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Côte d'Ivoire

Programme for Country Partnership

PCP Industrial Diagnostic Study 2020

Programme for Country Partnership Côte d'Ivoire

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Glossary

AERC African Economic Research Consortium.
AfCFTA African Continental Free Trade Area.
AfDB African Development Bank.
AGEDI Agence de Gestion et de Développement des Infrastructures Industrielles.
ANAGED National Agency for Waste Management.
ANOVA Analysis of Variance.

BMZ German Federal Ministry for Economic Cooperation and Development.
BTI Bertelsmann Stiftung Transformation Index.

CAGR Compound Annual Growth Rate.
CCDD Cadre de Coopération des Nations Unies pour le Développement Durable.
CDT Centre de Promotion et de Démonstration des Technologies.
CEPICI Centre de Promotion des Investissements en Côte d'Ivoire.
CGECI Confédération Générale des Entreprises de Côte d'Ivoire.
CO2 Carbon dioxide.

ECA Emerging Comparative Advantage.
ECOWAS Economic Community of West African States.
EMAS Eco-Management and Audit Scheme.
EQuIP Enhancing the Quality of Industrial Policies.
ES World Bank Enterprise Surveys.

FDI Foreign Direct Investment.

GDP Gross Domestic Product.
GHG Greenhouse Gas (emissions).
GTCI Global Talent Competitiveness Index.
GVC Global Value Chains.

HS6 Harmonized Commodity Description and Coding Systems, IV-digit level.

I2T Société Ivoirienne de Technologie Tropicale.
ICT Information and Communications Technology.
IIP Index of Industrial Production.
ILOSTAT International Labor Organization Statistics.
INSEAD INSEAD Business School.
IPR Investment Policy Review.
ISIC International Standard Industrial Classification.
IVA Industry Value Added.

Ktoe Kilotonne.

LMI Lower-middle income countries.
LUP Latent Untapped Potential.

M&E Monitoring and Evaluation.
MVA Manufacturing Value Added.

NDP National Development Plan.
NGO Non-governmental organization.
NPI Nouvelle Politique Industrielle.

OECD Organisation for Economic Co-operation and Development.

PAGEF Projet d'Appui à la Gestion Economique et Financière.
PCP Programme for Country Partnership.
PEC Competitive Economic Poles.
POP Persistent Organic Pollutants (emissions).
PPD Partners in population and development.
PPP Purchasing Price Parity.

QMS Quality Management Systems.

R&D Research and Development.
RCA Revealed Comparative Advantage.
REDD+ Reducing emissions from deforestation and forest degradation.

SDG Sustainable Development Goals.
SITC Standard International Trade Classification.
SME Small and medium enterprise.
SSA Sub-Saharan Africa.
STEM Science Technology Engineering Math.

TVET Technical Education Vocational & Entrepreneurship Training.

UEMOA Economic Community of West African States.
UNCTAD United Nations Conference on Trade and Development.
UNDP United Nations Development Programme.
UNECA United Nations Economic Commission for Africa.
UNICEF United Nations Children's Fund.

UNIDO United Nations Industrial Development Organization.

UNSD United Nations Statistics Division.

USD United States Dollar.

VAT Value Added Tax.

WAEMU West African Economic and Monetary Union.

WAHO West African Health Organization.

WB World Bank.

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The Côte d'Ivoire Industrial Diagnostics 2020 was prepared under the overall guidance of Mr. Hiroshi KUNIYOSHI, Deputy Director to the Director General of UNIDO and Director ad interim of the Research and Policy Advice Division. It is the result of one year of intense research efforts headed by the Research and Policy Advice Unit Chief, Mr. Nobuya HARAGUCHI and coordinated by the diagnostics team leader Mr. Nicola CANTORE, in collaboration with the UNIDO Representative in Cote d'Ivoire and PCP Cote d'Ivoire Programme Manager, Mr Tidiane BOYE. The diagnostics core team was composed of Mr. Juergen AMANN, Ms. Ruth POLLAK, Mr. Christoph HAMMER and Mr. Thomas ZOERNER.

Executive Summary Industrial Diagnostics Côte d'Ivoire 2020

As laid out in the National Development Plan (NDP) 2016 – 2020 Côte d'Ivoire is a country with the ambition to accelerate structural transformation through a strong impulse to the manufacturing sector. The NDP states that *"L'une des principales conclusions du diagnostic stratégique élaboré dans le cadre de la préparation du Plan National de Développement (PND 2016-2020) révèle que le pays doit bâtir son émergence sur la transformation structurelle de l'économie qui, elle-même, doit être fondée sur l'accélération de l'industrialisation dans un cadre macroéconomique solide et soutenable"*. The successive NDP 2021 - 2025 clearly points out the objectives *"Poursuivre la transformation structurelle"* and *"Hisser le Pays au rang des émergents"*.

Approaching the end of the life cycle of the first National Development Plan (2016 – 2020), Côte d'Ivoire has been achieving impressive progress in its industrialization efforts. Over the period 2010 – 2018 the country experienced a compound annual growth rate (CAGR) of its gross domestic product (GDP) of 7%, which is higher than the 5% average of the Economic Community of West African States (ECOWAS) and the 3% average of the Sub-Saharan Africa (SSA) region. The manufacturing sector contributed to this performance as, for example, the share of manufacturing employment in total employment grew from 2012 to 2017 from 5.37% to 9.12%. Despite the commendable achievements, a full transition towards structural transformation is still in progress. The remarkable GDP growth rate has remained below the 8.8% growth rate assumed by the most optimistic scenario (*Elephant Emergent*) of the National Development Plan 2016 – 2020, and over the period 2010 – 2018 manufacturing as a share of GDP decreased from 12.6% to 12.0%, signaling a stagnation of the process towards industrialization.

The Program for Country Partnership (PCP) comes at the right time to accompany the Government of Côte d'Ivoire in the next years towards a transition to an industrialized upper middle-income country status. The present study is the first input of the PCP elaboration process necessary for providing the paramount information for a fruitful dialogue to identify the specific projects for the future PCP framework. The analysis in this report is conducted by means of a data analysis, a literature review as well as consultations with Ministries, the private sector and research centers.

Côte d'Ivoire's economy is still concentrated on the production and export of primary goods. This calls for immediate action in the field of "*Inclusive and sustainable development of territories and rural areas based on the development of value chains*" as one of the thematic components of the PCP. The development of value chains represents a necessary step to encourage value addition through transformation and to overcome the territorial disparities in the country, especially in rural areas as economic activities are mostly concentrated in and around the country's capital Abidjan. The development of value chains will require a more decisive flow of investments that can reinvigorate the current business environment landscape.

The present study shows a modest inflow of FDI into the country (about 1% of GDP) with a declining trend over the period 2010 – 2018. This aspect calls for decisive actions in the thematic component of "*Investment and Finances*" to leverage resources for manufacturing development, to develop production processes in support of more technological intensive sectors, and to foster value addition in the existing sectors.

In order to fully unleash the potential of Côte d'Ivoire, it is necessary to expand the action space with emphasis on regional integration. Côte d'Ivoire is a country depending on ECOWAS as a market destination for its exports, but the role of Côte d'Ivoire as an exporter to the ECOWAS region remains very low (in 2018 Côte d'Ivoire's manufactured exports accounted for only 1.4% of the ECOWAS market). This flags the need to exploit the untapped potential of an increasing presence of the country in the regional economic process by means of the development of the thematic component

of "*Initiate the positioning of Ivorian industry in the sub-region through value chains*". The value chain of the pharmaceutical sector is an ideal candidate to start working on a stronger regional integration given the great dynamism of the market in the region and the potential for Côte d'Ivoire to implement imports substitution in this market segment.

A strong impulse to regional integration will be given by appropriate policy measures facilitating the creation of connections across countries. The analysis of Côte d'Ivoire's policy performance paints a picture in which many governance indicators are above the performance of Sub-Saharan Africa and the ECOWAS region; however, continuous improvement to further accelerate structural transformation is still needed. The challenges brought about by the global pandemic represent a threat for many lower income countries and call for the thematic component of "*Consensual governance for promoting a competitive, inclusive and sustainable industry. Promoting industrial zones*" to facilitate updates in the industrial policy landscape of the country. Governance is also one of the key areas of intervention and is indispensable for the promotion of inclusive and sustainable industrialization.

In terms of inclusiveness, the country would benefit from a thematic component centered around "*Human Capital and Gender*" as the very low rate of workers with advanced or intermediate education compared to other countries is one of the central aspects reflecting the difficulties of the country to boost technological change and innovation which is exemplified by an increasing but still low manufacturing labor productivity. The participation of women in the economic process is another aspect to give full consideration to promote inclusiveness.

From an environmental perspective, the country would benefit from

- a robust boost towards a reduction of deforestation which is threatened by the current practices of agricultural production;
- an improvement of the practices surrounding waste management and the presence of solid and toxic waste on the municipal level and especially in urban areas;
- a containment of CO2 emissions as the industrialization process will speed up in the immediate future.

All these actions could inspire the design of the thematic component "*Development of sustainable cities and villages*" with a focus on *circular economy* that would accompany a focus on *"Sustainable Energy"* to furthermore emphasize the need of the country to continue the electrification process by deploying renewable energy sources and energy efficiency.

As the PCP program will not target all manufacturing sectors of the country, the present study provides the necessary empirical evaluation that allows for the identification of a set of key manufacturing industries to help the country achieve its ambitious industrialization targets. The analysis is conducted on the level of the industrial sectors (following the *International Standard Industrial Classification*, Revision 3 (ISIC Rev. 3), classification standard by the United Nations Statistics Division [INDSTAT, 2020] and on the basis of different economic criteria. The manufacturing sectors identification is based on the economic rationale of *production and export capacities*, *market capacities* as well as the potential of *employment generation* and motivates the design of six distinct industry selection criteria, namely

- existing or emerging capabilities in the country and latent untapped potential of industrial sectors;
- market considerations in terms of national demand (imports substitution potential) and international demand (market dynamism);
- employment.

The study complements elements already contained in the National Industry Policy elaborated in 2012 as well as the industrial development strategy documents of Côte d'Ivoire and identifies nine

priority sectors, namely *food, beverages and tobacco*; *coke, petroleum and nuclear*; *motor vehicles; transport equipment; chemicals; electrical machinery; wearing apparel & textiles* as well as *non-metallic minerals* and *printing and publishing* where each sector satisfies a different selection criterion. The analysis is further enriched by a more granular analysis on the ISIC Rev. 3 IV-digit level for each of the priority sectors.

The thematic components in conjunction with the nine priority sectors represent the strategic axes of the PCP necessary to start the dialogue for the identification of the concrete projects and actions to undertake and for a full integration with the United Nations Sustainable Cooperation Framework (CCDD) 2021 - 2025 in terms of *structural transformation, human capital, inclusiveness, environment* and *governance*. A visual alignment between the PCP components, the NDP pillars and the CCDD strategic priorities is presented in Figure 54 in Appendix A.1.

The study concludes with a detailed analysis of obstacles faced by business which are identified as barriers of progress in their economic development. These bottlenecks to business are to be understood as the "priorities of the priorities" from the firm's point of view and are to be given central consideration in the PCP project design phase. Access to finance, corruption, political instability, electricity, skills and taxes are the most frequently recurring bottlenecks to business mentioned by firms, even though evidence flags improvements over the years in many of these fields.

Introduction

Since 2011 Côte d'Ivoire has been eager to boost its manufacturing sector with the hope of becoming an emerging economy and economic as well as industrial powerhouse of the region. This is evident from the focus on structural transformation in the National Development Plan (NDP) 2016-2020, and is reinforced in the upcoming NDP 2021-2025. Indeed, the West African country has been able to achieve rapid developments over the past decade. This diagnostic study examines Côte d'Ivoire's industrial development over recent years with the objective of providing the PCP programming team and stakeholders comprehensive yet succinct information to successfully design and implement the PCP Côte d'Ivoire. The diagnostic framework depicted in Figure 1 presents an overview of the analysis carried out in the report.[1] It focuses on priority topics of the country, as identified from the PCP components that were jointly agreed on between the *United Nations Industrial Development Organization* (UNIDO) and the Government of Côte d'Ivoire, as well as the NDP 2016-2020 and the NDP 2021-2025 objectives.[2]

Section 1 examines economic, social and environmental dimensions of Côte d'Ivoire's industrial sector followed by an assessment of the country's governance and policy context. In terms of the economic dimension, it measures production of the manufacturing sector, manufactured exports competitiveness, diversification, innovation and technology, investment and finance, participation in global value chains, regional economic integration and labor productivity. On the social front, the report analyses employment in manufacturing, gender equality and youth participation, before looking at the skills available in the labor force. The environmental dimension is divided into two subsections, one being clean production processes, where CO2 emissions, deforestation and waste management are examined. The second subsection is on energy, focusing on energy efficiency and renewable energy sources. The term circular economy is key in this section. Lastly, governance and the policy context is observed by using international indices and indicators for comparison.

Section 2 aims to identify potential key priority sectors and sub-sectors for industrial development. The analysis is based on an examination of export capabilities through the country's revealed comparative advantage (RCA), national and international market dynamics, and employment projections of potential sectors. Interesting observations regarding sub-sectors will also be made, based on a detailed quantitative examination of the selected sectors.

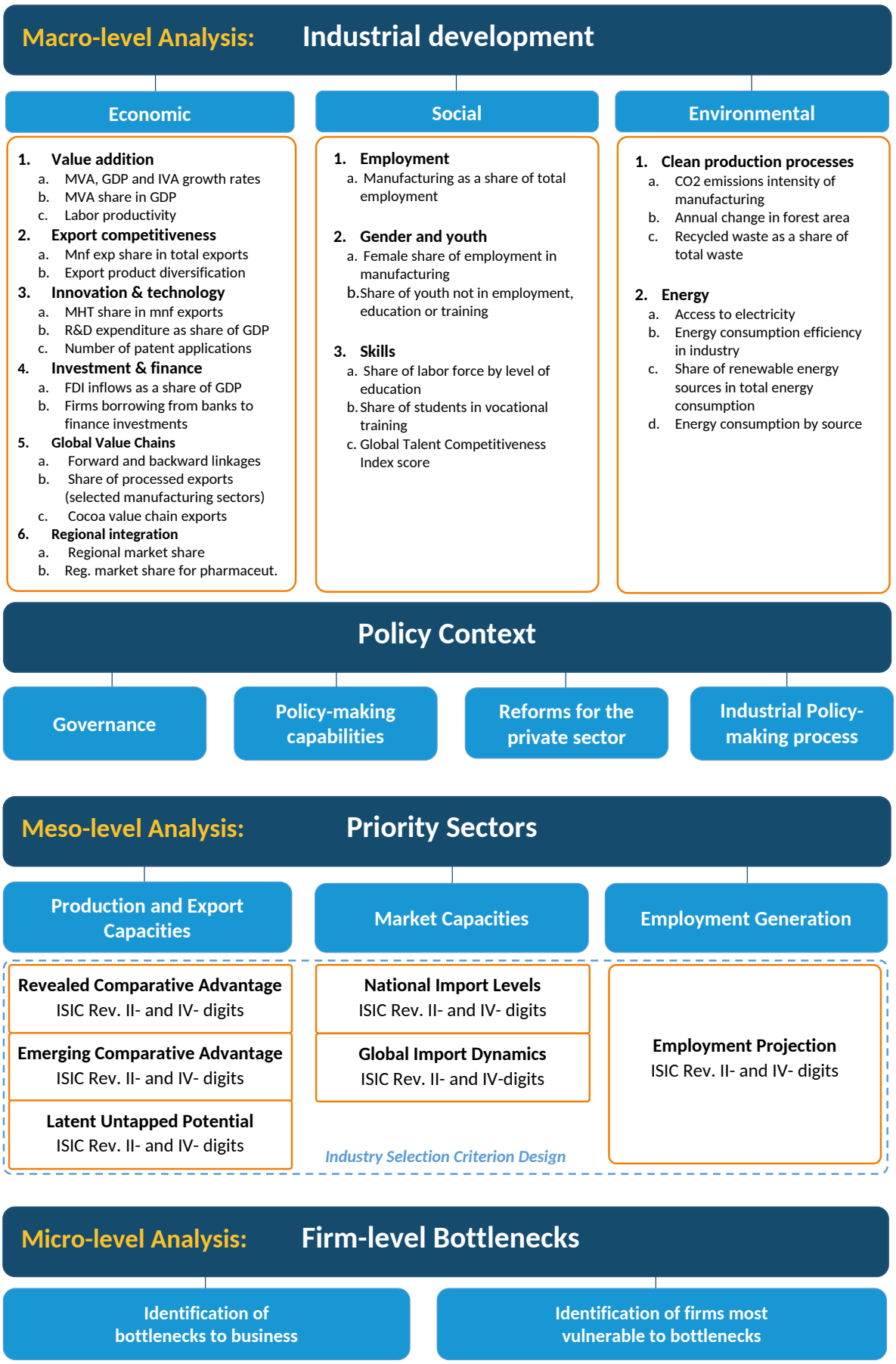
Section 3 explores the World Bank Enterprise Surveys for Côte d'Ivoire and comparator countries and identifies the key bottlenecks manufacturing firms of the country face. It compares the findings to the bottlenecks of non-manufacturing sectors and manufacturing firms in the ECOWAS region. The analysis is further disaggregated into low vs. medium and high-tech firms, foreign or domestically owned firms, large firms or SMEs and exporters or non-exporters and the chapter goes into a more detailed examination of the key bottlenecks identified. It also contextualizes the findings by adding insights from consultations with local stakeholders.

Section 4 presents the PCP strategic map which contains the PCP components, the identified priority sectors, the key bottlenecks to Ivorian manufacturing firms and the government priorities, setting stage for the development of a PCP program document.

[1] The indicators presented in this document either emphasize or complement the results and general framework of the National Development Plans.

[2] We acknowledge that the results of the industrial diagnostics may be sensitive 1) to the selected statistical classifications 2) to the concordance tables adopted when needed to prepare trade data sets with a unique statistical nomenclature for analyses 3) to the selected time horizon of the study. The adequacy of the findings is preserved by discussing them with relevant stakeholders. With regards to the analysis of trade-related dynamics, the macro-level analysis follows the well-established SITC Revision 3 classification (three digit level) by commodity class [UNSD, 1986] that has been adopted in the academic and policy domain; see, for example, Lall [2000], CIP [2020], or the EQuIP toolbox [UNIDO & GIZ, 2019a]. For the identification of priority sectors in block 2, a more granular concordance is adopted which has the advantage of providing a more detailed disaggregation for analytical purposes; see Appendix B.1.1 for more information.

Figure 1: Diagnostic Framework

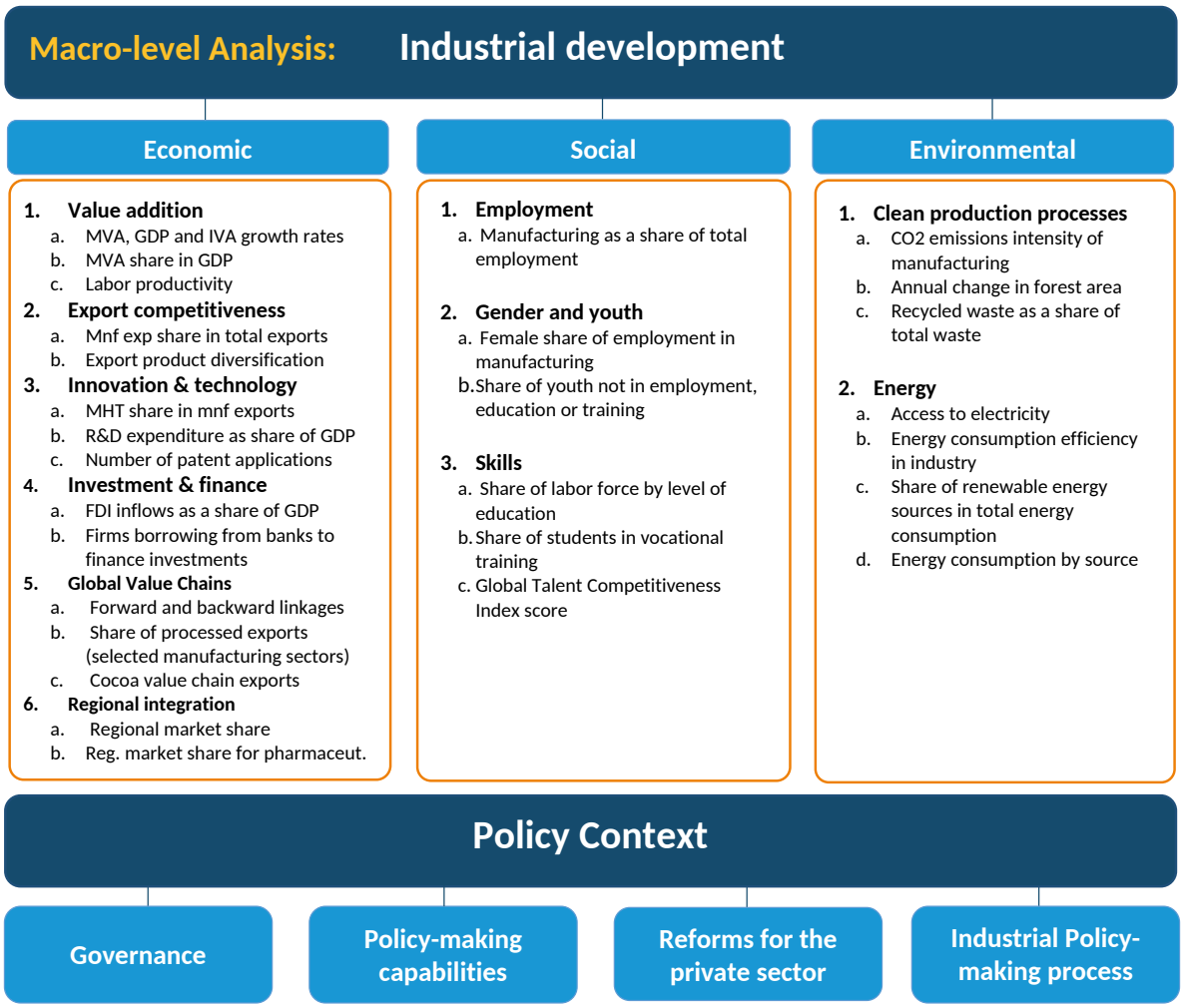


1 Industrial Performance and Policy Context

1.1 Introduction

This section analyzes various topics regarding the industrial performance of Côte d'Ivoire, focusing on the government's priorities as spelled out in the *National Development Plan* (NDP) 2016-2020 and the NDP 2021-2025. The aim is to obtain a picture of the country's industrialization path thus far and compare performance to the stated national objectives. It will shed light on the country's performance on the PCP components and will highlight which aspects within these components may deserve more (or less) attention during program formulation.

Figure 2: Macro-level Analysis: Structure of analysis.



The section is divided into four subsections, namely economic performance, social performance and environmental performance and policy context. The country's developments are measured against the national targets defined and benchmarked against that of selected comparator coun-

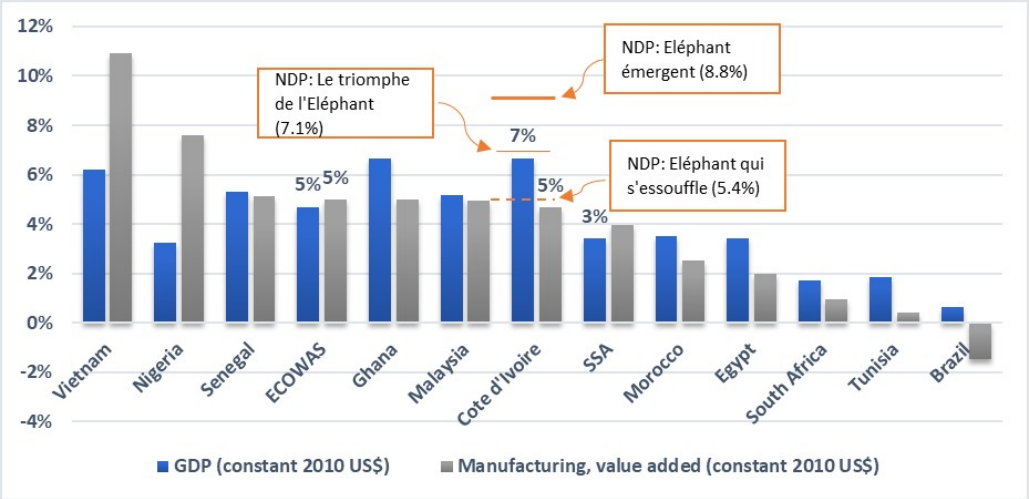
tries and country groups.[3] A visual summary of the structure of the macro-level analysis presented in this section is provided in Figure 2.[4,5]

1.2 Economic Performance

1.2.1 Value addition

MVA, GDP and IVA growth rates After Côte d'Ivoire missed out on the economic growth that many countries experienced globally in the first decade of the 2000s due to its political crisis, it quickly picked up and became one of the fastest growing economies of the world for the years following 2011. Figure 3 indicates a GDP compound annual growth rate of 7% between 2010 and 2018 [6], which is higher than the 5% average of ECOWAS and the 3% average of Sub-Saharan Africa. It is only matched by neighboring Ghana out of all comparator countries. However, since 2012 the growth rate has been gradually declining from 10.8% in 2012 to 6.8% in 2018.

Figure 3: GDP and MVA growth rates (2010-2018)



Data Source: World Development Indicators, World Bank.

The NDP 2016-2020 of Côte d'Ivoire set out three different scenarios of development: "Eléphant qui s'essouffle", presenting the weakest projection, "Le triomphe de l'Eléphant" for an in-between scenario and "Eléphant émergent" for the most optimistic one.[7] It states that in order for the country to achieve the targets set out in the NDP, it would need to follow the "Eléphant émergent" scenario. Both the average GDP growth rate of the period and the latest growth both fall just slightly short of

[3]To this end the list of comparator country and country groups include Vietnam, Nigeria, Senegal, Ghana, Malaysia, Morocco, Egypt, South Africa, Tunisia and Brazil as well as the *Economic Community of West African States* (ECOWAS) and the economies of Sub-Saharan Africa (SSA).

[4]The use of international datasets for measuring performance is important to facilitate benchmarking, as data are collected through a standardized procedure across countries. National official data can be different from international datasets as the collection methods can be different. As acknowledged by the World Bank, "National accounts and balance of payment data come from two sources: current reports gathered by the Bank's country management units and data obtained from official sources. The Country at a Glance tables may present data that differ from those reported in official sources" as indicated in the following website https://datahelpdesk.worldbank.org/knowledgebase/articles/906531-methodologies

[5]Much of the sources as well as the cited, secondary literature engaged with forecasting and the prediction of development trends typically draws from data that was collected and/or analyzed *prior* to the outbreak of the global COVID-19 pandemic and may therefore be subject to revision considering the recent change in the global trade and business environment.

[6]The 2010 - 2018 period is selected to represent a time horizon inspiring a medium term technical program of intervention. We acknowledge that this can be to some extent discretionary. We also acknowledge that the inclusion in the graphs of values referring to 2010 and 2018 by excluding the years 2011-2017 does not allow visualizing conjuncture fluctuations, but this approach is completely aligned to the medium - term objectives of the study.

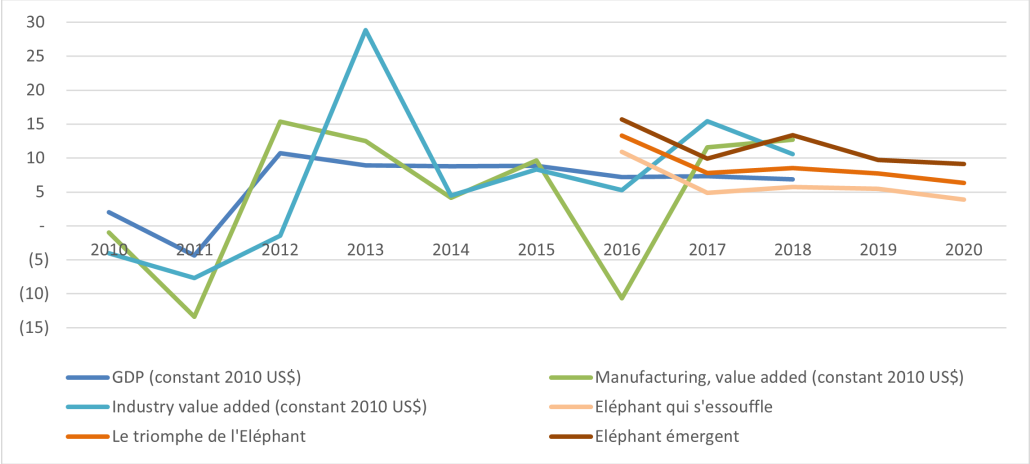
[7]Particular targets of the three different scenarios are presented and discussed in the context of the individual indicators whenever available.

the in-between scenario. However, the comparison of growth with other countries reveals that the scenarios themselves are ambitious.

The aim of the upcoming NDP (2021-2025) is to pursue structural transformation and lift the country to becoming an emerging economy. While all pillars are directed towards supporting this objective, the first pillar is about strengthening productive transformation, developing industrial clusters. The first result listed is to strengthen production and competitiveness of the industrial sector. Pillar 5 focuses on regional development and the preservation of environment.

Prior to the country's civil unrest, the country was considered to be an industrial powerhouse in West Africa. Since 2011 the country has been heavily focusing on rebuilding its manufacturing base and pushing the country to higher levels of industrialization - and the fruits of the efforts can be observed. On average, manufacturing value added (MVA) has been increasing annually by 5% over the 2010-2018 period, which is beyond the SSA average and roughly equal to the average of the ECOWAS region. Faster growth is possible, as seen in the cases of Nigeria (8%) and Vietnam (11%). The two latest years (2017 and 2018) in particular, recorded MVA growth rates of 12% and 13% respectively for Côte d'Ivoire, following a sharp contraction of the manufacturing sector in the year 2016 (in part due to the drought affecting cocoa production and other agro-processing). The 2018 growth rate is in line with the most optimistic projection for industry value added of 13.4% as per NDP 2016-2020. Industry value added growth rate of Côte d'Ivoire was 10.6% in the same year (Figure 4). In addition, it outperformed the 2020 target of an average annual growth of 10% of Côte d'Ivoire's New Industrial Policy (*Nouvelle Politique Industrielle*, NPI) of 2012. The high growth rates in the latest years are very promising for the country's industrialization plans.

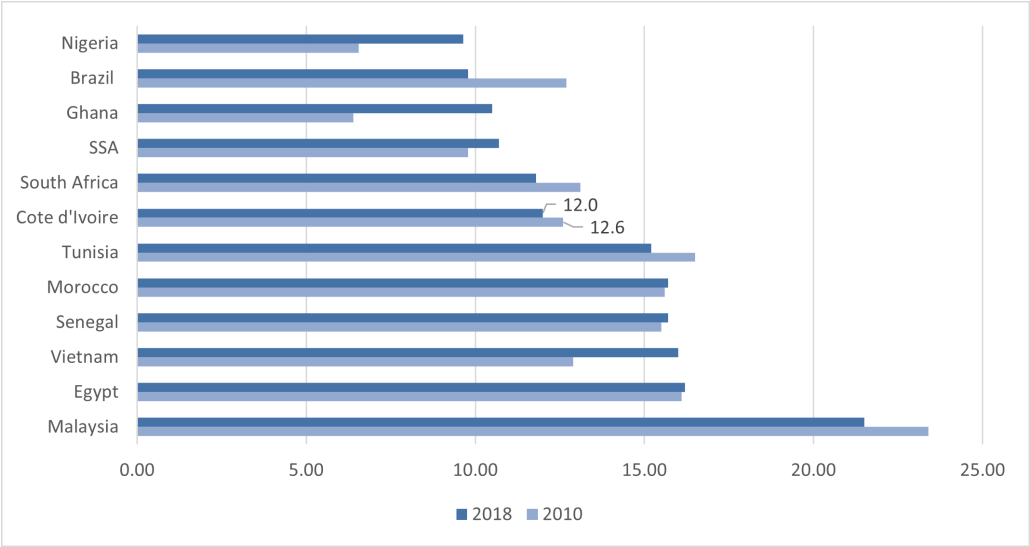
Figure 4: Annual GDP, MVA and IVA growth rates and IVA NDP targets for Côte d'Ivoire



Data Source: World Development Indicators, World Bank & NDP 2016-2020.

The solid growth since 2011 was largely due to strong public and private investments into the much-needed infrastructure development at the time, as well as other large capital spending by the government, creating a conducive business environment; see for example UNECA [2014]. The increase in cocoa prices around 2014 further boosted the country's economic growth, as over one fifth of the population rely on this cash crop. Furthermore, the fact that the CFA franc is pegged to the Euro means inflation is kept at manageable levels, although this comes with certain challenges, such as the effect this may have on the country's export competitiveness [Oxford Business Group, 2020a].

Figure 5: MVA as a share of GDP (2010 - 2018)



Data Source: World Development Indicators, World Bank.

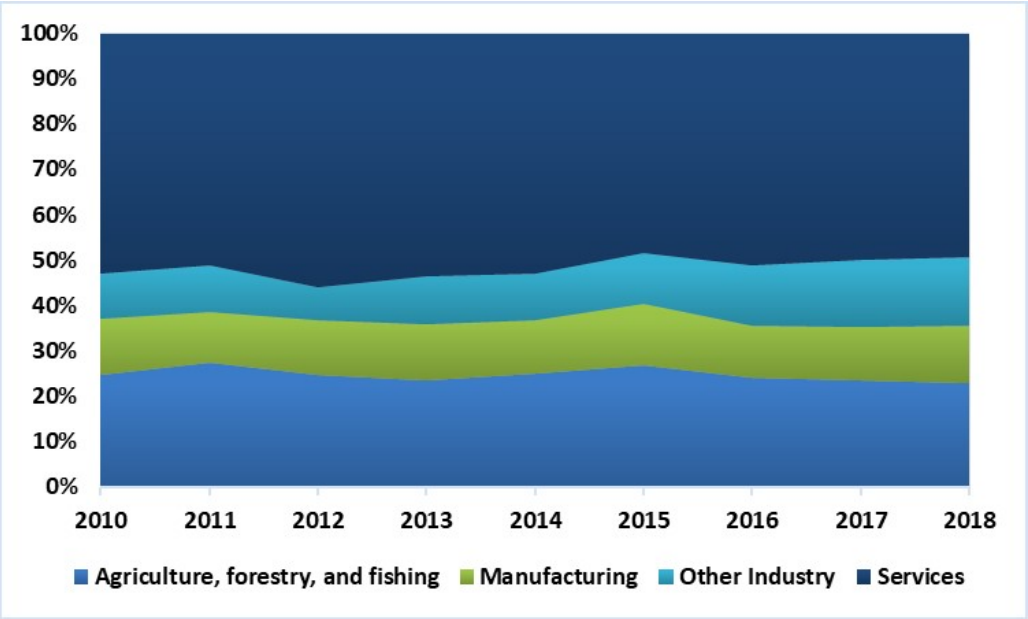
MVA share in GDP Despite the high growth rates of MVA, there has been a contraction in the share of MVA to GDP between the years of 2010 and 2018 (Figure 5). This is due to the fact that the average growth rate of MVA was lower than that of GDP over the same period, as was observed in Figure 3. While MVA contributed to 12.6% of GDP in 2010, it accounted for 12.0% in 2018. While this share is still higher than that of Ghana, Nigeria and the average of Sub-Saharan Africa, it is lower than for the North African and Asian comparators, as well as Senegal. The shrinking importance of the manufacturing sector to the economy over the years shows a lack of progress in regard to industrialization when measured in terms of structural change towards manufacturing. Both the NDP 2016-2020 and the NDP 2021-2025 focus strongly on structural transformation, making it a priority for the country's development. Key aspects of this are providing appropriate infrastructure, a conducive business climate, enhancing human capital and developing an environmentally sustainable economy.

The government is working on both horizontal and vertical measures to promote industrialization. Horizontal measures are, for example, investment in infrastructure for market access and better networking, enhancing the business climate and encouraging foreign investment, fighting against counterfeit, as well as promoting the development of human capital. For vertical measures the government has been carrying out studies on different priority sectors to learn how to best support firms to boost production and create value addition. Furthermore, there is a particular understanding of the need to support SMEs, who are large in number, particularly through capacity building and providing targeted business support services in order to allow them to flourish.

Most recently, the government has been focusing heavily on the development of industrial zones to enable firms to benefit from adequate infrastructure, availability of skilled manpower, exchange of information and knowledge and more. The government is also receiving support from Japan on how to apply the Kaizen method, which is expected to significantly increase production efficiency [World Bank, 2019a, CAPEC, 2020].

In 2016 a diagnostic study has been carried out on the development of economic poles across the different regions of the country and the Competitive Economic Poles (PEC) development program in the country's districts was designed by the Ministry of Planning and Development. The creation of such poles aims to mitigate regional disparities through investments, infrastructure and social development tailored to the vocation of the different regions and boost economic growth in an inclusive manner [Ministère d'Etat, Ministère du Plan et du Développement, 2016].

Figure 6: Economic structure of Côte d'Ivoire (2010 - 2018)



Data Source: World Development Indicators, World Bank.

The data indicates that the efforts by the government are already showing their signs of success. The high manufacturing value added (MVA) growth rates since 2017 have also resulted in the increase of manufacturing sector contribution to gross domestic product (GDP). The NDP 2021-25 puts structural transformation at the core of the country's development, with Pillar 1 focusing on this in particular, while the remaining four pillars were designed to support industrialization and ensure it is inclusive and sustainable. Implementation of the NDP 2021-2025 would therefore be promising for the country's economic and social development.

Agriculture makes up 23% of GDP, Industry around 27% and the service sector accounts for almost half of GDP in 2018 (Figure 6). The industrial sector overtook agriculture in 2017 to become the second-largest contributor to GDP. This indicates again that structural transformation took place in the last two years observed, and it is hoped to see a continuation of this trend.

Agriculture Although now the smallest contributor to GDP in comparison to industry and services, the agricultural sector has a very important role to play in the economic development of the country. This is particularly true because it has created employment for roughly 40% of the population and provides income for a vast majority of the poor [World Bank, 2020]. Côte d'Ivoire is rich in its different fertile agricultural lands, and it intends to continue exploiting this comparative advantage. Agriculture is also particularly important for the manufacturing sector. Much of manufacturing relies on the processing of agro-products such as cocoa, cashew nuts, palm oil and cotton. Boosting productivity and diversifying the agricultural production has therefore become an important component of the NDP 2016-2020, along with value addition of the products. The country still relies heavily on the imports of certain types of food (see Box 3) and measures have been taken to combat this.

Average yield is low in Côte d'Ivoire compared to other countries that were able to undergo the green revolution, and the same holds true for efficiency and value addition [World Bank, 2019a]. The sector is characterized by a large number of small farmers, which makes it more difficult to significantly increase productivity and create linkages between the agricultural and manufacturing sectors. The lack of diversification of agricultural production also remains a challenge, as the sector continues to be dominated by cocoa, coffee and cashew nuts in particular. In addition, it increasingly

faces great environmental struggles such as large-scale deforestation, climatic shocks, uncertainty regarding land tenure and soil erosion [CCAFS, 2018]. A plan is currently being devised on how to support agricultural producers to protect themselves against climatic catastrophes.

Industry With industry[8] accounting for 27% of GDP it falls just slightly short of the NPI 2020 target of between 28 and 32%. More recent data will be able to indicate whether Côte d'Ivoire, with the government's focus on industrialization, has indeed been able to achieve its NPI target in 2020. Aside from the current manufacturing activities, there is also much potential to create value addition in metal and mineral production. The country has reserves of gold, nickel, diamonds, coltan, manganese and silver among other minerals, though there has been minimal processing of these in the country [UNECA, 2020]. Doing so would help diversify the manufacturing sector and reduce vulnerability of relying heavily on agro-products.

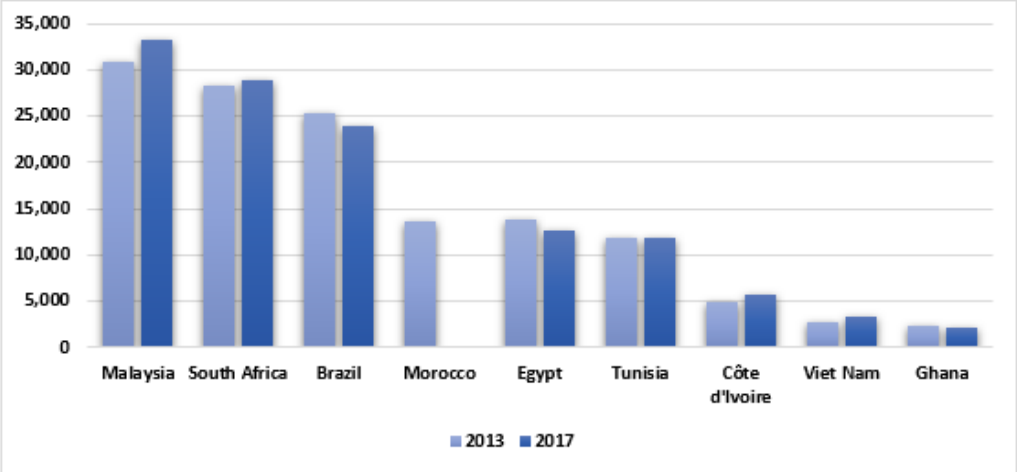
Services The tertiary sector accounts for half of the country's GDP and is considered to have suffered the least from the socio-economic crisis of the country. It is also known to be relatively diverse with a financial sector that is mainly comprised of national and particularly regional banks, an insurance sector, telecommunications, information technology, transport and tourism [Confédération Générale des Entreprises de Côte d'Ivoire, 2010]. Main developments in the sector were related to investments in telecommunications, in ports and airports and the establishment of new hotels [Republic of Côte d'Ivoire, 2018]. There is, however, great need to restructure and reform the service sector to ensure it continues to expand. Between 2010 and 2018 its annual average growth rate was below 4% [World Bank, 2020]. Developing a dynamic financial sector in particular, would be important to supply the necessary type of credit to SMEs in the manufacturing sector. Similarly, more efficient transportation and telecommunication will ease business activity. The need for this is particularly heightened at present, as the economy struggles with the COVID-19 pandemic. Finally, there is great potential for tourism to create a new type of market for manufactured goods, such as for toiletries, towels and other products which are in high demand by hotels.

The NDP 2016-2020 highlights the need to strengthen and diversify the service sector and has as an objective for the country to become a service hub of the Francophone region. Creating such forward and backward linkages across the economy is key to a stable and healthy growth. The NDP 2021-2025 sees Pillar 1 on productive transformation as increasing productivity and competitiveness in all the above-mentioned sectors. This indeed would help create an economy with increased linkages between the sectors and firms and could strengthen growth.

Labor Productivity A low level of labor productivity characterizes Côte d'Ivoire's manufacturing sector (5,731 USD per worker), which is far from countries whose industrialization level Côte d'Ivoire aspires to attain (Figure 7). Since 2013 there has been an average increase of 4% per annum in terms of labor productivity. Further improvements will need to be made to ensure the productivity of workers can boost industrial competitiveness of the country. As expected, the productivity is, however, higher in manufacturing than in the agricultural and service sectors (2,436 USD and 4,804 USD respectively per worker in 2017). Productivity in the industrial sector as a whole - that is including construction, mining and quarrying and manufacturing – was highest at 9,340 USD per worker, highlighting the importance of employment in industry.

[8]The industrial sector includes manufacturing, mining and quarrying, construction and utilities.

Figure 7: Labor productivity (2013 and 2017)



Data Source: World Development Indicators (World Bank) and ILOSTAT.

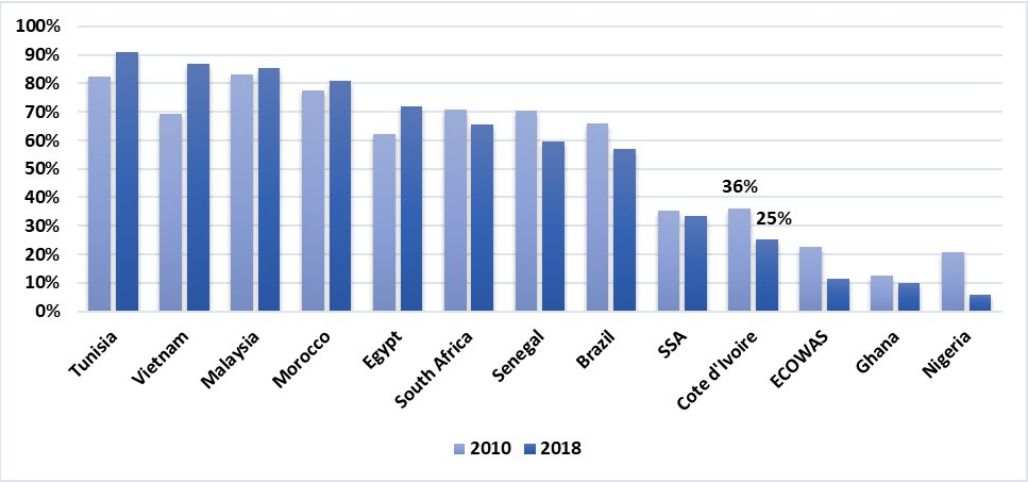
A World Bank [2015] study found that although there is an abundance of unskilled labor, the country is not considered to have a comparative advantage in low labor costs. There is a dual structure in the manufacturing sector, where formal manufacturing firms are on average two and a half times more productive than informal and small firms. This is also reflected in the salaries of workers, which is particularly low in the informal sector, often notably lower than the minimum wage and making it difficult for people in the sector to make ends meet. On the other hand, the wages of the formal sector tend to be significantly higher, making the labor cost to productivity ratio of the country less attractive for investors. Productivity is a main theme of the NDP 2021-2025, with Pillar 2 in particular designated to improving human capital and increasing labor productivity.

1.2.2 Export competitiveness

Exports of manufactured goods While an analysis of MVA offers a first picture of the level of industrialization of the country, examining the exports of manufactured goods will shed light on whether the goods produced are also internationally competitive. In Côte d'Ivoire, one quarter of merchandise exports are manufactured goods (Figure 8).[9] While this is higher than Ghana, Nigeria and the average of ECOWAS, it is far below other lower-middle income and comparator countries. There has been a relatively pronounced decline in the share of manufactured goods since 2010, when Côte d'Ivoire had a higher share than the average of Sub-Saharan Africa – a picture that is now reversed. The declining share is in fact due to an actual contraction of manufactured export values of the country during this period. Since 2013 there has been a decline of both total exports and manufactured goods exports, whereby the latter declined more sharply. Manufactured exports created revenues of just under three billion USD in 2018, which is the lowest value since 2003. Meanwhile, the NDP 2016-2020 expected total exports to be growing above 7.3% per year on average, according to the scenario of the "elephant emergent" (Figure 9). The NDP 2021-2025 also hopes to bank on the competitiveness of exports.

[9]All trade data is in current USD as reported by the United Nations UN-Comtrade [2020] database.

Figure 8: Exports of manufactured goods as a share of total exports (2010 & 2018)



Data source: United Nations UN-Comtrade [2020] database.

When analyzing manufactured exports of Côte d'Ivoire by destination, it is found that there was a decline in exports to seven out of the top ten destinations. The largest declines were found in exports to Ghana and Nigeria, although exports to European countries such as France and Germany also declined. Out of the top ten destination country, there was an increase in Ivorian manufactured exports to Burkina Faso, Mali and the United States of America (see Appendix A.2 for more details). The main manufactured products that saw a decline in their exports since 2010 are refined petroleum, ships and boats and wood products. For all three categories the decline was felt in quantities exported as well as total value. Despite these trends, the World Bank and IMF projected in mid-2019 that Côte d'Ivoire's exports would gradually increase in the near future, due in part to the anticipated productivity gains in priority sectors as a result of government interventions [World Bank, 2019a]. Côte d'Ivoire *Institute National de Statistique* recent data for the period 2018 - 2019 reveal a 13% and 24% increase of total exports respectively in value and quantity for total exports and a 16% and 22% increase respectively in value and quantity of manufacturing exports.

Quality, standards and norms play a large role in the competitiveness of Ivorian products globally. The agro-industrial sector, in particular, often faces challenges of access to markets due to this. The World Bank Enterprise Survey of Côte d'Ivoire (2016) reveals that 15% of manufacturing firms have an internationally recognized quality certificate. This is somewhat higher than the average share in the ECOWAS region (9%). Certain firms seem to be more likely to obtain certification than others. These are firms operating in medium and high-tech sectors[10] (46% have a certificate vs. 11% of low-tech sectors), large firms (39% vs. 5% of SMEs), foreign owned firms (32% vs. 11%) and exporters (32% vs. 7%). In terms of ISO certification, a similar picture can be found, with 16.4% of firms having a management system in place. Out of these, 59.2% have an ISO 9001[11] certificate and 22.1% have an ISO 14001[12] certificate [Côte d'Ivoire Census, 2020]. Following two phases of the West Africa Quality Program by UNIDO, where among other things a regional quality policy

[10]Technology classification according to *Organization for Economic Co-operation and Development* (OECD) which is based on research and development (R&D) intensity relative to value-added and gross production statistics [OECD, 2011]; also see Table 26 for more information.

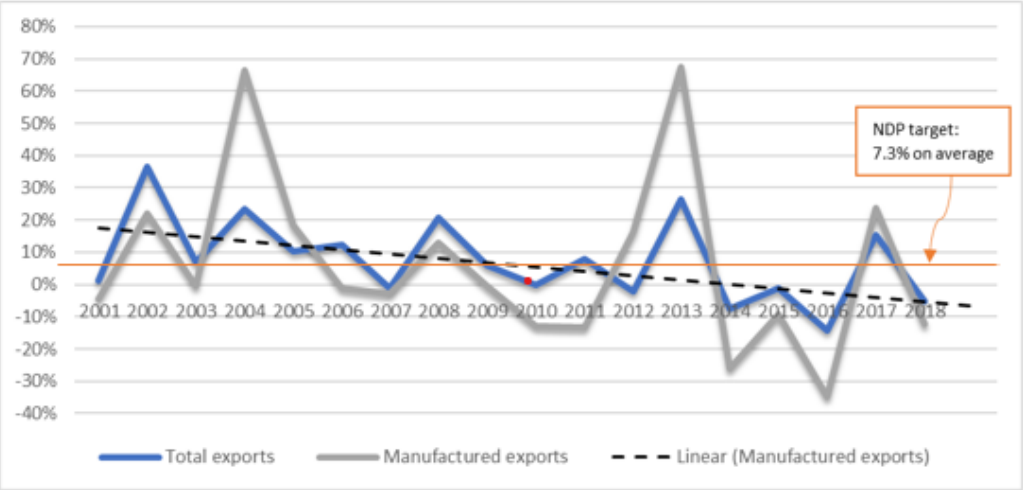
[11]The ISO 9000 standards is a family of quality management systems (QMS) designed to help organizations meet customers' and other stakeholders' needs in relation to statutory and regulatory requirements for products or services [Poksinska et al., 2002]. ISO 9001 identifies the requirements organizations wish to meet in order to fulfill these standards.

[12]ISO 14000 is a family of standards dealing with the issue of environmental management and exists to help organizations (i) minimize how their operations (processes, etc.) negatively affect the environment (i.e., cause adverse changes to air, water, or land); (ii) comply with applicable laws, regulations, and other environmentally oriented requirements; and (iii) continually improve in the above ISO 14000 [2014]. Requirements relating to the ISO 14001 standard are an integral part of the European Union's Eco-Management and Audit Scheme (EMAS) the latter of which is more demanding, mainly in the areas of (i) performance improvement; (ii) legal compliance; and (iii) reporting duties ISO 14001 [2014].

was developed, regional quality standards were adopted and testing laboratories were accredited, a follow-up program, the *West Africa Quality System Program*, was implemented to strengthen the region's quality infrastructure and improve trade competitiveness [UNIDO, 2015]. The government has now expressed the need to develop a quality strategy for Côte d'Ivoire.

The NDP 2016-2020 aimed to strategically improve export competitiveness of the country, in particular in agro-industry and in sectors which were historically competitive including chemicals, plastics, cosmetics and mechanical products, as well as in construction material. The upcoming NDP has likewise put in place measures to strengthen the export competitiveness of the country, including the development of an export strategy, strengthening the drivers to exporting and ensuring the industrial zones are oriented towards export activities.

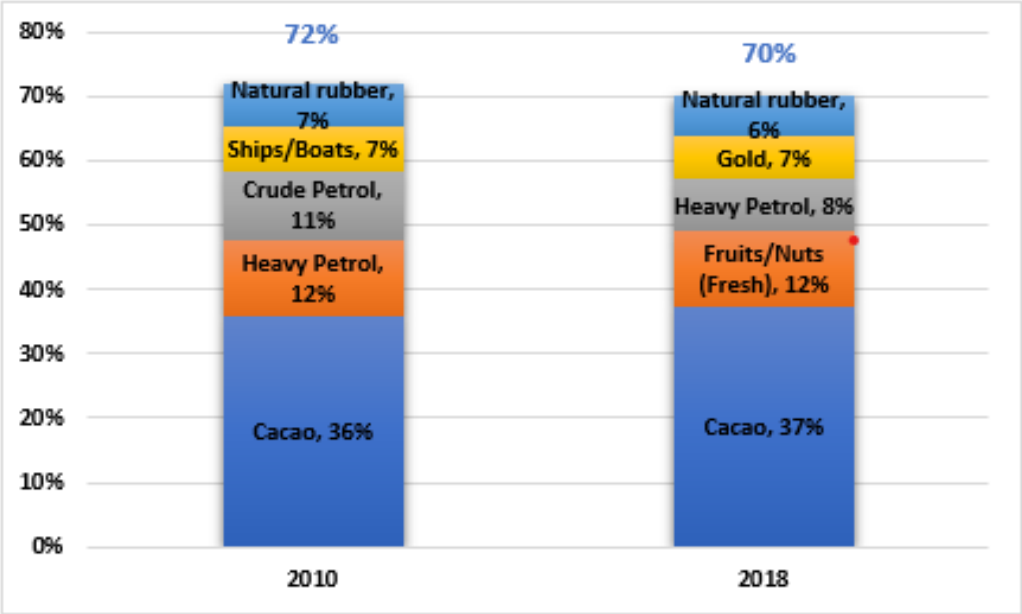
Figure 9: Annual growth rates of total exports and manufactured exports, Côte d'Ivoire (2000-2018)



Note: Export growth rate and linear projection vis-a-vis formulated policy targets.
Data source: United Nations UN-Comtrade [2020] database.

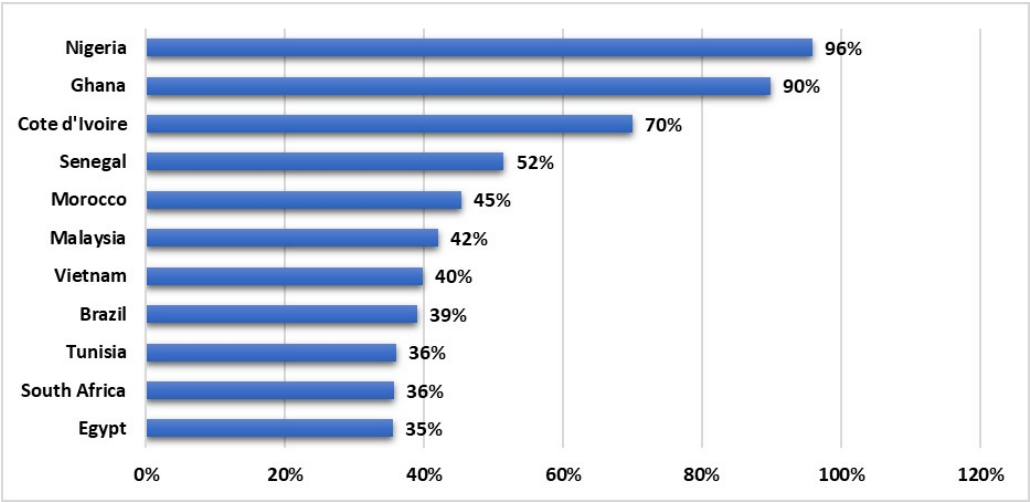
Export diversification The top 5 products that Côte d'Ivoire exports accounted for 70% of their total exports (Figure 10). This indicates a high level of concentration of exports. Although the situation is worse for Ghana and Nigeria, the comparator countries outside of Sub-Saharan Africa as well as South Africa illustrate that having significantly more diversified exports is indeed possible – and healthy. The lack of export diversification is known to the country, which is addressing it in particular through its targeted interventions of specific priority sectors.

Figure 11: Top 5 exports of Côte d'Ivoire in 2010 and 2018



Note: Commodity classification following SITC Rev. 3.
Data source: United Nations UN-Comtrade [2020] database.

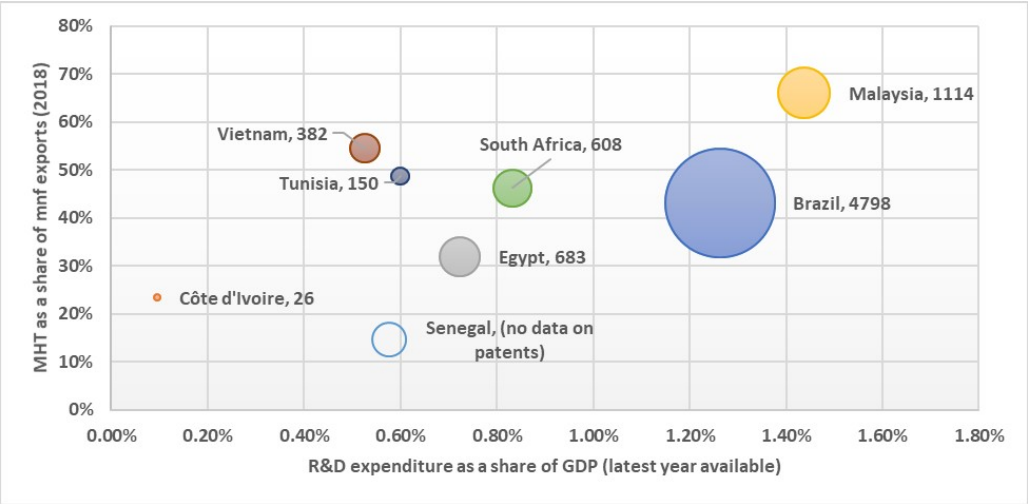
Figure 10: Share of top 5 products in total exports of the country, 2018



Data source: United Nations UN-Comtrade [2020] database.

Cocoa generates over a third of total exports of the country, while the remaining four top exports are fresh fruits and/or nuts, refined petroleum, gold and natural rubber (Figure 11). A comparison with 2010 shows that cocoa has continued to contribute significantly to export earnings and that no strategic improvement in terms of export product diversification can be observed. The high reliance on cocoa can be seen as both a blessing and a curse for the country. On the one hand, it generates much foreign exchange in addition to creating employment, while on the other hand it has led to high vulnerability of the economy and reliance on international prices and favorable climate. Diversification of production and exports are addressed in both the NPI of 2012 and the NDP 2016-2020.

