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Harnessing Gender Potential for Productive Capacities Development:

A Comparative Study of Rwanda and the United Republic of Tanzania

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LIST OF ACRONYMS

4IR	Fourth Industrial Revolution
ADLI	Agricultural Development Led Industrialization Strategy
ADM	Archer-Daniels-Midland Company
ADWPC	Agency for the Development of Women's Productive Capacities
AI	Artificial intelligence
CIA	Central Intelligence Agency
COMESA	Common Market for Eastern and Southern Africa
DHS	Demographic and Health Survey
DMRS	Domestic Market Recapturing Strategy
EDPRS	Economic Development and Poverty Reeducation Strategies
EFG	Equality for Growth
ERP	Economic Reform Program
ESAP	Economic and Social Action Program
FDI	Foreign Direct Investment
FFYP	First Five-year Development Plan
FPC	Foreign Private Capital
FSTK	Functional Scientific and Technological Knowledge
FTE	Full time employment
GDP	Gross Domestic Product
GE	General Electric
GHG	Greenhouse Gas
GoR	Government of Rwanda
GVCs	Global Value Chains
HDI	Human Development Index
HP	Hewlett-Packard
IBM	International Business Machines Corporation
ICT	Information, Communication, Technology
IIDS	Integrated Industrial Development Strategy
ILO	International Labour Organization
IMF	International Monetary Fund
ISI	Import Substitution Industrialization
ITMS	Industrial Technical and Managerial Skill
LLDCs	Landlocked Developing Countries
LLPI	Leather Products Technology Institute
MDGs	United Nations Millennium Development Goals
MIR	Made in Rwanda
NCBA CLUSA	National Cooperative Business Association
NES	National Export Strategy
NESP	National Economic Survival Program
NGO	Non-governmental organization

NSTK	Nominal Scientific and Technical Knowledge
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PO	Producer Organizations
PPE	Personal Protective Equipment
PPP	Purchasing Power Parity
PSDS	Private Sector Development Strategy
PSTA	Plan for Strategic Transformation of Agriculture
P-TECH	Pathway to Technology
R&D	Research and Development
REPOA	Research on Poverty Alleviation
S&T	Science and Technology
SAP	Structural Adjustment Program
SDGs	United Nations' Sustainable Development Goals
SEZs	Special Economic Zones
SFYP	Second Five-year Plan
SIC	Standard Industrial Classification
SIDO	State International Development Organization
SIDP	Sustainable Industrial Development Policy
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering, & Mathematics
STK	Science & Technological Knowledge
SVPN	Sustainable Vanilla for People and Nature
TDV	Tanzania Development Vision
TMTP	Tanzania Mini-Tiger Plan
TVET	Technical and Vocational Education and Training
TYP	Three Year Development Plan
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WDI	World Development Index
WEF	World Economic Forum
WEO	World Economic Outlook
WHO	World Health Organization

TABLE OF CONTENT

FIGURES

BOXES

CHARTS

TABLES

ACKNOWLEDGEMENTS

This Report was prepared by Stephen Z. Onyeiwu (Andrew Wells Robertson Professor of Economics, Allegheny College, Pennsylvania) and Patrick N. Osakwe (Chief, Trade and Poverty Branch, UNCTAD) under the overall guidance of Paul Akiwumi, Director, Division for Africa, Least Developed Countries and Special Programmes, UNCTAD. The Report is one of the policy-research papers prepared under the 12th Tranche United Nations Development Account Project on "Coherent strategies for productive capacity development in African least developed countries." The authors are grateful for comments and useful insights provided by Jonas Munyurangabo (Director-General of Planning, Monitoring & Evaluation, Ministry of Trade and Industry, Rwanda) and Margareth Warioba (Senior Trade Officer, Ministry of Industry and Trade, Tanzania). The authors also acknowledge useful comments provided by Habiba Ben Barka (Chief, Africa Section, UNCTAD).

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EXECUTIVE SUMMARY

Over the past few decades, there has been growing emphasis and interest in developing productive capacities of African countries to build resilience to shocks, enhance integration into the multilateral trading system, and foster inclusive and sustained growth. As part of efforts to address the economic consequences of the COVID-19 pandemic, and build back better, African governments have also renewed their commitments to building productive capacities and transforming their economies, as evidenced by the emphasis accorded to these issues in their economic recovery and development plans. Despite this recognition of the importance of developing productive capacities in Africa, and the limited resources available, the role of women has not been explicitly or appropriately integrated into the productive transformation agenda of most African countries. Against this background, this report explores how to harness gender potential in Africa for productive capacities development, using Rwanda and Tanzania as case studies. The case studies focus on Rwanda and Tanzania because they are beneficiaries of the 12th Tranche United Nations Development Account project on "Coherent strategies for productive capacity development in selected African Least Developed Countries." The two countries are also interesting case studies because they have achieved impressive economic growth in the past two decades, yet they have very high poverty rates due largely to the lack of productive capacities and the fact that recent growth has not been inclusive. Furthermore, although they are both least developed countries, Rwanda is landlocked while Tanzania is not. This diversity of features provides for an interesting comparative analysis of the challenges facing African LDCs in harnessing the potential of women for productive transformation and development.

The report indicates that women's productive capacities have not been optimally developed and utilized in Rwanda and Tanzania, and that this is manifested in: the predominance of women in the agricultural sector and low productivity activities in the informal sector; low participation of women in the manufacturing activities; and low representation and participation of women in science and technology as well as in technology-intensive activities. Unless women's productive capacities are actively developed in these fields, the Fourth Industrial Revolution will bypass them, and their governments will miss the opportunity to tap a vital resource for productive transformation and development.

The report provides very good rationale for governments of Rwanda and Tanzania to prioritize the development of women's productive capacities. It suggests that building women's productive capacities is not only morally right but also good economics because it would: leverage women's demographic dividend and accelerate growth; raise women's productivity and income and reduce poverty and inequality; close the "gender deficit", particularly in frontier sectors; raise capacity utilization rates in industries; protect women from shocks and vulnerability; foster structural transformation; better position Rwanda and Tanzania in global value chains; prepare women for participation in the Fourth Industrial Revolution (4IR); foster women's dignity, freedom and respect; and contribute to the achievement of the sustainable development goals.

Why have women's potential productive capacities not been fully developed and utilized in Rwanda and Tanzania? Generally, the propensity to build productive capacities is higher in countries where the state plays an active role and implements well-crafted economic, trade, industrial, as well as science and technology policies. In the case of Rwanda and Tanzania, the report argues that the sub-optimal development and utilization of women's productive capacities can be attributed to the following factors:

- *institutional constraints*: patriarchy and male domination, arising from longstanding cultural practices, have caused occupational segregation, such that women are excluded from sectors that offer opportunities for building productive capacities.
- *limited access to assets*: productive capacities and assets such as land, equipment, inputs, etc. are complementary and synergistic. One without the other may be counterproductive. While customs and tradition limit women's access to land, low income and low savings make it difficult for them to

purchase complementary assets. This has the effect of disincentivizing women from building productive capacities.

- *financial constraints*: most Rwandan and Tanzanian women reside in rural communities, where financial services are limited. Because of lack of education and collaterals women face significant challenges in obtaining credit from financial institutions. Limited access to credit results in their production being at the subsistence level, with little or no value addition to their products.
- *difficulty accessing markets*: women typically reside very far away from the markets for their products. Non-proximity to markets and poor rural infrastructure disincentive women from expanding output. This explains why many women have not fully developed their capacities to produce beyond the subsistence level, and why some even decide to focus on unpaid household work.
- *limited access to information and communications technologies (ICTs):* women's low computer literacy and limited access to the internet imply that they are usually unaware of capacity-building opportunities on the internet. Many employers desire employees who are computer-literate and web-savy. This forecloses opportunities for women to develop their potential productive capacities.

To accelerate progress in building women's productive capacities in Rwanda and Tanzania, the report recommends that the governments should: provide access to basic education; introduce a hybrid system of secondary education that enables women to acquire general education and technical skills; train women in productivity-enhancing and value-adding agricultural practices; encourage the private sector to collaborate with the state in building women's productive capacities; foster partnership between the private sector and NGOs; promote a labor-intensive Agricultural Development-led Industrialization Strategy (ADLI); encourage the establishment of women production cooperatives; adopt a gendered-approach to innovation and technological development; discourage patriarchy and male domination; and launch a women-focused digital initiative.

Finally, the report stresses that the effective implementation of the recommendations discussed above would require:

- Establishing an Agency for the Development of Women's Productive Capacities (ADWPC).
- Deepening of the ongoing institutional reforms in Rwanda and Tanzania, especially removing patriarchy, male domination, and gender-bias in asset allocation and in access to credit.
- Encouraging shared household responsibilities between men and women, so that women would have time to build productive capacities and explore opportunities outside the household.
- Implementing industrial development strategies that prioritize labor-intensive industries, especially agro-processing, that offer jobs and training opportunities for women.
- Tasking statistical agencies to disaggregate data along gender lines, so that more informed decisions about women's productive capacities could be made.

1

INTRODUCTION

1 INTRODUCTION

Rwanda and Tanzania are two inspiring African countries. Both countries have achieved impressive economic growth during the past two decades. Rwanda's real Gross Domestic Product (GDP) growth rate almost doubled from 4.1 percent in the 1990s, to 7.2 percent during 2010-2019 (Table 1). In Tanzania, real GDP growth rate rose from 4.3 percent in the 1990s, to 6.7 percent in 2010-2019. High fertility and declining death rates, however, caused a slower growth rate of GDP per capita, with that of Rwanda rising from 3.3 percent in the 1990s to 4.5 percent in 2010-2019. Tanzania, with a population of almost five times that of Rwanda, experienced a much slower growth of GDP per capita, from 1.3 percent in the 1990s to 3.5 percent in the last decade. Both countries outperformed Sub-Saharan Africa (SSA) in terms of real GDP growth and growth of GDP per capita (Table 1). Tanzania's fast economic growth rate enabled it to transition from a low-income to a lower-middle-income status in 2020 (World Bank, 2021, p. 14). However, both countries are at a crossroad because of the risks posed by the COVID-19 pandemic, the details of which are discussed in chapter 3 of this report. They need to be very proactive and implement policies that enable them to restart the pre-pandemic growth trajectory, foster structural transformation and build a more inclusive economy. This report suggests that building and utilizing women's productive capacities are important conduits through which this goal can be accomplished.

Table 1: Real GDP and real GDP per capita growth (%)

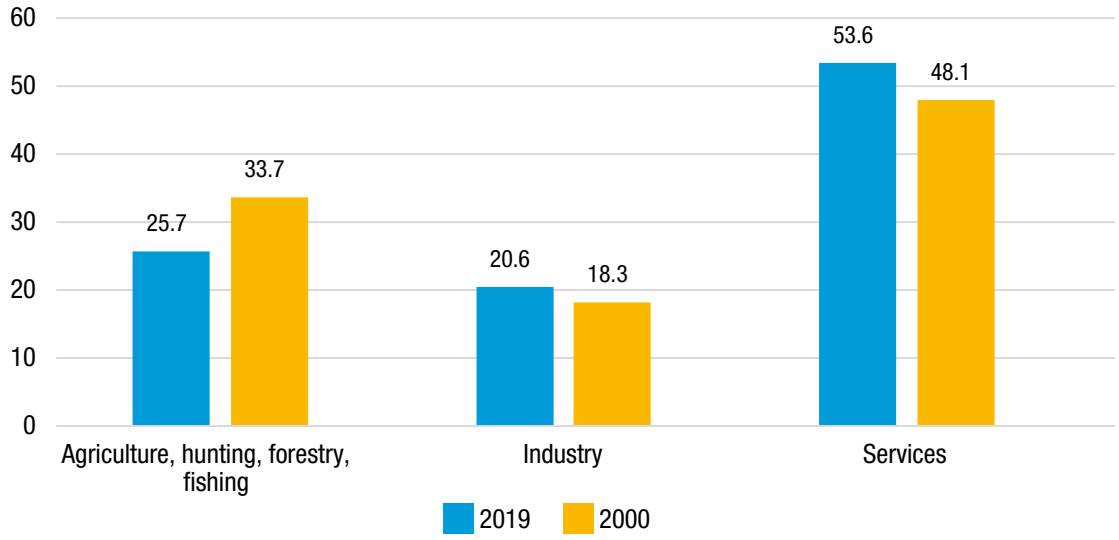
	GDP per capita growth (%) - averages			Real GDP growth (%) – averages		
	1990-1999	2000-2009	2010-2019	1990-1999	2000-2009	2010-2019
Rwanda	3.3	5.5	4.5	4.1	8.3	7.2
Tanzania	1.3	3.5	3.5	4.3	6.4	6.7
SSA	-0.9	2.7	1.2	1.8	5.4	4.1

Source: compiled using data from UNCTADStat

Rwanda and Tanzania are mainly agrarian economies, where up to 80 percent of the population live in rural communities and make their livelihood from agriculture, but non-agricultural sectors have paradoxically been the major drivers of growth in recent times. This trend is remarkable, as it has implications for women's productive capacities. It suggests that women, most of whom are either engaged in unpaid household work, practice subsistence agriculture or are stuck in unproductive informal-sector activities, should be given the opportunity to participate in emerging sectors of the economy. One of the goals of this report is to investigate why women are excluded from frontier sectors of the economy, and how their productive capacities might be raised, so that they can help sustain economic growth, reduce inequality, and alleviate chronic poverty through structural transformation.

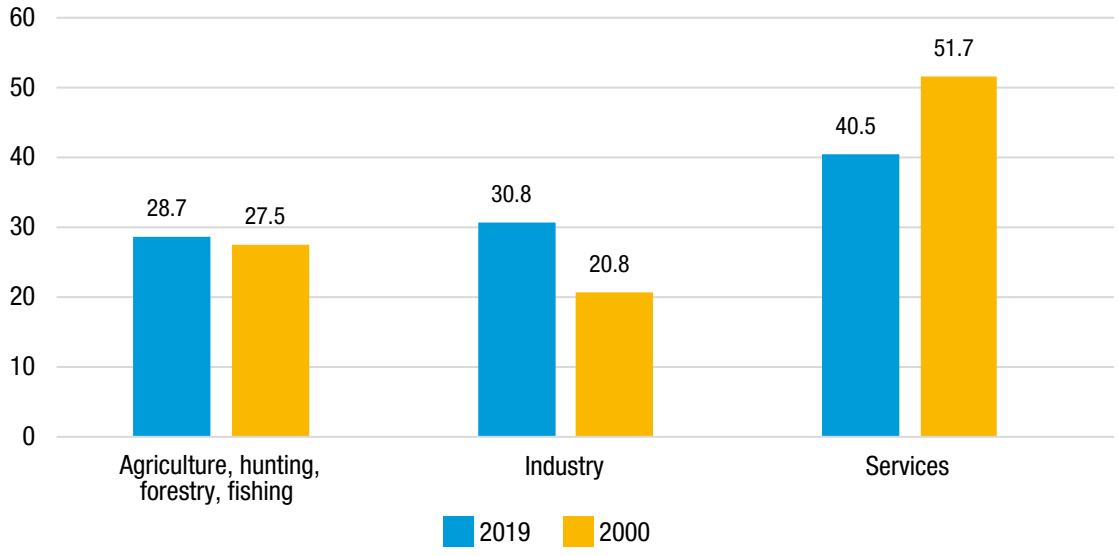
Women's productive capacities need to be raised to align their capabilities with new drivers of the Rwandan and Tanzanian economies. As Figure 1 and Figure 2 show, industry and services account for over 70 percent of the GDP in both countries. In Rwanda, the share of agriculture in the GDP decreased from 33.3 percent in 2000, to 25.7 percent in 2019. Tanzania witnessed a slight increase in the share of the agriculture sector (from 27.5 percent in 2000 to 28.7 percent in 2019), and a big drop in the share of services, from 51.7 percent to 40.5 percent during the same period. The decline in the share of services may be due to the emergence of mining as a major driver of economic growth in Tanzania, which led to a big increase in the share of industry in the GDP, from 20.8 percent in 2000 to 30.8 percent in 2019. In SSA, industry and services contribute over 80 percent to GDP (Figure 3).

Figure 1: Percentage of GDP by component - Rwanda



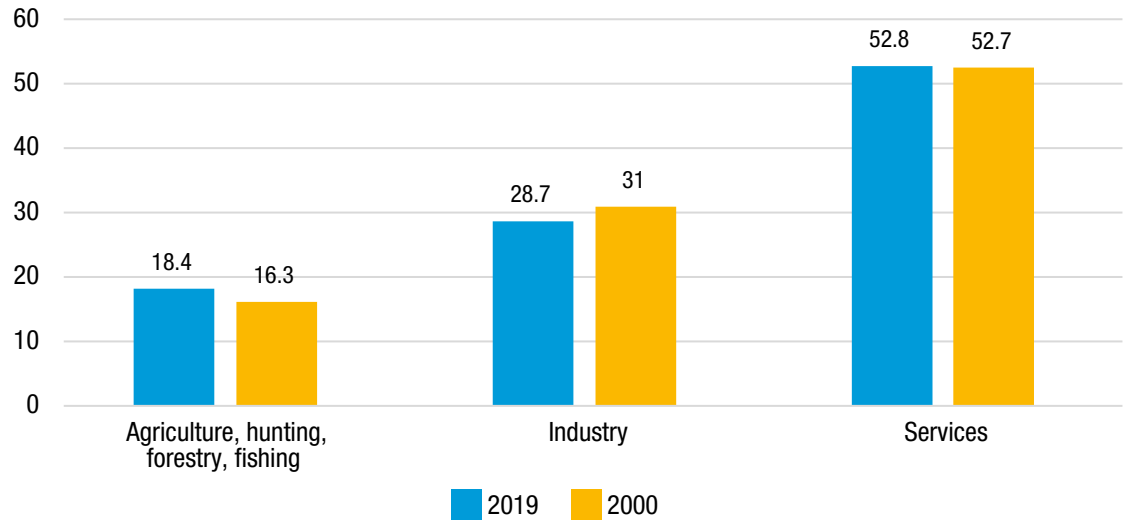
Source: compiled using data from UNCTADStat

Figure 2: Percentage of GDP by component – Tanzania



Source: compiled using data from UNCTADStat

Figure 3: Percentage of GDP by component – SSA



Source: compiled using data from UNCTADStat

As Rwanda and Tanzania continue to liberalize and diversify their economies, the role of agriculture as a growth driver is expected to diminish over time. This is consistent with the Lewisian model, which perceives the development process as one in which labor is transferred from agriculture to the industrial sector, which then raises productivity in both the agricultural and non-agricultural sectors (Lewis, 1954). But this process does not happen automatically. The industrial sector cannot draw unproductive labor from the agricultural sector. The process of structural transformation would be very slow, or even aborted, unless productive labor is available to support the emerging industrial and service sectors. In other words, structural transformation will be impossible in Rwanda and Tanzania, unless women's productive capacities are developed for participation in non-agricultural sectors like Informational and Communications Technologies (ICT), manufacturing, Global Value Chains (GVCs), trade, entrepreneurship, etc. Failure to develop women's productive capacities for participation in "frontier" sectors, or jobs of the future, would make economic growth non-inclusive. A pro-poor economic growth and industrial development strategy for Rwanda and Tanzania should prioritize the development of women's productive capacities and use these capacities as a platform for adding value to agricultural production, while also helping women to transition into activities that maximize their benefits from globalization via regional and international trade, industrialization, and entrepreneurship.

In addition to their impressive growth performance, Rwanda and Tanzania have made remarkable progress with social development (Table 2). They have outperformed the African region's average in several social indicators (UNCTAD, 2018, p. 20). Women's life expectancy exceeds that of men in not only Rwanda and Tanzania, but also in Africa. In Rwanda, child mortality dropped by two-thirds between 2001 and 2015 (CNN Marketplace, 2018). The two exceptions are the number of medical doctors, where Rwanda underperformed SSA, and health worker density, where Tanzania scored less than SSA. Women have made great strides in the political realm as well. Rwanda ranks amongst the top four countries in the world in terms of political empowerment. Women make up more than half of the parliamentarians and ministers in the country (WEF, 2020). In Tanzania, women's participation in politics has improved; 19 percent of cabinet positions, and 36.8 percent of parliamentary seats were held by women in 2018 (UN Women: Tanzania). In 2021, following the death of President John Magufuli, his Vice President, Samia Suluhu Hassan, became the country's first female president.

