNA Economics to come up with a methodology to prioritize various sub-sectors across 8 African countries¹. This is done to assist the Skills Initiative for Africa (SIFA), who require information regarding the direction and extent of their investment and financing in prioritized sectors, and who have a specific focus on technical and vocational training students, and graduates, across all member states of the African Union. Moreover, it informs decision making on future skills development initiatives of the respective AU Member states.

This research started prior to COVID-19. Of course, COVID-19 is likely to have a large impact on most, if not all, of the economies across the globe. Accordingly, this pre-Covid methodology was adapted to ensure that a Covid-scenario analysis was completed, looking at the potential recessionary impact of the pandemic across the various sub-sectors within the countries of choice.

Given this backdrop, the current report looks to explain the methodology followed by DNA Economics in order to obtain reasonable forecasts for sub-sectoral employment and GDP trends with very tight data constraints. This methodology, although quite naïve in some sense, provides an indication of which sub-sectors will be worst affected across countries, without any up-to-date macroeconomic data.

As such, the report first sets out a methodology brief, before providing some context to the Ghanaian economy. This is followed by a forecast analysis, and concludes with a ranking of every sub-sector based on the indicators set out in the methodology.

¹Cameroon, Ethiopia, Ghana, Kenya, Nigeria, South Africa, Togo, and Tunisia

2 Methodology brief

As best as possible, this methodology aims to answer the following question:

“Which 3 sub-sectors would benefit most from a skills development intervention aimed at improving labour market prospects for those entering those sub-sectors?”

When defining which sub-sectors would benefit the most, we focused on a handful of indicators:

Table 1: Indicators Used to Analyse Sectoral Labour Demand

Statistical Indicators

Historical employment and real GDP growth per sub-sector

Covid-corrected employment and real GDP growth forecasts per sub-sector

Historical, and forecasted contributions of each sub-sector to national GDP and national employment

Employment-GDP elasticities (i.e., by how much does employment change if real GDP in a sector changes)

The length of time before the COVID-19 economic shock dissipates per sub-sector

The gender-equitability of each sector’s employment prospects

Qualitative/Literature-Based Indicators

A sub-sector’s prevalence in the literature as a government/donor agency priority

A sub-sector’s perceived susceptibility to COVID-19 as found in research

Because some of these indicators were qualitative, and some are statistical in nature, it would have been arbitrary to combine them without using a statistical technique which corrects for:

1. The relationship between each variable (for instance, real GDP and employment are positively related),
2. The relationship between the same variable over time (real GDP growth in a previous year often pushes up real GDP growth in the current year due to inertia), and
3. What each variable is measured as (combining a % growth rate with the number of years it would take to recover, and so forth).

As such, Principal Components Analysis (PCA) appeared to be most suited to the analysis, and was used to combine the indicators into an index of prioritization.

While historical indicators were easy enough to calculate, and while qualitative analysis was easy enough to conduct, the forecasting method was perhaps most difficult. Due to the scarcity of data (only having data available in yearly format for all sub-sectors from between 2008 to 2018/19), the forecast method chosen needed to be able to work well with small samples. In order to do this, a truly mixed-methods², the technical team chose to follow the methodology outlined in Box 1:

²Using quantitative information to inform/mix with qualitative analysis, and/or vice versa, simultaneously.



Box 1: Brief Summary of Forecast Methodology

1



Use literature (Ehlen 2007, for example) to assess the impact of pandemic influenza on national and sub-sectoral growth



Economic growth is expected to decline by 2% in the best-case scenario, and 6% in the worst-case scenario in the year of the pandemic, before smoothing over time

2



From this, forecast national and sub-sectoral real GDP growth until 2024 using a Structural Vector Autoregression (SVAR)

3



Assess the relationship between changes in real GDP and Employment (Mistra and Suresh 2014) at a national and sub-sectoral level. Use these relationships to forecast employment changes given forecasted changes to national and sub-sectoral GDP in step 2

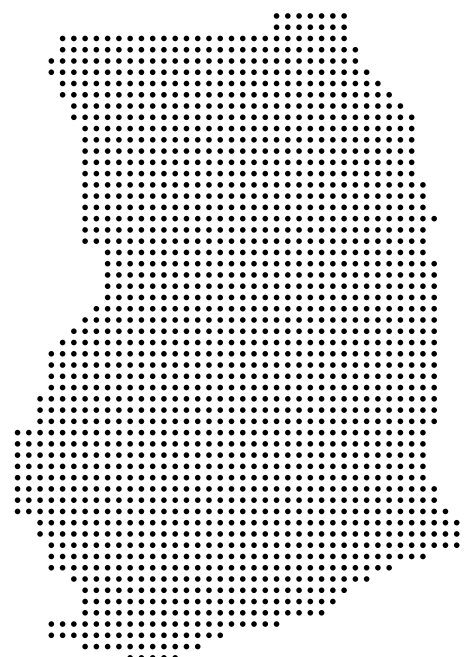
For more information on this methodology, contact Michele Capazario (michele.capazario@dnaeconomics.com)

In short, every scenario of economic decline between 2 and 6% is modelled for at a national level. Using the SVAR, these scenarios are translated into sub-sectoral changes in real GDP, whilst also forecasting how long it would take for each sub-sector to recover to pre-Covid levels. These are then weighted by employment-output elasticities for each sub-sector to understand the extent to which employment in each sub-sector would taper off.

This was followed by a wide stakeholder engagement workshop, which brought together key representatives in Ghana from the TVET and business spaces, as well as focal persons from SIFA offices within the country. These individuals all had vast expertise on elements of labour demand and labour supply within the country, and assisted in honing the findings from the quantitative analysis.

3 Country context

The backdrop for the Ghana economy is set up in the following sub-sections. First, we provide a country fact sheet which summarizes some stylized facts about Ghana's economy. This is followed by a literature synthesis which assesses which of the sub-sectors within the economy are of priority, as well as an assessment of the potential impact of COVID-19 on a sub-sectoral and national level and an assessment of trade and regional integration from a Ghanaian perspective.



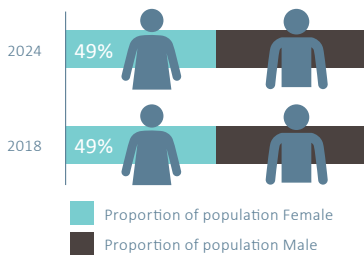
3.1 Country Fact Sheet

Box 2: Population, Employment, and Inequality Summary

Population



- In 2018, Ghana had a population of approximately 30 000 000.
- This is expected to roughly increase to 33 500 000 by 2024.
- The population is split almost equally by gender.



Employment



- Male unemployment: 7% in 2018
- Female “unemployment”: 7% in 2018
- Male unemployment is expected to decline to below 6.5%, whilst female unemployment is forecast to increase to 7.2% by 2024
- Most sub-sectors (highlighted in blue) have improved in terms of gender-equitable employment over the last 15 years, while some have stayed the same or regressed.

Female Employment Improved



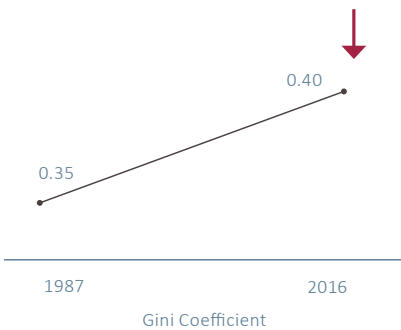
Female Employment Unimproved



Income Inequality



- Ghana has experienced strong economic growth
- This has come amidst growing income inequality over the last 30-year period



Source: Own analysis of data from The World Bank (2020) and The ILO (2020)

While some data remains relatively out of date (specifically the Gini coefficient within the country, given its infrequent estimation), the picture in Ghana is relatively similar to 2016. In general the economy has been growing strongly pre-COVID-19, and often times, economic growth is met with increased income inequality. In terms of gender

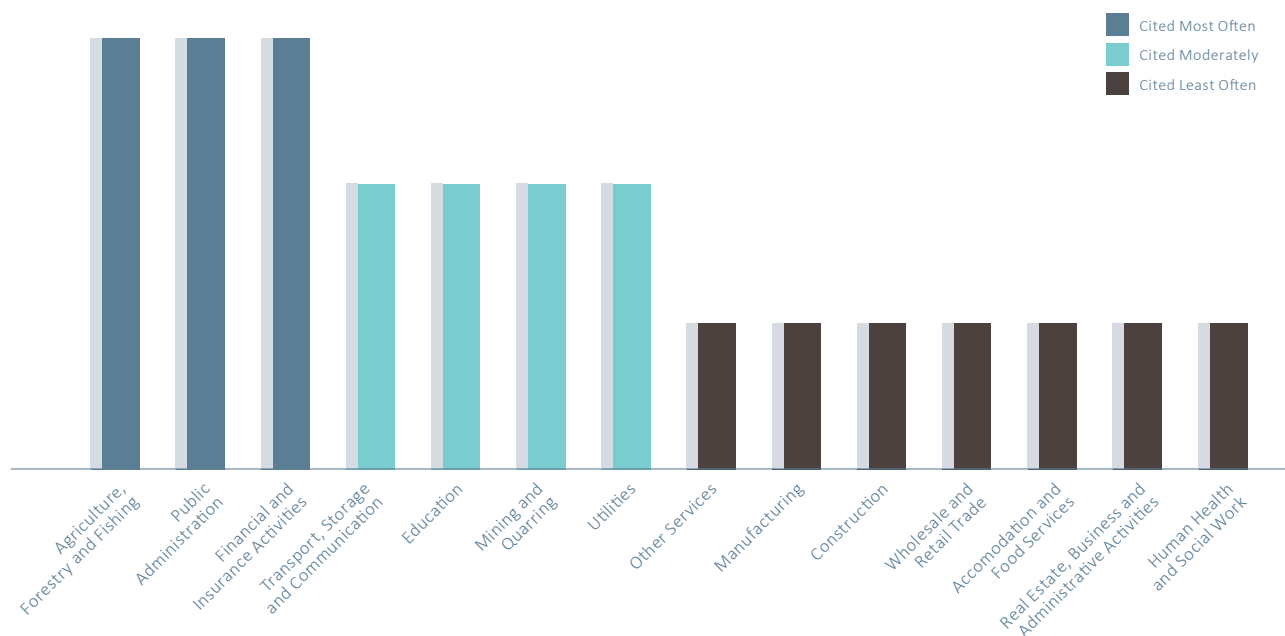
equality though, it is clear that sectors in Ghana either tend to be employing more females and/or employ a majority female workforce (for instance, in the wholesale and retail sector or the human health and social work sector, to name but two).