Figure 12: Innovation and technological intensity



Note: Bubble size and values: Number of patent applications by residents (2012). 2012 is the most recent data available for Côte d'Ivoire. For comparison reasons data of the same year was taken for the other countries as well. Years for R&D expenditure as a share of GDP: Brazil 2017, Côte d'Ivoire 2016, Egypt 2018, Malaysia 2016, Senegal 2015, South Africa 2017, Tunisia 2018, Vietnam 2017.
Data source: United Nations UN-Comtrade [2020] database, World Development Indicators (World Bank), UNESCO Database.

1.2.3 Innovation and Technology

Côte d'Ivoire's manufacturing sector is still largely based on agro-industries and other low-tech sectors. In terms of SDG-9 Industry performance, Côte d'Ivoire ranks 90th out of 128 countries in the SDG-9 Industry index in 2017 (last available year) which also constitutes a slight loss of competitiveness of two ranks compared to 2000 [IAP, 2020].[13]

Regarding exports, the share of manufactured products considered to be medium and high-tech was 23% in 2018 (Figure 12). However, the share fluctuates strongly throughout the years, ranging for example from 16% in 2012 to 49% in 2015. The average of ECOWAS in 2018 was 30%.

The country intends to continue exploiting the comparative advantage it has to create employment opportunities for its citizens and there is still much potential to create value addition in many agro-industry and low-tech sectors. However, the government also recognized the need to build capacities to develop medium and high-tech sectors for long-term growth such as pharmaceuticals, electronics and automobiles.

The country's relatively small share of medium and high-tech exports is in part related to the fact that *Research and Development* (R&D) and innovation are still low.[14] Côte d'Ivoire has the lowest expenditure on R&D among the comparator countries in Figure 12, which was only 0.1% of GDP in 2016. In Senegal the value was 0.58% while a more advanced country like Malaysia spends more than 1.4% on R&D. The NPI had set a target for between 1% to 2% in 2020. Related to this, Côte d'Ivoire also had the least number of patent applications made by residents (26 in 2012), however, the numbers since then are expected to have risen. The NDP 2016-2020 states as priority measures the strengthening of key research and innovation centers, such as the *Conseil Supérieur de la Recherche et du Développement Technologique* and the *Fonds National de la Recherche Scientifique*

[13]The SDG-9 (Industry, Innovation and Infrastructure) Industry Index measures manufacturing performance in 128 countries, drawing on SDG-9's industry-related indicators. The Index rank presents the ranking of the 128 analyzed countries and is based on their overall performance in the different dimension of the SDG-9 Industry Index. In this composite index and in alignment with the findings and extended discussion of this document, the country performs best in CO2 efficiency and worst in value added per capita generation and degree of technical sophistication in manufacturing [IAP, 2020].

[14]In 2020, Côte d'Ivoire ranks 112 in the Global Innovation Index with the best (worst) sub-index rank being in the domain of Market Sophistication with rank 92 (Infrastructure with rank 121). This is a slight improvement over the results in 2011 where the country ranked 117th in total [GII, 2011, 2020].

et de l'Innovation Technologique. The NDP 2021-2025 shows continuation of interest in developing scientific research, as indicated under Pillar 2 of the Plan.

In order to support research, innovation, technology and the key industrial sectors, the Government has established a certain number of Technical Centers or Institutions. Among them are the *Société Ivoirienne de Technologie Tropicale* (I2T), *le Centre de Promotion et de Démonstration des Technologies* (CDT) and *Côte d'Ivoire Engineering*. Although the potential of these institutions to play an important role in supporting industrial development is real, their effective impact has been limited by certain constraints: Firstly, their reliance on public funding has limited their financial capacities. Secondly, their business model has not allowed them to be close to the needs of the Industry and Private Sector. Thirdly, this has resulted in the lack of cooperation between these institutions and the Private Sector, hence limiting the possibility of the Private sector to financially contribute. Fourthly, due to the lack of resources, an appropriate support architecture to reinforce synergies and complementarities of all the institutions that engage in the elaboration of industrial policies is required.

There is, nonetheless, a growing start-up scene in the country that is hoping to rebuild the reputation of the nation to become the economic backbone of French-speaking West Africa [Orange, 2015]. This is backed by a number of initiatives, including accelerators in Abidjan and a technology park. The *African Development Bank* AfDB, for example has helped set up the Ivorian Innovation Fund in addition to providing financial and technical support through *BoostAfrica* [Digital Africa, 2020]. Despite these and other efforts, the country has no clear innovation strategy or framework at present to guide the developments in this field. Elaborating such a document will benefit the country in achieving its strategic goals as spelled out in the National Development Plans for long-term growth and competitiveness.

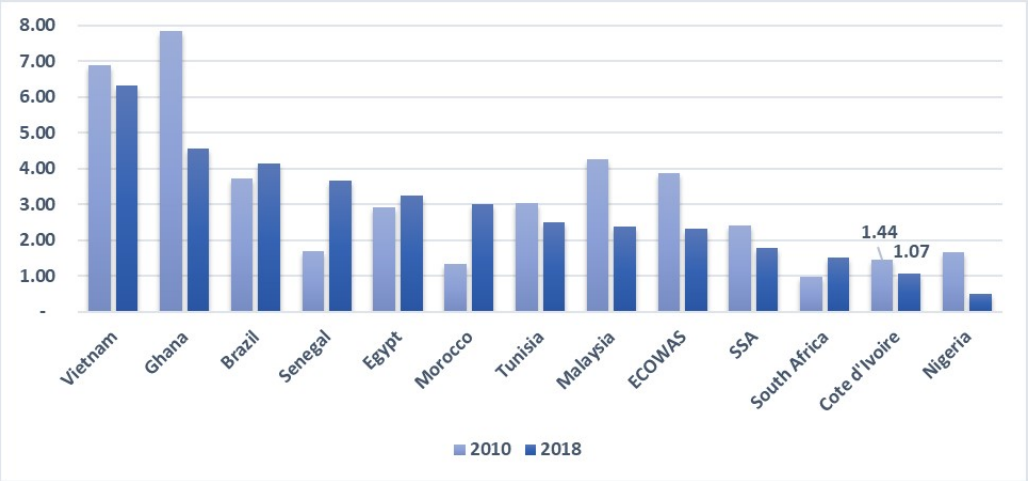
1.2.4 Investment and Finance

Investment The government of Côte d'Ivoire has been heavily focusing on investments, particularly towards infrastructure and improving the business climate for firms. More recently, it is encouraging the private sector to do the same and the extent of private public partnerships has been increasing in the country. Investments in 2018 amounted to CFA 4,827.7 billion, making up just over 80% of the CFA 6,000.28 billion anticipated in the NDP 2016-2020. Out of this, private sector investments account for 68.4%, that is CFA 3,300.4 billion (89% of the anticipated value stated in the NDP). Public sector investments totaled CFA 1,527.3 billion (67% of the anticipated) [Ministère du Plan et du Développement, 2019]. More recent data shows that while public sector investments accounted for 4.6% of GDP in 2020 and has seen a small decline in share since 2016 from 5.4%, private sector investments increased from 16.1% in 2016 to 18.8% in 2020 [Ministère du Plan et du Développement, 2020b]. National private investments are 76% of total investments in the formal sector and 80% of total investments in the informal sector. Firms in the informal sector tend to invest more in the replacement of old capital equipment than in the modernization of the production process compared to the firms of the formal sector [Côte d'Ivoire Census, 2020],

Much efforts have also been put into attracting foreign investment, as can be seen in the large improvements of Côte d'Ivoire in the Doing Business Ranking of the World Bank (see subsection Policy context), such as an investment code and a one-stop shop for investors at the *Center for Promotion of Investments in Côte d'Ivoire* (CEPICI). This has led to an considerate increase in *Foreign Direct Investment* (FDI) net inflows between 2011 and 2017 of 22% on average per year. However, in 2018 these foreign investments shrunk by 36%. FDI net inflows as a share of GDP declined from 1.44% in 2010 to 1.07% in 2018 indicating that despite an increase in value over the period (even when considering 2018), the share of FDI inflows remains low and has been unable to grow. The average share for a Sub-Saharan African country is 1.79% while that of an ECOWAS member

is 2.33% (Figure 13). By contrast, Ghana has a share of inward foreign investment amounting to 4.56% despite a sharp decline, and that of Vietnam is above 6%.

Figure 13: FDI as a share of GDP (%), 2010 and 2018



Data Source: World Development Indicators (World Bank).

Côte d'Ivoire is not alone in experiencing a drop in FDI in 2018, as the Western African region as a whole has suffered – different to the rest of SSA. Nigeria's FDI, for example, fell by 43% in the same year (see for example UNCTAD [2019a] and The Economist Intelligence Unit [2019]. The government continues to put reforms in place to boost investment into the country, acknowledging also that until now, investments have been concentrated in Abidjan, leaving little to be felt by those living outside the city. At present, an *Investment Policy Review* (IPR) is under way, with support from the *United Nations Conference on Trade and Development* (UNCTAD), where the focus will lie on achieving sustainable and inclusive long-term growth by ensuring investments lead to value addition and a more equal distribution of wealth [UNCTAD, 2019b].

The country places strong importance on strengthening local and foreign investments. The NDP 2016-2020 identified the need to improve the role of the government to boost investments into productive sectors, mentioning one channel being through joint ventures and working towards reducing obstacles for investors. The NDP 2021-2025 has spelled out a measure to improve the design of the local investment programs, as well as enhancing the drivers for investments. On FDI more specifically, both the NDP of 2016-2020 and the NDP 2021-2025 mention benefiting from foreign investment to boost technology and innovation, though also ensuring it contributes to inclusive growth. They consider increasing local content in foreign investment projects to improve linkages and to create a robust, interconnected economy as important. The NDP 2021-2025 aspired to link national champions with international investments.

Box 1: Industrial zones.

One main instrument the government has been using to attract both local and foreign investments is the development of industrial zones. The development of these has been mentioned in the NDP 2016-2020, such as under the reforms and investment program and recently a strong focus of the government. Furthermore, it has seemingly gained further attention in the NDP of 2021-2025, where Pillar 1 is on the strengthening productive transformation, development of industrial clusters and digitalization of the economy. This mentions the creation of industrial zones based on international standards and economic zones oriented towards exports. The aim is to have designated zones where infrastructure (e.g., electricity, water, transport and lo-

gistics) and business services for industrial sectors are provided, which should create strong incentives for both foreign and domestic investors [CGECI, 2019]. It is also a strategy to address the issue of land access. This is of particular concern for *small and medium enterprises* (SMEs) who often lack technical and financial capacities to obtain industrial land. Industrial zones can be one solution, however, SMEs would benefit from further pooling mechanisms for cost sharing [Deloitte, 2018].

To date, there are 23 industrial zones in the country, out of which nine are in Abidjan and the remaining are in different regions of the interior of the country. Nine industrial zones are currently operational nationwide. Still, over 40% of formal industrial enterprises currently operate outside industrial zones according to the 2020 Census [Côte d'Ivoire Census, 2020]. Between 2016 and 2019 new industrial zones have been developing and existing ones improved, such as the development of the new PK24 industrial zone in Abidjan in two phases and the recent expansion of road works in the area, as well as various improvements to the Yopougon industrial zone, which is by far the largest operational zone of its kind in the country. As of August 2019, there is also a development by the Chinese group CHEC on 127 ha of land. Various studies were also carried out, such as technical studies for the revitalization and modernization of the industrial zones of Vridi and Koumassi in 2019 and a study on the development strategy for industrial zones in the country as a whole. Finally, an agreement was signed in January 2020 to carry out feasibility studies for the development of a zone in Bouaké and the construction of a textile factory.

Various activities have been identified as necessary to be undertaken in the near future, such as speeding up the implementation of the Industrial Zone Development Program, further improving the Yopougon and other industrial zones (e.g., creating bypass roads, better sanitation, electricity and improving security), the development of a comprehensive industrial infrastructure master plan for the entire Ivorian territory and deployment of AGEDI services in the various industrial zones [Ministère du Commerce et de l'Industrie, 2020]. UNIDO was requested to support the country in conducting an assessment of the country's Industrial Parks Strategy and provide recommendations under the PCP.

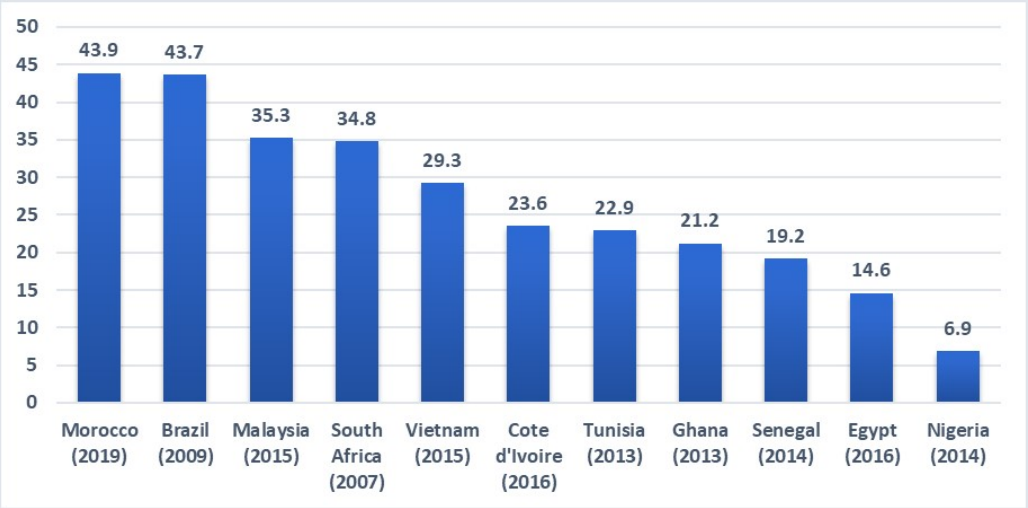
Financing Access to finance has for long been a struggle for Côte d'Ivoire. Recently many improvements were made on this front. In 2018, 41% of adults owned a bank account compared to 21% just four years earlier. However, significant challenges remain [CGAP, 2018]. Figure 14 shows that less than a quarter of firms use a bank to finance their investments. While there has been an almost 10 percentage point increase from 2009, when the share was 13.9%, it still means that the vast majority of enterprises are not benefiting from the banking system of the country. Especially SMEs experience access to finance problems. According to UNIDO's *Sustainable Development Goal* (SDG) 9 indicators, the percentage of industrial SMEs with access to a loan or a line of credit was 5.2% in 2009 and increased to only 9.6% in 2016. This is in line with the findings using the World Bank Enterprise Survey in Section 3 of this report.

Mobile money has become a very important mean to access financial services in the country, with between 34 to 38% of the adult population having a mobile money account in 2017 – the highest rate in the *Economic Community of West African States* (WAEMU). Nonetheless, these mobile accounts are still unable to provide loans of a size relevant to businesses. Efforts to make this possible are currently in place, and this would be expected to have a noticeable difference in terms of access to loans for entrepreneurs.

Firms within the manufacturing sector generally struggle more than other firms to obtain loans. This is because they generally require larger sums of capital for their investments, as well as longer

repayment rates. This seems to be particularly a problem in Côte d'Ivoire where long-term loans are the exception [Confédération Générale des Entreprises de Côte d'Ivoire, 2010]. SMEs, which form the backbone of the economy, struggle significantly to obtain finance. According to the Ministry of Economy and Finance, 70% of SMEs are unable to access credits from banks [Oxford Business Group, 2020b]. This creates severe difficulties for the continuation and expansion of businesses. On the demand side, one large constraint that needs to be addressed is financial literacy, which is still low in the country.

Figure 14: Share of firms that use banks to finance investment



Note: Data reported for latest year available for each country.
Data Source: World Development Indicators (World Bank).

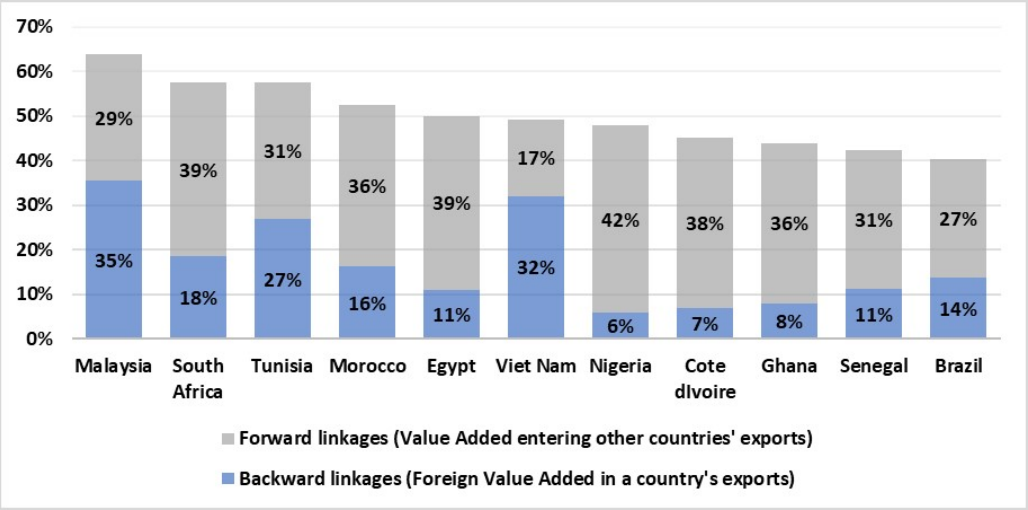
The upcoming NDP (2021-2025) acknowledges the need to further improve access to finance both through the formal financial institutions and through micro-finance institutions in order to boost private sector development. There is also particular mention of access to finance for women. Much effort has been made by the government to develop a range of funds to support businesses, such as the innovation fund, a fund for vocational training and a fund to support firms to enter industrial zones. However, constraints in terms of the functioning and coordination of such grants exist, leading to issues with the disbursement of the funds and companies struggling to benefit from these. This has led to limited impact of a number of such funds thus far. Section 3 discusses access to finance in the manufacturing sector in more detail.

1.2.5 Global value chain participation

Forward and backward linkages There is a lot of emphasis placed on increasing Côte d'Ivoire's participation in global value chains. The idea is for the country to engage in the processing of the primary goods rather than exporting the raw materials and through doing so, increase the share of revenue generated domestically, as expressed in the development plans. In addition, the development of diverse value chains is in line with the strategic directions of the program to develop competitive economic poles in the country and Pillar 5 of the NDP 2021-2025 on the same. Value chain development is therefore expected to also play a critical role in reducing regional inequalities within the country. This is of particular importance to the country, as there has been a strong concentration of industrial firms in Abidjan and a challenge to attract firms to other regions. The Enterprise and Establishment Census of 2020 reveals that 74% of formal industrial enterprises and 44% of informal industrial enterprises are based in the city. This contrasts with the region with the

second-highest concentration of formal industrial firms, Gbèkè, where 2.6% of formal firms of the industrial sector are located [Côte d'Ivoire Census, 2020].

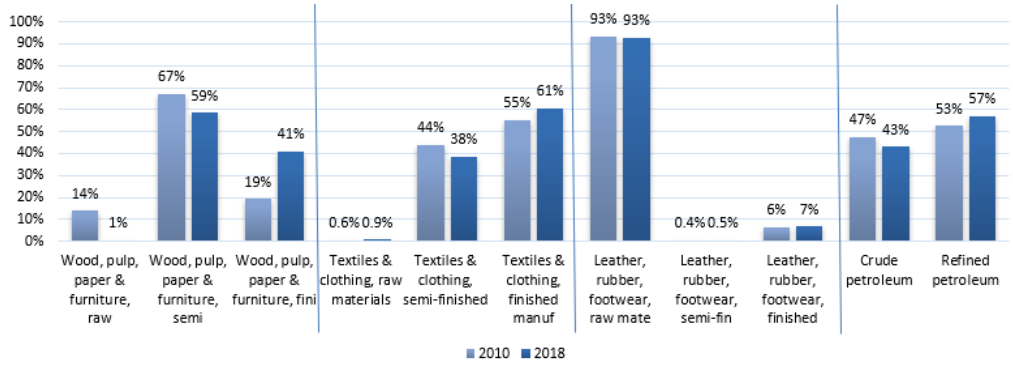
Figure 15: Global value chain participation (2018)



Data Source: UNCTAD-Eora GVC Database [Casella et al., 2019].

Figure 15 presents *global value chain* (GVC) participation of Côte d'Ivoire and comparators. It can be measured as the sum of forward linkages (the domestic value added that flows into other countries' exports) and backward linkages (the foreign value added in the exports of the country of interest). The values are measured in relation to gross exports of the country. 45% of Côte d'Ivoire's exports are related to GVC activity, which is similar to the other ECOWAS countries such as Ghana, Nigeria and Senegal, although still far below South Africa, Malaysia and countries in North Africa.

Figure 16: Share of raw, semi-processed and processed goods exported for selected sectors, Côte d'Ivoire (2010-2018)

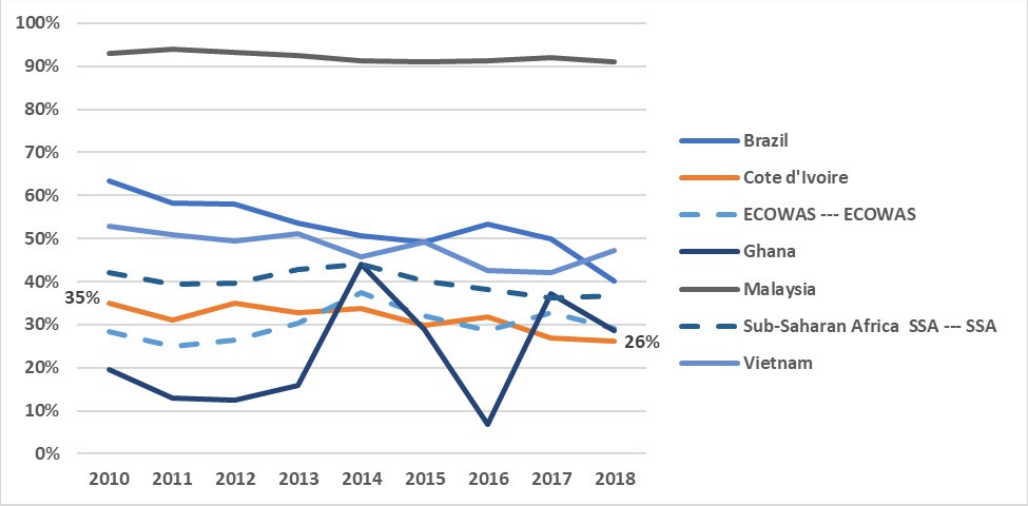


Data source: United Nations UN-Comtrade [2020] database.

More interestingly, 38% of its total export values were further exported by other countries, while 7% of Côte d'Ivoire's exports was value added created in a different country. The picture is again similar for the other ECOWAS members. The low share of foreign value added combined with a higher share of domestic value added in other countries' exports suggests that Côte d'Ivoire operated in the upstream segment of global value chains, which is in line with the findings of other Sub-Saharan African countries and common for countries relying on agriculture and mining [UNIDO, 2015]. This information justifies the need for firms to engage in further processing activities, in order to increase GVC participation.

Share of processed exports Both NDPs (2016-2020 and 2021-2025) place a very strong emphasis on value addition of primary goods. Figure 16 illustrates the share of processing for four different value chains: Wood, pulp, paper and furniture; Textiles and clothing; Leather, rubber and footwear; and Petroleum. The following analysis will focus on food products in particular. 99% of the wood and furniture exports as well as the textiles and clothing exports of Côte d'Ivoire are either semi-processed or processed.

Figure 17: Share of processed food products in total food products exported (2010-2018)



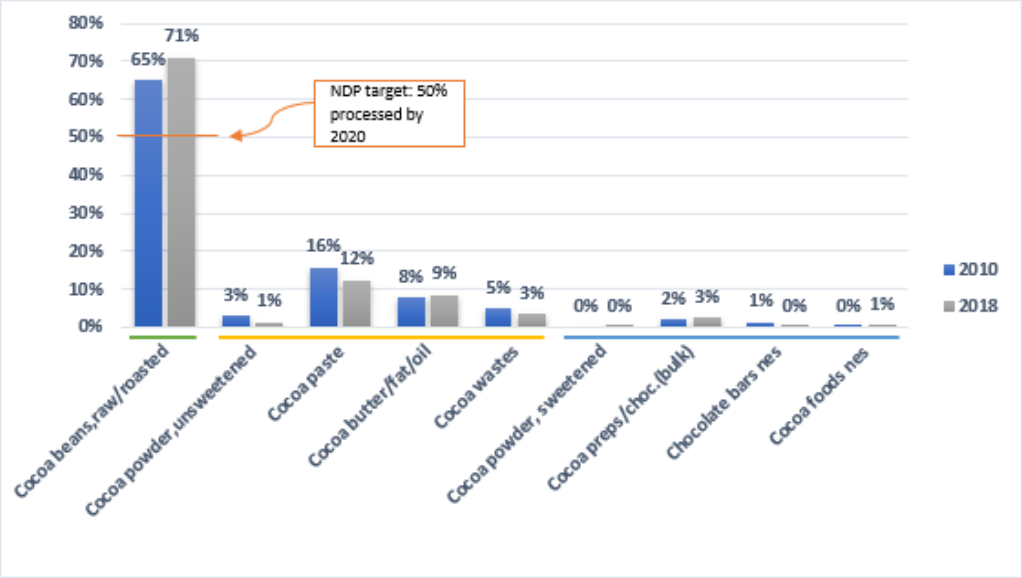
Data source: United Nations UN-Comtrade [2020] database.

The wood and furniture sector saw a positive trend towards more processing, declining the share of unprocessed products from 14% in 2010 to 1% in 2018, while the share of finished products went up from 19% to 41% during the same period. The textiles sector already had a very low share of unprocessed exports in 2010, though was still able to further increase the share of processed from 55% to 61% over the same period. A very different picture is found in the leather, rubber and footwear sector, where in 2018 93% of the exports were in raw material and just over 7% was processed. There was little change since 2010. More than half of petroleum exports are refined and there has been a slight improvement in the share of refined petroleum between 2010 and 2018 from 53% to 57%.

Regarding the food sector in particular, the data shows a low and declining share of processing in the food sector. Figure 17 shows that 26% of food exports are processed. In 2010 the share was still 35% after which it began to steadily decline. Once performing better than the ECOWAS average in this regard, Côte d'Ivoire now has a lower share of processed food exports compared to its region as well as SSA as a whole. Malaysia can be seen as a role model, with over 90% of its food exports being processed. The government has specific sector strategies on how to support value addition taking into consideration the constraints of the individual value chain. The NDP 2021-2025 mentions focusing on value chains through identifying the obstacles hindering productivity.

Cocoa value chain exports Côte d'Ivoire is the largest cocoa producer in the world, supplying roughly 40% of global cocoa demand and providing income for roughly five million Ivorians (a fifth of the population). It is also the main source of tax revenue of the country. Nonetheless, Côte d'Ivoire is far from enjoying full potential of the sector and the government is struggling to support a sector with many challenges. Its share of profits in the global cocoa-chocolate value chain is between 5% to 7% and no change has been observed in recent years. Furthermore, more than half of the local producers live below the poverty line despite their contributions to the economy and yet are charged

Figure 18: Côte d'Ivoire's exports of the cocoa value chain (2010 and 2018)



Note: Green, yellow and blue bars identify unprocessed, semi-processed as well as processed commodities respectively.
Data Source: World Development Indicators (World Bank).

high taxes. The forest area of Côte d'Ivoire has also suffered largely from the sector's activities and this, together with child labor, have become subject to scrutiny from western buyers, creating the demand for certifications of good practice [World Bank, 2019a]. As an effort to ease some of these challenges, the government is aiming to increase value addition of cocoa prior to exporting. The NDP 2016-2020 sets a target of achieving 50% of cocoa export earnings to be from processed goods by 2020 and a long-term vision of having 100% processed cocoa exports. Sector reforms have been implemented to improve production. In 2012, minimum guaranteed prices were put in place to ensure farmers have stable and with time higher incomes [Oxford Business Group, 2020c].

In 2018, 71% of the exports are unprocessed cocoa beans (Figure 18). This means that 29% of the exports have undergone some level of value addition. Some of the processing the country engages in is the making of cocoa paste (12%) and cocoa butter/fat/oil (9%). Further processing, such as into chocolate only account for roughly 4% and is undertaken by multinational facilities such as Cargill (US), Barry Callebaut (Switzerland) and Olam (Singapore). In 2015 the country's first chocolate factory was set up by the French group CEMOI. However, there has been a decrease in the share of semi-processed and processed export values over the years from a share of 35% in 2010. While there has been a slight increase in export value of unprocessed cocoa (from 2.49 billion USD in 2010 to 3.25 billion USD in 2018), the export values of processed (including semi-processed) declined marginally from 1.33 billion USD to 1.32 billion USD. The decline was mainly due to a contraction of export quantity of chocolate bars (from 12.4 million kg to 1.3 million kg), a contraction of export quantity as well as price of unsweetened cocoa powder (quantity shrank from 30.4 million kg to 27.8 million kg, price reduced from 3.7 USD to 2.1 USD per kg), a decline in prices of cocoa paste (from 4.08 USD to 2.88 USD per kg), and cocoa waste (3.5 USD per kg to 1.6 USD per kg). In a recent effort to boost the sector, Côte d'Ivoire and Ghana (the second largest producer globally) signed the Abidjan Declaration in 2018, with the hope of the policies of the two countries will be harmonized and that the profits in both countries can be boosted. According to the Côte d'Ivoire *Institute National de Statistique*, recent data exports of cocoa products have increased respectively 3% and 20% respectively in value and quantity over the period 2018 - 2019. While it is expected to observe some improvements in the sector as a result of the government interventions, the next

few years will show to what extent the sector was able to bring more benefits to the producers and whether firms were able to engage in processing activities and enjoy larger gains.

1.2.6 Regional Integration

Regional market share Côte d'Ivoire is hoping to benefit more greatly from being member of regional economic communities, while regaining its reputation of being a dynamic and fast-growing economy in the region. One of the strategic axes of the NDP 2016-2020 is the strengthening of regional integration and international cooperation, which is also a measure identified in the upcoming NDP (2021-2025). In terms of regional integration, the country expressed the need of developing partnerships with the region, to be able to offer more training and skills development in particular for youth, increase the level of technology production and develop domestic industries that will be competitive both locally and within the region. Indeed, for countries that are not yet competitive in the exports of manufactured goods globally, accessing the regional market is considered to be a valuable first step to gradually gain competitiveness.

Table 1: General trade indicators on regional integration for Côte d'Ivoire

	Region as a share of total Côte d'Ivoire exports				Côte d'Ivoire market share			
	Total exports		Manufactured exports		Total exports		Manufactured exports	
	2010	2018	2010	2018	2010	2018	2010	2018
SSA	27.96%	23.35%	72.15%	69.32%	0.55%	0.42%	0.59%	0.43%
ECOWAS	24.84%	18.86%	66.36%	63.48%	1.50%	1.36%	1.62%	1.39%
SSA excl. ECOWAS	3.12%	4.49%	5.79%	5.84%	0.18%	0.07%	0.16%	0.04%

Data source: United Nations UN-Comtrade [2020] database.

As illustrated in Table 1, while ECOWAS only accounted for roughly 19% of Côte d'Ivoire's exports, the region was a critical market for its manufactured goods, receiving 63% of them in 2018. This illustrates the importance of the region for manufacturing competitiveness of the country in particular. Nonetheless, over the eight-year period the country's total exports and manufactured to the region declined in absolute terms (-1.7% and -3.2% per annum respectively), signaling a loss of competitiveness. This is also evident when observing Côte d'Ivoire's market share in ECOWAS and the rest of SSA, which declined for both total and manufactured goods. In 2018 Côte d'Ivoire's manufactured exports accounted for only 1.4% of the ECOWAS market.

The *African Continental Free Trade Area Agreement* (AfCFTA) entered into force on 30th May 2019 and Côte d'Ivoire is one of the 28 countries that have deposited their instruments of AfCFTA ratification. Following a delay due to the COVID-19 pandemic, trading under the AfCFTA is to commence on 1st January 2021. This is expected to have a transformative impact for Ivorian trade within the region.

Côte d'Ivoire's national implementation strategy for the AfCFTA has been developed by the National Committee of the AfCFTA, which was set up in 2018. The strategy's objective is for Côte d'Ivoire to strengthen and diversify trade with the continent, to further undergo structural transformation, and to foster economic growth and sustainable development. It will also focus on supporting SMEs and female cross-border traders [ZLECAf, 2020]. UNIDO is to collaborate with the *United Nations Economic Commission for Africa* (UNECA) and other organizations in supporting the implementation of this.

Despite the declining market shares observed in Table 1, Côte d'Ivoire seems to be in a good position to benefit from the AfCFTA. The country ranks 17th among all African nations in the Africa Regional Integration Index of 2019. It is the strongest among all ECOWAS members in this regard,

with a score of 0.718 out of 1.0. In this index, Côte d'Ivoire performs above average in Trade Integration, Macroeconomic Integration, Productive Integration and Infrastructure Integration, while it had a score significantly below average in terms of free movement of people. The overall score indicates that the country is in a favorable position to benefit from the AfCFTA [UNECA, 2020].

Regional market share of pharmaceuticals The ECOWAS region is in the process of developing regional value chains, by ensuring each country focuses on its comparative or competitive advantage. UNIDO and the *West African Health Organization* (WAHO) signed a Relationship Agreement in May 2019 which ensures a long-term collaboration between the two organizations. The aim is to implement the regional pharmaceutical upgrading framework which was validated in 2018 and more generally support the development of the sector [UNIDO, 2018, 2019]. For Côte d'Ivoire's domestic market, it is also very important to develop this sector nationally. Life expectancy of Ivorians - a key indicator of health - was seventh lowest in the world in 2018, at 57.4 years according to World Development Indicators data [World Bank, 2020]. The prices of medicines are high in the country, with a research paper by the *African Economic Research Consortium* (AERC) indicating it may be one main deterrent of seeking health care [Cisse, 2011]. Developing a pharmaceuticals sector which can produce inexpensive and quality-assured generic medicines can result in numerous positive effects on the economy and society, as indicated in UNIDO's Industrial Development Report [UNIDO, 2018], including improved health of the population contributing to poverty reduction, increasing manufacturing production in a high-skilled sector and job creation. With the current spread of the COVID-19 pandemic and an understanding that this will be long-standing, the urgency of developing this sector becomes even greater.

Table 2 reveals that regional demand for pharmaceuticals is growing faster than the demand for other manufactured goods (3.6% and 0.7% respectively in ECOWAS), highlighting the dynamism of the pharmaceuticals market and offering opportunity for market entry. The picture is similar for the entire SSA region as well. Building competitiveness in this sector – which would also improve health care provision – therefore seems to be a worthwhile investment.

Table 2: Regional market demand for pharmaceuticals (2010 and 2018)

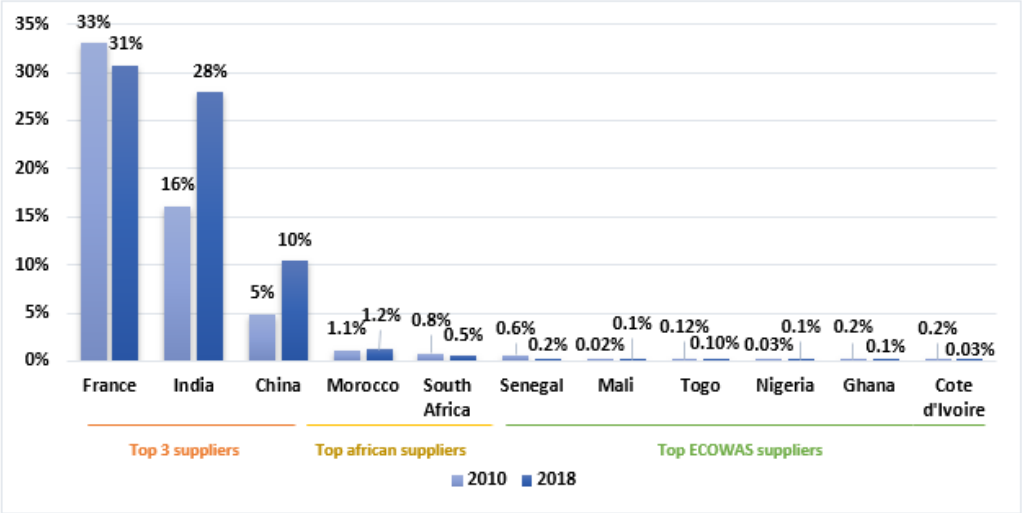
Pharma (CAGR)	Regional demand (1,000 USD)		Pharma (CAGR)	Mnf prds (CAGR)	Pharma share (of mnf imports)	
	2010	2018	2010-2018	2010-2018	2010	2018
SSA	6,618,127	8,867,228	3.7%	1.2%	2.9%	3.5%
ECOWAS	1,571,623	2,092,456	3.6%	0.7%	2.3%	2.9%

Note: CAGR: Compound Annual Growth Rate defined as $CAGR = (EV/BV)^{1/n} - 1$, where $EV = ending\ value$, $BV = beginning\ value$, $n = number\ of\ year$.
Data source: United Nations UN-Comtrade [2020] database.

In 2018 France supplied most pharmaceutical products to the region, holding 31% of the market, followed closely by India with 28% (Figure 19). The impressive trends of India's market share indicates that it has likely overtaken France to be the leading supplier by 2020. China comes third with a doubling of its market share to 10% in 2018. African countries in general have a very small market share in the sector. Morocco – the African country supplying the most – has a market share of 1.2%. It is followed by South Africa with 0.5%.

Côte d'Ivoire is the 58th top supplier country of pharmaceuticals to ECOWAS, having sold 533,000 USD of Pharmaceutical goods to the region in the last year reported. This puts it 6th in the ranking of ECOWAS countries' market share in the same region, with Senegal, Mali, Togo, Nigeria, Ghana ahead of Côte d'Ivoire (Figure 19). The strong decline in market share from 0.2% to 0.03% between 2010

Figure 19: Share of pharmaceutical imports to ECOWAS from selected supplier countries (2010 and 2018)



Data source: United Nations UN-Comtrade [2020] database.

and 2018 further highlights the urgency of developing and upgrading the country's pharmaceutical sector, which will serve for national and regional demand.

Consultations revealed that the country is believed to have potential to develop the sector, both in terms of generic drugs and in terms of natural plant-based medicines. The White Book of the *Confédération Générale des Entreprises de Côte d'Ivoire* (CGECI) notes that there is weak collaboration between the pharmaceuticals sector and research, and a lack of equipment in laboratories, resulting in the underdevelopment of local capacities [CGECI, 2019]. In addition, there is a zero duty on the imports of medicines from aboard, reducing competitiveness of local production.

Box 2: The impact of COVID-19 on Côte d'Ivoire's economy

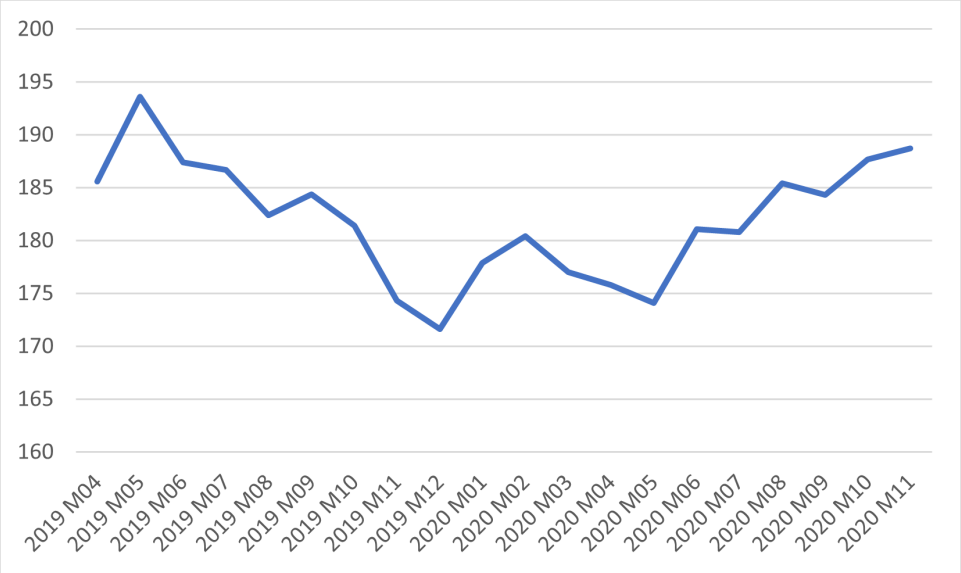
The COVID-19 pandemic hit Côte d'Ivoire's economy hard, as it did for many other countries. With the first reported case on 11th March, the IMF [2020] now projects Côte d'Ivoire's real GDP growth rate to fall from 6.9% in 2019 to 2.7% in 2020 due to the decline in aggregate demand both from advanced economies, as well as from the domestic market. Fiscal deficit is also expected to increase.

The economic backlash of the virus has caused many businesses to halt operations or shut down, and it has led to an estimated 1.3 million jobs to be lost leading to one third of the informal jobs disappearing. This has almost quadrupled the number of households living in extreme poverty [UNDP, 2020]. Child labor – already an issue in the country – has been on the rise due to economic despair and the fact that schools have been closed [ReliefWeb, 2020].

The *United Nations Development Programme*'s (UNDP) COVID-19 impact evaluation undertaken on formal enterprises in Côte d'Ivoire reports that although at the time of the study less than 0.1% of firms operating in the industrial sector had to close down due to pandemic, 99.2% of firms in the manufactured chemicals and pharmaceuticals sector and 93.8% of all other industrial firms had to reduce operations. This is largely due to reduced demand and the government measures of staying at home. Out of the entire economy, entrepreneurs of the agro-industrial sector had the most pessimistic outlook on production for 2020, anticipating a 54% loss of production. The sector was followed by the manufactured chemicals and pharmaceuticals sector, where they expected a 49% loss. The decline in investments was also a very large concern for the entrepreneurs in the industrial sector. Data for the UEMOA region

as a whole shows that only 23% of the entrepreneurs would be available to maintain their engagements in terms of domestic investments [Chambre Consulaire Régionale - UEMOA, 2020].
As a coping strategy during this period, firms have to lay off workers. As a result, agro-industrial firms as well as chemicals and pharmaceutical companies expected a drop in employment of 30% and 25% respectively by the end of 2020 [Ministère du Plan et du Développement, 2020a].
Figure 20 shows the overall Index of Industrial Production for the country for the period before and during the COVID pandemic. The *index of industrial production* (IIP) is an indicator representing the volume of production of industrial goods. The figure illustrates the production of manufactured goods in specific, where 100 is the index in base year 2015. Although the sector attempted to overcome the sharp decline in 2019 and began to increase production in January and February 2020, the IIP declined again in March and April 2020, in line with the outbreak of the Coronavirus. As of June 2020, the country has experienced a steady return to a pre-ciris IIP production.

Figure 20: Index of Industrial Production, Côte d'Ivoire (April 2019 - November 2020)



Data Source: UNIDO Monthly IIP Database, 2020

SMEs and female-run firms SMEs are particularly hard hit by the pandemic. By April 2020, 97% of the economic activity of all SMEs has been negatively affected. Within the manufacturing sector, as workers were asked to stay home, 48% of SMEs halted their production while the remaining 52% had to reduce operations. This resulted in a sharp drop in turnover. On average, while seven employees per SME became unemployed due to COVID, in the agro-processing sector this was 12 employees per firm.
Firms where more women can be found as operational managers were more strongly affected by the pandemic. This is in part due to the fact that they tend to be smaller enterprises that generally are less capable to cope with shocks, and it is also due to the fact that women tend to work more in sectors that are most hardly hit (such as tourism) [Agence Côte d'Ivoire PME and UN WOMEN, 2020].

Government support to the private sector The government established a national response plan through the National Security Council (CNS) to support firms. A private sector support fund was also set up for an amount of CFA 250 billion, where CFA 150 billion was expected to be directed to SMEs, while 100 billion was reserved for large enterprises. Guarantee funds were also put in place in order to support firms' access to credit. Consultations revealed that there were some challenges in the implementation of these initiatives, as merely CFA 13 billion out of the CFA 100 billion have been disbursed to large firms until present and CFA 3 billion out of CFA 150 billion to SMEs.
That being said, the UNDP report showed that among the manufacturing firms, the agro-processing as well as chemicals and pharmaceuticals sectors have felt the positive effects of the various government interventions strongest, with 100% experiencing a positive impact on profits. Nonetheless, the benefits were significantly less evident for the remaining industrial sectors, where 22% stated there was a positive impact on profits while 37% reported negative impacts.
Other measures the government has taken to relieve the burden on businesses include the halt of tax audits for three months, the deferral of tax, duty and similar payments for three months as well as the cancellation of penalties in regard to delays in the implementation of public contracts during the crisis period [Ministère du Plan et du Développement, 2020a]. In addition, there is sector-specific support which is implemented through the sector associations or organizations and supervised by the relevant government body [Chambres d'agriculture de Côte d'Ivoire, 2020]. At present, another study on the impact of COVID-19 on firms is being finalized.

1.3 Social Performance

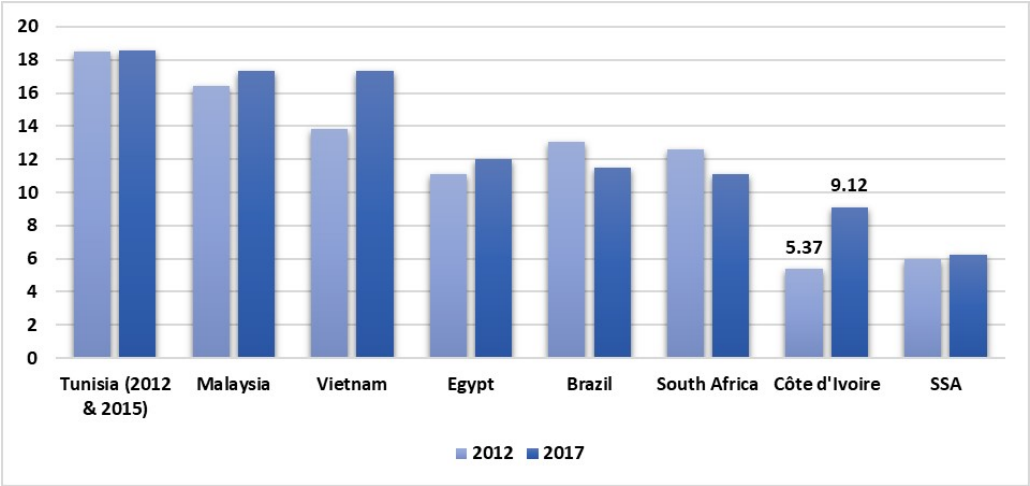
1.3.1 Employment in manufacturing

Manufacturing as share of total employment Ultimately, industrialization and economic growth should serve the country's overall objective of raising the standard of living of its people. In 2015, 28.2% of Ivorians lived below the 1.90 USD (2011 Purchasing Power Parity) a day poverty line. This is higher than the 23.3% of 2002, indicating no sustained advancement thus far in pulling people out of poverty. The situation is similar in terms of inequality, where the country had a Gini index of 41.5 in 2015 compared to 41.3 in 2002 [World Bank, 2020].

Employment creation has long been seen as one important aspect of industrialization in Côte d'Ivoire. Part of the vision of the NDP 2016-2020 is to absorb the available manpower in economic and industrial activity, boosting human capital and creating equality in the society. Industrialization is also expected to significantly reduce poverty and enlarge the Ivorian middle class. The NDP 2021-2025 aspires to create employment and income by stimulating productivity. The different documents of the country make it clear that creating decent employment in manufacturing as well as in other sectors through increased linkages with a more dynamic manufacturing sector is key priority for the country. The challenge for the country becomes maintaining rapid growth rates while ensuring inclusive growth.

Large improvements can already be identified in the growth of employment in manufacturing for Côte d'Ivoire, where 9.1% of all persons employed were found in manufacturing in 2017 compared to 5.4% in 2012 (Figure 21). This allowed the country to remarkably outperform the average of SSA in this regard and near the level of South Africa, which was 11% in the same year. In countries where manufacturing has a significantly stronger weight for the economy, a higher share of employed can be found in the sector, such as in Tunisia, Malaysia and Vietnam. Generally, average wages are

Figure 21: Manufacturing employment as a share of total employment (2012 and 2017)



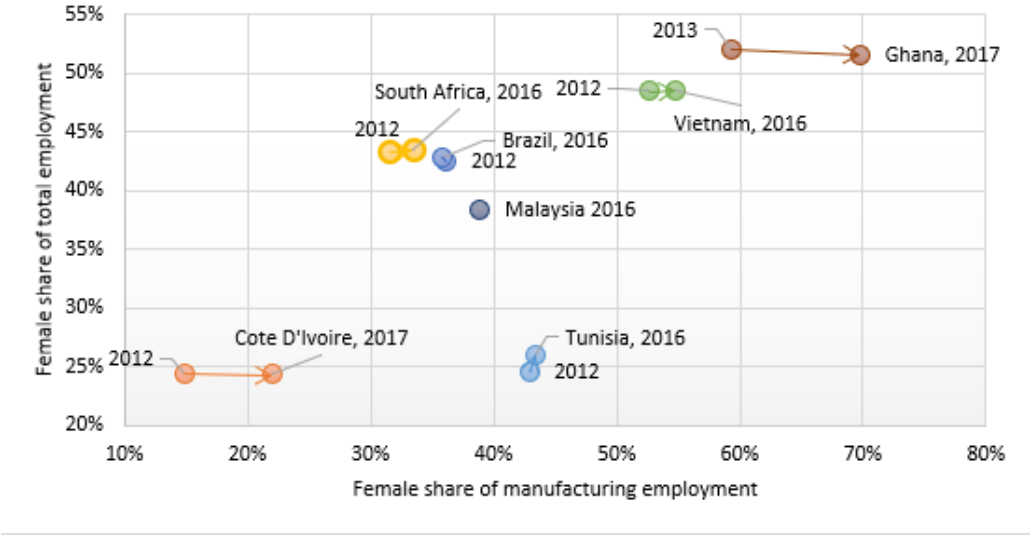
Data Source: SDG9 Database, 2020 (UNIDO).

expected to be higher in the manufacturing sector than in the agricultural and a number of service sectors, making it desirable to have a significant number of people working in manufacturing.

1.3.2 Gender and youth

Female share of employment in manufacturing Ensuring women are offered the same opportunities to work in the manufacturing sector as men is important. In 2017, women made up 24% of total employment and 22% of manufacturing employment (Figure 22).

Figure 22: Female share in manufacturing and total employment (2012 and 2017)



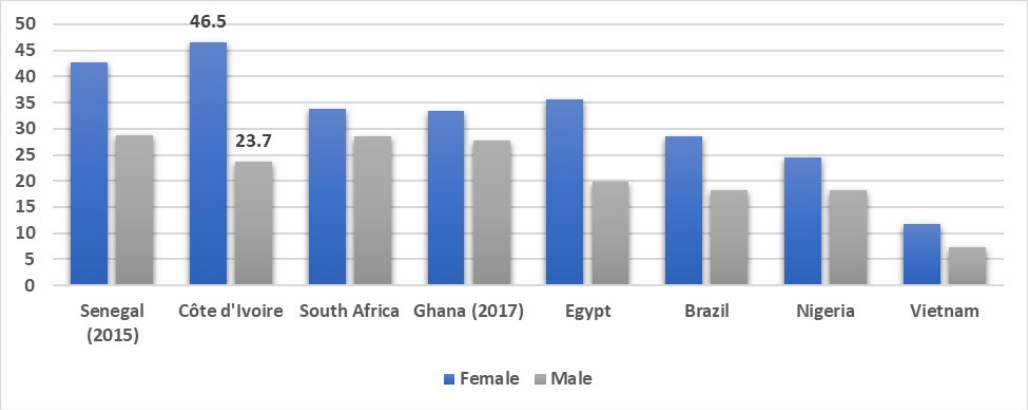
Data Source: ILOSTAT.

This is significantly below the share seen in other comparator countries. Furthermore, the Enterprise and Establishment Census 2020 illustrates that merely 10.1% of cooperate leaders within the formal (and 11.3% of the informal) industrial sector were women. Similarly, 10.7% of formal (and 4.1% of informal) entrepreneurs were women [Côte d'Ivoire Census, 2020]. Nonetheless, there has been an increase in female employment share in manufacturing since 2012 in the country, indicating there are improvements in women's participation in the sector. The NDP 2016-2020 has

equality, including gender equality, as one of the principals of the plan, although no specific mentioning of female opportunities in the manufacturing or industrial sector was made. The upcoming Plan, however, has a pillar on strengthening inclusion (Pillar 4), which includes gender equality.

Globally, women tend to face more difficulties than men in entering the sector, and there are various reasons for this. Firstly, they generally spend more time than men undertaking care work, such as taking care of children or elderly. This limits their time and opportunities to become employed in any sector. For those who are able to do so, women often have had fewer opportunities than men to obtain higher levels of education and the type of education more closely associated with work in manufacturing, such as vocational training and *Science Technology Engineering Mathematics* (STEM) programs, are generally stereotyped to be for men. Furthermore, women generally have less access to finance, information and technology. At the workplace they often face constraints such as lower wages, less opportunity for career development and further training and lack of attention to their needs (such as childcare facilities, female bathrooms and changing rooms and more flexible working hours). Women working in manufacturing often find themselves concentrated in low-skilled and low-waged activities such as textiles, and women are largely excluded from more sophisticated sectors and jobs [UNIDO & GIZ, 2019b]. For these reasons it does not suffice to expect women's economic empowerment to unfold naturally, and much attention should be given to reduce social stereotyping, minimize and mitigate structural barriers for women and actively support the building of economic potential of women. This is particularly important, as gender equality contributes significantly to economic growth, with studies finding that gender equality in the labor force itself would raise GDP per capita by 15% to 27% [Cuberes and Teignier, 2012].

Figure 23: Youth Not in Education, Employment or Training by sex (2016)



Data Source: ILOSTAT.

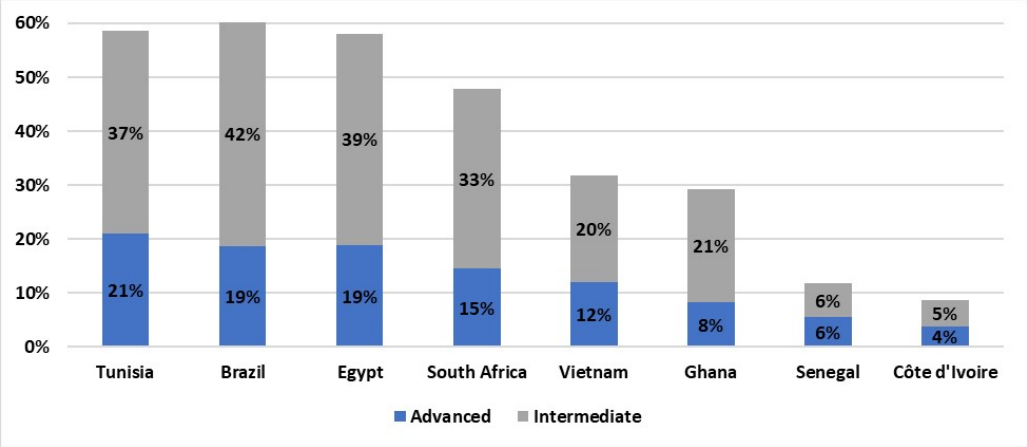
Share of youth not in employment, education or training Over a third (36%) of youth are of out of education, employment or training in Côte d'Ivoire and there is a large gender discrepancy (Figure 23). While roughly every fourth young man neither has a job or is obtaining education, this is the case for almost every other young woman in the country. This is in contrast to Nigeria, for example, where the share is 25% for women and 18% for men and Vietnam with 12% and 7% respectively. In rural areas of Côte d'Ivoire the share of youth that is 'idle' is 53% for women and 25% for men. This has also led in the past to young adults obtaining only low-paying jobs with little security [ILO, 2011]. Singling out youth unemployment, it is found that 5.2% of youth are considered to be unemployed (5.7% for female youth, 4.8% for male youth) in 2020 [ILO, 2020]. The unemployment rate measures the share of those who participate in the labor force and are actively looking for employment, therefore likely being an underestimation of the number of youth without employment. Nonetheless, there has been noticeable improvement since 2012, where the rate was

10%. The high rates of youth not in education, employment or training, especially for women, may be a cause of concern for the future of the society and economic growth of the country.

Both the current and the upcoming NDP place much focus on youth and in particular on ensuring they are able to acquire education and training relevant for the future economic development trajectory of the country. There is, for example, mentioning of developing the skills of youth to work with green technologies. The NDP 2021-2025 mentions the need to improve the quality of formal sector employment to better absorb young graduates. Numerous initiatives are being put in place to solve the issue of lack of skills and youth unemployment. An ILO program, for example, aims to encourage the creation of employment opportunities for youth in multinational companies that are setting up factories and branches in Côte d'Ivoire [ILO, 2020].

1.3.3 Skills

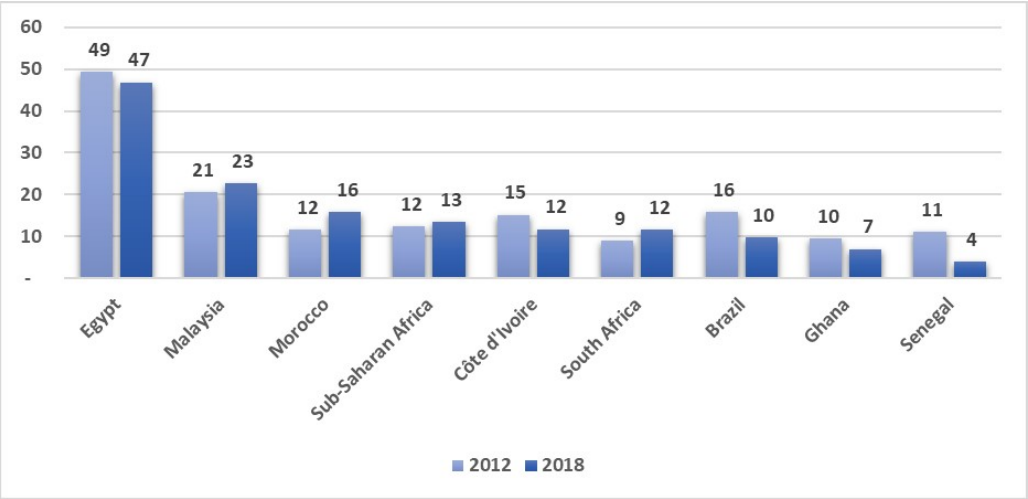
Figure 24: Labor force by level of education (2016)



Data Source: ILOSTAT.