Table 2: Social Development Indicators

Indicator	Rwanda	Tanzania	SSA
Life expectancy at birth (years, 2019) *	Female: 71.1 Male: 66.8	Female: 67.2 Male: 63.6	Female: 63.3 Male: 59.8
Maternal mortality ratio (per 100,000 live births, 2017) **	248	44	525
Neonatal mortality rate (per 1,000 live births, 2019)	15.87 **	20.29 **	27.5 ***
Infant mortality rate (per 1,000 live births, 2019)	26.29 **	35.98 **	51.7 ***
Health worker density (per 1,000 population, 2017) **	1.34	0.08	0.8
Medical doctors (per 10,000 people, 2018) **	1.34	N/A	2.1

Source compiled using data from *UNDP; ** WHO Database; ***WDI

*WHO recommends a minimum health worker density of 2.28.

Despite socio-political improvements, significant challenges remain about women's economic welfare and productive capacities. Poverty and illiteracy rates amongst women are not only high, but women also continue to be excluded from productive sectors of the economy. In Tanzania, for instance, 60 percent of women live in extreme poverty and 80 percent depend on subsistence farming as their main source of livelihood (UN Women: Tanzania). In 2018, 49.2 percent of women in Rwanda were employed in agriculture, but only 10.3 percent in industry and 40.4 percent in services. By contrast, 31.9 percent of men were employed in agriculture, 25.4 percent in industry and 42.7 percent in services (ILO, 2020). It should be of paramount concern that the future growth drivers in Rwanda and Tanzania are sectors in which women are grossly under-represented. They are under-represented in these sectors, not because they are incapable of performing well, but because they have not been given the opportunity to develop their potential productive capacities. To avoid being left out in critical sectors of the economy, a conducive environment should be put in place for women to attain their potential productive capacities.

Many women in Rwanda and Tanzania are not gainfully employed and are engaged in uncompensated household chores such as childcare, taking care of sick and elderly household members, catering for their male spouse, upkeep of the family compound, etc. Growth in both economies will not be inclusive if women are not provided support and opportunities that enable them to participate in frontier sectors. Inclusive growth can only occur when their productive capacities are raised, such that the opportunity cost of uncompensated household work exceeds the cumulative utility derived from that work. Without raising the productive capacities of women engaged in household work in Rwanda and Tanzania, the benefit of non-household work would be less than its cost. This benefit-cost calculus would further perpetuate the feminization of poverty in these countries.

Rwandan and Tanzanian governments have recently implemented policies for promoting gender equality and women empowerment [see Gender Equality Strategy: UNDP Rwanda (2019-2022), and National Strategy for Gender Development, The United Republic of Tanzania, 2005]. But those policies have not explicitly considered how the building of women's productive capacities can foster inclusive growth, poverty alleviation and gender equality. One of the goals of this report is to highlight the salience of women's

productive capacities; assess the levels of women's productive capacities in Rwanda and Tanzania, and how those capacities can be developed. The report also investigates the constraints of women's participation in the productive formal sector, and proffers solutions to those constraints.

The concept of "productive capacities" became prominent in the field of development when UNCTAD published a report on the subject in 2006 (UNCTAD, 2006). The report defines productive capacities as "*the productive resources, entrepreneurial capabilities and production linkages which together determine the capacity of a country to produce goods and services and enable it to grow and develop.*" Since then, UNCTAD has continued to focus on issues about productive capacities, including a report on how to build and utilize productive capacities, as well as the report on measuring productive capacities (UNCTAD, 2020b). These reports have elevated the discourse on productive capacities and have made the concept a very useful tool for promoting a production and employment-oriented approach to economic development.

Prior to UNCTAD's formal conceptualization of productive capacities, economists focused on the concepts of "productive and allocative efficiencies," meaning the least-cost combination of inputs that maximizes output. According to Fred, Schmidt and Lovell (1993, p. 9), production efficiency is purely technical or physical, and refers to "the ability to avoid waste by producing as much output as input usage allows, or by using as little input as output production allows." But in their methodological preference for tractable and quantifiable analysis, economists take as given several qualitative questions about how output maximization occurs in an economy, and how productive capacities are built. These include questions such as the organizational, institutional, human capital, managerial and technological determinants of output maximization; how women's productive capacities can be developed and harnessed; and how a different approach to agricultural and industrial development can help unleash women's untapped capacities.

2

RATIONALE FOR BUILDING WOMEN'S PRODUCTIVE CAPACITIES

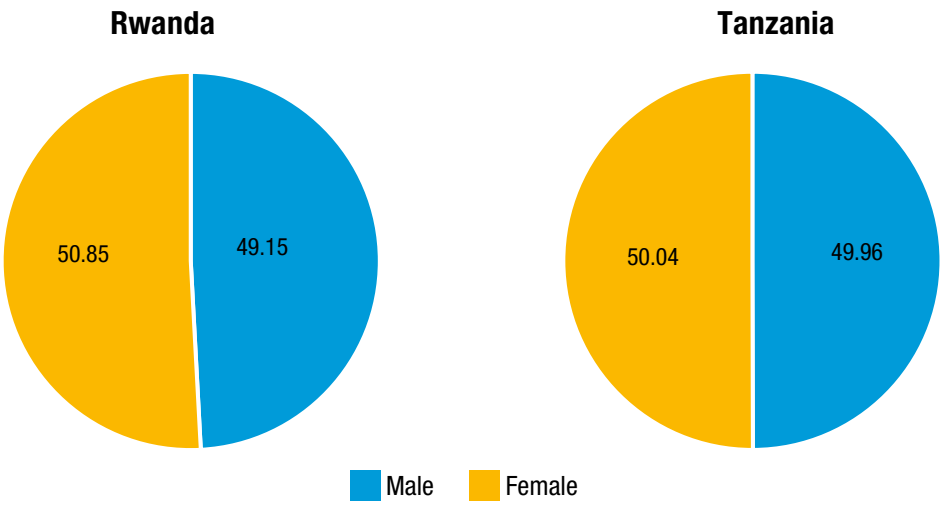
2 RATIONALE FOR BUILDING WOMEN'S PRODUCTIVE CAPACITIES

Building the productive capacities of women in Rwanda and Tanzania is not only a necessity, but also unassailable. Apart from issues of gender equality, this chapter shows that enhancing women's productive capacities is good economics.

Leveraging Women's Demographic Dividend

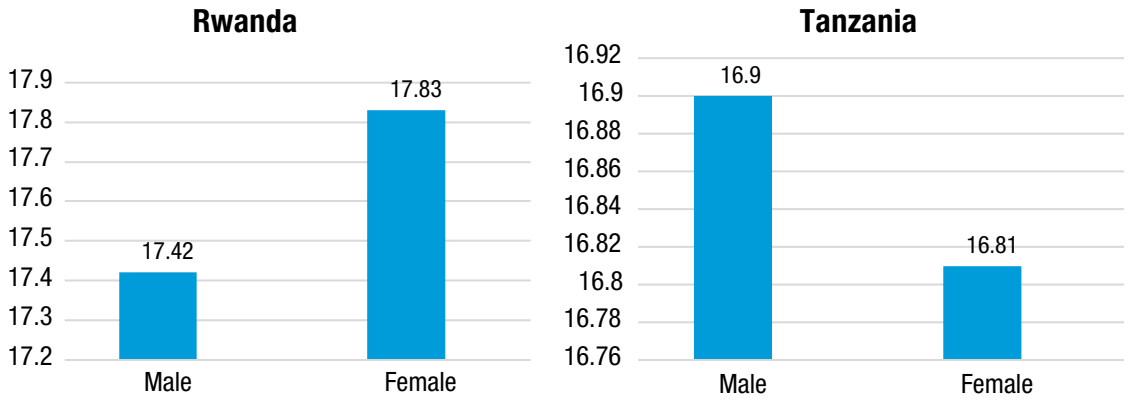
The demographic profiles of Rwanda and Tanzania suggest that women should be at the core of their economic development strategy. In fact, a limiting factor in the excruciatingly slow pace of structural transformation in Rwanda and Tanzania is that women's abilities, creativity and potential contributions to industrial output, value addition in agriculture and technological change have not been tapped, let alone maximized. Women make up a significant proportion of the population and labor force in Rwanda and Tanzania (Figure 4 and Figure 6). Yet, they are among the most neglected and underutilized (USAID, 2021). Therefore, unleashing and leveraging their productive capacities could have transformative effects on trade, industrial development, and the structure of their economies. Rwanda and Tanzania have a very youthful female population that, if effectively harnessed, could help foster inclusive and sustainable growth. President Paul Kagame was right when he asserted that "we cannot claim to be on a sustainable path to transform Rwanda if we exclude women who are more than half of the population." (Essa, 2018).

Figure 4: Total population by sex (%)



Source: compiled using data from UNCTADStat

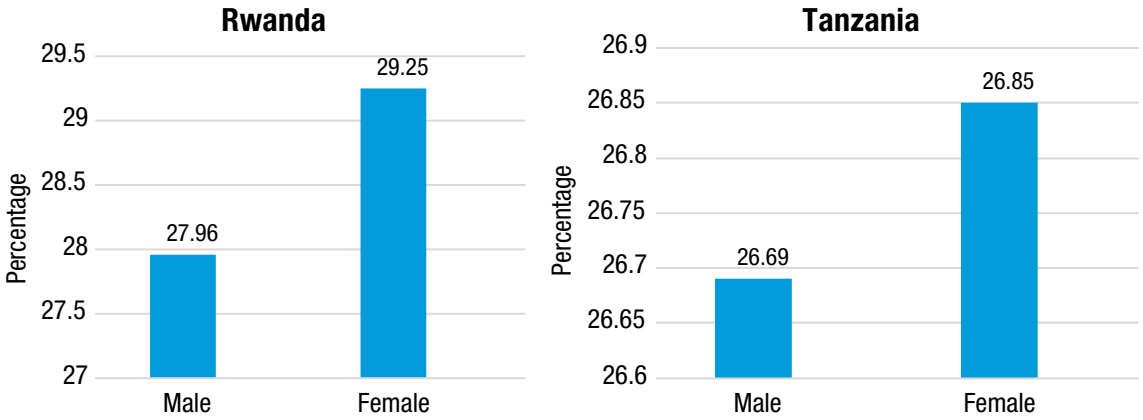
Figure 5: Percent of total population (ages 15-34)



Source: compiled using data from UNCTADStat

African countries have expressed interest in reaping the benefits of the so-called demographic dividend. Reaping these benefits in Rwanda and Tanzania must involve the building of women's productive capacities, especially those in the 15-34 years bracket, who constitute a large population in both countries (Figure 5). There is almost an equal proportion of men and women in both countries that are within the 15-34 age bracket. Rwanda has a very youthful population, with about 60 percent under the age of 25 and only 3 percent over 65 years (USAID, 2019, p. 20). A large proportion of women in Rwanda and Tanzania are of working age. As Figure 6 shows, about 29 percent of women in Rwanda are between the ages 15 to 64 compared to 27.96 percent for men. There is parity in the percentage of men and women of working age in Tanzania. Harnessing the talents and productive capacities of this youthful female population can help transform Rwanda and Tanzania in ways reminiscent of the East Asian Tigers.

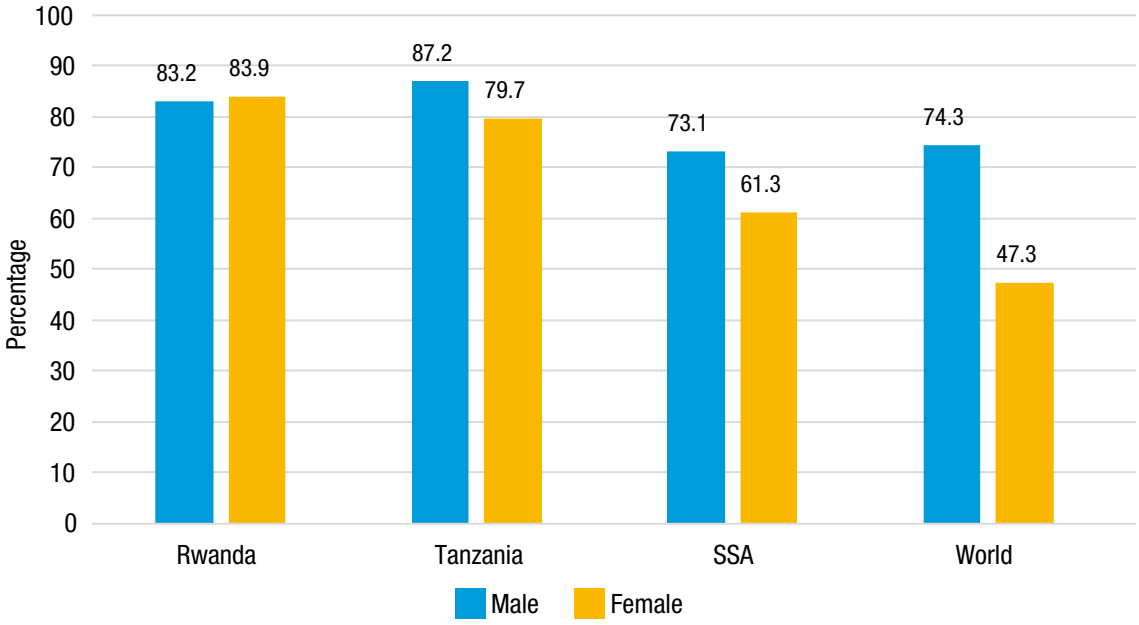
Figure 6: Percent of total population (ages 15-64)



Source: compiled using data from UNCTADstat

Rwanda and Tanzania have very high female labor-force participation rates, though it is higher in the former (83.9 percent) than in the latter (79.7 percent) in 2019 (Figure 7). Tanzania's male labor force participation rate exceeds that of women by about 7 percent. The parity of women's and men's labor-participation rates in Rwanda may be attributed to the country's impressive record on gender equality, which may have encouraged more women to join the labor force. One lesson to be learned here is that when women are given the opportunity, they are often incentivized to build and utilize their productive capacities.

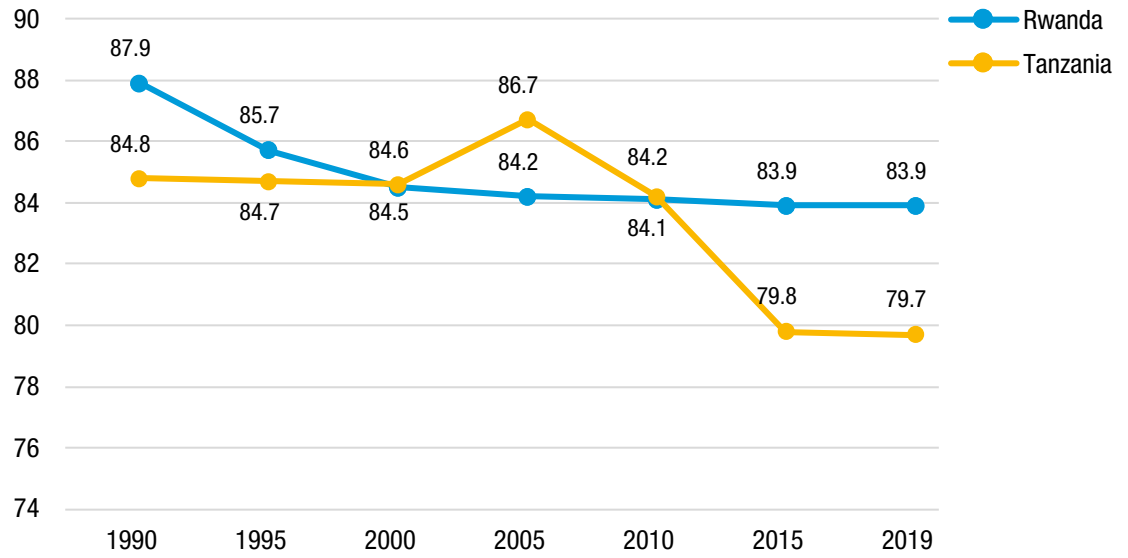
Figure 7: Labor force participation rate by sex (%) (2019)



Source: compiled using data from WDI

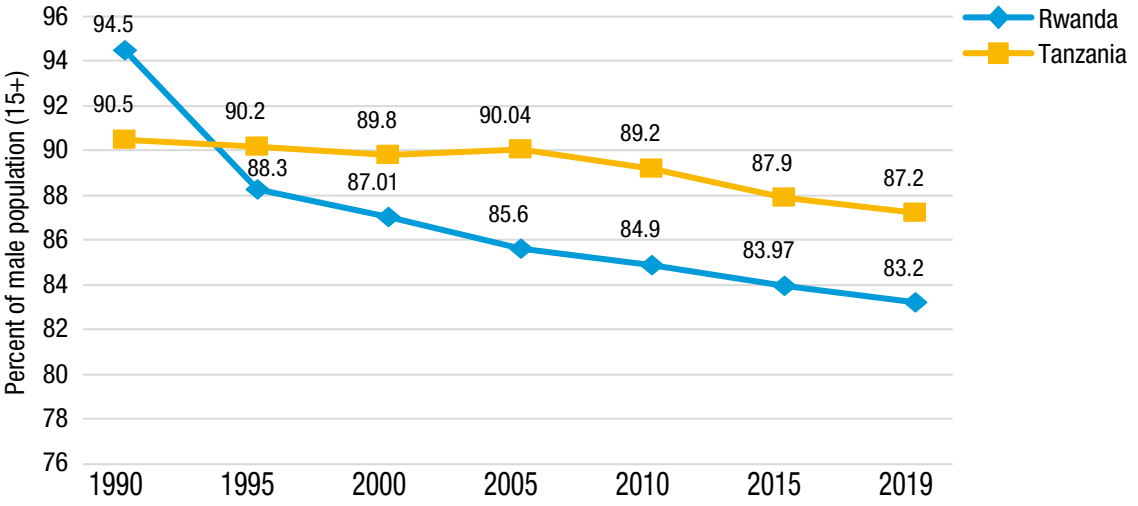
Because of the large pool of women in Rwanda's and Tanzania's labor force, raising their productive capacities would increase the stock of human capital and attract investors in frontier sectors. These sectors include "Content Production, Marketing, Sales, Product Development, Data and AI, Engineering as well as Cloud Computing." (see World Economic Forum's Global Gender Gap Report, 2020). In 2019, Rwanda and Madagascar had the highest female labor-force participation rate (83 percent) in the entire world (ILO, 2018). As Figure 7 shows, the labor-force participation rates for Rwanda and Tanzania exceed the averages for SSA and the world. While the rates are very high, they have recently begun to decline in Rwanda and Tanzania (Figure 8 and Figure 9). We should be very concerned about this trend because it may be difficult to get women back to the labor force, once they begin to take on household chores and lose interest in paid jobs. Studies have shown that lack of employment opportunities for women decreases their probability of transitioning from household work to the formal labor market (Karaoglan and Okten, 2015, p. 285). They become "discouraged workers" when their absence from the labor market is prolonged. Economic growth usually receives a very big boost whenever women's labor-force participation rate goes up, as the case of the United States shows in 2015 (NBC News, 2020).

Figure 8: Female labor force participation rate (%)



Source: compiled using data from WDI

Figure 9: Male labor force participation rate (%)



Source: compiled using data from WDI

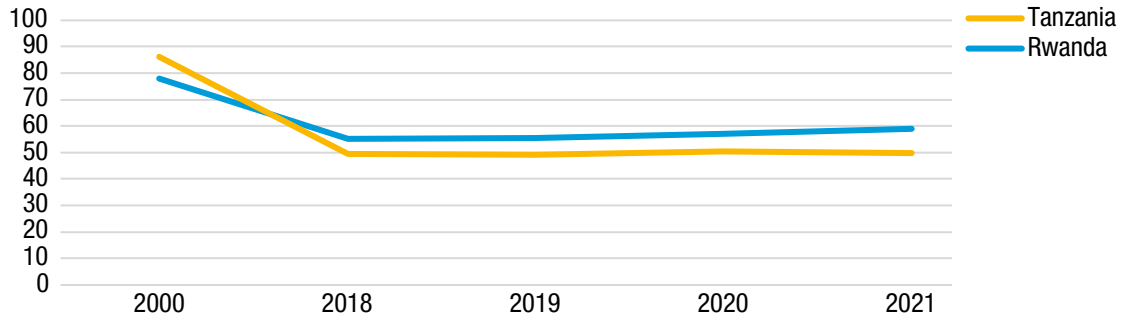
One reason why the labor-force participation rates of women have been declining in Rwanda and Tanzania is that they have not been given the opportunity to participate in "frontier" or new sectors of the economy, including manufacturing, mining, and ICT. By not participating in these sectors, their ability to develop their productive capacities is limited. Another reason for an increase in labor force non-participation rates is a change in the educational composition of the workforce (Tuzemen, 2018, p. 7). It may well be that older women in Rwanda and Tanzania are dropping out of the labor force because their educational and skills levels are either incompatible with, or inadequate for, emerging jobs. These older women could be switching to unpaid household work or engaging in low-productivity activities in the informal sector. To stem the ongoing declines in female labor-force participation in Rwanda and Tanzania, women's productive capacities need to be raised. While younger women should be prioritized in the acquisition of frontier skills, as

they can do so faster and seamlessly, older women should also be supported in acquiring skills that are compatible with their educational levels. In Tanzania, one in three women ages 50-54 and 45.4 percent of those within the 55-59 age bracket have no education (see chapter 7). Adult literacy rate in Rwanda is about 61 percent (see chapter 7). Defeminization of the labor force may lead to an increase in the number of discouraged female workers, which could precipitate perverse social consequences (Dildar, 2021).