3.2 Stylized Facts from Selected Literature

3.2.1 National Strategic Priority

In order to understand the developmental path of Ghana, it is imperative to analyse literature. This literature, as analysed below, points out which of the sub-sectors are set to be of priority to investors and the state:

Figure 1: Sub-Sectors Priority across Literature Sources



Sources: (The World Bank Group, 2019); (African Development Bank Group, 2020); (The IMF, 2019); (The National Development Planning Commission of Ghana, 2016) (West Africa Development and Business Delivery Office, 2019)

Given the figure, Ghana's strategic priority based on various strategic priority documents can be summarized accordingly:

1. Between 2019 and 2024, it is likely that more focus will be placed on both the agriculture and financial services sector, as these sectors are able to expand both output and employment in step with one another.
2. It is also likely that focus will be placed on industrialization. Interventions will be focused in the following sub-sectors:
 - a. Energy and utilities,
 - b. Transportation and Communication, and
 - c. Minerals and mining

This set of strategic priorities is related directly to Ghana's trade objectives- because Ghana exports minerals, semi-precious and precious stones, mineral fuels and oil, as well as rubber and cocoa, it is likely that funding will be funnelled into improving export volumes accordingly⁴. However, because it wishes to improve its own knowledge base within-country, it is also likely that developing the education sector will be of equal priority to industrialization efforts

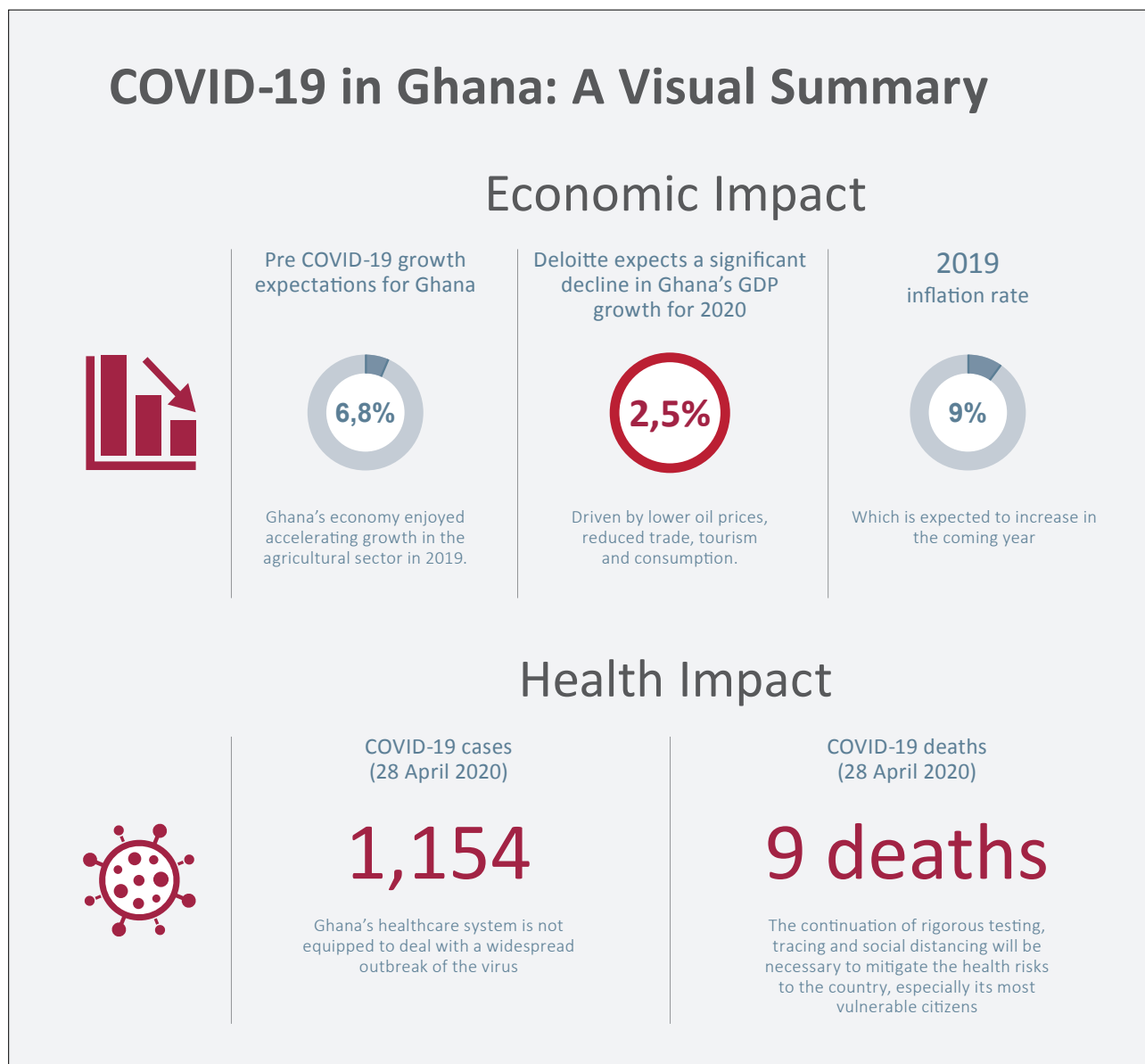
In line with this, trade and regional integration is assessed in the following sub-section.

⁴For a more full list of export promotion that is expected to occur in Ghana, please visit <https://www.gepghana.org/>, where more mention is made of manufactured goods, specifically from the wood processing and industrial crafts industries.

3.2.2 Potential Impact of Covid

Because of the uncertainty surrounding COVID-19 and the extent of its economic (and health) impact, the literature analysis also brings out the potential impact that COVID-19 might have on the Ghanaian economy. This is summarized below, and is included in the analysis further on:

Box 3: Summary of the Impact of COVID-19 on Nigeria



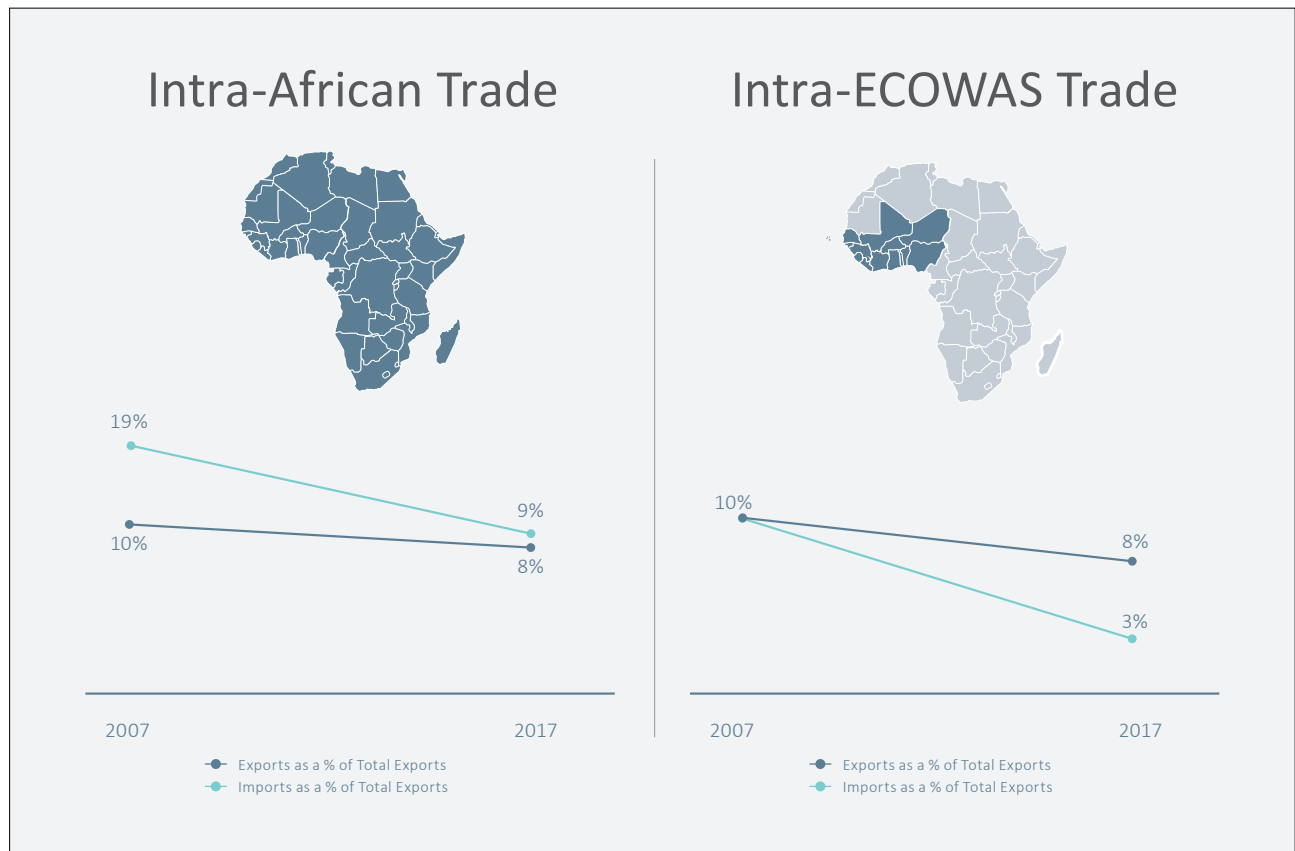
Source: (African Union, 2020) (CNBC Africa, 2020) (Deloitte, 2020) (Sepehr, 2020) (World Bank, 2019) (Worldometer, 2020)

Considering that there is great uncertainty regarding the economic response to COVID-19, it is likely that this information will change on a regular basis. However, this analysis does point out that COVID-19 is expected to have an extremely large impact on the Ghanaian economy, especially in light of the large oil price shocks constraining exports from the country, and in light of general export declines due to the COVID-19 pandemic.

3.3 Regional Integration

Intra-Africa and Intra-ECOWAS trade is summarized below:

Figure 2: Regional Integration in Ghana across Africa and ECOWAS



Source: Own analysis of data from ITC Trademap (2020)

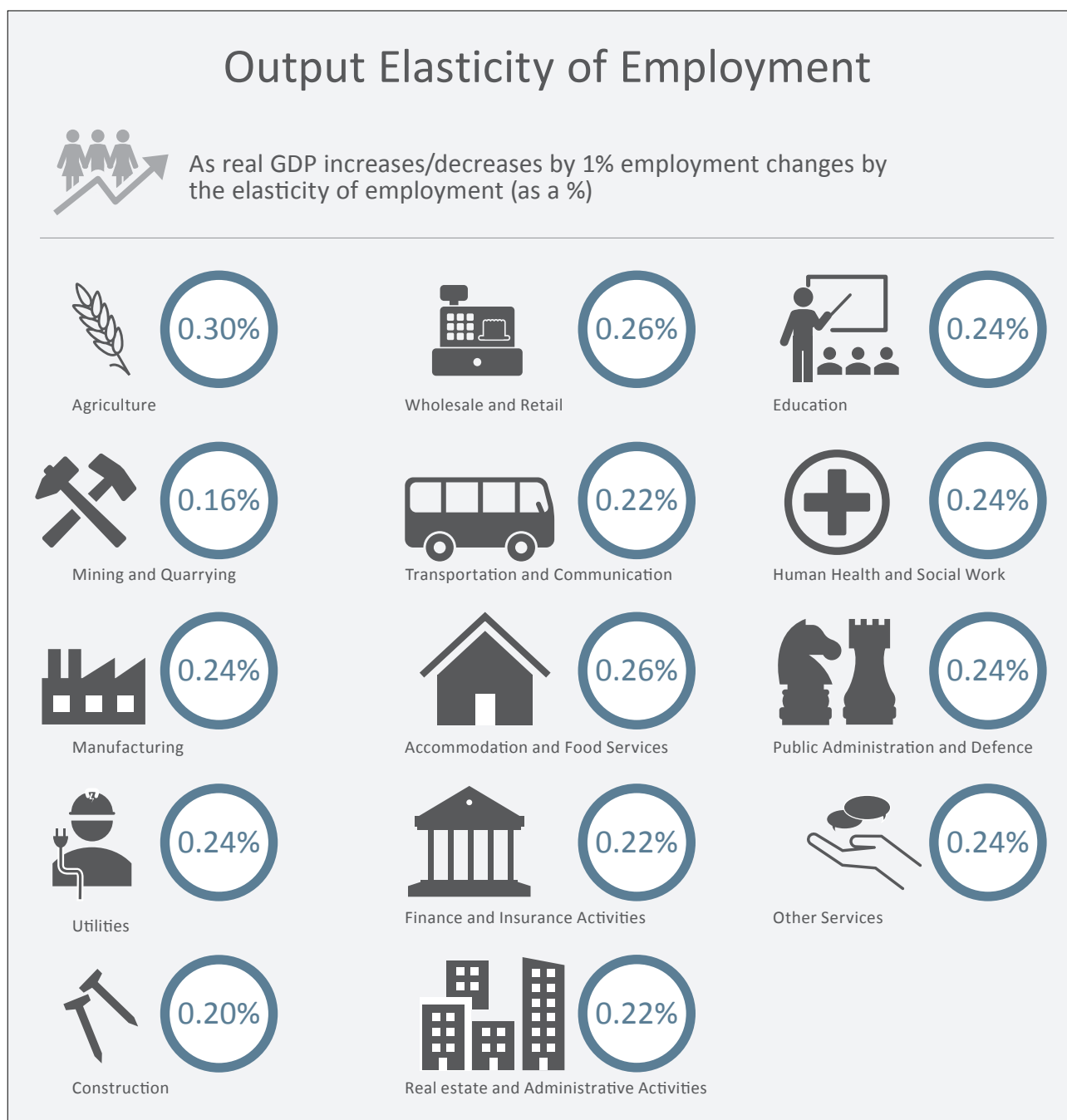
In terms of international trade, it is clear that Ghana has experienced a surge in exports from 2011 (the level of exports to the rest of the world has been slightly volatile between 2012 and 2016), while imports from the rest of the world have steadily increased steadily increased over the last 15 years. Both intra-Africa and intra-ECOWAS have declined dramatically, though, between 2007 and 2017; this signals that regional integration between Ghana and other African countries has weakened substantially, both at a continental and trade-area level.