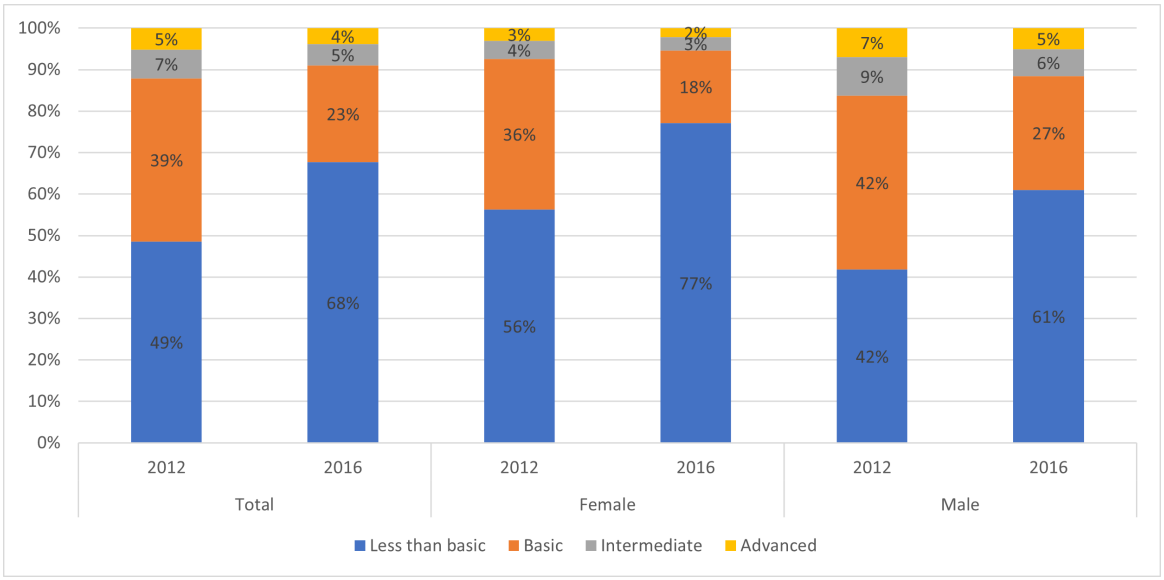
Share of labor force by level of education Human capital is one of the most important assets an economy can own. Skills are vital for all aspects of entrepreneurship and enhancement of competitiveness, for all types of upgrading firms may aim for (such as process, product and inter-sectoral upgrading) and for individuals to be able to acquire decent and satisfying jobs. The lack of adequate skills has for long been a key challenge for Côte d'Ivoire. Figure 24 shows that in 2016 only 4% of the labor force had an advanced level of education and another 5% intermediate level.

Figure 26: Share of all students in upper secondary education enrolled in vocational programs (%)



Data Source: UNESCO UIS.

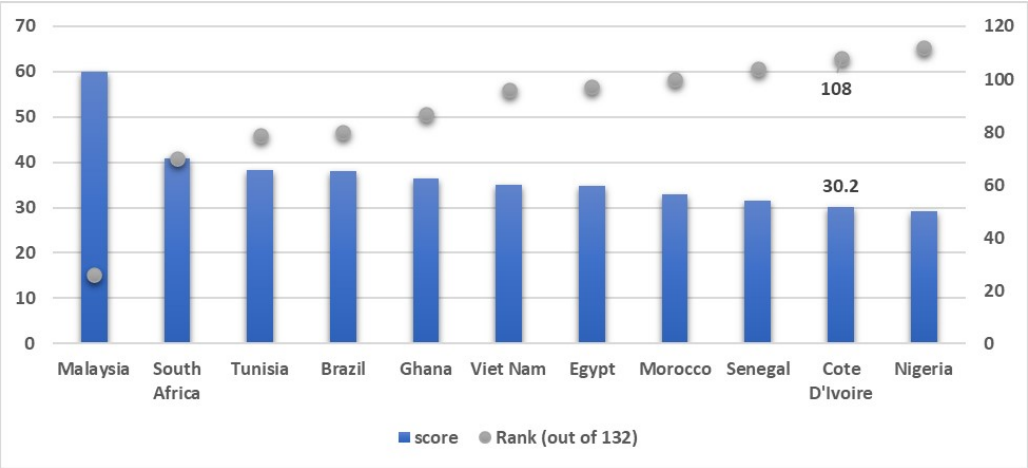
Figure 25: Côte d'Ivoire's labor force by level of education and sex (2012 & 2016)



Data Source: ILOSTAT.

This contrasts strongly with neighboring Ghana where almost 30% of the labor force either has an intermediate or advanced level of education, and Tunisia, where the share is at almost 60%. The lack of higher skills in the country is in line with the low labor productivity in manufacturing seen in Figure 7. Particularly worrying is that the share of the labor force with either advanced or intermediate levels of education has declined between 2012 and 2016, meanwhile the share of those with "less than basic" education, meaning no education or pre-primary, rose sharply from 49% to 68% (Figure 25). Furthermore, women in the labor force are less educated than men, with only 5% having completed intermediate or advanced education compared to 11% and 77% of the females having less than basic education compared to 61% of men in 2016. The worsening of the levels of education throughout the years is true for both men and women. In terms of women's participation in the economy, it becomes evident that education is indeed one factor reducing their opportunities for employment or entrepreneurial success. The NDP 2016-2020 discusses the need to ensure females have equal access to education and training as men.

Figure 27: Global Talent Competitiveness Index score and ranking (2020)



Data Source: Global Talent Competitiveness Index 2020 (INSEAD).

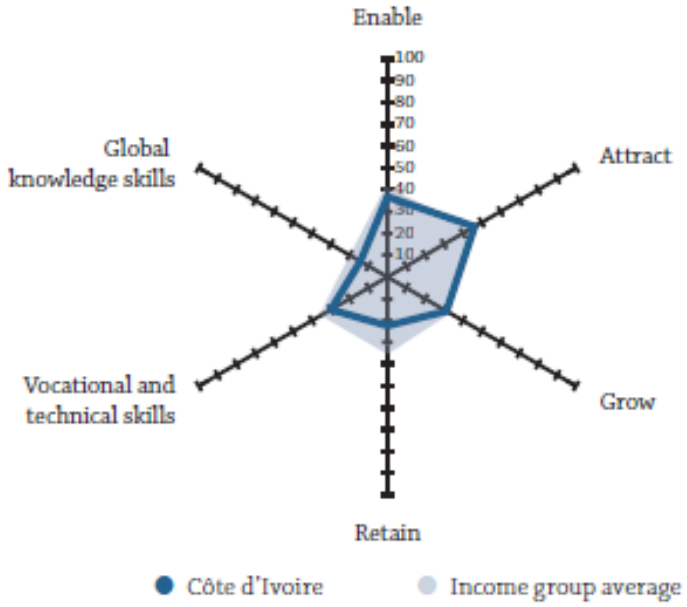
Share of students in vocational training Generally, it is understood that people who have completed technical and vocational training or graduated from a STEM program are more likely to work in the manufacturing sector than people with other educational backgrounds. Data reveals that 12% of students enrolled in upper secondary education are undertaking a vocational program (Figure 26). This is a similar rate to South Africa and the average of SSA. Nonetheless, it would be beneficial to reverse the negative trend over the period observed, in which Côte d'Ivoire started with a share of 15% in 2012. This happened despite a reform in 2012 in technical and vocational training, in which, among other things, new branches of technical studies were developed in line with business needs focusing on specific sectors such as agro-processing and industrial maintenance [Oxford Business Group, 2020d].

However, the quality of education and the persistent mismatch between skills supply and demand remains a key constraint in the country. A study by the World Bank [2019b], for example, found that the education system of the country has not yet taken into consideration the global developments in terms of digitalization and have not adjusted their curriculum to transferring digital skills, leading in a misalignment between skills of graduates and needs of the private sector. Further and large-scale reforms are being rolled out, although there have been obstacles in the implementation which the government has recognized and began addressing in recent years. The obstacles were grouped into five topics: Public-private partnerships, economic demand-driven steering, skills' endorsement processes, equity and access, and lasting and sustainable sector financing. In addition, it was noted that technical training is not equally accessible across the country, further exacerbating the rural-urban divide [UNESCO, 2020]. The urgent need to develop human capital to achieve the desired structural transformation of the economy has also led to numerous development partners to roll out programs for skills development, including ILO, the World Bank and UNIDO.

Global Talent Competitiveness Index score In line with the above findings, the Global Talent Competitiveness Index of 2020 ranks Côte d'Ivoire in 108th position out of 132 economies after it receives a score of 30.2 from the long list of combined indicators it analyzes (Figure 27). This score is close to that of Nigeria, although far from that of Ghana, South Africa or any other economy of comparison.

The GTCI analyzes six categories based on a wide range of indicators, and these are grouped into input and output dimensions. The input dimensions are: The capacity of the country to 1) enable 2) attract 3) grow and 4) retain talent. The output dimensions are 5) vocational and technical skills and 6) Global knowledge skills. The country scored highest in attracting talent, where it ranked 79th. It

Figure 28: Côte d'Ivoire's scores in GTCI compared to lower middle-income average (2020)



Data Source: GTCI 2020 Report (INSEAD).

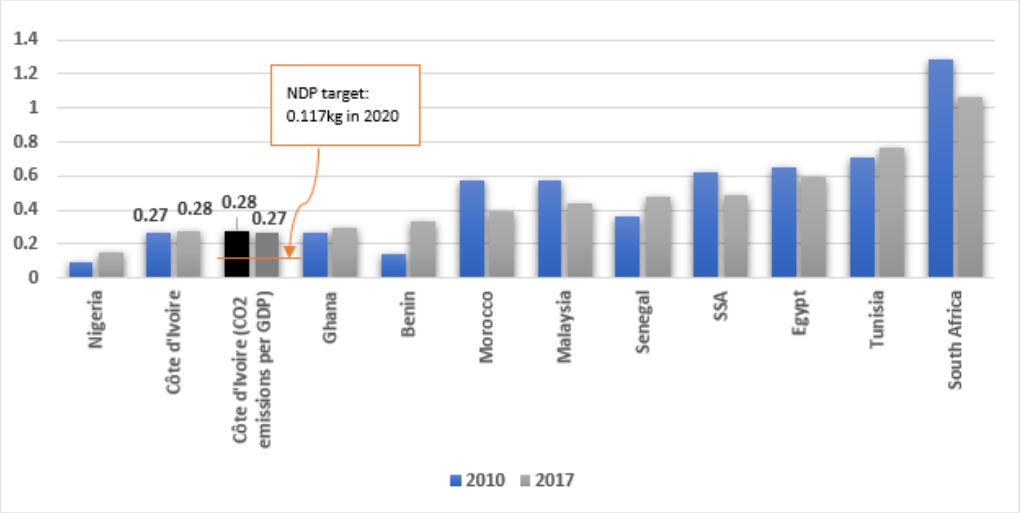
has a high number of foreign ownership and a large migrant stock. This indicates that much of the skills in the country are "imported" rather than "domestically bread". Côte d'Ivoire came 93rd in the capacity to grow talent, where it performs well in prevalence of training in firms and collaboration within organizations (Figure 28). Tertiary education expenditure can also be considered a strength of the country. This may be revealing some of the government efforts and focus on skills development in the recent years. Meanwhile, the country seems to struggle most with retaining talent (ranked 118), which consists of indicators such as social protection, pension system, sanitation and environmental performance. It was also weak in specific indicators such as active labor market policies, government effectiveness, relationship of pay to productivity and cluster development. However, the poorest performance of the country was in the gender development gap indicator, where it ranked 127th out of 132, showing the urgency of the gender problem.

1.4 Environmental Performance

1.4.1 Clean production processes

CO2 emission intensity of manufacturing CO2 emissions in the manufacturing sector of Côte d'Ivoire – measured as the CO2 emission intensity in the sector – is relatively low compared to other countries analyzed and is far below the SSA average. The increase was minimal over the 2010-2017 year period, moving from 0.27 to 0.28 kg per USD of value added. However, as emerging from the International Energy Agency Statistics [International Energy Agency, 2020], the manufacturing and construction represent the third source of total CO2 emissions from fuel combustion (13%) after electricity and heating (36%) and the transport sectors (34%). Emissions from transport are potentially bigger should the supply for transport fully align with the growing demand [Ministère d'Etat, Ministère du Plan et du Développement, 2013]. The CO2 emissions for the economy as a whole was 0.27 kg per Dollar of GDP in 2017. While these are commendable values, the NDP 2016-2020 target was for the emissions to reduce to 0.117 kg per USD for the economy as a whole (Figure 29).

Figure 29: CO2 emissions per unit of MVA (kg of CO2 per constant 2015 USD)



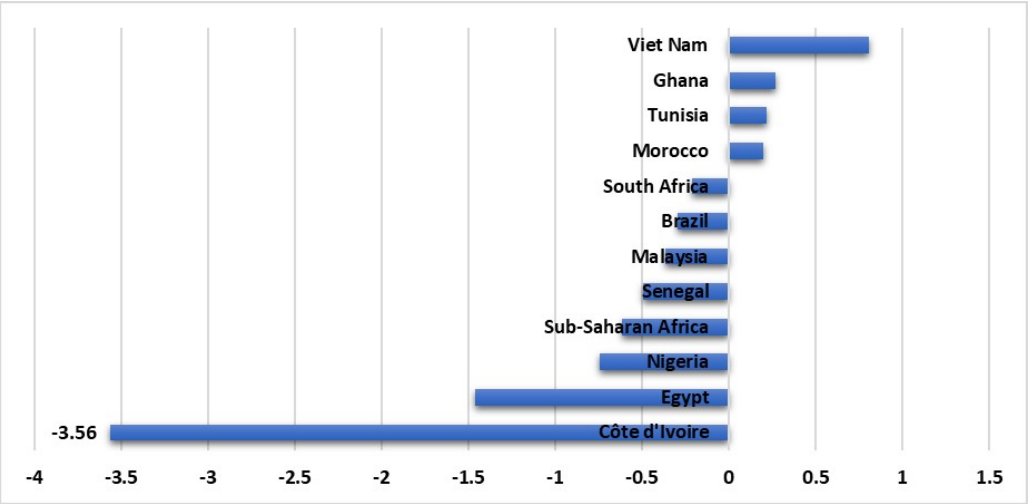
Data Source: SDG9 Database (UNIDO) and World Development Indicators (World Bank).

Although the values look far from worrying, one needs to take into account the level of industrialization and automation of the country. Côte d'Ivoire's manufacturing sector still operates with much less automation than more advanced nations. Furthermore, the large-scale deforestation taking place in the country, due particularly to the cocoa production, means that there is less forest to absorb the emissions. Therefore, the combination of boosting industrialization with a strong reduction in forest area can become very dangerous for the environment and can jeopardize economic sustainability. It is advisable to implement green production methods as early as possible and ensure the adequate policies and regulations are in place to circumvent the problem of high CO2 emissions in the future.[15]

UNIDO has in fact recently finalized a project in Côte d'Ivoire on strengthening local capacities to reduce POP emissions, GHG emissions and mercury pollution. This was part of a larger project called "Integrated sustainable urban planning and management of Abidjan". The objective of the project was to improve the local capacity to assess and respond to environmental degradation through the application of integrated and sustainable urban management and planning methods while encouraging the adoption of innovative low-energy technologies to reduce POPs and GHG emissions [Ramboll, 2019].

[15]While the Ecological Footprint (which measures the human demand on natural capital) has increased slightly from 1.11 to 1.41 between the years 2010 and 2017, so has the Biocapacity measure (which quantifies the capacity of a surface to renew what people demand and is calculated as the product of the physical area and its yield and equivalence factor) which has climbed from 1.89 to 2.00 over the same time span [Global Footprint Network, 2020].

Figure 30: Forest area annual net change rate in % (2020)



Data Source: SDG Database (UNSD).

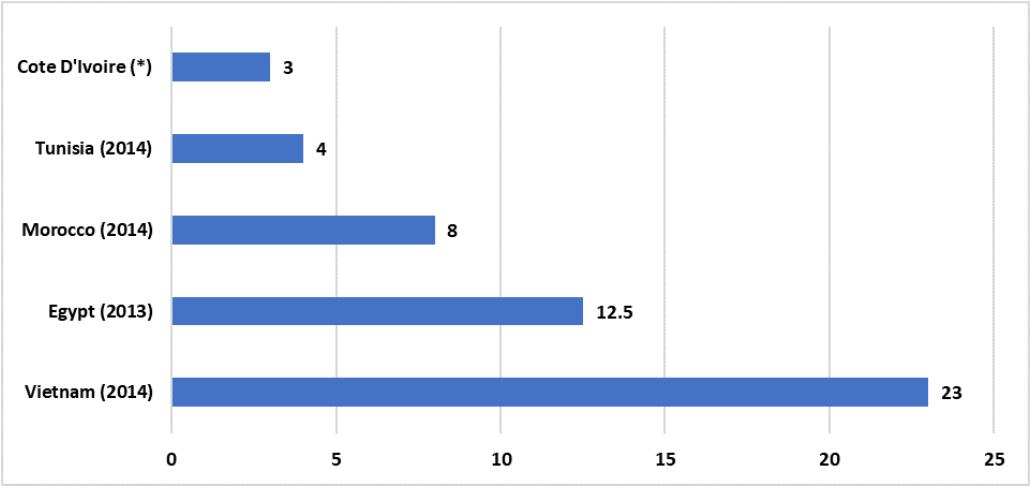
Annual change in forest area Probably the largest environmental issue of the West African country is deforestation. This surged during the years of political crisis, including in protected areas as oversight collapsed [Green Growth Knowledge Platform, 2019] but it continues until today at a staggering rate. This is largely due to cocoa production as farmers find that it is simpler and more profitable to cut down trees rather than use modern production techniques [World Bank, 2019a]. Figure 30 clearly illustrates the large extent of forest reduction: In one single year, the forest area of Côte d'Ivoire decreased by 3.6%. It is estimated that at the current rate the country will loose all forest area by 2034. Deforestation also has a large impact on GHG emissions, as the trees generally absorb much of this, generating clean air. Furthermore, it leads to soil erosion and reduces groundwater levels, possibly leading to water shortages, which is a large concern, particularly in Abidjan [Yeung, 2020].

The reduction of forest area is a critical concern for the cocoa sector and the millions of people who rely on this as their source of livelihood in particular. The restoration of the Ivorian forest is therefore a key priority. Under the topic of "Environment and Sustainable Development" NDP 2016-2020 has added an indicator on the proportion of protected land and maritime area, although it did not state any specific targets. It does, however, mention the strengthening of the institutional and regulatory framework of forestry, by improving the monitoring and evaluation systems of such programs and by setting up a sustainable financing mechanism to support forestry. The country has also made commitments regarding zero deforestation (by 2017) and the restoring of forest area to 20% of the national territory by 2030, which is the main pillar of the nation's REDD+ Strategy of 2017 [Green Growth Knowledge Platform, 2018].

To halt the rapid rate of deforestation while continuing the production of cocoa, agricultural intensification in a sustainable manner as well as the integration of agro-forestry in the cocoa plantations are required. Various projects to ensure this win-win situation have been rolled out. One such project is the Green Innovation Centres for the Agriculture and Food Sector by the German Federal Ministry for Economic Cooperation and Development (BMZ). The project, which runs from 2018 to 2023, has the objective of promoting innovations that will increase incomes, diversification, job creation and productivity of small-scale cocoa producers and boost SMEs in the cocoa value chain [GIZ, 2019].

Engaging in value addition and promoting green innovation for the cocoa and other agro-processing value chains would help create a sustainable cocoa sector increasing material efficiency in the country and reducing the burden on forests, while increasing the incomes of many working in the sector

Figure 31: Recycled waste as a share of total waste (%)



Note: Data for Côte d'Ivoire from the World Bank dataset dates to 2005. However, more recent articles [UNICEF, 2020, Takouleu, J.M., 2020, UNICEF, 2019] state an Ivorian share of between 3% and 5%.
Data Source: What a Waste Global Database (World Bank).

and significantly enhancing economic growth. Additionally, further processing of cocoa waste (for example using the cocoa bean shells for dietary fiber powder high in antioxidants [Nieburg, 2019] would create a more sustainable and profitable sector.

Recycled waste as share of total waste Waste management has long been a large dilemma in Côte d'Ivoire and in Abidjan in particular. Little has been implemented since the 2006 toxic waste crisis, when a ship dumped more than 540,000 liters of toxic waste in Abidjan after which over a dozen people lost their lives and 100,000 fell ill [Amnesty International, 2016]. In 2015 no collection station, dismantling or material recover facilities were found in the District of Abidjan, despite the fact that most of the economic activities in Côte d'Ivoire are concentrated there. Since then, lack of funding and many failed project attempts hindered the development of waste management facilities in the country. There was demand to tackle industrial waste management through technologies for waste segregation, incinerators, waste exchange and storage facilities for hazardous waste [Global Recycling, 2018]. This means that companies have no sustainable way of disposing of any waste, including hazardous and e-waste. According to data from UNSD's SDG indicators, 3% of waste was recycled in Côte d'Ivoire in 2005 and various sources state that the share has remained roughly the same in recent years, at 3% to 5% (Figure 31).[16]

The NDP 2016-2020 places much focus on environmental sustainability, promoting a green economy, including through green technology and innovation. There is particular emphasis also on waste and chemical management in addition to the conservation of biodiversity and developing the capacities to adapt to climate change. The NDP 2021-2025 mentions ensuring environmental sustainability, preservation of biodiversity and the building of capacities for better adaptation and mitigation of climate change.

Most recently, there has been increased efforts by the government to address the issues of waste management and recycling, such as through the new solid waste management policy and the upcoming taxes to finance waste management [Magoum, 2020] and the creation of the National Agency for Waste Management (ANAGED). Various projects have also been implemented, such as the often-cited Colombian social enterprise that, together with UNICEF, has been building much-needed classrooms out of plastic waste which has also been able to provide income to a significant number of

[16]While Raw Material consumption has dropped from 1.2 tonnes per capita in 2000 to 0.78 in 2011, a slight uptick could be observed for the following years which also coincides with an increase of the domestic extraction rate from 2.8 tonnes per capita in 2011 to 2.9 in 2015 [WU Vienna, 2020].

waste collectors, particularly women [WEF, 2019]. Funding has also been received to build various wastewater treatment plants, one of which is currently being built in the PK 24 Akoupé-Zeudji industrial zone (currently under construction). The sludge is expected to be used as a fertilizer [Takouleu, 2019]. Additionally, in 2020 a feasibility study financed by the French government has been completed regarding the building of a macro-waste collection and treatment system for the rivers and lagoon bays of Abidjan, which are heavily polluted. The intended project is expected to have two components: The design of a solid waste collection and treatment system, as well as an awareness and mobilization scheme [SCE Aménagement et environnement, 2020].

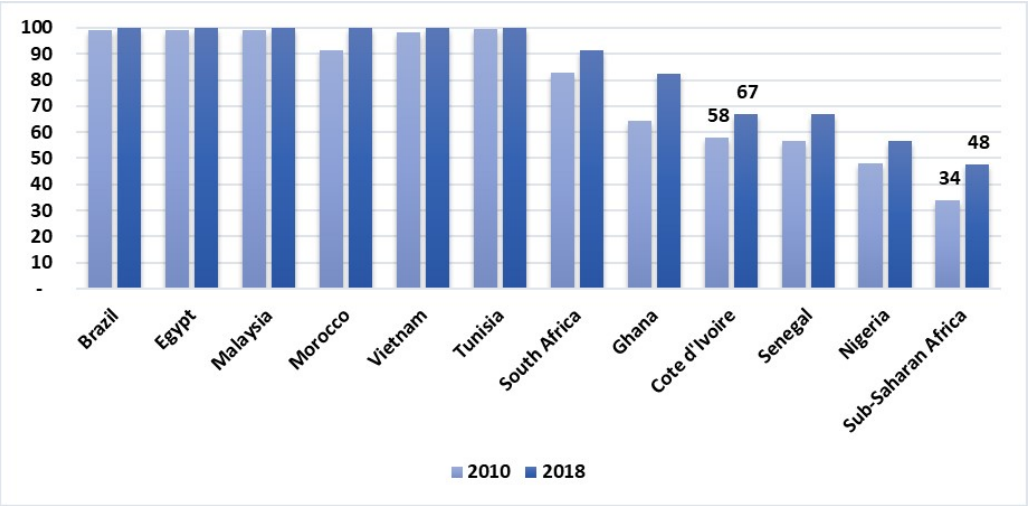
Furthermore, the government is expected to receive funds to develop the Urban Resilience and Solid Waste Management Project for the District of Abidjan and certain other large cities. It is expected to strengthen solid waste collection and treatment/valorization as well as disposal capacities and provide adequate capacity building to entrepreneurs on valorization and recycling of materials certain value chains, as well as provide support for the development of innovative digital solutions for urban management [Mulyungi, 2020]. The current efforts by the government, private sector and development community to manage, recycle and reuse waste can go a long way in addressing the severe problems the country has in this regard. Further, supporting the development of an innovative circular economy will not only fit in well with the government's priorities of creating sustainability, but it will also have economic benefits for the entrepreneurs. In addition to the example of using cocoa shells to make byproducts such as fiber powder, project is currently being rolled out with the French Development Agency to design technologies which can create energy from the waste generated from cashew nuts, cassava and Shea production [Nitidae, 2017].

More generally, the government is putting much emphasis on both mitigation and adaptation. In terms of the latter, the government has expressed the desire to develop a National Adaptation Plan in its Nationally Determined Contributions, where it would particularly address forest and land use, energy, coastal zones, water resources and agriculture [UNDP, 2019].

1.4.2 Energy

Access to electricity In 2018 67% of the population had access to electricity while the remaining did not. This is an improvement from 58% in 2010 and significantly higher than the SSA average of 48% (Figure 32). Nonetheless, a third of the population remain without electricity. This is mainly in rural areas in the North of the country see Box 8 in Section 3. Most recently, however, more efforts are being made to connect those to the grid that have not had access until now. The lack of access to electricity in rural areas limits the potential of developing industries in such areas therefore reinforcing rural-urban divide.

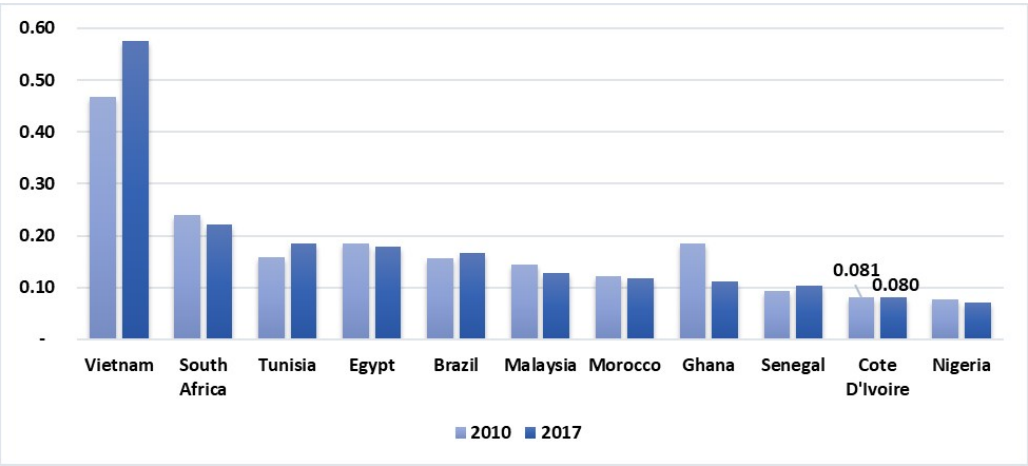
Figure 32: Access to electricity (% of population)



Data Source: World Development Indicators (World Bank).

Energy consumption efficiency in industry Côte d'Ivoire was showing high levels of energy efficiency in its industrial sector, with 0.08 Ktoe of energy used for one million USD of industry value added (Figure 33). There was no increasing trend found since 2010. Similar to CO2 emissions, energy intensity may increase over the years due to larger plants being installed and more machinery used. The indicator should therefore be closely monitored, particularly as access to electricity is still a concern for the country.

Figure 33: Energy intensity: Ktoe of energy used for one million USD of industry value added (2010 and 2017)



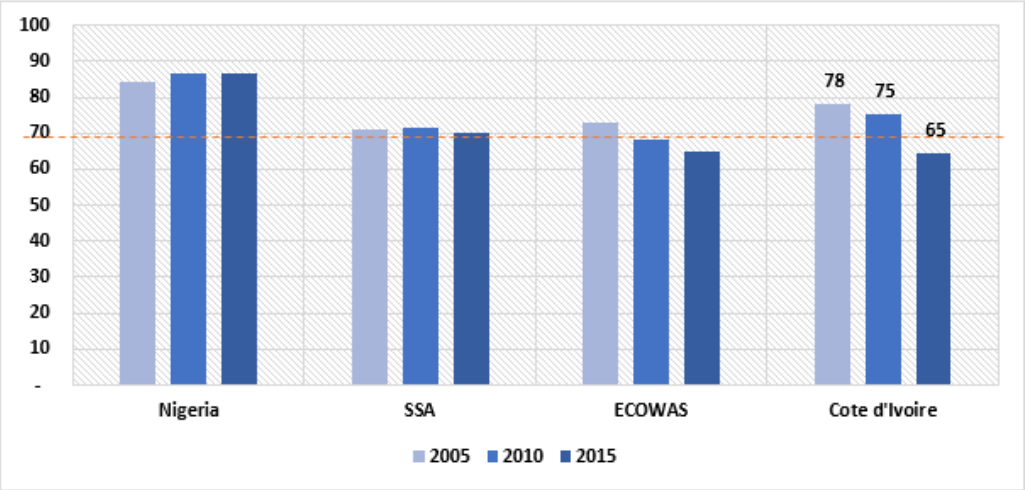
Data Source: International Energy Agency and World Development Indicators (World Bank).

Share of renewables in total energy consumption In 2005 78% of Ivorian energy consumption was from renewable sources.[17] This share dropped to 65% in 2015 (Figure 34). This is below the average of SSA (70%), at par with the ECOWAS average. This is likely the result of higher demand for electricity, in part due to a boost in business activity, which led to the share of renewables declining. In terms of electricity supply, the country was able to produce 24% renewable electricity in 2014, while the 2030 renewable energy output target stood at 42% [Sustainable Energy for All, 2020]. The government hopes to create a larger energy mix and increase the share of renewables over the

[17]This indicator of renewable energy includes biomass that does not necessarily represent a modern form of energy provision.

years, particularly focusing on solar energy (NDP 2016-2020). This is supposed to also support rural electrification. The implementation of the new energy strategy in under way, which will also focus on renewable energies.

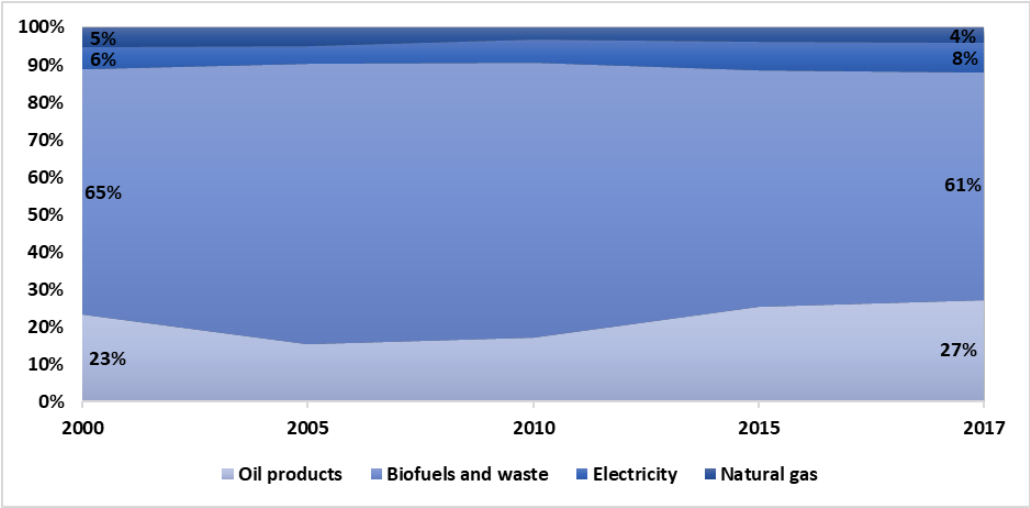
Figure 34: Share of renewables in total energy consumption (%)



Note: Orange line represents SSA average in 2015.
Data Source: World Development Indicators (World Bank).

Energy consumption by source 61% of energy consumed is from biomass and waste, and 27% is from oil (Figure 35). The remaining sources are electricity and natural gas. There was little change in the energy mix throughout the years other than a steady increased share of oil and electricity in expense of natural gas and biomass and waste. The picture for energy supply is similar, with 60% being biofuels and waste, 21% being oil, 16% natural gas and 2% hydro and the same trend [International Energy Agency, 2020]. The country has sufficient natural renewable energy sources such as solar, wind, hydropower and biogas in addition to biomass. Exploiting these sources will be very useful for the economy.

Figure 35: Energy consumption by source, Côte d'Ivoire



Data Source: International Energy Agency.

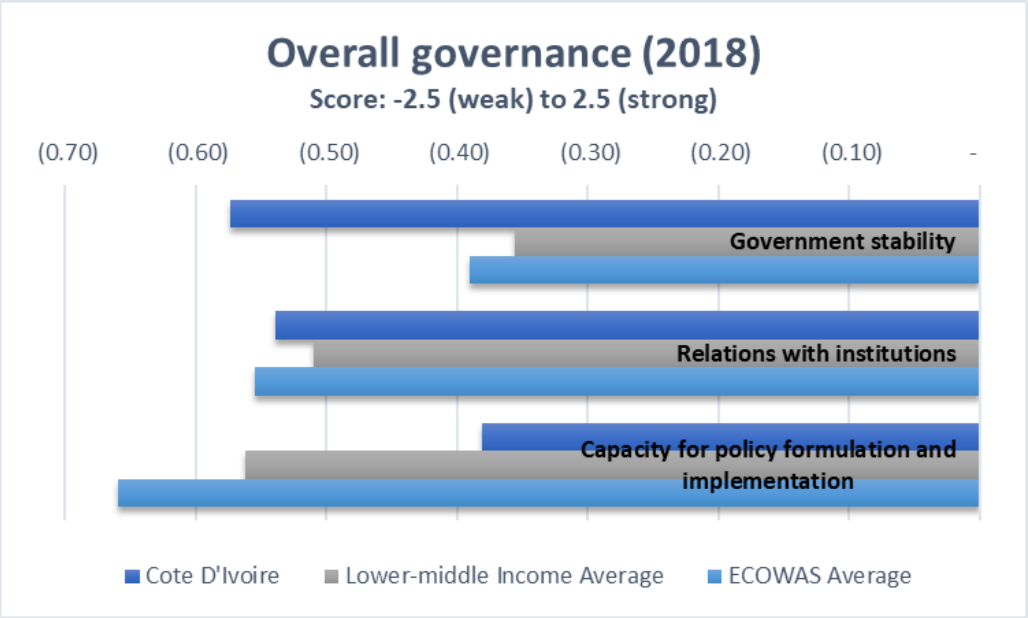
1.5 Policy context

1.5.1 Governance

Côte d'Ivoire has been placing much importance on governance, policies and reforms since 2011. The NDP 2016-2020 has as a strategic axis the strengthening of institutional quality and of good governance, under which it aims to have a well-functioning and efficient public administration, enforced governance which favors the private sector and a modernized administration, with a guaranteed rule of law and a developed democratic culture. The NDP 2021-2025 continues to place very strong focus on this, where the sixth pillar is on strengthening governance and modernizing the state.

In order to examine the overall governance of the country, we use the World Bank Worldwide Governance Index. The index uses a range of sources from multilateral organization, think tanks, business information providers and NGOs together with household and firm-level survey data to obtain a value for the six perception-based indicators (see World Bank [2010] for more details). Given a score between -2.5 (weak) to 2.5 (strong), the analysis is further divided into three topics, each consisting of two indicators. To obtain a score for each topic, an average of the two indicators' scores was taken. Further details on the topics and indicators are provided in Appendix A.3.

Figure 36: Côte d'Ivoire average performance of governance by topic vs. LMI and ECOWAS (2018)

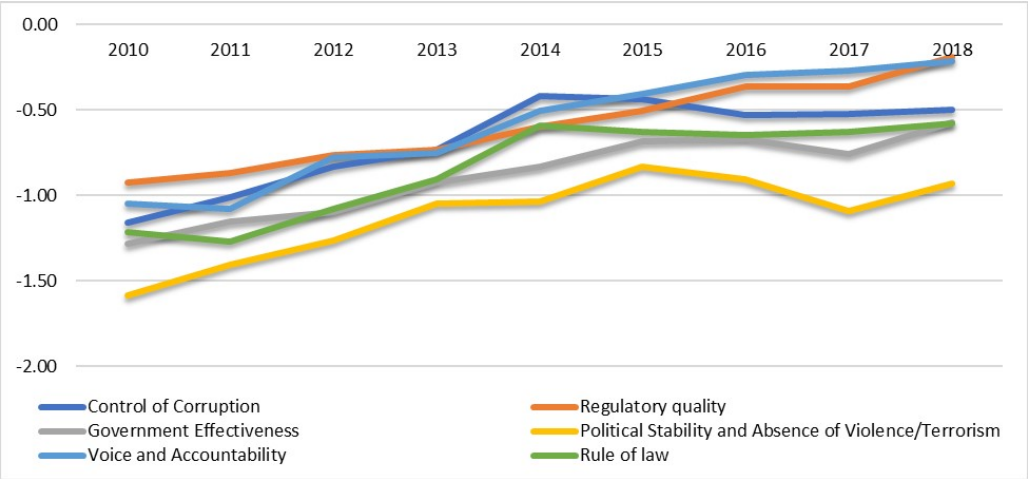


Note: All indices display negative values on the x-axis .
Data Source: Worldwide Governance Index (World Bank).

In general, Côte d'Ivoire performs significantly better than lower-middle income average and ECOWAS average in the capacity for policy formulation and implementation.[18] It is also the country's strongest aspect of governance, according to the index. In terms of relations with institutions, it has received a roughly similar score to the two country groups, albeit being significantly weaker in this aspect than in its capacity for policy-making (Figure 36). Côte d'Ivoire performs lowest when it comes to government stability where it lags strongly behind both ECOWAS and the average of lower-middle income countries.

[18]Interpretation of results across countries should be done cautiously as results are based on surveys is summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. Aggregated means do not take into account variations in the responses of interviewees', and rank-ordering across countries therefore does not follow automatically.

Figure 37: Côte d'Ivoire's governance estimated scores by sub-component (2010-2018)



Data Source: Worldwide Governance Index (World Bank).

Figure 37 presents the trends of all six indicators since 2010. Since then, there have been clear improvements on all aspects of governance. In 2018, the West African nation performed the highest on regulatory quality and voice and accountability. Both these indicators also never experienced a fall or stagnation in score over the eight-year period, in contrast to the other indicators. Regulatory quality measures the extent to which the government can "formulate and implement sound policies and regulations that permit and promote private sector development", which is a particularly relevant indicator to understand the potential of designing effective future industrial and related policies. Voice and accountability, in turn, is about the "extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media." The positive perceptions people have on regulatory quality in particular, is likely the result of the extensive reforms the government has put in place since 2011 mainly to create a conducive business environment and favorable conditions for economic growth.

Control of corruption was improving together with voice and accountability until 2014, however, perceptions on this aspect began to deteriorate somewhat since 2015, hence placing it in third position for Côte d'Ivoire. Corruption still seems to be a concern in the country, which in 2019 ranked 106th out of 180 economies in the Corruption Perceptions Index of Transparency International [Transparency International, 2020]. The NDP target for this was to be ranked among the top 80 in 2018 and among the top 50 by 2020. This is in line with the findings of Section 3, where corruption falls among the main bottlenecks manufacturing firms face. Following a very similar trend to control of corruption, is *Rule of law*, which also experienced a slight decline after 2014. This measures the confidence in the rules of society and the extent to which agents abide by it. It focuses in particular on contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Government effectiveness, which assesses the quality of public services, the degree of independence from political pressures and the quality of policy formulation and implementation, also came in fourth – and second-to-last - position in 2018 in terms of Côte d'Ivoire's performance in the six indicators. Weakest of all the indicators, is political stability and absence of violence/terrorism. While generally also having a positive trend throughout the years, there was a noticeable decline in 2016 and 2017 before it picked up again in 2018. The decline may have been the result of uncertainty after the 2015 presidential elections as some protests were held about irregularities, although the period remained peaceful otherwise [The Washington Post, 2015]. The terrorist attack in March 2016 in Grand Bassam probably resulted in the worsening of the indicator for the short period after.

All in all, the high and continuously increasing score for regulatory quality is particularly promising for the future development of effective industrial and related policies. At the same time, it is hoped that perceptions on political stability and violence will improve even throughout the upcoming 2020 elections, in order to attract and retain foreign investors which can be important agents for further industrial growth.

1.5.2 Policy-making capacities

This section measures the capacity of the country to effectively formulate and implement policies. It uses selected indicators from Bertelsmann Stiftung Transformation Index (BTI) related to the different phases and/or activities relevant for sound policy-making and compares these to the average of both lower-middle income countries and ECOWAS member states.

Table 3: Côte d'Ivoire's policy-making capacities (score 1=lowest 10=highest)

Indicator	Côte d'Ivoire		LMI		ECOWAS	
	2010	2020	2010	2020	2010	2020
Prioritization & Policy Coordination	2	5	5	5	5	5
Civil society participation	2	4	4	4	5	5
Effective Implementation of policies	3	7	4	5	5	6
Learning for innovative policies	3	6	4	5	5	5

Data Source: Bertelsmann Stiftung Transformation Index.

As showed in Table 3 Côte d'Ivoire has made substantial improvements in all aspects of policy-making over the ten-year period up to 2020. In 2010, the government received scores of two or three out of ten, while these ranged from four to seven in 2020, highlighting impressive progress in the years following the civil crisis. The country performs its highest in effective implementation of policies, where it received a score of 7 and outperformed the average of lower-middle income countries and ECOWAS with a score of 5 and 6 respectively. This means that the government has been more able than those groups to achieve its strategic priorities. The many reforms put into place throughout the last decade and the resulting rapid economic growth prove this to be true. Nonetheless, it still struggles to implement some policies.

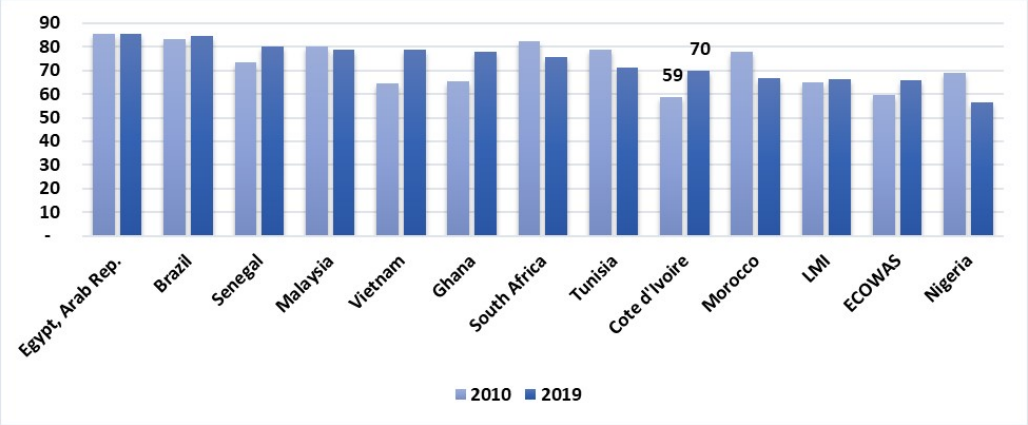
In terms of learning for innovative policies, the country is also performing well with a score of 6 out of 10. This means that while policymakers have the ability to learn from previous experiences, observations and knowledge exchange, however they still struggle with the flexibility to implement the learned knowledge in new policies. The average for both groups of comparator countries was lower, at 5. Meanwhile, the country's capacity to prioritize and coordinate policies is at par with lower-middle income and ECOWAS average.

In terms of civil society participation, however, Côte d'Ivoire lags behind the average of ECOWAS, with a score of 4 vs. 5. While this is an improvement from 2010, the score of 4 means that there is further room for improvements of civil society participation in policy formulation.

In conclusion, there have been significant improvements in policy-making capacities of the country, which is promising for the future of policies and leadership. This also led to Côte d'Ivoire having a solid ability to implement policies and a relatively good level of policy learning. There is, however, still room to improve government engagement with civil society, including private sector associations, for the design of policies and programs. This will enhance the public-private dialogue and ensure policies and programs effectively take into consideration the needs of the private sector.

Statistical capacity In order to create effective policies and programs, analysis on the topic in question needs to take place to understand the situation the country is in, the changes it has undergone in recent years and how it compares to other countries. For this, relevant, reliable and up-to-date data is essential. The average score of the Statistical Capacity Indicators of the World Bank will provide first general assessment regarding this for Côte d'Ivoire, based on three dimensions: Methodology, Source Data, and Periodicity and Timeliness.

Figure 38: Statistical Capacity of Côte d'Ivoire and comparators (100 = highest)



Data Source: Statistical Capacity Indicators (World Bank).

Côte d'Ivoire received a combined score or 70 out of 100 in 2019, up from 59 in 2010 (Figure 38). This value is above the ECOWAS and lower-middle income average, Nigeria and Morocco. Higher values can still be achieved and would be beneficial to the country, as in the case of Malaysia, Senegal or Egypt, to name a few examples. The improvement throughout the years is quite remarkable, as in 2010 the country had the lowest level of all comparators in the graph. Nonetheless, in terms of industrial statistics consultations revealed that the country can still improve on the collection of data. The data is reported to be scattered and at times incomplete, making it more difficult to use for analysis and monitoring purposes. The *National Statistics Institute of Côte d'Ivoire* is, however, undergoing reforms. In particular, it will undergo restructuring to become an autonomous statistics agency and there will also be the creation of a Statistics Development Fund. It is expected that efficiency of data production will significantly improve due to the reforms. So far, the Statistics Institute received technical support from AfDB and UNIDO under the PAGEF (*Projet d'Appui à la Gestion Economique et Financière*) Program in the form of a workshop on conducting a census of industrial enterprises. However, consultations expressed the demand for further capacity building of the office with respect to industrial statistics.

1.5.3 Reforms for the private sector

The government of Côte d'Ivoire has put in place numerous reforms to support the private sector of the country, particularly during the last decade. The development of the new industrial policy has enabled the government to put in place reforms and measures to i) improve the business environment; (ii) strengthen the incentive framework; (iii) improve the quality of products; (iv) strengthen the internal competitiveness of industrial companies; and (v) develop industrial infrastructure [Ministère du Commerce et de l'Industrie, 2020b].

Examples of reforms include the development program for industrial infrastructure which includes domestic resource mobilization and strengthening of Public Private Partnerships; adoption of the new Investment Code; the establishment of the Abidjan Commercial Court and Appeal Court; the strengthening of the legal framework of quality system and infrastructure as well as the fight

against counterfeiting; the development of the National Restructuring and Upgrading Program by ADCI (*Agence pour le Développement et la Compétitivité des Industries de Côte d'Ivoire*), and the adoption of ordinances and incentive mechanisms for the development of agricultural products including cocoa, cashew nuts and rubber [Ministère du Commerce et de l'Industrie, 2020a].

Table 4: Ease of Doing Business scores (100 = best performance)

	2015	2016	2017	2018	2019	Change 2019 vs. 2015
Malaysia	78.61	78.27	78.77	81.34	81.47	2.87
Morocco	67.40	69.24	69.21	71.67	73.38	5.98
Vietnam	62.60	65.29	66.98	68.57	69.77	7.16
Tunisia	64.57	65.54	65.30	67.22	68.66	4.09
South Africa	66.24	65.41	65.33	66.70	67.02	0.78
Côte d'Ivoire	50.33	50.96	52.99	58.34	60.69	10.36
Egypt	54.70	55.47	55.80	58.51	60.05	5.35
Ghana	56.99	58.04	58.38	60.43	59.96	2.97
Senegal	49.56	50.27	54.02	54.38	59.28	9.72
Brazil	55.62	55.22	55.62	58.59	59.08	3.47
LMI	53.74	54.60	55.79	57.14	58.22	4.48
Nigeria	48.37	48.47	52.03	53.40	56.88	8.50
ECOWAS	47.96	49.04	50.33	51.69	53.42	5.46

Data Source: World Development Indicators (World Bank).

This section assesses the outcomes of the government's policy-making capacities. The analysis is based on the Ease of Doing Business indicators and ranking. This questions whether adequate business regulations and laws are in place to allow businesses to start and grow. Côte d'Ivoire's overall score will be compared to the selected peer countries, as well as ECOWAS and lower-middle income average over the latest five-year period 2015-2019).[19] This will be followed by an observation of the country's performance in each of the ten topics which constitute the Ease of Doing Business Index.

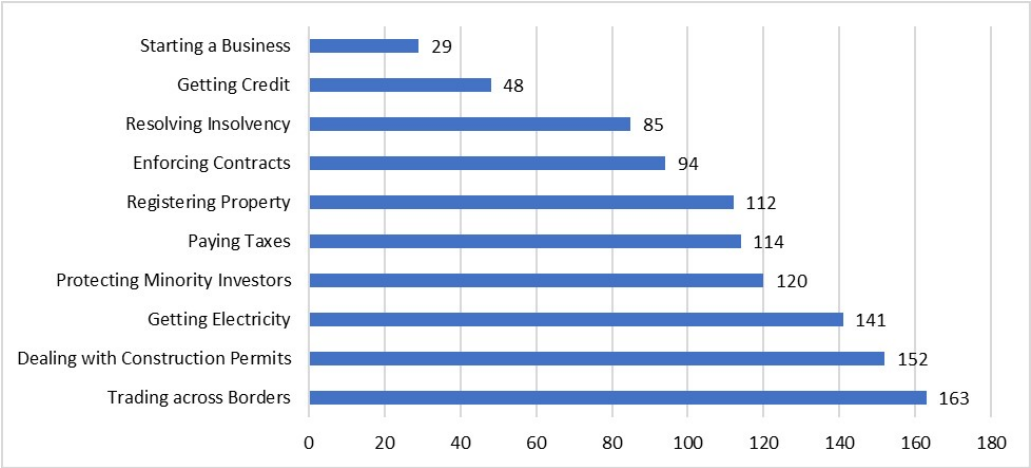
Côte d'Ivoire has the highest Doing Business ranking out of all ECOWAS member states observed (60.7). It is far higher than the ECOWAS, as well as the lower-middle income country average (53.4 and 58.2 respectively, see Table 4). In addition, it is the country that has had the strongest advancements in terms of ease of doing business, being the only one to experience a two-digit increase in the score, compared to 2015. At that point, it was performing below lower-middle income average. The NDP 2016-2020 puts a strong emphasis on implementation of reforms and initiatives to advance the economy and particularly in terms of structural transformation. The results have clearly been felt, as shown in this data.

Nonetheless, the country was far from able to meet the target set out in the NDP 2016-2020. There, it expected to rank under the top 50 countries for doing business by 2018 and under the 25 top countries in 2020. According to the Doing Business ranking of 2020, Côte d'Ivoire ranks 110 out of 190 economies.

The improvements in governance and particularly in policy-making have paid off in certain aspects of the Doing Business. This is particularly true for *"starting a business"*, where Côte d'Ivoire ranks 29 globally, an impressive performance for a Sub-Saharan African nation (Figure 39). The rankings also places Côte d'Ivoire in 48th place when it comes to getting credit. However, this indicator is measured by combining the Legal Rights Index and the Credit Information Index. The

[19] Ease of doing business scores should be interpreted cautiously as the current revision of the index data has been under internal revision as announced in August 2020. See `https://www.worldbank.org/en/news/statement/2020/08/27/doing-business---data-irregularities-statement`; last visit October 2020.

Figure 39: Côte d'Ivoire's ranking in Ease of Doing Business by its 10 topics (out of 190 economies)



Data Source: Doing Business (World Bank).

former measures the extent to which laws on collateral and bankruptcy protect the rights of borrowers and lenders. The latter measures the availability of credit information to facilitate lending decisions. Hence, the indicator does not in fact measure the extent to which the population and enterprises have been accessing credit. Analysis of Economic Performance has already illustrated that the majority of firms do not access credits from banks. Section 3 analyzes firms' main constraints, including access to credit, for manufacturing firms in more detail.

There are still a number of indicators where Côte d'Ivoire performs very poorly. The areas where the country has received the lowest rankings are access to electricity (which is also discussed in Section 3), dealing with construction permits and trading across borders. The latter refers particularly to the cost and time to import and export.

For the country to continue its high growth rates in the coming years and successfully undergo structural transformation so that it becomes an emerging economy, which is the main objective stated in the NDP 2016-2020, the government will need to focus on reducing the barriers in the aspects where Côte d'Ivoire ranks lowest.

1.5.4 Industrial Policy-making

The government, with support from UNIDO, developed a New Industrial Policy (NPI) in 2012. This document begins with a very comprehensive diagnostics section, allowing to identify key constraints and objectives and realistically pave the way forward for the country in this regard. It also includes ambitious yet realistic objectives for industrialization, that are measurable and which can be monitored over time.

The NDP 2016-2020 was developed more recently and focuses heavily on structural transformation towards the industrial sector. This is very important, as it indicates that indeed industrialization is the main priority for the country and ensures that all necessary and relevant spheres work towards the goal of structural transformation (e.g., education, technology, health, environmental sustainability). This approach – of putting industrialization as the number one objective of the country - is what has led many of the Asian economies to become emerging markets. The discussions and drafts of the NDP 2021-2025 indicate that further deepening of industrialization will continue to be the focus of the next NDP.

Nonetheless, there is also the need to review and update the NPI of 2012. An industrial policy focuses on industry and manufacturing in more detail than there is space for in national development plans. The document should be the blueprint for the work of the Ministry of Industry and Mining

and related agencies and organizations. For these reasons it is important that an industrial policy is evidence-based, realistic and implementable and current. A large difference has also been observed between policies that are locally-owned, which means that they were drafted internally, or developed by external consultants or companies. Drafting own documents significantly increases the likelihood of the policies being implemented. The Ministry of Commerce and Industry has identified the need to review and update the current industrial policy (2012) and is requesting for UNIDO's support in doing so through the current PCP program.

The analysis undertaken in this section hints that there is already a relatively solid level of policy-making capacity in the country after having undergone significant improvements. In terms of participation of the private sector in decision-making on industrial development issues, there are a number of formal channels that have been set up over the years and are utilized to ensure the private sector is present and represented. Private sector associations (e.g. the Confederation of Industries and the Federation of SMEs) sit on many of the related committees, for example. Nonetheless, it has been noted that policy and decision-making can be further improved by seeking and listening more actively the voice of the private sector. It is expected that this could contribute to improving policy implementation.

There is also room for better coordination and inclusion within the different departments of the Government as well as with the private sector, civil society and local communities in terms of design, implementation and monitoring of industrial policies. This would also be important for the development of industrial zones, where various ministries are involved and which are particularly important for promoting foreign and domestic investments. In terms of statistical capacity, Côte d'Ivoire is above average for lower-middle income countries and ECOWAS when observing the World Bank indicators. However, policy-making would benefit from improving the availability of industry-related data, ensuring complete, sufficiently disaggregated, up-to-date data is easily accessible.

Lastly, it should be noted that consultations with the private sector emphasized the importance of having the industrialization agenda and vision positioned at the highest political and economic level if significant change is to be implemented.

1.6 Summary of Section 1 and implications for PCP program design

The findings in this chapter reveal a strong growth of the manufacturing sector in recent years, which, if continued, could position Côte d'Ivoire again as an emerging economy. The findings also highlight aspects of the country's development that call for attention to ensure the industrial and economic growth is inclusive, sustainable, and can be sustained in the long run. These aspects are very much aligned with the identified PCP components indicating the timeliness of the PCP.

Despite the high growth rates in manufacturing it was unable to create structural change away from agriculture and into the manufacturing sector over the 2010 to 2018 period. The country largely focuses on agro-processing, but exports have been declining and although a key priority for the country, there has in fact been a decrease rather than an increase in the share of processed agro-based goods exported. As the majority of formal firms are based in Abidjan, the strong rural-urban divide hinders inclusive growth. This calls for the PCP component "Inclusive and sustainable development of territories and rural areas based on the development of value chains".

Furthermore, FDI inflows into the country have been increasing, though remain low as a share of GDP when compared to other countries. As a share to GDP, it has in fact been contracting. Investments would be much needed to boost the processing activities of agro-industries but also to introduce new technologies and production processes. At present only 23% of manufactured exports of the country pertain to medium and high tech sectors and there is very little diversification in the export basket. Emphasis should be placed on skills development and knowledge transfer as the government has suggested, to ensure local capacities will be able to drive the structural transformation

the country is hoping to experience. In addition, firms have difficulties with accessing finance. In the formal sector, less than a quarter of the firms use banks to finance investments. These findings show that the PCP component “Investment and Finances” will be key to unlock the industrialization potential of the country.

Regional integration and exploiting regional markets can be a key strategy for development. At present, 63% of Côte d’Ivoire’s manufactured exports are destined to the ECOWAS region, indicating the importance of this market. Nonetheless, Côte d’Ivoire’s market share in ECOWAS is low and has been declining, which shows a loss of competitiveness. There is much opportunity for developing regional value chains. Demand for pharmaceutical products, for example, is fast-growing in ECOWAS. At the same time Côte d’Ivoire is only 5th largest supplier to the region among all ECOWAS countries (58th globally) and is losing market share. The AfCFTA is expected to create benefits for the Ivorian economy. A national strategy has already been put in place. The PCP component “Initiate the positioning of Ivorian industry in the sub-region through the development of value chains” is expected to support the country on this aspect.

To have a dynamic and thriving manufacturing sector and economy as a whole, human capital is key. However, the share of the labor force with either intermediate or advanced level of education in Côte d’Ivoire is particularly low at only 9% and there has been a decreasing trend over the last years. 12% of upper secondary students are enrolled in a vocational training program, though the trend has been decreasing. The country ranks 108th out of 132 economies in the Global Talent Competitiveness Index, where its lowest score is on the gender gap. As a result, labor productivity in Côte d’Ivoire has been lagging behind although it has been increasing over time. These findings coupled with the concerns of the weak quality of education in the country is worrisome for an economy that aims for structural transformation.

Meanwhile, women make up less than a quarter of workers in the manufacturing sector. Their average level of education is also lower compared to that of men, with 76% not having attended primary school. While 36% of youth are not in education, employment or training, the share is 47% for female youth. The component “Human Capital and Gender” is therefore urgent for the country.