Alleviating Poverty and Reducing Inequality

Following their impressive economic growth, Rwanda and Tanzania have seen their poverty rates decline during the past two decades (Figure 10). For Rwanda, it declined from 78 percent in 2000 to 55.3 percent in 2018 and since then has shown an increasing trend. Similarly in Tanzania, the poverty rate declined from 86.2 percent in 2000 to 49.4 percent in 2018, and remained relatively flat until 2021. This decline in Rwanda came after the implementation of two five-year Economic Development and Poverty Reduction Strategies – EDPRS 1 (2008-12) and EDPRS 2 (2013-18). Due to COVID-19, Rwanda's poverty rate rose to 59.1 percent in 2021. Tanzania's poverty rate has remained flat at about 49 percent between 2011 and 2019, but rose slightly to 50.5 percent in 2020, as a result of COVID-19. Because COVID-19 has disproportionately affected women (an issue that is discussed later in this chapter), the poverty rate amongst women is expected to increase at a higher rate than the rate for men. This is another reason why efforts should be intensified, and bold measures taken, to build women's productive capacities.

Figure 10: International poverty rate ($1.90 in 2011 PPP)



Source: compiled using data from Macro Poverty Outlook: The World Bank/WDI

While the reduction in poverty rates in Rwanda and Tanzania may seem to be impressive (Figure 10), Table 3 suggests that the rates are higher under a different set of assumptions. Using the lower-middle income poverty threshold (Table 3), for instance, Rwanda's and Tanzania's poverty rates are higher than those reported in Figure 10. For instance, Table 3 suggests that Tanzania's poverty rates were as high as 77.6 in 2020 and Rwanda's 80 percent in the same year. This information is important for Tanzania because it is currently classified as a lower-middle income country, which implies that its poverty rate should be lower than the current international poverty rate (Table 3). Rwanda aspires to be a middle-income country by 2035, which also means that its poverty rate should decline significantly to reflect that income classification. It is very unlikely that significant poverty reductions in these countries would occur without building women's productive capacities.

Table 3: Measurement of poverty rates (%)

Rwanda	2010	2013	2016	2018	2019	2020	2021
International poverty rate ($1.9 in 2011 PPP)	63.2	57.9	56.5	55.3	55.4	57.2	59.1
Lower middle-income poverty rate ($3.2 in 2011 PPP)	84.0	81.9	80.2	79.6	79.6	80.1	80.6
Upper middle-income poverty rate ($5.5 in 2011 PPP)	93.2	92.6	91.9	91.6	91.6	91.8	92.0

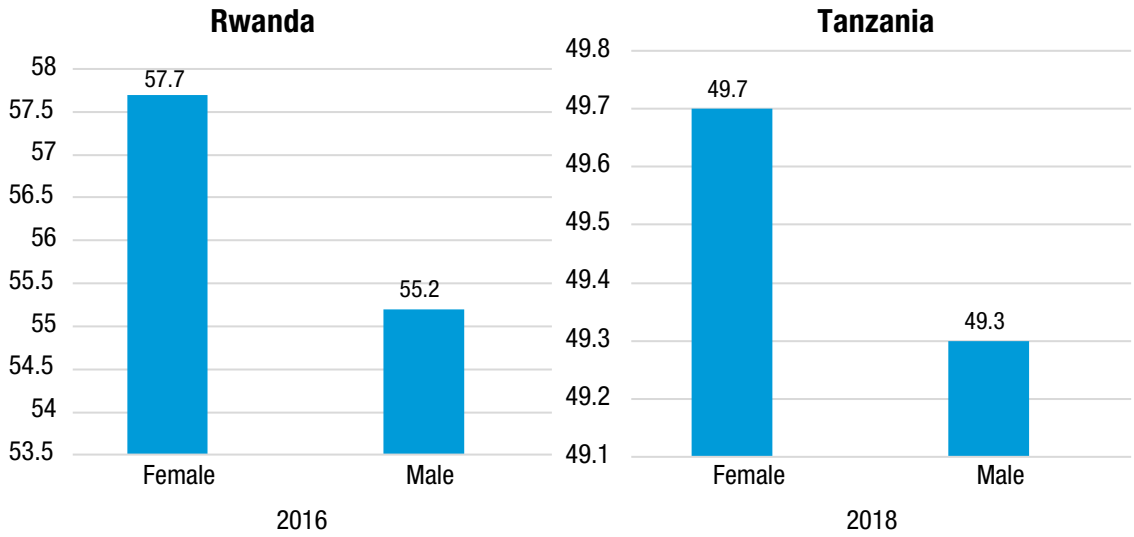
Tanzania			2011	2018	2019	2020	2021
International poverty rate ($1.90 in 2011 PPP)			49.6	49.4	49.3	50.5	49.8
Lower middle-income poverty rate ($3.20 in 2011 PPP)			79.5	76.8	76.7	77.6	77.1
Upper middle-income poverty rate ($5.50 in 2011 PPP)			93.2	91.8	91.8	92.2	92.0

Source: Macro Poverty Outlook 2021: the World Bank

Although the poverty rates for men and women are almost the same in Rwanda and Tanzania (Figure 11), there are reasons to be more concerned about the economic predicament of women. First, women have limited access to land and face greater risk of falling deeper into extreme poverty. Second, most women (about 70 percent in Rwanda and Tanzania) reside in rural areas; are geographically immobile and therefore stuck in either unpaid household work or low-productivity agriculture. Third, due to a longstanding culture of patriarchy, older women are less likely to be educated than men. Therefore, the odds of getting out of poverty are against women, compared with men. This implies that efforts should be doubled to enhance women's productive capacities, so that they can acquire the tools necessary to overcome poverty.

While poverty rates have fallen in Rwanda and Tanzania, they have not declined as fast as expected. In fact, they have remained relatively flat since 2018 (Figure 10), which suggests that the growth elasticities of poverty in these countries are relatively small. Growth elasticities of poverty are low in Rwanda and Tanzania because most poor people, especially women, are employed in sectors that are contributing less and less to the GDP. It is very implausible that further significant reductions in poverty rates in Rwanda and Tanzania can be achieved without strengthening women's productive capacities. Raising women's productive capacities can flatten the growth-poverty curve and accelerate poverty reduction by enabling them to move into sectors that are contributing more to the GDP.

Figure 11: Poverty headcount ratio at $1.90 a day (%)



Source: compiled using data from WDI

Low productive capacities is one of the causes of poverty amongst women in these countries (UN Women: Tanzania). Given the circular nature of the relationship between low productive capacities and poverty, Rwandan and Tanzanian women appear to have been caught in a "capacity trap." A capacity trap exists when someone's resources are barely sufficient for meeting daily consumption, thereby crowding out investment in productive capacity-building. This then results in low income, low saving and back to low investment (including capacity-building). In Rwanda and Tanzania, insufficient resources circumscribe women's ability to save, which limits their ability to invest in productive capacities. Capacity trap perpetuates poverty because it makes it difficult for women to transcend subsistence farming, informal sector activities and unpaid household work. Poverty has been exacerbated in Rwanda and Tanzania because about one-quarter of rural households are female-headed (Osorio, Percic and Battista, 2014, p. 25). Female-headed households tend to have fewer members and more dependents, which negatively affects productive capacities and income. Female heads of households also tend to be older and less educated than their male counterparts. Customs and traditions also make it difficult for them to have land security, which narrows their economic opportunities and income sources.

The way to break the vicious cycle of poverty amongst women in Rwanda and Tanzania is to extricate them from the capacity trap. There is always a temptation for African governments, including Rwanda and Tanzania, to offer cash and other material safety nets to poor women. Cash transfers and other classic safety net measures, while being important short-term palliatives, are unlikely to extricate poor women from the capacity trap, as those transfers would be used to satisfy immediate consumption needs. Removing women's capacity trap and building their productive capacities can alleviate poverty through the following channels:

- *Income Diversification:* By raising their productive capacities, women would be able to escape the capacity trap and engage in high-productivity nonfarm activities. Households that rely mainly on farm income tend to be poorer than those with both farm and non-farm incomes. But generating non-farm income depends mainly on productive capacities; the capacities to engage in non-farm activities like service jobs, manufacturing, ICT, entrepreneurship, etc. Helping Rwandan and Tanzanian women acquire skills and capabilities beyond farming would open-up opportunities in the non-farm sector. Haggblade, Hazell and Reardon (2010) argue that rural household income level depends on the availability of non-farm sources of income. They observe that the expansion of the non-farm rural economy has the effect of absorbing landless and marginal farmers, which raises their productivity

and incomes. In its 2015 poverty assessment of mainland Tanzania, the World Bank observed that poverty fell faster amongst rural households that engaged in nonfarm business activities than other households (World Bank, 2015). According to a USAID report, Rwandan and Tanzanian women with higher productive capacities are more likely to be employed by agro-processing firms, hotels, ICT, health care services, the government and tourism operators. They are also more likely to engage in entrepreneurship (USAID, 2010)

- *Value Addition:* Women typically sell unprocessed agricultural products to traders. Some of these buyers are monopsonists, who use their buyer power to purchase commodities at low prices from hapless and indigent farmers. There are cases where women's products go unsold for several days, and even weeks, until they rot. An increase in the productive capacities of women farmers could enable them to not only produce a broader array of products and therefore diversify their customer base, but also develop the capacity to store, process, and market their products more profitably.
- *Closing Women's Productivity Gap:* Economic growth in Rwanda and Tanzania has been driven mainly by factor accumulation, rather than total-factor productivity (World Bank, 2021, p. 15). Growth can only be sustained if, among other things, total-factor productivity is increased. Raising women's productive capacities and moving them from low-to-high-productivity sectors would accelerate overall labor productivity growth in Rwanda and Tanzania, thereby raising incomes and reducing poverty. A World Bank study shows that, between 1995 and 2017, sectoral reallocation accounted for about two-fifths of labor productivity growth in emerging and developing economies (Dieppe, 2020, p. 427). Unproductive agriculture has been the main development challenge in Tanzania (UNCTAD, 2015, p. 56). In Tanzania, for instance, women's farms are on average 40 percent smaller than those of men. Because women divide their time between household work and farming, they spend fewer hours on farming than men. Their productivity is further reduced by the fact that they lack the financial resources to hire labor or invest in high-value agricultural products (The United Republic of Tanzania, 2018, p. 7). Because of the lack of opportunities to build productive capacities, women in Rwanda and Tanzania have been unable to attain their production-possibilities frontier. There are countless narratives about how women have not been able to maximize their output because they lack knowledge of high-yielding varieties of seeds; unable to afford fertilizers; are too frail to cultivate large swaths of land and do not have physical assets that would enhance their productivity. Raising women's productive capacities would address these productivity shortfalls.
- *Participation in High-Value Informal Sector Activities:* The growth elasticities of poverty in Rwanda and Tanzania are low because too many women are employed in either the informal sector, or low-productivity agriculture. For instance, over 80 percent of women in Rwanda and Tanzania depend on agriculture and informal-sector activities for their livelihood (Bonnet, Vanek and Chen, 2019, p. 21). They typically engage in low-value informal activities like petty trading, tailoring, roadside food vending, hawking of assorted goods, housekeeping, etc. Adding value to subsistence agriculture and informal-sector activities is key to poverty alleviation, at least in the short-term. Raising women's productive capacities would enable them to engage in a broader array of activities in the informal sector, including high-value occupations such as auto and motorcycle repairs, construction, ICT services (cell phone and computer repairs), and welding. These activities are dominated by men and is one of the sources of the gender gap in Rwanda and Tanzania.
- *Moving Women from Unpaid to Paid Work in the Formal and Informal Sectors:* About 64 percent of women in Tanzania work as unpaid family workers in the non-agricultural sector (Osorio, Percic and Battista, 2014, p. 52). Many women engage in unpaid family chores not because they do not have the capacity to undertake paid work, but because of cultural practices that expect them to be responsible for taking care of the household. If the productive capacities of women are raised, they would have the opportunity to work in high-paying jobs outside the household, and subsequently afford to hire labor to undertake their family chores. In other words, building women's productive capacities would raise the opportunity cost of unpaid family work and induce women to seek better opportunities outside the household.

- *Extricating Women from Vulnerable and Indecent Employment:* Most women in Rwanda and Tanzania are in vulnerable employment where a minimum wage and benefits are excluded. These include jobs in the agricultural and informal sectors. They also take on service jobs where payment of a minimum wage and offer of benefits (retirement plans, health insurance, sick leaves, paid vacation, etc.) are not legally or statutorily required. This further drives them into poverty and increases the wage gap between men and women. Raising women's productive capacities would open job opportunities in sectors that pay a minimum wage and benefits. Many women in Rwanda and Tanzania work till they are very old and retire without benefits or significant safety nets. In other words, they remain poor throughout their lives, and then transmit that poverty to subsequent generations. The way to break this cycle of intergenerational poverty is to build the productive capacities of women.
- *Fostering the Demographic Transition:* Productive capacities can help reduce fertility rates amongst women by increasing their incomes and thus raise the opportunity cost of having more children. Lower fertility rates, amid falling mortality rates, would enable Rwanda and Tanzania achieve the demographic transition of low population growth and subsequently raise per capita income, reduce poverty and the dependency ratio. The current population dynamic in both countries is one that fosters high fertility rates, resulting in the population growth rates of 2.6 percent and 3 percent for Rwanda and Tanzania, respectively. As a result, Rwanda's population more than doubled, from 6 million in 1995 to 13 million in 2019. The return to normalcy in Rwanda, after the 1994 genocide, may have also fueled the country's population explosion, as displaced persons returned and resumed their normal activities. Tanzania's population almost doubled, from about 30 million to 58 million during the same period (WDI Database). Because poverty is a major driver of high fertility, building productive capacities can alleviate poverty, which would then reduce population growth rates.

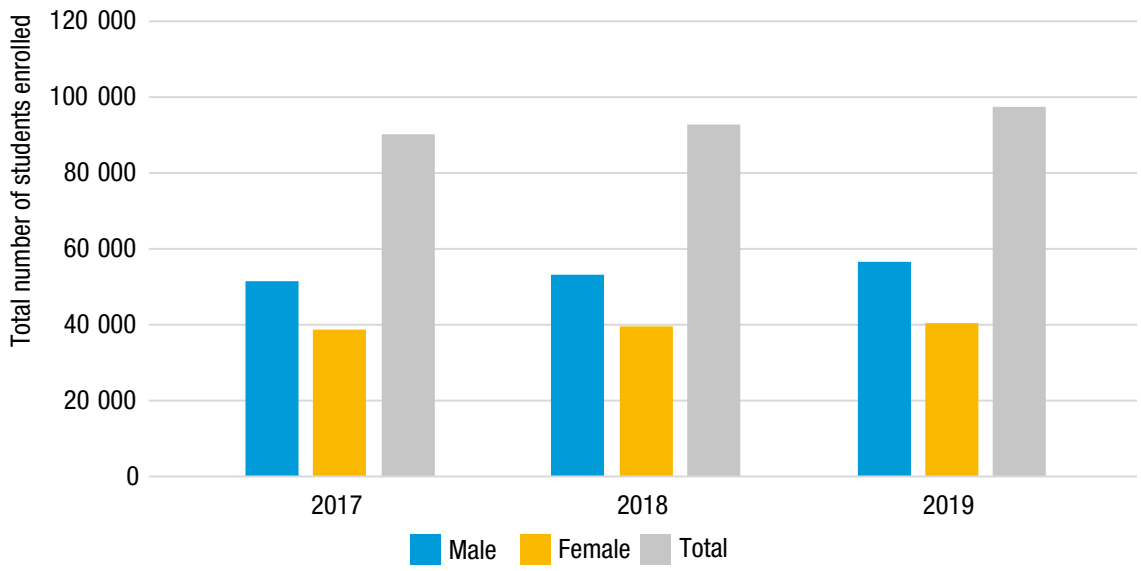
Beyond the Gender Gap: Closing the Gender Deficit

While Rwanda and Tanzania have narrowed the "gender gap," they are still grappling with a "gender deficit." A gender deficit exists when there is a wide lacuna between productive economic opportunities available to men and women. Although Rwanda and Tanzania have made impressive strides toward closing the gender gap, there is still much work to be done in gender deficit. Rwanda is the best performer in Africa, in terms of closing the gender gap (WEF, 2020). It ranked fourth in the 2020 global gender equality index. It has achieved gender parity in primary and secondary education, and girls' enrollments have been higher than boys' in some years. In 2019, 53.3 percent of secondary school students in Rwanda were girls, while 46.7 percent were boys (NISR, 2020, p. 55). In the same year, 49.5 percent of primary school students were girls, and 50.5 percent boys (NISR, 2020, p. 49). While Rwanda has mostly closed the gender gap in primary and secondary education, some gaps still exist in Tanzania. In 2017, about 45 percent of students in secondary schools were girls, and 55 percent boys. But primary school completion rate was higher for girls (about 58 percent) than boys (42 percent) in 2017 (The United Republic of Tanzania, 2017/2018, p. 13). There is lack of gender parity in Tanzania, when it comes to advanced secondary school enrollment, where girls accounted for about 43 percent and boy's 57 percent (The United Republic of Tanzania, 2017/2018, p. 16).

One gap that needs to be closed pertains to "frontier skills," or skills needed for jobs/professions of the future. Jobs of the future include those in artificial intelligence (AI), data analytics, bioinformatics, digital imaging, animation, robotics, ICT, and engineering. Girls lag boys when it comes to education and training that build productive capacities. Figure 12, Figure 13 and Figure 14 show that boys outnumber girls in various technical and vocational education training (TVET) programs.

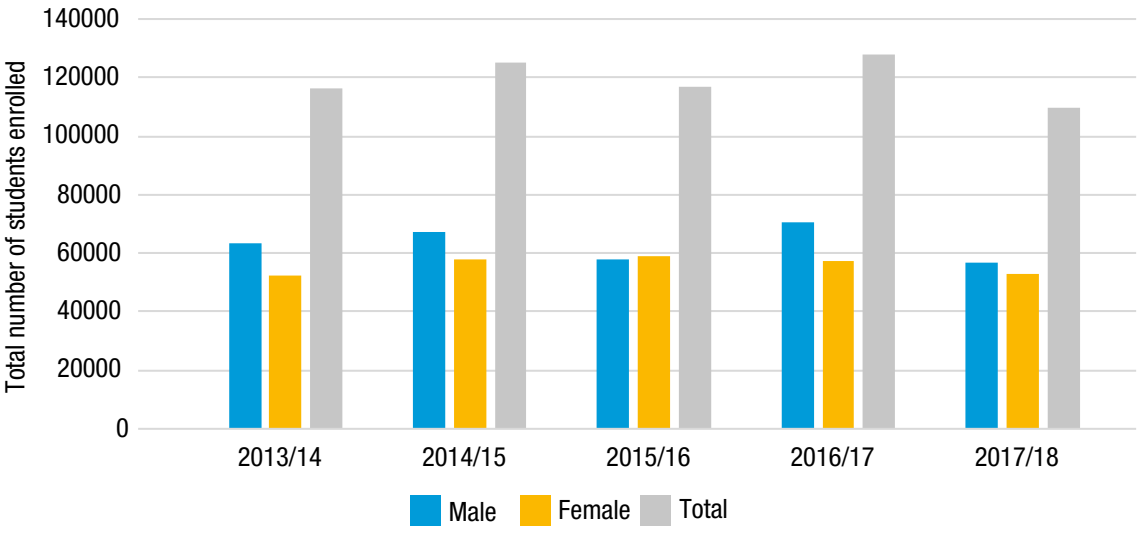
A focus on productive capacities in Rwanda and Tanzania would result in an increased effort to promote women's TVET education. This would in turn prepare them for frontier professions and jobs. Because women are not enrolled in large numbers at technical/vocational schools, they are grossly under-represented in jobs that require technical skills.