4 Macroeconomic analysis

4.1 Employment-Output Elasticity

In order to forecast in light of COVID-19, it is necessary to understand the relationship between real GDP and employment in order to model relatively accurate scenarios. This is best summarized by estimating the employment elasticity for each sector, as seen below:

Box 4: Output-Employment Elasticity Summary per Economic Sub-Sector in Ghana



Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

Of course, in normal circumstances, the higher the elasticity of employment, the more likely a sector is to incorporate growth into employment. However, the inverse also holds true- if an elasticity is high, then worsened economic growth theoretically translates to far worse losses in employment than if an elasticity was lower. Because this is the mechanism which assists us in modelling employment further into the report, the sectors with the highest employment elasticities are also those most susceptible to economic shocks, namely:

1. The wholesale and retail sub-sector,
2. The agriculture sub-sector, and
3. The manufacturing sub-sector

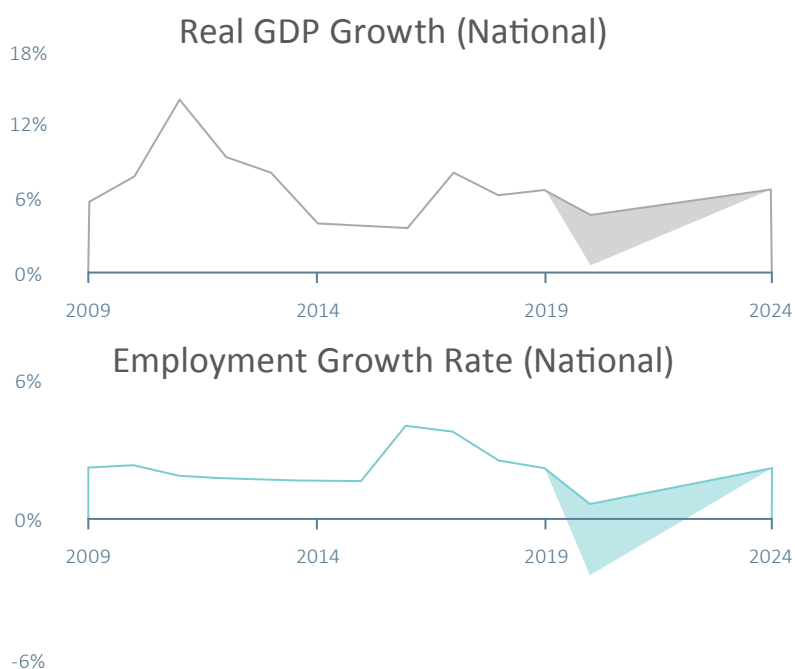
The sector which is least susceptible to an employment shock is the finance and insurance activities sub-sector on the other hand, which has a moderate employment-output elasticity of 31%. If GDP were to decline in this sector by 1%, employment would only drop by 0.31%. It is this relationship which assists in the modelling of forecasts for employment growth and decline in the following sections.

4.2 National

At a national level, although Ghana’s historical growth has been quite robust, it is likely that COVID-19 will have non-negligible impacts on various sub-sectors. This impact is first explored nationally though:

Figure 3: National Real GDP and Employment Forecasts for Ghana

These forecasts show that, relative to real GDP growth in 2019 of around 6.5% and employment growth of 2.5%:

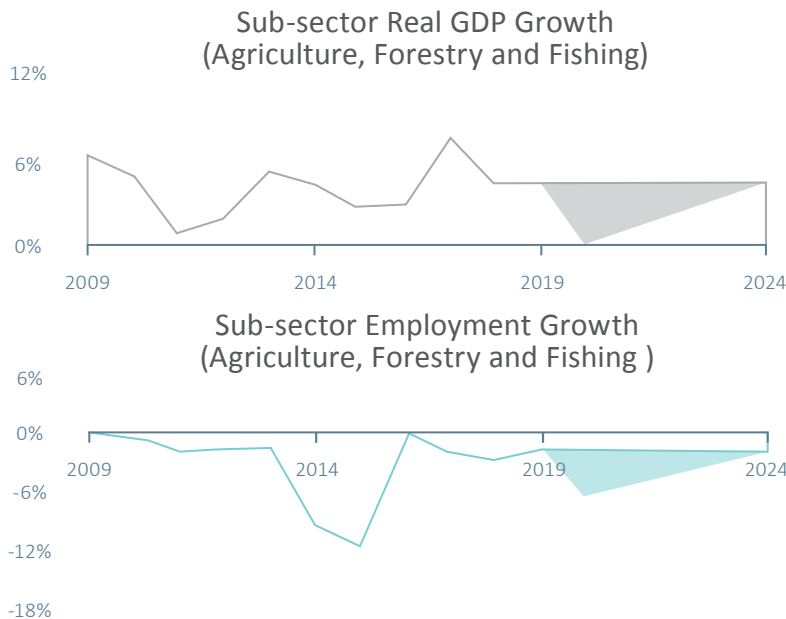


- Due to Covid, the best-case scenario would be for Ghana’s national growth in 2020 to hover around 4%, whilst recovering to 2019 levels by 2023/24.
- In the worst-case scenario, Ghana’s economy would still recover fully by 2024. If this is the case though, it is expected that real GDP will only grow by between 0.25 and 0.5% in 2020, before improving slightly over the following years.
- These scenarios translate to a forecast of weakened employment growth in the best-case scenario of 2%, with the worst case forecasting employment to decline nationally by close to 2.5% (with the economy shedding up to 293 000 jobs across various sectors).

Source: Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

4.3 Primary sector forecasts

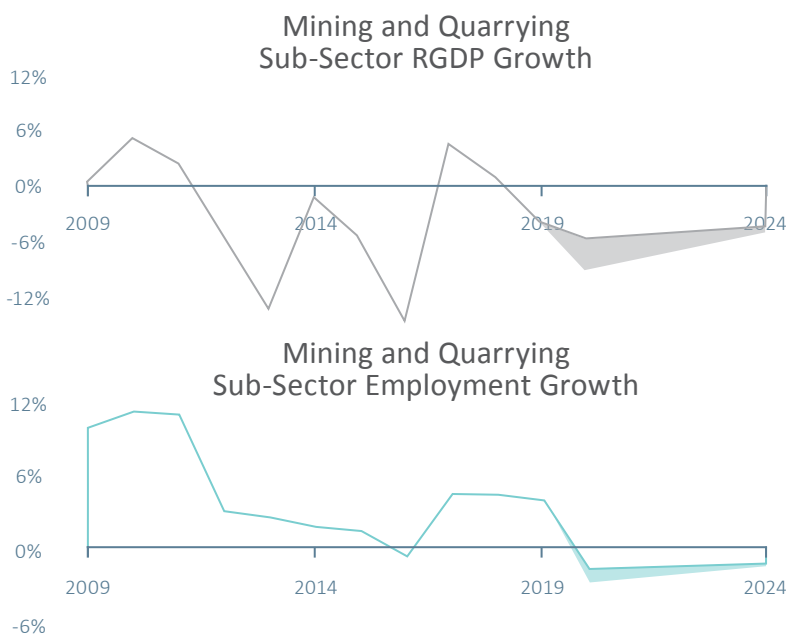
While the agriculture sector (which employed 3.6 million people in 2019) has historically been growing quite robustly, the forecasts suggest that:



Source: Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

- Real GDP is expected to decline slightly (by 0.25%) in the worst-case scenario for 2020.
- This translates to employment declining by between 3 and 6% in 2020. In the worst case, the agriculture sector could shed up to 230 000 jobs.
- This employment trend is likely to continue given the impact of mechanization on the agriculture sector; however real GDP is expected to recover by 2023/24.

Historically, the mining and quarrying sector (which employed 107 000 people in 2019) has experienced extremely volatile economic and employment changes. The forecast post-Covid suggests that:

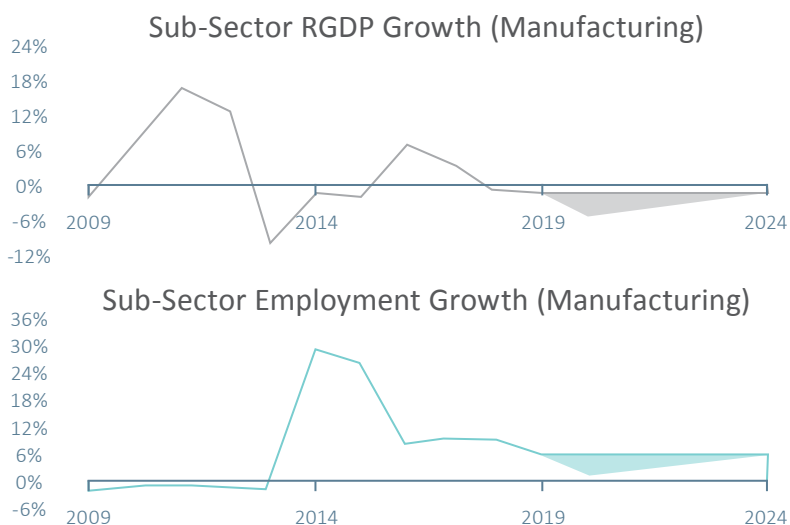


Source: Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

- Real GDP is expected to shrink by between 0.5 and 1.5%
- This translates to employment which is expected to remain consistent, either increasing by up to 0.5% in the best case for 2020, or decreasing by 0.5% in the worst case. In the worst case, this translates to 1 300 job losses in the sector.

4.4 Secondary sector forecasts

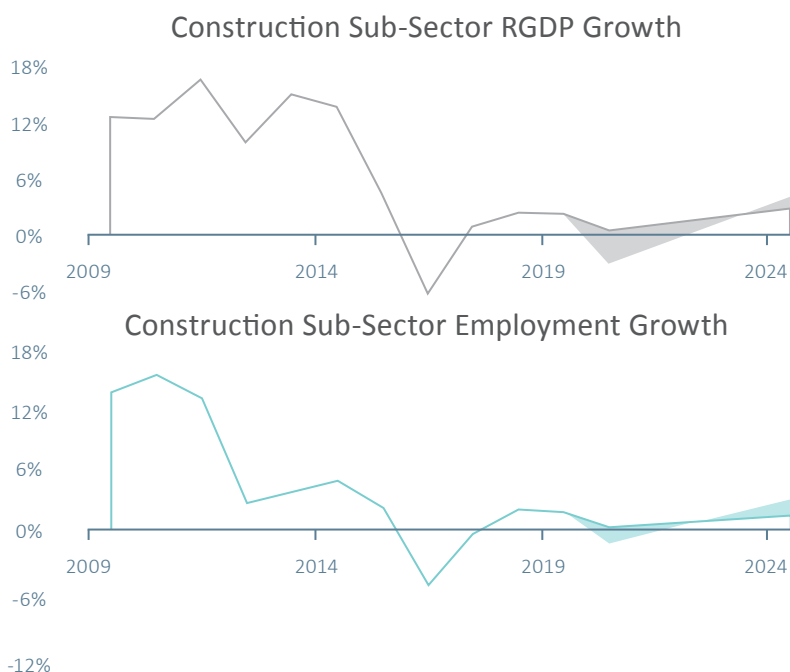
Output growth in the manufacturing sector is expected to weaken in light of COVID-19:



- Real GDP is expected to grow by close to 0.5% in the best-case Covid scenario in 2020, and decline by close to 3% in the worst case.
- This translates to between a 0.25% increase in employment and a 1.5% decline in employment for 2020 (the latter of which translates to a loss of 70 000 jobs in the sub-sector). The sector previously housed some 4.6 million workers in 2019
- In the worst case, the manufacturing sub-sector is likely to recover slightly by 2022.