Another component that was identified for the PCP is “Development of sustainable cities and villages by the promotion of circular economy based on entrepreneurship and innovation”. It comes very timely as the country is undergoing large difficulties with deforestation due mainly to the production of cocoa, which employs a significant portion of the poor population. Furthermore, the management of waste has been a challenge for the country, particularly in Abidjan where most industrial firms operate. Although efforts have been made and various projects implemented in this regard, these need to be streamlined into a coherent, coordinated long term strategy with the aim to create a sustainable eco-system around sustainable cities with a strong involvement of the Private Sector. Building a circular economy would help ensure that the country’s development is sustainable in the medium and long run. As the country aims to boost its processing activities and industrialize, strategies should be found to keep CO2 emissions at a manageable level. With the high deforestation rate and current air pollution, this could become a large challenge if not addressed early on. Furthermore, the country needs to further improve the access to electricity and energy efficiency, which will be experiencing higher demand with further industrialization. At the same time, it is advisable for Côte d’Ivoire to diversify its energy sources and address the declining share of renewable energy in its energy consumption in order to meet the government’s targets in this regard with the component "Development of sustainable cities and villages by electrification with renewable energy and energy efficiency".

Governance will be key in determining the future of the economy of Côte d’Ivoire. Good governance can pave the way for the design and implementation of policies to improve industrial competitiveness, innovation and technology. The analysis shows that the country is fairing relatively well in terms of policy-making capacities overall and has seen sound improvements in the Ease of Doing Business

scores of the country. Still, certain weaknesses have been identified. The country, however, would benefit from deeper engagement and inclusion of civil society in strategy and policy-making, such as with private sector associations. Coordination across different government bodies and policy coordination could also be strengthened. It will be important to support the country in particular with strategies around the special economic zones that have been developed in recent years, to ensure firms can benefit extensively from these and the investments pay off. Lastly, although in general Côte d'Ivoire is performing better than the average of lower middle-income countries in terms of statistical capacities, industrial data in particular can be rather scattered, at times incomplete or difficult to obtain. There are said to be issues with the collection of such data. The component "Consensual governance for promoting a competitive, inclusive and sustainable industry. Promotion of industrial zones" will help strengthen the governance and policy-making capacities of the country (including monitoring and evaluation of policies) with the focus on boosting manufacturing and industrialization.

The identified PCP components are strongly aligned to the NDP 2016-2020 and particularly the NDP 2021-2025. This ensures the PCP will be able to support the government in its vision towards industrialization as much as possible. The PCP components are equally coherent with the United Nations Sustainable Development Cooperation Framework (CCDD) of 2021-2025 allowing for the PCP to contribute meaningfully to the overall program of the UN system in the country on the components concerning structural transformation, human capital, inclusiveness, environment and governance. A visual alignment between the PCP components, the NDP pillars and the CCDD strategic priorities is presented in Figure 54 in Appendix A.1. A summary table of PCP components, the key findings advocating the need to focus on the given area and the link between these and the NDP 2021-2025 Pillars can be found in Appendix A.4.

2 Analysis of Manufacturing Sectors

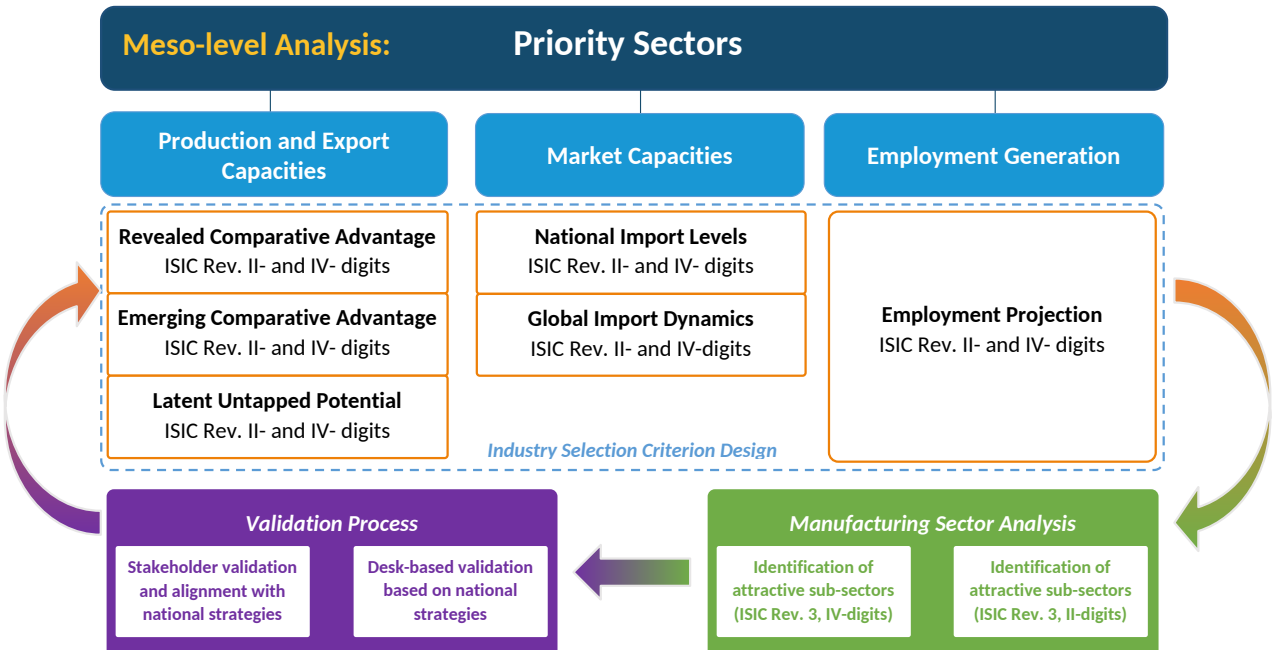
2.1 Structure of Analysis

This section conducts a sector-level analysis of the manufacturing industries in Côte d'Ivoire which follows the visualization in Figure 40 and is conducted along the lines of six distinct indicators to cover three separate dimensions, i.e., *production and export capacities*, *market capacities*, and *employment generation*. On the basis of these indicators, a set of attractive manufacturing sub-sectors is then identified.

The manufacturing sector classification follows the *International Standard Industrial Classification*, Revision 3 (ISIC Rev. 3) database by the United Nations Statistics Division [INDSTAT, 2020] and is described in greater detail in Section 2.2.2 as well as Appendix B.1.2. Attractive sectors are identified at the ISIC Rev. 3 II-digit level, as well as the more granular sub-sector level corresponding to the ISIC Rev. 3 IV-digit classification.

In a next step and on the basis of the sector selection, a validation process is then conducted which includes both desk-based tools and stakeholder approval in alignment with the national development strategies. Based on the outcome of the evaluation process, a subsequent *industry selection criterion re-design* is initiated with the objective of refining both criteria and selection mechanisms. The indicators and priority sectors presented in the subsequent paragraphs of this segment are the result of this circular sector-level analysis which is visualized in Figure 40.

Figure 40: Meso-level Analysis: Structure of analysis and criteria.



Note: This diagram summarizes the structure of the meso-level analysis. The sector analysis is conducted along the lines of six distinct indicators to cover three separate dimensions, i.e. that of *production and export capacities*, *market capacities*, and *employment generation*, on the basis of which a set of *attractive* manufacturing sub-sectors is identified. The six concepts identified in the lower part of the figure correspond to the six criteria used for the purpose of the priority sector identification which are described in Section 2.2 in greater detail. The sector level classification follows *International Standard Industrial Classification* (ISIC), Revision 3 data base by the United Nations Statistics Division [INDSTAT, 2020] and is described in Section 2.2.2 as well as Appendix B.1.2.

2.2 Industry Selection Criterion Design

2.2.1 Indicators

The *industry selection criterion design* which lies at the heart of this meso-level analysis builds upon the following components:

- **Production and export capacities** assess the competitiveness of certain manufacturing industries of Côte d'Ivoire in relation to global markets. The indicators proposed in this segment identify sectors that demonstrate potential as well as existing capabilities in global trade patterns:
  - The first criterion used to analyze this dimension is the *Revealed Comparative Advantage (RCA)*. A high RCA in a sector corresponds to highly developed and existing production and export capabilities of the respective sector which manifests itself in the sector's global competitiveness. The concept of the *Revealed Comparative Advantage* is introduced in Section 2.3.1 as part of the in-depth sub-sector analysis, which aims at identifying a selection of attractive ISIC Rev. 3 II-digit as well as IV-digit sub-sectors.
  - The second criterion used to analyze production and export capacities of Côte d'Ivoire is the *Emerging Comparative Advantage (ECA)*. It identifies sectors that are developing production and export capabilities and are at the brink of becoming globally competitive manufacturing sectors. The concept of the *Emerging Comparative Advantage* is introduced in Section 2.3.2 as part of the in-depth sub-sector analysis, which aims at identifying a selection of attractive ISIC Rev. 3 II-digit as well as IV-digit sub-sectors.
  - The third criterion used to analyze production and export capacities of Côte d'Ivoire is the *Latent Untapped Potential (LUP)* to identify hidden or obscured production capacities which currently remain below the national potential in relation to trends that are otherwise observed across comparable countries. The concept of the *Latent Untapped Potential* is introduced in Section 2.3.3 as part of the in-depth sub-sector analysis, which aims at identifying a selection of attractive ISIC Rev. 3 II-digit as well as IV-digit sub-sectors.
- **Market Capacities** identify a large domestic demand base as well as the existence of dynamic international markets:
  - The first criterion used to analyze this dimension is criterion *National Import Levels* which captures the size of import substitution potential for one specific sector. More specifically, it evaluates the size of sector-level imports (per capita) of manufacturing sectors and highlights the potential for import substitution as a result of high national demand which is currently accommodated through high imports. The concept of *National Import Levels* is introduced in Section 2.3.4 as part of the in-depth sub-sector analysis, which also identifies a selection of attractive ISIC Rev. 3 II-digit as well as IV-digit sub-sectors.
  - The second criterion used to analyze this dimension is criterion *Global Import Dynamics*. It highlights sectors where global demand is fast-growing and identifies sectors with potential to gain importance as a consequence of increasing global demand. Sectors identified in this way may allow the country to tap into an expanding and dynamic global market with extensive opportunity for future growth moving forward. The concept of *Global Import Dynamics* is introduced in Section 2.3.5 as part of the in-depth sub-sector analysis, which aims at identifying a selection of attractive ISIC Rev. 3 II-digit as well as IV-digit sub-sectors.
- **Employment Generation** projects the employment level of manufacturing industries for countries of a similar economic configuration as Côte d'Ivoire:

– The criterion used to analyze this dimension is criterion *Employment Projection* which evaluates the potential of a sector to generate employment. Given the lack of data, it is not possible to compare the projected employment patterns with actual country-level observations. Rather, the indicated employment levels serve as a rough guideline in terms of which manufacturing sectors are expected to produce the highest contribution of manufacturing employment at a given income level. The concept of *Employment Projection* is introduced in Section 2.3.6 as part of the in-depth sub-sector analysis which aims at identifying a selection of attractive Rev. 3 II-digit as well as IV-digit sub-sectors.

2.2.2 Industry Classification and Data Sources

The manufacturing sector level classification used in this analysis follows the *International Standard Industrial Classification* , Revision 3 (ISIC Rev. 3) data base by the United Nations Statistics Division [INDSTAT, 2020] and is described in Appendix B.1.2. Whenever possible and unless stated otherwise, the concepts described above are analyzed on the II-digit level, and are further brought down to a more disaggregated level, i.e., ISIC Rev. 3 IV-digits, in order to identify sub-sectors that can be associated with interesting product groups.

All trade-related data is taken from UN-Comtrade [2020] and follows the *Standard International Trade Classification* (SITC) Revision 2. Correspondence between both the SITC commodity classifications and the ISIC Rev. 3 manufacturing sector classification is established as described in Appendix B.1.1. Throughout the report, only trade in manufacturing-related commodities is considered. Consequently, whenever talking about trade-related indicators, the analysis is based on *traded commodities that can be attributed to a certain manufacturing sector* and follows the re-classification procedure discussed in Appendix B.1.1.[20]

An additional caveat is that - as a result of a lack of more detailed data - all trade analysis is performed on the level of *gross exports* and *gross imports* which, by definition, also includes re-imports as well as re-exports. Employment data on the ISIC Rev. 3 II- and IV-digit level comes from INDSTAT [2020] while any macroeconomic variables are taken from Feenstra et al. [2015], and income group classifications as well as manufacturing sector technology classifications are taken from World Bank [2019c] and OECD [2011] respectively.

2.2.3 Summary of Results

A summary of the main findings and identified priority sectors based on the industry selection criteria is provided in Table 5. This table should be read as follows: The first column lists the top two ISIC Rev. 3 II-digit industries that have been identified for each of the six criteria. As the identification of ISIC Rev. 3 II-digit industries for the *Latent Untapped Potential* has remained inconclusive, this criterion is not listed in first column. The following five columns list the selected IV digits industries for each criterion. This implies that the diagonal elements (highlighted in gray) identify attractive IV digits industries selected by the same criterion used to identify the corresponding II-digits industry, while the off - diagonal elements provide the list of attractive IV digits sub sectors selected by a criterion different from that used to identify the corresponding II digit industry.

[20] In this chapter we use granular trade data at SITC V- and IV-digit level. More aggregated results are obtained by aggregating IV-digit as well as V-digit information which are mapped to ISIC Rev. 3 manufacturing sectors as outlined in Appendix B.1.1.

Table 5: Summary Sector Analysis

II-digit sector	IV-digit (ISIC Rev. 3 code) subsector					IV-digit (ISIC Rev. 3 code) subsector
	Revealed Comparative Advantage	Nat. Imports	Global import dyn.	Employment	Emerging Comparative Advantage	Latent Untapped Potential
Criterion 1 - Revealed Comparative Advantage						
(15+16) Food, bev. & tob.	(1543) cocoa, chocolate and sugar confectionery	(1512) processing and preserving of fish and fish products	(1512) processing and preserving of fish and fish products	(1541) bakery products	(1513) Processing and preserving of fruit and vegetables	(1512) Processing and preserving of fish and fish products
	(1549) other food products n.e.c.	(1531) grain mill products	(1552) wines	(1554) soft drinks; production of mineral waters	(1542) sugar	.
(24) Chemicals	(2421) pesticides and other agro-chemical products	(2413) plastics in primary forms and of synthetic rubber	(2421) pesticides and other agro-chemical products	(2423) pharmaceuticals, etc.	(2411) basic chemicals, except fertilizers and nitrogen compounds	.
	(2424) soap and detergents, cleaning and polishing	(2423) pharmaceuticals	(2430) man-made fibres	(2424) soap, detergents,etc.	.	.
Criterion 2 - National Import Levels						
(31) Electr. machinery	.	(3110) electric motors, generators and transformers	(3130) insulated wire and cable	(3110) electric motors, generators etc.	(3110) electric motors, generators etc.	.
	.	(3120) electricity distribution and control apparatus	(3190) other electrical equipment n.e.c.	(3120) electricity distribution	.	.
(34) Motor vehicles	(3420) bodies for motor vehicles	(3410) motor vehicles	(3410) motor vehicles	(3410) motor vehicles	(3410) motor vehicles	.
	.	(3430) parts and accessories for motor vehicles	(3420) bodies for motor vehicles	(3430) motor vehicle accessories	.	.
Criterion 3 - Global Import Dynamics						
(23) Coke, petr.& nuclear	(2320) refined petroleum products	(2320) refined petroleum products	(2310) coke oven products	(2320) refined petroleum products	.	(2330) Processing of nuclear fuel
	.	(2330) nuclear fuel	(2330) nuclear fuel	(2330) processing of nuclear fuel	.	.

Table 5: Summary Sector Analysis*(continued)*

II-digit sector	IV-digit (ISIC Rev. 3 code) subsector					IV-digit (ISIC Rev. 3 code) subsector
	Revealed Comparative Advantage	Nat. Imports	Global import dyn.	Employment	Emerging Comparative Advantage	Latent Untapped Potential
(35) Transport equ.	(3511) repairing of ships	(3511) repairing of ships	(3511) repairing of ships	(3511) building and repairing of ships	.	.
	(3530) aircraft and spacecraft	(3530) aircraft and spacecraft	(3520) railway and tramway locomotives and rolling stock	(3520) railway and tramway locomotives	.	.
Criterion 4 - Employment Projection						
(17-19) Wear. ap. & text.	(1711) Preparation and spinning of textile fibres; weaving of textiles, (1721) made-up textile articles	(1711) Preparation and spinning of textile fibres; weaving of textiles, (1721) made-up textile articles	(1730) knitted and crocheted fabrics and articles, (1721) made-up textile articles, except apparel	(1711) Preparation and spinning of textile fibres; weaving of textiles, (1721) made-up textile articles	.	.
	(1911) tanning and dressing of leather, (1920) footwear	(1810) wearing apparel, except fur apparel, (1920) footwear	(1911) tanning and dressing of leather, (1912) luggage etc.	(1810) wearing apparel, except fur apparel, (1920) footwear	.	(1820) Dressing and dyeing of fur; manufacture of articles of fur
	(2694) cement, lime and plaster	(2610) glass and glass products	(2692) refractory ceramic products	(2695) articles of concrete, cement etc.	(2695) articles of concrete, cement and plaster	(2610) Manufacture of glass and glass products
(26) Non-met. minerals	.	(2694) cement, lime and plaster	(2696) Cutting, shaping and finishing of stone	(2694) cement, lime and plaster	.	.
Criterion 5 - Emerging Comparative Advantage						
	(2221) Printing	(2211) Publishing of books, brochures and other publications	(2219) other publishing	(2212) Publishing of newspapers, journals, etc.	.	.
(22) Print. & publishing	.	(2221) Printing	(2222) Service activities related to printing	(2221) Printing	.	.

Note: ISIC Rev. 3 2-digit industries as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1.
The first column lists the top two ISIC Rev. 3 II-digit industries that have been identified for each of the six criteria.
As the identification of ISIC Rev. 3 II-digit industries for the *Latent Untapped Potential* has remained inconclusive, this criterion is not listed in first column. The following five columns list the selected IV digits industries for each criterion. This implies that the diagonal elements (highlighted in gray) identify attractive IV digits industries selected by the same criterion used to identify the corresponding II digits industry, while the off - diagonal elements provide the list of attractive IV digits sub sectors selected by a criterion different from that used to identify the corresponding II digit industry.
Sector (17-19) Waring apparel & textiles: Sectors (18-19) Wearing apparel and (17) Textiles are evaluated jointly.
The analysis on sector *(23) coke, petroleum and nuclear* illustrates a high degree of polarization geared towards the sub-sector *(2320) refined petroleum products* which is discussed in Box 6. With the relatively negligible weight of sector *(2330) nuclear fuel* in the country and in the international context, its selection via some of the criteria has to be considered more cautiously than the selection of the other sectors.

The remainder of this block offers a detailed description of the undertaken analysis and a comprehensive discussion of the results on the ISIC Rev. 3 II- and IV-digit sector analysis summarized in Table 5. What is more, the section establishes correspondence between the meso-level analysis with the national development strategies. Complementing results on the IV-digit analysis as well as technical details explanations on how to interpret the results are provided in Appendix B.

2.3 Manufacturing Sector Analysis

This section discusses the results of the manufacturing sector analysis for each of the six criteria defined in Section 2.2. The analysis is first conducted on the level of ISIC Rev. 3 II-digit sectors in order to identify the set of II-digit priority sectors, and furthermore delves into the identification of the corresponding ISIC Rev. 3 IV-digit sub-sectors. Additional and complementary information on specific characteristics as well as methodological and practical explanations are provided in text boxes throughout this section.

2.3.1 Revealed Comparative Advantages (RCA)

Definition of concept The criterion selects the sectors with the highest revealed comparative advantage (RCA) in the latest available year. A high RCA in a sector corresponds to highly developed capabilities in the respective sector: With an $RCA > 1$ a country exports more of a particular good than would be expected given its overall propensity to export.[21] For a technical description of the concept of the *Revealed Comparative Advantage* please see Section B.1.3.

Results II-digit sector analysis Table 6 identifies sectors *(15 + 16) food, beverages and tobacco* as well as *(24) chemicals* to be the sectors with the highest RCA of all ISIC Rev. 3 II-digit manufacturing industries in Côte d'Ivoire in the year 2018. It is a noteworthy observation that out of the 18 analyzed industries, six are found to have an RCA of one or greater, which does hint at a broad set of well-developed capacities across a wider set of manufacturing industries. At the same time, the analysis also reveals two further important observations: First sector *(15 + 16) food, beverages and tobacco* is found to have the by far highest RCA of 25.4, which dwarfs all other industries including 2nd-placed *(24) chemicals* with an RCA of 2.9. This hints at a strong concentration on the food and beverages industries in the country. One of the potential weaknesses of a strong agro-food concentration is the potential difficulty in foreign market penetration which may be reduced by ensuring the timely development of food quality indicators and standards. Regarding the importance of *(15 + 16) food, beverages and tobacco* as well as *(24) chemicals* it is vital to point out in alignment with private sector interests both *refinery* as well as *food* are identified as priority sectors [CGECI, 2019].

When analyzing the evolution of the RCA's over time in Figure 60, it becomes obvious that for a notable number of ISIC Rev. 3 II-digit industries, a downward trend is observed. In other words, in these sectors Côte d'Ivoire is slowly but consistently losing its revealed comparative advantage over time, which can be seen as a deterioration in both the production and export capacities of the country.

[21] According to economic theory, a comparative advantage is 'revealed' if $RCA > 1$. For an $RCA < 1$, the country is said to have a 'comparative disadvantage' in said commodity or industry. In other words, with an $RCA^i_j = 1$ country i exports as much of good j as would be expected given its overall propensity to export. For example assume that in 2018, honey represented 20% of world trade with exports of USD 500 billion. Of this, Côte d'Ivoire exported nearly USD10 billion, and since Côte d'Ivoire's total exports for that year were USD25 billion, honey accounted for `10/25*100 = 40%` of Côte d'Ivoire's exports. Because `40/20 = 2`, Côte d'Ivoire exports twice of what its 'fair share' would constitute. In other words, Côte d'Ivoire has a high revealed comparative advantage in honey and Côte d'Ivoire's RCA for honey is $RCA^{Cote\ d'Ivoire}_{Honey} = 2$. Please note that the numbers in this example do not reflect actual trade dynamics and are only used to illustrate the concept of RCA in a simple way. Furthermore, the RCA presented in this analysis has to be understood as an indicative value and not a fixed and definite threshold value.

Table 6: Revealed Comparative Advantage in 2018 in Côte d'Ivoire, ISIC Rev. 3 II-digits

II-digit sector (ISIC Rev. 3)	Revealed Comparative Advantage (RCA)	RCA Classification
(15+16) Food, beverages and tobacco	25.4	Advantage
(24) Chemicals	2.9	Advantage
(21) Paper and paper products	2.8	Advantage
(20) Wood products	2.5	Advantage
(27) Basic metals	1.8	Advantage
(23) Coke, petroleum and nuclear	1.5	Advantage
(22) Printing and publishing	0.9	Disatvantage
(35) Transport equipment	0.9	Disatvantage
(17) Textiles	0.8	Disatvantage
(25) Rubber and plastic	0.7	Disatvantage
(26) Non-metallic minerals	0.6	Disatvantage
(18+19) Wearing apparel	0.5	Disatvantage
(29) Machinery	0.4	Disatvantage
(28) Fabricated metals	0.3	Disatvantage
(30+32+33) Computer and electronics	0.1	Disatvantage
(36) Furniture and n.e.c.	0.1	Disatvantage
(31) Electrical machinery	0.0	Disatvantage
(34) Motor vehicles	0.0	Disatvantage

Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2, year 2018. Concordance between trade and industry classifications according to Appendix B.1.1. Weighted RCA aggregates calculated as described in Appendix B.1.3. RCAs rounded to the first digit.
Data source: United Nations UN-Comtrade [2020] database.

Results IV-digit sub-sector analysis A summary of the identified ISIC IV-digit sub-sectors is provided in Table 5. More information on the time profile of the IV-digit sub-sectors is provided in Figure 58. On the IV-digit level of manufacturing industries, the analysis indicates that sub-sector *(1543) cocoa, chocolate and sugar confectionery* as well as *(1549) other food products n.e.c.* are identified with the highest RCA for *(15 + 16) food, beverages and tobacco*. For *(24) chemicals*, the two strongest sub-sectors are *(2424) soap and detergents, cleaning and polishing*, which has remained very competitive with an RCA of close to 10 for the last decade, as well as *(2421) pesticides and other agro-chemical products* which has experienced a very favorable increase in the RCA over the last few years. Other ISIC IV-digit sub-sectors with robust growth performance and an RCA > 1 are *(3420) bodies for motor vehicles*, *(2320) refined petroleum products*, *(3511) repairing of ships*, *(3530) aircraft and spacecraft*, *(1911) tanning and dressing of leather, (1920) footwear, (1721) made-up textile articles, (1711) Preparation and spinning of textile fibres; weaving of textiles, (2694) cement, lime and plaster and (2221) Printing.*

2.3.2 Emerging Comparative Advantages (ECA)

Definition of concept The *Emerging Comparative Advantage (ECA)* expands on the idea of the *Revealed Comparative Advantage* and identifies sectors with an RCA between 0.3 and 0.9 and a positive trend over time during the period 2005-2018. The criterion highlights the potential to achieve a *Revealed Comparative Advantage* in the future and identifies developing production and export capabilities for sectors that are at the brink of becoming globally competitive. In other words, it

identifies sectors where the country may play a dominant role in global trade in the future. For a complete list of figures of the ECA analysis on ISIC Rev. 3 IV-digit level, please see Appendix B.3.

Results II-digit sector analysis The analysis at the II-digit level indicates that *(22) printing and publishing* is the only sector that exhibits the described characteristics of the ECA as can be seen in Figure 60. Because of its steady and robust increase in global competitiveness over the last decade, this sector may have the potential to become attractive for the country in the foreseeable future. Given its emerging role which has not been recognized as a priority in the country yet, *(22) printing and publishing* is also flagged in the PCP strategic map in Section 4.

Results IV-digit sector analysis A summary of the identified IV-digit sub-sectors is provided in Table 5. More information on the time profile of the IV-digit sub-sectors is provided in Figure 58. Over all, the number of sub-sectors that show emerging comparative advantage characteristics is not too extensive. Most notably, emerging advantages can be observed for *(15 + 16) food, beverages and tobacco* where sub-sectors *(1513) Processing and preserving of fruit and vegetables* as well as *(1542) sugar* are found to have an upward-trending ECA which still remains below the threshold value of one. This observation underscores the importance of the food and beverage industry for the country. Other sub-sectors with an emerging comparative advantage can be found in the chemicals as well as electrical machinery sectors *(2411) basic chemicals, except fertilizers and nitrogen compounds* as well as *(3110) electric motors, generators etc.*. Finally, an emerging comparative advantage is also identified for *(3410) motor vehicles* as well as *(2695) articles of concrete, cement and plaster*.

2.3.3 Latent Untapped Potential (LUP)

Definition of concept The *Latent Untapped Potential (LUP)* identifies hidden or obscured production capacities which currently remain below the national potential in relation to trends that are otherwise observed across comparable countries. It compares national dynamics in gross exports per capita with average trends observed for LMIs and is based on an econometric model which is described in Section B.1.4. A sector is identified to have a latent untapped potential if it (a) performs below what is expected for a LMI and (b) displays a positive, national growth pattern over time. A more detailed discussion on the methodology of this indicator and a practical examples is provided in Section B.1.5.

Results II-digit sector analysis The analysis at the II-digit level indicates that there are no manufacturing sectors that follow the assigned characteristics.

Results IV-digit sector analysis A summary of the identified IV-digit sub-sectors is provided in Table 5. Sub-sectors with latent untapped potentials are *(1512) processing and preserving of fish and fish products*, *(2330) processing of nuclear fuel*, *(1820) dressing and dyeing of fur; manufacture of articles of fur* and *(2610) glass and glass products*. For a complete list of figures of the LUP analysis on ISIC Rev. 3 IV-digit level, please see Section B.4.

2.3.4 National Import Levels

Definition of concept The criterion identifies the sectors with the highest level of imports. The indicator captures the size of imports substitution potential for one specific sector. More specifically, it measures the size of sector-level imports (USD, per capita[22]) of manufacturing sectors in Côte

[22] Per capita figures are used to account for population-driven demand effects.

d'Ivoire. The indicator gauges the potential for import substitution as a result of high national demand, which is currently accommodated though high imports.[23]

Results II-digit sector analysis Table 7 shows average import levels in USD per capita of all analyzed manufacturing sectors for Côte d'Ivoire for the last four consecutive years. On this basis, sectors *(31) electrical machinery* and *(34) motor vehicles* are identified.

Table 7: Import levels in USD per capita over time in Côte d'Ivoire, ISIC Rev. 3 2-digits

	Year			
ISIC Sector	2015	2016	2017	2018
(15+16) Food, beverages and tobacco	5.59	5.58	5.83	6.29
(17) Textiles	1.00	0.97	1.22	0.92
(18+19) Wearing apparel	0.49	0.46	0.49	0.51
(20) Wood products	0.05	0.07	0.06	0.07
(21) Paper and paper products	1.92	1.84	2.25	2.24
(22) Printing and publishing	0.32	0.25	0.23	0.25
(23) Coke, petroleum and nuclear	1.64	1.39	1.99	4.37
(24) Chemicals	6.19	6.47	6.48	6.78
(25) Rubber and plastic	3.50	2.75	2.93	2.53
(26) Non-metallic minerals	1.44	1.34	1.44	1.35
(27) Basic metals	6.22	4.85	5.04	5.91
(28) Fabricated metals	4.04	2.57	2.35	3.36
(29) Machinery	2.87	2.32	2.17	2.54
(30+32+33) Computer and electronics	1.09	1.27	1.18	1.83
(31) Electrical machinery	6.12	6.09	5.70	6.15
(34) Motor vehicles	9.21	7.92	8.43	9.14
(35) Transport equipment	8.15	1.70	4.08	1.53
(36) Furniture and n.e.c.	0.76	0.75	0.71	0.75

Note: ISIC Rev. 3 2-digit industries as described in Section B.1.2, selected years. Concordance between trade and industry classifications according to Appendix B.1.1. ISIC Rev. 3 II-digit results based on averages of ISIC Rev. 3 IV-digit aggregates. Per capita figures used to account for population-driven demand effects.
Data source: United Nations UN-Comtrade [2020] database.

As Table 7 illustrates, these two sectors are not the only ones which exhibit high import levels: While *(34) motor vehicles* reports by far the highest import levels of all manufacturing sectors over the past four years, *(15+16) food, beverages and tobacco* as well as *(24) chemicals* both have a reveled comparative advantage as well as Section 2.3.1 very high sector-level imports. This implies that these two manufacturing sectors are very heterogeneous where some sub-sectors exhibit strong production and export capabilities while other sub-sectors are more reliant on imports; see Box 3 for a further elaboration on this point. This result indicates that, in line with previous observations that hint at the necessary diversification *across* manufacturing sectors, that similar recommendation can also be made for *within-sector* manufacturing development.

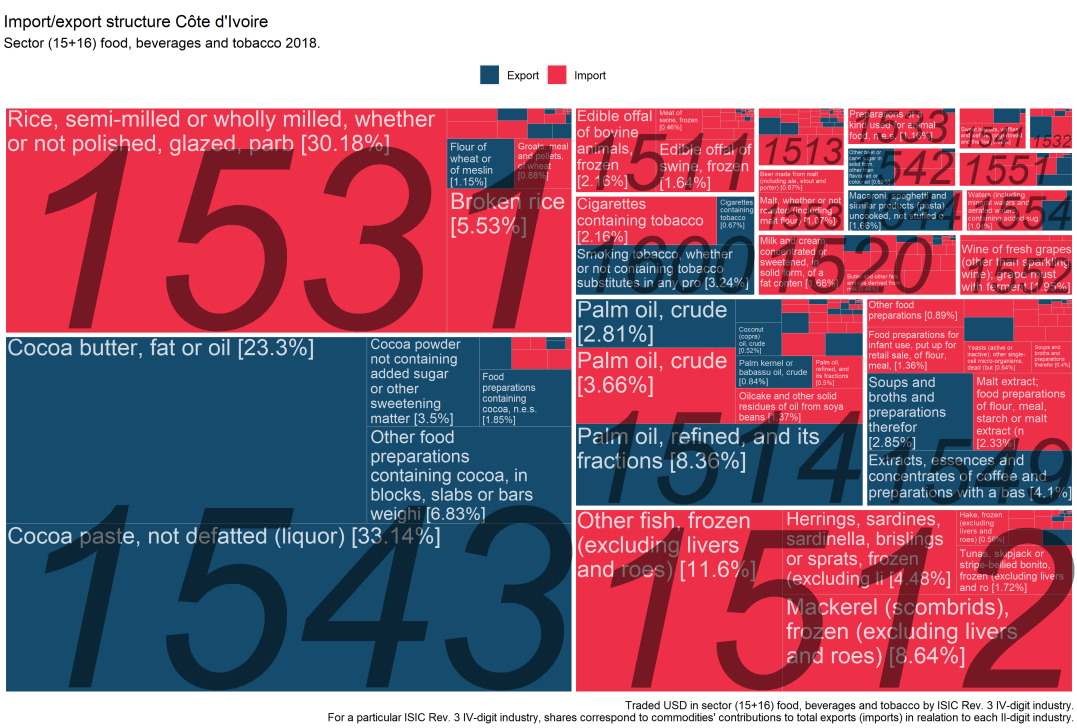
The fourth-biggest sector in terms of import levels is *(31) electrical machinery*. Similar to *(34) motor vehicles*, this sector lacks a pronounced production capacity dynamism and therefore complements the list of the manufacturing sectors that are characterized by high national import levels.

[23] ISIC Rev. 3 II-digit results based on averages of ISIC Rev. 3 IV-digit aggregates.

Box 3: Heterogeneity in *(15 + 16) food, beverages and tobacco in Côte d'Ivoire*

Figure 41 indicates a strong concentration of trade activities within sector *(15) food and beverages*. While almost all traded commodities that can be associated with sector *(1543) cocoa, chocolate and sugar confectionery* are designated for the export market, the overall pseudo 'balance of trade' of the sector is negative for the year 2018. It is important to note that sub-sector *(1531) grain mill products*' imports of unbroken rice alone are only slightly smaller (in terms of trade volume in USD) than the entire exports of sub-sector *(1543) cocoa, chocolate and sugar confectionery*. Rice is by far the most imported agro-commodity and one of the most important imports for the country as a whole with an import share of roughly 5% in 2018 (HS6[a]: *rice, semi-milled or milled* for 2018). Given this observation and the general need to diversify, the move of the country to become a rice producer itself is a far-sighted move.[b] The third largest IV-digit sector within *(15 + 16) food, beverages and tobacco* with respect to trade volume is *(1512) processing and preserving of fish and fish products* which is also very heavily dominated by imports (see also Table 27) hinting at the need for further diversification in agro-manufacturing.

Figure 41: Import and export structure of sector *(15 + 16) food, beverages and tobacco* in 2018



Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2, selected years. Concordance between trade and industry classifications according to Appendix B.1.1.
Data source: United Nations UN-Comtrade [2020] database.

[a] See `https://unstats.un.org/unsd/tradekb/Knowledgebase/50018/Harmonized-Commodity-Description-and-Coding-Systems-HS`; last visit September 2020.
[b] See `https://www.voanews.com/africa/ivory-coast-quest-become-west-africas-rice-bowl`; last visit September 2020.

Results IV-digit sub-sector analysis A summary of the identified IV-digit sub-sectors is provided in Table 5. More information on the time profile of the IV-digit sub-sectors is provided in Table 27. The ISIC Rev. 3 IV-digit industries with the highest import per capita values are *(1512) processing and preserving of fish and fish products* as well as *(1531) grain mill products* for the food, beverage

and tobacco sector (which is also elaborated on in Box 3) and *(2413) plastics in primary forms and of synthetic rubber* as well as *(2423) pharmaceuticals* for the *(24) chemicals* sector. Among the IV-digit industries of the II-digit sectors for which the highest national import levels are reported, *(3110) electric motors, generators and transformers; (3120) electricity distribution and control apparatus; (3410) motor vehicles* and *(3430) parts and accessories for motor vehicles* stand out. The list is further complemented by the IV-digit industries *(2320) refined petroleum products; (2330) nuclear fuel; (3511) repairing of ships; (3530) aircraft and spacecraft; (1810) wearing apparel, except fur apparel; (1920) footwear; (1721) made-up textile articles; (1711) preparation and spinning of textile fibres; weaving of textiles; (2610) glass and glass products; (2694) cement, lime and plaster* as well as *(2211) publishing of books, brochures and other publications* and *(2221) printing*.

Box 4: Imports ECOWAS

From an industrial strategy point of view, strong regional orientation may be equally or even more attractive than a global market orientation. This is the case of Côte d'Ivoire with a strong interest on developing a common market with ECOWAS countries. A regional orientation may imply a different distribution of regional imports shares across sectors compared to the global picture. As it is visible in the following figure the sectors with the biggest ECOWAS imports shares are *(34) motor vehicles, (27) basic metals* as well as *(15+16) food, beverages and tobacco* and *(24) chemicals* as can be seen in Table 8.

Detailed strategic decisions on the extent of the global/regional orientation and the related sector-level focus cannot be undertaken by just analyzing empirical data in relation to the size of imports and market destinations. Rather, a more detailed analysis unveiling information concerning production costs, competitors, bilateral agreements, governance is needed in such a case.

Table 8: ECOWAS Import levels per capita over time, ISIC Rev. 3 II-digits.

	Year			
ISIC Sector	2015	2016	2017	2018
(15+16) Food, beverages and tobacco	3.89	3.80	4.47	4.69
(17) Textiles	1.07	1.00	1.03	0.99
(18+19) Wearing apparel	0.93	0.83	0.80	0.84
(20) Wood products	0.51	0.54	0.44	0.46
(21) Paper and paper products	1.44	1.59	1.84	1.81
(22) Printing and publishing	0.58	0.38	0.37	0.30
(23) Coke, petroleum and nuclear	1.28	1.20	1.49	1.74
(24) Chemicals	3.46	3.47	3.66	3.93
(25) Rubber and plastic	3.52	3.13	3.10	3.50
(26) Non-metallic minerals	1.84	1.96	2.07	1.92
(27) Basic metals	5.30	4.59	5.09	7.37
(28) Fabricated metals	2.27	2.43	2.39	2.71
(29) Machinery	1.84	1.85	2.01	2.04
(30+32+33) Computer and electronics	1.21	1.28	1.28	1.47
(31) Electrical machinery	2.49	2.07	2.17	2.26
(34) Motor vehicles	7.75	7.65	8.41	8.95
(35) Transport equipment	2.05	1.01	1.74	1.58
(36) Furniture and n.e.c.	1.18	1.25	1.17	1.33

Note: ISIC Rev. 3 II-digit industries as described in Section B.1.2, selected years. Concordance between trade and industry classifications according to

Appendix B.1.1. ISIC Rev. 3 II-digit results based on averages of ISIC Rev. 3 IV-digit aggregates. Per capita figures used to account for population-driven demand effects.
Data source: United Nations UN-Comtrade [2020] database.

2.3.5 Global Import Dynamics

Definition of concept The criterion selects the sectors with the highest growth rate (vs highest trend) of world imports over the period 2010 - 2018.[24] It highlights the sectors where global demand is fast-growing and is useful to identify sectors with potential to gain from global demand. Sectors identified in this way may allow the country to tap into an expanding and dynamic global market with extensive opportunity for future growth moving forward. The selection requirements for this criterion are based on the growth rate (dynamism) of a particular sector as well as its overall size (measured in its share in total manufacturing imports).

Results II-digit sector analysis Figure 42 identifies sectors *(23) coke, petroleum and nuclear* and *(35) transport equipment* as being the most dynamic global manufacturing sectors between the years 2010 and 2018.[25] Both these sectors provide ample opportunities for Côte d'Ivoire to expand its degree of global integration. An assessment on how well Côte d'Ivoire is currently integrated in these globally expanding sectors is provided in Box 5.

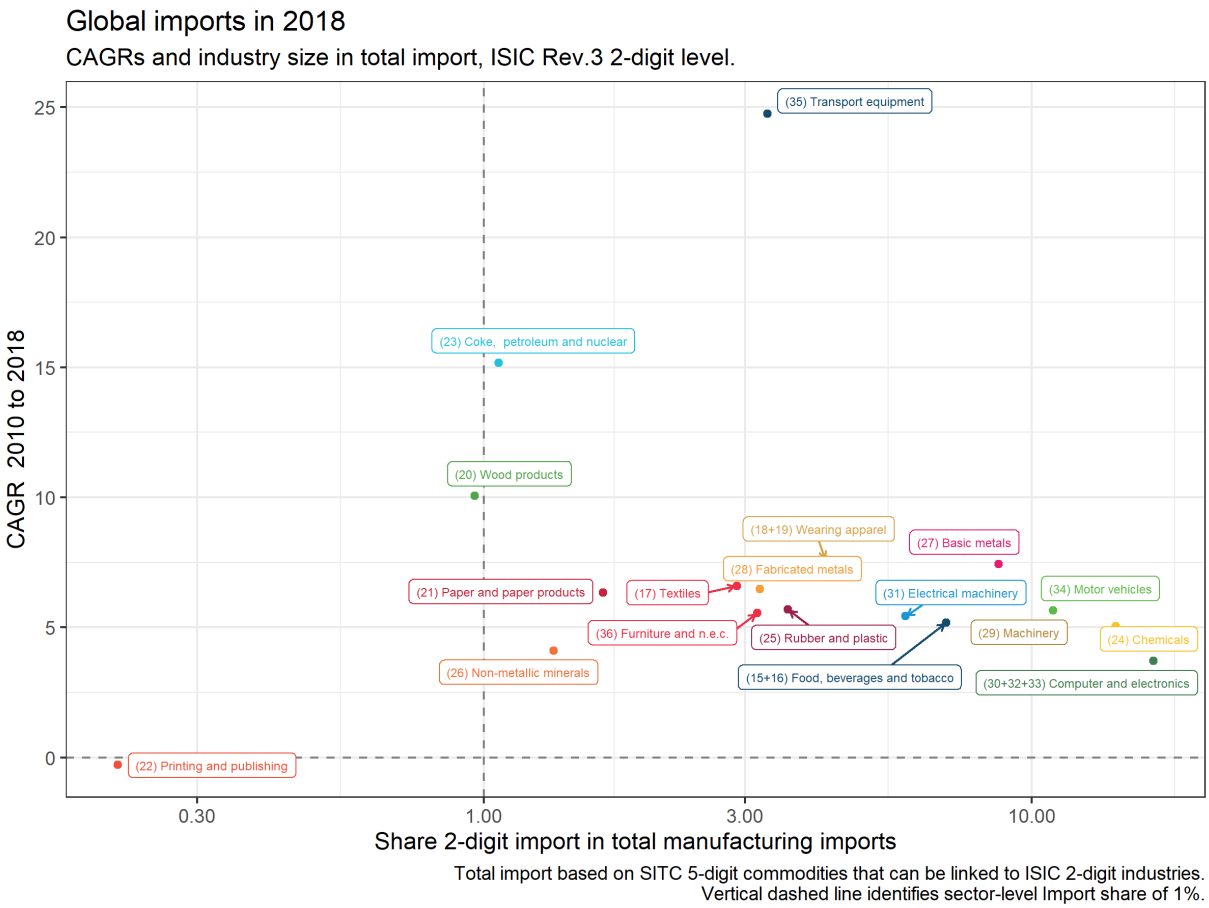
IV-digit sub-sector analysis A summary of the identified IV-digit sub-sectors is provided in Table 5. More information on the time profile of the IV-digit sub-sectors is provided in Figure 59. Among the industries with the highest global growth over the period 2010 to 2018 are the sub-sectors *(3511) repairing of ships* as well as *(3520) railway and tramway locomotives and rolling stock*. While particularly the former has been growing fast in terms of global demand, it also belongs to the set of sub-sectors for which Côte d'Ivoire itself records high national imports. This indicates that in this particular sub-sector Côte d'Ivoire does not exploit the growing global market potential but rather follows the global import trend. For the second most dynamic global import sector, i.e., *(23) coke, petroleum and nuclear*, industries *(2310) coke oven products* as well as *(2330) nuclear fuel* are identified to be the most vibrant sub-sectors.[26] As far as the food, beverages and tobacco sector goes, the fastest growing industries are *(1512) processing and preserving of fish and fish products* as well as *(1552) wines*, while for sector *(24) chemicals* both *(2421) pesticides and other agro-chemical products* and *(2430) man-made fibres* are found to be the most dynamic global industries. Other sub-sectors of growing global demand are *(3130) insulated wire and cable*, *(3190) other electrical equipment n.e.c.* as well as *(3410) motor vehicles*, *(3420) bodies for motor vehicles*, *(2692) refractory ceramic products*, *(2696) Cutting, shaping and finishing of stone* as well as *(2219) other publishing* and *(2222) Service activities related to printing*. As far as the textile sector is concerned, high global

[24] It is acknowledged that the choice of time interval may have a notable impact on the recorded growth rates, particular if the beginning/end of the sampled period coincides with an economic downturn or upswing. Shorter time windows may further correlate with business-cycle dynamics, which may therefor generate upward-/downward-bias in the calculated growth rates. Lastly, unreliability in the patterns may also be induced by means of data revisions, which typically affect the most recently collected records. As a consequence, the time interval analyzed here is chosen to not be affected too severely by the Global Financial Crisis of 2007/2008 and its immediate recovery, and contain more than one business-cycle. The results obtained through this analysis are further cross-validated against an alternative approach using linear projections instead of growth rates.Only the growth-rate version of the analysis is presented here for the sake of accessibility.

[25] Given its strategic role to provide energy security in the country, *(23) coke, petroleum and nuclear* is recognized as an adjunct sector which is also highlighted in the PCP strategic map in Section 4.

[26] The analysis on sector *(23) coke, petroleum and nuclear* illustrates a high degree of polarization geared towards the sub-sector *(2320) refined petroleum products* which is discussed in Box 6. With the relatively negligible weight of sector *(2330) nuclear fuel* in the country and in the international context, its selection via some of the criteria has to be considered more cautiously than the selection of the other sectors.

Figure 42: Global Import CAGR vs. sector share, ISIC Rev. 3 II-digits, 2010-2018



Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. CAGR: Compound Annual Growth Rate defined as $CAGR = (EV/BV)^{1/n} - 1$, where $EV = ending\ value$, $BV = beginning\ value$, $n = number\ of\ year$.
Data source: United Nations UN-Comtrade [2020] database.

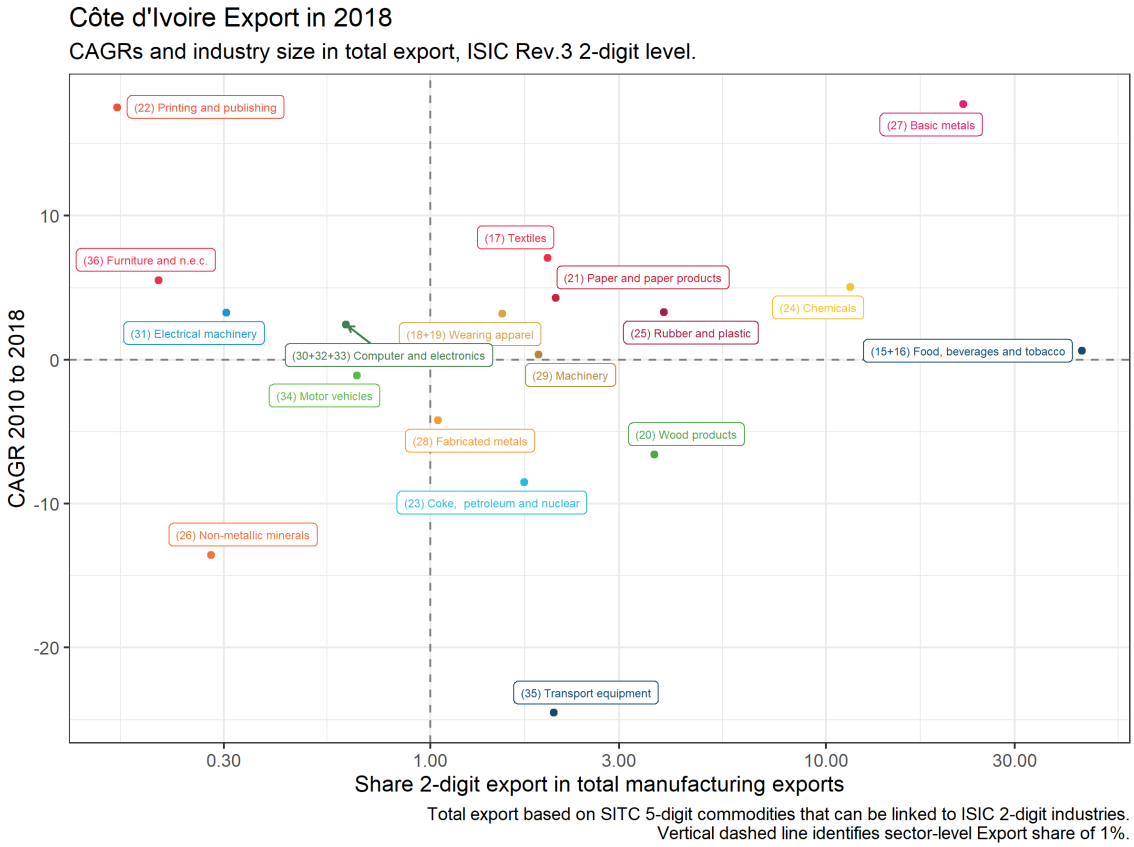
demand dynamics are recorded for *(1911) tanning and dressing of leather, (1912) luggage etc., (1730) knitted and crocheted fabrics and articles, (1721) made-up textile articles, except apparel.*

Box 5: Assessment of the sector-level integration process of Côte d'Ivoire

This box evaluates national export dynamics of the manufacturing sectors in relation to the results in Figure 42. The objective is to analyze if the sectors where global demand is fast-growing are also the ones that show similar (export) dynamism in the country. This analysis allows for a simple evaluation if the country (a) follows global trade dynamics; or (b) has managed to tap into an expanding and dynamic global market with extensive opportunity for future growth.

The results in Figure 43 show that while both *(23) coke, petroleum and nuclear* and *(35) transport equipment* record very high global import growth between 2010 and 2018, for both there is a decline in Côte d'Ivoire's export growth over the same time period; see Figure 58. This implies that a more notable course correction is needed if Côte d'Ivoire wants to exploit the high degree of global dynamism of these two manufacturing sectors.

Figure 43: Country-level export CAGR vs. sector share, ISIC Rev. 3 II-digits, 2010-2018



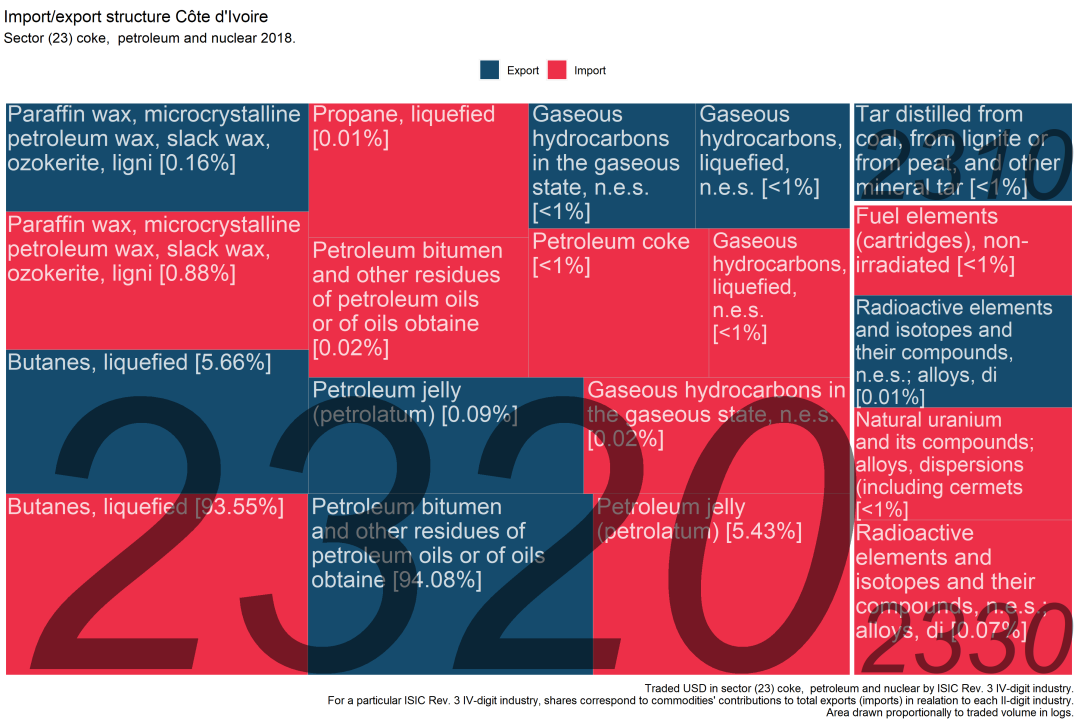
Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. CAGR: Compound Annual Growth Rate defined as $CAGR = (EV/BV)^{1/n} - 1$, where $EV = ending\ value$, $BV = beginning\ value$, $n = number\ of\ year$.
Data source: United Nations UN-Comtrade [2020] database.

Box 6: Composition/polarization of sector *(23) coke, petroleum and nuclear* in Côte d'Ivoire.

As Figure 44 illustrates, the overwhelming majority of traded commodities within sector *(23) coke, petroleum and nuclear* can be associated with sub-sector *(2320) refined petroleum products* and there in particular with the commodities *liquefied butane* as well as *petroleum, bitumen and other residuals of petroleum oils etc.* both of which account for roughly 94% of imports as well as exports, respectively.

Figure 44 also illustrates that sectors *(2310) coke oven products* as well as *(2330) nuclear fuel* both are very small in terms of traded volume. This is particularly relevant as sector *(23) coke, petroleum and nuclear* only consists of these three sub-sectors[a] and consequently, when selecting IV-digit priority industries for this particular sector, the relative size and trade composition has to be taken into consideration when evaluating the importance of the individual sub-sectors. Given this observation as well as the international and country-specific context, particularly the role and selection of *(2330) nuclear fuel* following some of the criteria has to be considered more cautiously than the selection of the other sectors.

Figure 44: Import and export structure of sector *(23) coke, petroleum and nuclear* in 2018



Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2, selected years. Concordance between trade and industry classifications according to Appendix B.1.1. Area dawn proportionally to trade volumes in logs.
Data source: United Nations UN-Comtrade [2020] database.

[a]These are *(2310) coke oven products*, *(2320) refined petroleum products* and *(2330) nuclear fuel*.

2.3.6 Employment Projections

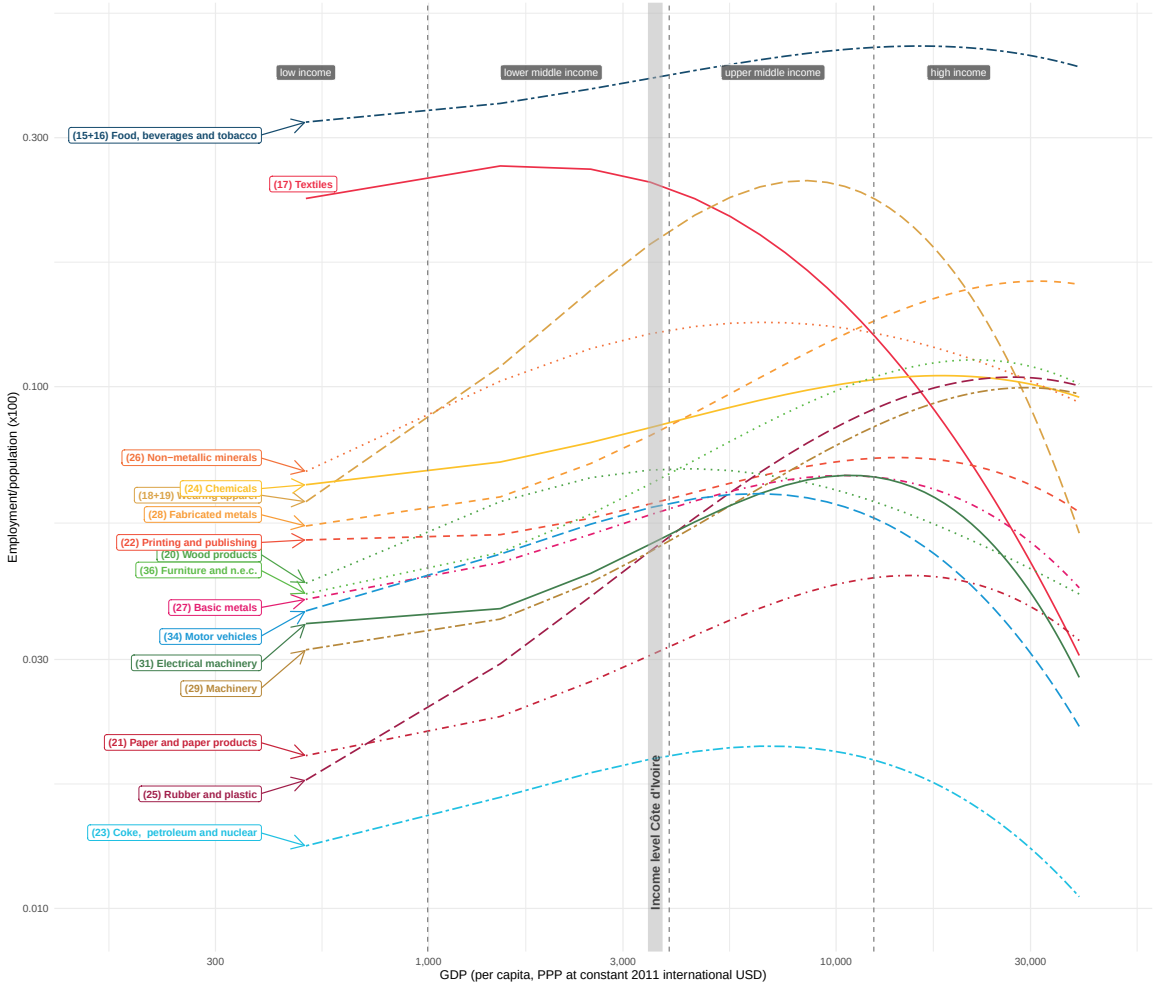
Definition of concept The criterion selects the sectors with the highest employment levels across all industrial sectors at the GDP (per capita) income level of Côte d'Ivoire. The indicator captures the potential of a sector to generate employment. Given the lack of data, it is not possible to compare the projected employment patterns with actual country-level observations of Côte d'Ivoire; see Appendix B.1.6 for more information. Consequently, the results should serve as a guideline in terms of which manufacturing sectors are expected to produce the highest contribution of manufacturing employment at a given income level. Hence, they can also be considered as a policy tool which highlights the employment trajectory and relative importance of any particular industry in the future.[27]

Results II-digit sector analysis Figure 45 identifies sectors *(17) textiles* and *(18) wearing apparel* as well as *(26) non-metallic minerals* as the main potential drivers for employment at the income level of Côte d'Ivoire. An additional and highly relevant sector is *(15 + 16) food, beverages and tobacco* which is identified to have high and robust employment growth potential even at higher income levels. On the other hand, particularly the low-technology industries *(17) textiles* and *(18) wearing apparel* are highly relevant in creating employment at low(er) income levels, however, their potential to retain these impressive employment numbers at higher income levels is not very pronounced. It is therefore of the upmost importance to re-evaluate the strategic policy choices when it comes

[27]The projections shown in this section are based on average employment patterns generated through an econometric model and are not representative of single country-level experiences, and actual employment figures can be higher/lower depending on the economic structure of each country/sector. Neither do patterns necessarily guarantee employment generation along designated paths for each sector for all countries and in all cases but display the *average* expected employment generation capacity of manufacturing sectors at different income levels.

to the selection of industries in light of this observation. This is particularly true for *(17) textiles* which is expected to follow a downward-sloping trajectory for countries at a GDP per capita level of Côte d'Ivoire and above (see Figure 45). It is important to note that it is not implied that sectors which offer great employment opportunities at the current development stage of Côte d'Ivoire will remain equally important for employment creation as the country develops further. As can be seen in Figure 45 at higher income levels the low-skill manufacturing sectors of *(18 + 19) Wearing apparel* as well as *(17) Textiles* lose their employment generation capacities while other sectors gain in relative importance. This is one of the reasons why the sectors *(18 + 19) wearing apparel* and *(17) textiles* are mentioned jointly when it comes to pointing out their notable employment absorption capacity while also discussing them separately in relation to their projected development at increasing income levels. Furthermore, *(15 + 16) food, beverages and tobacco* is identified to retain its employment generation capabilities even at the most advanced stages of economic development. It goes without saying that such employment trajectories are only possible under well-balanced and development conditions with a high degree of sub-sector diversification.