Figure 12: TVET trainee's enrollment by sex - Rwanda



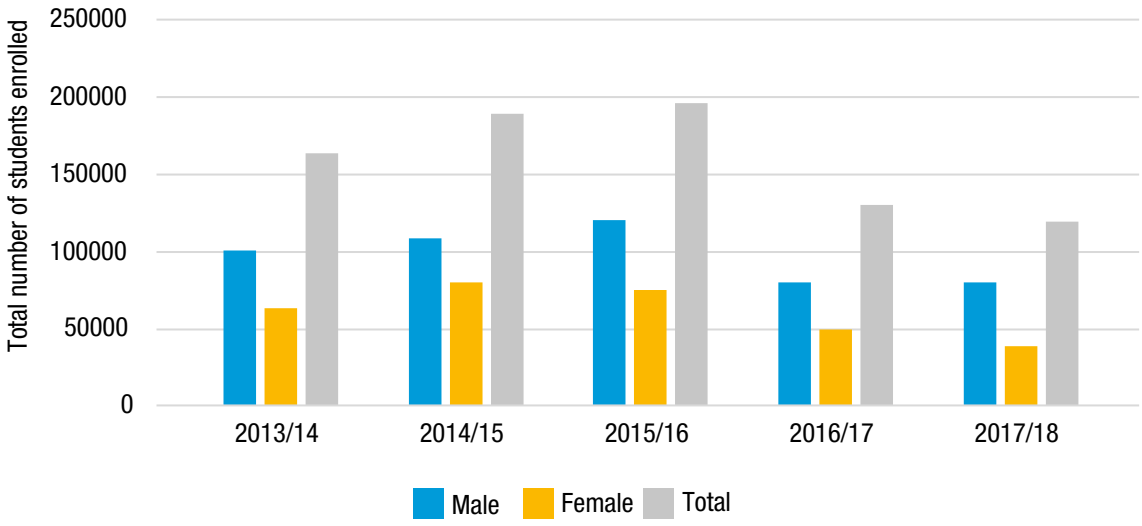
Source: Republic of Rwanda Ministry of Education, 2019, p. 66

Figure 13: Enrollment trend in technical education by sex - Tanzania



Source: The United Republic of Tanzania, 2017/2018, p. 27

Figure 14: Enrollment trend in vocational education by sex - Tanzania



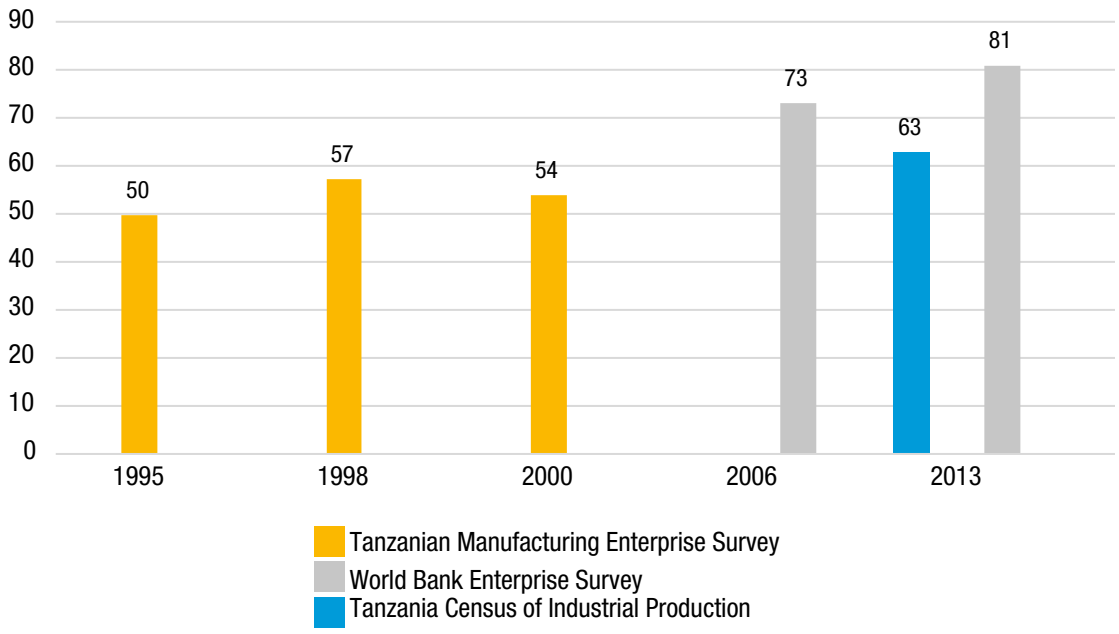
Source: The United Republic of Tanzania, 2017/2018, p. 28

Raising Capacity Utilization

As mentioned previously, agricultural production in Rwanda and Tanzania is mainly undertaken by women. Building women's productive capacities would enable them to not only raise their output, but also to improve quality and add value. This would then ensure steady and reliable supplies of raw materials to agro-processors and other manufacturers. Manufacturers in Rwanda and Tanzania suffer chronic under-utilization of production capacity (Figure 15 and Figure 16), due to shortages of raw materials and inputs. This is a major reason why firms in these countries are unable to achieve international competitiveness, as well as struggle to compete with imported goods. In Rwanda, industrial capacity utilization plummeted from about 50 percent in 2014, to 45 percent in 2017 (Rwandan Ministry of Trade and Industry, 2017). There have been conflicting estimates of capacity utilization rates in Tanzania. The country's Census of Industrial Production estimated capacity utilization at 63 percent in 2013 (Figure 15).

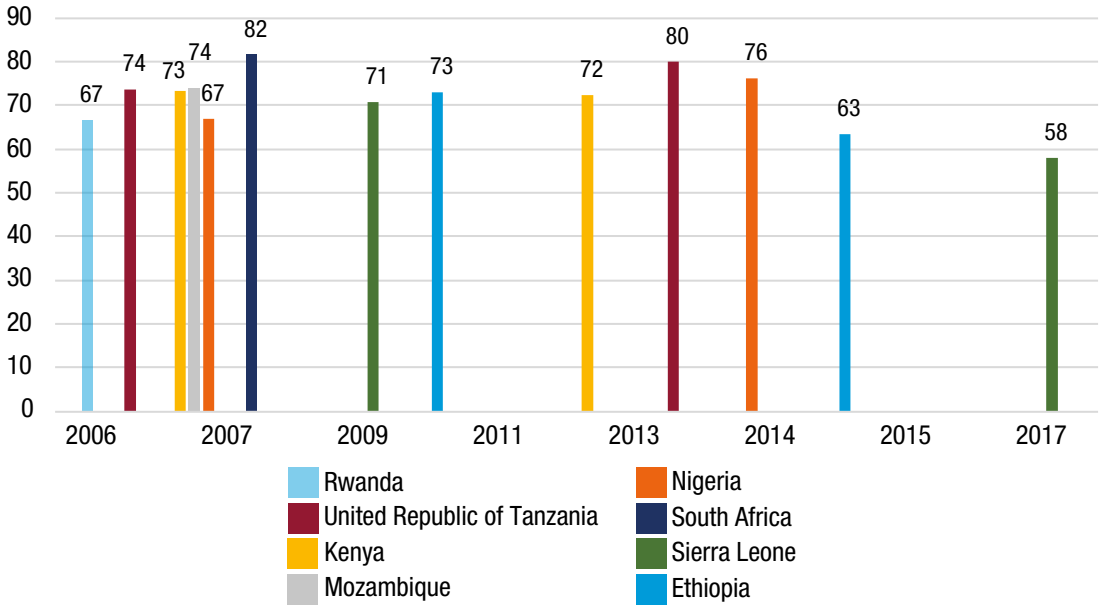
In a survey of manufacturers, the Rwandan Ministry of Trade and Industry identified the following factors as responsible for the country's low-capacity utilization (Table 4). Reports have noted that the capacities of firms in Rwanda's dairy, cereals and tea sectors are underutilized because of insufficiency or sporadic supplies of materials, as well as their quality (KPMG, 2014-2020 and AfDB, 2014, p. 30). The Tanzanian leather industry suffers low-capacity utilization, because of shortages of high-quality hides and skins (RE-POA, 2020). An effective and efficient way of ensuring steady supplies of raw materials is to build women's productive capacities.

Figure 15: The United Republic of Tanzania capacity utilization (%), by data source



Source: UNCTAD (2020b).

Figure 16: Capacity utilization rate in select African countries (%), 2006-2017



Source: UNCTAD (2020b).

Table 4: Reasons for capacity under-utilization

Primary Reason	Share of Respondents
Lack of Sufficient Raw Materials	27%
Lack of Sufficient Working Capital	32%
Limited Market	22%
Lack of Skilled Labor	6%
Lack of Appropriate Technology	10%
Other	2%

Source: Rwandan Ministry of Trade and Industry, 2017

Setting a Sustainable and Inclusive Growth Path

Women's main sources of livelihood are subsistence farming and low-productivity informal-sector activities. Economic growth does not usually induce a price increase for most agricultural products, as the demand for them is income inelastic. Tertiary and technical education is usually one pipeline through which women in other countries benefit from growth. Although Rwanda and Tanzania have made progress with women's education, illiteracy rates amongst older women are very high (see chapter 7). The lack of education and skills implies that there are few conduits, short of cash transfers and subsidies for essential goods and social services, through which growth can trickle down to most women. Another reason why growth has not been inclusive is that the major growth drivers in Rwanda and Tanzania are sectors in which women have been excluded and are not given the opportunity to build productive capacities. Agriculture, in which women are over-represented, is becoming less important as a major growth driver. This sector has also been attracting less private and public investments, thus denying women opportunities for the high-paying jobs, new skills and technologies that are usually associated with foreign investment. These job opportunities go to men and those individuals fortunate enough to have productive capacities. Economic growth and transformation would leave women behind, unless their productive capacities are raised to enable them transition into new growth drivers.

Fostering Structural Transformation and Preparing Women for Participation in the New Economy

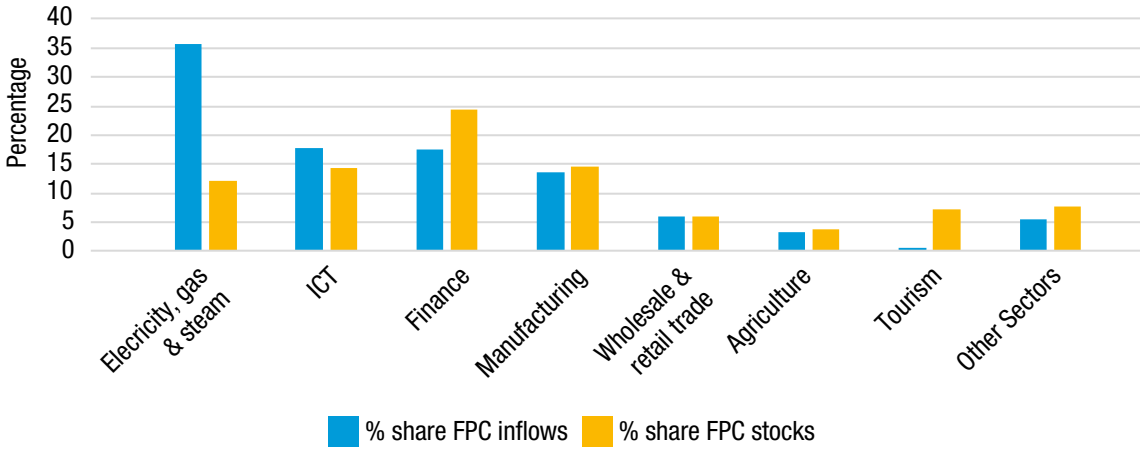
Economic growth in Rwanda and Tanzania has not been accompanied by structural transformation. UNCTAD has developed an index to assess the state of productive capacities of countries all over the world (UNCTAD 2020a). The index is based on a weighted aggregation of eight indicators of productive capacities, namely: structural change, human capital, natural capital, energy, transport, ICT, institutions, and private sector. While the data shows that the productive capacities of Rwanda and Tanzania have been increasing, they scored very low in structural change (see chapter 4). The lack of structural transformation is manifested by the fact that most women in Rwanda and Tanzania are either self-employed in the informal sector, or work within the household. For structural change to occur, much of women's activities would have to move from households to enterprises (Fox, 2016). One major reason for the lack of structural transformation is these countries' low productive capacities (Osakwe, 2021, p.4).

The Rwandan and Tanzanian governments want to promote structural transformation and diversify their economies, making them less reliant on agriculture. In Tanzania, efforts have been devoted to the development of gold mining, oil and gas, as well as agro-processing. It would be challenging, if not impossible, to accomplish this goal without developing women's productive capacities. Under the Tanzania Development Vision 2025 (TDV) introduced in 1999, the country would become a middle-income economy by 2025. The TDV expects Tanzania to be semi-industrialized by 2025. In the recently launched Third National Five-Year Development Plan, the overall goal will be to "continue to implement the projects and programmes aimed at opening up economic opportunities, build an industrial economy, strengthen competitiveness in domestic, regional and global markets as well as strengthen human development" (Ministry of Finance and Planning,

2021). Rwanda's Vision 2020, crafted in 2000, sought to transform the country into a knowledge-based middle-income country by 2025, and a high-income status by 2050. It aims, among other things, to accomplish the following goals: good governance, an efficient state, skilled human capital (education, health, and information technology), a vibrant private sector, a world-class physical infrastructure, as well as modern agriculture and livestock.

Both countries have pledged to provide an enabling environment for foreign and domestic investments in new sectors. Figure 17 shows that the Electricity, Gas and Steam sector attracted the highest flow (35.7 percent) of Foreign Private Capital (FPC) to Rwanda in 2019, followed by ICT (17.9 percent), Finance (17.6 percent), Manufacturing (13.6 percent), Wholesale and Retail Trade (5.9 percent), Agriculture (3.3 percent), Tourism (0.5 percent) and Other Sectors (5.6 percent).

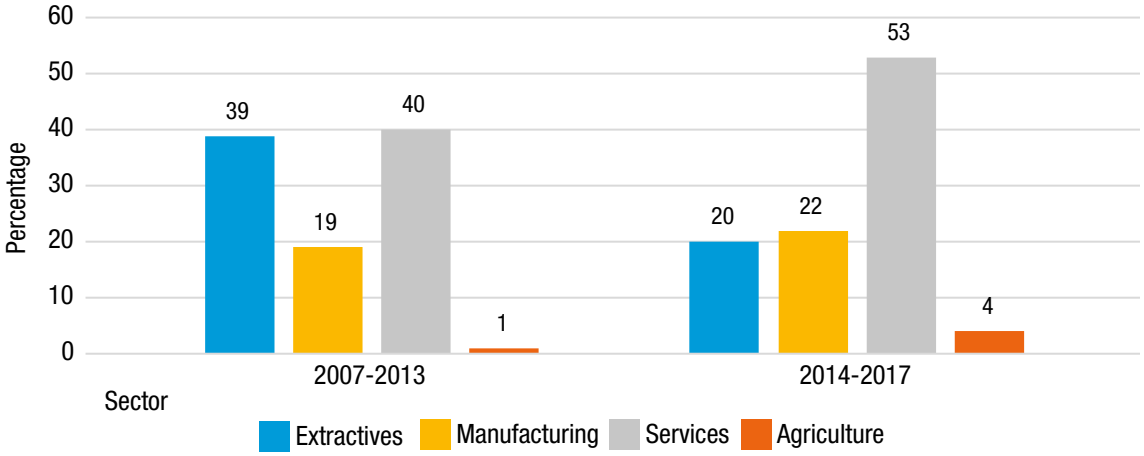
Figure 17: FPC inflows and stocks by sector of activities (% shares) - Rwanda



Source: National Bank of Rwanda, 2019, p 17

A similar pattern can be observed in Tanzania (Figure 18). Services attracted the highest flow of Foreign Direct Investment (FDI), increasing from 40 percent during 2007-2013, to 53 percent in 2014-2017. This is followed by the extractive sector (mining, oil and gas), which was 39 percent in 2007-2013, but plummeted to 20 percent in 2014-2017. Manufacturing attracted 22 percent of FDI IN 2014-2017, up from 19 percent in 2007-2013. As in the same case of Rwanda, the agricultural sector came last, attracting just 4 percent of FDI in 2014-2017.

Figure 18: FDI in Tanzania, shares by sector.



Source: The World Bank, 2019, p. 21

Women are under-represented in these emerging sectors, which implies they are missing out on the positive attributes of foreign investment: high-paying jobs, acquisition of new skills, technologies, and entrepreneurial skills. It is therefore very imperative to develop women's productive capacities, so that they can transition seamlessly into these new sectors. Box 1 illustrates the type of new economy Rwanda is trying to establish. There will not be a place for women in this economy, unless their productive capacities are built and utilized. To ensure that women are not left behind in the new economy, the Rwandan government has established a Gender Monitoring Office (GMO) to benchmark women's accomplishments in various sectors of the economy against those of men. Rwanda's intention to empower women is vividly summarized by President Paul Kagame: "Women and men are equal in terms of ability and dignity, and they should also be equal in terms of opportunities. As Rwandans, as a global community, we need every member of our society to use his or her talents to the fullest if we are ever to reach our development goals." (See Gender Monitoring Office report, 2019). In 2008, the Tanzanian government launched a comprehensive gender development strategy in many sectors of the economy, which has served as a template for empowering women in the country (see Government of Tanzania Gender Development Strategy, 2008).

Box 1: Made in Rwanda laptops

Rwanda's Vision 2020 aims to transform the country, from an agrarian and tourism-based economy to a knowledge-based economy. As part of this strategy, it plans to turn the country into a technology hub. To this end it launched FabLab in 2016, an innovative platform that would enable inventors to turn their ideas into products. FabLab is designed as a capacity building entity to integrate electronics and hardware skills. There is also an ongoing effort to build the Kigali Innovation City, which will support innovation labs and technology companies. These initiatives have attracted technology firms, including laptop manufacturer Positivo, a joint venture between Positivo Informatica of Argentina and BGH of Brazil. The Rwandan government has committed to purchasing 150,000 devices each year from the company to support the country's education sector. But women will be left out of new frontier sectors like this knowledge-based initiative and would be stuck in unproductive agricultural and informal sector activities, unless their productive capacities are developed. As chapter 5 shows, women's productive capacities in ICT are not fully developed.

Source: CNN Marketplace, 2018

Positioning Rwanda and Tanzania in the Global Value Chain

About half of world trade occurs in Global Value Chains (GVCs), and "trade in tasks" is expected to be a growing segment of the global market (Shepherd and Twum, 2018, p. ii). GVCs are good for women because they provide opportunities for them to brand their products, engage in non-farm activities, diversify their income through wage employment, learn new skills, gain industrial and entrepreneurial experiences, and build a valuable social network. But GVCs would be unwilling to employ women without acceptable levels of productive capacities. For instance, a GVC would not employ women without basic literacy, or those with no experience working outside of the household. These categories of women need to be trained for employment outside the household, through measures discussed in chapter 7.

Rwanda and Tanzania have not taken full advantage of GVCs, partly because they have not been as attractive as other developing countries. As Porter (2008) points out, global corporations configure their value chains to gain *comparative* and *competitive* advantages. Comparative advantage comes from being located near sources of low-cost and high-quality inputs (energy, raw materials, skills, technical knowhow, etc.), while competitive advantage arises from the unique manner by which a firm coordinates its value chain. Rwanda and Tanzania are agriculture-based economies, yet they have not attracted levels of agricultural GVCs commensurate with their capabilities. This is partly due to the sub-optimal development and utilization of women's productive capacities. This has created uncertainties in their capacity to supply adequate and high-quality raw materials to global GVCs.

Global corporations that are seeking low-cost and high-quality inputs often locate in countries with an abundant and reliable supply of those inputs. Women can foster a competitive edge to GVCs because of gender wage gaps and women's weak bargaining power in the labor market (UNCTAD, 2018a). As the global market becomes more competitive and consumers seek high-quality products at low prices, the choice of location has become an important strategic consideration (Porter, 2008). While Rwanda and Tanzania are regarded as stable and well-governed countries (BBC, 2005), they have not attracted GVCs. As Table 5 shows, Rwanda and Tanzania have been bypassed by GVCs, and they instead prefer other African countries that are not as endowed as Rwanda and Tanzania.

Table 5: Some agro-processing Global Value Chains

Company	Headquarters	Products	Sales ($) in 2019	Number of Global Locations	Locations in Africa
ADM	Chicago, USA	Food and Feed Processing	64.7 billion	53	Algeria, Egypt, Morocco, Nigeria, South Africa
Cargill	Minneapolis, USA	Origination, Processing, Marketing and Distribution of Agricultural Products	113.5 billion	65	Algeria, Cote d'Ivoire, Egypt, Ghana, Kenya, South Africa, Zambia
Danone	Paris, France	Diary and Plant-Based Products, Water, Early Life Nutrition and Medical Nutrition	28.3 billion	9	South Africa, Morocco
Nestle	Vevey, Switzerland	Food Processing and Marketing	93.5 billion	114	Algeria, Angola, Benin, Burkina Faso, Cameroon, Chad, DRC, Cote d'Ivoire, Egypt, Gabon, Ghana, Kenya, Morocco, Mozambique, Nigeria, Senegal, South Africa, Tunisia, Zambia
Unilever	London, UK	Foods and Refreshment, Homecare, Beauty, Personal Care	58.2 billion	99	Algeria, Angola, Burundi, Egypt, Ghana, Kenya, Libya, Malawi, Morocco, Mozambique, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe

Source: compiled using data from company web sites.