Source: Analysis of data from Central Bank of Nigeria (2020); verified by data from The World Bank (2020) and United Nations (2020)

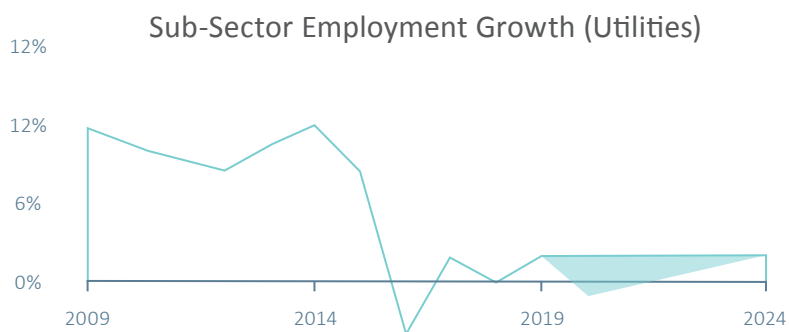
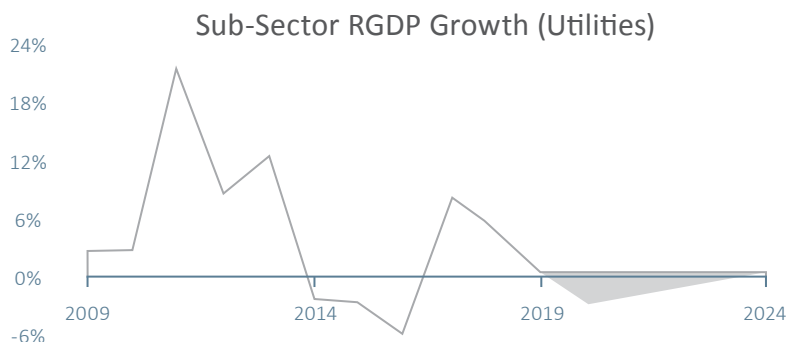
Historically, the construction sub-sector (which employed 447 000 people in 2019) has grown quite rapidly at times, but is recently moderating. That said:



- Real GDP, which was growing at 4% in 2019, is expected to decline by up to 2.5% in the worst-case scenario for the sector in 2020.
- This translates to a decrease in the growth rate of employment from 5% in 2019 to 1% in the worst-case scenario for 2020.
- By 2023, it is forecast that the sector will recover to more robust growth levels than in 2019.

Source: Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

Because the utilities sub-sector has historically grown quite strongly, it is expected that:

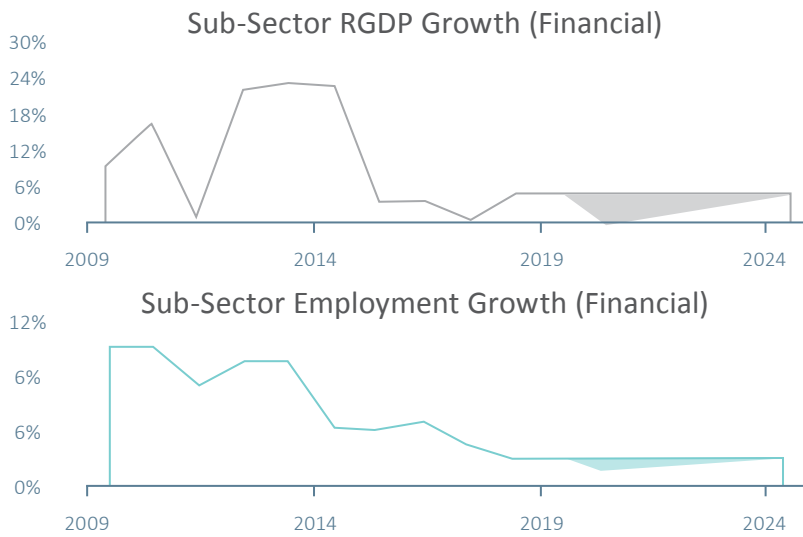


- Real GDP is expected to decline by up to 2.5% in the worst-case Covid scenario in 2020.
- This translates to a decline in employment of up to 1% in 2020, at worst, which translates to a decline in approximately 500 jobs. The sector previously employed some 50 000 workers in 2019.
- The sector is forecast to recover to 2019 growth levels by 2023/2024, and partially recover in terms of employment growth by 2021/2022.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

4.5 Tertiary sector

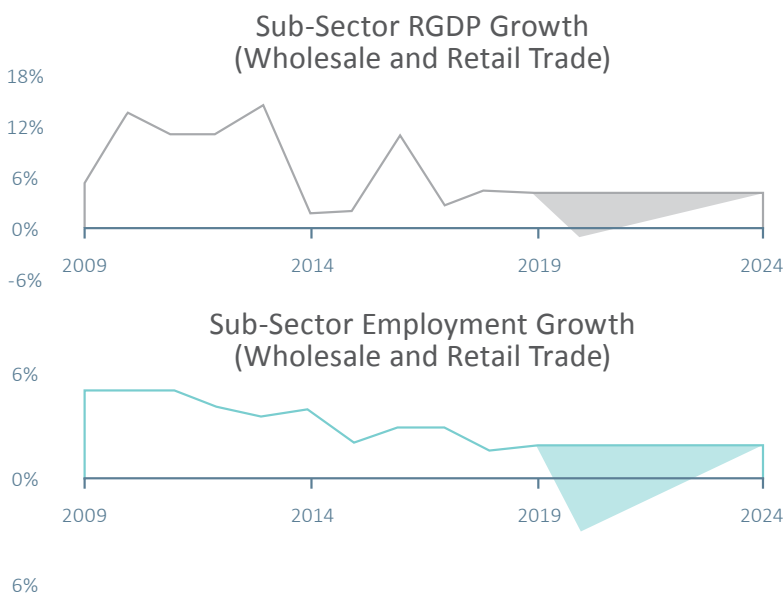
The financial sub-sector (which employed 102 000 people in 2019) is forecast to do the following:



- Real GDP, which was growing up to 6% in 2019, is expected to **grow less rapidly by, at worst, 0.25% in 2020.**
- The forecasting model projects that, as opposed to 3-4% historical employment growth, **the number of people employed will grow in the sector by, at worst, 1-2%, in 2020.**

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

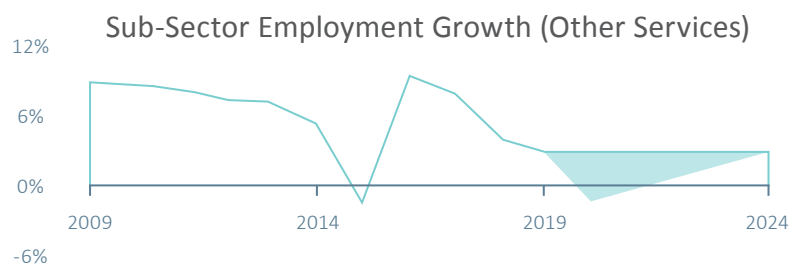
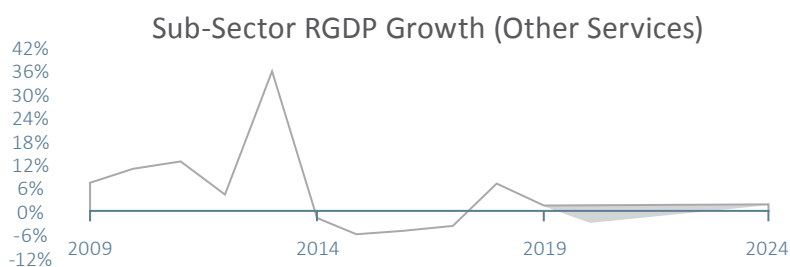
The wholesale and retail sector- having employed 2.4 million people in 2019- although historically growing robustly, is forecast to lose some of its historical gains, post COVID-19:



- Real GDP is expected to **decline by up to 0.5% in 2020, as opposed to growing by approximately 5% in 2019.**
- This translates to a decline in the employment growth rate from 2% in 2019 **employment going down in 2020 by up to 3%. At its worst, this could cost the sector up to 78 000 jobs.**
- The sector is expected to recover to pre Covid levels of growth by 2023/2024 as well, but partial recovery should begin by 2022/2023. .

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

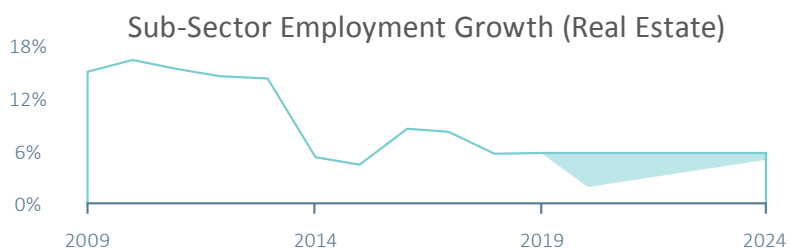
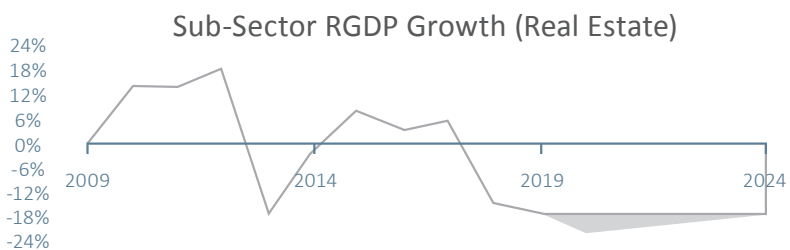
The other services sector (having employed 690 000 people in 2019) is forecast to decline slightly, both in terms of GDP growth and in terms of employment:



- Real GDP is expected to decline by up to 1.5% in the worst case, or grow by up to 0.5% in the best case in 2020.
- This translates to employment declining by, at worst, 1% (which translates into 9 000 jobs being shed in the sector).
- In the worst-case, the sub-sector is likely to recover partially by 2022 in terms of both employment and real GDP growth.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

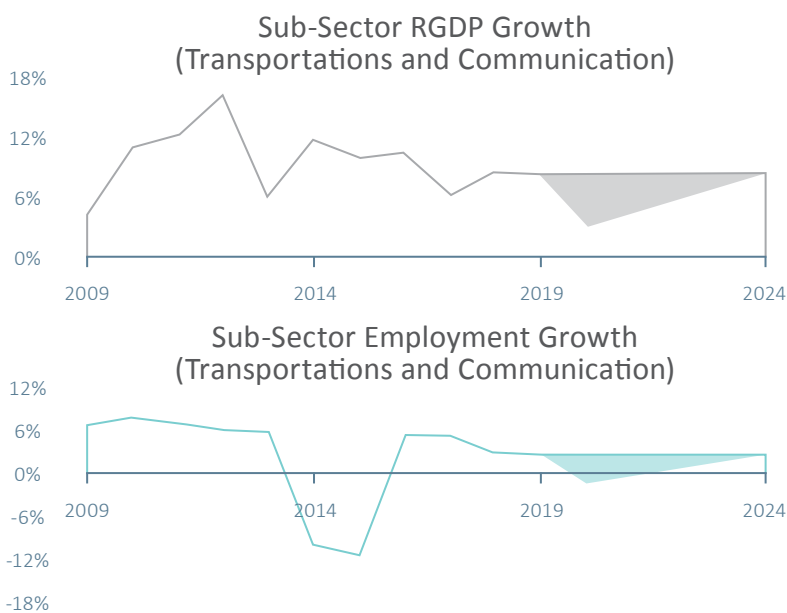
The real-estate sector has historically experienced a slowdown in real GDP growth:



- Real GDP in the worst-case scenario is expected to decline by up to 20% in 2020, in comparison to a decline in real GDP of about 16% in the sector in 2019.
- However, because employment has historically been growing rapidly in the sector, the sector should still see employment grow by at worst 1.5% in 2020. It employed roughly 310 000 people in 2019.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

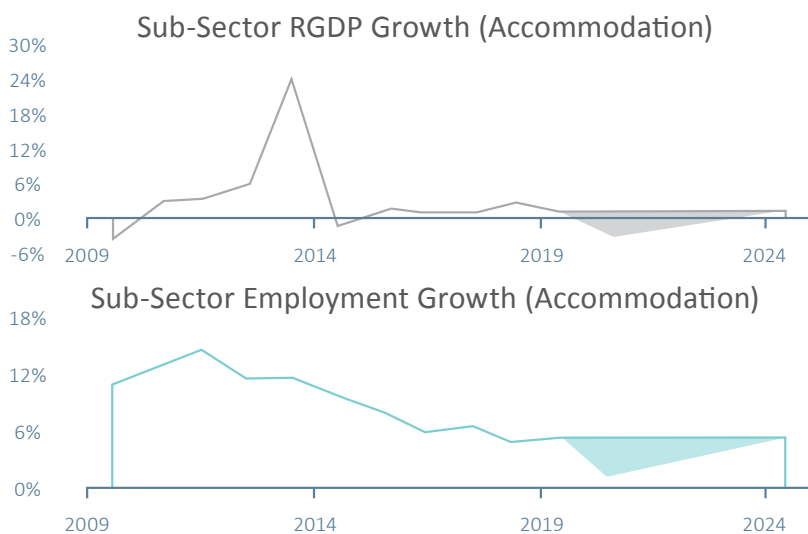
The transportation and communications sub-sector (employing 407 000 people in 2019) is potentially reinforced by historically strong GDP growth trends:



- Real GDP is expected to grow slower than historically (around 7% in 2019) by 3-4% in the worst case scenario for 2020
- This translates to employment growing/declining by between 2 and -1% in 2020 (the worst case would translate into a maximum of 5 000 job losses).
- In the best-case, the sub-sector is likely to recover to pre COVID levels of growth by 2023/2024, with a partial recovery in employment coming about from 2021/2022

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

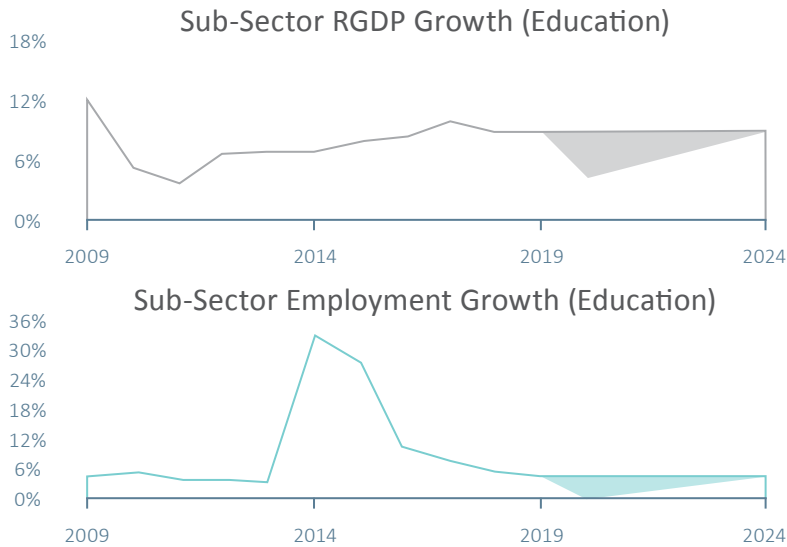
The accommodation and tourism sector (having employed 600 000 Ghanaians in 2019) is expected to grow less robustly:



- Real GDP is forecast to contract by up to 1.5% in 2020
- This translates to between a 1% and 3% increase in employment for 2020, while historically this growth would have hit closer to 5 or 6%.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

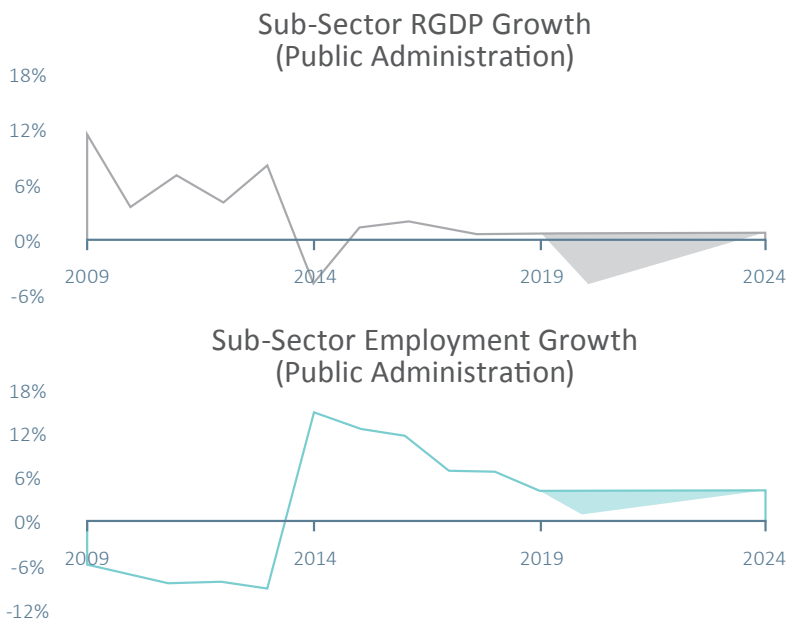
Forecasts for the education sub-sector, which employed 860 000 in 2019, suggest that:



- Real GDP is expected to grow by close to 3% in the worst case scenario, as opposed to the 9% growth from 2019.
- This translates to employment growth of between 0% and 2% in 2020.
- In the worst-case, the sub-sector is likely to recover slightly by 2022 in terms of real GDP growth, whilst employment is expected to recover to pre-COVID-19 levels by 2023.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

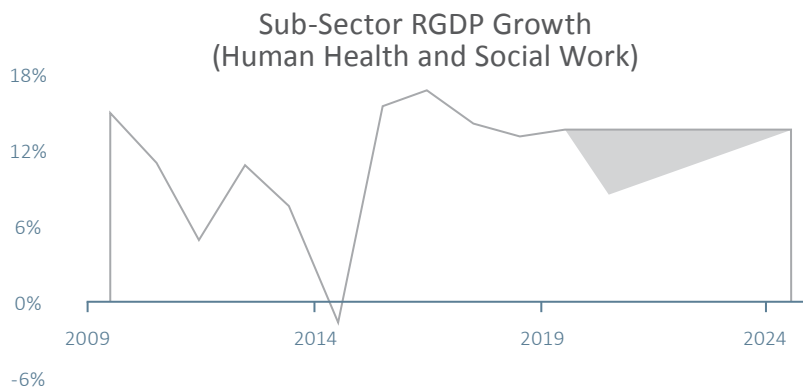
In the public administration sector, which employed 302 000 people in 2019:



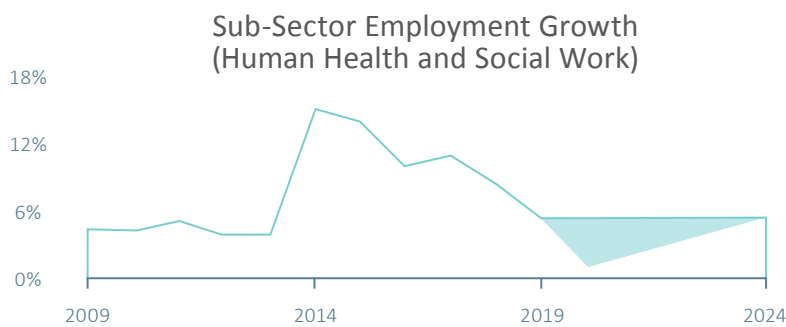
- Real GDP is expected to contract by 4.5% in the worst-case scenario for 2020.
- This translates to employment which is forecast to grow by as little as 1% in the worst and best cases for 2020.
- Positive real GDP growth is only expected to begin again for the sector in 2023/2024.

Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

The healthcare sector (which had employed 405 000 workers in 2019) has historically been growing quite robustly. Considering that it will perform key roles during the pandemic, this is only expected to be slowed slightly:



- Real GDP is expected to grow slower in comparison to 2019 (approximately 11%) by, at worst, by, at worst, 8% in 2020.
- This translates to employment growth of between 1 and 2% in 2020, as opposed to historical growth levels hovering around 5%.