Figure 45: Global employment projections for developing countries



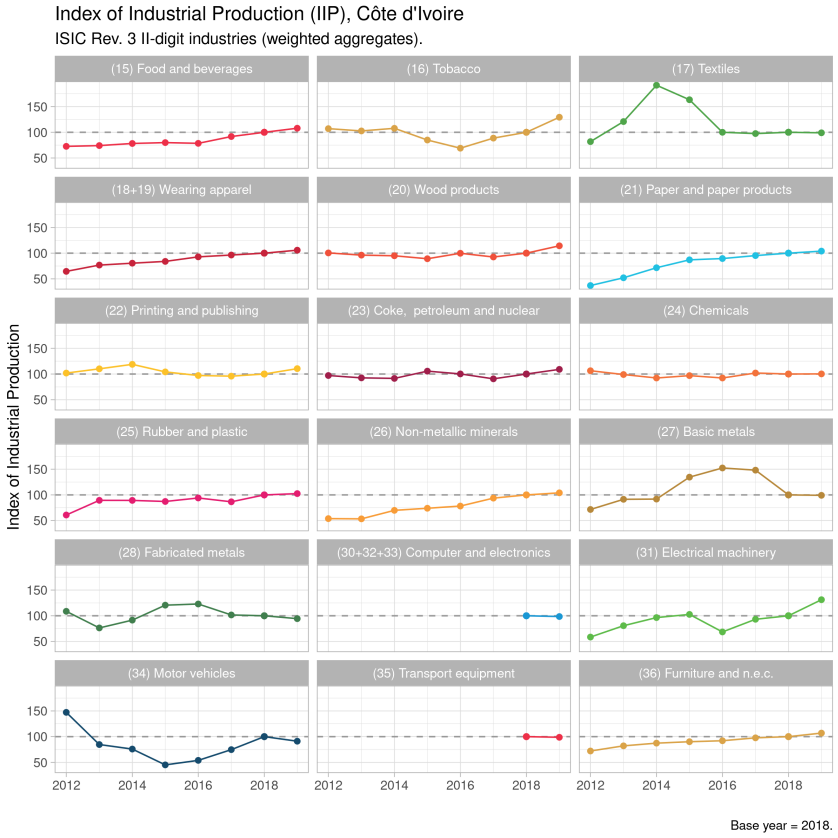
Note: Based on pooled cross-country data for up to 153 countries between 1963 and 2017. Income group cut-offs identified by the dashed vertical lines at USD 995, USD 3,896 and USD 12,375 as defined by World Bank Country and Lending Groups [World Bank, 2019c]. The income level corridor of Côte d'Ivoire is highlighted by the gray vertical stripe.
Data source: Calculations based on [INDSTAT, 2020] and Penn World Tables 9.1 [Feenstra et al., 2015] and following methodology described in Appendix B.1.4.

Results: IV-digit sector analysis A summary of the identified IV-digit sub-sectors is provided in Table 5. More information on the IV-digit sub-sectors with the highest employment potential is provided in Table 28 for more information: Among the two II-digit employment priority sectors, the IV-digit sub-sectors with the highest employment projections are *(1810) wearing apparel, except fur apparel* as well as *(1920) footwear* together with *(2695) articles of concrete, cement and plaster* as well as *(2694) cement, lime and plaster*. Further sub-sectors with strong employment generation capabilites are *(1541) bakery products, (1554) soft drinks and mineral waters* as well as the chemicals sub-sectors *(2423) pharmaceuticals, medicinal chemicals, etc.* and *(2424) soap, cleaning & cosmetic preparations*, while the more medium/high-technology sub-sectors *(3120) electricity distribution & control apparatus*, *(3110) electric motors, generators and transformers*, *(3430) parts/accessories for automobiles*, *(3410) motor vehicles* and *(3511) building and repairing of ships* as well as *(3520) railway/tramway locomotives & rolling stock* naturally show somewhat less pronounced employment patterns at the GDP per capita level of Côte d'Ivoire; however, their importance for further development and employment generation at higher income levels cannot be overemphasized.

Box 7: Domestic production performance over time.

For a complementary analysis of the domestic production performance, Figure 46 offers a view at the evolution of the *Index of Industrial Production* (IIP) for the ISIC Rev. 3 II-digit manufacturing sectors between 2012 up to and including 2019.

Figure 46: Domestic production capacities in manufacturing, 2012 - 2019



Note: Industrial Index of Production (IIP), 2018 = 100. See Appendix B.1.7 for more information. An upward-/downward-sloping IIP corresponds to a positive (negative) growth rate of industrial production over time. ISIC Rev. 3 II-digit industries as described in Appendix B.1.2.
Data source: Institut National de la Statistique.

The data was provided by the *Institut National de la Statistique* and allows for the analysis of the most recent developments in terms of production performance within manufacturing. Because of its properties as an index, the IIP is closely related to the concept of growth rates as an upward-/downward-sloping IIP corresponds to a positive (negative) growth rate of industrial production over time; see Appendix B.1.7 for more information.
As Figure 46 reveals the encouraging result that 50% of all identified ISIC Rev. 3 II-digit manufacturing priority sectors of this report have undergone a positive development since 2012. More particularly, true for the priority sectors *(15 + 16) food, beverages and tobacco* as well as *(18 + 19) wearing apparel* and *(26) non-metallic minerals* while *(31) electrical machinery* has also displayed a very impressive production growth after a short setback in 2016. Among the priority sectors with a less pronounced growth dynamic are *(23) coke, petroleum and nuclear* as well as *(24) chemicals*. Lastly, the performance of *(34) motor vehicles* is more complex. This sector has experienced a sharp decline in production growth between 2012 and 2015, but recovered steadily thereafter and with only a slight setback in 2019. The evolution of this sector hints at the importance of its continuous development also in light of its importance in the national development strategies of Côte d'Ivoire (see Table 9).
It is worth noting that while the RCA analysis has by and large illustrated a general downward trend in export competitiveness, the IIP analysis in Figure 46 shows an upward trend for most manufacturing sectors. This may suggest that Côte d'Ivoire has untapped potential boosting local capabilities, yet it is not successful in transforming these capabilities into global market competitiveness. Reasons for this may both be related to general structural issues (such as infrastructure, education etc.) as well as individual or sector-specific concerns (e.g. technology transfers, GVC integration and others).

2.4 Summary and Concordance with National Development Strategies

The manufacturing sectors identified in the meso-level analysis are based on the economic rationale of *production and export capacities*, *market capacities* as well as the potential of *employment generation* and motivate the design of six distinct industry selection criteria on the basis of which a set of top performing sectors at the ISIC Rev.3 II- as well as IV-digit level have been identified. While the identified priority sectors are naturally related to the design framework and data availability of the criteria at hand, the validation process which follows a desk-based as well as stakeholder-led intervention procedure (see Figure 40) has indicated a notable overlap between the results of this analysis and the industrial development strategy documents of Côte d'Ivoire. Among the strategy documents surveyed, particularly the *NDP2021-2025* [Ministère du Plan et du Développement, 2020c], the *Note d'observations sur le document cadrage strategique du secteur des industries manufacturieres en Côte d'Ivoire* [Ministère du Commerce, de l'Industrie et de la Promotion des PME, 2019] as well as the *Livre blanc - L'avenir de ce pays repose sur l'industrie* [CGECI, 2019] and the *Cadrage stratégique du secteur de l'industrie manufacturière [2019]* contain important further information on the strategy of manufacturing development in Côte d'Ivoire and furthermore identify manufacturing sector aggregates for their pivotal role of the development process. The overlap and correspondence between the priority sectors identified in this report and the sector aggregates highlighted in the industrial development strategy documents is illustrated in Table 9 and confirms the alignment of the industrial development strategy document direction of the country and empirical toolbox provided in this report.[28] While differences in classification, type of analysis as well as focus and objective of the

[28] Differences in classification, types of analyses as well as focus and objective of study reduce comparability and overlap between the industrial development strategy documents and results of PCP analysis, and any sector overlap should therefore be understood to be of purely descriptive and qualitative nature.

different studies reduce the quantitative comparability of the results and identification of particular sub-sectors, Table 9 illustrates wide consensus in the strategic sector profile between the results offered in this report and the the NDP 2021-2025 [Ministère du Plan et du Développement, 2020b]. Almost all priority sectors that are identified in the ISIC Rev. 3 level via the PCP toolbox are also identified in the NDP 2021-2025. Broader sector aggregates such as the 'agro-industry' which partially overlaps with ISIC Rev. 3's sector *(15 + 16) food, beverages and tobacco*[29] are emphasized in the majority of the industrial development strategy documents. The strong export potential of the agri-food sector paired with the weaknesses related to a competitiveness deficit have also been reported [CNPE, Conseil National de Politique Économique, République de Côte d'Ivoire, 2019]: The reasons of the competitiveness deficit are identified to be related to (i) the lack of exploitation of opportunities in the regional market; (ii) lack of skills; (iii) access to finance; (iv) little transformation and processing; (v) the lack of diversification; (vi) high production costs; (vii) limited access to infrastructure. In line with the findings of the PCP and the policy strategy documents, the development of sector *(34) motor vehicles* can be seen as an important strategic choice in order to foster regional market integration [Automotive Industry Development in West Africa, 2015]. Lastly, more disaggregated sectors as well as sub-sectors - such as the pharmaceutical sector, ICT equipment, or the textile and clothing sectors - are also identified across the different reports in concordance with the analysis offered in this chapter.

[29]The sub-sectors contained in ISIC Rev. 3's sector *(15) food, beverages* (excluding *(1600) tobacco*) are: (1511) Production, processing and preserving of meat and meat products, (1512) Processing and preserving of fish and fish products, (1513) Processing and preserving of fruit and vegetables, (1514) Manufacture of vegetable and animal oils and fats, (1520) Manufacture of dairy products, (1531) Manufacture of grain mill products, (1532) Manufacture of starches and starch products, (1533) Manufacture of prepared animal feeds, (1541) Manufacture of bakery products, (1542) Manufacture of sugar, (1543) Manufacture of cocoa, chocolate and sugar confectionery, (1544) Manufacture of macaroni, noodles, couscous and similar farinaceous products, (1549) Manufacture of other food products n.e.c., (1551) Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials, (1552) Manufacture of wines, (1553) Manufacture of malt liquors and malt, (1554) Manufacture of soft drinks; production of mineral waters.

Table 9: Summary Sector Analysis and Correspondence to National Development Strategy Documents

	National Development Strategy Documents		
PCP Analysis ISIC Rev. 3 II-digits	PND 2021 - 2025 [Ministère du Plan et du Développement, 2020b]	Livre Blanc [CGECI, 2019]	Cadrage stratégique du secteur de l'industrie manufacturière [2019]
Revealed Comparative Advantage (RCA)			
(15 + 16) Food, beverages and tobacco	Agro-industry	Agro-industry	.
(24) Chemicals	Chemicals and plastics, pharma	Chemicals and plastics, pharma	Cosmetics and chemicals
Emerging Comparative Advantage			
(22) Printing and publishing**	.	.	.
Latent Untapped Potential			
Not identified on ISIC Rev. 3, II-digit level.			
National Import Levels			
(31) Electrical Machinery	.	.	Assembly of machines and equipment
(34) Motor vehicles	Vehicle assembly	Vehicle assembly	Assembly of machines and equipment
Global Import Dynamics			
(23) Coke, petroleum and nuclear*	Need of energy security	.	.
(35) Transport equipment	Automotive industry and vehicle assembly	Vehicle assembly	Assembly of machines and equipment
Employment Projection			
(17-19) Wearing apparel and textiles	Textiles	Textiles	Wearing apparel and textiles
(26) Non-metallic minerals	Construction materials	Construction	Construction materials

Note: Industry sector classification following ISIC Rev. 3 2-digit industries as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1.

Latent untapped potential not identified on ISIC Rev. 3 II-digit level.

Differences in classification, types of analyses as well as focus and objective of study reduce comparability and overlap between development strategy documents and results of PCP analysis, and any sector overlap should therefore be understood to be of purely descriptive and qualitative nature.

Sector (17-19) Wearing apparel & textiles: Sectors (18-19) Wearing apparel and (17) Textiles are evaluated jointly.

*Even though sector *(23) coke, petroleum and nuclear* is not explicitly listed in the NDP 2021-2025 as a priority sector, it does emerge as an important sector through the Global Import Dynamics indicator. The sector is also recognized for its strategic role in relation to the topic of energy security in NDP 2021-2025 which is why it is listed as an adjunct sector.

**While not explicitly mentioned in the NDP 2021-2025, sector *(22) printing and publishing* is identified through its Emerging Comparative Advantage. It is therefore listed as an adjunct sector.

Sectors *wearing apparel* and *textiles* are evaluated jointly as priority sectors as discussed in Section 2.3.6.

3 Bottlenecks to Business

This section of the report identifies the key bottlenecks to Ivorian firms for their overall business activities. Bottlenecks are defined as problems related to factors that exert a negative impact on the performance of private enterprises and their ability to create value added and jobs. These may consist of limited access to direct inputs such as different forms of capital and labor, or general aspects belonging to the general business environment like institutional shortcomings. Additionally, this section identifies types of firms that are most affected to different bottlenecks.

Figure 47: Micro-level Analysis

3.1 Introduction

The analysis of Section 3 is based on a combination of firm-level data from the World Bank Enterprise Survey (ES), consultations with Ivorian stakeholders (ministries, universities, interest groups, think tanks), as well as other online resources, academic literature, reports from international institutions and data from other data sources. Identifying the most important bottlenecks is based on the following approach: First, the World Bank Enterprise Survey is analyzed. This highlights bottlenecks are identified based on problems that were most frequently stated by the surveyed firms to either be severe or major concern.[30]

Whenever possible and available, follow-up questions from the survey are analyzed to provide further context. Additionally, other sources such as reports from local and international organizations or academic papers are consulted. Lastly, consultations with local stakeholders are conducted. The combination of evidence from these different sources drives the selection of the key bottlenecks faced

[30]In the survey firms can answer with 'no obstacle', 'minor obstacle', 'moderate obstacle', 'major obstacle' or 'very severe obstacle' when asked if a particular issue constitutes an obstacle to their business(es). *Key bottlenecks* are defined as all obstacles that were listed as being either a 'major obstacle' or a 'very severe obstacle' by the responding firm. A complete list of questions of the Ivorian World ES [2016] is provided in Appendix C.1.

by the surveyed firms. The *key bottlenecks* that are discussed in this section were also confirmed by consultations to be among the most important issues for firms.

The majority of the analysis is based on the latest survey conducted by the World Bank Group in their series of Enterprise Surveys for 2009 and 2016.[31] Additionally, a broad range of studies is taken into consideration to offer a comprehensive look at current developments of the identified obstacles. In order to see if the results from the survey still hold true or if there are additional important bottlenecks, a number of interviews with local stakeholders were conducted.[32]

It is important to stress that the focus of this section is manufacturing firms in Côte d'Ivoire, 106 of which were surveyed in 2016. They are compared to Ivorian non-manufacturing firms as well as to the average ECOWAS (Economic Community of West African States) manufacturing firm. The chosen benchmark countries are all part of the ECOWAS region. However, in this section only countries with surveys not older than 2010 were considered to allow for a comparable time horizon. Whenever data from the benchmark countries is available, we do not compare the results of Côte d'Ivoire to all countries individually but one column in the tables ('Manufacturing ECOWAS') reports the results of manufacturing firms in ECOWAS countries as a group.[33] In addition, the analysis distinguishes Ivorian large and small/medium-sized enterprises (SMEs), domestic and foreign owned firms, and exporting and non-exporting firms to highlight further more granular distinctions of the severity of the reported bottlenecks.[34] The industry classification adopted in this part of the study considers low tech and medium-low vs. medium-high and high-tech.[35] Whenever interpreting results for a specific group of firms, the distribution of firm characteristics should be considered as there are relatively few observations for some of them. Table 10 shows how the 106 firms can be grouped into subgroups.[36][37]

Table 10: Firm distribution 2016

	total	low tech	medium-high tech	domestically owned	foreign owned	large firms	SME firms
All 2016 Ivorian manufacturing firms	106						
low tech	93						
medium-high tech	13						
dom. owned	84	74	10				
foreign owned	22	19	3				
large firms	31	28	3	19	12		
SMEs	75	65	10	65	10		
exporters	34	28	6	22	12	20	14
non-exporters	72	65	7	62	10	11	61

Note: Manufacturing firm characteristics. Reading example: Of the 106 manufacturing firms, 84 are domestically owned. Of those, 19 are large, 65 are small or medium sized.

Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

[31] Only formally registered firms are surveyed.

[32] Refer to Appendix C.1 for a more detailed description of the data and methods.

[33] This grouping is done because many countries' surveys have relatively few observations (see Table 29).

[34] SMEs: 1-99 employees, foreign owned: more than 50% foreign owned, exporting: firms with a share of direct and indirect exports bigger than zero.

[35] The corresponding ISIC Rev. 3 II-digit industry classification can be found in Table 26.

[36] While there are only 106 manufacturing firms that took part in the 2016 survey, the results are very robust when comparing it to results obtained with the whole dataset (361 manufacturing and service firms).

[37] In 2018, according to the census Côte d'Ivoire Census [2020], around half of firms were informal. 76% of formal firms were domestically owned, 82% of informal firms were owned domestically. There were no large firms in the informal sector, compared to 9% of formal firms. Around 13% of informal firms were at least partially exporting.

Two key caveats arising during this analysis need to be highlighted. First, the available data from the databases date back to 2016 and often refer to the fiscal year of 2015. Also, not all questions are answered by all firms, meaning Table 10 lists the maximum possible number of observations. Second, for some bottlenecks there is no additional information available in the Enterprise Survey and therefore can not used to shed further light on those issues. Thus, information from academic literature and other sources such as consultations with local stakeholders is included to provide an accurate picture of the situation concerning the specific bottlenecks.

The next section provides an overview of the main identified bottlenecks and illustrates changes between 2009 and 2016. In the following sections each of the key obstacles will be analyzed in greater detail.

3.2 Overall results

The overview of the topics firms viewed as either a *major* or *very severe* obstacle can be found in Table 11.[38] Topics that were named by more than 50% of manufacturing firms are highlighted. Additionally, subgroups that exceed the manufacturing average are also highlighted. In relative numbers, Ivorian manufacturing firms stated that *Political Instability* (76%), *Electricity* (76%), *Tax rates* (70%), *Corruption* (59%), *Tax administration* (58%) and *Access to finance* (53%) were the biggest obstacles in 2016. These numbers are all higher compared to the respective values for the average ECOWAS manufacturing firm. The top five key bottlenecks remain the same when considering all Ivorian firms (manufacturing and services) in the 2016 survey. In order to highlight firms that are most affected by the different bottlenecks, Table 11 also reports the results for different subgroups of firms. If relatively more firms with a specific characteristic report a topic as either *major* or *very severe*, they could be considered more affected. With few exceptions, these are (i) medium-high tech firms, (ii) foreign owned firms, (iii) SMEs and (iv) non exporters. Low tech firms are relatively more affected by *Electricity*, domestically owned firms by *Tax administration*, large firms and exporters by *Tax rates*. Consultations have pointed out SMEs as a particularly affected group to many of the analyzed bottlenecks.

Table 11: Bottlenecks

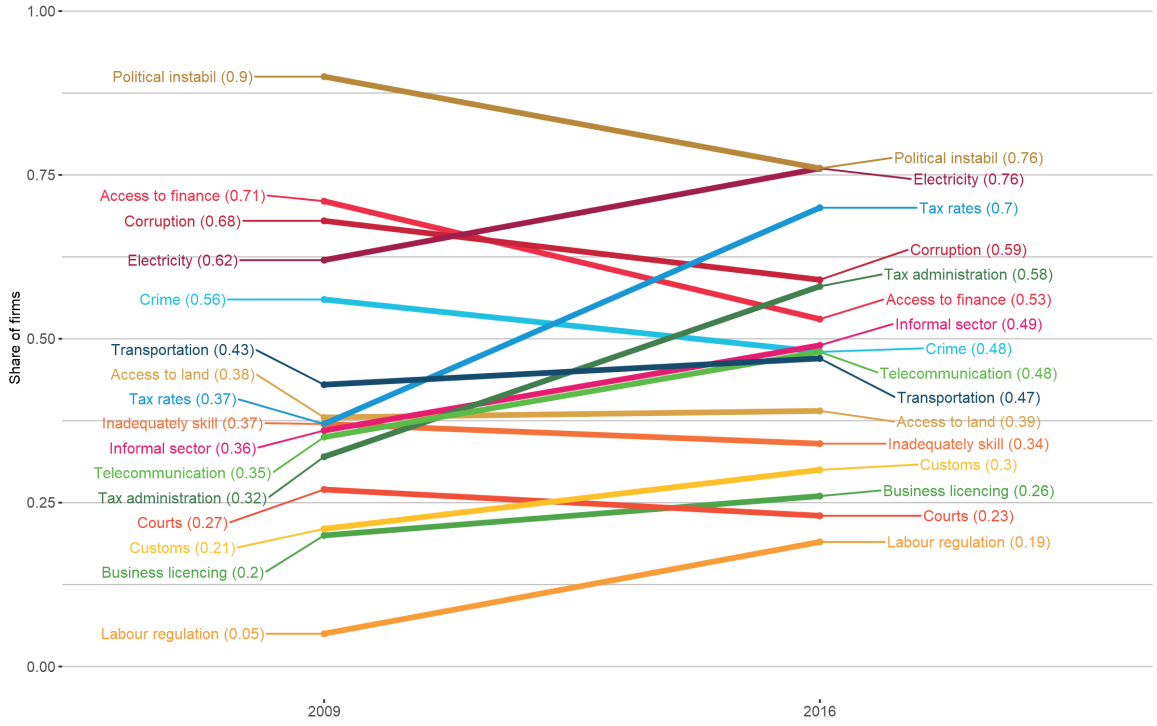
	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Access to finance	**53%**	61%	30%	52%	**62%**	52%	**59%**	48%	**54%**	44%	**57%**
Access to land	39%	34%	21%	39%	46%	38%	45%	48%	36%	38%	40%
Busin. license and permits	26%	21%	10%	27%	15%	22%	36%	29%	24%	27%	25%
Corruption	**59%**	68%	31%	59%	**62%**	58%	**68%**	52%	**62%**	56%	**61%**
Courts	23%	27%	8%	23%	23%	22%	27%	23%	24%	30%	21%
Crime	48%	60%	10%	48%	46%	46%	55%	38%	52%	36%	54%
Customs	30%	36%	11%	29%	39%	25%	50%	48%	22%	44%	24%
Electricity	**76%**	56%	50%	**77%**	69%	74%	**82%**	71%	**77%**	62%	**82%**
Inadequ. skilled l.f.	34%	36%	10%	37%	23%	30%	55%	52%	28%	42%	32%
Informal sector	49%	63%	26%	50%	39%	51%	41%	42%	52%	39%	54%
Labor regulation	19%	18%	7%	20%	8%	19%	18%	29%	14%	21%	18%
Political instability	**76%**	81%	20%	76%	76%	74%	**86%**	74%	**77%**	76%	**77%**
Tax administration	**58%**	44%	17%	55%	**77%**	**60%**	46%	51%	**60%**	47%	**62%**
Tax rates	**70%**	61%	19%	67%	**92%**	69%	**73%**	**87%**	62%	**79%**	66%
Telecommunication	48%	61%	8%	47%	54%	45%	59%	65%	41%	62%	42%
Transportation	47%	53%	18%	47%	46%	44%	55%	45%	46%	47%	46%

Note: Share of manufacturing firms that stated a topic as very severe or major obstacle. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). The top six bottlenecks for manufacturing firms are highlighted in bold. Further, numbers for subgroups that are higher than the respective manufacturing number are also highlighted in bold.

Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

[38] Firms can answer with 'no obstacle', 'minor obstacle', 'moderate obstacle', 'major obstacle' or 'very severe obstacle'.

Figure 48: Bottlenecks over time



Note: Compares the share of manufacturing firms that stated a topic as 'very severe' or 'major' bottleneck.
Data Source: World Bank Enterprise Surveys (ES) Côte d'Ivoire 2009 and 2016.

As bottlenecks are closely linked to the ongoing development in the respective country, a comparison between two World Bank Enterprise Surveys for Côte d'Ivoire in 2009 and 2016 sheds light on how the perception of the bottlenecks has changed over time (Figure 48).[39]

Political instability as well as *Corruption* are still considered to be key bottlenecks to business, but experienced an improvement between 2009 and 2016 as the declining trend reveals. The same holds true for *Access to finance* and *Crime* pointing to successful reforms. Obstacles with increasing severity were *Electricity*, *Tax rates* and *Tax administration* as well as *Telecommunication*. This first rough look points towards an overall stabilization of the institutional situation in the country, but still leaves room for improvement in the critical infrastructure to meet the requirements of the productive sector. Especially a lack of infrastructure might prevent a substantial and sustainable expansion of the economy in general and the manufacturing sector in particular. The bottlenecks identified in this report also show a strong overlap with problems identified by other surveys (CNPE [2019b][40] and Côte d'Ivoire Census [2020][41]). It is not only interesting to see which topics were named most often or how they changed over time, but whether some bottlenecks were mentioned together in a systematic way. Looking at correlations across bottlenecks highlights if groups of bottlenecks emerge from the analysis. Bottlenecks that were most often named together by the same manufacturing firms are (i) *Corruption* and *Political Instability*, (ii) *Labor Regulations* and *Inadequately skilled labor force*, (iii) *Tax Rates* and *Tax Administration* as well as (iv) *Electricity* and *Telecommunication* or *Transportation*.[42] Given the details of Table 11 and the correlations among bottlenecks, it seems that not all firms are

[39]The composition of surveyed firms changed slightly. In 2009, 20% were medium-high tech, in 2016 it was 12%. In 2009, 17% were large firms, in 2016 it was 29%. In 2009, 14% were exporting, in 2016 it was 32%.
[40]CNPE [2019b] list access to finance, (technical) skills, (cost of) electricity, logistics in rural areas, access to industrial zones and political instability as the main challenges.
[41]There, the key bottlenecks for formal firms included high taxes and an unstable energy supply. The key bottlenecks for informal firms included high taxes and access to land, while corruption is mentioned as well as a general topic.
[42]See Appendix C.4.

struggling with all bottlenecks equally and, as expected, some bottlenecks are more closely connected than others.[43]

3.3 Bottlenecks in detail

In this section, we consider every bottleneck that was reported by at least 50% of manufacturing firms or that emerged as existing problems from other sources of evidence such as the consultations.[44] The relevant bottlenecks are *Electricity*, *Tax rates* and *Tax administration*, *Political instability*, *Corruption*, *Access to finance* as well as *Access to land*. Since human capital is a particularly important horizontal topic that was mentioned by all interview partners, it is also discussed here. While the survey allows distinguishing between some firm level characteristics, not much variation in terms of location (rural vs. urban) can be found as most survey responding firms are located in mostly urban areas around the economic hub of Abidjan. However, after consulting the literature and local stakeholders, as an interim result, a strong (and potentially increasing) disparity between urban and rural areas in various economic dimensions can be reported. Thus, whenever feasible, each consecutive subsection will take a closer look at this issue as well.

3.3.1 Electricity

Without energy and reliable grids, capacity expansion (not only for the manufacturing sector) is hardly achievable. The main reason is that electricity is a crucial input for almost all production processes. Hence, a reliable power supply and power grids are an essential feature for an industrial upgrade especially in African countries [Andersen and Dalgaard, 2013]. For Côte d'Ivoire in particular, Kouakou [2011] reports that in 2010 the whole country experienced over two months a major energy supply interruption due to insufficient energy supply and general grid inefficiency. Using data from Côte d'Ivoire's energy supply and economic growth revealed that there exists a bidirectional relationship between economic growth and electricity consumption. Hence, a bottleneck in this sector might have negative spillover effects on overall economic growth and also prevents further investments into energy development projects. Energy production and consumption are further important in relation to climate change. The NDP 2021-2025 lists "capacity building for adaption and mitigation of the effects of climate change" as a major challenge. Electricity in Côte d'Ivoire comes from a mix of thermal (mostly natural gas) and hydropower generation sources with a total power capacity of 2,230 MW. While energy is also exported to neighboring countries, rural areas in particular still suffer from shortages.[45] In total 67% of energy is consumed by the residential sector and commercial and public services while industry consumption accounts for only 30% of the total energy consumed in 2014 [ANARE-CI, 2015]. With the expected expansion of the industrial sector in Côte d'Ivoire, this number is about to increase.

Table 11 showed that 76% of manufacturing firms reported *Electricity* to be a major or very severe bottleneck with foreign owned firms and non exporters reaching 82%. Table 12 is based on the World Bank Enterprise Surveys and offers a closer look at the firms' perception of the electricity issue. 84% of manufacturers in Côte d'Ivoire reported that they had experienced a power outage in 2015[46] (including *all* of the large companies in the sample but only 77% of the small and medium-sized firms). This issue is even more severe compared to the situation in 2009. However, the number and the duration of the power outages was relatively low compared to the ECOWAS average and both the share of firms that owned a generator and the energy share used by those generators was also

[43] The mentioned groups of topics remain relatively unchanged when looking at all Ivorian (manufacturing and service) firms in 2016. There is, however, a larger number of topics that are correlated.

[44] Further information on bottlenecks or discussions on related topics not included here can be found in Appendix C.2.

[45] In 2016, Côte d'Ivoire exported 1655 GWh (16% of gross production) to Ghana, Mali, Burkina Faso, Benin, Togo and Liberia [EUROCHAM, 2019].

[46] While the Survey date is 2016, most questions ask about the last business year.

comparatively low. Even though firms reported profit losses due to power outages, these are also comparatively low (4.6% vs. 16.73% loss in terms of turnover). Linked to that, while 57% of the manufacturers owned a generator (71% of the manufacturer in other benchmark countries), only 14% of all consumed energy was generated by them (45% of the energy of benchmark countries). Overall, electricity made up 5% of total costs for manufacturing firms.[47] Some firms can cope with electricity shortages by using generators. It was 57% of all manufacturing firms and 76% of exporting firms. Consultations revealed that for some industries, electricity is the single most important input, especially in terms of costs (see CGECI [2019]). Their estimations on cost shares reach up to over 50%.[48] Consultations further pointed out that the costs for maintaining generators is particularly problematic for SMEs in rural areas. According to the survey, only 41% of SMEs owned or shared a generator which also can point to a problem of affordability. It is also SMEs that faced higher losses and longer outages on average. Most energy is provided by independent power suppliers that are not fully under governmental control. This results in a relatively low grid connectivity for rural areas in particular (see Box 8) and points towards grid inefficiency and relatively high costs of connection from public sources. The Enterprise Survey does not allow for distinction between rural and urban producers, but overall the mean from application to connection to energy sources (i.e. access to the grid) was around 46 days for large and around 24 days for small and medium-sized firms in 2015. Hence, an efficient installation management might shorten this period with a potential ease of the reported bottleneck of electricity.

Table 12: Bottleneck Electricity

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Experience power outages	84%	82%	79%	86%	69%	81%	95%	100%	77%	91%	81%
Number of power outages	7	6	38	6	7	5	9	8	6	8	6
Length of power outages	3.34	6.24	12.09	4.32	4.18	4.39	4.02	2.89	4.8	2.44	4.9
Losses due to power outages	4.62%	6.81%	17.45%	6.92%	5.45%	6.68%	6.58%	4.12%	7.76%	5.23%	7.08%
Own or share generator	57%	40%	71%	59%	38%	56%	59%	94%	41%	76%	47%
Share of electricity	14%	17%	45%	13%	24%	17%	7%	9%	19%	14%	13%
Cost share electricity	5.08%		8.82%	5.65%	1.94%	5.63%	2.41%	2.84%	6.07%	5.58%	4.79%

Note: Number of outages refers to average monthly incidents. Length is measured in average hours. Losses are reported in % of sales. Cost refers to the share of electricity costs in total costs. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column).
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

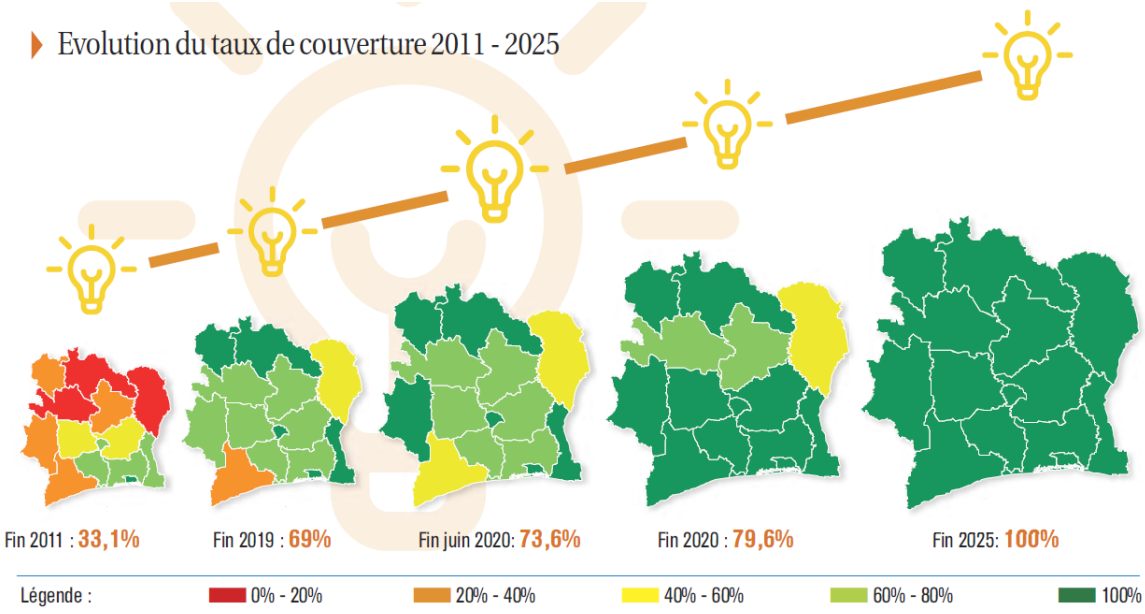
The OECD estimates that of all reforms relating to infrastructure, 31% have made significant progress (44% of all priority projects) in the last five years [OECD, 2020]. According to WorldBank [2020b], the energy sector in Côte d'Ivoire experienced a strong increase in capacity in the past 10 years. Thus, energy shortages were tackled through major developments (private investments and financial packages) in electricity related infrastructure. Private operators are responsible for 70% of energy production and 100% of its distribution. Currently, a lot of investment projects are being

[47] Electricity costs and total costs are a separate question in the survey. See n2b and n2p in Table 31. However, cost shares calculated based on the Enterprise Survey strongly deviate from estimations by some consultations. This might be in part due to strong sectoral heterogeneity that cannot be replicated with the survey data.

[48] A 2019 memorandum on the strategic framework for the manufacturing industries sector in Côte d'Ivoire [CNPE, 2019a] also mentions "relatively high cost of electricity compared to more industrially competitive countries in the region" as a major challenge.

implemented or under construction for grid and capacity expansion to meet the government's goal to cover 99% of the population by 2025 (42% from renewable sources) with reliable energy supply (Figure 49).[49] Still, in the 2019 World Economic Forum's Global Competitiveness Report [Schwab, 2019], Côte d'Ivoire ranked only 116th/141 in *Electricity Access* and 112th/141 in *Electricity Supply Quality*. Consultations have highlighted that there are still problems with the grid (spikes or drop in voltage), particularly in rural areas.

Figure 49: Evolution of Electrification Côte d'Ivoire



Source: Cabinet du premier ministre [2020].

Currently, the government pursues an ambitious target to increase the energy supply through renewable sources. Tax incentives were implemented to foster the expansion of renewable energy supply but the reduction of the value-added tax from 18% to 9% for solar technology so far failed to stimulate investments in this area. A main point of critique concerns the lack of precise definitions regarding what type of equipment is eligible for the tax break, thus creating uncertainties among investors/importers [Müller et al., 2020]. Consultations also have pointed to the need to promote energy efficiency and energy generation from renewable sources through a combination of creating incentives, a tighter collaboration between the government and the private sector as well as further refinements in the regulatory framework.[50]

Focusing on renewable energy comes with some challenges. Most renewable energy producers may face troubles generating a steady supply of energy (limited predictability of sun, wind, water) therefore potentially causing fluctuations in the grid's voltage levels. Without proficient grid management, grid overloads may have severe effects on the country's overall energy supply. Due to the lack of energy storage, demand peaks and seasonal demand patterns need to be considered. In general, the reports and studies about the electricity sector cited in this section suggest to strengthen the cooperation between public and private entities to alleviate problems with grid efficiency and renewable energy providers. This was also confirmed by consultations that reported of working groups and discussion panels having been formed to discuss the issue of energy between the government and the private sector. The private sector would see favorably improvements in coordination and in the data collection. The related topic of water is discussed in Appendix C.2.

[49] See also a detailed picture of the Ivorian grid (Figure 63) in Appendix Section C.2.
[50] See also Section 1.4.2.

Box 8: Focal point rural and urban disparity

Even though the Enterprise Survey is scarce on data concerning rural firms, the consulted documents report the disparity of rural and urban areas along several economic dimensions as bottleneck to business. As the above conducted analysis suggests, especially the electrification of rural areas is lacking behind and causing a widening disparity. A convergence process to a universal level of electrification might thus be beneficial for a sustainable future development path for the whole country. While the survey mainly questioned manufacturers located in urban areas where a lot of investment flowed towards reliable access of electricity, rural areas still seem to lag behind.

The lack of access to reliable energy supply causes opportunities for industrial development in rural areas to drift further apart from their urban counterparts. However, not only electricity, but also a reliable transport and communication infrastructure is a necessity for successful development. Without having efficient access to roads and ports, the distributional channels of firms are crucially affected.

As a consequence, if the status quo prevails, one can expect three negative impacts affecting this disparity further and forgoing development opportunities. First, the productivity of the rural population remains relatively unused as without electricity and other critical infrastructure industrial development is hindered. That is, the development of manufacturing sectors where Côte d'Ivoire has an identified comparative advantage compared to other benchmark countries (see identification in Section 2) might not be achieved and an opportunity would not be used.

Second, internal migration from rural to urban areas will lead to a decrease of skilled workers in rural areas leading to a further deterioration of industrial development potential due to a lack of skilled labor force. People receiving a formal education or training in urban areas do not see opportunities for migrating back to their areas of origin. In general, such patterns may result in an increase in aggregate unemployment in Côte d'Ivoire and possible development potentials vanish.

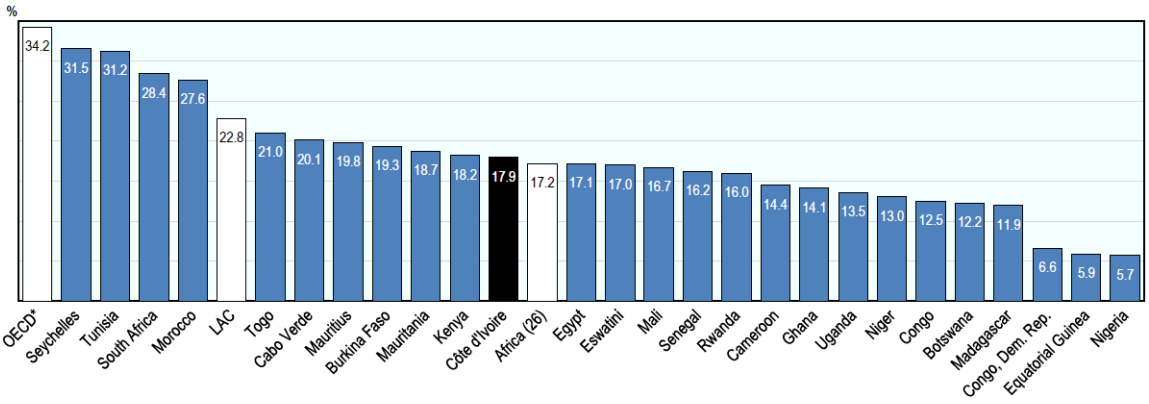
Third, many sustainable development goals hinge on proper access to electricity, such that many aspects of the goals simply cannot be achieved. This will lead to frictions on the growth path towards a middle-income country. As an overall consequence, the economic performance of Côte d'Ivoire will be most likely jeopardized and the catching-up process substantially slowed down.

3.3.2 Tax rates and tax administration

Taxation systems touch many economic dimensions and therefore affect many business decisions crucially, and thus help shape the future economic development of a country. In general, imposing and levying taxes may help the government to promote certain targets (see, for example, reducing the VAT from 18% to 9% for solar technology to foster investments in this sector and to incentivize the adoption of this technology) which the market otherwise would not support due to various reasons. However, apart from the positive externalities taxation may exert, such as public investments into infrastructure, it could also be a major obstacle for a successful economic expansion along two channels. First, as taxes are market interventions, taxation potentially leads to a market distortion and a loss in competitiveness for firms affected by that tax (i.e., other firms not affected by that specific tax could produce cheaper). Second, if the taxation system is inefficient and its administration overly bureaucratic, firms need to allocate many resources (human capital) to settle their taxes, again with an efficiency reducing effect.

To give an overview about Côte d'Ivoire's fiscal structure, Figure 50 reports the Tax-to-GDP ratio. The Ivorian ratio is slightly higher compared to other ECOWAS members, but still relatively low. From a firms' perspective a tax might be efficient for example through infrastructure investments, efficient governance and development of a prosperous business environment. However, corporate taxes play a rather muted role in overall tax returns (11% of total returns) of Côte d'Ivoire but nevertheless seem to be a bottleneck for manufacturing firms. The Enterprise Survey does not provide further information on tax rates or the tax administration. Thus, it might also be the case that 'tax rates' seen as bottleneck can be interpreted more generally, for instance price competition with informal firms or other levies paid to the state.[51]

Figure 50: Tax-to-GDP ratio selected economies in 2017



Source: OECD Revenue Statistics in Africa 2019 - Côte d'Ivoire.

Both *Tax rates* and *Tax administration* are mentioned by a share of 70% and 58% as severe or major bottleneck to business respectively. In addition, both issues experienced an increased perception to be a bottleneck from 2009 to 2016. Noteworthy in this context is the lower perception of SMEs as tax rates being a problem (62%) compared to large firms (87%), exporters (79%) or high-tech firms (92%). This can be partly explained by the tax laws for corporate income which are based on the total turnover of an enterprise. SMEs likely remain below a certain threshold such that their nominal tax rate is set equal to 0.5% while in general the tax on industrial and commercial profits is set at 25% [PWC, 2019, 2020].[52] Consultations have shown that while single tax rates might not be high, it is especially the large number of taxes and fees that add up.[53] They further highlighted that in terms of business taxes, the tax burden rests on registered firms only, which are far less than informal firms. Another point raised was the occasional surprise by the government introducing new taxes without prior consultations with the private sector; see, among others CGECI [2019].

Since 2018, significant taxation relevant measures were implemented to generate a positive investment environment. According to PWC [2019] and PWC [2020] following focal points for taxation under the amended financial law in the fiscal year 2020 adopted in December 2019 have been implemented. The specific acts put more focus on improving the productivity of some sectors (incentive tax measures for agro-industry, pharmaceutical industry, research and development and technology innovation activities), on the job creation by offering tax credit for recruitment under a fixed term contract, some tax exemptions for any investments made in areas outside the economic capital and honoring the international commitments or tax credit for waste recycling business. It is worth noting, that these changes and focal points directly tackle some of the identified bottlenecks in this

[51] 66% of manufacturing firms competed with informal firms in 2015 (Table 36).
[52] However, a minimum tax of XOF 3 million and a maximum tax of XOF 35 million applies.
[53] Côte d'Ivoire was among the countries with the highest number of taxes but did reduce them significantly during the last years [PWC, 2020].

report. However, OECD [2020] estimates that of all fiscal reforms in the last five years, 31% made significant progress (only 20% of priority projects).

Interestingly, the picture changes when tax administration[54] as a bottleneck is concerned. Here, domestically owned firms and SMEs (both 60%) reported this issue as a major bottleneck to business in the fiscal year 2015. Consultations have highlighted that it is for example the long time until officials respond to questions, or the fact that regular penalties imposed on firms may and in fact does open the door for corruption. The World Bank's *Paying Taxes* report 2018 ranks Côte d'Ivoire 175th of 190 countries, which also points to room for improvement in the tax system.

As a proactive step, the government of Côte d'Ivoire implemented measures to make the tax process more efficient. Companies must use a unified electronic tax form to file their tax return and pay their taxes electronically (mandatory for large and medium-sized companies). According to WorldBank [2020a], a transition from a paper-based to an electronic filing/payment system including an online case management system to process value added tax cash refunds started in 2017. Moreover, the government already integrated those systems to the banking sector such that potential future bottlenecks due to limitations of banks' infrastructure might be avoided. Furthermore, the NDP 2021-2025 lists a "deepening of tax reforms with particular the pursuit of simplification of the tax system through the simplification of procedures" as a major challenge and project.

Another novelty concerns the possibility of paying taxes with mobile money. Côte d'Ivoire is one of the fastest growing markets for mobile money and the most developed in the West African region, with an expanding list of use cases with currently (2019) over 67% mobile money penetration. Usage of mobile money to settle taxes might ease the tax administration problem for small firms and 'start-ups' without reliable access to formal banking sector, if mobile money could be used for paying taxes [Clifford, 2020].

One motivating factor for introducing taxes on mobile money was to be able to tax the informal sector. The fact that the informal sector does not pay or pays less taxes might be one of potentially many factors driving the severity of the tax bottlenecks. Analysis based on the Enterprise Survey shows that of those manufacturing firms that compete with informal firms 64% stated *Tax rates* and 50% stated *Tax administration* as a major or severe bottleneck.[55] However, the taxation of mobile money *transactions* could foster other bottlenecks. It could be argued that such a tax hits rural enterprises disproportionately hard for those firms where mobile money is a crucial part of the financial system with benefits for rural area development and overall ease of business. Currently, taxes on mobile money are imposed on the mobile money providers (7.2%) which increased the overall costs. This could be perceived as a potential bottleneck regarding tax rates (mobile phone or mobile money providers). A careful monitoring ensures that such a tax does not lead to a cutback of infrastructure investments by affected providers [Clifford, 2020]. According to the World Bank Enterprise Survey 2016, 19% of manufacturing firms used mobile money between 2012 and 2015 (Table 37 in Appendix C.2), 40% of which did it to reduce time spent with financial transactions or to satisfy customer request. Of those that did not use it then, it was either because their customers or suppliers did not use it or because payments were too large for mobile money. Consultations have confirmed that mobile money is not necessarily relevant for (large or even medium sized) manufacturing firms.

3.3.3 Access to finance

The development of the financial sector (and thus the availability of finance) and the capability to enhance sustainable economic growth are linked. In general, investments play an important role

[54] *Tax administration* is not defined in the survey but it is distinguished from tax rates. It is assumed that it includes rules or laws, their clarity, their execution, their predictability as well as the efficiency and transparency of tax collection or related services.

[55] 71% of firms competing with informal firms stated *Informal sector* as major or severe bottleneck. See also a related discussion in EUROCHAM [2019].

for extending the capability of an economy through increasing efficiency (technology) and expanding production capacities aligning to increased demand. In addition, an increase of supply and a decrease of production costs could help to penetrate foreign markets leading to higher exports. Not only for investments but also for everyday liquidity management, lines of credit are an essential facilitator for all sorts of business activities. A quick overview of the financial system in Côte d'Ivoire reveals that only 25% of the banks are domestically owned, while the rest belongs to foreign or WAEMU (West African Economic and Monetary Union) countries. The number of banks has increased over the years with average credit rates going down [EUROCHAM, 2019, MPD, 2019]. Financial assets are predominantly allocated in the traditional banking sector (81%) but with an emerging trend towards micro finance institutions [BCEAO, 2015]. In that respect, it is worth to note that most of the African countries already adopted alternative ways to settle everyday payments, mainly through mobile banking. This points towards a modern and convenient alternative to traditional financial systems.[56] In addition, and according to Togba [2012], credit stemming from non-traditional financial services like microcredit institutions is already a crucial factor for households and firms in Côte d'Ivoire (see Figure 51).[57] Additionally, the predominance of cash payments over digital alternatives can also increase the susceptibility to corruption, another topic in this report. The NDP 2021-2025 names the "development of financial inclusion through fintechs" as a major challenge for the next years. OECD [2020] estimates that of all reforms relating to the financial system in the last five years, 65% showed significant progress (62% of priority projects).

Figure 51: Micro finance in Côte d'Ivoire 2018

	2014	2018
Nombre d'Institutions	75	50
Nombre de points de services	322	332
Nombre de clients (en milliers)	828	1 563
Encours de dépôts (milliards de FCFA)	147	246
Encours des crédits (milliards de FCFA)	100	251

Source: EUROCHAM [2019].

While the Enterprise Survey shows a small decline in the severity of the issue of *Access to finance* from 2009 to 2016, there is still room for improvement as 53% of the respondents in manufacturing reported this issue, which is substantially higher compared to other ECOWAS manufacturers (30%).[58] Between 2012 and 2017 overall credit to the private sector has grown steadily along with strong economic growth. This points towards a balanced economic expansion where the share of total credit for the industrial sector is 23.8% accounting for 29% of the total credit growth in 2014/2015 [IMF, 2016]. However, turning to the responses regarding bottlenecks for business, especially small and medium-sized firms experience an obstacle when it comes to finance related matters.

[56] Consultations have mentioned a minor role for mobile money in the context of manufacturing.

[57] Some consultations have pointed out relatively high interest rates for micro financing as well as a lack of alternative financing opportunities other than banks (e.g. venture capital) especially for SMEs.

[58] Unfortunately, the Ivorian Enterprise Survey is relatively scarce in finance questions and the number of answers is low as well. Empty table cells are the result of a lack of data.

Table 13: Financing

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Overdraft facility	42%	48%	23%	42%	46%	35%	73%	65%	33%	59%	35%
Line of credit	25%	24%	13%	24%	31%	20%	41%	45%	16%	50%	12%
Personal loans	15%	16%	14%	15%	15%	18%	5%	6%	19%	12%	17%

Note: Share of firms with overdraft facility, credit or personal loans. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column).
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

To reveal a more detailed picture about the financial situation of the firms, Table 13 depicts the access of firms to overdraft facilities, line of credits and access to personal funds to provide liquidity for their business activities. A considerable heterogeneity across subgroups can be found. For example, 42% of manufacturing firms had an overdraft facility, which is more than the average ECOWAS firm but 73% of foreign owned firms had one. In general, if having an overdraft facility or line of credit is a good proxy for access to finance, it is clear that larger, foreign owned, exporters and medium-high tech firms had more access to means of finance than their respective counterparts. According to the World Bank, Ivorian households save relatively more than comparable countries, but these savings are not necessarily reflected in the official banking sector [EUROCHAM, 2019].[59] This was also highlighted in comments from consultations that talked about a lack of trust between some firms and some banks. Analysis based on the survey data shows that manufacturing firms that view *Access to finance* as severe or major problem, are on average less productive (in terms of sales per employee) than firms that view it as a lesser problem.[60] This might be a manufacturing specific problem as the relationship disappears once we look at all firms. In terms of personal loans of owners, the results are comparable to ECOWAS while numbers for smaller, low-tech, non-exporters are higher in general. As an immediate result, access to finance could be hampered through the general application procedure or institutional requirements and are thus explored further in what follows. Asked about the outcome of their latest application for a line of credit or a loan in general, Table 14 reveals that 21% of manufacturing firms' applications were rejected. Three fourths of applications from micro enterprises were rejected in 2018 [Côte d'Ivoire Census, 2020].

Table 14: Outcome of loan application

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Approved in full	43%	62%	63%	46%		12%	83%	50%	25%	50%	25%
Approved in part	14%	10%	14%	8%	100%	25%		20%		20%	
Rejected	21%	14%	8%	23%		38%		10%	50%	10%	50%
Withdrawn	7%		3%	8%		12%			25%	10%	
Still in process	7%	11%	10%	8%		12%		10%			25%

Note: Outcome of latest (2015) loan application. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

For domestically owned, SMEs and non-exporting firms, an even higher share of applications was rejected. According to World Bank Group [2020] the lack of financing for SMEs resulted in a loss in GDP of around 8% in 2017. A department for financing SMEs was created within the local stock exchange relatively recently. However, many other institutions, e.g., a functioning interbanking market, are still developing. Across the board, ECOWAS firms seem to be more successful when

[59] A reduced willingness to provide loans to firms could also in part be driven by lower levels of deposits in the banking system.
[60] See discussion in Appendix C.3.

applying for loans. Consultations have highlighted that a lack of managerial and financial skills might additionally contribute to a lower success rate for loan applications. A third of manufacturing firms did not need a loan at the time. Table 40 in Appendix C.2 shows that on average, 78% of working capital is financed internally through revenues or savings. Only around 9% is financed through banks. Given that more than half of firms normally need loans, this shows a clear mismatch.[61] To explain why firms have not applied for a loan or line of credit, Table 15 provides some insights.

Table 15: Reasons for not applying for a loan

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Procedures complex	9%	7%	15%	9%	8%	8%	15%		12%	5%	11%
Collateral requ. too high	20%	11%	14%	20%	17%	22%	8%		25%	14%	22%
Not expected to be approved	12%	8%	4%	12%	8%	12%	8%	11%	12%	10%	12%
Interest rates not favorable	7%	13%	15%	8%		7%	8%	6%	7%		9%
No need for a loan	35%	45%	41%	34%	42%	33%	46%	61%	28%	57%	28%
Size and maturity insufficient	1%	1%	2%	1%		1%			1%		2%
Other	14%	12%	8%	12%	25%	14%	15%	22%	12%	14%	14%

Note: Share of firms that reported reasons for not applying for a loan. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

Apart from the fact that about 35% of the surveyed manufacturers did not need a loan, 20% responded that the requested collateral was too high.[62] This seems to be more pronounced for domestically owned firms and SMEs (22% and 25% respectively).

To shed more light on the collateral requirements, Table 16 shows the type of collateral banks demanded for firms' most recent line of credit. The distribution across types of collateral is relatively equal for manufacturing firms. Mostly, firms had to provide machines or equipment, land, buildings, and to a lesser extent, accounts or personal funds. Interestingly, land and buildings compared to other ECOWAS countries (56%) were less pledged as collateral (22% in Côte d'Ivoire) which might point towards an inefficient land register system. Consultations have mentioned the need for improving the land register system and disputes over land. This also makes it harder to use land as collateral. The NDP 2021-2025 aims for a better promotion of women's access to land ownership (and thus also finance). Multiple consultations pointed out that banks seem not to be adapting to the needs of manufacturing businesses. Loans are too small or with a maturity that is too short to finance larger projects; see e.g., [CGECI, 2019]. Furthermore, banks seem to view many proposed projects as too risky to grant loans especially to SMEs.[63]

[61] According to consultations there is also widespread use of community financing, especially within groups of foreign owned businesses.

[62] A collateral helps to secure the loan and therefore hedges the risk of borrowing for the lender. In case of a borrowers default, the collateral, which is mostly a form of property, is used to repay the loan.

[63] *"Let's face it, making loans to small and medium-sized businesses is a challenge that we have to solve together. I won't hide it from you, most bad loans in banks come from loans granted to SMEs."* (EUROCHAM, 2019, p. 95, Charles Daboiko, Managing Director of Ecobank Côte d'Ivoire.)

Table 16: Types of collateral

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Accounts and inventories	11%	17%	29%	7%	33%		33%	11%	11%	17%	
Land and buildings	22%	8%	56%	20%	33%	33%		11%	33%	17%	33%
Machines and equipment	28%	13%	31%	33%		25%	33%	33%	22%	25%	33%
Personal	17%	25%	35%	20%		25%		11%	22%	17%	17%
Other	22%	38%	20%	27%		25%	17%	22%	22%	25%	17%

Note: Share of firms reporting a type of collateral that was required for the most recent loan (in 2015). Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

Finally, according to the IMF [2016] four additional problems are prevalent in Côte d'Ivoire that could cause a bottleneck for manufacturers now or in later development stages. First, an inadequate property and land registry causes problems to properly collateralize the property, leading to problems of loan securitization which confirms the results above. Second, it appears that there are some difficulties in repossessing a pledged collateral in the event of a loan defaults due to inefficient courts. Third, a lack of information on the creditworthiness of borrowers may result into precautionary loan application rejections while finally, high fees for basic banking services may impede an initial application.

There have been efforts to improve the situation, such as the creation of the *l'Agence de Promotion de l'Inclusion Financière de Côte d'Ivoire (APIF)* to name one. It coordinates the development and implementation of the National Strategy for Financial Inclusion (SNIF 2019-2024), with the objective to define the priority actions to be implemented [EUROCHAM, 2019].