It can be seen from Table 5 that, of all the major agro-processing GVCs in the table, only Unilever has invested in Rwanda and Tanzania. Building the productive capacities of Rwandan and Tanzanian women could help improve the supply chains of manufacturing firms in these countries. For instance, the provision of modern agricultural tools, equipment, inputs, and managerial/organizational skills could enable rural women to raise agricultural productivity, add value to their products and ensure a steady supply of inputs to agro-processing firms. Development economists have long established synergistic and complementary relationships between the agricultural and manufacturing sectors. Raising women's productive capacities can facilitate the development development of the agricultural and manufacturing sectors of Rwanda

and Tanzania. This is not to suggest, however, that the non-utilization of women's productive capacities is solely responsible for the small numbers of GVCs in both countries. The point is that developing and harenessing women's productive capacities can boost the inflow of GVCs. Box 2 shows how GVCs can provide opportunities for women, as well as an enabling environment for building and utilizing women's productive capacities.

Box 2: Global Value Chains can create opportunities for women.

Although a relatively small player in the GVC in the food industry, Olam International, with a revenue of about $16 billion in 2019, illustrates how GVCs can create job opportunities in the formal agricultural sector, as well as provide opportunities for their children to raise their productive capacities. Olam took advantage of the liberalization of the Tanzanian economy and invested there in 1994. It manages integrated supply chains for cashews, cotton, and sesame, cocoa, and green coffee. It employs 60 staff and over 3,000 seasonal workers during peak season. One of its signature projects is a 2000-hectare Arabica coffee plantation in the Songea Rural District of Southern Tanzania, and the operations at this plantation span the entire supply chain for coffee – origination, processing, and distribution. The company's Aviv Coffee Estate employs over 1000 casual workers, mostly women from neighboring villages. They engage in production activities such as weeding, harvesting, and processing. Olam has built a crèche for the workers' children, so that they can be educated while their mothers are at work. These women are not only able to diversify their income sources, but also mitigate the risks associated with subsistence agriculture. They are also able to learn agro-processing skills, which increases their chances of obtaining jobs elsewhere and therefore raises their market power. More importantly, they become less vulnerable to exogenous shocks.

Source: Olam, "Tanzania"

Preparing Women for the Fourth Industrial Revolution

Women in Rwanda and Tanzania have not derived significant benefits from previous industrial initiatives. Whether it is industrial training, firm-level apprenticeship training, R&D, etc., women have not been fully engaged in the globalization process. At the onset of globalization in the 1990s, analysts alluded to the great opportunities that accompanied the process – high-paying jobs, acquisition of new skill sets, rising affluence, and a burgeoning middle class. But these so-called new opportunities were illusory for women in Rwanda and Tanzania, as they continued to be stuck in subsistence agriculture, low-productivity informal sector, unpaid household work and extreme poverty. They have neither transitioned horizontally into high-value agricultural production nor made progress vertically toward high-income non-agricultural sectors. A Fourth Industrial Revolution (4IR) is currently underway, and it involves frontier skills and jobs in artificial intelligence (AI), robotics, 3-D printing, precision machining, data analytics, bioinformatics, etc. (Brown, 2021). Women in Rwanda and Tanzania will be left behind again, as they were in previous industrial revolutions, unless their productive capacities, skills, entrepreneurial and managerial aptitudes are intentionally developed and harnessed for effective participation in this new industrial era. Women cannot afford another century of economic disempowerment and deprivation.

Protecting Women from Shocks and Vulnerability

Rwandan and Tanzanian economies are structurally weak and susceptible to shocks, particularly fluctuations in commodity prices, aid, weather, and other unpredictable events [see UNCTAD (2006), World Bank in Rwanda Report (2021)]. The growth drivers in both countries are episodic and uncertain. Growth in Rwanda has been driven by large public investment in infrastructure, financed by external borrowing and aid (World Bank, "The World Bank in Rwanda."). Tanzania was the third largest recipient of ODA to Africa between 2010-2017, accounting for about 5.3 percent of aid, after Ethiopia and the Democratic Republic of Congo (OECD database on aid).

Foreign aid, which has been a major driver of growth in Rwanda and Tanzania, is likely to dwindle over time, and therefore cast doubt over the sustainability of growth (Ansoms, 2007). Poor women are often the most adversely affected by shocks and economic downturns. This is because they depend mainly on agricultural production, whose prices are often volatile. Terms of trade are also unfavorable to women, as they face rising prices of non-agricultural products and services. Agriculture is a sector that has been impacted by climate change, which is manifested in deteriorating soil conditions, erosion, high temperatures, and water scarcity. At the same time, women are the least able to cope with the negative consequences of shocks. This is due to their inadequate knowledge of the dynamics of climate change, lack of risk-mitigating insurance mechanisms, low savings, and lack of skills that would enable them to diversify their income sources. Building the productive capacities of women would enable them to cope more effectively with shocks and vulnerability. For instance, there was an increase in the demand for healthcare services and Personal Protective Equipment (PPE) at the peak of the COVID-19 pandemic. Women without the education or training to work in healthcare services and other resilient sectors were not able to participate in the sectors that were less-vulnerable to the pandemic. While the income of those in the informal and service sectors plummeted during the pandemic, those in other sectors saw an increase in the demand for their labor, as well as an increase in their income. But women who did not have the capacities to transition into the booming sectors lost out and fell deeper into poverty.

Fostering Women's Dignity, Freedom and Respect

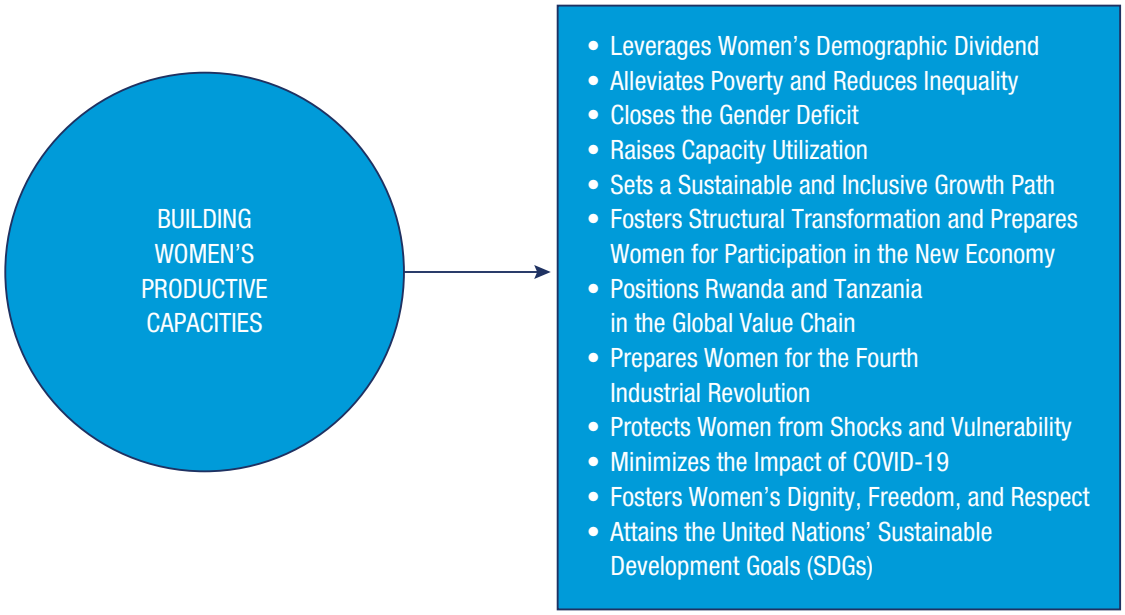
Building women's productive capacities is a precondition for their economic dignity. Without economic dignity that is rooted in productive capacities, women's rights and freedoms would be on shaky foundations. Economic dignity occurs when individuals feel accomplished and respected in their occupations, and at the same time can provide for their families and loved ones (Sperling, 2020). Nobel Laureate Sen (1999) argues that development is not just about increasing incomes and living standards; it is also about ensuring the respect, freedom, and dignity of people. Known as the "capabilities approach to development," this paradigm encourages development programs and projects that enhance people's capabilities to maximize their potentials; feel satisfied and respected in what they do. Although Rwanda and Tanzania have made progress in gender equality [see, for instance, UNCTAD's and World Economic Forum's Gender Equality Reports], compared to other Africa countries, women in these countries should be given the opportunity to optimally develop their productive capacities. This would broaden their occupational choices; prevent them from being stuck in low-productivity informal sector activities and subsistence farming, as well as enable them to command respect. In Tanzania, early marriage is very common amongst women. Women's productive capacities may be depleted when they get married early and begin to cater for their family. This forecloses opportunities to raise their productive capacities and confines them to a lifetime of drudgery, poverty and indignity. As noted by the United Nations Population Fund (UNFPA), "child marriage denies girls the opportunity to fully develop their potential as healthy, productive and empowered citizens. Child marriage robs girls of their girlhood, entrenching them and their future families in poverty, limiting their life choices, and generating high development costs for communities" (UNFPA, 2012, p.11).

Attaining the United Nations' Sustainable Development Goals (SDGs)

In 2015, the United Nations General Assembly launched the "Sustainable Development Goals (SDGs)." The UN encouraged member countries to achieve 17 SDGs by the year 2030. The first five goals of the SDGs: No Poverty, Zero Hunger, Good Health and Well-Being, Quality Education, and Gender Equality, can be easily accomplished by the development of women's productive capacities. When women are productive, they are not only able to afford the basic needs of life, but also invest in things that further raise their capacities and their children's capacities. In this sense, women's productive capacities have multiplier effects, in that they lay the foundations for multiple rounds of capacity-enhancing investments in the economy. Rwandan and Tanzanian cultures bequeath to women the role of the family matriarch. If properly leveraged through development of productive capacities, that role can be transformative by empowering women to invest in their children's education, skills, health, nutrition, decent housing, etc.

Chart 1 provides a panoramic view of the various reasons why women's productive capacities should be developed and fully utilized.

Chart 1: Building women's productive capacities



Source: Authors

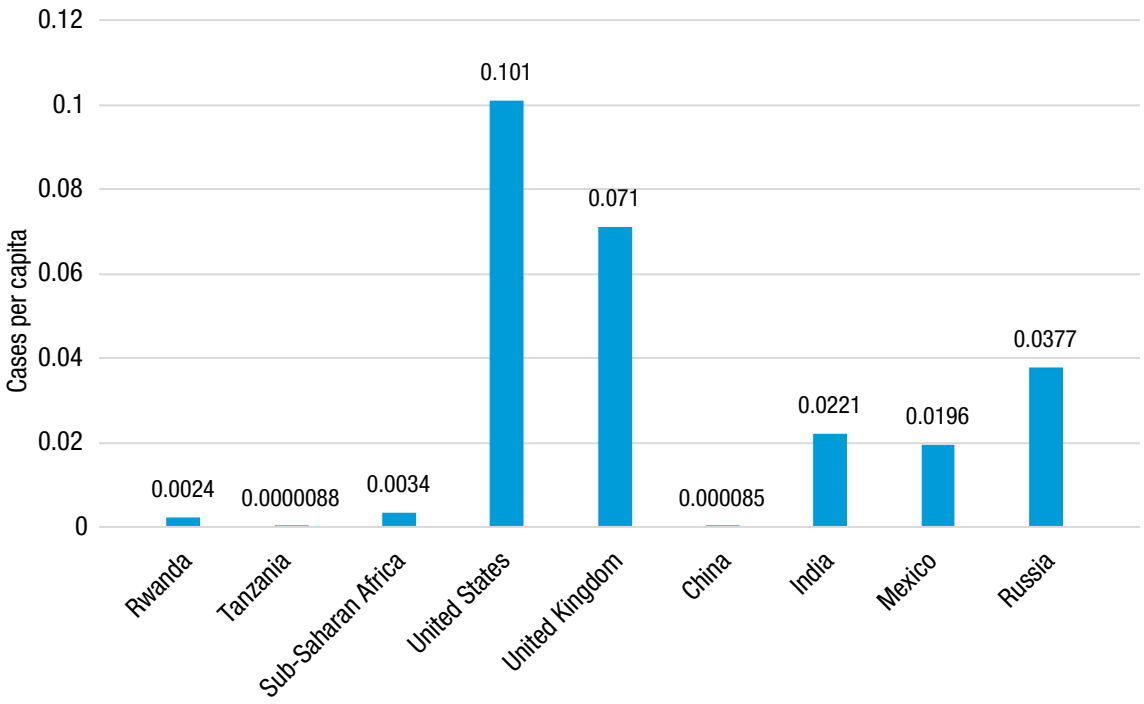
3

IMPACT OF COVID-19 IN RWANDA AND TANZANIA

3 IMPACT OF COVID-19 IN RWANDA AND TANZANIA

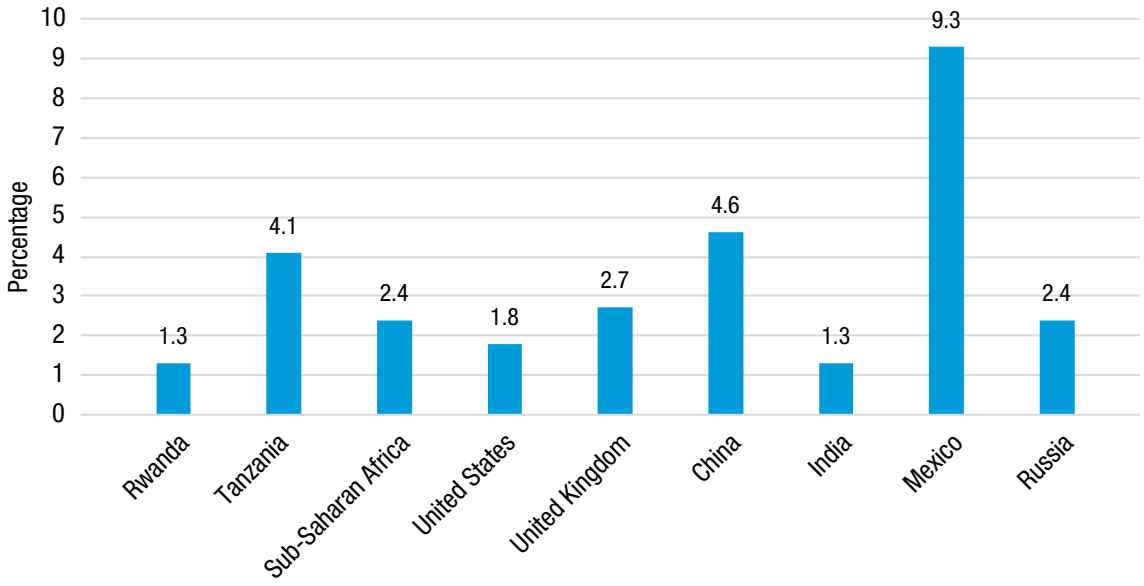
This chapter discusses the impact of COVID-19 on the economies of Rwanda and Tanzania and highlights the need to build and utilize women's productive capacities. The post-COVID-19 era requires the mobilization of every available resource to revitalize the economy and regain some of the lost human capital caused by the pandemic. Before discussing the economic impact of COVID-19, it is worth pointing out that, prior to the emergence of the Delta variant of the virus in late summer of 2021, reported infection rates in Rwanda and Tanzania were very low, compared with other regions of the world. As of June 2021, COVID-19 cases per capita for Rwanda and Tanzania were very miniscule, compared to the United States and the United Kingdom (Figure 19). While the case fatality ratio for Rwanda has also been low at 1.3 percent, it is much higher in Tanzania at 4.1 percent (Figure 20)

Figure 19: Total COVID-19 cases per capita



Source: compiled using data from WHO/WDI

Figure 20: COVID-19 case fatality ratio (%)



Source: compiled using data from WHO

Although COVID-19 cases in Rwanda and Tanzania did not escalate as they did in India and Mexico, the pandemic caused major disruptions in their economies. When Rwanda and Tanzania designed their Vision 2020 and Vision 2025, respectively, they did not foresee the emergence of a global economic crisis triggered by an infectious disease. The pandemic has not only slowed their growth momentum, but also poses several risks to both countries' economies. As a result of the pandemic, real output growth in Rwanda in 2020 was only about 2 percent, which is about 7.4 percentage points below the growth rate in 2019. Similarly, the Tanzanian economy grew by about 2 percent, which is 5.1 percentage points below the growth rate in 2019. The lower output cost of the crisis in Tanzania relative to Rwanda is partly due to increases in the global price of gold, which is a key export for Tanzania. Gold prices rose during the pandemic because investors were seeking alternative and less-risky investment portfolios, which increased the global demand for gold. As a gold exporter, Tanzania benefited from this increase in demand, which helped it to sustain some government expenditures and programs that benefit the poor. This also probably explains why Tanzania's poverty rate rose slightly from 49.3 percent in 2019 to 50.5 percent in 2020 (Table 6).

Table 6: Impact of COVID-19

Indicator	Country	2019	2020	2021 (estimated)	2022 (estimated)
Gross domestic product, constant prices (%)	Rwanda	9.397	1.985	6.315	7.956
	Tanzania	6.971	1.903	3.599	6.12
Poverty rate (%)*	Rwanda	55.4	57.2	59.1	
	Tanzania	49.3	50.5	49.8	
Total investment (% of GDP)	Rwanda	26.107	20.782	20.782	24.549
	Tanzania	39.655	38.079	38.597	38.372

Indicator	Country	2019	2020	2021 (estimated)	2022 (estimated)
Inflation, average consumer prices (% change)	Rwanda	2.426	6.9	1	5
	Tanzania	3.449	3.555	3.66	3.887
Volume of imports of goods and services (% change)	Rwanda	14.127	2.509	8.132	10.183
	Tanzania	4.688	7.055	9.142	5.075
Volume of exports of goods and services (% change)	Rwanda	10.5	8.842	11.645	9.148
	Tanzania	8.003	-2.336	3.696	3.725
Trade (% of GDP)*	Rwanda	57.947	54.3	N/A	N/A
	Tanzania	33.0	29.6	N/A	N/A
General government revenue (% of GDP)	Rwanda	23.644	20.094	20.657	20.64
	Tanzania	14.668	15.142	15.039	15.158
General government total expenditure (% of GDP)	Rwanda	28.837	27.81	27.707	24.755
	Tanzania	16.385	17.001	17.82	17.865
General government gross debt (% of GDP)	Rwanda	51.361	61.604	69.387	69.548
	Tanzania	38.22	38.507	39.428	38.959

Source: compiled using data from IMF World Economic Outlook (WEO) Database (October 2020); *WDI

As Table 6 shows, COVID-19 caused Rwanda's economic growth to fall precipitously from 9.4 percent in 2019 to about 2 percent in 2020. In Tanzania, growth plummeted from about 7 percent to 1.9 percent during the same period. Growth in both countries, however, is expected to rebound in 2021 and 2022, especially as more people get vaccinated; the pandemic contained, and the economy reopened. It is estimated that growth will return to the pre-pandemic levels by 2022. The decline in growth rates followed a drop in total investment; in Rwanda from 26 percent in 2019 to about 20 percent in 2020, and from about 40 percent to 38 percent in Tanzania (Table 6). This implies that both countries, especially Rwanda, should significantly increase investment to restart and sustain economic growth. That investment should target the building of women's productive capacities, who have been disproportionately affected by COVID-19 (see chapter 3). More than any other period, this is the time Rwanda and Tanzania should intensify their efforts to attract FDI, especially in labor-intense sectors, and absorb those who lost their jobs during the pandemic.

COVID-19 has also affected the macroeconomic stability of Rwanda and Tanzania. While the inflation rate in Rwanda doubled after the onset of COVID-19, the rate remained flat in Tanzania (Table 6). The increase in the rate of inflation in Rwanda may be because the growth of imports of goods and services fell sharply from 14 percent in 2019 to 2.5 percent in 2020, whereas it increased from about 4.7 percent to 7.1 percent in Tanzania. A drop in government revenue in Rwanda, from 23.6 percent of GDP in 2019 to 20 percent in 2020, may have contributed to declines in imports. In contrast, revenue went up slightly from 14.7 percent of GDP to 15 percent of GDP in Tanzania. The increase in revenue in Tanzania during COVID-19 enabled the government to boost expenditure by almost 1 percent of GDP, whereas government expenditure fell by 1 percent in Rwanda. In addition to a drop in expenditure, the Rwandan general government gross debt rose from about 51 percent in 2019 to 61.6 percent in 2020, while it remained flat in Tanzania. In both countries, there were slight declines in trade, from 57.9 percent of GDP in 2019 to 54.3 percent in 2020 for Rwanda, and 33 percent to 29.6 percent for Tanzania. The COVID-19 pandemic has also had adverse effects on the external sector and caused a 2 percent decline in the growth of the volume of exports of goods and services in Rwanda. Tanzania witnessed a steeper decline, from 8 percent in 2019 to -2.3 percent in 2020.