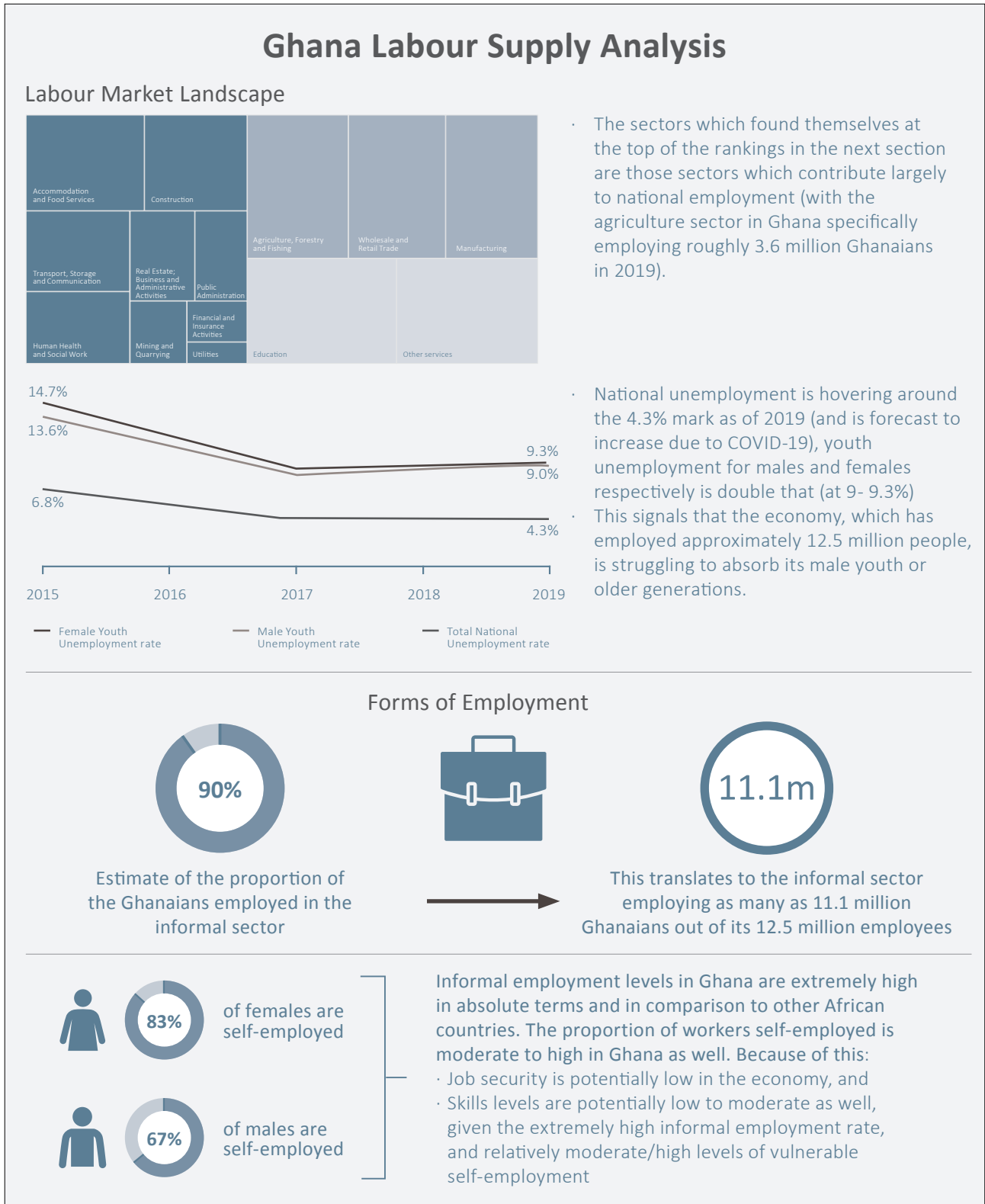


Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

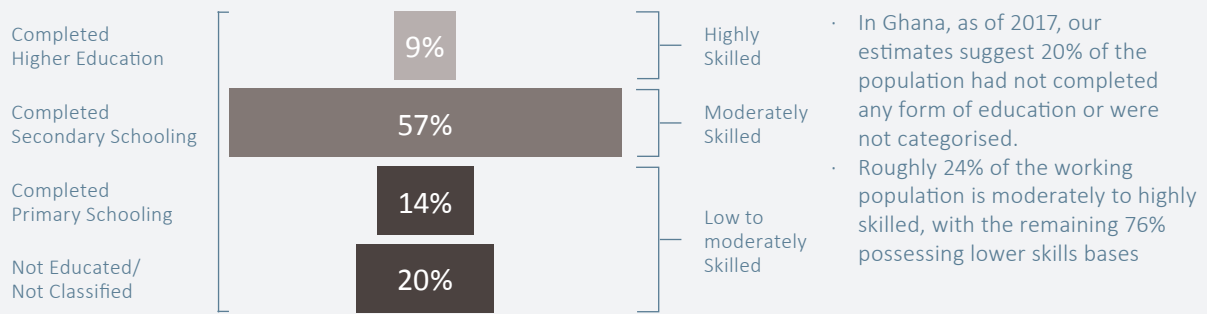
5 Labour supply analysis

The Ghanaian labour market exhibits features of development, but is predominantly informal. Some analysis has been done in the Ghanaian labour market regarding labour supply. As such, below is an infographic which provides the labour market context in Ghana, looking specifically at unemployment characteristics and skills gaps in the country:

Box 5: Labour Supply Snapshot in Ghana

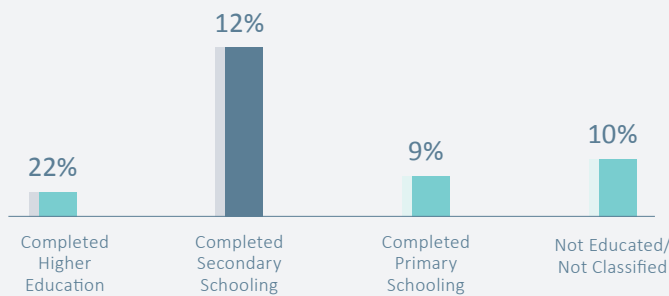


Education and Training Profile



- In Ghana, as of 2017, our estimates suggest 20% of the population had not completed any form of education or were not categorised.
- Roughly 24% of the working population is moderately to highly skilled, with the remaining 76% possessing lower skills bases

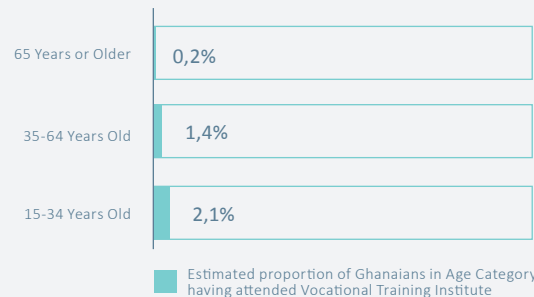
Proportion of Employed Ghanaians who are Underemployed per Schooling level



Our own estimates suggest that most Ghanaians tend to be moderately skilled, with 57% of the population having completed secondary schooling. However, this moderately skilled group is also the category most underemployed in the country (with 13% of Ghanaians who have completed secondary schooling being underemployed).

737 021

The number of Ghanaians who have completed some form of TVET qualification by 2017



Estimated proportion of Ghanaians in Age Category having attended Vocational Training Institute

A 2014 skills gap study in Ghana suggested that skills gaps were present in:

- **The ICT financial services industries** (more than anything, this shortage comes from a lack of trained personnel as opposed to a skills gap per service, rather than a lack of a specific skillset),
- **Construction sector** (while many in the construction sector are informally trained, high-end skills in the sector which relate to planning, technical drawing and other technical expertise are lacking),
- **Accommodation and food services sub-sector** (particularly, with a lack of computer skills and a lack of soft skills as well), and downstream operations like refining, storage and final customer distribution).
- **The oil and gas industry** (specifically as these skills pertain to midstream operations like transportation and logistics, and downstream operations like refining, storage and final customer distribution).

By 2017, it was revealed by the Ghanaian Employers' Association that skills relating to basic IT (use of Word and Excel), as well as more advanced software skills were lacking across all economic sectors in the Ghanaian labour market.

Supplementing this with a study done by the Ford Foundation in the same year, a few key skills deficiencies crop up per sector:

- The Ghanaian MTEF for 2018-2021 outlined that an intergral pillar of development in the agricultural sector was embracing technological advancements while growing the sector's employee base. Skills being created in the sector should, therefore, relate to technological advancement and machine-usage in the agricultural sector.
- In the manufacturing sector, there is a mix of soft- and hard-skill gaps. Again, these skills range from creative and critical thinking to baasic computer skills in the sector. The largest skills gaps occur when trying to manufacture or process agricultural goods, or when trying to ply a trade in the manufacturing sector (i.e., welders, electricians, machine operators, etc.)

Source: (The ILO, 2020); (The World Bank, 2020); (Ford Foundation and COTVET, 2017); (Ghana Employers' Association, 2017); (Darvas & Palmer, 2014); (Department of State, 2009)

From the labour supply analysis, a few key facts should be made clear regarding the Ghanaian labour supply:

- Although growing relatively quickly pre-COVID, the Ghanaian economy is one with an extremely informal labour market, as well as extremely high levels of self-employment. This poses a risk to job security of those in the country, who are employed and either depend on family for business opportunities or make those opportunities themselves, given the epidemic related recession expected.
- That said, World Bank data suggests that the Ghanaian populace is relatively well skilled- with 57% of Ghanaians completing some form of secondary schooling (either junior or senior high school).
 - It is this group of people, however, who are estimated to be the most under utilized in the Ghanaian labour market. This poses a productivity risk for the country, given that the majority of these labourers are actually moderately skilled, and can be put to better use in the labour market.
- A further 9% of Ghanaians have completed some form of post-secondary education (consisting of formal university degrees, as well as short and long cycle non tertiary institution training).
 - In that way, approximately 737 000 Ghanaians in 2017 had completed some form of TVET⁵- this can range from artisanal training to more vocational work given the country's TVET context.

· It is clear that, even though there exists a relatively large stock of technically or vocationally trained workers, skills gaps still exist in the country. This is specifically true for all sub-sectors which aim to use more technology-intensive approaches in their strategies:

- Most sub-sectors experience a lack in basic IT skills (such as the use of Microsoft Word or Excel),
- Specific skills gaps relating to the use of technology machinery in the agriculture, manufacturing, energy, and construction sectors were also reported.

To add to this evidence, a rapid skills assessment in response to COVID was conducted by the ILO in conjunction with the AU and AUDA-NEPAD⁶ in October of 2020. The survey aimed to reach 1000 SMME employers in Ghana across the agriculture, construction, wholesale and retail, accommodation and food services, and education sectors.

⁵According to UNESCO and the ILO (2001), TVET refers to "aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life". Of course, there are differences between TVET systems across the globe, across countries and even across TVET institutions within the same country, but for the extent and purpose of this report even though qualification levels may vary, a TVET qualification of any form is still classified as providing high levels of competency or skill.

⁶(The International Labour Organization; African Union; AUDA-NEPAD, 2020)

In summary, this detailed analysis suggested that the impact on Agriculture in Ghana was varied across industries, with the poultry value chain being most affected by the pandemic. Areas of expertise which require support at the upper end of this value chain include skills related to business recovery, logistical management as well as broiler and egg production. At the primary level of the value chain, individual farmers and their staff component tended to have insufficient knowledge on record keeping, the use of machinery in farming activities, as well as incubation techniques. This sets the grounds for the implementation of training regimes aimed at improving poultry production, logistical operations, and general business practices within the industry.

On the other hand, while the impact on the Wholesale and Retail sector in the country was related to a decline in trade, because Ghana has been moving towards selling and consuming locally produced goods, the impact of the pandemic on the sector has been somewhat limited. This has left room for a potential early recovery in the predominantly informal sector, although it bears mentioning that 58% of the surveyed employers in the Wholesale and Retail sector suggested that job losses did

occur (most of which related to the impact of COVID-19). From a skills profile perspective, employers pointed out that employee digital/ICT skills relating to marketing and e-commerce, computer literacy and communication with fellow staff members were insufficient. Because the response to the pandemic required from an employer is extremely complex, it was also argued by the ILO et al (2020) that entrepreneurship skills are also critical to develop at this stage. Because home delivery services tend to be more favourable during times of limited movement, delivery services provide an outlet for expansion in the time of pandemic which could enable a more formalised approach to the practice of wholesale and retail in Ghana.

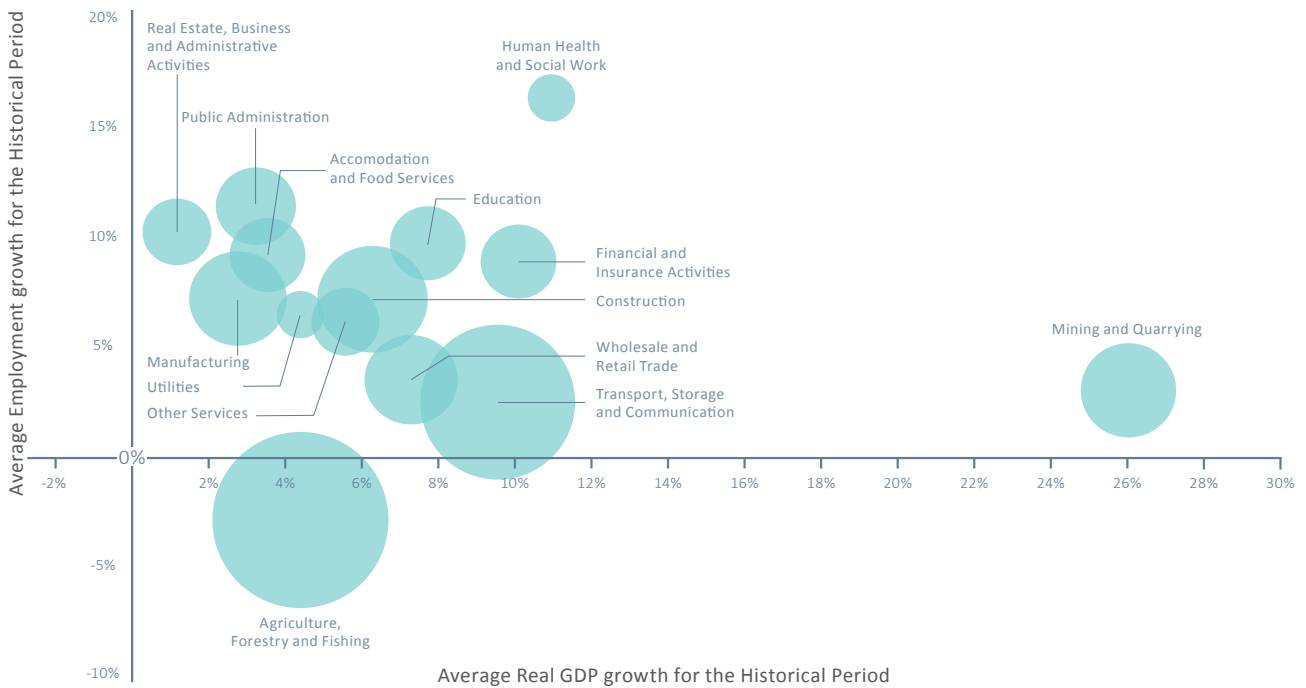
Trends related to remote work and digital skills gaps were highlighted across the remaining sectors, painting a picture that the pandemic- while extremely impactful from a job losses standpoint- is also able to produce some opportunities. This is especially true when looking towards embracing the fourth industrial revolution and the skills that the said revolution requires.