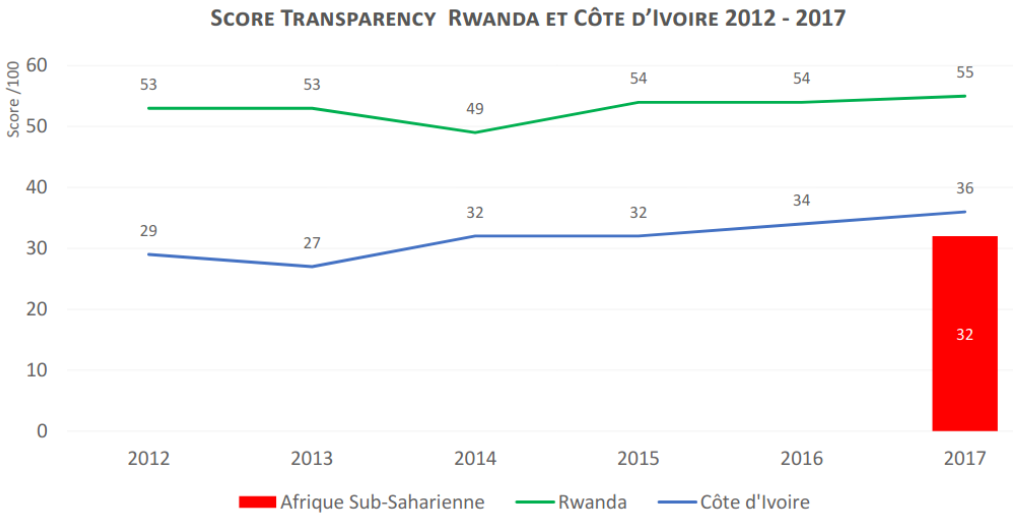
3.3.4 Political instability

A stable political environment enables an economy to enter a stable economic growth path. In general, uncertainty –may it stem from the political or the financial sphere or from a weak institutional framework– is a major obstacle for growth as business and investment decisions may be postponed, reconsidered or simply not taken. In the best case, this will result in an economic stagnation, but most often into a decline of the economic activity. Domestic investors might search for stable investment options in other countries, and foreign investors will not enter the domestic market due to high potential business risks. Côte d'Ivoire ranked 122nd/141 in the World Economic Forum's Competitiveness Report subcomponent *Institutions*, although it was 70th/141 in *Government ensuring policy stability*. Consultations have highlighted that political instability can also cause more crime and insecurity, a reason for firms to locate in or near cities to e.g. avoid theft of their goods. It was further mentioned that cyber crime, armed robbery and corruption by police or the military are still factors.[64] However, consultations have also attested to improvements over time and that regional elections in the past years worked well.

According to the Enterprise Survey, in 2016 76% of the firms reported *Political instability* as severe or major obstacle with a significant higher share of foreign enterprises (86%) while firm size does not play a strong role.[65] Apparently, the resulting uncertainty is perceived stronger by foreign owned firms. This points towards less resilient companies, possibly caused by access to broader information and therefore better assessment of the current political situation. Also, potential business options outside the country may play a role. However, from 2009 to 2016 an improvement towards stability can be observed (Figure 48). Given that, FitchRatings [2020] has attested Côte d'Ivoire a positive

[64]The Enterprise Survey shows that 59% of manufacturing firms paid for security services in 2015 and a fifth endured losses due to crime.
[65]The Enterprise Survey does not provide any additional information on this topic.

Figure 52: Corruption Perception Index (CPI) Côte d'Ivoire



Source: EUROCHAM [2019].

Note: a higher score is better.

outlook (B+) due to solid economic projections and a low impact of the current global economic crisis related to the pandemic. This assessment stems from the institutional progress and reforms made through a revision of the constitution in 2016, the evaluation of the Independent Electoral Commission in recent months and the ongoing restructuring of the security forces. The NDP 2021-2025 mentions as major challenges the "effectiveness of the fight against corruption and insecurity including organized crime and new terrorist threats".

3.3.5 Corruption

Corruption could hinder the innovative potential of especially small firms that do not have the resources to provide "gifts to get things done" and has potential to further increases the disparity between firms that can afford such expenses and firms that cannot. As a consequence, firms face higher costs such that the overall competitiveness suffers. In the end, this may prevent firms to enter the market or to expand capacities, crucially affecting the industrial upgrading process. Côte d'Ivoire ranked 106th out of 198 countries in the Transparency International's Corruption Perception Index (Figure 52) and 91st/141 in the World Economic Forum's Global Competitiveness Report 2019.

According to the Enterprise survey (Table 11), 59% of manufacturing firms named *Corruption* as a major bottleneck to business in Côte d'Ivoire. Taking a closer look, 68% foreign owned, and both 62% SMEs as well as medium-high tech firms reported corruption as a major bottleneck, which is higher compared to other types of firms. Only 23% of all manufacturing responses report that the court system is a major bottleneck. This points towards a comparatively efficient court system, which is a major institutional requirement for all future business developments.[66] In Table 17 the responses of firms questioned about aspects of corruption are reported.[67] At first sight, less Ivorian manufacturing firms report these problems compared to ECOWAS but as a general topic (Table 11) it was the opposite. The first two rows report the share (%) of firms stating that an informal gift or payment was expected or requested when claiming imported goods from customs or applying for an import license. While corruption during import processes was perceived comparatively low (12% of

[66] See also Table 33 in Appendix C.2.

[67] While there are further questions about issues associated with corruption in the Enterprise Survey, the number of responses was too low to provide a reliable picture and are thus omitted.

the manufacturing firms of the survey reported issues), compared to other ECOWAS countries, it should still be considered as an obstacle to businesses in Côte d'Ivoire. Taking into account that many firms rely to at least some extent on supply chains with foreign countries, border crossing issues (operational and administrative) are producing inefficiencies. Companies may be impaired to establish a reliable and resilient supply chain with foreign firms. Cross border frictions damage the productivity of many firms in the country through the creation of uncertainty and the increase of operational costs. According to WorldBank [2020a], Côte d'Ivoire is below the regional average regarding trade across borders due to long waiting and complex customs filing procedures and is currently ranked 163 out of 190 countries with respect to trading across borders. According to the Enterprise Surveys, it takes goods 21 days to clear customs, compared to 8 in ECOWAS (Table 34 in Appendix Section C.2).

The third row in Table 17 shows that 16% (18% in ECOWAS) reported that an informal payment or gift was expected when tax officials visited for audits. This aspect was named particularly in consultations. The fourth row shows the average percent of a government contract value that would typically be paid in informal payments or gifts to secure the contract. Compared to other ECOWAS (4.6%), this value (0.9%) is lower with some degree of heterogeneity. Low tech, domestically owned, SMEs and non-exporters over-reported this problem when it comes to informal payments for contract securitization. A similar picture emerges from the fifth row of Table 17, depicting the average percentage of total annual sales, or estimated total annual value, that establishments pay in informal payments or gifts to public officials in order "to "get things done" with regard to customs, taxes, licenses, regulations, services etc.". It was exactly customs and the tax system that were proactively mentioned by consultations as topics where corruption is a particular problem. However, in general firms view corruption as a *multidimensional* problem. One aspect is the fact that many processes such as getting access to special economic zones, being able to participate in public tenders, founding a company and others are at the discretion of political appointees. Discretionary decisions can create corrupt incentives. Topics also mentioned by all consultations were corruption related to police and military encounters for drivers of vehicles.

Table 17: Bottleneck Corruption

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Customs (imports)	12%		19%	6%	29%	8%	15%	8%	15%	8%	17%
Import license	4%	9%	23%	5%		7%			8%		8%
Visits tax officials	16%	18%	18%	13%	33%	12%	26%	15%	16%	26%	10%
Official contracts	0.9%	5.8%	4.6%	3.3%	2.2%	3.2%	2.5%	1%	3.5%	0.3%	3.8%
Overall payments	2.4%	3.5%	2.8%	7.7%	6.3%	8.3%	4%	0.9%	9.2%	2.4%	9.3%

Note: First three rows: Share of firms reporting corruption in relation to the topics. Official contracts: mean contract value paid as informal payment. Overall payments: mean informal payments as share of total annual sales. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

Observing the development of corruption related issues in the past years, an improvement can be seen. A governmental related watchdog dedicated to issues associated with corruption and other governmental failures is installed since 2009.[68] Improvements can also be observed in Figure 52 where the score increased from 27 in 2013 to 36 in 2017. Moreover, through government efforts all relevant regulations and laws are made electronically and easily accessible by encouraging higher transparency.[69] Private entities interested in opening a business have thus a very detailed and

[68]Initiative pour la Justice Sociale, la Transparence et la Bonne Gouvernance en Côte d'Ivoire, https://socialjustice-ci.net/public/.
[69]Find the eRegulations portal of Côte d'Ivoire following this link: https://cotedivoire.eregulations.org/. Also see the discussion of the introduction of unique identifier numbers for firms in 2015 in Section C.2.8.

comprehensive access to all relevant information about what steps are needed to open a business. As a result, an increase in the overall transparency can be expected. Moreover, as reported in Section 3.3.2, most steps associated with taxes need to be filed online which also decreases the vulnerability to corruption. In a progress report on the NDP 2016-2020 [MPD, 2019] the government states that "the fight against corruption and racketeering remains at the heart of the concerns of the military hierarchy", while the NDP 2021-2025 additionally wants to "build trust between the national police and the population through community policing and a modern justice, accessible and fair to all citizens".

3.3.6 Skills and human capital

In general, human capital and in particular specialized skills of the workforce, are an essential feature for remaining on a solid and sustainable growth trajectory. Skills play a vital role in every step of the production process. A skilled workforce enables efficiency gains which result into a decreased cost of production, helping to make the firm more competitive. In addition, innovation on all levels is not possible without a solid skill set. As a consequence, the development of a skilled labor force (including business owners and managers) aligned with the needs of the economy should be prioritized. Refer to Section 1 for an overview of the skill level.

While labor regulations seem to play a rather muted role as a bottleneck (only 19% of manufacturers reported this), the availability of a skilled workforce is more pronounced. According to the Enterprise Survey, especially foreign owned (55%) and larger firms (52%) reported an *Inadequate skilled labor force* as a bottleneck to business in the fiscal year 2015 (Table 11).[70] Interestingly, only 28% of SMEs and 30% of domestically owned firms reported it as a major bottleneck producing a heterogeneous picture. Even though significant policy measures fostering the education and training sector have been implemented, not much improvement from 2009 to 2016 can be reported according to the survey. A closer look on the skill situation of production workers in Table 18 reveals the following picture for 2016.

Table 18: Average skilled and unskilled production workers, training, schooling

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Skilled production workers	43%		54%	46%	29%	45%	40%	30%	50%	37%	48%
Unskilled production workers	44%		31%	45%	30%	44%	40%	41%	43%	38%	45%
Formal training	29%	48%	26%	29%	31%	24%	50%	45%	23%	44%	22%
Completed sec. school	19%	30%	44%	16%	36%	18%	22%	34%	13%	38%	10%

Note: Skilled and unskilled production workers as average share of total employees. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

About 43% of the workers in manufacturing firms in Côte d'Ivoire were high- to medium-skilled and only 29% received a formal training. The share of highly skilled was higher by 10 percentage points in ECOWAS, making the skill-related issues an even stronger bottleneck for business. 39% of manufacturing firms hired skilled workers, which is comparable to the ECOWAS region.[71] Together with foreign owned, larger firms and exporting firms, the share was about two thirds.

The distinction between SMEs, large firms or foreign owned firms reveal that larger firms perceived their production workers as less skilled.[72] The share of workers who have completed a secondary school was relatively low with 19% (43% for ECOWAS manufacturers). The share is lower for SMEs

[70] See discussion in Section 1.3.3.
[71] Table 39 in Appendix Section C.2.
[72] This seemingly counter-intuitive result might by a statistical artifact due to the relative low number of observations.

and non-exporting firms in particular, followed by domestically owned firms. For an industrial upgrade and expansion, the lack of a skilled workforce is particularly problematic for various reasons. One could be associated with the implementation and operation of new technological devices which increases the efficiency of the production processes. Without properly skilled and trained employees, inefficiencies may occur with increasing costs and less output produced, crucially affecting the overall competitiveness. CNPE [2019a] acknowledges the weak technical capabilities of the labor force which hampers productivity.

However, this bottleneck has been already identified and resources were shifted towards the expansion of the skill developing system in Côte d'Ivoire. Again, after 2016 strong measures to increase the skills of the Ivorian population have been implemented (2016-2020 PND). According to ILO [2020] school attendance to the age of 16 became compulsory in 2016 but the primary school completion rate remains low. In 2017, 78.5 per cent of boys completed primary school compared to 64.7 per cent of girls. This finding is rather problematic in terms of future development efforts. First, a low primary school completion rate prevents young Ivorians to attend a secondary school, negatively affecting the bottleneck that only 19% of the employees in the surveyed manufacturing firms have attended and completed a secondary school. Second, an even lower attendance rate for girls pronounces the gender disparity of the country, even though gender mainstreaming efforts are prioritized by Côte d'Ivoire. A detailed discussion can be found in Section 1 and will be provided below in Table 21 for the manufacturing sector.

In its recent state of skills study, ILO [2020] reports some key challenges for the skill development in Côte d'Ivoire. Some of them are directly related to the present bottleneck analysis for the manufacturing sector. A low capacity of the overall formal education system together with a low participation of women and rural population amplifies the regional, gender and the income disparities. If education is costly and mostly available only in urban areas, poor people and rural areas are likely to be left behind. Based on that, a broad skilled labor force might not be achieved with a negative impact on the manufacturing sector.

In 2007 the "Technical and Vocational Education and Training" (TVET) reform was initiated to better align training and schooling to the needs of businesses (see also Figure 26). The main implementation rests on private sector initiatives with the Ministry for Higher Education and Scientific Research (MESRS) in 2007 and the Ministry for Technical Education and Vocational Training (METFP) in 2009 [ILO, 2020]. The main target was to alleviate skill-mismatches and lack of a skilled workforce for enterprises.

According to a conference on the effectiveness of the TVET in 2017, experts came to the conclusion that public-private partnerships do not work well. The main obstacles concern the weak implementation of such partnerships and the lack of competency-based approaches across the country. Hence, the economic demand for skills is not correctly identified, leading to a further mismatch of skill developments. Moreover, a big issue concerns again the geographical concentration of skill developing initiatives, leading to an imbalance between rural and urban areas [UNESCO, 2017]. A connection can be drawn to the insufficient electrification of rural areas, as they lack a skilled and reliable workforce for operation in the rural areas due to lack of proper training. CGECI [2019] reports that the trainings do not sufficiently equip students with the necessary skills needed by industry and that the training schemes have not adopted to newly established industries. The newest NDP 2021-2025 commits to a strengthening of the technical and professional skills development system with the goal of reducing the mismatch by adapting programs to the needs of the economy and the job market with an emphasis on SMEs being able to absorb more talent.

Complementary to this assessment, Lavigne [2019] reports the same issue as part of a comprehensive World Bank report. The majority of students and trainees (about 60%) in a TVET are located in private institutions, which predominantly operate in urban areas. As private for-profit institutions operate cost minimizing, the investments in training devices (computers, machines, books, ...) are

modest and the tuition fees are high. Moreover, as the study reports, many teachers seem to share their teaching time with public sector educational facilities. This may lead to a decreasing overall quality of teaching.

The enterprise surveys can also shed light on the skills firms deem to be below the actual requirement (Table 19).[73] Ivorian manufacturing firms report mainly English (45%) and computer skills (22%) as below requirement; followed by marketing, writing and accounting. However, the specific skills being rated as below requirement are very group-specific. It seems that different groups of firms have access to different skills and/or different needs. Interestingly, the number of firms (8%) reporting technical or vocational skills below requirement is comparatively low. However, technical and vocational skills were mentioned by interview partners as being not adequate. Schools seem to transport a more theoretical knowledge than manufacturing firms need. The fear of (smaller) firms is that they invest in the training of new staff that then leaves for other (bigger) companies. Anecdotal evidence reports that, e.g., electricians opt to join state-run companies and thus being unavailable to private firms.

Table 19: Skills below requirement

	Mnf.	Non Mnf.	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Accounting	14%	11%	14%	15%	13%	18%	16%	13%	12%	15%
Computer skills	22%	18%	24%	8%	24%	14%	3%	29%	3%	31%
English	45%	48%	46%	38%	43%	55%	32%	51%	35%	50%
Interpersonal	10%	11%	10%	15%	8%	18%	10%	11%	6%	12%
Marketing	18%	11%	17%	23%	18%	18%	13%	20%	6%	24%
Technical/vocational	8%	13%	10%		8%	9%	6%	9%	3%	11%
Writing	16%	13%	16%	15%	13%	27%	13%	17%	12%	18%

Note: Skills of staff that are perceived as below requirement by firms. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

Another aspect of labor demand concerns problems during the hiring process. Table 20 distinguishes between reasons for not hiring a specific person: the percentage of applicants that expected higher wages[74], applicants that lacked the necessary skills, the lack of applicants all together or whether they did not like working conditions. A lack of skills (22%) is never the most mentioned problem, while high wage expectations (32%) or simply no applicants for the announced job (24%) seem to cause most of the matching inefficiencies. Especially the wage expectations issue is problematic in a country experiencing low productivity (see Figure 7 in Section 1).

Table 20: Problems when hiring

	Mnf.	Non Mnf.	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Expected higher wages	32%	37%	33%	20%	26%	43%	33%	30%	29%	35%
Lack of skill	22%	33%	22%	20%	19%	29%	24%	20%	24%	20%
No applicants	24%	34%	25%	20%	15%	43%	33%	15%	29%	20%
Did not like working conditions	7%	11%	8%		7%	7%	10%	5%	5%	10%

Note: Share of firms that reported problems when hiring. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

[73] We do not report numbers that indicate skills at par or above requirements here.
[74] The survey shows that the share of labor costs in total costs is 35% for manufacturing firms, similar for ECOWAS. For foreign firms, it is only 18%, for medium-high tech it is 28% (see Table 35 in Appendix Section C.2).

Complementing the analysis, a World Bank report [Christiaensen and Premand, 2017] called for increased efforts in reforming the education and vocational training system to catch up with other emerging countries. A big issue concerns the expenditure efficiency for providing a better skilled labor force and opportunities for especially young Ivorians, women and people living in rural areas.

As the gender equality is not only part of the SDG[75] but also given special attention by the government of Côte d'Ivoire, some insights from the Enterprise Survey can be found in Table 21. According to this, the efforts of women participating in the labor market are not very effective for the manufacturing sector, as the share of female permanent full-time production and non-production workers is only 9% and 6% respectively (see discussion in Section 1).

Table 21: Women in manufacturing

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Share fem. prod. workers	9%		11%	12%	10%	13%	7%	6%	13%	7%	13%
Share fem. non-prod. workers	6%		5%	4%	7%	4%	5%	4%	4%	5%	4%
Female top managers	8%	14%	9%	9%		8%	5%		11%	6%	8%
Female owners	17%	27%	17%	17%	15%	15%	23%	19%	16%	15%	18%

Note: Mean female production and non-production workers as share of total employees. Share of firms with female top managers and (co-) owners. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

3.3.7 Access to Land

Access to land, land tenure regulations and enforcement, and an efficient land administration are essential features for economic growth. An unreliable land access results into uncertainty for investors and land users potentially triggering unsustainable land usage. While only 39% of the manufacturing firms in the Enterprise Survey reported access to land as a severe bottleneck to business (SMEs with 36% and large firms with 48% respectively), this issue was often raised during local consultations. This comes as no surprise, as mainly urban firms are part of the survey. A question about the ownership of land shows that 72% of the land occupied by manufacturing firms is leased while only 24% is owned (Table 22).

Table 22: Ownership of land

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Share leased	72%	74%	44%	65%	79%	68%	62%	42%	73%	60%	69%
Share owned	24%	24%	49%	33%	21%	30%	33%	57%	24%	36%	29%
Share other	4%	1%	7%	3%	0%	2%	5%	2%	2%	3%	2%

Note: Distribution of land ownership. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column).
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

However, revealed by this report and also a focal point in the government's strategy, the urban/rural disparity also affects the issue of land tenure. Starting with the implementation of the Rural Land Law (Loi relative au domaine foncier rural) in 1998, efforts were put into the transformation from customary rights into a codified statuary system to allow a unified regulation of all of Côte d'Ivoire's land resources. However, there are still disparities between rural and urban areas, where different perceptions of law prevail. In particular, the land property in rural areas is still owned and

[75] Sustainable development goal 5: Achieve gender equality and empower all women and girls.

administrated by traditional authorities (i.e., village chiefs) and the acquisition of land is based on informal (and thus not based on enforceable contracts) practices. This introduces frictions through uncertainty for the development of industrial capacities in rural parts of Côte d'Ivoire and fosters informal practices rather than formal industrial development. While countermeasures are already implemented by the government and public-private partnerships to manage and develop land in rural areas, there is still room for efficiency gains. Progress reports of the current NDP discuss the importance and the need to develop the land registering system and the mobilization of industrial land for the creation of integrated industrial zones [CNPE, 2019a]. During the consultations and according to external sources, the uncertainty around land property rights still seem to impede proper access to land in rural areas for (manufacturing) firms. However, the NDP 2021-2025 commits to an improved rural and urban land management.

Related to capacity expansion, the question about construction permits is an important one. Table 23 shows the share of firms that applied for construction permits in 2015. Especially foreign firms applied for construction permits. What is remarkable is the length of the application process: 90 days for the average manufacturing firm compared to 29 to the average ECOWAS manufacturing firm.

Table 23: Construction permits

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Applications for constr. permits	8%	11%	8%	10%	10%	5%	19%	4%	9%	8%	
Length application process (days)	90	72	29	43	16	122	81	20	10	62	57

Note: Share of firms that applied for a construction permit and length in days. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). Empty table cells are the result of a lack of data.
Data Source: World Bank Enterprise Survey Côte d'Ivoire [ES, 2016].

3.4 Summary of Section 3 and implications for PCP program design

To summarize, the bottleneck analysis revealed some obstacles, which prevent Ivorian enterprises and firms to reach their full growth potential. As an immediate result, this limits the potential of achieving various socio-economic objectives of Côte d'Ivoire. Thus, Section 3 provides an identification and a comprehensive discussion of key bottlenecks and the firms most affected by them, which can be explicitly taken into account in a discussion about the design of future projects concerning inclusive and sustainable industrial development in the country. Furthermore, some obstacles are perceived more strongly such that scarce resources can be allocated most efficiently.

Due to efforts and dedicated projects by the Ivorian government, some obstacles underwent an improvement from 2009 to 2016 (or today). However, there are still some specific bottlenecks that were named most often as severe or major obstacles by manufacturing firms in 2016 which were confirmed by consultations with local stakeholders: (1) reliable access to power supply, (2) tax rates and (3) tax administration, (4) access to finance and institutional factors like (5) political instability and (6) corruption. In addition, consultations with local entities revealed access to land and lack of skills as obstacles. Compared to benchmark countries of the ECOWAS region, these obstacles are named relatively more often by Ivorian manufacturers.

In the context of infrastructure, investments in the electricity sector (NDP 2018-2020) already have a huge impact on the country's overall electrification. However, there are still some projects under development to further increase the grid access to especially rural areas. This will also enhance the development potential in those areas across several dimensions like the development of

special economic zones, agriculture-processing facilities and so on. Still, electricity is perceived as a big problem with respect to the grid stability, the prices and the lack of advancements in renewable energy production. SMEs are particularly affected as they are the relative largest group that report this bottleneck as a very severe or major obstacle. They also suffer the relative highest losses due to outages and are less likely to be able to afford a generator.

With tax rates, it is particularly the number of different taxes and the small tax base (only registered firm bare the burden) that are seen as problems. Larger firms and medium-high tech firms seem to be complaining more about tax rates. In regard to tax administration, firms reported the unpredictability and the lack of prior consultation by the government as problems. Further, some rules and regulations regarding tax laws seem to be intransparent. Also, corruption was named by multiple stakeholders in connection with tax collection and tax fines. SMEs and medium-high tech firms seem to be especially affected by the tax administration as bottleneck. In general, further efforts to alleviate issues associated with taxes and making the tax process in general more efficient could pay off in terms of productivity increases, especially for SMEs.

Access to finance was named in consultation and most documents as a problem. Specific problems mentioned were (i) the mismatch between bank products (short maturity and small size of loans) and the needs of manufacturing firms, (ii) the relatively high collateral requirements (and related the underdeveloped land registry system), (iii) the lack of alternatives to traditional banking (e.g., venture capital), (iv) the high fees for banking and micro-financing, (v) the perceived lack of trust between banks and firms (e.g. estimating the risk of default as high) as well as (vi) the lack of sufficient managerial and financial skills of some firms' managers that also can lead to less successful access to credit. It is especially the SMEs that find it harder to get access to the necessary finance.

Côte d'Ivoire for the most part, is placed relatively low in international rankings that concern institutions. The WB Enterprise Survey revealed political instability as one of the major issues in 2015. There have, however, been some improvements over time and also rating agencies have increased their outlook rather recently. Policy documents show further commitment to a more stable institutional set-up.

Corruption was named mostly in connection with police controls, visits from tax officials and the crossing of goods at the border. Some improvements can be seen in different rankings as well as the perception in the WB Enterprise Survey. SMEs seem to be particularly affected by corruption according to the survey. The fight against corruption is an ongoing process by the government.

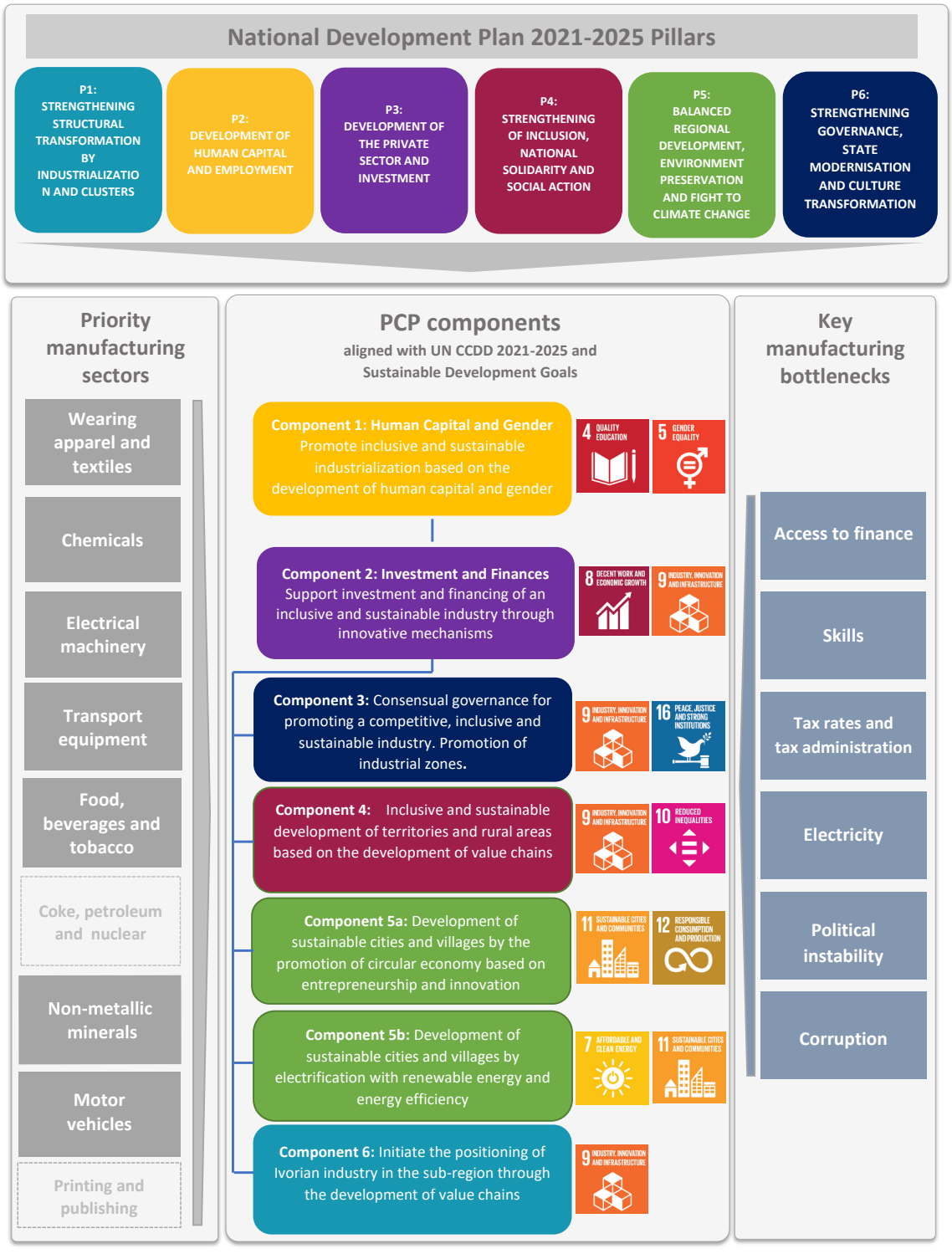
In relation to the population's skills, the Ivorian government put a lot of effort into the Technical and Vocational Education and Training program to align with skills demanded by the economy. However, firms reported a generally lower capacity of the educational system, with a focus on the mismatch between firm's needs and the skill level of the labor force. This is also true for different technical and vocational trainings. Skills that are rated as below required by the survey are English, Computer skills or Marketing. High wage expectations or the overall lack of applicants were the main reasons for hiring problems. According to the survey, it was large and foreign-owned firms that reported an inadequately skilled labor force as a very severe or major obstacle.

Despite improvements in the land registry and management system, different aspects of access to land are still viewed as obstacles. These concern for example access to industrial zones for SMEs, problems when using land as collateral in financing, or the general uncertainty that is a result of a not yet optimized and not yet transparent land management system. Government documents show the ongoing efforts to improve this situation.

Thus, tailored measures could alleviate these issues such that the full development potential of the Ivorian manufacturing sector can be utilized to push the whole economy to a sustainable and inclusive growth trajectory.

4 Final suggestions for PCP design

Figure 53: PCP strategic map



Note: Colors indicate correspondence between NDP pillars and PCP components. Dark blue-gray identifies key manufacturing bottlenecks as identified in the national policy documents. Dark gray represents priority manufacturing sectors matching the national policy documents. Even though *coke, petroleum and nuclear* is not explicitly listed in the NDP 2021-2025 as a priority sector, it does emerge as an important sector through the Global Import Dynamics indicator. The sector is also recognized for its strategic role in relation to the topic of energy security in NDP 2021-2025 which is why it is listed as an adjunct sector and highlighted in light gray in the figure above. While not explicitly mentioned in the NDP 2021-2025, sector *printing and publishing* is identified through its Emerging Comparative Advantage. It is therefore listed as an adjunct sector and highlighted in light gray in the figure above. Sectors *wearing apparel* and *textiles* are evaluated jointly as priority sectors as discussed in Section 2.3.6.

Figure 53 summarizes the identified PCP components, the government's strategic priorities as identified by the NDP 2021-2025 Pillars, the priority sectors emerging from the analysis in Section 2 as well as the key identified bottlenecks that could help further discussions about project design.

The diagram also clearly shows how the PCP components are strongly aligned with the national priorities as outlined in the NDP 2021-2025. The coherence between the components and the United Nations Sustainable Development Cooperation Framework (2021-2025) is also evident, where the PCP is expected to contribute to structural transformation, human capital, inclusiveness, environment and governance. The forthcoming dialogue between the Government of Côte d'Ivoire and UNIDO could be facilitated by an appropriate PCP governance structure.

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Appendices

A Appendix to Section 1

A.1 Alignment of the PCP with other programs

Figure 54 displays how the PCP components are aligned with the pillars of the NDP 2021-2025 as well as with the Strategic Priorities of the United Nations Sustainable Development Cooperation Framework (CCDD).

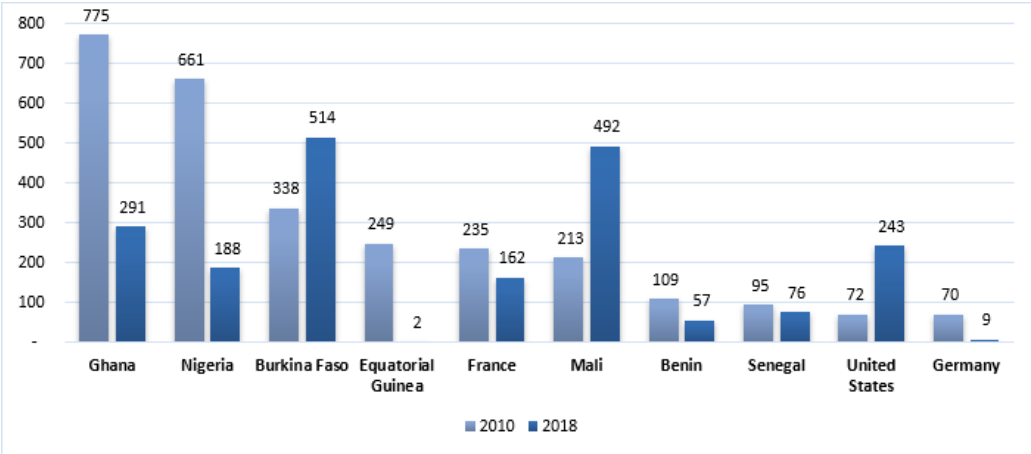
Figure 54: Alignment of PCP components

Note: Colors indicate correspondence across the various components.

A.2 Top ten destination countries of Ivorian manufactured exports

The figure shows that out of the top ten 2010 destinations of Ivorian manufactured exports, there has been a decline in exports to seven of the countries. These include both neighboring countries and countries of the region, as well as European countries.

Figure 55: Ivorian manufactured export values to top ten destination countries (nominal USD, 2010 & 2018)



Data source: United Nations UN-Comtrade [2020] database.

A.3 Topics and indicators to measure overall governance in the country

1. The process by which governments are selected, monitored, and replaced
   (a) Political stability and Absence of Violence/Terrorism – perceptions on the likelihood over a destabilization or overthrow of the government by unconstitutional or violent means.
   (b) Voice and Accountability – to what extent can the citizens of the country participate in selecting the government, to what extent is there freedom of expression, association and free media.
2. The respect of citizens and the state for the institutions that govern economic and social interactions among them
   (a) Rule of law – perception on the extent of trust in and abidance to the rules of society such as contract enforcement, property rights, the police and courts, as well as the likelihood of violence and crime.
   (b) Control of Corruption - perceptions on the extent of private gain when exercising public power, including grand and petty forms of corruption and the "capture" of the state by private interests and the elite.
3. The capacity of the government to effectively formulate and implement policies
   (a) Government effectiveness - perceptions on the quality of public services, civil service and its independence from political pressure, policy formulation and implementation and the trust in the government's commitments to policies.
   (b) Regulatory quality – perception of the government's ability to develop and implement policies and regulations for private sector development.

A.4 Summary Table of Section 1

Table 24: Summary Table of Section 1

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Inclusive and sustainable development of territories and rural areas based on the development of value chains (Component 4)	Structural transformation through value addition, diversification and upgrading, working towards a geographic balance.	• MVA growth rate on average lower than GDP growth rate (5% vs 7%), although since 2017 MVA growth rates have been between 12% and 13%. • Therefore no structural transformation over the 2010-2018 period (MVA accounts for 12.0% of GDP in 2018). • Share and value of mnf exports low and declining (share: 36% in 2010, 25% in 2018) • NDP 2016-2020 target of average grow rate of 7.3% not achieved. • Most manufacturing firms located in Abidjan, processing almost non-existent in other (rural) areas. • Little diversification in the economy means high vulnerability. Top 5 export products make up 70% of total exports (37% is cocoa). • Manufactured exports dominated by low-tech sectors. Medium and high-tech sectors make up 23% of total mnf exports. • Analysis of forward and backward linkages suggests that Cote d'Ivoire engages in value chains predominantly in the upstream segment.	National Development Plan 2021-2025 • The pillar 4 focuses on inclusive development. • The aim of the Plan is to pursue structural transformation and lift the country to becoming an emerging economy. • Pillar 1 is specifically about strengthening productive transformation, developing industrial clusters and the digitalization of the economy. • The first result under Pillar 1 is to strengthen production and competitiveness of the industrial sector. • Pillar 5 is on regional development and environmental preservation. National Development Plan 2016-2020 • Industrial strength of the country is primary vision of the Plan. • Structural transformation towards industry is a key strategic orientation, where there is an indicator on the share of industry in GDP (though no target values). • Target (Elephant Emergent) is GDP growth rate of 8.8% on average. Industrial sector growth rate:11.6% • Boosting productivity and value addition is frequently mentioned in the document. • NDP has suggested strategies for a range of agro-based value chains. For cocoa, for example, the target is to export 50% processed cocoa products by 2020. • The NDP 2016-2020 aims to strategically improve export competitiveness of the country, in particular in agro-industry and in sectors which were historically competitive including chemicals, plastics, cosmetics and mechanical products

Table 24: Summary Table of Section 1 *(continued)*

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Investment and Finances (Component 2) Support investment and financing of an inclusive and sustainable industry through innovative mechanisms	Foreign investment projects and access to finance for inclusive growth	• FDI net inflows increased remarkably between 2011 and 2017 but sharp drop in 2018. FDI as a share of GDP is very low and decreased from 1.44% in 2010 to 1.07% in 2018. • Need investments for structural transformation (see above). • Need for injection of technology and innovation: Only 23% of mnf exports are medium or high tech. R&D expenditure makes up only 0.1% of GDP and very few patent applications made per year. • Need for strategy to ensure foreign investors transfer skills to locals for innovation and competitiveness (low level of education in labor force, • Need investment to create product diversification in production and exports (Top 5 export products make up 70% of total exports (37% is cocoa), while the country is abundant in its diversity of natural resources. • Need for access to capital: only 24% of firms use banks for investments. • Local firms operate in upstream segment of value chains. Need further processing and value addition.	National Development Plan 2021-2025 • It acknowledges the need to improve access to finance, both through formal financial institutions as well as through the micro-finance channel. There is also specific mentioning on supporting women's access to finance. This is also emphasized in Pillar 3 which stresses the importance of the development of a resilient private sector and investment opportunities. • The Plan aspires to link the national champions with international investors. • Pillar 1 (on strengthening productive transformation, developing industrial clusters and the digitalization of the economy) mentions improving financial inclusion through Fintechs as well as financing of economic activity through domestic savings, optimization of public debt management and improving the efficiency of public spending, the drafting of an effective fiscal policy and improving credibility of public financial management to attract funding and investment. • Pillar 1 also mentions the creation of industrial zones in accordance with international standards and economic zones focusing on exporting. National Development Plan 2016-2020 • Several times the need to promote private investments is made in the document. It also mentions the important role that the diaspora and national as well as international investors would have for the country. • Furthermore, it addresses the importance of FDI for the productive sector to contribute to structural change and diversification of the economy. This is in particular for value addition in agriculture and mining sectors.

Table 24: Summary Table of Section 1 *(continued)*

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Initiate the positioning of Ivorian industry in the sub-region through the development of value chains (Component 6)	Exploiting regional markets, economic ties, and the development of regional value chains	• ECOWAS is a highly important market for Côte d'Ivoire's manufactured exports (63% of its mnf exports go to the region). • At the same time, it is losing market share in both ECOWAS and wider SSA region. • ECOWAS and SSA have a high growth in demand for certain mnf products, e.g. pharmaceuticals (also particularly important during COVID-19 pandemic). • Côte d'Ivoire only holds 0.03% of the pharmaceuticals market in ECOWAS, making it the 6th largest supplying among ECOWAS member states and 58th globally. Its market share has been decreasing over the years. • Analysis of forward and backward linkages suggests that Cote d'Ivoire engages in value chains predominantly in the upstream segment. • In food exports, there has been a decline in the share of processed foods exported. In 2018 they account for 26% of total food exports. • In the leather and rubber value chain 93% of exports is non-processed. • Cocoa value chain: share of unprocessed cocoa exports increased from 65% to 71% between 2010 and 2018, meaning the sector is moving further away from its 2020 target of 50% (NDP 2016-2020). Most processing undertaken by foreign firms.	National Development Plan 2021-2025 • Pillar 1 is on strengthening prOductive transformation, development of industrial clusters and digitalization. It will focus on identifying obstacles to the productivity of value chains with an export focus. • Pillar 6 (Strengthening of governance in all its aspects and modernisation of the state) has measures to reinforce the country's role in regional integration and to develop an export strategy oriented towards the regional market. National Development Plan 2016-2020 • The vision mentions the inclusion of the country into regional (as well as global) value chains. • One of the five strategic orientations is the strengthening of regional integration and international cooperation. • It mentions the need of developing partnerships with the region, in order to be able to offer more training and skills development, increase the level of technology in the country and develop domestic industries that will be competitive both domestically and regionally.

Table 24: Summary Table of Section 1 *(continued)*

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Human Capital and Gender (Component 1) Promote inclusive and sustainable industrialization based on the development of human capital and gender	Skills development for entrepreneurship and employability in manufacturing, focus on women and youth, and the reduction of inequality	• Jobs in manufacturing tend to be better paid that in agriculture and in most service sectors. • Côte d'Ivoire has had a considerable increase in the share of employment in manufacturing, though there is much potential to create more jobs. • Nonetheless, its labor productivity is weak compared to that of other countries: It is said that the pay to productivity ratio does not make the country attractive for investors. • In line with this, the labor force is poorly educated, with only 9% having either intermediate or high level of education (2016). • There is a strong under-representation of women in manufacturing (24%). • Only 7% of women in the labor force have an intermediate or advanced level of education while 76% have not even attended primary school. • 36% of youth are not in education, employment or training, and the share is 47% for female youth. • There has been a decline in the share of upper secondary graduates who have enrolled in vocational programs from 15% in 2012 to 12 • Country ranks 108th out of 132 economies in the Global Talent Competitiveness Index 2020. With its strengths being in attracting talent from abroad and the weaknesses being labor market policies, relationship of pay to productivity and cluster development. • Largest weakness was the gender development gap index (Côte d'Ivoire ranked 127/132).	National Development Plan 2021-2025 • Pillar 2 in particular aims to improve human capital and increasing labor productivity. It mentions necessary improvements in the educational system, employment creation, technical and vocational training, scientific research for the competitiveness of Ivorian products, improving the accessibility to education and ensuring good quality, better matching of skills demanded by the economy and the offer of educational and training programs, and the better integration of youth into the formal sector. • Pillar 4 is dedicated to strengthening inclusion, solidarity and social action. This pillar has a strong focus on gender equality and improving opportunities for women, including financial inclusion. National Development Plan 2016-2020 • Part of the vision is to absorb the available manpower in economic and industrial activity, boosting human capital and creating equality in the society, as well as significantly reduce poverty and enlarge the middle class. • One of the strategic orientations of the Plan is the acceleration of human capital development and social well-being. • The document also states the development of research centers for technology and innovation. • The document mentions equality and gender equality as one of the principals and talks about the need to ensure education for females to increase. • Skills development for youth is important. The Plan included the mentioning of skills for youth to work with green technologies.

Table 24: Summary Table of Section 1 *(continued)*

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Development of sustainable cities and villages (Component 5)	Focus: Promotion of circular economy based on entrepreneurship and innovation	• Deforestation is a key challenge for the country. In one year, forest area declined by 3.6% (2020). Strong dependence on forest for agro-processing value chains, particularly cocoa, although the sector is the main cause of the deforestation. • CO2 emissions around 0.27-0.28 kg per USD, while NDP target is 0.12 kg/USD. Emissions expected to increase with further deforestation and industrialization. • Waste management barely exists. An estimated 3% to 5% of waste is recycled. Recently a number of large projects have started as this has become a priority. It will include management of hazardous and e-waste as well, in addition to water management.	National Development Plan 2021-2025 • The NDP 2021-2025 Pillar 5 incorporates creating a sustainable environment. It includes preserving biodiversity and the building of capacities for better adaptation and mitigation of climate change. National Development Plan 2016-2020 • The vision states that the government reaffirms its plans to protect the environment through mitigating policies and actions and adaptation to climate changes, in addition to progressively putting in place methods of production and consumption for sustainable development. • Environmental protection is mentioned as part of the strategic orientations. • Indicators were listed for CO2 emissions and the proportion of protected land and maritime areas. • The document also places much focus on promoting green economy including through green technology and innovation. There is also mention on waste and the management of chemicals as well as conserving the biodiversity.
Development of sustainable cities and villages (Component 5)	Focus: Electrification with renewable energy and energy efficiency	• 67% of the population have access to electricity. • Oil products are gaining in importance. • Low share of renewable electricity. • Energy intensity in industry is low (0.08 ktoe per IVA in 2017) representing a good starting point for energy efficiency as the expected future increasing energy demand from industrialization.	National Development Plan 2021-2025 • One stated measure in Pillar 4 (Strengthening inclusion, national solidarity and social action) is on ensuring energy for all. National Development Plan 2016-2020 • The Plan indicated a target for electrification of 77% of the population by 2020. • The Plan addresses the need to create a greater energy mix and increase the share of renewables, focusing on solar energy.

Table 24: Summary Table of Section 1 *(continued)*

PCP Component	Key thematic areas	Findings advocating the need to focus on thematic areas	Relevance for government
Consensual governance for promoting a competitive, inclusive and sustainable industry. Promotion of industrial zones. (Component 3)	Strengthen local capacities in terms of conducive governance and policy making; including enhancing Partners in Population and Development (PPD), policy coordination, implementation and M&E, as well as industrial statistics.	• Commendable improvements in policy-making capacities. • However still weak in engaging with civil society for policy formulation. Improvements can still be made in policy coordination, ensuring government agencies work in collaboration. • For example, lack of coordination particularly identified recently for the development of industrial and eco-industrial zones. • Policy learning can also be improved, where sound M&E can play a key role. • Statistical capacity is relatively strong compared to the average of LMI countries, however, need to strengthen data collection was expressed. Industrial data is often scattered or difficult to find. • Significant advancement was made in creating a conducive business environment through government reforms, as indicated in the Ease of Doing Business scores and ranking, though Côte d'Ivoire is still far from reaching its NDP targets (currently 110th/190 vs. NDP target of among top 50 (25) by 2018 (2020). • Large constraint in terms of governance is political stability.	National Development Plan 2021-2025 • Improvements in the area of governance is key in the Plan. In fact, the sixth Pillar of the Plan is called "Strengthening of governance in all its aspects and modernization of the state". It includes improving the accessibility and quality of public services, effective coordination and the better coordination of ministry departments, the reduction of the multiplicity of actors, public financial management and macroeconomic management, economic policy, the simplification of fiscal procedures, as well as working towards stronger regional integration. National Development Plan 2016-2020 • The vision states that the state and the institutions are at the center of structural transformation to develop the necessary structural reforms, undertake long-term planning, create public-private partnerships and mobilize citizens to engage in the development. • The first out of the five strategic orientations is the strengthening of institutional quality and good governance.

B Appendix to Section 2

B.1 Technical Appendix

B.1.1 Matching Trade Data to Manufacturing Sectors

Trade data are retrieved from UN-Comtrade [2020] and follow the SITC Rev.3 and Rev.3 at 5-digit level, respectively. Correspondence between both SITC goods classifications and the manufacturing sector classification following the ISIC Revision 3 is established following UN-Stats[76] and eurostat RAMON (Reference And Management Of Nomenclatures)[77]. Aggregating sector information from the IV-digit to the II-digit level can then be performed by simply summing up all IV-digit industries that belong to a particular 2-sector industry or, alternatively, any alternative ISIC sector combination. The ISIC combination chosen for this report is presented in Appendix B.1.2 and was defined with the objective of having a straight-forward correspondence between different data sources and classification standards in order to guarantee a consistent definition of manufacturing sectors throughout this report that can also be applied easily to different classification formats. A complete conversion table between the SITC Rev.3 and ISIC Rev.3 is provided in Table 25.

Throughout the report, only trade in commodities is considered. Consequently, whenever talking about trade import/exports related to manufacturing industries we refer to *traded commodities that can be attributed to a certain manufacturing sector*.

Given the concordance tables above, we are able to map an average of 96 % of all global trade across countries. In the case of Cote d'Ivoire the share of mapped trade is 97 %. We fail to map trade dynamics for the remaining percentages as they are only reported at more aggregated levels in SITC Rev.3 for which no clear ISIC Rev. 3 concordance is available. Even though there do exist notable differences in the mapping across sectors and countries, the lowest sector mapping identified across all countries still allows us to map around 85 % of trade. This discrepancy is not expected to affect the analysis for Cote d'Ivoire in any substantial way.

Table 25: SITC to ISIC conversion table

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
0111	0451	1711	65265	2411	51486	2710	67317	2924	72343	3694	89427
0111	0452	1711	65291	2411	51489	2710	67319	2924	72344	3694	89429
0111	0453	1711	65292	2411	51541	2710	67321	2924	72345	3694	89431
0111	04591	1711	65293	2411	51542	2710	67322	2924	72346	3694	89433
0111	04592	1711	65294	2411	51543	2710	67323	2924	72347	3694	89435
0111	04593	1711	65295	2411	51544	2710	67324	2924	72348	3694	89437
0111	04599	1711	65296	2411	51549	2710	67325	2924	72392	3694	89439
0111	0541	1711	65297	2411	5155	2710	67326	2924	72393	3699	26901
0111	05421	1711	65298	2411	51561	2710	67327	2924	72399	3699	26902
0111	05422	1711	65311	2411	51562	2710	67329	2924	72831	3699	65912
0111	05423	1711	65312	2411	51569	2710	67331	2924	72832	3699	87452
0111	05424	1711	65313	2411	51573	2710	67332	2924	72833	3699	8941
0111	05425	1711	65314	2411	51574	2710	67333	2924	72834	3699	89445
0111	05429	1711	65315	2411	51575	2710	67334	2924	72839	3699	89449
0111	05481	1711	65316	2411	51577	2710	67335	2924	74472	3699	8946
0111	05483	1711	65317	2411	51579	2710	67336	2925	72138	3699	89521
0111	05484	1711	65318	2411	51612	2710	67337	2925	72139	3699	89522
0111	05487	1711	65319	2411	51613	2710	67338	2925	72191	3699	89523
0111	05488	1711	65321	2411	51614	2710	67339	2925	72198	3699	89592
0111	05489	1711	65325	2411	51615	2710	67341	2925	72711	3699	89593
0111	08111	1711	65329	2411	51616	2710	67342	2925	72719	3699	89594
0111	08112	1711	65331	2411	51617	2710	67343	2925	72721	3699	89721
0111	08113	1711	65332	2411	51621	2710	67344	2925	72722	3699	89729
0111	1211	1711	65333	2411	51622	2710	67345	2925	72729	3699	89911
0111	1212	1711	65334	2411	51623	2710	67346	2925	72843	3699	89919
0111	22211	1711	65341	2411	51624	2710	67347	2925	72853	3699	89921
0111	22212	1711	65342	2411	51625	2710	67348	2925	74137	3699	89929
0111	2222	1711	65343	2411	51626	2710	67349	2925	74184	3699	89931
0111	2223	1711	65351	2411	51627	2710	67351	2925	74187	3699	89932