COVID-19 has posed major challenges to Rwanda and Tanzania because the major drivers of growth in these countries are ones that are very susceptible to the pandemic. In Rwanda, services contributed 54 percent to GDP in 2019, while agriculture contributed 26 percent and industry 21 percent. Tanzania has a similar economic structure, with services contributing 41 percent to GDP, industry 31 percent and agriculture 29 percent. Pandemic lockdowns and social distancing affected mainly service-related activities like hospitality, tourism, retail trade, transportation. In Tanzania, for instance, the aviation sector witnessed a 1.5 million decline in the number of passengers in the first quarter of 2020, with $310 million loss in revenue and 336,000 losses in employment (Deloitte, 2020). Hotel occupancy rate plummeted by half, from 50.3 percent in 2019 to 23.5 percent in April 2020 (Deloitte, 2020). Industry was also adversely affected, as manufacturers shut down plants due to the inability of workers to get to work, as well as disruptions in supply chains. Manufacturers were unable to sell their products to wholesalers, which created liquidity problems and difficulties in meeting their obligations to creditors.

Rwanda and Tanzania have adopted a two-pronged approach for addressing the fallouts from COVID-19. Rwanda's initial response was the launching of the COVID-19 National Preparedness and Response Plan, which focused on containing and preventing the spread of the virus. With a $14.25 million credit from the World Bank in April 2020, the Plan focused on diagnosis, contact tracing, risk assessment, isolation centers and screening of travelers (World Bank, 2020). This early response was instrumental in the low COVID-19 case per capita and fatality ratio in Rwanda (Figures 19 and 20). The second phase of Rwanda's response was the introduction of the Economic Recovery Fund (ERF) by the GoR to support businesses impacted by the pandemic, so that they can resume operations and protect jobs. Micro and small enterprises in the informal sector were targeted, as well as firms in tourism, manufacturing, agro-processing, transport and logistics (National Bank of Rwanda, 2020).

In contrast to Rwanda, Tanzania was initially slow at responding to the pandemic. It did not impose an official lockdown; businesses continued to operate, and Tanzanians were allowed to attend religious services and funerals (Devermon and Harris, 2020). This perhaps explains why Tanzania's COVID-19 fatality ratio quadrupled that of Rwanda, and almost doubled SSA's (Figure 20). Since taking over the reins of government in March 2021, after the sudden death of President John Magufuli, current President Samia Hassan has changed course. She has put in place a strategy for combating the pandemic and stimulating the economy. In June 2021, the government announced it will spend $470 million purchasing vaccines, protective gear and medical equipment, as well as supporting businesses seriously impacted by the pandemic (Miriri, 2021).

Although COVID-19 came with unprecedented challenges, it has also created an opportunity for Rwanda and Tanzania to learn how to build and sustain a more resilient economy. It means they must intensify the process of diversification and develop a broad-based economy that does not overly rely on one fragile sector. These challenging times require creative economic thinking, a shift from orthodoxy and bold policy measures for identifying and leveraging new resources and opportunities for promoting inclusive economic growth. Rwanda and Tanzania should adopt a mantra of "no resource wasted or underutilized" during the post-COVID-19 era.

A major antidote to shocks is structural transformation and a more diversified economy. Resiliency and buffers should be ingrained in the economies of Rwanda and Tanzania, to reduce vulnerabilities and minimize the impact of shocks. To build a more diversified and resilient economy, Rwanda and Tanzania will have to intentionally develop the productive capacities of its people, with a particular focus on women. While the current focus of Rwanda's and Tanzania's COVID-19 strategy is to contain the pandemic, provide safety nets for individuals and resuscitate existing businesses, they should also consider rebuilding lost human capital, revitalizing the educational sector, and proactively investing in resources that enable people to become more productive in manufacturing, agro-processing, ICT and services. Because most women are in agriculture and reside in rural communities, COVID-19-related investments should prioritize agricultural productivity, value addition, agro-processing and the development of rural infrastructures. Safety nets such as cash transfers and provision of agricultural inputs should be targeted at poor rural women, many of whom are engaged in unpaid household work and lack the savings necessary to smoothen consumption or pay for healthcare and other essential services.

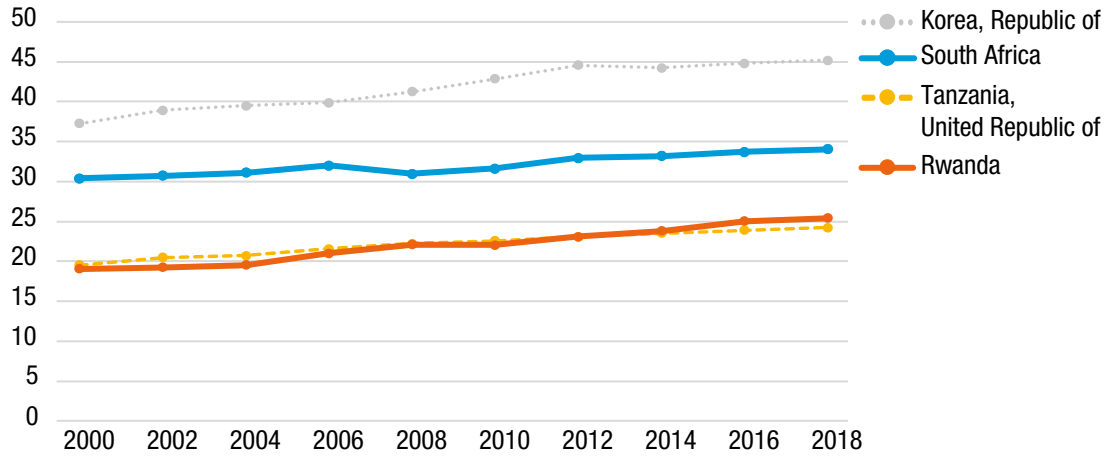
4

ASSESSING PRODUCTIVE CAPACITIES IN RWANDA AND TANZANIA

4 ASSESSING PRODUCTIVE CAPACITIES IN RWANDA AND TANZANIA

In this section, we provide an assessment of the state of productive capacities development in Rwanda and Tanzania using the productive capacity index (PCI) developed by UNCTAD. The index ranges from 1 to 100, with higher numbers reflecting higher productive capacities (UNCTAD 2020a). Based on this index, Rwanda and Tanzania have made modest progress in raising their productive capacities during the past two decades (Figure 21). However, both countries have relatively very low productive capacities compared with successful industrial economies in Africa (such as South Africa) and Asia (for example, South Korea). In 2018, the overall PCI score for Rwanda was 25.42 and that of Tanzania was 24.22. In contrast, the score for South Africa, a middle-income country, was 34.05 and that of South Korea, a high-income country, was 45.21 (Figure 21). The low PCI scores for Rwanda and Tanzania confirm the widely held view that they lack productive capacities.

Figure 21: Productive capacities in Rwanda, Tanzania and selected economies (%)



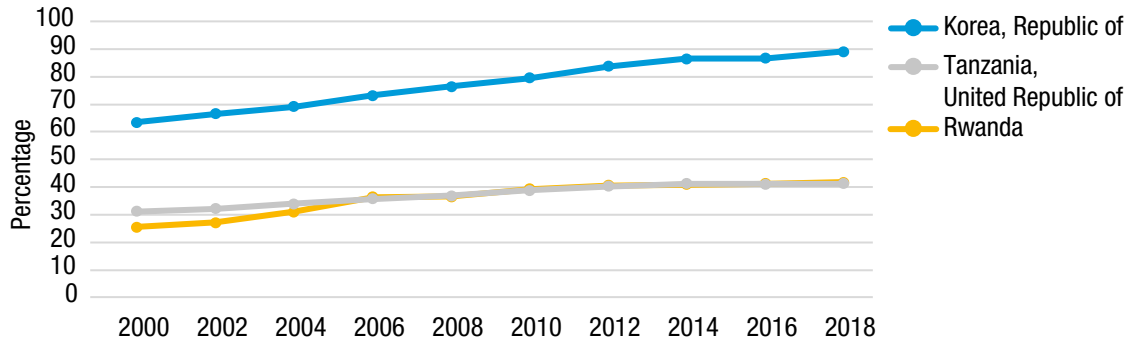
Source: compiled using data from UNCTADStat

For the rest of the analysis, we use South Korea, a high-income country, as a benchmark to determine the components of the PCI were Rwanda and Tanzania are lagging the most. We use South Korea as the benchmark country for two reasons. The first is that Tanzania has just achieved lower middle-income status and both Tanzania and Rwanda have an ambitious goal of achieving high income status in the long term. South Korea is also an appropriate benchmark because it was at a similar level of economic development as Rwanda and Tanzania in the 1970s but managed to achieve industrial status within a few decades, indicating that the visions expressed by Rwanda and Tanzania are achievable with political will and commitment by the government. Furthermore, African governments cherish South Korea's development model and often attempt to follow its development pathway, so it would be insightful to see how well Rwanda and Tanzania are doing relative to South Korea.

Regarding the components of the PCI, both Rwanda and Tanzania are also underperformers relative to South Korea. But the widest gaps between the productive capacities components of South Korea and those of Rwanda and Tanzania are in human capital (Figure 22) and ICT (Figure 24). Substantial gaps also exist in institutions, private sector and structural change. Developing and utilizing women's productive capacities in these categories would be critical to enhancing overall productive capacities in these economies.

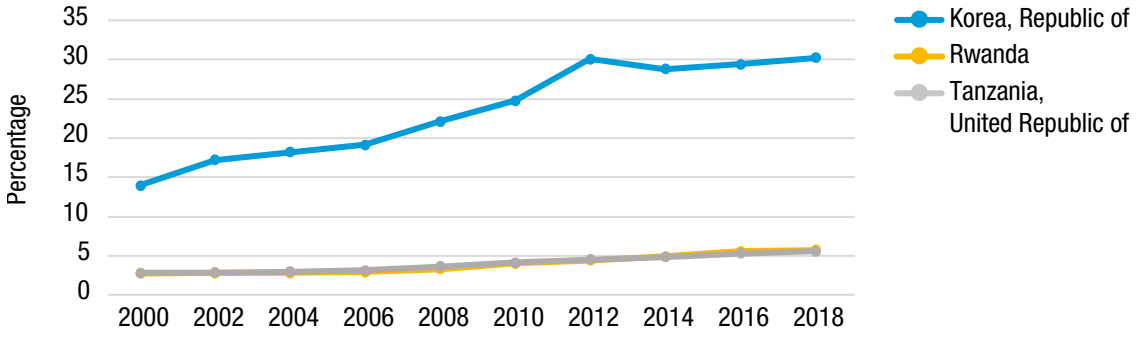
Notwithstanding these weaknesses, it should be acknowledged that Rwanda and Tanzania have made some progress in productive capacities in the areas of private sector development and human capital. Their relatively high scores in private-sector development (Figure 23) are a result of many years of market-based economic reforms, trade liberalization, privatization and deregulation; all of which opened previously state-controlled economic activities to the private sector. Improvements in human capital can be attributed to the narrowing of gender gaps at different levels of education. Some progress has also been made in institutional change, especially regarding gender equality. The ease of doing business in Rwanda has improved significantly, earning the country rank number 38 out of 190 countries in the World Bank's 2019 Ease of Doing Business Index (World Bank, "Doing Business," 2018). Rwanda ranks the highest amongst African countries, but Tanzania ranks far below at 141. ICT and structural change are two areas where the level of productive capacities remain very low (Figures 24 and 25). Structural change entails the transformation of an economy, from one based on exchange and consumption to a production, technology, and skills-driven economy (UNCTAD, 2020b). Building women's productive capacities will require ICT and industrial development strategies that explicitly strengthen women's technical, managerial, and entrepreneurial skills for participation in these transformative sectors.

Figure 22: Productive capacities index (%) – Human capital



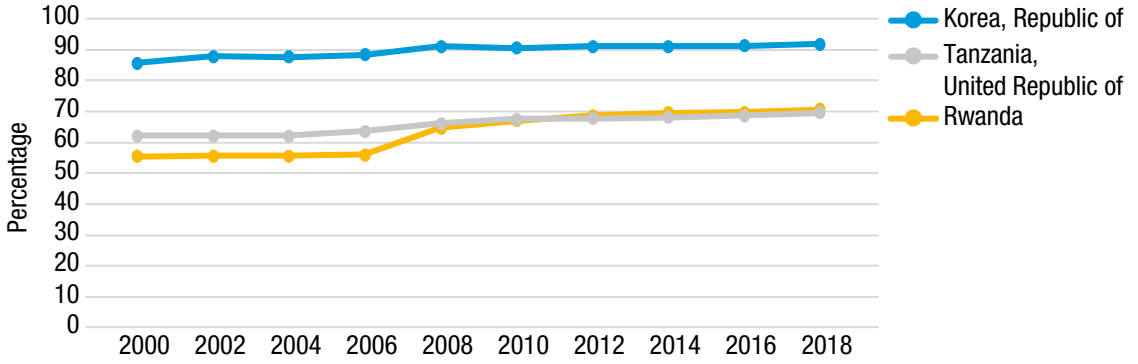
Source: compiled using data from UNCTADStat

Figure 23: Productive capacities index (%) – Private sector



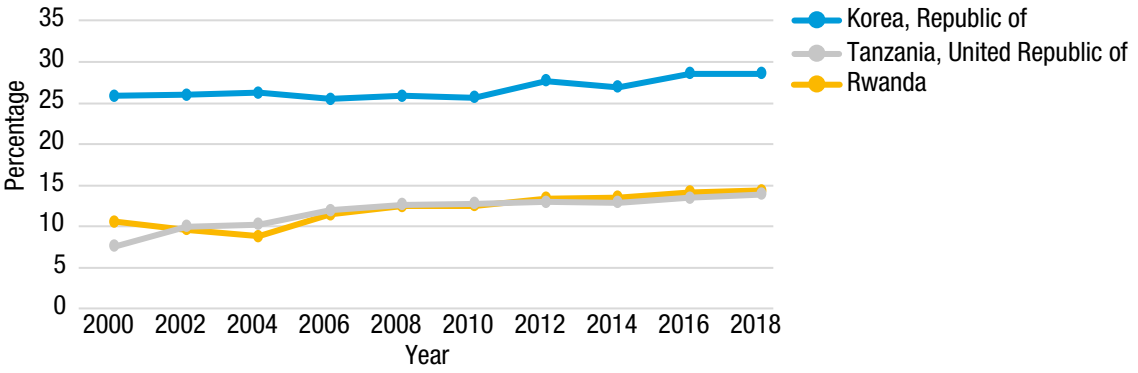
Source: compiled using data from UNCTADStat

Figure 24: Productive capacities index (%) - ICT



Source: compiled using data from UNCTADStat

Figure 25: Productive capacities index (%) – Structural change



Source: compiled using data from UNCTADStat

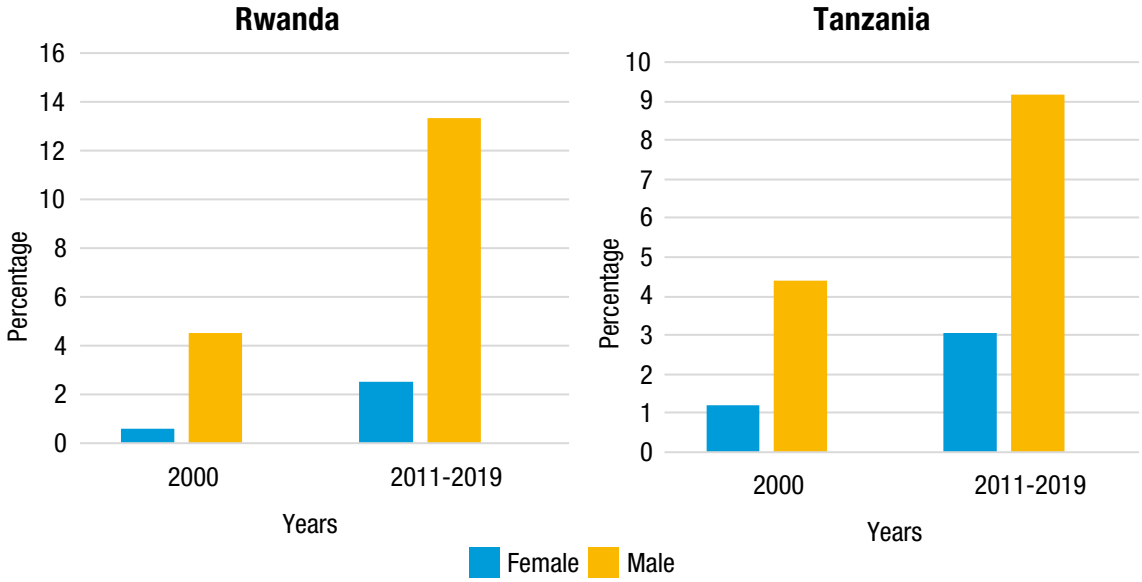
While Rwanda's and Tanzania's productive capacities are sub-optimal, there is a silver lining as well. Their low capacities implies that they have ample room to build productive capacities. Taking advantage of slack productive capacities would have the effect of not only sustaining their growth momentum, but also making that growth to be inclusive and poverty-alleviating. The wide gap between Rwanda's and Tanzania's current productive capacities and their potential capacities can be filled by proactively developing women's productive capacities. Since women make up a significant proportion of these countries' population and labor force, and their productive capacities have not been optimally developed and utilized, it implies that building women's productive capacities can transform Rwanda and Tanzania in ways reminiscent of the East Asian Tigers. Could women's productive capacities be the keys that unlock Rwanda's and Tanzania's potentials as the pioneers of an East Africa miracle?

The UNCTAD index of productive capacities does not disaggregate the data according to gender. There are currently no indicators of productive capacities, along gender lines. Nor have analysts agreed on a set of indicators that should be used to proxy productive capacities at the level of individuals and gender. Consequently, an indirect approach can be used to gain insights into the productive capacities of women in Rwanda and Tanzania. Indirect evidence suggests that Rwanda and Tanzania have not maximized women's productive capacities. Consequently, they have been under-represented in sectors where productive capacities are typically built. The under-representation of women in critical sectors of the economy should not be misconstrued as a manifestation of their lack of productive capacities. Rather, it should be viewed in terms of sub-optimal development and utilization of women's potential capacities, because of

institutional and other constraints discussed in chapter 5. The extent of the sub-optimal development and utilization of women's productive capacities is reflected in the following:

Low Participation of Women in the Manufacturing and Industrial Sectors: As Andreoni (2011) points out, productive capacities are usually built and manifested within the manufacturing and industrial sectors. Female employment in industry can be used as a proxy for measuring the extent of women's productive capacities in that industry. The small shares of women employment in industry in Rwanda and Tanzania suggests that their potential productive capacities have not been fully leveraged in this critical sector. Women's employment in industry is not only low; it has remained so during the past three decades. In the 1990s, female employment in industry in Rwanda as a percentage of total female employment averaged just 0.6 percent. It rose slightly to 1 percent in the 2000s, and 2.5 percent between 2011 and 2019 (Figure 26). Female employment in industry in Tanzania is a bit higher, averaging 1.1 percent in the 1990s, 2.3 percent in 2000-2010 and 3.1 percent during 2011 – 2019 (World Development Indicators database).

Figure 26: Employment in industry as a percent of total female/male employment



Source: compiled using data from WDI

Manufacturing is very essential for building productive capacities. Apart from having a high monetary value of output per worker, participation in manufacturing leads to technological learning, innovative capabilities, and skills acquisition. The fact that Rwandan and Tanzanian women are not participating at higher levels in this critical sector means they are missing out on learning opportunities, which also reduces their future capacities. By not having access to the frontier sectors, they do not acquire the skills and technical knowledge necessary for success in these activities. This could subsequently result in less recruitment of women in this sector and cause a vicious cycle of perpetual underdevelopment of women's productive capacities.

In contrast, male employment in industry as a percentage of total male employment in Rwanda has quadrupled that of female. It increased from about 4.5 percent in the 1990s to 6.4 percent in the 2000s, and then doubled to almost 13 percent during 2010- 2019 (Figure 26). This same pattern can be observed in Tanzania, where male employment in industry was 4.1 percent in the 1990s, 6.6 percent in the 2000s, and 9.1 percent during 2010 – 2019 (World Development Indicators database). Male employment in industry in Tanzania grew at a slower pace in Tanzania than in Rwanda during the past decade. This may be due to Rwanda's Vision 2020, which focused on the creation of a knowledge economy. Vision 2020 resulted in, among other things, the inflow of FDI in sectors such as manufacturing and ICT.