6 Sub-sectors deep dive

6.1 Sub-Sector Choice

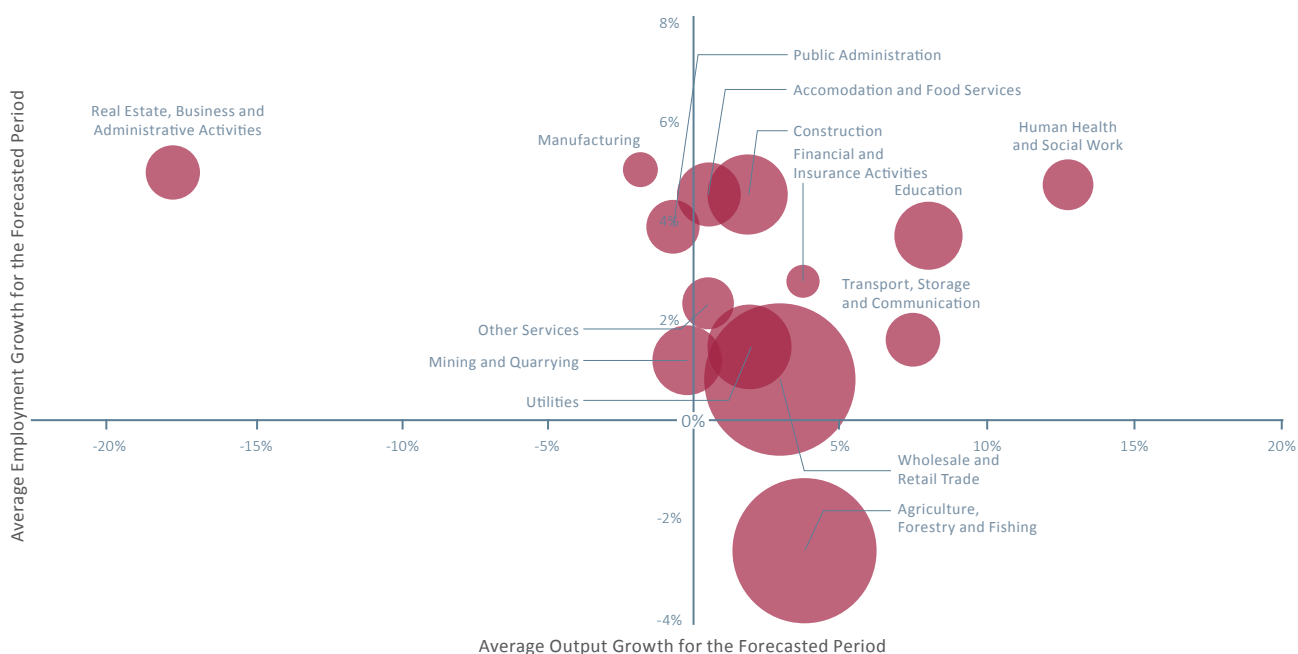
In order to choose which sub-sectors to focus on, it is first important to place each sub-sector into a matrix which summarizes their position within the Ghana economy. As such, we employ a similar sort of analysis as found in FG Consulting (2019), by using an employment-output growth matrix for both the historical and the forecasted period. The size of the bubble relates directly to the contribution of that sub-sector to real GDP⁷:

Figure 4: GDP and Employment Growth Matrix for all Sub-Sectors in Ghana (Averaged from 2008-2019)



⁷As the bubble gets larger, so too does a sector's contribution to national real GDP within that time period on average.

Figure 5: GDP and Employment Growth Matrix for all Sub-Sectors in Ghana (Averaged from 2020-2024)



Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

More than anything these graphics only summarize the analysis done before, and feed into the methodology to obtain priority sectors based on those sectors real GDP trends, employment trends, sizes, gender equitability, and the impact of COVID-19 on those sectors (as outlined in the methodology).

Given these bubble summaries, broad analysis suggests that, due to COVID-19:

- The transport, storage and communications sub-sector is expected to increase in size from 18% of GDP in the historical period to 24% of GDP in the forecasted period in order to better equip the economy with logistical solutions.
- Although still faring better than some other countries, it is clear that most sub-sectors which were more in the favourable region of the matrix (growing in terms of employment and real GDP), are now being pulled towards the centre of the matrix. This shows that most sub-sectors are expected to contract over the next 5 years, in terms of real GDP and/or in terms of employment prospects as well.

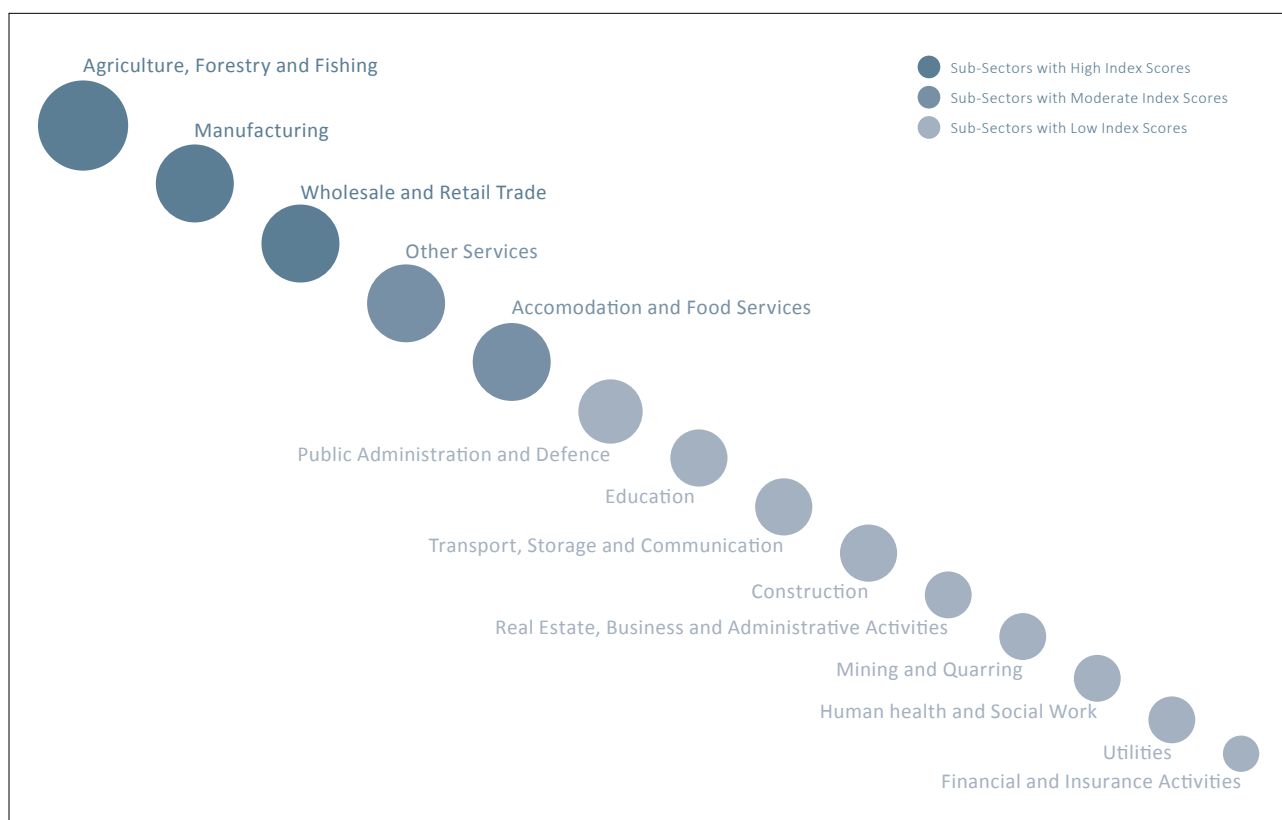
6.2 Sub-Sector Ranking

Given all previous evidence, we use Principal Components Analysis (PCA⁸) to rank the sub-sectors. Weighting is based off of the following indicators:

- Historical employment and GDP growth,
- Forecasted employment and GDP growth taking into account the potential impact of COVID-19,
- Employment elasticity of output,
- A sub-sector's prevalence in the literature surrounding government priority,
- A sub-sector's susceptibility to COVID-19 as found in the literature,
- The persistence of an economic shock of the COVID-19 type at a sub-sector level (i.e., how long it takes for a sector to at least slightly recover from an economic shock), and
- Whether the sub-sector is gender-equitable by means of either:
 - An increasing trend of female employment between the historical and forecasted periods, or
 - Employing a female-majority workforce.

Prior to COVID-19, the sub-sectors were ranked according to the relevant indicators, and the following ranking was obtained:

Figure 6: Pre-COVID Labour Demand Index Rankings

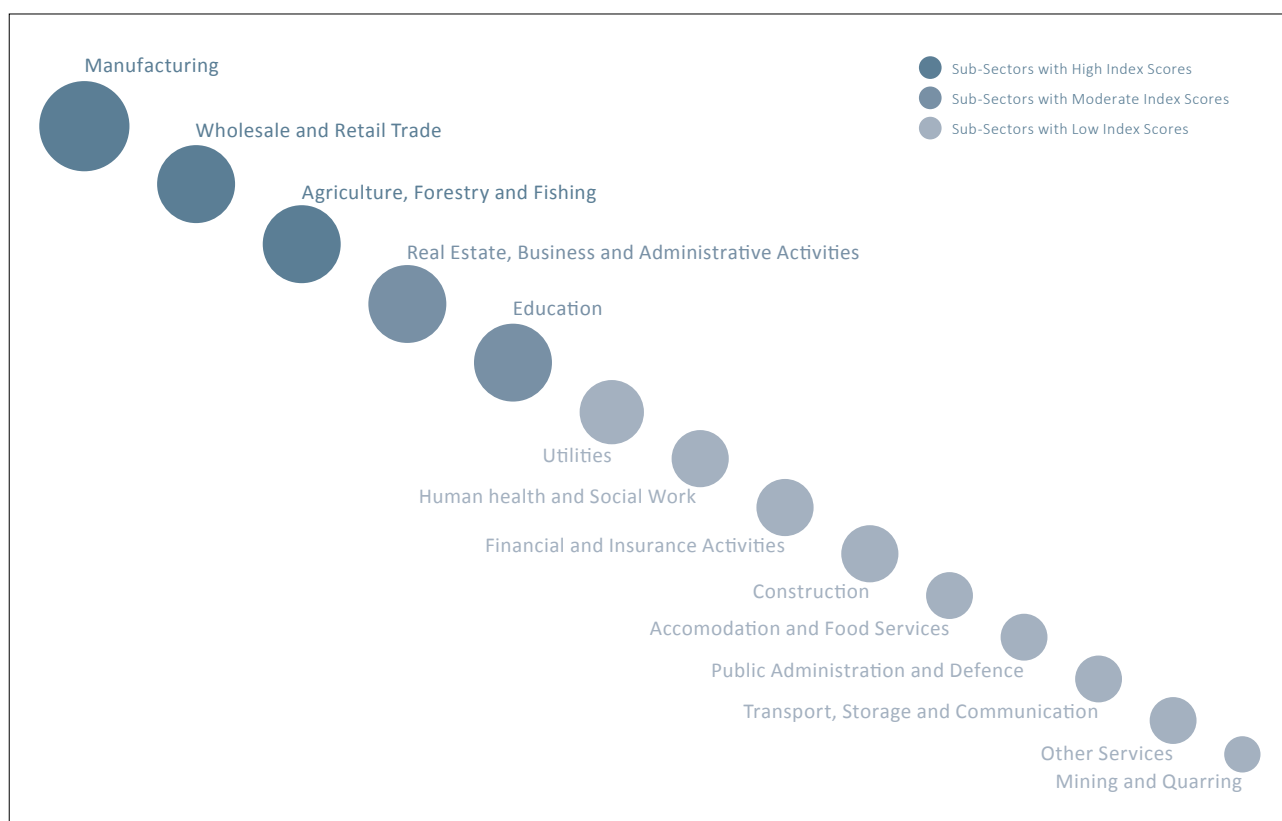


Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

⁸PCA is a weighting technique which attributes weight based on total variation of a particular indicator across time and across dimensions. It attempts to decompose each indicator, relative to all the others, into its core components. This method corrects for things like the relationships between the indicators which are meant to be weighted (for instance, output and employment are related).