[76] See https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp.
[77] See https://ec.europa.eu/eurostat/ramon/relations/index.cfm?TargetUrl=LST_REL.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
0111	2224	1711	65352	2411	51628	2710	67352	2925	74351	3699	89933
0111	2225	1711	65359	2411	51629	2710	67353	2926	72433	3699	89934
0111	22261	1711	6536	2411	51631	2710	67411	2926	72435	3699	89935
0111	22262	1711	65381	2411	51639	2710	67412	2926	72439	3699	89936
0111	2227	1711	65382	2411	51691	2710	67413	2926	72441	3699	89937
0111	2231	1711	65383	2411	51699	2710	67414	2926	72442	3699	89939
0111	2232	1711	65389	2411	5221	2710	67421	2926	72443	3699	89941
0111	2234	1711	65391	2411	52221	2710	67422	2926	72449	3699	89942
0111	2235	1711	65393	2411	52222	2710	67431	2926	72451	3699	89949
0111	2237	1711	65411	2411	52223	2710	67432	2926	72452	3699	89972
0111	2311	1711	65413	2411	52224	2710	67441	2926	72453	3699	89981
0111	23121	1711	65419	2411	52225	2710	67442	2926	72454	3699	89982
0111	23125	1711	65421	2411	52226	2710	67443	2926	72455	3699	89983
0111	23129	1711	65422	2411	52227	2710	67444	2926	72461	3699	89984
0111	2631	1711	65431	2411	52228	2710	67451	2926	72467	3699	89985
0111	2641	1711	65432	2411	52229	2710	67452	2926	72468	3699	89986
0111	26511	1711	65433	2411	52231	2710	67511	2926	72471	3699	89987
0111	26521	1711	65434	2411	52232	2710	67512	2926	72472	3699	89988
0111	26541	1711	65435	2411	52234	2710	67521	2926	72473	3699	89989
0111	26551	1711	65441	2411	52235	2710	67522	2926	72474	3699	89991
0111	26571	1711	65442	2411	52236	2710	67531	2926	72481	3699	89992
0111	26581	1711	6545	2411	52237	2710	67532	2926	72483	3699	89994
0111	29241	1711	6546	2411	52238	2710	67533	2926	72485	3699	89995
0111	29242	1711	65492	2411	52239	2710	67534	2926	72488	3699	89997
0111	29249	1711	65493	2411	52241	2710	67535	2926	72491	4010	3510
0111	29251	1711	65494	2411	52242	2710	67536	2926	72492	4010	52517
0111	29252	1711	65495	2411	52251	2710	67537	2927	89111	4020	3450
0111	0411	1711	65496	2411	52252	2710	67538	2927	89112	7421	89282
0111	0412	1711	65497	2411	52253	2710	67541	2927	89114	7494	8825
0111	0421	1711	2613	2411	52254	2710	67542	2927	89121	7494	8826
0111	0430	1711	26149	2411	52255	2710	67543	2927	89122	9211	8831
0111	0441	1711	2634	2411	52256	2710	67551	2927	89123	9211	8839
0111	0449	1711	2649	2411	52257	2710	67552	2927	89124	9214	89611
0112	0544	1711	26512	2411	52262	2710	67553	2927	89129	9214	89612
0112	05451	1711	26513	2411	52263	2710	67554	2927	89131	9214	8962
0112	05452	1711	26529	2411	52264	2710	67555	2927	89139	9214	8963
0112	05453	1711	26549	2411	52265	2710	67556	2927	89191	9214	8964
0112	05454	1711	26559	2411	52266	2710	67561	2927	89193	9214	8965
0112	05455	1711	26579	2411	52268	2710	67562	2927	89195	9214	8966
0112	05456	1711	26589	2411	52269	2710	67571	2927	89199	9302	29191
0112	05457	1711	26671	2411	5231	2710	67572	2929	72511	.	.
0112	05458	1711	26672	2411	52322	2710	67573	2929	72512	.	.
0112	05459	1711	26673	2411	52329	2710	67574	2929	72521	.	.
0112	05791	1711	26679	2411	52331	2710	676	2929	72523	.	.
0112	29253	1711	26713	2411	52332	2710	6761	2929	72525	.	.
0112	29254	1711	26821	2411	52339	2710	67611	2929	72527	.	.
0112	29259	1711	26829	2411	52341	2710	67612	2929	72529	.	.
0112	29261	1711	26863	2411	52342	2710	67613	2929	72591	.	.
0112	29269	1711	26871	2411	52343	2710	67614	2929	72599	.	.
0112	29271	1711	26873	2411	52344	2710	67615	2929	72631	.	.
0113	05711	1711	26877	2411	52345	2710	67617	2929	72651	.	.
0113	05712	1711	41134	2411	52349	2710	67619	2929	72659	.	.
0113	05721	1711	41135	2411	52359	2710	6762	2929	72661	.	.
0113	05722	1711	65112	2411	52361	2710	67621	2929	72663	.	.
0113	05729	1711	65113	2411	52363	2710	67622	2929	72665	.	.
0113	0573	1711	65114	2411	52364	2710	67623	2929	72667	.	.
0113	0574	1711	65115	2411	52365	2710	67624	2929	72668	.	.
0113	05751	1711	65116	2411	52372	2710	67625	2929	72681	.	.
0113	05752	1711	65117	2411	52373	2710	67629	2929	72689	.	.
0113	0576	1711	65118	2411	52374	2710	67631	2929	72691	.	.
0113	05771	1711	65119	2411	52375	2710	67632	2929	72699	.	.
0113	05772	1711	65121	2411	52379	2710	67633	2929	72841	.	.
0113	05773	1711	65122	2411	52381	2710	67634	2929	72842	.	.
0113	05774	1711	65131	2411	52382	2710	67639	2929	72846	.	.
0113	05775	1711	65132	2411	52383	2710	67641	2929	72847	.	.
0113	05776	1711	65133	2411	52384	2710	67642	2929	72849	.	.
0113	05777	1711	65134	2411	52389	2710	67643	2929	72851	.	.
0113	05778	1711	65141	2411	52431	2710	67644	2929	72852	.	.
0113	05779	1711	65142	2411	52432	2710	67645	2929	72855	.	.
0113	05791	1711	65143	2411	52491	2710	67646	2929	74185	.	.
0113	05792	1711	65144	2411	52492	2710	67647	2929	74186	.	.
0113	05793	1711	65161	2411	52493	2710	67648	2929	74355	.	.
0113	05794	1711	65169	2411	52494	2710	67681	2929	74529	.	.
0113	05795	1711	65171	2411	52495	2710	67682	2929	74565	.	.
0113	05796	1711	65176	2411	52499	2710	67683	2929	74911	.	.
0113	05797	1711	65181	2411	52591	2710	67684	2929	74912	.	.
0113	05798	1711	65182	2411	52595	2710	67685	2929	74913	.	.
0113	05799	1711	65183	2411	53111	2710	67686	2929	74914	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
0113	07111	1711	65184	2411	53112	2710	67687	2929	74915	.	.
0113	0721	1711	65185	2411	53113	2710	67688	2929	74916	.	.
0113	07412	1711	65186	2411	53114	2710	67701	2929	74917	.	.
0113	07414	1711	65187	2411	53115	2710	67709	2929	74918	.	.
0113	07431	1711	65192	2411	53116	2710	6781	2929	74919	.	.
0113	07511	1711	65193	2411	53117	2710	67811	2930	69731	.	.
0113	07512	1711	65194	2411	53119	2710	67812	2930	69732	.	.
0113	07513	1711	65196	2411	53121	2710	67813	2930	69733	.	.
0113	07521	1721	65811	2411	53122	2710	67821	2930	69734	.	.
0113	07522	1721	65812	2411	53221	2710	67829	2930	74181	.	.
0113	07523	1721	65813	2411	53222	2710	67911	2930	74182	.	.
0113	07524	1721	65819	2411	53231	2710	67912	2930	74341	.	.
0113	07525	1721	65821	2411	53232	2710	67913	2930	74345	.	.
0113	07526	1721	65822	2411	53311	2710	67914	2930	77511	.	.
0113	07527	1721	65823	2411	53312	2710	67915	2930	77512	.	.
0113	07528	1721	65824	2411	53313	2710	67916	2930	77521	.	.
0113	07529	1721	65829	2411	53314	2710	67917	2930	77522	.	.
0121	00111	1721	65831	2411	53315	2710	67931	2930	7753	.	.
0121	00119	1721	65832	2411	53316	2710	67932	2930	77541	.	.
0121	00121	1721	65833	2411	53317	2710	67933	2930	77542	.	.
0121	00122	1721	65839	2411	53318	2710	67939	2930	77549	.	.
0121	00151	1721	65841	2411	59811	2710	67941	2930	77571	.	.
0121	00152	1721	65842	2411	59813	2710	67942	2930	77572	.	.
0121	26811	1721	65843	2411	59814	2710	67943	2930	77573	.	.
0121	29194	1721	65844	2411	59818	2710	67944	2930	77579	.	.
0122	00131	1721	65845	2411	59865	2710	67949	2930	77581	.	.
0122	00139	1721	65846	2411	66741	2710	67951	2930	77582	.	.
0122	00141	1721	65847	2411	66742	2710	67952	2930	77583	.	.
0122	00149	1721	65848	2412	2721	2710	67953	2930	77584	.	.
0122	0019	1721	65851	2412	2722	2710	67954	2930	77585	.	.
0122	01292	1721	65852	2412	52233	2710	67955	2930	77586	.	.
0122	01293	1721	65859	2412	52261	2710	67956	2930	77587	.	.
0122	0251	1721	65891	2412	52321	2710	67959	2930	77588	.	.
0122	0616	1721	65892	2412	52351	2720	28321	2930	77589	.	.
0122	09892	1721	65893	2412	52352	2720	28322	2930	81215	.	.
0122	21199	1721	65899	2412	52362	2720	28421	2930	81217	.	.
0122	2121	1721	82127	2412	52371	2720	28422	2930	81219	.	.
0122	21221	1721	82129	2412	56211	2720	2852	3000	72655	.	.
0122	21222	1721	89996	2412	56212	2720	68112	3000	75113	.	.
0122	21223	1722	65921	2412	56213	2720	68113	3000	75115	.	.
0122	21224	1722	65929	2412	56214	2720	68114	3000	75116	.	.
0122	21225	1722	6593	2412	56215	2720	68122	3000	75118	.	.
0122	21226	1722	65941	2412	56216	2720	68123	3000	75119	.	.
0122	21229	1722	65942	2412	56217	2720	68124	3000	75121	.	.
0122	2123	1722	65943	2412	56219	2720	68125	3000	75122	.	.
0122	26141	1722	65949	2412	56221	2720	68211	3000	75123	.	.
0122	2683	1722	65951	2412	56222	2720	68212	3000	75124	.	.
0122	26851	1722	65952	2412	56229	2720	68213	3000	75128	.	.
0122	26859	1722	65959	2412	56231	2720	68214	3000	75131	.	.
0122	43142	1722	65961	2412	56232	2720	68231	3000	75132	.	.
0200	29299	1722	65969	2412	56239	2720	68232	3000	75133	.	.
0200	63491	1723	65751	2412	56291	2720	68241	3000	75134	.	.
0200	2313	1723	65752	2412	56292	2720	68242	3000	75135	.	.
0200	24403	1723	65759	2412	56293	2720	68251	3000	75191	.	.
0200	24501	1729	65191	2412	56294	2720	68252	3000	75192	.	.
0200	2474	1729	65491	2412	56295	2720	68261	3000	75193	.	.
0200	24751	1729	65611	2412	56296	2720	68262	3000	75199	.	.
0200	24752	1729	65612	2412	56299	2720	68271	3000	7521	.	.
0200	29221	1729	65613	2413	23211	2720	68272	3000	7522	.	.
0200	29222	1729	65614	2413	23212	2720	68311	3000	7523	.	.
0200	29229	1729	65621	2413	23213	2720	68312	3000	7526	.	.
0200	29231	1729	65629	2413	23214	2720	68321	3000	7527	.	.
0200	29232	1729	65631	2413	23215	2720	68322	3000	7529	.	.
0200	29239	1729	65632	2413	23216	2720	68323	3000	7591	.	.
0200	29272	1729	65641	2413	23217	2720	68324	3000	7599	.	.
0200	29292	1729	65642	2413	23218	2720	68411	3000	75991	.	.
0200	29293	1729	65643	2413	23219	2720	68412	3000	75993	.	.
0200	29294	1729	65651	2413	57111	2720	68421	3000	75997	.	.
0200	29295	1729	65659	2413	57112	2720	68422	3110	7161	.	.
0200	29296	1729	65711	2413	5712	2720	68423	3110	7162	.	.
0500	03411	1729	65712	2413	5719	2720	68424	3110	71631	.	.
0500	03412	1729	65719	2413	57211	2720	68425	3110	71632	.	.
0500	03413	1729	6572	2413	57219	2720	68426	3110	7164	.	.
0500	03414	1729	65731	2413	57291	2720	68427	3110	71651	.	.
0500	03415	1729	65732	2413	57292	2720	68511	3110	71652	.	.
0500	03416	1729	65733	2413	57299	2720	68512	3110	7169	.	.
0500	03417	1729	65734	2413	57311	2720	68521	3110	77111	.	.
0500	03418	1729	6574	2413	57312	2720	68522	3110	77119	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
0500	0362	1729	65771	2413	57313	2720	68524	3110	77121	.	.
0500	03631	1729	65772	2413	57391	2720	68611	3110	77123	.	.
0500	03633	1729	65773	2413	57392	2720	68612	3110	77125	.	.
0500	03635	1729	65781	2413	57393	2720	68631	3110	77129	.	.
0500	29115	1729	65785	2413	57394	2720	68632	3120	77241	.	.
0500	29197	1729	65789	2413	57399	2720	68633	3120	77242	.	.
0500	29297	1729	65791	2413	57411	2720	68634	3120	77243	.	.
0500	66711	1729	65792	2413	57419	2720	68711	3120	77244	.	.
0500	66712	1729	65793	2413	5742	2720	68712	3120	77245	.	.
1010	3211	1730	65511	2413	57431	2720	68721	3120	77249	.	.
1010	32121	1730	65512	2413	57432	2720	68722	3120	77251	.	.
1010	32122	1730	65519	2413	57433	2720	68723	3120	77252	.	.
1010	3221	1730	65521	2413	57434	2720	68724	3120	77253	.	.
1020	32221	1730	65522	2413	57439	2720	68911	3120	77254	.	.
1020	32222	1730	65523	2413	57511	2720	68912	3120	77255	.	.
1030	3223	1730	65529	2413	57512	2720	68913	3120	77257	.	.
1110	27896	1730	8453	2413	57513	2720	68914	3120	77258	.	.
1110	3330	1730	8454	2413	57519	2720	68915	3120	77259	.	.
1110	3431	1730	84621	2413	57521	2720	68981	3120	77261	.	.
1110	3432	1730	84622	2413	57529	2720	68982	3120	77262	.	.
1200	2861	1730	84629	2413	57531	2720	68983	3120	77281	.	.
1200	2862	1810	65761	2413	57539	2720	68984	3120	77282	.	.
1310	2815	1810	65762	2413	57541	2720	68991	3130	77311	.	.
1310	2816	1810	84111	2413	57542	2720	68992	3130	77312	.	.
1320	2831	1810	84112	2413	57543	2720	68993	3130	77314	.	.
1320	2841	1810	84119	2413	57544	2720	68994	3130	77315	.	.
1320	2851	1810	84121	2413	57545	2720	68995	3130	77317	.	.
1320	2874	1810	84122	2413	57551	2720	68996	3130	77318	.	.
1320	2875	1810	84123	2413	57552	2720	68997	3140	77811	.	.
1320	2876	1810	8413	2413	57553	2720	68998	3140	77812	.	.
1320	2877	1810	8414	2413	57554	2720	68999	3140	77817	.	.
1320	28781	1810	84151	2413	57559	2720	69981	3140	77819	.	.
1320	28782	1810	84159	2413	57591	2720	69983	3150	77821	.	.
1320	28783	1810	84161	2413	57592	2720	69985	3150	77822	.	.
1320	28784	1810	84162	2413	57593	2720	69987	3150	77823	.	.
1320	28785	1810	84169	2413	57594	2720	69991	3150	77824	.	.
1320	28791	1810	84211	2413	57595	2720	69992	3150	77829	.	.
1320	28792	1810	84219	2413	57596	2720	69993	3150	81311	.	.
1320	28793	1810	84221	2413	57597	2720	69994	3150	81312	.	.
1320	28799	1810	84222	2421	5911	2720	69995	3150	81313	.	.
1320	28911	1810	8423	2421	5912	2720	69999	3150	81315	.	.
1320	28919	1810	8424	2421	5913	2720	97101	3150	81317	.	.
1410	27311	1810	8425	2421	59141	2720	97102	3150	8132	.	.
1410	27312	1810	8426	2421	59149	2811	69111	3150	8138	.	.
1410	27313	1810	8427	2422	53321	2811	69112	3150	81399	.	.
1410	27322	1810	84281	2422	53329	2811	69113	3150	88112	.	.
1410	27323	1810	84282	2422	53341	2811	69114	3150	89841	.	.
1410	27331	1810	84289	2422	53342	2811	69119	3190	74521	.	.
1410	27339	1810	8431	2422	53343	2811	69121	3190	77313	.	.
1410	2734	1810	84321	2422	53344	2811	69129	3190	77324	.	.
1410	27823	1810	84322	2422	53351	2811	8110	3190	77329	.	.
1410	27826	1810	84323	2422	53352	2812	69211	3190	77812	.	.
1410	27827	1810	84324	2422	53353	2812	69212	3190	77831	.	.
1410	27829	1810	84371	2422	53354	2812	69243	3190	77833	.	.
1410	27891	1810	84379	2422	53355	2812	69244	3190	77834	.	.
1421	27231	1810	84381	2423	51393	2812	81211	3190	77835	.	.
1421	27232	1810	84382	2423	51461	2813	71111	3190	77871	.	.
1421	2724	1810	84389	2423	51464	2813	71112	3190	77878	.	.
1421	2741	1810	8441	2423	51471	2813	71121	3190	77879	.	.
1421	27411	1810	84421	2423	51479	2813	71122	3190	77881	.	.
1421	2742	1810	84422	2423	51481	2813	71191	3190	77882	.	.
1421	27854	1810	84423	2423	51563	2813	71192	3190	77883	.	.
1421	27855	1810	84424	2423	51569	2813	71871	3190	77884	.	.
1421	27892	1810	84425	2423	51571	2813	71878	3190	77885	.	.
1421	27894	1810	84426	2423	51572	2893	6951	3190	77886	.	.
1421	27899	1810	8447	2423	51576	2893	69521	3190	77889	.	.
1422	2783	1810	84481	2423	51578	2893	69522	32	76493	.	.
1429	27711	1810	84482	2423	5158	2893	69523	3210	7722	.	.
1429	27722	1810	84483	2423	51692	2893	6953	3210	77231	.	.
1429	27729	1810	84489	2423	54111	2893	69541	3210	77232	.	.
1429	27822	1810	84511	2423	54112	2893	69542	3210	77233	.	.
1429	27824	1810	84512	2423	54113	2893	69543	3210	77235	.	.
1429	27825	1810	84521	2423	54114	2893	69544	3210	77238	.	.
1429	2784	1810	84522	2423	54115	2893	69545	3210	77611	.	.
1429	27851	1810	84523	2423	54116	2893	69546	3210	77612	.	.
1429	27852	1810	84524	2423	54117	2893	69547	3210	77621	.	.
1429	27853	1810	84551	2423	54131	2893	69548	3210	77623	.	.
1429	27869	1810	84552	2423	54132	2893	69549	3210	77625	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
1429	27893	1810	84561	2423	54133	2893	6955	3210	77627	.	.
1429	27895	1810	84562	2423	54139	2893	69551	3210	77629	.	.
1429	27897	1810	84563	2423	54141	2893	69552	3210	77631	.	.
1429	27898	1810	84564	2423	54142	2893	69553	3210	77632	.	.
1429	66721	1810	84581	2423	54143	2893	69554	3210	77633	.	.
1429	66722	1810	84587	2423	54144	2893	69555	3210	77635	.	.
1429	66731	1810	84589	2423	54145	2893	69559	3210	77637	.	.
1511	01111	1810	84591	2423	54146	2893	69561	3210	77639	.	.
1511	01112	1810	84592	2423	54147	2893	69562	3210	77641	.	.
1511	01121	1810	84599	2423	54149	2893	69563	3210	77643	.	.
1511	01122	1810	84611	2423	54151	2893	69564	3210	77645	.	.
1511	01211	1810	84612	2423	54152	2893	6957	3210	77649	.	.
1511	01212	1810	84613	2423	54153	2893	69631	3210	77681	.	.
1511	01213	1810	84614	2423	54159	2893	69635	3210	77688	.	.
1511	01221	1810	84619	2423	54161	2893	69638	3210	77689	.	.
1511	01222	1810	84691	2423	54162	2893	6964	3210	77861	.	.
1511	01231	1810	84692	2423	54163	2893	69651	3210	77862	.	.
1511	0132	1810	84693	2423	54164	2893	69655	3210	77863	.	.
1511	01233	1810	84694	2423	54191	2893	69659	3210	77864	.	.
1511	01234	1810	84699	2423	54192	2893	69661	3210	77865	.	.
1511	01235	1810	84811	2423	54193	2893	69662	3210	77866	.	.
1511	01236	1810	84812	2423	54199	2893	69663	3210	77867	.	.
1511	0124	1810	84813	2423	54211	2893	69669	3210	77868	.	.
1511	01251	1810	84819	2423	54212	2893	6968	3210	77869	.	.
1511	01252	1810	84841	2423	54213	2893	69911	3220	76381	.	.
1511	01253	1810	84842	2423	54219	2899	69241	3220	7641	.	.
1511	01254	1810	84843	2423	54221	2899	69242	3220	76411	.	.
1511	01255	1810	84848	2423	54222	2899	69311	3220	76413	.	.
1511	01256	1810	84849	2423	54223	2899	69312	3220	76415	.	.
1511	01291	1820	61311	2423	54224	2899	69313	3220	76417	.	.
1511	01299	1820	61312	2423	54229	2899	6932	3220	76419	.	.
1511	01611	1820	61313	2423	54231	2899	69351	3220	76431	.	.
1511	01612	1820	61319	2423	54232	2899	69352	3220	76432	.	.
1511	01619	1820	6132	2423	54291	2899	6941	3220	76482	.	.
1511	01681	1820	6133	2423	54292	2899	69421	3220	76491	.	.
1511	01689	1820	84831	2423	54293	2899	69422	3230	7611	.	.
1511	0171	1820	84832	2424	51222	2899	69431	3230	7612	.	.
1511	0172	1911	6112	2424	5531	2899	69432	3230	76211	.	.
1511	0173	1911	6113	2424	5532	2899	69433	3230	76212	.	.
1511	0174	1911	61141	2424	5533	2899	6944	3230	76221	.	.
1511	0175	1911	61142	2424	5534	2899	69741	3230	76222	.	.
1511	0176	1911	61151	2424	55351	2899	69742	3230	76281	.	.
1511	0179	1911	61152	2424	55352	2899	69743	3230	76282	.	.
1511	08141	1911	61161	2424	55353	2899	69744	3230	76289	.	.
1511	21111	1911	61162	2424	55354	2899	69751	3230	76331	.	.
1511	21112	1911	61171	2424	55359	2899	69752	3230	76333	.	.
1511	21113	1911	61172	2424	55411	2899	69753	3230	76335	.	.
1511	2112	1911	61179	2424	55415	2899	69781	3230	76381	.	.
1511	2114	1911	61181	2424	55419	2899	69782	3230	76382	.	.
1511	2116	1911	61183	2424	55421	2899	69912	3230	76383	.	.
1511	2117	1912	6121	2424	55422	2899	69913	3230	76384	.	.
1511	26819	1912	6122	2424	55423	2899	69914	3230	76421	.	.
1511	4112	1912	6129	2424	55431	2899	69915	3230	76422	.	.
1511	41131	1912	83111	2424	55432	2899	69916	3230	76423	.	.
1511	41132	1912	83112	2424	55433	2899	69917	3230	76424	.	.
1512	03637	1912	83119	2424	55434	2899	69919	3230	76425	.	.
1512	03639	1912	83121	2424	55435	2899	69921	3230	76426	.	.
1512	03711	1912	83122	2424	59831	2899	69922	3230	76481	.	.
1512	03712	1912	83129	2424	59835	2899	69931	3230	76492	.	.
1512	03713	1912	8313	2424	59839	2899	69932	3230	76499	.	.
1512	03714	1912	83191	2429	4311	2899	69933	3311	74183	.	.
1512	03715	1912	83199	2429	55131	2899	69941	3311	77411	.	.
1512	03716	1912	88593	2429	55132	2899	69942	3311	77412	.	.
1512	03717	1920	85111	2429	55133	2899	69951	3311	77413	.	.
1512	03721	1920	85113	2429	55135	2899	69952	3311	77421	.	.
1512	03722	1920	85115	2429	55141	2899	69953	3311	77422	.	.
1512	08142	1920	85121	2429	55149	2899	69954	3311	77423	.	.
1512	29196	1920	85122	2429	59222	2899	69955	3311	77429	.	.
1512	03419	1920	85123	2429	59223	2899	69961	3311	87211	.	.
1512	03421	1920	85124	2429	59224	2899	69962	3311	87219	.	.
1512	03422	1920	85125	2429	59225	2899	69963	3311	87221	.	.
1512	03423	1920	85131	2429	59227	2899	69965	3311	87225	.	.
1512	03424	1920	85132	2429	59229	2899	69967	3311	87229	.	.
1512	03425	1920	85141	2429	59311	2899	69969	3311	87231	.	.
1512	03426	1920	85142	2429	59312	2899	69971	3311	87233	.	.
1512	03427	1920	85148	2429	5932	2899	69973	3311	87235	.	.
1512	03428	1920	85149	2429	59331	2899	69975	3311	8724	.	.
1512	03429	1920	85151	2429	59333	2899	69976	3311	89961	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
1512	0344	1920	85152	2429	59721	2899	69977	3311	89963	.	.
1512	03451	1920	85159	2429	59725	2899	69978	3311	89965	.	.
1512	03455	1920	8517	2429	59729	2899	69979	3311	89966	.	.
1512	03511	1920	8519	2429	59731	2899	74991	3311	89967	.	.
1512	03512	2010	24611	2429	59733	2899	89113	3311	89969	.	.
1512	03513	2010	24615	2429	59771	2899	89511	3312	76483	.	.
1512	03521	2010	2473	2429	59772	2899	89512	3312	87131	.	.
1512	03522	2010	24811	2429	59773	2911	71211	3312	87139	.	.
1512	03529	2010	24819	2429	59774	2911	71219	3312	87311	.	.
1512	0353	2010	2482	2429	59841	2911	7128	3312	87313	.	.
1512	0354	2010	2483	2429	59845	2911	71331	3312	87315	.	.
1512	0355	2010	2484	2429	5985	2911	71332	3312	87319	.	.
1512	03611	2010	2485	2429	59863	2911	71333	3312	87321	.	.
1512	03619	2010	63493	2429	59864	2911	71381	3312	87325	.	.
1513	05461	2021	63411	2429	59867	2911	71382	3312	87329	.	.
1513	05469	2021	63412	2429	59869	2911	71489	3312	87411	.	.
1513	0547	2021	63421	2429	59881	2911	71499	3312	87412	.	.
1513	05485	2021	63422	2429	59883	2911	71811	3312	87413	.	.
1513	05611	2021	63423	2429	59885	2911	71819	3312	87414	.	.
1513	05612	2021	63431	2429	59889	2912	71891	3312	87422	.	.
1513	05613	2021	63439	2429	59891	2912	71892	3312	87423	.	.
1513	05619	2021	63441	2429	59893	2912	71893	3312	87424	.	.
1513	05641	2021	63449	2429	59894	2912	71899	3312	87425	.	.
1513	05642	2021	63451	2429	59895	2912	74211	3312	87426	.	.
1513	05661	2021	63452	2429	59896	2912	74219	3312	87431	.	.
1513	05669	2021	63453	2429	59897	2912	7422	3312	87435	.	.
1513	05671	2021	63459	2429	59899	2912	7423	3312	87437	.	.
1513	05672	2022	63531	2429	8821	2912	7424	3312	87439	.	.
1513	05673	2022	63532	2429	8822	2912	7425	3312	87441	.	.
1513	05674	2022	63533	2429	8823	2912	7426	3312	87442	.	.
1513	05675	2022	63539	2429	8824	2912	74271	3312	87443	.	.
1513	05676	2023	63511	2429	89591	2912	74275	3312	87444	.	.
1513	05677	2023	63512	2429	89841	2912	74291	3312	87445	.	.
1513	05679	2023	6352	2429	89843	2912	74295	3312	87446	.	.
1513	0581	2029	24402	2429	89845	2912	74311	3312	87449	.	.
1513	05821	2029	24404	2429	89851	2912	74313	3312	87451	.	.
1513	05822	2029	63311	2429	89859	2912	74315	3312	87453	.	.
1513	05831	2029	63319	2430	26651	2912	74317	3312	87454	.	.
1513	05832	2029	63321	2430	26652	2912	74319	3312	87455	.	.
1513	05839	2029	63329	2430	26653	2912	7438	3312	87456	.	.
1513	05892	2029	63541	2430	26659	2912	7471	3312	87461	.	.
1513	05893	2029	63542	2430	26661	2912	7472	3312	87463	.	.
1513	05894	2029	63549	2430	26662	2912	7473	3312	87465	.	.
1513	05895	2029	63591	2430	26663	2912	7474	3312	87471	.	.
1513	05896	2029	63599	2430	26669	2912	7478	3312	87473	.	.
1513	05897	2029	89971	2430	26711	2912	7479	3312	87475	.	.
1513	0591	2029	89973	2430	26712	2913	7461	3312	87477	.	.
1513	0592	2029	89974	2430	65151	2913	7462	3312	87478	.	.
1513	0593	2029	89979	2430	65152	2913	7463	3312	87479	.	.
1513	05991	2101	2512	2430	65159	2913	7464	3312	8749	.	.
1513	05992	2101	2513	2430	65162	2913	7465	3313	87469	.	.
1513	05993	2101	25141	2430	65163	2913	7468	3320	87111	.	.
1513	05994	2101	25142	2430	65164	2913	74691	3320	87115	.	.
1513	05995	2101	25151	2430	65172	2913	74699	3320	87119	.	.
1513	05996	2101	25152	2430	65173	2913	7481	3320	87141	.	.
1514	08131	2101	25161	2430	65174	2913	74821	3320	87143	.	.
1514	08132	2101	25162	2430	65175	2913	74822	3320	87145	.	.
1514	08133	2101	25191	2430	65177	2913	74831	3320	87149	.	.
1514	08134	2101	25192	2430	65188	2913	74832	3320	87191	.	.
1514	08135	2101	6411	2511	62121	2913	74839	3320	87192	.	.
1514	08136	2101	64121	2511	6251	2913	7484	3320	87193	.	.
1514	08137	2101	64122	2511	6252	2913	7485	3320	87199	.	.
1514	08138	2101	64123	2511	6253	2913	7486	3320	88111	.	.
1514	08139	2101	64124	2511	62541	2913	7489	3320	88113	.	.
1514	09101	2101	64125	2511	62542	2914	74121	3320	88114	.	.
1514	09109	2101	64126	2511	62551	2914	74123	3320	88115	.	.
1514	2239	2101	64127	2511	62559	2914	74125	3320	88121	.	.
1514	2632	2101	64129	2511	62591	2914	74128	3320	88122	.	.
1514	41111	2101	64131	2511	62592	2914	74131	3320	88123	.	.
1514	41112	2101	64132	2511	62594	2914	74132	3320	88124	.	.
1514	41113	2101	64133	2519	23221	2914	74133	3320	88131	.	.
1514	41133	2101	64134	2519	62111	2914	74134	3320	88132	.	.
1514	41139	2101	64141	2519	62112	2914	74135	3320	88133	.	.
1514	42111	2101	64142	2519	62119	2914	74136	3320	88134	.	.
1514	42119	2101	64146	2519	62129	2914	74138	3320	88135	.	.
1514	42121	2101	64147	2519	62131	2914	74139	3320	88136	.	.
1514	42129	2101	64148	2519	62132	2915	72391	3320	88411	.	.
1514	42131	2101	64151	2519	62133	2915	74411	3320	88415	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
1514	42139	2101	64152	2519	62141	2915	74412	3320	88417	.	.
1514	42141	2101	64153	2519	62142	2915	74413	3320	88419	.	.
1514	42142	2101	64154	2519	62143	2915	74414	3320	88421	.	.
1514	42149	2101	64155	2519	62144	2915	74415	3320	88422	.	.
1514	42151	2101	64156	2519	62145	2915	74419	3320	88423	.	.
1514	42159	2101	64157	2519	62911	2915	74421	3320	88431	.	.
1514	42171	2101	64158	2519	62919	2915	74423	3320	88432	.	.
1514	42179	2101	64159	2519	6292	2915	74425	3320	88433	.	.
1514	4218	2101	64161	2519	62921	2915	74431	3320	88439	.	.
1514	42211	2101	64162	2519	62929	2915	74432	3330	88531	.	.
1514	42219	2101	64163	2519	62991	2915	74433	3330	88532	.	.
1514	42221	2101	64169	2519	62992	2915	74434	3330	88539	.	.
1514	42229	2101	64171	2519	62999	2915	74435	3330	88541	.	.
1514	42231	2101	64172	2519	65733	2915	74437	3330	88542	.	.
1514	42239	2101	64173	2519	84822	2915	74439	3330	88549	.	.
1514	42241	2101	64174	2519	84829	2915	74441	3330	88551	.	.
1514	42249	2101	64175	2520	5811	2915	74443	3330	88552	.	.
1514	4225	2101	64176	2520	5812	2915	74449	3330	88571	.	.
1514	42291	2101	64177	2520	5813	2915	74471	3330	88572	.	.
1514	42299	2101	64178	2520	5814	2915	74473	3330	88573	.	.
1514	43121	2101	64179	2520	5815	2915	74474	3330	88574	.	.
1514	43122	2101	64191	2520	5816	2915	74479	3330	88575	.	.
1514	43133	2101	64192	2520	5817	2915	74481	3330	88576	.	.
1514	43141	2102	64164	2520	58211	2915	74485	3330	88577	.	.
1520	0243	2102	64211	2520	58219	2915	74489	3330	88578	.	.
1520	02491	2102	64212	2520	58221	2915	74491	3330	88579	.	.
1520	02499	2102	64213	2520	58222	2915	74492	3330	88591	.	.
1520	06191	2102	64214	2520	58223	2915	74493	3330	88592	.	.
1520	59221	2102	64215	2520	58224	2915	74494	3330	88594	.	.
1520	02211	2102	64216	2520	58225	2919	74143	3330	88595	.	.
1520	02212	2109	64193	2520	58226	2919	74145	3330	88596	.	.
1520	02213	2109	64194	2520	58227	2919	74149	3330	88597	.	.
1520	02221	2109	64221	2520	58228	2919	74151	3330	88598	.	.
1520	02222	2109	64222	2520	58229	2919	74155	3330	88599	.	.
1520	02223	2109	64223	2520	58291	2919	74159	3410	71321	.	.
1520	02224	2109	64241	2520	58299	2919	74171	3410	71322	.	.
1520	02231	2109	64242	2520	5831	2919	74172	3410	71323	.	.
1520	02232	2109	64243	2520	5832	2919	74173	3410	7811	.	.
1520	02233	2109	64244	2520	5839	2919	74174	3410	7812	.	.
1520	02241	2109	64245	2520	77328	2919	74175	3410	78211	.	.
1520	02249	2109	64248	2520	81392	2919	74189	3410	78219	.	.
1520	0230	2109	64291	2520	84821	2919	7419	3410	78221	.	.
1520	0241	2109	64292	2520	84844	2919	74343	3410	78223	.	.
1520	0242	2109	64293	2520	84845	2919	74359	3410	78225	.	.
1531	0422	2109	64294	2520	89311	2919	74361	3410	78227	.	.
1531	04231	2109	64295	2520	89319	2919	74362	3410	78229	.	.
1531	04232	2109	64299	2520	89321	2919	74363	3410	78311	.	.
1531	0461	2109	65735	2520	89329	2919	74364	3410	78319	.	.
1531	0462	2109	65911	2520	89331	2919	74367	3410	7832	.	.
1531	04711	2109	89281	2520	89332	2919	74369	3410	7841	.	.
1531	04719	2211	89212	2520	89394	2919	74391	3420	78421	.	.
1531	04721	2211	89213	2520	89395	2919	74395	3420	78425	.	.
1531	04722	2211	89214	2520	89399	2919	74523	3420	7861	.	.
1531	04729	2211	89215	2610	65195	2919	74527	3420	78622	.	.
1531	04811	2211	89216	2610	6546	2919	74531	3420	78629	.	.
1531	04812	2211	89219	2610	66411	2919	74532	3420	7863	.	.
1531	04813	2211	89285	2610	66412	2919	74539	3420	78683	.	.
1531	04814	2212	89221	2610	66431	2919	74561	3420	78689	.	.
1531	04815	2212	89229	2610	66439	2919	74562	3430	71391	.	.
1531	0485	2213	8986	2610	66441	2919	74563	3430	71392	.	.
1531	05646	2213	89861	2610	66442	2919	74565	3430	78431	.	.
1531	05647	2213	89865	2610	66451	2919	74568	3430	78432	.	.
1531	05648	2213	89867	2610	66452	2919	74591	3430	78433	.	.
1532	05645	2213	89871	2610	66453	2919	74593	3430	78434	.	.
1532	06193	2213	89879	2610	66471	2919	74595	3430	78435	.	.
1532	06194	2219	89241	2610	66472	2919	74597	3430	78436	.	.
1532	06195	2219	89242	2610	66481	2919	7492	3430	78439	.	.
1532	06196	2219	89283	2610	66489	2919	74999	3511	79322	.	.
1532	06199	2219	89284	2610	66491	2921	72111	3511	79324	.	.
1532	42161	2219	89287	2610	66492	2921	72112	3511	79326	.	.
1532	42169	2219	89289	2610	66493	2921	72113	3511	79327	.	.
1532	59211	2221	64231	2610	66494	2921	72118	3511	79328	.	.
1532	59212	2221	64232	2610	66495	2921	72119	3511	79329	.	.
1532	59213	2221	64233	2610	66496	2921	72121	3511	79351	.	.
1532	59214	2221	64234	2610	66511	2921	72122	3511	79355	.	.
1532	59215	2221	64235	2610	66512	2921	72123	3511	79359	.	.
1532	59216	2221	64239	2610	66521	2921	72126	3511	7937	.	.
1532	59217	2221	89286	2610	66522	2921	72127	3511	79391	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
1532	59226	2222	72635	2610	66523	2921	72129	3511	79399	.	.
1533	08195	2310	3250	2610	66529	2921	72131	3512	79311	.	.
1533	08199	2310	33521	2610	66591	2921	72195	3512	79312	.	.
1541	04841	2320	33411	2610	66592	2921	72196	3512	79319	.	.
1541	04842	2320	33511	2610	66593	2921	72199	3520	79111	.	.
1541	04849	2320	33512	2610	66594	2921	72241	3520	79115	.	.
1542	06111	2320	33541	2610	66595	2921	72249	3520	79121	.	.
1542	06112	2320	33542	2610	66599	2921	74564	3520	79129	.	.
1542	06121	2320	3421	2610	77322	2921	78621	3520	7916	.	.
1542	06129	2320	3425	2610	81391	2922	72811	3520	7917	.	.
1542	06151	2320	3441	2691	66391	2922	72812	3520	79181	.	.
1542	06159	2320	3442	2691	66399	2922	72819	3520	79182	.	.
1542	06192	2320	3449	2691	66611	2922	72844	3520	79191	.	.
1543	0621	2330	52511	2691	66612	2922	73111	3520	79199	.	.
1543	06221	2330	52513	2691	66613	2922	73112	3530	71311	.	.
1543	06229	2330	52515	2691	66621	2922	73113	3530	71319	.	.
1543	0722	2330	52519	2691	66629	2922	73114	3530	71441	.	.
1543	07231	2330	71877	2691	77323	2922	73121	3530	71449	.	.
1543	07232	2411	24502	2691	77326	2922	73122	3530	71481	.	.
1543	0724	2411	27419	2691	81221	2922	73123	3530	71491	.	.
1543	0731	2411	2814	2691	81229	2922	73131	3530	79211	.	.
1543	0732	2411	33522	2692	66231	2922	73135	3530	79215	.	.
1543	0733	2411	33523	2692	66232	2922	73137	3530	7922	.	.
1543	0739	2411	33524	2692	66233	2922	73139	3530	7923	.	.
1544	0483	2411	33525	2692	66338	2922	73141	3530	7924	.	.
1544	09891	2411	33531	2692	6637	2922	73142	3530	7925	.	.
1549	02521	2411	33532	2693	66241	2922	73143	3530	79281	.	.
1549	02522	2411	43131	2693	66242	2922	73144	3530	79282	.	.
1549	0253	2411	51111	2693	66243	2922	73145	3530	79283	.	.
1549	07112	2411	51112	2693	66244	2922	73146	3530	79291	.	.
1549	0712	2411	51113	2693	66245	2922	73151	3530	79293	.	.
1549	07131	2411	51114	2694	27324	2922	73152	3530	79295	.	.
1549	07132	2411	51119	2694	66111	2922	73153	3530	79297	.	.
1549	07133	2411	51121	2694	66112	2922	73154	3591	78511	.	.
1549	07411	2411	51122	2694	66113	2922	73157	3591	78513	.	.
1549	07413	2411	51123	2694	66121	2922	73161	3591	78515	.	.
1549	07432	2411	51124	2694	66122	2922	73162	3591	78516	.	.
1549	09811	2411	51125	2694	66123	2922	73163	3591	78517	.	.
1549	09812	2411	51126	2694	66129	2922	73164	3591	78519	.	.
1549	09813	2411	51127	2695	59898	2922	73165	3591	78535	.	.
1549	09814	2411	51129	2695	66182	2922	73166	3592	7852	.	.
1549	09841	2411	51131	2695	66183	2922	73167	3592	78531	.	.
1549	09842	2411	51132	2695	66331	2922	73169	3592	78536	.	.
1549	09843	2411	51133	2695	66332	2922	73171	3592	78537	.	.
1549	09844	2411	51134	2695	66333	2922	73173	3599	78685	.	.
1549	09849	2411	51135	2695	66334	2922	73175	3610	82111	.	.
1549	0985	2411	51136	2696	66131	2922	73177	3610	82112	.	.
1549	0986	2411	51137	2696	66132	2922	73178	3610	82113	.	.
1549	09893	2411	51138	2696	66133	2922	73179	3610	82114	.	.
1549	09894	2411	51139	2696	66134	2922	73311	3610	82115	.	.
1549	09899	2411	5114	2696	66135	2922	73312	3610	82116	.	.
1551	11241	2411	51211	2696	66136	2922	73313	3610	82117	.	.
1551	11242	2411	51212	2696	66139	2922	73314	3610	82118	.	.
1551	11243	2411	51213	2699	33543	2922	73315	3610	82119	.	.
1551	11244	2411	51214	2699	52267	2922	73316	3610	82121	.	.
1551	11245	2411	51217	2699	59861	2922	73317	3610	82123	.	.
1551	11249	2411	51219	2699	66181	2922	73318	3610	82125	.	.
1551	51215	2411	51221	2699	66311	2922	73391	3610	82131	.	.
1551	51216	2411	51223	2699	66312	2922	73393	3610	82139	.	.
1552	11211	2411	51224	2699	66313	2922	73395	3610	82151	.	.
1552	11213	2411	51225	2699	66321	2922	73399	3610	82153	.	.
1552	11215	2411	51229	2699	66322	2922	73511	3610	82155	.	.
1552	11217	2411	51231	2699	66329	2922	73513	3610	82159	.	.
1552	1122	2411	51235	2699	66335	2922	73515	3610	82171	.	.
1553	0482	2411	51241	2699	66336	2922	73591	3610	82179	.	.
1553	1123	2411	51242	2699	66337	2922	73595	3610	8218	.	.
1554	11101	2411	51243	2699	66339	2922	73731	3691	27719	.	.
1554	11102	2411	51244	2699	66351	2922	73732	3691	27721	.	.
1600	1221	2411	51371	2699	66352	2922	73733	3691	66713	.	.
1600	1222	2411	51372	2699	66353	2922	73734	3691	66729	.	.
1600	12231	2411	51373	2699	66381	2922	73735	3691	66739	.	.
1600	12232	2411	51374	2699	66382	2922	73736	3691	66749	.	.
1600	12239	2411	51375	2710	67121	2922	73737	3691	89731	.	.
1711	65197	2411	51376	2710	67122	2922	73739	3691	89732	.	.
1711	65199	2411	51377	2710	67123	2922	73741	3691	89733	.	.
1711	65211	2411	51378	2710	67131	2922	73742	3691	89741	.	.
1711	65212	2411	51379	2710	67132	2922	73743	3691	89749	.	.
1711	65213	2411	51381	2710	67133	2922	73749	3691	9610	.	.

Table 25: SITC to ISIC conversion table *(continued)*

Conversion table		(continued)		(continued)		(continued)		(continued)		(continued)	
ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3	ISICrev3	SITCrev3
1711	65214	2411	51382	2710	67141	2922	74511	3692	89813	.	.
1711	65215	2411	51383	2710	67149	2922	74512	3692	89815	.	.
1711	65221	2411	51384	2710	67151	2922	74519	3692	89821	.	.
1711	65222	2411	51385	2710	67152	2922	77841	3692	89822	.	.
1711	65223	2411	51389	2710	67153	2922	77843	3692	89823	.	.
1711	65224	2411	51391	2710	67154	2922	77845	3692	89824	.	.
1711	65225	2411	51392	2710	67155	2922	77848	3692	89825	.	.
1711	65226	2411	51394	2710	67159	2923	73711	3692	89826	.	.
1711	65231	2411	51395	2710	67241	2923	73712	3692	89829	.	.
1711	65232	2411	51396	2710	67245	2923	73719	3692	8989	.	.
1711	65233	2411	51451	2710	67247	2923	73721	3693	89471	.	.
1711	65234	2411	51452	2710	67249	2923	73729	3693	89472	.	.
1711	65241	2411	51453	2710	67261	2924	7223	3693	89473	.	.
1711	65242	2411	51454	2710	67262	2924	72311	3693	89474	.	.
1711	65243	2411	51455	2710	67269	2924	72312	3693	89475	.	.
1711	65244	2411	51461	2710	6727	2924	72321	3693	89476	.	.
1711	65245	2411	51462	2710	67281	2924	72322	3693	89477	.	.
1711	65251	2411	51463	2710	67282	2924	72329	3693	89478	.	.
1711	65252	2411	51465	2710	673	2924	72331	3693	89479	.	.
1711	65253	2411	51467	2710	67311	2924	72333	3694	89421	.	.
1711	65254	2411	51473	2710	67312	2924	72335	3694	89422	.	.
1711	65261	2411	51482	2710	67313	2924	72337	3694	89423	.	.
1711	65262	2411	51483	2710	67314	2924	72339	3694	89424	.	.
1711	65263	2411	51484	2710	67315	2924	72341	3694	89425	.	.
1711	65264	2411	51485	2710	67316	2924	72342	3694	89426	.	.

Note: SITC Rev. 3 to ISIC Rev. 3 concordance following UN-Statshttps://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp and eurostats RAMON (Reference And management of Nomenclatures; https://ec.europa.eu/eurostat/ramon/relations/index.cfm?TargetUrl=LST_REL).
Industry sector classification following ISIC Rev. 3 2-digit industries as described in Appendix B.1.2.

B.1.2 Manufacturing Industry Classification

The industry sector level classification used in this section follows the *International Standard Industrial Classification* (ISIC), Revision 3 database by the United Nations Statistics Division [INDSTAT, 2020]. The ISIC combinations chosen for this report are presented in Table 26 and were defined with the objective of having a straight-forward correspondence between different data sources and classification standards in order to guarantee a consistent definition of manufacturing sectors throughout this report that can also be applied easily to different classification formats. With regard to the technology classification of the industries, all manufacturing industries are further classified by their technology intensity following the technology classification of the *Organization for Economic Co-operation and Development* (OECD) which is based on research and development (R&D) intensity relative to value-added and gross production statistics [OECD, 2011]. The OECD classifies manufacturing industries into four categories of high technology, medium high technology, medium-low technology and low technology industries.

Table 26: Manufacturing Industry Classification

		ISIC Industry Combination		
Abbreviation	ISIC Rev.3 Industry Description	Revision 3	Revision 4	Technology Group
Food, beverages and tobacco	Manufacture of tobacco products	15 + 16	12	Low
Textiles	Manufacture of textiles	17	13	Low
Wearing apparel	Manufacture of wearing apparel; dressing and dyeing of fur + Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	18 + 19	14 + 15	Low
Wood products	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	20	16	Low
Paper and paper products	Manufacture of paper and paper products	21	17	Low
Printing and publishing	Publishing, printing and reproduction of recorded media	22	18	Low
Coke, petroleum and nuclear	Manufacture of coke, refined petroleum products and nuclear fuel	23	19	Medium-low
Chemicals	Manufacture of chemicals and chemical products	24	20 + 21	Medium-high
Rubber and plastic	Manufacture of rubber and plastics products	25	22	Medium-low
Non-metallic minerals	Manufacture of other non-metallic mineral products	26	23	Medium-low
Basic metals	Manufacture of basic metals	27	24	Medium-low
Fabricated metals	Manufacture of fabricated metal products, except machinery and equipment	28	25	Medium-low
Machinery	Manufacture of machinery and equipment n.e.c.	29	28 + 33	Medium-high
Computer and electronics	Manufacture of office, accounting and computing machinery + Manufacture of radio, television and communication equipment and apparatus + Manufacture of medical, precision and optical instruments, watches and clocks	30 + 32 + 33	26	High
Electrical machinery	Manufacture of electrical machinery and apparatus n.e.c.	31	27	Medium-high
Motor vehicles	Manufacture of motor vehicles, trailers and semi-trailers	34	29	Medium-high

Table 26: Manufacturing Industry Classification *(continued)*

Abbreviation	ISIC Rev.3 Industry Description	Revision 3	Revision 4	Technology Group
Transport equipment	Manufacture of other transport equipment	35	30	Medium-high
Furniture and n.e.c.	Manufacture of furniture; manufacturing n.e.c.	36	31 + 32	Low

Note: Abbreviations chosen by authors for the purpose of this analysis. Industry sector level classification used in this section follows INDSTAT [2020]. Technology classification based on OECD [2011]. The ISIC combinations presented in this table are defined with the objective of having a straight-forward correspondence between different data sourced and to guarantee a consistent definition of manufacturing sectors thought this report that can also be applied easily to different classification formats.

B.1.3 Revealed Comparative Advantage (RCA)

Balassa [1965]'s RCA for country i in good j is given by

$$RCA_j^i = \frac{X_j^i / X^i}{X_j / X}$$

where X_j^i is country i's export of good j, $X^i = \sum_j X_j^i$ is country i's aggregate exports, X_j is world exports of good j, and $X = \sum_j X_j$ is world aggregate exports.
Typically, when mapping SITC to ISIC, many SITC commodities are assigned to one particular ISIC aggregate. Therefore, in order to get from commodity-level data to industry-level data aggregation is necessary which is done as follows: Suppose good j belongs to ISIC sector s; calculate the weighted average RCA of sector s for country i (where N_s denotes the number of goods j in sector s) as

$$RCA_s^i = \frac{1}{N_s} \sum_{j \in s} w_j^i \times RCA_j^i, \quad w_j^i = \frac{X_j^i}{\sum_{j \in s} X_j^i}.$$

Conversely, for any *un-weighted* RCA, $w_j^i = 1$ for any j and i. Whereas the dataset is organized at ISIC V digits level and data at IV and II digits are obtained by aggregation, sectorial weights and RCA are calculated at IV digits level because in the ISIC classification not all the IV digits sectors are disaggregated at V digits level.

B.1.4 Econometric model

Construction of Database. The two databases constructed for the econometric modeling combine *nominal gross exports* data from UN-Comtrade [2020] as well as employment data from INDSTAT [2020]. Correspondence between both SITC goods classifications and the manufacturing sector classification follows the procedure outlined in Section B.1.1 and allows for a separate II-digit as well as IV-digit ISIC Rev. 3 sector aggregation of the gross export data. For employment, different INDSTAT [2020] data for the II- and IV-digit sector analysis are sourced. In a next step, the sector level data is merged with macroeconomic variables taken from Feenstra et al. [2015] and income group classifications data is taken from World Bank [2019c].

Econometric Model. We estimate a panel fixed effects model in order to analyze the development patterns for j industry aggregates of manufacturing of which the group of X industries is discussed in greater depth. For each industry aggregate j we estimate

$$y_{cjt} = \alpha_{cj} + \boldsymbol{\beta}_j \mathbf{X}_{cjt} + \tau_{jt} + \epsilon_{cjt}$$

where y_{cjt}, is the log of *nominal gross exports* or *manufacturing employment relative to the population* of country c's industry aggregate j in period t, respectively. Please note that this model is

estimated separately for all j individual industries and we retain subscript j to highlight this feature of our model. The explanatory variables in $\mathbf{X}$ contain the logs of real GDP per capita (Expenditure-side real GDP at chained PPPs) and are added in their linear, quadratic and cubic representation. Furthermore, α_{cj} and τ_{jt} denote country and time effects. GDP[78] and population data is taken from Penn World Table version 9.1 [Feenstra et al., 2015] while income group data is taken from World Bank Country and Lending Groups.[79] Since the last available year of INDSTAT data is 2017 we also use the World Bank income group classification for 2017 for country classifications.

B.1.5 Latent Untapped Potential (LUP)

The *Latent Untapped Potential* (LUP) identifies hidden or obscured production capacities which currently remain below the national potential in relation to trends that are otherwise observed across comparable countries The analysis compares national dynamics in gross exports per capita with average trends observed for LMIs. The LUP is based on an econometric model which is described in Section B.1.4. A sector is identified to have a latent untapped potential if it (a) performs below of what is expected for a LMI country and (b) displays a positive, national growth pattern over time. A practical example for the LUP analysis is illustrated in Figure 56 which visualizes the results of the LUP analysis for the manufacturing sub-sector *(1820) Dressing and dyeing of fur; manufacture of articles of fur*.

The figure plots per capita gross exports obtained from UN-Comtrade [2020] against per capita GDP figures from Feenstra et al. [2015] with the purpose of visualizing the gross export contribution of particular manufacturing industries as per capita GDP levels rise. On the basis of these data, an econometric model as discussed in Section B.1.4 is employed with the objective of obtaining gross export per capita trajectories conditional on the level of per capita GDP. The results for the global average trend are shown by the gray line and indicate that sector *(1820) Dressing and dyeing of fur; manufacture of articles of fur* becomes somewhat less dynamic at higher income levels, i.e., the curve starts to flatten out from a GDP per capita level of approximately 22,000 USD. Similar estimated patterns for the group of LMI countries are shown in black and illustrate a more dynamic behavior around per capita GDP levels of 8,000 USD. Figure 56 also highlights the position of Côte d'Ivoire's sector relative to the average global and LMI trends: The observations for Côte d'Ivoire are presented in blue and indicate the 'direction' of where Côte d'Ivoire's sector *(1820) Dressing and dyeing of fur; manufacture of articles of fur* is developing as the start point of the arrow corresponds to the first year of observation and the end point to the last country observation for Côte d'Ivoire.

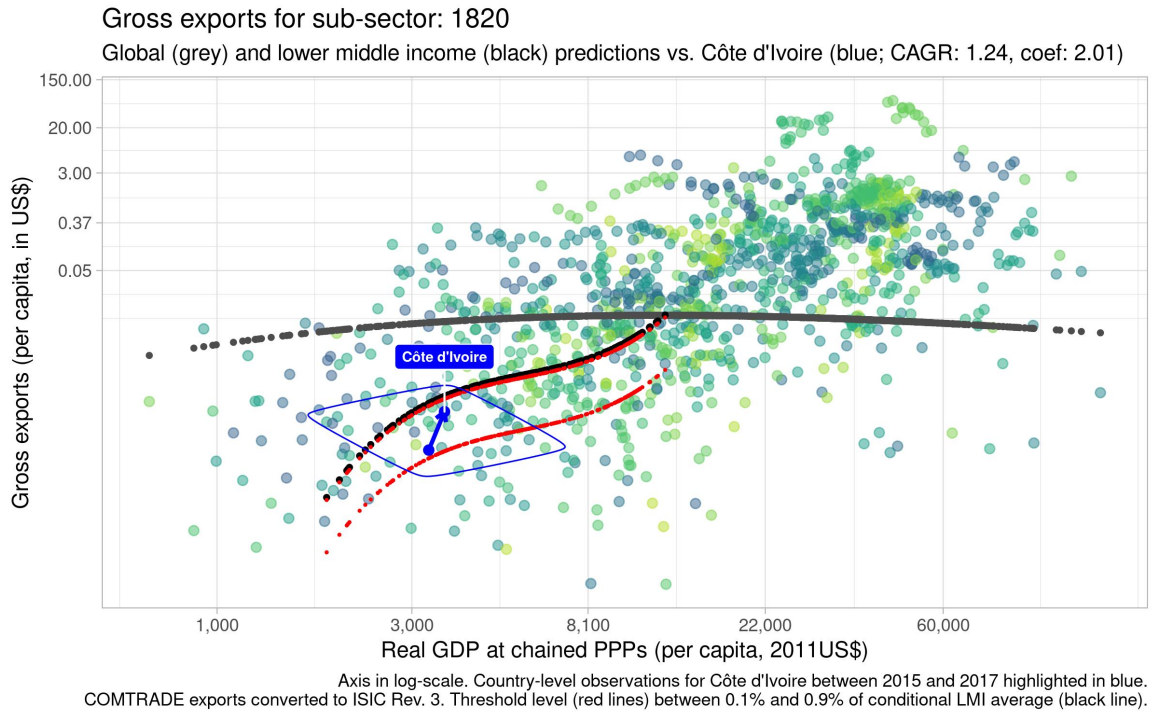
The 'gap' corresponds to the difference in gross exports (y-axis) between the last observation of Côte d'Ivoire and that of the model estimates of an average LMI at similar per capita GDP levels, with a similar endowment structure and a similar point of time. The blue line indicates that the trend for Côte d'Ivoire's sector *(1820) Dressing and dyeing of fur; manufacture of articles of fur* has been positive, yet the actual gross export level have remained below that of an average LMI country (black line). More precisely, the growth export trend for Côte d'Ivoire lies between the two red line segments which identify a gross export performance that is between a 10% (lower red line) and 90% (upper red line) of an average LMI country. As Figure 56 illustrates, while Côte d'Ivoire's sector *(1820) Dressing and dyeing of fur; manufacture of articles of fur* has grown notably in the past, its gross export performance in per capita terms still remains below that of an average LMI and, as a matter of fact, is less than 90% of the expected LMI average at Côte d'Ivoire's level of GDP per capita. In other words, Côte d'Ivoire displays a *latent untapped potential* in this sub-sector because it demonstrates that it is capable of closing the gap in gross export capacities relative to the average

[78] Variable `rgdpe`: Expenditure-side real GDP at chained PPPs (in mil. 2011US$), to compare relative living standards across countries and over time.

[79] See `https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups`; last visit September 2020.

performance of LMIs. Similar patterns are estimated for all ISIC Rev. 3 II- and IV-digit industries and rank-ordered accordingly with the purpose of identifying the set of manufacturing sectors which qualify for the criterion. For a complete list of figures of the LUP analysis on ISIC Rev. 3 IV-digit level please see Section B.4.

Figure 56: Visualization of LUP analysis, *(1820) Dressing and dyeing of fur; manufacture of articles of fur*



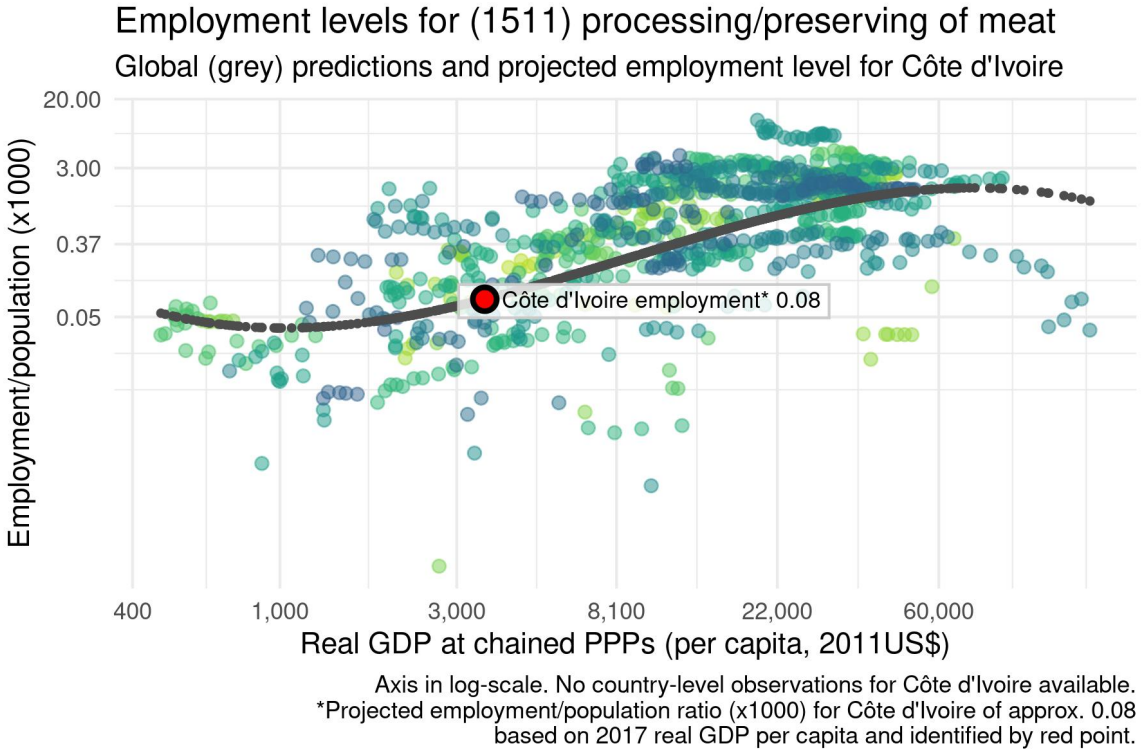
Note: ISIC Rev. 3 IV-digit classification as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. See Appendix B.1.5 and Appendix B.1.4 for more information on the concept of LUP and the econometric model respectively.
Source: United Nations UN-Comtrade [2020] database.

B.1.6 Employment Projections

The *Employment Projections* criterion provides projected national employment level based on an econometric model which is described in Section B.1.4. The results of the analysis for sub-sector *(1511) processing/preserving of meat* is provided in Figure 57 for expositional purposes. The figure plots the employment-to-population ratio obtained from INDSTAT [2020] against per capita GDP figures from Feenstra et al. [2015] with the purpose of visualizing realized employment population across all global economies for the particular sub-sector in question. On the basis of these data, an econometric model as discussed in Section B.1.4 is employed with the objective of obtaining sector-level employment per capita trajectories conditional on the level of per capita GDP. The results for the global average trend are shown by the gray line and indicates that sector *(1511) processing/preserving of meat* becomes somewhat less employment intensive at higher income levels, i.e., the curve starts to flatten out from a GDP per capita level of approximately 22,000 USD while still retaining robust growth up to that point. The red point corresponds to the employment-population ratio based on the model estimates of an average global economy at similar per capita GDP levels, with a similar endowment structure and a similar point of time as the latest available observation for Côte d'Ivoire. Similar patterns are estimated for all ISIC Rev. 3 II- and IV-digit industries and rank-ordered accordingly, with the purpose of identifying the set of most employment-intensive manufacturing sectors.

Global instead of LMI patterns are estimated in order to capture the full and comprehensive employment generation capability of each sector aggregate along the income trajectory.

Figure 57: Employment projection for sub-sector (1511) processing/preserving of meat.



Note: Based on pooled cross-country data for up to 153 countries between 1963 and 2015. Income group cut-offs identified by the dashed vertical lines at USD 995, USD 3,896 and USD 12,375 as defined by World Bank Country and Lending Groups [World Bank, 2019c].Projected employment/population ratio ($x1000$) based on 2017 real GDP per capita. See Appendix B.1.5 and Appendix B.1.4 for more information on the concept of LUP and the econometric model respectively.
Source: Calculations based on [INDSTAT, 2020] and Penn World Tables 9.1 [Feenstra et al., 2015] and following methodology described in Appendix B.1.4.