Predominance of Women in the Agricultural Sector: when the productive capacities of women increase, one should expect to see a decline in their share of employment in the agricultural sector. But rather than decreasing, the share of women in agriculture has been increasing in both countries, which suggests that their productive capacities have either not increased, or that their capacities have not been utilized in non-agricultural sectors. In the 1990s, Rwanda, Tanzania and Mozambique were the top three African countries (out of the 24 countries reported in Table 7) in terms of the proportion of working-age women employed in agriculture. Rwanda's share of women employment in agriculture in the 1990s was a whopping 94.5 percent, while Tanzania's was 78.5 percent. Both countries saw a drop in these percentages over the next two decades; in Rwanda, it dropped to 84.4 percent during 2006-2012 and 69.9 percent in Tanzania. Despite the drops, Rwanda continued to have the largest share of women in agriculture amongst the countries reported in Table 7.

Preoccupation with Informal-Sector Activities: The informal sector in Africa is usually dominated by people with very low productivity and productive capacities. Formal organizations are reluctant to employ these individuals because of their lack of education and skills needed to add value to the operations of the organizations. Women's over-representation in the informal sector in Rwanda and Tanzania is another manifestation of sub-optimal development and utilization of their potential productive capacities. Women's domination of the informal sector should be of concern because of the correlation of this sector with poverty. People with low productive capacities often end up in the informal sector, where productivity and income are very low. This keeps them in a poverty trap and forecloses opportunities for building productive capacities. The children of these poor households also end up in the informal economy, unless they manage to raise their productive capacities or are given the opportunity to utilize productive capacities

In 2018, 93.6 percent and 87.2 percent of women were employed in the informal sector of Rwanda and Tanzania, respectively (Table 8). Because of the lack of opportunities to build productive capacities, their share of employment in the non-agricultural formal sector – 24.6 percent for Rwanda and 35.7 percent for Tanzania – has been low (Table 8). When this is broken down further into sectors, women are under-represented in formal employment in industry, the bastion of productive capacities. Women occupied only 7.1 percent and 9.3 percent of formal jobs in industry in Rwanda and Tanzania, respectively. But their shares of formal jobs in services (cleaning, homecare, elderly care, hospitality, catering, etc.) are very high – 91 percent in Rwanda and 90.5 percent in Tanzania. Worldwide service-sector jobs have one of the lowest wage rates. Even within agriculture, women rarely occupy formal jobs. Thus, Rwandan women occupied just 1.9 percent of formal jobs in agriculture, while Tanzanian women had 0.2 percent of those jobs.

Table 7: Percentage of workers (age 25+) in agriculture, DHS Africa Sample

	FEMALE			MALE			TOTAL		
COUNTRY	1990s	2000-05	2006-12	1990s	2000-05	2006-12	1990s	2000-05	2006-12
Benin	29.6	34.7	38.4	67.1	61.4	55.4	48.3	48.1	46.9
Burkina Faso	32.4	76.6	60.4	77.7	76.2		55.0	76.4	30.2
Cameroon	62.0	53.6	40.9	54.2	47.5	58.1	50.5	20.5	
Chad	47.4	75.4	79.1	71.8	63.3	73.6			
Côte d'Ivoire	49.8	44.4	35.9	51.6		51.7	50.7		43.8
Ethiopia		57.9	46.9		84.5	74.8		71.2	60.9
Gabon		23.5	9.7		19.2	7.4		21.4	8.5
Ghana	41.4	39.7	32.9	55.4	52.2	44.4	48.4	46.0	38.7
Guinea	64.4	60.3		62.3	60.7		63.4	60.5	

	FEMALE			MALE			TOTAL		
COUNTRY	1990s	2000-05	2006-12	1990s	2000-05	2006-12	1990s	2000-05	2006-12
Kenya	48.2	53.6	42.3	44.3	44.1	36.1	46.2	48.8	39.2
Lesotho		35.2	22.3		30.1	43.0		32.7	32.6
Madagascar	63.3	69.5	71.6		66.8	73.9		68.2	72.8
Malawi	23.8	67.6	55.9	60.0	57.0	46.8	41.9	62.3	51.4
Mali	40.1	45.1		64.8	66.2	56.1	52.5	55.6	28.0
Mozambique	78.0	80.9	66.8	56.2	65.2	45.2	67.1	73.0	56.0
Namibia	1.9	11.1	16.9		17.0			14.1	8.4
Niger	34.8		38.1	76.1		51.6	55.4		44.8
Nigeria	21.7	20.8	24.0	43.2	39.2	39.9	32.5	30.0	32.0
Rwanda	94.5	89.6	84.4	88.8	68.6	68.8	91.7	79.1	76.6
Senegal	37.4	25.4	20.6	43.1	29.7	25.7	40.3	27.6	23.2
Tanzania	78.5	78.8	69.9	72.1	70.5	61.3	75.3	74.7	65.6
Uganda	73.3	77.6	71.0	71.6	66.9	63.2	72.5	72.3	67.1
Zambia	56.0	63.0	47.7	49.1	58.1	50.4	52.5	60.5	49.1
Zimbabwe	40.9		32.6	26.2		32.9	33.5		32.8
Average 1	51.9	56.4	46.2	59.6	56.6	50.0	55.8	56.5	47.7
Average 2	49.1	53.8	42.2	60.2	54.9	49.3	54.6	54.6	49.3

Source: McMillan and Harttgen (2014)

Table 8: Employment shares of women and men in informal and formal sectors, 2018 (%)

		Informal Sector	Formal Sector	Informal (non-agricultural)	Formal (non-agricultural)
Rwanda	Women	93.6	4.4	63.3	24.6
	Men	88.3	9.7	69.8	24.8
Tanzania	Women	87.2	9.9	55.5	35.7
	Men	79.9	18.5	42.1	54.1

Source: International Labour Office (ILO)

Table 9: Share of informal employment in total employment by sex and region, 2018 (%)

	Emerging and developing countries					
	Africa	Americas	Arab States	Asia & the Pacific	Europe & Central Asia	Total
Male (including agriculture)	82.7	52.9	70.2	73.6	37.8	70.7

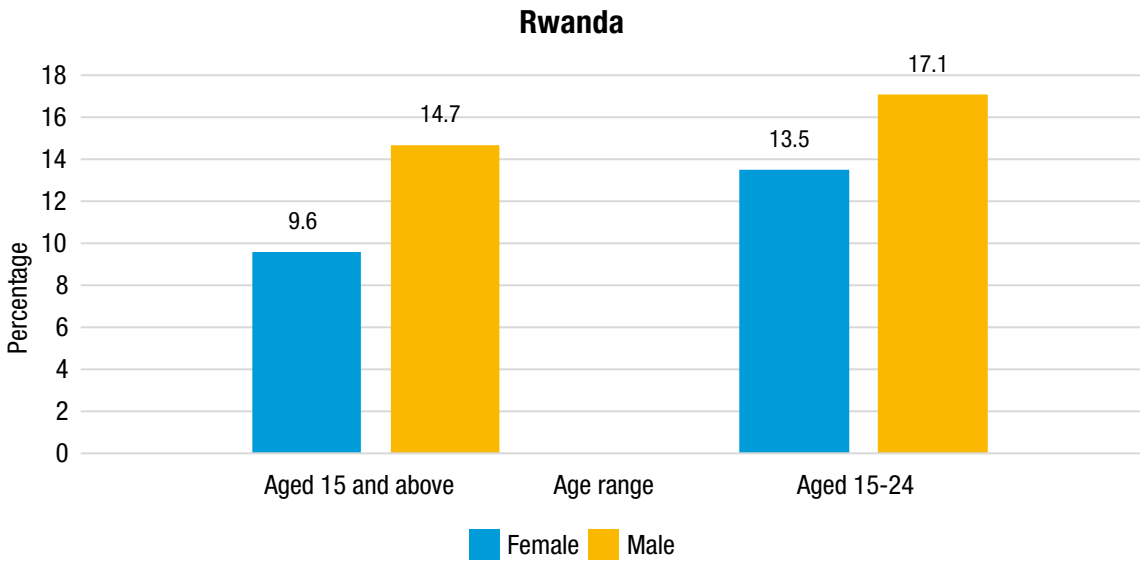
Female (including agriculture)	89.7	55.0	61.8	67.4	35.7	67.5
Male (excluding agriculture)	67.7	47.7	66.5	65.4	35.1	61.3
Female (excluding agriculture)	78.7	52.5	49.6	57.7	27.5	56.3

Source: ILO

Many developing countries experience the same situation as Rwanda and Tanzania when comparing the percent of female and male workers in the informal sector of the economy. Table 9 shows that 89.7 percent of women in Africa were employed in the informal sector (including agriculture) compared with 82.7 percent for men. If agriculture is excluded, 78.6 percent of women were employed in the informal sector in 2018 while the percentage for men was 67.7 percent. In contrast, there are more men than women in the informal sector of Asia and The Pacific, Arab states, Europe and central Asia (Table 9).

Low Participation in Information and Communications Technologies: Lack of computer literacy also inhibits the development of women's productive capacities. Only 9.6 percent of women aged 15 and above are computer literate in Rwanda, while 13.5 percent of those between ages 15-24 are computer literate. The equivalent percentages for men are 14.7 percent (ages 15 and above) and 17.1 percent (15-24 years) (Figure 27). In Tanzania, only 16.2 percent of women 20-24 years old ever used the Internet during 2015-2016, and 11 percent for those 30-34 years. Men's productive capacities in ICT are considerably higher. About 30.9 percent of men between ages 20-24 used the Internet, while 22 percent of those 30-34 years did (Figure 28).

Figure 27: Computer literacy rate by gender (%), 2019-2020 - Rwanda

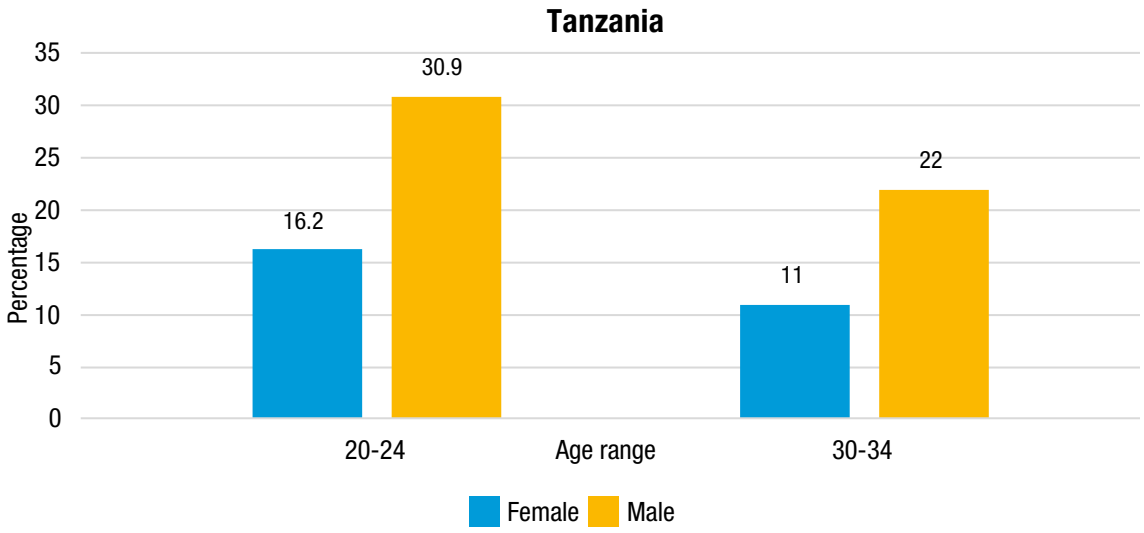


Source: NISR, 2021, p. 4

Lack of Technological and Innovative Capabilities: Innovation and technology are important levers for raising the productive capacities of individuals, firms, and countries. Historically, countries have achieved industrial development and structural transformation only after technological development has occurred, and a critical mass of their population acquired deep scientific and technical knowledge. Women's productive capacities in Rwanda and Tanzania can be measured by the extent to which they have engaged in technological and innovative activities. Some science and technology (S&T) indicators show that women

in Rwanda and Tanzania have not been as engaged in technological and innovative activities as one would expect. Given the salience of technology and innovation in the global economy, women's low engagement in technological activities implies that their innovative capacities have not been fully leveraged.

Figure 28: % of men and women who ever used the internet, 2015-2016 - Tanzania



Source: DHS, 2015-2016, pp. 67-68

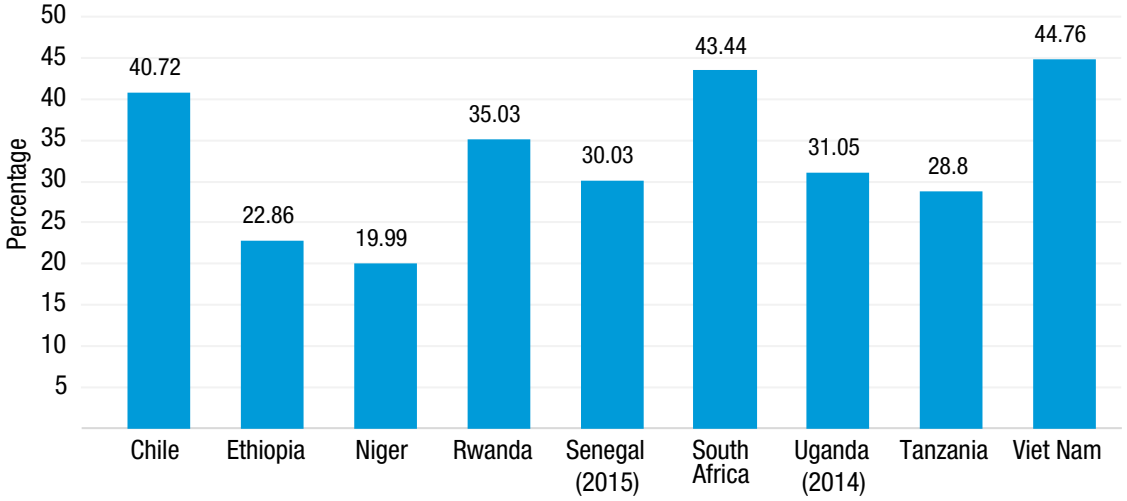
Although the percentage of female graduates in engineering, manufacturing, and construction in Rwanda has been increasing, it was only 26.6 percent of the total number of graduates in 2018 (Table 10). The percentage of female personnel in R&D is also relatively low; 35 percent in Rwanda and 28.8 percent in Tanzania, compared with about 45 percent in Vietnam and 40 percent in Chile – developing countries for which data is available (Figure 29). To underscore the fact that women have not been given the opportunity to develop and utilize productive capacities in science and technology, Table 11 shows that unemployment amongst women with advanced education is more prevalent, compared with men. This disincentivizes women from investing in the development of their potential productive capacities.

Table 10: Percent of female graduates in different science and technology related disciplines – Rwanda

	2012	2014	2016	2017	2018
Science, Technology, Engineering, & Mathematics (STEM) programs	N/A	N/A	N/A	32.15	35.36
Engineering, Manufacturing, & Construction programs	19.36	27.73	23.18	25.47	26.55
Information and Communication Technologies programs	N/A	N/A	N/A	35.45	39.08

Source compiled using data from WDI

Figure 29: Total R&D personnel (FTE) - % female, 2013



Source: UNESCO Institute for Statistics

Table 11: Unemployment with advanced education, female & male (% of female/male labor force with advanced education)

		2006	2011	2013	2014	2017	2018	2019
Rwanda	Women	N/A	N/A	N/A	12.96	23.9	21.96	19.23
	Men	N/A	N/A	N/A	N/A	16.44	15.4	15.33
Tanzania	Women	14.35	4.05	7.9	8.46	N/A	N/A	N/A
	Men	1.68	4.01	3.61	3.65	N/A	N/A	N/A
South Korea	Women	N/A	N/A	N/A	N/A	4.44	4.42	4.15
	Men	N/A	N/A	N/A	N/A	4.24	3.92	3.72
Brazil	Women	4.56	4.36	2.27	1.61	8.09	7.86	7.87
	Men	2.55	2.46	0.57	0.91	5.7	5.63	5.51
India	Women	N/A	N/A	N/A	N/A	N/A	24.69	23.42
	Men	N/A	N/A	6.5	N/A	N/A	12.64	12.84

Source: compiled using data from WDI

5

CONSTRAINTS TO BUILDING WOMEN'S PRODUCTIVE CAPACITIES

5 CONSTRAINTS TO BUILDING WOMEN'S PRODUCTIVE CAPACITIES

As discussed in the previous section, women have the capacities to engage in frontier sectors of the economy. At first blush, it would seem as if low productive capacities are to blame for their non-participation in leading sectors of the economy like manufacturing, ICT, science and technology. But women in Rwanda and Tanzania face numerous constraints that make it difficult for them to develop and utilize their potential capacities. These include:

Institutional Constraints: No matter what efforts are made to build women's productive capacities, those efforts would be fruitless unless the institutional barriers to women's human capital development and utilization are removed. Policymakers also need to vigorously promote gender equality and prioritize the involvement of women in various projects and programs. Attitudes and beliefs about the role of women must change to recognize the adage that "what a man can do, a woman can do better." One constraint that needs to be removed is patriarchy and male domination. Rwanda is a patriarchal society, where women's roles are often regarded as limited to childbearing, cooking and cleaning (Adekunle, 2007). In contrast, men are regarded as "decision makers and resource owners" (Freeman, 2016). The attitudes, beliefs, and socio-cultural practices in Rwanda overwhelmingly favor males over females (USAID, 2015). Patriarchy implies that certain professions are regarded as out-of-bounds to women, and this limits the range of opportunities available to them. In Rwanda, there is the notion that STEM is "too hard" for girls and is a male preserve (Mbonyinshuti, 2020). Another constraint is the Marriage Act in Rwanda and Tanzania. This Act sets a far too low minimum age that girls can marry. This has encouraged early marriage in both countries. Half of the 25-49 years old women in Tanzania got married before age 19, which limits their access to education, job training and skills acquisition (DHS, 2015-2016)

Limited Access to Assets: Productive capacities and productive assets are two sides of the same coin. Having one, without the other, is like training a pilot with no plane to fly. Building the productive capacities of women, without facilitating their access to productive assets like land, technology, equipment, and high-quality inputs will be wasteful. As Maiga and Kazianga (2016) observe, "without access to land, the trained (and interested untrained) individuals will have no choice but to look for livelihood elsewhere, mostly in the informal sector dominated by vulnerable employment." Limited access to land is one of the major constraints that circumscribe women's productive capacities. Land is a very important determinant of livelihood, shelter, and dignity. In the past, patriarchy and customary land tenure systems were prevalent, and they negatively affected women's right to land (Yngstrom, 2002). Building women's productive capacities, without land security, is counterproductive. Culturally, men have the right to own land, while such rights are typically not available to women (Bayisenge, 2015). For instance, only 27 percent of women in Tanzania are landowners, compared to 73 percent of men (Osorio, Percic and Battista, 2014, p. 34). Land tenure systems that deprive women of land would be inimical to raising their productive capacities. Customary laws in Rwanda and Tanzania prevent women from owning land, except jointly with their husbands. Girls are also forbidden from inheriting land from their parents. Thus, a landless woman with no education or skills will be condemned to a lifelong drudgery of physical labor, low income, uncompensated household work, and virtually no income sources at old age. One of the poverty-inducing effects of institutional constraints is low productivity. In Rwanda, for instance, a female-managed farm is about 11.7 percent less productive than a male-managed farm (UN Women, 2017). This gap is attributed to women's limited access to production assets like land, quality inputs, and education. It is instructive, however, to note that Rwanda and Tanzania have introduced land policies that grant equal rights of land property to women and men (Rwanda in 2004 and Tanzania in 2019).

The 1994 genocide in Rwanda resulted in the death of many men. Consequently, about one-third of Rwandan women became head of households, and their roles expanded to include tasks that men were traditionally expected to perform. In recognition of this anomaly, and to rectify the inequity in land rights,

the Government of Rwanda (GoR), enacted the Matrimonial Regimes, Liberalities and Successions…… Law/no22/99 in December 1999. This law granted women the right to own land, and to inherit family property, just like men. Similarly, Tanzania's 1999 Land Act, which was revised in 2019, grants women the right to own land. Prior to these land reforms, women in both countries had access to land only through a male relative (husband or brother). When women lose a male relative, or migrate, they lose access to land, which then affects their productivity and livelihood negatively.

But rather than adhere to the new laws, many communities in Rwanda and Tanzania continue to follow customary traditions that limit women's access to land. In Tanzania, the constitution does not stipulate how the conflict between customary norms over land and constitutional provisions should be resolved (Duncan and Haule, 2014). In Rwanda, the new land law appears to have created tension and conflict among family members (Freeman, 2016). The governments in both countries should continue to explore effective ways by which women can gain access and security to land.