This ranking, inclusive of the expected impact of Covid, is summarized below⁹:

Figure 7: Post-COVID Labour Demand Index Rankings



Source : Analysis of data from Open Data for Africa (2020); verified by data from The World Bank (2020) and United Nations (2020)

Given the analysis, the sectors in need of prioritization are the following:

1. The Manufacturing sub-sector,
2. The Wholesale and Retail Trade sub-sector, and
3. The Agriculture sub-sector

These are the sub-sectors which, across dimensions, tend to perform robustly across the various dimensions, and are susceptible to an economic shock due to COVID-19. That is not to say that each sub-sector is best performing across all dimensions (i.e., real GDP growth in the agriculture sector is not forecast to be the highest). Instead, it is these sub-sectors that simultaneously have:

- Relatively strong economic prospects,
- Relatively Gender-equitable employment prospects,
- A place in the literature as a strategic priority, and
- A relative susceptibility to COVID-19 and its prospective economic impact

According to the National Development Plan of Ghana, focus should be placed on all 3 major sectors (agriculture, industry, and services), especially if Ghana is to industrialize further and grow more robustly in the future. With the top 3 prioritized sub-sectors representing each major sector's major contributor, it is clear that the current methodology speaks directly to the strategic priority of the Ghanaian government going forward.

⁹The size of each bubble is directly related to the index score for each sub-sector. Those sub-sectors that are highlighted in red fall below the average index score, while those in yellow or green fall above the average index score.

7 Labour Demand and Labour Supply conclusions

The previous analysis has shown Ghana as a country with potential to advance given its historical growth, especially in terms of its labour market prospects. However, there are clear skills and knowledge gaps in the country which, when corrected for, might be able to propel the country further down the road of economic development and labour formalization.

In terms of forecasts, 3 sectors are set to be prioritized, namely the manufacturing, wholesale, and agriculture sectors. This is not at odds with the country's vision statement for the future, and broadly covers the fact that the Ghanaian strategy is a so-called "big push" of all major sectors, as opposed to a focused approach on one major sector.

Firstly, the labour supply analysis has made mention of the fact that skills in the agriculture sector seem to be at a slightly lower base than employers would have hoped, especially in terms of wide-scale farming operations. It is these technical skills related to the modernization of agriculture that require some focus, and will provide a boost to the sector post-Covid (especially considering that it is forecast to lose somewhere close to 230 000 jobs). A more efficient and knowledgeable labour force in this sector is likely to also assist in the recovery from this economic shock. Research suggests that TVET interventions aimed at linking productive workers to engage in using machinery in the agriculture sector would prove extremely useful, especially in view of a more technological agriculture model in light of the fourth industrial revolution.

More specific areas of expertise which require improvement in the country relate to studies in the following aspects of the agriculture value chain:

- Climate-friendly agriculture practices,
- Aquacultural development,
- Agricultural business-related operations,
- Incubation efficiency studies,
- Egg and broiler making, and
- E-agriculture.

Next, specific mention has been made of the manufacturing sector being adequately skilled in most cases, apart from the manufacturing and processing capabilities relating to oil and oil-related products. In fact, relatively few jobs (roughly 10 000) had been created in Ghana due to the actual extraction of oil. What is missing, as the analysis points out, is a skillset midstream (i.e., relating to the transportation and logistical management of oil and oil-related product transport within the country) and upstream (dealing with the processing, refinement and exporting of related products across the globe).

A natural starting point in this regard would be to take those moderately skilled in the country (those having completed junior high-schooling) and directly link those underutilized in the labour market to

the transportation and logistical operation of the oil industry. Training on the management aspect of oil transportation would prove extremely useful in this regard. Ultimately, those who are underutilized in the labour market and have completed senior high school in the country could then be moved into TVET institutions where training should deal primarily with the value addition that comes with oil. This can mean anything from studying towards diplomas in oil-related manufacturing, or training as an engineering technician, to name but two paths of study.

There is also evidence that Ghanaian agro-processing manufacturers have identified skills gaps that relate to the usage of machinery and equipment. From a TVET perspective, it is possible to look into courses which relate to training on the use of manufacturing machinery. Because the private sector has access to more advanced technology, there is also room to build partnerships between TVETs and private sector partners who might assist in providing learnerships.

Finally, then, while no major skills gaps were identified in the wholesale sector from the analysis, it is the opportunities in light of COVID-19 which might assist in the recovery of this sector post-COVID. An intervention in this case should look to assist the sector to absorb job losses from the informal economy, and transition those jobs into more formalized, job-secure posts. This can be achieved through stakeholder engagement in the sector, as well as relevant up-skilling for those most at risk of losing work due to the pandemic (potentially, this could

mean repurposing those who have lost their occupation in the agriculture sector).

It should be noted here that many aspects of the wholesale and retail sub-sector are informal. This could be brought about due to a lack of connection between the sub-sector and TVET institutions, who do not offer many courses in the sub-sector. It would be useful, in this case, to formalise the linkage between the learning system and the wholesale and retail sub-sector by offering courses which the youth might be attracted to (e-commerce courses, courses in product marketing, and courses relating to soft-skills development and entrepreneurship, specifically). This sector will also likely develop as a positive consequence of the AFCTA, implying that Ghana will have more room to develop import-export chains across the continent.

With this set of interventions, it is likely that the sectors pointed out in the analysis can be bolstered against COVID-19 as best as possible, and the Ghanaian economy would therefore be able to recover relatively quicker than those countries without skills initiatives in place.

Appendix 1 Validation Cliff Notes

Validation workshop minutes for Ghana can be found from here on

Minutes SIFA Macroeconomic and Labour Market Sector Analysis Study Validation Workshop Ghana

Date: 24 June 2020 | Presentation: Michele Capazario (DNA Economics) | Facilitation: Erick Sile (SIFA)

Participants in attendance:

1. Araba Forson (Statistical Service Ghana)
2. Frank Boahene (FC Country Consultant)
3. Naomi Lintini (ILO)
4. Unami Mpofu (AUDA-NEPAD)
5. Cheryl James (SIFA)
6. Erick Sile (SIFA)
7. Sabine Klaus (SIFA)
8. Unami Mpofu (AUDA-NEPAD)

PURPOSE

Initially planned to take place in Ghana, this workshop was organized virtually on 24 June 2020 because of the current pandemic which makes traveling across borders impossible. To finalize the draft reports shared with stakeholders, this workshop sought to gather the following information for the finalization of the report:

1. Validation of assumptions made by Researchers;
2. The report's meaning and usefulness in relation to the National Development Plan and what is seen in the field;
3. Likelihood of the priority sectors highlighted in the report to enhance employability in a post COVID-19 environment;
4. Skills needed at country level in the identified priority sectors.

PRESENTATION

The consultant presented the methodology used to rank the sub-sectors. The projection of GDP growth and employment growth relied on economic data over the last 10 years, up to 2018. This data, obtained mostly from the National Bureau of Statistics and other international organizations such as ILO and The World Bank, went through an initial validation process at country level.

The economic model utilised to rank the sub-sectors used a weighing system relying on the following indicators:

- Historical employment and GDP growth;
- Forecasted employment and GDP growth taking into account the potential impact of COVID-19;

- Employment elasticity of output;
- A sub-sector's prevalence in the literature with regard to government priorities;
- A sub-sector's susceptibility to COVID-19 as found in the literature;
- The persistence of an economic shock such as the COVID-19 at a sub-sector level (i.e., how long it takes for a sector to at least slightly recover from an economic shock), and
- Whether the sub-sector is gender-equitable by means of either:
 - An increasing trend of female employment between the historical and forecasted periods, or
 - Employing a female-majority workforce.

According to the forecasting model, the following three sub-sectors are likely to benefit most from interventions aimed at improving labour market prospects for those entering the labour market:

1. Agriculture, Forestry and Fishing;
2. Manufacturing;
3. Wholesale and retail.

Reactions/Observations/Input after the presentation

Representatives from Ghana confirmed the validity of GDP used in the report. They also agreed with the priority sectors highlighted by the study, based on what is seen on the ground. However, it was noted that employment data, although available, might be outdated. The population census happening this year will provide updated data on employment, which will be even more accurate in 2021 when the business census is completed.

For ILO, this report is a good starting point for a deep dive into the key sub-sectors susceptible to drive employment in Ghana economy. There is a lot of synergies with the upcoming ILO work on rapid skills assessment, which will build on analysis presented in this report. Although the report has presented us with a lot of information at the macro level, the deep diving exercise will determine which specific skills are needed. For instance, a deep dive into a broad manufacturing sector will identify sub-sectors which will benefit the most from upskilling or reskilling.

From a SIFA Finance Facility perspective, recommendations highlighted in this report are very useful for sector analysis and understanding in the process of proposal evaluation. The analysis in the report would have provided good intelligence for Window 1 and Window 2 selection of projects for the SIFA Finance Facility. Although these selections are currently under way, information from this report will form part of the analysis package for Window 3 project evaluations. Moreover, this report is complementary to the Ford Foundation-supported study commissioned by the Council for Technical and Vocational Educational Training (COTVET), which focuses on skills gap analysis of seven sectors in Ghana (Agriculture, Manufacturing, Construction,

ICT, Tourism, Hospitality, Energy & Electronics). It was suggested that this macroeconomic and labour market analysis study be used for further engagements with the TVET Sector in Ghana.

From the report, it is not clear whether the supply side (TVET) is ready to provide the skills set needed by the demand side, since the report clearly focuses on forecasting the demand side of the labour market at a macro level. Also, it is assumed that the prominence of the wholesale & retail sector as a priority sector is mostly due to the informality of this sector. Some questions that come to mind in relation to the large size of the informal sector are:

- Have TVETs developed courses for people in the informal sector?
- Is there a connection between not having access to training and the informality of this sector?

As an initial reaction, it was noted that short courses could be developed in customer service and entrepreneurship. Moreover, the advent of e-commerce is an opportunity for young people in the informal sector to reach out to more clients through new distribution channels. However, developing specific skills in this sector and others require additional deep dive that would address the mismatch between demand and supply.

Way forward

It is important for all priority sectors highlighted in the report to gather more information necessary to determine the exact required skills. This could be done by using the Ford Foundation-supported study as a guide and bringing the enterprises and the TVETs together to discuss how labour needs could be fulfilled by training offered in TVET Schools.

In its upcoming rapid assessment in Ghana, the ILO report will be more specific on skills gaps and how they could be addressed in the priority sub-sectors highlighted by this report. This information from the rapid assessment will be used to finalize the report.

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