B.1.7 Index of Industrial Production (IIP)

In order to assess industrial production and capacity levels, the *Index of Industrial Production (IIP)* illustrates the performance of the manufacturing sector based on an index level relative to a base year (which is set to 2018). In other words, the IIP does not indicate absolute production outputs (volumes or values) but shows percentage change relative to the base year. More explicitly, the IIP which is, given the base year in $t = 2018$, is defined as

$$IIP_t = \frac{Industrial\ Production_t}{Industrial\ Production_{t=2018}}$$

and its relationship to growth rates is straightforward:

$$\begin{aligned} Simple\ growth\ rate := gr(t, t-1) + 1 &= \frac{Industrial\ Production_t}{Industrial\ Production_{t-1}} \\ &= \frac{Industrial\ Production_t / Industrial\ Production_{t=2018}}{Industrial\ Production_{t-1} / Industrial\ Production_{t=2018}} \\ &= \frac{IIP_t}{IIP_{t-1}} \end{aligned}$$

$$
\begin{aligned}
CAGR := cagr(t+n, t=2018)+1 &= \left(\frac{Industrial\ Production_{t+n}}{Industrial\ Production_{t=2018}}\right)^{1/n} \\
&= \left(\frac{Industrial\ Production_{t+n}/Industrial\ Production_{t=2018}}{Industrial\ Production_{t=2018}/Industrial\ Production_{t=2018}}\right)^{1/n} \\
&= (IIP_{t+n})^{1/n}
\end{aligned}
$$

The IIP series analyzed in this report was provided by the *Institut National de la Statistique* and includes ISIC Rev. 3 as well as Rev. 4 data on the II-digit level respectively. The different ISIC sector aggregates were harmonized to correspond to the sector classification provided in Table 26 where each aggregated sub-sector was weighted according to its weight entering the manufacturing-level IIP aggregation. More explicitly, the manufacturing-level IIP_s (subscript s denotes the manufacturing-level aggregate) is given by the weighted sum of all $i \in s$ II-digit sub-sectors as

$$
IIP_s = \sum_{i \in s} w_i \times IIP_i,
$$

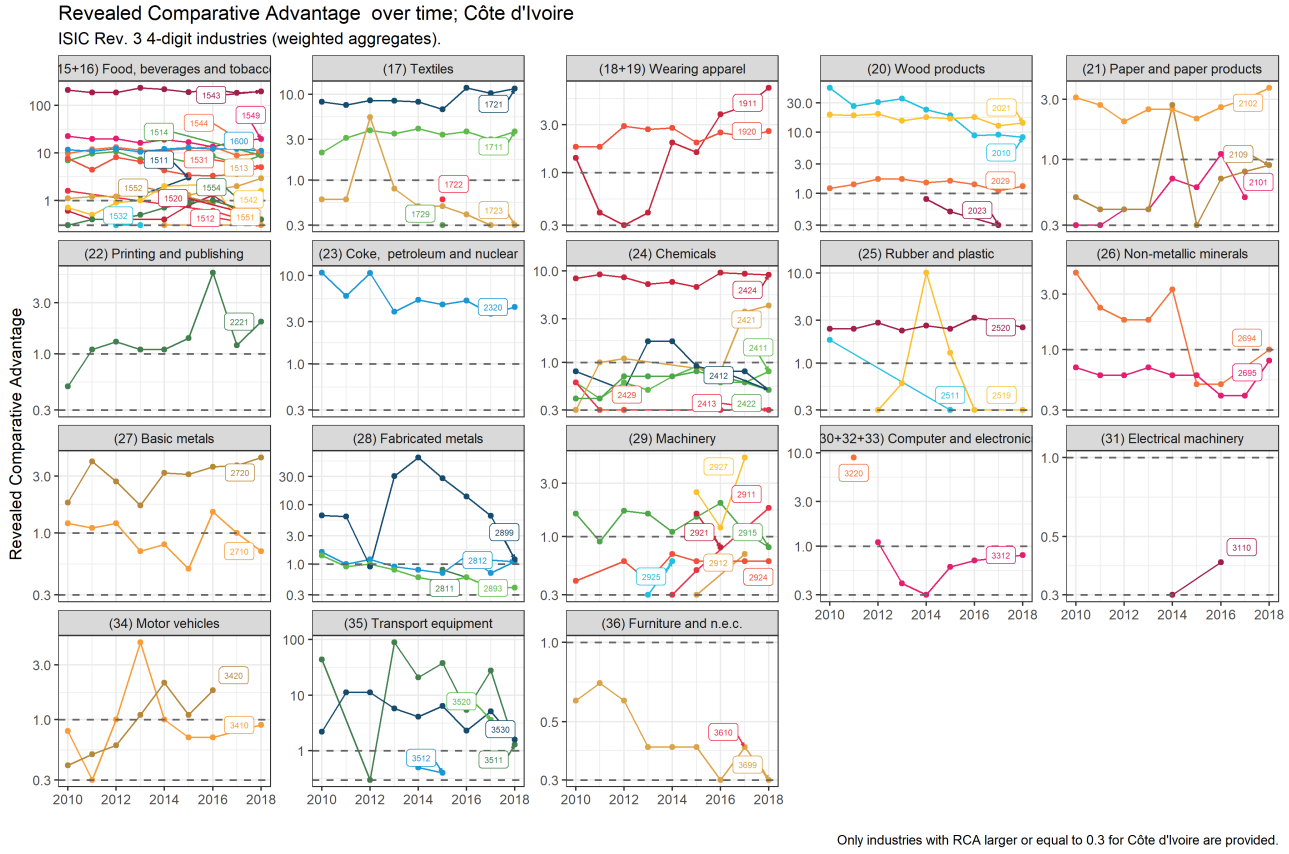
and any sub-sector aggregate j of some arbitrary industry i where $i \in j, j \in s$ (such as for example, $i = \{18, 19\},\ j =$*(18 + 19) wearing apparel*) is aggregated in a similar fashion:

$$
IIP_j = \sum_{i \in j} w_i \times IIP_i.
$$

B.2 Supplementary Results IV-digit Analysis

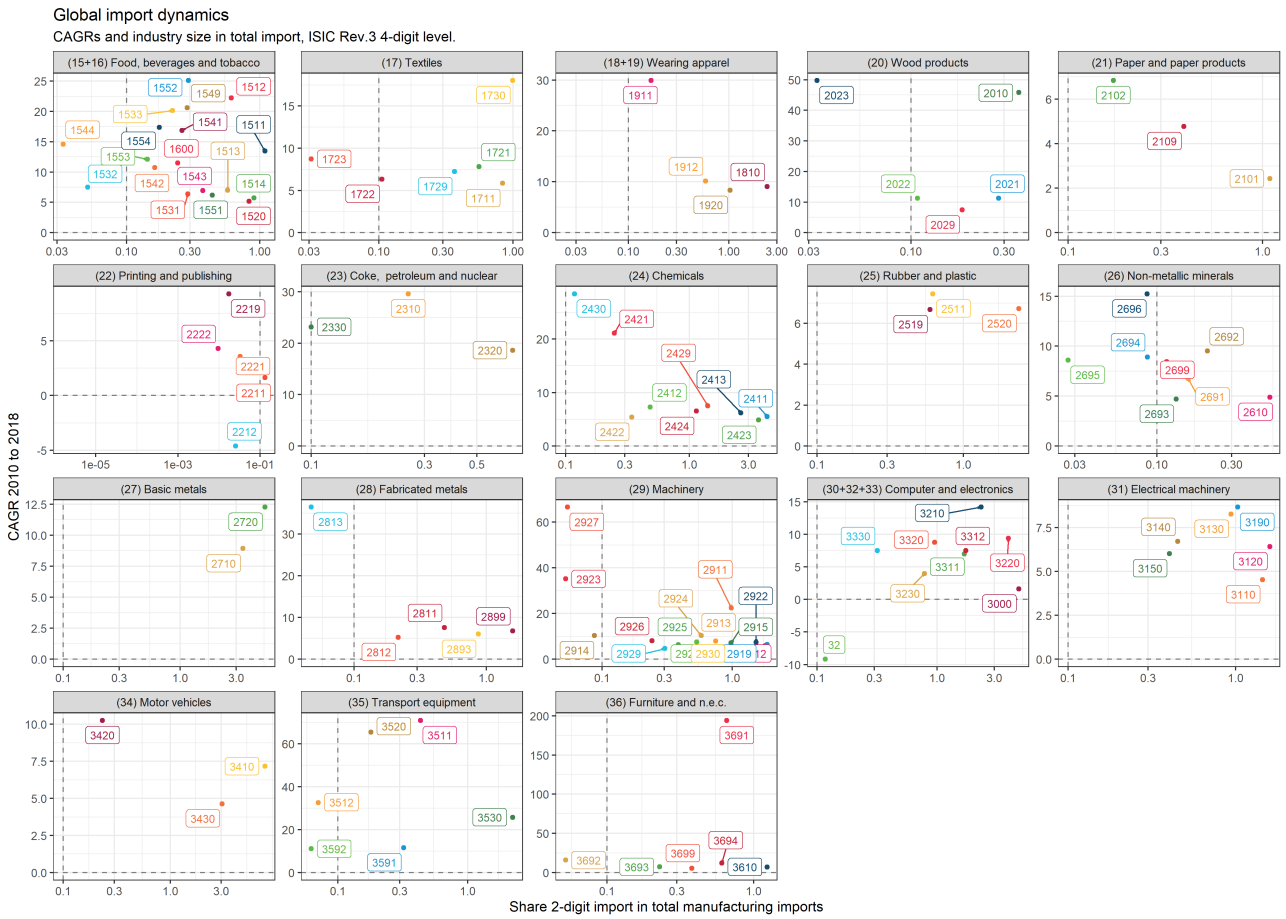
This section contains all supplementary material related to the IV-digit analysis of the manufacturing priority sectors.

Figure 58: Weighted RCA, ISIC Rev. 3 IV-digits, selected industries over time in Côte d'Ivoire.



Note: Only industries with $RCA > 0.3$ shown. Selected industries following ISIC Rev. 3 II-digit classification as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. RCAs calculated as described in Appendix B.1.3.
Source: United Nations UN-Comtrade [2020] database.

Figure 59: Global Import Dynamics, ISIC Rev. 3 IV-digits, 2010-2018.



Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2, selected years. Concordance between trade and industry classifications according to Appendix B.1.1.

Source: United Nations Comtrade Database [UN-Comtrade, 2020].

Table 27: Import levels per capita over time in Côte d'Ivoire, ISIC Rev. 3 IV-digits.

ISIC Rev. 3		Year			
II-digit sector	IV-digit sectors	2015	2016	2017	2018
(15+16) Food, beverages and tobacco	1531	22.577	23.413	24.412	28.894
	1512	16.991	16.430	18.864	21.290
(17) Textiles	1711	2.904	3.065	2.812	2.692
	1721	2.004	1.599	3.214	1.449
(18+19) Wearing apparel	1810	1.235	1.128	1.106	1.193
	1920	0.872	0.876	1.011	0.975
(22) Printing and publishing	2211	0.823	0.626	0.612	0.739
	2221	0.267	0.215	0.205	0.200
(23) Coke, petroleum and nuclear	2320	4.919	4.149	5.953	8.734
	2330	0.004	0.005	0.005	0.007
(24) Chemicals	2423	13.502	18.408	15.158	16.353
	2413	13.271	11.947	14.087	13.779
(26) Non-metallic minerals	2694	6.813	6.185	6.790	7.238
	2610	1.735	1.541	1.840	2.324
(31) Electrical machinery	3110	8.376	7.856	6.183	7.672
	3120	6.901	7.186	6.789	6.908
(34) Motor vehicles	3410	22.998	21.251	22.996	24.540
	3430	2.917	1.609	1.350	1.597
(35) Transport equipment	3511	53.182	9.275	24.689	8.264
	3530	1.957	1.074	2.079	1.036

Note: ISIC Rev. 3 IV-digit industries, selected years.

Table 28: Employment projections at the Côte d'Ivoire GDP per capita level, ISIC Rev. 3 IV-digits

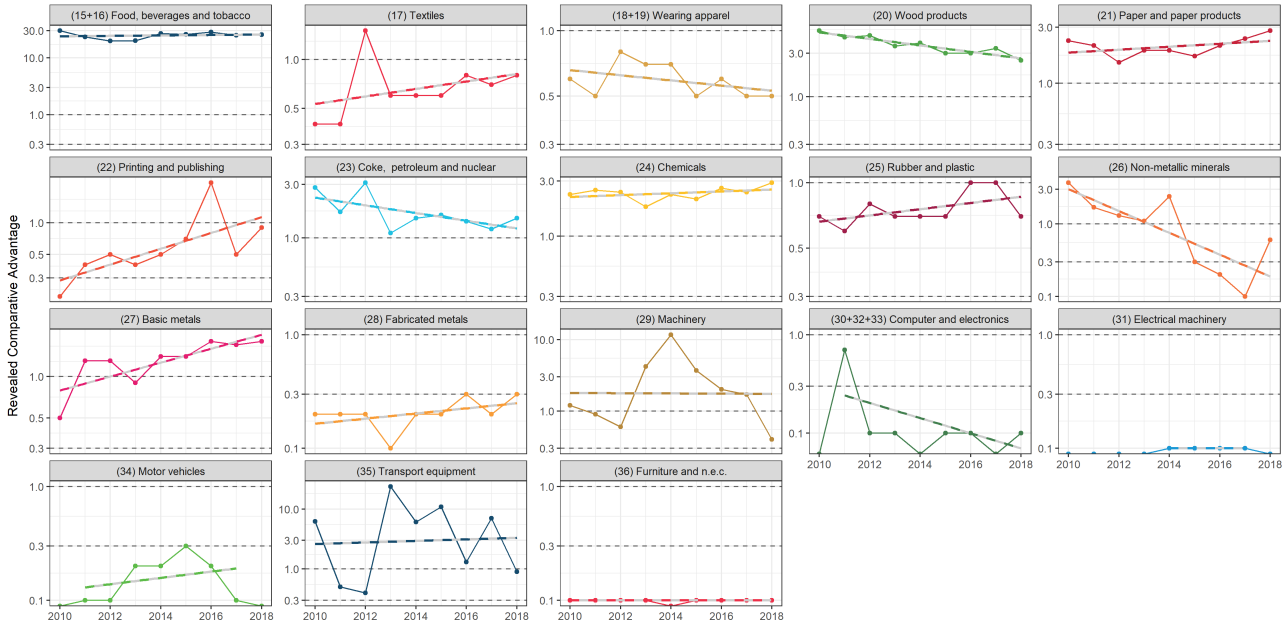
ISIC Rev. 3, IV-digits sectors	Employment projection (x1000)
(15 + 16) Food, beverages and tobacco	
(1541) Bakery products	0.51
(1554) Soft drinks; mineral waters	0.24
(17) Textiles	
(1711) Textile fibre preparation; textile weaving	0.60
(1721) Made-up textile articles, except apparel	0.22
(18+19) Wearing apparel	
(1810) Wearing apparel, except fur apparel	1.09
(1920) Footwear	0.17
(22) Printing and publishing	
(2221) Printing	0.36
(2212) Publishing of newspapers, journals, etc.	0.27
(23) Coke, petroleum and nuclear	
(2330) Processing of nuclear fuel	0.14
(2320) Refined petroleum products	0.12
(24) Chemicals	
(2423) Pharmaceuticals, medicinal chemicals, etc.	0.31
(2424) Soap, cleaning & cosmetic preparations	0.16
(26) Non-metallic minerals	
(2695) Articles of concrete, cement and plaster	0.29
(2694) Cement, lime and plaster	0.15
(31) Electrical Machinery	
(3120) Electricity distribution & control apparatus	0.11
(3110) Electric motors, generators and transformers	0.07
(34) Motor vehicles	
(3430) Parts/accessories for automobiles	0.12
(3410) Motor vehicles	0.06
(35) Transport equipment	
(3511) Building and repairing of ships	0.07
(3520) Railway/tramway locomotives & rolling stock	0.03

Note: Based on pooled cross-country data for up to 153 countries between 1963 and 2015. Income group cut-offs identified by the dashed vertical lines at USD 995, USD 3,896 and USD 12,375 as defined by World Bank Country and Lending Groups [World Bank, 2019c]. ISIC Rev. 3 IV-digit industries, selected years.Projected employment/population ratio (x1000) based on 2017 real GDP per capita.
Source: Calculations based on [INDSTAT, 2020] and Penn World Tables 9.1 [Feenstra et al., 2015] and following methodology described in Appendix B.1.4.

B.3 Supplementary Results Emerging Comparative Advantage (ECA)

The *Emerging Comparative Advantage (ECA)* expands on the idea of the *Revealed Comparative Advantage* and identifies sectors with an RCA between 0.3 and 0.9 and a positive trend over time between the period 2005-2018. The criterion highlights the potential to achieve a *Revealed Comparative Advantage* in the future and identifies developing production and export capabilities for sectors that are at the brink of becoming globally competitive. As Figure 60 indicates, the analysis at the II-digit level shows that there are no manufacturing sectors at the ISIC Rev. 3 II-digit level that follow the assigned characteristics of an RCA between 0.3 and 0.9 and a positive trend over time between the period 2005-2018.

Figure 60: Weighted RCA, ISIC Rev. 3 II-digits, over time in Côte d'Ivoire.

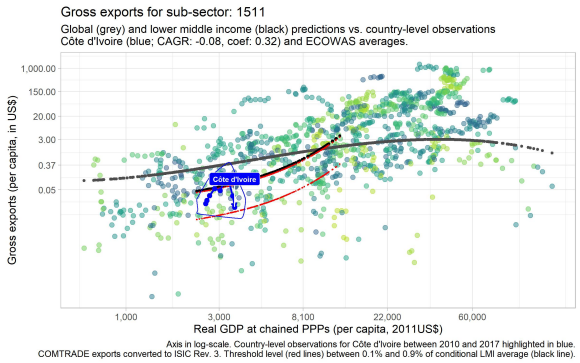


Note: ISIC Rev. 3 II-digit industries as described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. RCAs calculated as described in Appendix B.1.3.
Source: United Nations Comtrade Database [UN-Comtrade, 2020].

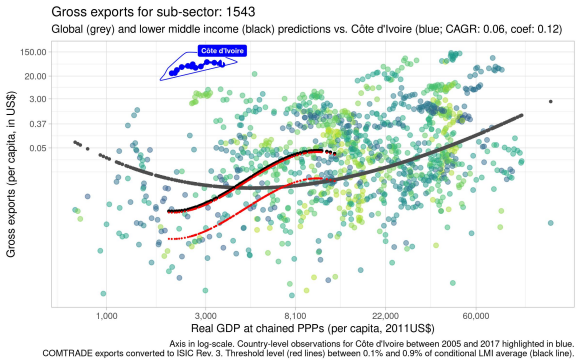
B.4 Supplementary Results Latent Untapped Potential (LUP)

A comprehensive list of figures (two selected IV-digit sub-sectors for each identified II-digit priority sector) of the LUP analysis on ISIC Rev. 3 IV-digit level is provided in this section in Figure 61 and Figure 62.

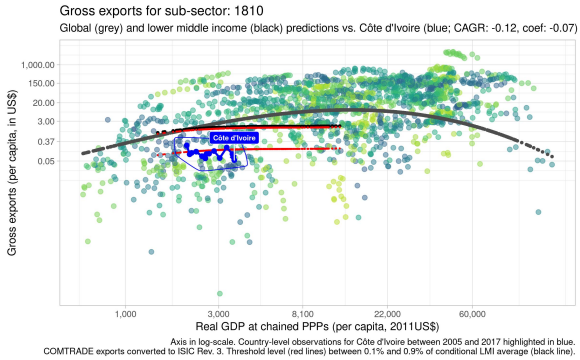
Figure 61: Selected figures LUP analysis on ISIC Rev. 3 IV-digit level, part I



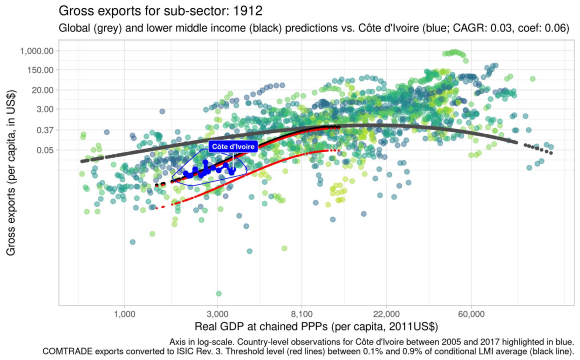
(a) (1511) Production, processing and preserving of meat and meat products



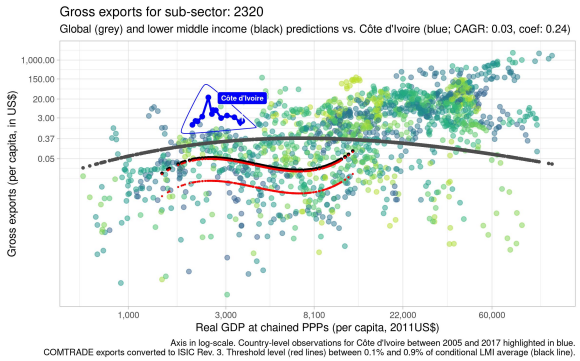
(b) (1543) Manufacture of cocoa, chocolate and sugar confectionery



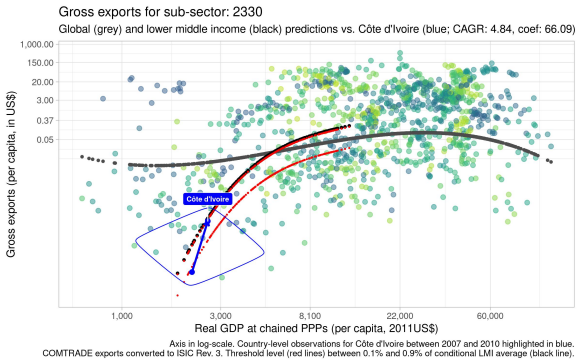
(c) (1810) Manufacture of wearing apparel, except fur apparel



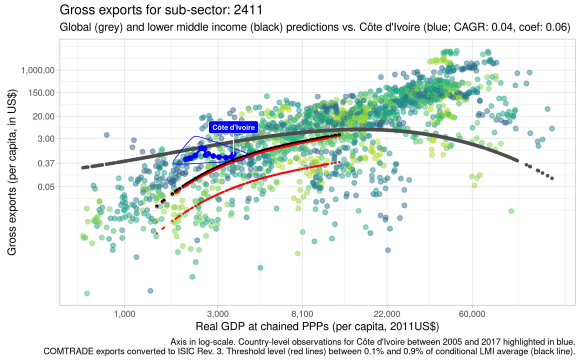
(d) (1912) Manufacture of luggage, handbags and the like, saddlery and harness



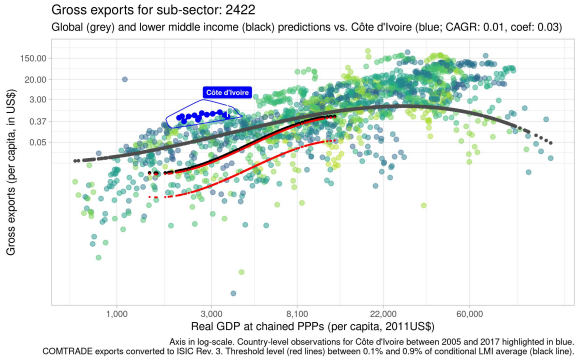
(e) (2320) Manufacture of refined petroleum products



(f) (2330) Processing of nuclear fuel



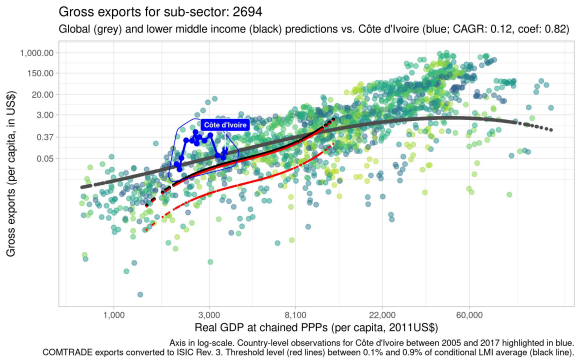
(g) (2411) Manufacture of basic chemicals, except fertilizers and nitrogen compounds



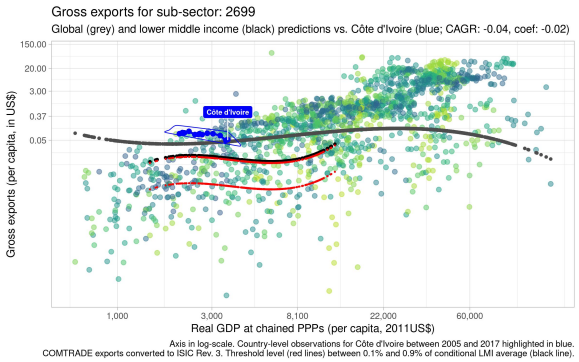
(h) (2422) Manufacture of paints, varnishes and similar coatings, printing ink and mastics

Note: ISIC Rev. 3 IV-digit descriptions in sub-figure captions following classification described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. See Appendix B.1.5 and Appendix B.1.4 for more information on the concept of LUP and the econometric model respectively.
Source: United Nations UN-Comtrade [2020] database.

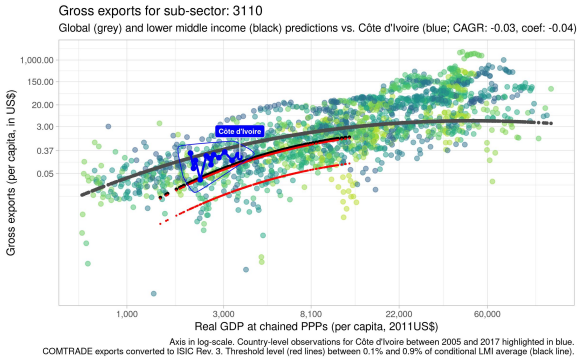
Figure 62: Selected figures LUP analysis on ISIC Rev. 3 IV-digit level, part II



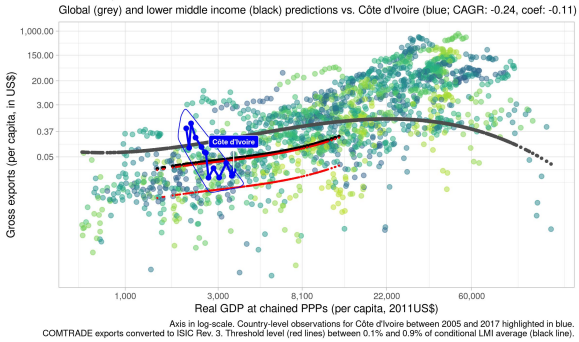
(a) (2694) Manufacture of cement, lime and plaster



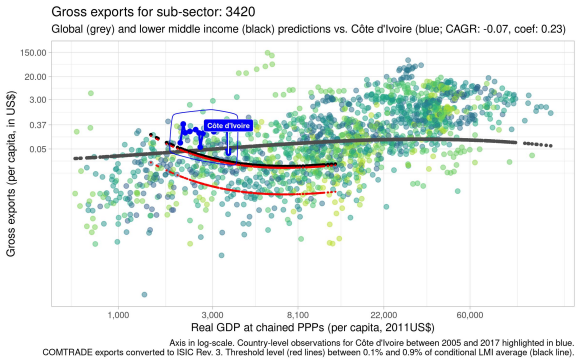
(b) (2699) Manufacture of other non-metallic mineral products n.e.c.



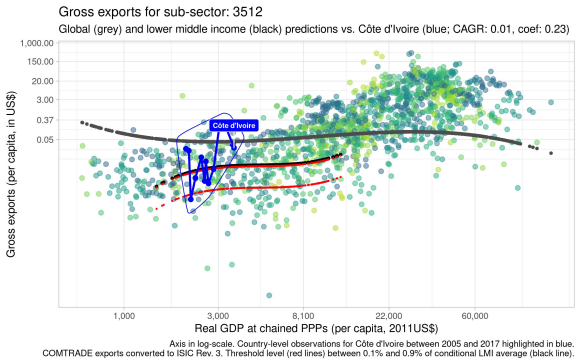
(c) (3110) Manufacture of electric motors, generators and transformers



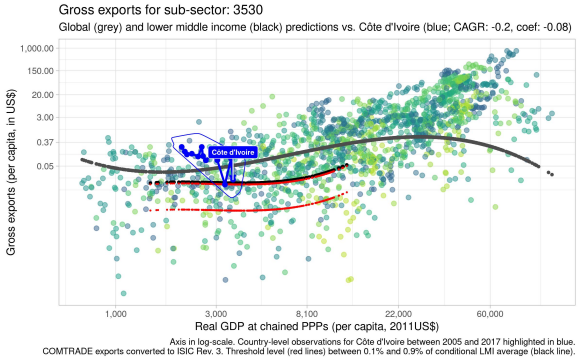
(d) (3150) Manufacture of electric lamps and lighting equipment



(e) (3420) Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers



(f) (3512) Building and repairing of pleasure and sporting boats



(g) (3530) Manufacture of aircraft and spacecraft

Note: ISIC Rev. 3 IV-digit descriptions in sub-figure captions following classification described in Appendix B.1.2. Concordance between trade and industry classifications according to Appendix B.1.1. See Appendix B.1.5 and Appendix B.1.4 for more information on the concept of LUP and the econometric model respectively.
Source: United Nations UN-Comtrade [2020] database.

C Appendix to Section 3

This appendix provides additional information on Section 3: Bottlenecks to business. It further describes the underlying data from the World Bank Enterprise Surveys, lists the questions used and the way they are analyzed. It also includes an additional analysis based on the Enterprise Survey.

C.1 Data and Methods

The most recent World Bank Enterprise Survey for Côte d'Ivoire was conducted in 2016. 106 manufacturing firms were interviewed (Table 29). All other countries' surveys that are used in this report are listed as well including the number of manufacturing firms which responded. For the purpose of the analysis, all benchmark country observations are pooled together. This also means that Nigeria, Ghana and Senegal might drive the results for the ECOWAS group due to the larger number of firms.

Table 29: List of Benchmark Countries

Country	Year of Survey	Manufacturing Observations
Benin	2016	70
Côte d'Ivoire	2009 and 2016	204 and 106
Gambia	2018	76
Ghana	2013	377
Guinea	2016	27
Liberia	2017	75
Mali	2016	99
Niger	2017	41
Nigeria	2014	1,429
Senegal	2014	249
Sierra Leone	2017	77
Togo	2016	45

Note: Benchmark countries, the year the Enterprise survey was conducted as well as the number of observations of manufacturing firms. *Data Source*: WB Enterprise Surveys.

The distribution of firms across industries is reported in Table 30. The relatively low number of observations explains why the industry distinction in Section 3 is based on grouping firms into aggregate low-medium vs. medium-high tech industries. Medium-high tech is defined as industries 24xx and 29xx-34xx (see Table 26).

Table 30: Industry distribution

ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations
1512	1	2010	4	2424	3	3130	1
1513	1	2022	6	2519	1	3190	1
1514	1	2029	1	2520	6	3610	6
1520	1	2101	1	2695	1	3691	1
1533	1	2212	2	2710	1	3694	1
1541	18	2221	4	2720	1		
1543	3	2222	1	2811	9		
1549	2	2411	1	2899	1		

Table 30: Industry distribution *(continued)*

ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations	ISIC rev. 3.1	Number of observations
1554	2	2413	2	2919	2		
1810	14	2421	2				
1920	2	2422	1				

Note: Number of observations by ISIC rev. 3.1 4-digit industries. *Data Source*: WB Enterprise Survey Côte d'Ivoire 2016.

C.1.1 World Bank Enterprise Survey

Tables that are based on the Enterprise Surveys show the results of different questions. Some are Yes/No questions, some are based on numbers, others are based on choosing an option out of a number of choices. Please refer to Table 31 for the detailed list of questions from the Enterprise Surveys. The analysis is purely descriptive (e.g., counting firms that gave a specific answer) unless otherwise stated.

Survey questions are analyzed and presented in the following way: numbers in the tables show the share of firms that answered, for example with 'Yes' or that gave a specific answer. Some numbers show the arithmetic mean if the question was answered with a number. The context can always be found in the text. Questions are always evaluated for the respective sub-group (column of the table) and the same firm can be in many sub-groups, e.g., a domestically owned SME, that is exporting, would be part of each of these subgroups.

Subgroups are defined as follows: SMEs are firms with 1-99 employees, exporters are firms that at least indirectly export part of their products, medium-high tech are firms in ISIC rev. 3 industries 24, 29-34 and a firm is foreign owned if more than 50% are owned by a foreign private entity.

Since many questions can have multiple answers, numbers do not sum up to 1. Some answers, such as 'does not apply' or 'do not know' are not reported, another reason for columns (or rows) not summing to one.

Shares not only refer to the given subgroup but are also restricted to firms that gave an answer at all. This means, '50 % of manufacturing firms' specifically refers to 50% of manufacturing firms that gave an answer. The maximum number of firms per subgroup can be found in Table 10.

The identification of 'most vulnerable firms' is based on comparing answers between subgroups as well as comments from consultations. For example, in Table 11, we can compare answers between SMEs and large firms. If relatively more SMEs report a topic as problematic compared to large firms, we would see SMEs as more vulnerable. This approach is mainly based on the overall perception of bottlenecks while other tables discussing more specific follow-up questions might show a slightly different pattern.

The following shows all questions used in the analysis of Section 3. Please note, that while most questions are present in all surveys, some are exclusive to Côte d'Ivoire. These questions are highlighted and tables that are based on these questions have no ECOWAS column.

Table 31: List of Survey Questions

Code	Question/Indicator
b2a	What percentage of this firm is owned by private domestic individuals, companies or organisations?
b2b	What percentage of this firm is owned by private foreign individuals, companies or organisations?
b2c	What percentage of this firm is owned by the government or state?
b4	Amongst the owners of the firm, are there any females? (Y/N)
b4a	What percentage of the firm is owned by females?

Table 31: List of Survey Questions *(continued)*

Code	Question/Indicator
b7a	Is the Top Manager female? (Y/N)
c5	In reference to that application for an electrical connection, was an informal gift or payment expected or requested? (Y/N)
c6	Over fiscal year 2015, did this establishment experience power outages? (Y/N)
c7	In a typical month, over fiscal year 2015, how many power outages did this establishment experience?
c8a	How long did these power outages last on average? (hours)
c9a	Please estimate the losses that resulted from power outages either as a percentage of total annual sales or as total annual losses.
c10	Over the course of fiscal year 2015, did this establishment own or share a generator?
c11	In fiscal year 2015, what percentage of this establishment's electricity came from a generator or generators that the establishment owned or shared?
c14	In reference to that application for a water connection, was an informal gift or payment expected or requested? (Y/N)
c15	Over fiscal year 2015, did this establishment experience insufficient water supply for production? (Y/N/Does not use water)
c16	In a typical month, over fiscal year 2015, how many incidents of insufficient water supply did this establishment experience?
c17	How long did these incidents of insufficient water supply last on average? (hours)
c30a	To what degree is Electricity an obstacle to the current operations of this establishment? (5 categories)
c30b	To what degree is Telecommunications an obstacle to the current operations of this establishment? (5 categories)
d2	In fiscal year 2015, what were this establishment's total annual sales for ALL products and services? (local currency)
d3a	What percentage of this establishment's sales (2015) were domestic?
d3b	What percentage of this establishment's sales (2015) were indirect exports?
d3c	What percentage of this establishment's sales (2015) were direct exports?
d4	In fiscal year 2015, when this establishment exported goods directly, how many days did it take on average from the time this establishment's goods arrived at their main point of exit (e.g., port, airport) until the time these goods cleared customs?
d5a	In reference to when this establishment exported goods directly, in clearing these goods through customs was an informal gift or payment expected or requested? (Y/N)
d12a	In fiscal year 2015, as a proportion of all material inputs or supplies purchased that year, what percentage of this establishment's material inputs or supplies were material inputs or supplies of domestic origin?
d12b	In fiscal year 2015, as a proportion of all material inputs or supplies purchased that year, what percentage of this establishment's material inputs or supplies were material inputs or supplies of foreign origin?
d14	In fiscal year 2015, when this establishment imported material inputs or supplies, how many days did it take on average from the time these goods arrived to their point of entry (e.g. port, airport) until the time these goods could be claimed from customs?
d15a	In reference to when this establishment imported material inputs or supplies, in claiming these goods from customs was an informal gift or payment expected or requested? (Y/N)
d30a	To what degree is Transport an obstacle to the current operations of this establishment? (5 categories)
d30b	To what degree are customs and trade regulations an obstacle to the current operations of this establishment? (5 categories)
e11	Does this establishment compete against unregistered or informal firms? (Y/N)
e30	To what degree are Practices of Competitors in the Informal Sector an obstacle to the current operations of this establishment? (5 categories)
g1	Of the land occupied by this establishment, what percent is: owned, rented or leased, other?
g2	Over the last two years, did this establishment submit an application to obtain a construction-related permit? (Y/N)
g3	In reference to that application for a construction-related permit, approximately how many days did it take to obtain it from the day of the application to the day the permit was granted?
g4	In reference to that application for a construction-related permit, was an informal gift or payment expected or requested? (Y/N)
g30a	To what degree is Access to Land an obstacle to the current operations of this establishment? (5 categories)
h30	To what degree are courts an obstacle to the current operations of this establishment? (5 categories)
i1	In fiscal year 2015, did this establishment pay for security, for example equipment, personnel, or professional security services including internet security? (Y/N)

Table 31: List of Survey Questions *(continued)*

Code	Question/Indicator
i3	In fiscal year 2015, did this establishment experience losses as a result of theft, robbery, vandalism, arson on this establishment's premises or from internet hacking or internet fraudulent transactions? (Y/N)
i30	To what degree is Crime, Theft and Disorder an obstacle to the current operations of this establishment? (5 categories)
j2	In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations? (By senior management I mean managers, directors, and officers above direct supervisors of production or sales workers. Some examples of government regulations are taxes, customs, labor regulations, licensing and registration, including dealings with officials and completing forms)
j5	In any of these inspections or meetings was a gift or informal payment expected or requested?
j6	When establishments like this one do business with the government, what percent of the contract value would be typically paid in informal payments or gifts to secure the contract?
j7a	It is said that establishments are sometimes required to make gifts or informal payments to public officials to 'get things done' with regard to customs, taxes, licenses, regulations, services etc. On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose? (\% of total annual sales paid as informal payment)
j11	Approximately how many days did it take to obtain [this] import license from the day of the application to the day it was granted?
j12	In reference to that application for an import license, was an informal gift or payment expected or requested?
j15	In reference to that application for an operating license, was an informal gift or payment expected or requested? (Y/N)
j30a	To what degree are tax rates an obstacle to the current operations of this establishment? (5 categories)
j30b	To what degree is the tax administration an obstacle to the current operations of this establishment? (5 categories)
j30c	To what degree are business licensing and permits an obstacle to the current operations of this establishment? (5 categories)
j30e	To what degree is political instability an obstacle to the current operations of this establishment? (5 categories)
j30f	To what degree is corruption an obstacle to the current operations of this establishment? (5 categories)
k3	Over fiscal year 2015, please estimate the proportion of this establishment's working capital, that is the funds available for day-to-day operations, that was financed from each of the following sources? (5 categories)
k7	At this time, does this establishment have an overdraft facility? (Y/N)
k8	At this time, does this establishment have a line of credit or a loan from a financial institution? (Y/N)
k14	Referring only to this most recent line of credit or loan, what type of collateral was required? (5 categories - Y/N)
k15d	At this time, does the owner or owners of this establishment have any outstanding personal loans that are used to finance this establishment's business activities? (Y/N)
k17	What was the main reason why this establishment did not apply for any line of credit or loan? (4 reasons)
k20a1	Referring only to this most recent application for a line of credit or loan, what was the outcome of that application? (Y/N)
k30	To what degree is Access to Finance an obstacle to the current operations of this establishment? (5 categories)
l1	At the end of fiscal year 2015, how many permanent, full-time individuals worked in this establishment? Please include all employees and managers.
l4a1	At the end of fiscal year 2015, how many permanent, full-time individuals working in this establishment were highly skilled production workers?
l4a2	At the end of fiscal year 2015, how many permanent, full-time individuals working in this establishment were semi-skilled production workers?
l4b	At the end of fiscal year 2015, how many permanent, full-time individuals working in this establishment were unskilled production workers?
l5a	At the end of fiscal year 2015, how many permanent full-time individuals working as production workers were female?
l5b	At the end of fiscal year 2015, how many permanent full-time individuals working as non-production workers were female?
l9b	What is the percentage of full-time permanent workers who completed secondary school?
l10	Over fiscal year 2015, did this establishment have formal training programs for its permanent, full-time employees? (Y/N)

Table 31: List of Survey Questions *(continued)*

Code	Question/Indicator
l30a	To what degree are Labor Regulations an obstacle to the current operations of this establishment? (5 categories)
l30b	To what degree is an Inadequately Educated Workforce an obstacle to the current operations of this establishment? (5 categories)
n2a	Total annual cost (2015) of labor including wages, salaries, bonuses, social security payments.
n2e	Total annual cost (2015) of raw materials and intermediate goods used in production.
n2b	Total annual cost (2015) of electricity.
n2p	Total cost of sales (SHOULD INCLUDE ALL ABOVE COSTS AND OTHER COSTS NOT LISTED ABOVE).
AFe34*	How do you rate the overall quality of business support systems in the city the establishment is located? (Below, as, above required)
AFl11*	How do you rate the level of skills of the establishment's permanent employees compared to what the establishment needs for the following types of skills? (7 skills, 3 categories) - Ivory Coast only
AFl12*	Over the last two years, did this establishment hire or try to hire any skilled workers? (Y/N) Ivory Coast only
AFl13*	Did the establishment encounter any of the following problems when trying to hire a skilled worker? (4 categories) Ivory Coast only
MMs1*	In its current operations, does this establishment use mobile money for any of its financial transactions? (Y/N)
MMs2*	Please indicate the main reason this establishment started using mobile money for any of its financial transaction. (6 reasons)
MMs3*	In the last complete fiscal year, did this establishment use mobile money to pay its employees? (Y/N)
MMs5*	In the last complete fiscal year, did this establishment use mobile money to pay its suppliers? (Y/N)
MMs9*	In the last complete fiscal year, did this establishment use mobile money to receive payments from customers? (Y/N)
MMs11*	Why does this establishment not use mobile money for financial transactions? (6 answers)

Note: Lists questions from the Enterprise Survey that were used in the present report. * denotes questions available only for the Ivorian survey. *Data Source*: WB Enterprise Surveys.

C.1.2 Consultations

Consultations are interviews with local stakeholders such as interest groups, representatives from academia or the government. We first report our tentative findings and ask about the opinions of the respective interview partner. Further, the interview partner is encouraged to name topics that are viewed as obstacles that are not covered by the tentative findings. Summaries of their views are included in the text. If views from consultations contradict the findings from the Enterprise Survey, evidence from other sources is taken into account in the final identification of the main bottlenecks.

C.2 Further topics and details Section 3

C.2.1 Water

For some manufacturing firms another important input to the production processes is water. In accordance with the SDG6 ("Ensure availability and sustainable management of water and sanitation for all"), water, its management, and a reliable and clean supply of water for households might be a major obstacle for overall development not only for households but also for manufacturers. The latter need water either as a direct input during the production process or in some production related processes. Hence, there is a distinction between drinking water and water for general industrial usage (not necessarily drinking quality) for cooling, cleaning or firefighting purposes. According to results of the Enterprise Survey in Table 32, 21% of manufacturing firms in 2015 experienced water shortages. With a monthly average of 8.8 incidents and an average of 12 hours, numbers are comparable to the experiences of ECOWAS manufacturing firms. In the 2019 World Economic Forum's Global Competitiveness Report Côte d'Ivoire ranked 108th/141 in the *Reliability of water supply*.

Table 32: Bottleneck Water

	Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Experience water shortages	21%	16%	22%	15%	21%	18%	19%	21%	12%	25%
Number of water shortages.	9	11	8	7	7	11	11	7	11	7
Length of water shortages.	12	14	13	11	13	8	13	12	13	12

Note: Share of firms that experienced water shortages in an average month. Number of shortages refers to average monthly incidents of water shortages. Length is measured in average hours per incident. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

The use of water gives rise to the question of waste water management. While this is not part of the Enterprise Survey, a reliable sewage system is also important as it fulfills distinctive purposes in a sustainable economy. First, in a process of efficient wastewater management, firms can reduce costs (less water inputs needed) and therefore may increase their efficiencies and becoming more competitive. And second, environmental issues like lack of waste water treatment can be avoided. Especially in countries where the rainy season often leads to a capacity overload of public sewage systems, this could be a focal point in the process towards a sustainable industrialization. An expansion and investments into a resilient waste water treatment infrastructure could help to overcome challenges associated with urbanization, available water resources and flood hazards. While according to WWAP [2017], Abidjan is facing a lower overall water-related challenge, it has also a low institutional and economic capacity regarding water and wastewater.

C.2.2 Electricity and Power

Figure 63 displays the existing grid as well as power plants, together with ongoing or planned projects for Côte d'Ivoire.

Figure 63: Energy 2030

Source: CI-ENERGIES.

C.2.3 Court System

Asked about if 'the court system is fair, impartial and uncorrupted' Table 33 shows that a quarter of firms tended to disagree, while 24% strongly disagreed with 38% of medium-high tech being the relative largest group to strongly disagree. Thus, while not reported as a major bottleneck, there is still room for improvement in terms of providing an efficient and fair legal system. In the 2019 World Economic Forum's Global Competitiveness Report Côte d'Ivoire ranked 119th in *Judicial independence* but 80th in the *Efficiency of legal framework in challenging regulations*.

Table 33: Court System

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Strongly agree	4%	5%	16%	4%		2%	9%	6%	3%	6%	3%
Tend to agree	25%	22%	28%	25%	23%	25%	23%	16%	28%	24%	25%
Strongly disagree	24%	33%	19%	22%	38%	24%	23%	23%	24%	32%	19%
Tend to disagree	25%	26%	22%	27%	15%	27%	18%	42%	19%	24%	26%

Note: Share of firms that agreed or disagreed to the statement that courts are fair. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.4 Customs

The days it takes goods to clear customs as well as the source of material inputs is shown in Table 34. It takes goods in Côte d'Ivoire much longer to clear customs compared to their peers. On average, one quarter of material inputs is sourced from foreign suppliers. This share is higher for medium-high tech (41%), large firms (35%) and foreign owned as well as exporters (both 34%).

Table 34: Customs and material sourcing

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Days clear customs	20.6		8.0	16.9	22	21.8	9.9	16.2	20	17.3	
Materials sourced domestically	75%	63%	70%	80%	59%	80%	66%	65%	80%	66%	80%
Materials sourced foreign	25%	37%	30%	20%	41%	20%	34%	35%	20%	34%	20%

Note: Days to clear customs (imports) and source of materials. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.5 Labor Costs

The share of labor costs in total costs is 35% which is comparable to ECOWAS (Table 35). There is, however, some heterogeneity across subgroups. Note that different industries require a different skill-capital composition (machines vs. manual labor) resulting in 'natural' differences regarding the total wage bill.

Table 35: Share of labor costs

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Wage bill	35%		32%	37%	28%	39%	18%	35%	36%	39%	33%

Note: Mean share of labor costs in total costs. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.6 Informal Economy

The Enterprise Surveys usually cover only formally registered firms.[80] They often compete with many firms in the informal sector. In Côte d'Ivoire two thirds of manufacturing firms compete with informal firms (Table 36). As expected, more domestically owned, SMEs and non exporters compete with informal firms relative to their counterparts. Interestingly, a higher share of medium-high tech

[80]There also surveys on informal firms for some countries.

firms seem to compete against informal firms compared to low-tech firms. This might be an artifact as the number of observations is relatively low.

Table 36: Competition with informal sector

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Competition informal	66%	78%	55%	65%	77%	70%	50%	65%	67%	62%	68%

Note: Share of firms that compete with informal firms. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.7 Mobile Money

Another topic that is discussed in this report is the use of mobile money. Table 37 shows the shares of firms that used mobile money and the reasons for using or not using it. Of the 106 manufacturing firms in 2016, 20 (19%) used mobile money (MM) in the three years before. Of those 20 firms, 10% paid employees, 35% paid suppliers and 60% were paid by suppliers with MM. The main reason for those having used it was to save time in transactions and because it was a customer request. The main reasons for not having used it were that customers or suppliers did not use it or that payments for the firms were too large to use MM.

Table 37: Mobile Money

	Mnf.	Non Mnf.	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Used Mobile Money	19%	30%	22%		21%	9%	13%	21%	12%	22%
Paid employees with Mobile Money	10%	5%	10%		11%			12%		12%
Paid suppliers with MM	35%	31%	35%		39%		50%	31%	50%	31%
Paid by customers with Mobile Money	60%	65%	60%		56%	100%		75%	50%	62%
Reasons for using Mobile Money:										
Reduce costs of financial transactions	5%	9%	5%		6%			6%		6%
Reduce the time spent in fin. trans.	40%	16%	40%		33%	100%	25%	44%	25%	44%
Reduce the risks in fin. trans.	10%	10%	10%		11%		50%		25%	6%
Satisfy suppliers request	5%	16%	5%		6%		25%			6%
Satisfy costumers request	40%	48%	40%		44%			50%	50%	38%
Reasons for not using Mobile Money:										
Not enough knowledge	7%	6%	5%	15%	6%	10%	4%	8%	7%	7%
Fees too high	6%	7%	7%	6%		5%	11%	3%		9%
Payments too large for MM	24%	31%	27%	8%	20%	40%	33%	20%	20%	27%
Not easy to use	3%	5%	3%	8%	5%			5%		5%
Customers do not use it	37%	31%	38%	31%	38%	35%	33%	39%	37%	38%
Suppliers do not use it	37%	33%	38%	31%	38%	35%	37%	37%	37%	38%

Note: Share of firms that used mobile money, reasons for using or not using mobile money. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.8 Government-Business relations

Another potential inefficiency for businesses arise through regulations and lack of business support in general. Table 38 lists the average share of time the management spends on dealing with regulations as well as the share of firms that state that the local business support system is not as required. On average, industry management spends 15% of their work time dealing with regulations (11% in ECOWAS). The shares are even higher in large firms and exporting firms. With the exception of medium-high tech firms, two thirds of most subgroups of Ivorian manufacturing firms report that the quality of the local business support system is below required. Consultations have shown that

there are also improvements, e.g., the introduction of a new single firm identifier number used by official agencies for most formalities such as dealing with permits.[81]

Table 38: Business-government relations

	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Time spent with gov. regulations	15%	19%	11%	8%	13%	9%	10%	17%	7%	19%	7%
Unhappy with local business support system	58%	53%		61%	38%	60%	55%	61%	57%	65%	56%

Note: Time spent by the management with government regulations and share of firms unhappy with local business support system. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.2.9 Skills

Table 39 shows the share of firms that hired or tried to hire highly skilled workers in 2015.

Table 39: Hiring or trying to hire high skilled labor

	Mnf.	Non Mnf.	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Hired skilled workers	39%	39%	39%	38%	32%	64%	68%	27%	62%	28%

Note: Share of firms that hired or tried to hire skilled workers. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Survey Ivory Coast 2016.

C.2.10 Working Capital

Section 3.3.3 has shown that 42% of manufacturing firms had an overdraft facility and 25% a recent (2015) line of credit. While only 35% of firms said they did not need a loan, this points towards a share of firms that needed a loan but did not get one. Asked about the source (shares of total financing) of financing for their day-to-day working capital, manufacturing firms stated that on average only around 9% came from traditional banks (Table 40). For low tech firms, domestically owned firms and SMEs, the share was even lower. Hence, internal finance (e.g., through retained earnings) is the main source of working capital. Especially (and confirmed by consultations) community financing is important for manufacturing firms in general and SMEs in particular. The relation between SMEs and the traditional banking system seems to be in part characterized by a lack of trust. This stems mainly from the fact that investments by SMEs are assessed as more risky by the lenders and the lack of competitiveness in the SME sector, according to consultations.

[81] These unique identifier numbers (IDU) replace the Commercial Register Number (RC), the Taxpayer Account Number (CC), the registration number with the National Social Security Fund and the Importer / Exporter code.

Table 40: Source of working capital

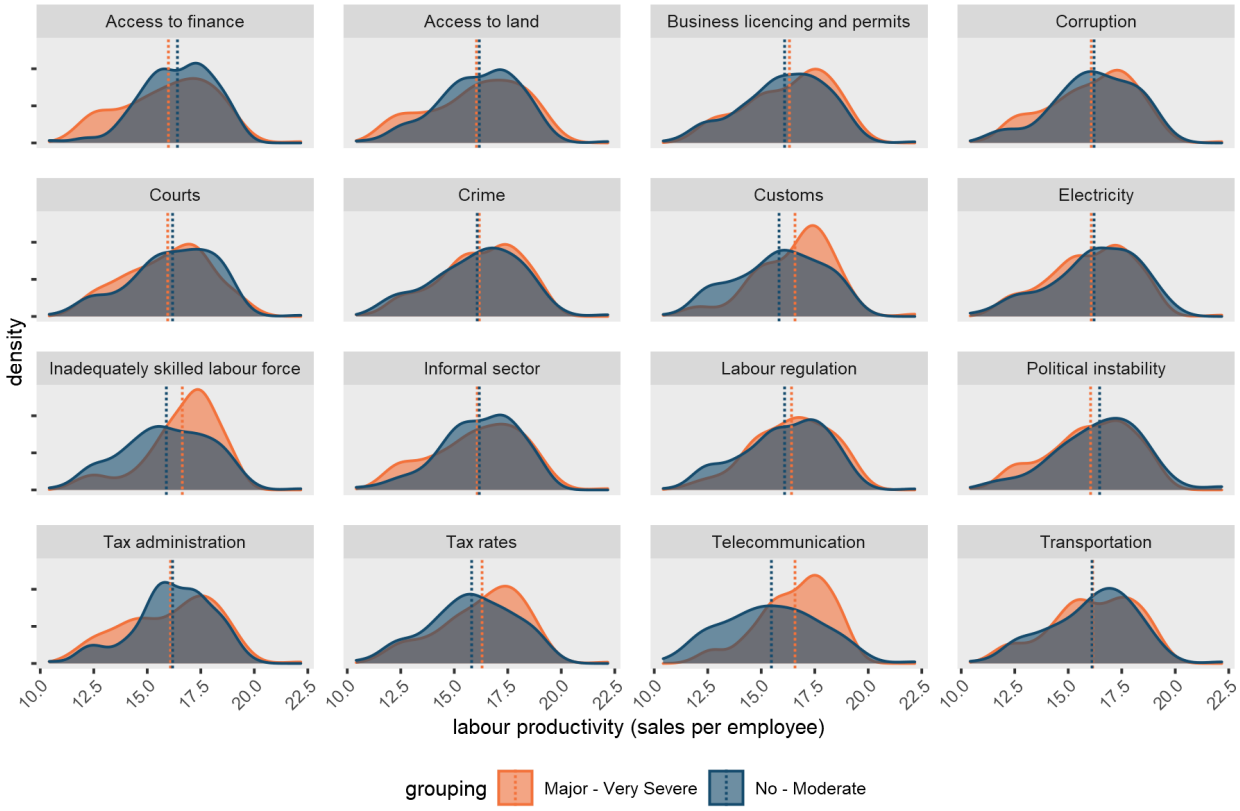
	Mnf.	Non Mnf.	Mnf. ECOWAS	Low tech	M.H. tech	Dom. owned	Foreign owned	Large firms	SMEs	Exporter	Non Exporter
Internal	78.15%	75.44%	70.36%	85.04%	75.55%	85.31%	75.67%	68.4%	86.84%	66.47%	87.54%
Banks	8.87%	9.19%	6.06%	4.66%	12.69%	4.67%	11.79%	16.12%	3.78%	16.45%	3.55%
Non-banks	0.66%	0.6%	3.34%	1.25%	1.45%	1.19%	1.64%	3.65%	0.73%	3.5%	0.73%
Suppl. or custom.	11.16%	13.7%	9.2%	6.57%	6.78%	6.29%	7.79%	10.95%	5.58%	9.25%	5.93%
Other	1.17%	1.06%	11.01%	2.47%	3.53%	2.54%	3.11%	0.88%	3.07%	4.33%	2.24%

Note: Mean shares of sources of total working capital. Shares do not add up to 100 because of non-answers or answers such as 'do not know' that are not reported here. Mnf: Manufacturing, M.H.: medium-high, SME: small and medium enterprises, Dom: domestic. Numbers always refer to the respective subset (column). *Data Source*: WB Enterprise Surveys.

C.3 Productivity and bottlenecks

The tables of Section 3 differentiate the responses to questions of different groups of firms that can be distinguished based on a simple criterion such as if they export or not. It might, however, also be interesting to distinguish responses along a continuous dimension. In the following exercise the severity of bottlenecks is reported for differently productive firms. Figure 64 displays the distribution of (the log of) labor productivity (proxied by sales per employee) for every bottleneck. It distinguishes firms that stated the bottleneck as major or severe (such as in Table 11) on the one hand and the ones that stated it as no, a minor or moderate obstacle on the other hand. The dashed lines indicate the mean of the respective distribution.

Figure 64: Log of labor productivity distribution per bottleneck



Note: Distribution of log labor productivity by bottleneck and perceived severity of bottleneck. Dashed line indicates arithmetic mean. Author's calculations. Data Source: WB Enterprise Survey.

Given the distribution and mean, firms that are less productive in terms of sales per employee, e.g., seem to view Access to finance more of a problem than more productive firms (upper left panel). However, testing the mean for equality via a simple ANOVA shows, that there is only a statistical significant difference for *Access to finance*, *Customs*, *Inadequately skilled labor*, *Labor regulations* and *Telecommunication*.[82] With the exception of *Access to finance*, it is the on average more productive firms that reported the topics as a major or very severe obstacle. For the remaining ten bottlenecks, differences in labor productivity do not seem to drive the views of firms.

C.4 Correlation across bottlenecks

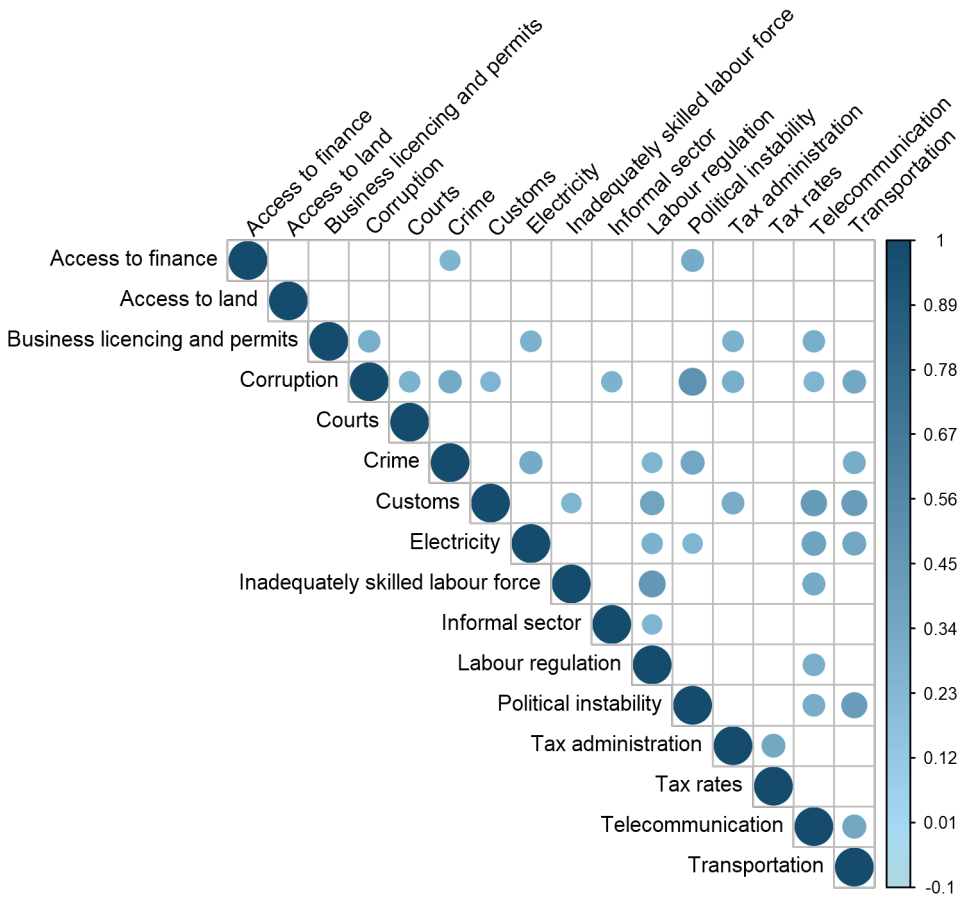
While firms can have different views on different bottlenecks, it might be interesting to see which bottlenecks are more likely named together. Figure 65 displays the correlation between all 15 bottlenecks. As in Table 11, it considers only manufacturing firms that reported a bottleneck to be 'very severe' or 'major'. It has to be noted that the figure only displays correlations that are statistically significant.[83]

Following linkages stand out (correlation coefficient in parentheses):

- Access to Finance and Political Instability (0.32)
- Corruption with Political Instability (0.49), Transportation (0.34) and Crime (0.33)
- Electricity with Telecommunication (0.37) and Transportation (0.35)
- Political instability with Transportation (0.43)
- Tax administration with Tax rates (0.35)
- Labor regulation with Inadequately skilled labor force (0.46)

[82] Kruskal-Wallis and Wilcoxon rank sum test deliver the same results.
[83] According to p-values < 0.01 of the Pearson correlation.

Figure 65: Correlation between bottlenecks



Note: Considers firms that reported a bottleneck as 'very severe' or 'major'. *Data Source*: World Bank Enterprise Survey Côte d'Ivoire 2016.

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