Financial Constraints: Because of the slow pace of structural transformation in Rwanda and Tanzania, self-employment in the agricultural and informal sectors will continue to be major sources of income for women. Women's productive capacities are usually higher if they have access to finance. This enables them to purchase assets and inputs that are critical for their productive capacities. Such capacity-enhancing assets in the agricultural, agri-business and agro-processing sectors include ploughs, irrigation facilities, sprayers, bicycles, barrows, motorbikes, and tractors (Onyeiwu and Liu, 2013, p 63). Women are disadvantaged when it comes to access to finance. Because of low income, poor rural farmers are unable to save for investment in capacity-enhancing assets. Lack of financial inclusion and financial illiteracy in rural areas also limit their access to credit from conventional financial institutions. Rwanda and Tanzania need specialized microfinance institutions that target the development of productive capacities. For instance, these institutions could bundle loans with the acquisition of certain skills. A cashew farmer in Tanzania may be required to undergo training in how to add value to their products as a precondition for obtaining a loan. Box 3 shows how access to finance can be life-changing for women.

Box 3: Access to finance as a catalyst for women's productive capacities

The case of a Rwandan woman named Mujawimana illustrates how access to finance can unlock women's productive capacities. She was originally growing maize at her farm in Muhanga. For many years, her productive capacities were so low that she could barely produce enough to cover her costs. Like many older Rwandan women, she had no formal education and did not have the opportunity to learn good farming practices. These constraints have kept her in perpetual poverty. Luckily, she was able to obtain an agricultural loan from an NGO, *Opportunity International.* She used this loan to expand her production capacities by planting rice, in addition to maize. This way, she was able to diversify her income sources, as well as increase her income. After some training in rice farming, her production quadrupled after three planting seasons. She used the extra income she made from rice to expand her production of maize. Additionally, she invested in storage facilities by installing drying racks and a corn shelter, which enabled her to store and sell the kernels as animal feed. In this way, she was able to reduce post-harvest losses. Mujawimana has not only escaped poverty by virtue of her access to a loan, but also is able to build her own house.

Source: Opportunity International, *Where We Work*: Rwanda

Difficulty Accessing Markets: Lack of markets can deter the building of productive capacities. Rational agents invest in anticipation of future returns to their investment. Limited market access may discourage women from exploring opportunities for developing their productive capacities. When women cannot find profitable markets for their products, they become uninterested in exploring ways by which they could produce more. According to an IMF report, rural producers in Rwanda find it difficult to market their output, for a number of reasons: the "decapitalized transport sector, the poor condition or absence of roads, the shortage of links between producers and traders, and difficult terrains which make transport

costs significant even over some small distances. Some roads and bridges are in poor conditions, both because of inadequate maintenance and because of the effects of some humanitarian transport in the post-genocide" (IMF, 2000). Infrastructural constraints, lack of transportation and access to finance have made it difficult for women to take advantage of regional and international markets. Women will not benefit very much from the newly introduced African Continental Free Trade Area (AfCFTA), unless infrastructural, logistic, financial and trade-capacity constraints are addressed. Indeed, there are concerns that the AfCFTA may expose Rwandan and Tanzanian women to competition from producers of similar products from other African countries. This implies that the strategy for building their productive capacities should include capacity-building in the area of domestic, regional/international trade, entrepreneurship and financial literacy.

Limited Access to Information and Communications Technologies (ICTs): Although many women in Rwanda and Tanzania own a cell phone, they have limited access to the Internet and other ICT resources. One reason for this is that most women reside in rural communities where Internet services are either not available; are poorly supplied or unaffordable by poor women. This has made it challenging to develop women's productive capacities in various ways. First, women are unaware of markets for their products, including potential customers and prices. Second, their knowledge of sources finance is limited, as many advertising campaigns are now conducted online. Third, information about capacity-enhancing programs organized by the government and NGOs rarely reaches poor women in rural communities. A precondition for boosting the productive capacities of women in Rwanda and Tanzania is to raise their ICT literacy and facilitate access to iPads, tablets, and the Internet. The Rwandan and Tanzanian governments should initiative a major rural ICT drive, much as they did with rural electrification. Because many older women in these countries are not very literate, the rural ICT drive should involve computers and tablets that are accessible with the Swahili language, which is widely spoken in Rwanda and Tanzania.

6

DETERMINANTS OF PRODUCTIVE CAPACITIES

6 DETERMINANTS OF PRODUCTIVE CAPACITIES

Before discussing the strategies for building women's productive capacities in the next section, it is important to understand the "macro" environment within which productive capacities are developed. This discussion would enable a better understanding of what facilitates or stunts the building of women's productive capacities. Building women's productive capacities is not simply a microeconomic question of finding the right incentives to change women's behaviors. It involves a macro-foundation that supports and complements individual and firm decision-making. In this regard, the aim of this chapter is to discuss, in broad terms, the policy environment that supports or impedes the development of productive capacities. After laying out the broad macroeconomic environment or framework necessary for the development of productive capacities, this analysis will be applied to Rwanda and Tanzania in the next chapter. The following are some of the factors that influence the ability of a country to build productive capacities:

The Role of the State: A country's ability to build productive capacities depends on the nature of the state and the country's political leadership. The state cannot be a passive actor in the process of building productive capacities. When the state is genuinely committed to building productive capacities, that commitment is usually reflected in economic, trade, education, technology policies, etc. Such a developmental state would also establish a healthy relationship with the private sector that reinforces its quest to build productive capacities. As Brautigam (1997, p. 1067) observes: "The developmental state is a critical actor in establishing an "enabling environment" for industrialization. The developmental state enforces stability in important macroeconomic parameters, provides critical public goods: roads, power supply, security and skills-based education, and possesses the policy instruments to channel private sector activity in accordance with national economic goals."

Developing capacities (whether in production, technology, or skills) is fraught with market failure and appropriability problems. While private returns to investment in innovation and productive capacities at the firm level may not justify private costs, the social returns are usually substantial. In many cases, the marginal cost for providing innovation and productive capacities to the marginal user is zero. For instance, if a coffee farmer in Rwanda is trained in how to increase the yield from a given area of land, that farmer could pass that knowledge to other farmers in the village, at no extra cost to the villagers. But the initial farmer may not have the incentive to privately pay for the training, if the knowledge will freely diffuse across the village. In this sense, the development of productive capacities may be a public good. Without the involvement of the state, the economy would underinvest in the development of productive capacities. Suboptimal investment in women's productive capacities would be worse, because they usually have very low incomes and therefore unable to bear the private costs of acquiring education, knowledge, and skills. The role of the state is crucial because firms and individuals would need subsidies and other incentives to invest in productive capacities that have long-term payoffs or are subject to the appropriability problem of reaping private returns on their investment.

The scope and nature of the state's role in developing productive capacities vary from country to country, depending on factors such as the country's industrial profile, current level of productive capacities, development goals, fiscal health, etc. Generally, state support for the building of productive capacities could come in various forms, including subsidies for undertaking innovative activities, tax credits and direct collaborations with firms and NGOs to develop specific technologies or train workers to acquire certain critical skills. Describing how the state helped to develop the Brazilian telecommunications industry, Hobday (1985, pp. 335-336) notes that: "...none of Brazil's achievements could be described as "automatic" or the result of market forces. On the contrary, Brazil's successes were the result of the "visible hand" of government policy and strategy in translating a political will into an economic and technological reality. Without a sustained and innovative effort on the part of the government, there would not have been pressure on the private sector to transfer and develop the core technology needed to design and manufacture digital systems suited to Brazil."

Rwanda and Tanzania have arguably what can be regarded as an "aspiring developmental state." They have stable political systems, and their leaders have steadfastly reoriented their hitherto state-controlled economies to one that is increasingly based on free markets, trade liberalization, deregulation, privatization, and financial-sector reforms. Since the will to undertake structural change is there, what needs to be done is for the state to prioritize women's productive capacities using the following instruments of economic management:

Economic Policy: The goal of economic policy should not be conceived as simply the maintenance of full employment and macroeconomic stability. Economic policy can also be very instrumental in encouraging firms to undertake activities that expand the economy's knowledge base. Fiscal policy such as R&D tax credits for firms and government funding of R&D institutes can help strengthen a country's technological capability. Same applies to monetary policy that provides cheap credit for technology entrepreneurs and firms that invest in technology-related activities.

Trade Policy: Trade policy exists as a continuum of two extreme pillars. Productive capacities, especially innovation and technological learning, can be affected positively or negatively, depending on where a country is on that continuum. At one of the extreme points, complete trade liberalization may spur firms to develop the technological capability to compete effectively in foreign markets (Krueger, 1997). In this case, the Darwinian mantra of the survival of the fittest would ensure that only those firms that have invested in innovation, technology and productive capacities would survive, while others would go extinct. But critics argue that an abrupt exposure of firms to foreign competition may have the latent effect of undermining their ability to develop productive capacities, especially if competition forces them to undertake cost-cutting measures that discourage investment in productive capacities. For instance, an UNCTAD (2018b) report found that "tariff liberalization on imports from the rest of the world had a negative effect on women's employment in production jobs." Following the introduction of structural adjustment in Tanzania in the 1980s, trade was liberalized. This resulted in the massive imports of leather products, which led to the closure of domestic firms in the industry. Increases in the exports of unprocessed leather led to the shortages of raw materials for domestic producers of leather products. Finding the industry to be increasingly unprofitable, local firms had no incentive to invest in new technologies or upgrade the skills and capacities of their workers.

The opposite pillar is when there is a blanket protection of firms from foreign competition, a policy that was implemented by Rwanda and Tanzania in the 1960s-1970s. This inward-looking, import substitution, strategy had the perverse effect of encouraging complacency and lethargy, the result of which is the lack of investment in productive capacities. What, then, is the optimal trade policy that spurs investment in productive capacities? The experiences of East Asian countries have shown that an optimal policy is one that *gradually* exposes firms to foreign competition, while at the same time providing them with the support and incentives needed to strengthen their capacities.

The structure of trade (imports and exports) can also affect the level of productive capacities in a country. Trade policies that promote the production and export of unprocessed commodities cannot create the incentives necessary to raise women's productive capacities. This cannot spur the demand for technical and managerial skills, and there would be little incentives to develop the productive capacities of women. Policies that prioritize the export of unprocessed agricultural products can only entangle women in low-productivity traditional agriculture and keep them in perpetual poverty. At the same time, policies that encourage too much reliance on imported consumer goods would discourage the development of local manufacturing capacities, which would in turn stunt the building of women's productive capacities. The experiences of the Asian Tigers suggest that smart trade policies are those that boost innovation and exports, which can subsequently lead to investments in skills and human capital necessary to support local firms.

Industrial Development Policies: The nature of a country's industrial development policies influences the level of productive capacities in that country. Industrial development without raising productive capacities would amount to building a house on a shaky foundation. That industrial development strategy will not

be sustainable. The Rwandan and Tanzanian governments have declared their commitment to building a broad-based economy, with a strong manufacturing sector. Both countries are promoting agro-processing as a growth driver. Additionally, Rwanda is trying to use the apparel and cement industries to revive manufacturing (see Made in Rwanda (MIR) campaign of 2017), while Tanzania is focusing on gold mining, oil and gas (see Tanzania Mini-Tiger Plan 2020).

Some of the major industrial development policies and initiatives in Rwanda and Tanzania are discussed in the following paragraphs. One takeaway from this analysis is that these policies did not explicitly and intentionally include plans for the development of women's productive capacities. This is a major weakness of their industrial development policies and should be rectified in subsequent policies.

The push for industrial development in Tanzania can be divided into two phases. The first phase covers the period 1960s – the mid-1980s. This period was characterized by the Import-Substitution Industrialization (ISI) strategy, where foreign investors and donors were expected to play a key role (Helleiner, 1976; Wangwe, et al., 2014). Protection through tariffs and other measures were put in place to shield domestic firms from foreign competition (Wangwe, 2013). The Foreign Investment Protection Act of 1963 was enacted to encourage foreign investment, but much of the investment was made in agro-processing and low value-added manufacturing (Gray, 2013). Tanzania's ISI strategy took a dramatic turn with the Arusha Declaration of 1967, which resulted in the nationalization of private enterprises (including commercial banks) and the establishment of new ones. These enterprises suffered from low productivity and low-capacity utilization. The chronic shortfalls of foreign exchange and dwindling donor support led to acute shortages of production inputs. Tanzanian enterprises also depended heavily on government subsidies, the cost of which the government was increasingly unable to bear. The result was the collapse of state-owned enterprises, and the exit of foreign firms due to unfavorable business and regulatory environments. The de-industrialization that occurred during this period stunted the development of productive capacities in the industrial sector, and further pushed Tanzanians into low-productivity agriculture and the informal sector. A weak industrial sector is anathema to the development of productive capacities.

The second phase of industrial development in Tanzania began in the mid-1980s, with the implementation of structural adjustment policies. This era is characterized by the liberalization of trade and investment. Many of the restrictions on foreign investment were either eliminated or relaxed. Because of the slow pace of industrial development during this era, the Sustainable Industrial Development Policy (SIDP), 1996-2020 was introduced. Under the SIDP, industrial development would be driven by the private sector, with the government providing an enabling environment. Government, however, may invest in some sectors of critical importance (UNCTAD, 2015). Apart from the TDV and SIDP, Tanzania also introduced the Tanzania Mini-Tiger Plan 2020 (TMTP), which sought to replicate the experiences of the Asian Tigers. A key dimension of this Plan was the establishment of Special Economic Zones (SEZs) that focused on high-tech products. This was later complemented by the Integrated Industrial Development Strategy 2025 (IIDS, introduced in 2011 and designed to promote resource-based industrialization through industrial clusters) (UNCTAD, 2015, p. 59).

There is no doubt that Tanzania has made genuine efforts at promoting industrial development. But these efforts would have been more fruitful if they explicitly focused on the development of productive capacities, especially for women. Higher levels of productive capacities would have ensured the availability of a large pool of skilled workers in the industrial sector, which would have reduced production costs, lower prices, produced high-quality products and therefore make Tanzanian enterprises to be regionally and internationally competitive.

The same pattern of industrial development can be observed in Rwanda. During the past decade, Rwanda implemented various industrial development programs. The goal of this chapter is not to review all of them, but to highlight those that have shaped the current trajectories of industrialization in the country. One key element of the push for industrial development in Rwanda was the introduction of the Domestic Market Recapturing Strategy (DMRS) in 2015. The DMRS sought to identify sectors in which Rwanda could quickly recapture the domestic market, but through a fair competitive process (Rwanda Ministry of

Trade and Industry, 2017). This strategy assumed that an increase in local production would spur demand for "latent productive capacities." Most of those latent capacities are associated with untapped women productive capacities.

Another important component of Rwanda's industrial development strategy was the 2015 launching of the National Exports Strategy II. The goal of this strategy was to enhance international competitiveness and access to markets. Closely associated with this initiative was the Private Sector Development Strategy (PSDS), whose major aim was to create an enabling environment for business growth. The Made in Rwanda (MIR) campaign of 2017 was a major cornerstone of this strategy, and its overarching goal was to boost competitiveness through enhancement of the domestic market. The MIR was expected, among other things, to boost export, domestic production recaptures, job creation and value addition.

Analysis of Rwanda's industrial development strategy would be incomplete without discussing the Industrial Master Plan for the Agro-Processing Sub-Sector, 2014-2020. A major cornerstone of the Master Plan was the establishment of a Special Economic Zone (SEZ) and four industrial parks for agro-processing (Table 12). But the viability and sustainability of agro-processing firms depend on women's productive capacities, without which these firms would continue to face supply constraints and sub-optimal capacity utilization.

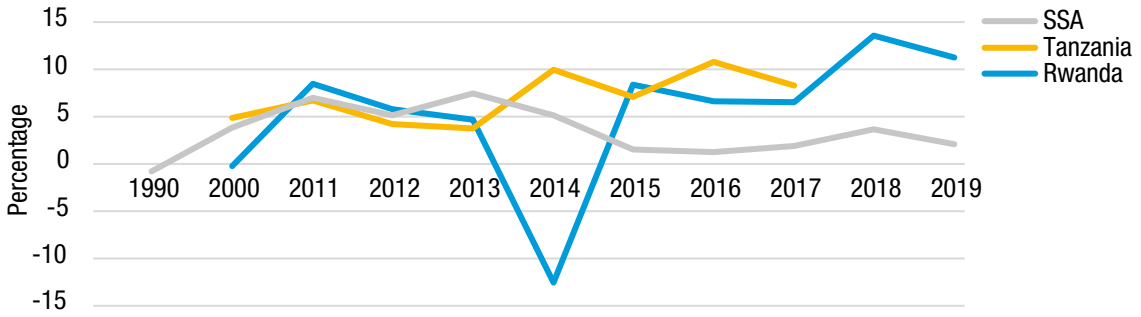
Table 12: Rwanda's industrial cluster (parks) agro-processing resource mapping

SEZ and Industrial Park	Agro-Processing Industry
Kigali special economic zone	
Bugesera industrial park	Rice processing industry Fish processing industry Sorghum processing industry
Huye industrial park	Coffee processing industry Rice processing industry Cattle related processing industry Swine related processing industry Poultry related processing industry
Rusizi industrial park	Fish processing industry Coffee processing industry Tea processing industry Cattle related processing industry Wheat processing industry
Nyabihu industrial park	Sorghum processing industry Wheat processing industry Pyrethrum processing industry Fish processing industry
Agro-processing industries that will be present in the SEZ and all the industrial parks	Cassava processing industry Banana processing industry Maize processing industry Pulses related processing industry Potatoes related processing industry Nuts processing industry Yam processing industry Pineapple processing industry Passion fruits processing industry

Source: KPMG, 2014-2020

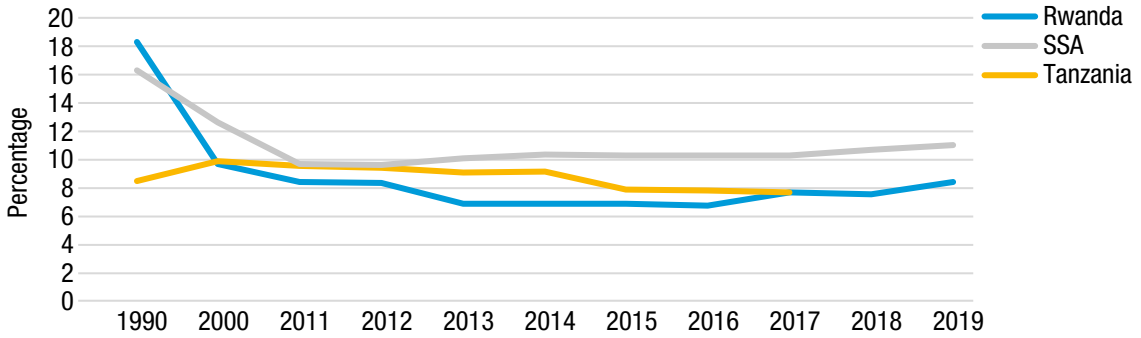
The various industrial development initiatives implemented by Rwanda and Tanzania appear to have positively impacted their industrial performance. Figure 30 shows that manufacturing value added has been growing in both countries since 2000, though with occasional fluctuations. There was a steep decline in manufacturing value added in Rwanda during 2013-2014, but with a huge recovery in 2015. Since 2015, the growth of manufacturing value added in Rwanda and Tanzania has exceeded the average for SSA. Manufacturing value added as a percentage of GDP has, however, remained flat in both countries since 2000 and is below the average for SSA (Figure 31). It is suggested in the next chapter that a focus on agro-processing, which upgrades and leverages women's productive capacities, is an effective strategy for improving the manufacturing performance of Rwanda and Tanzania.

Figure 30: Manufacturing, value added (annual % growth)



Source: compiled using data from WDI

Figure 31: Manufacturing, value added (% of GDP)



Source: compiled using data from WDI

As observed from the preceding discussions, Rwanda and Tanzania do not lack industrial development policies and initiatives. As relatively small economies with limited financial resources, they have done an impressive job articulating policies for diversifying their economies. A missing link, however, in all these initiatives is how to build women's productive capacities and explicitly make women's participation to become an integral part of the overall industrial development strategy. Doing so would strength industrial development in the following ways. First, skilled labor would be available to industrial enterprises at lower costs, making them to become competitive in regional and global markets. Manufacturers in Rwanda and Tanzania could overcome the constraints of small domestic and regional markets, by investing in niche markets and value chain activities that do not require scale economies. Having a large pool of women with high productive capacities would also enable these manufacturers to adopt cutting-edge technologies that allow flexible manufacturing processes and the ability to customize products. Chapter 7 of this report proposes policies for strengthening women's productive capacities, and how they could be leveraged for building a production and export-oriented economy.

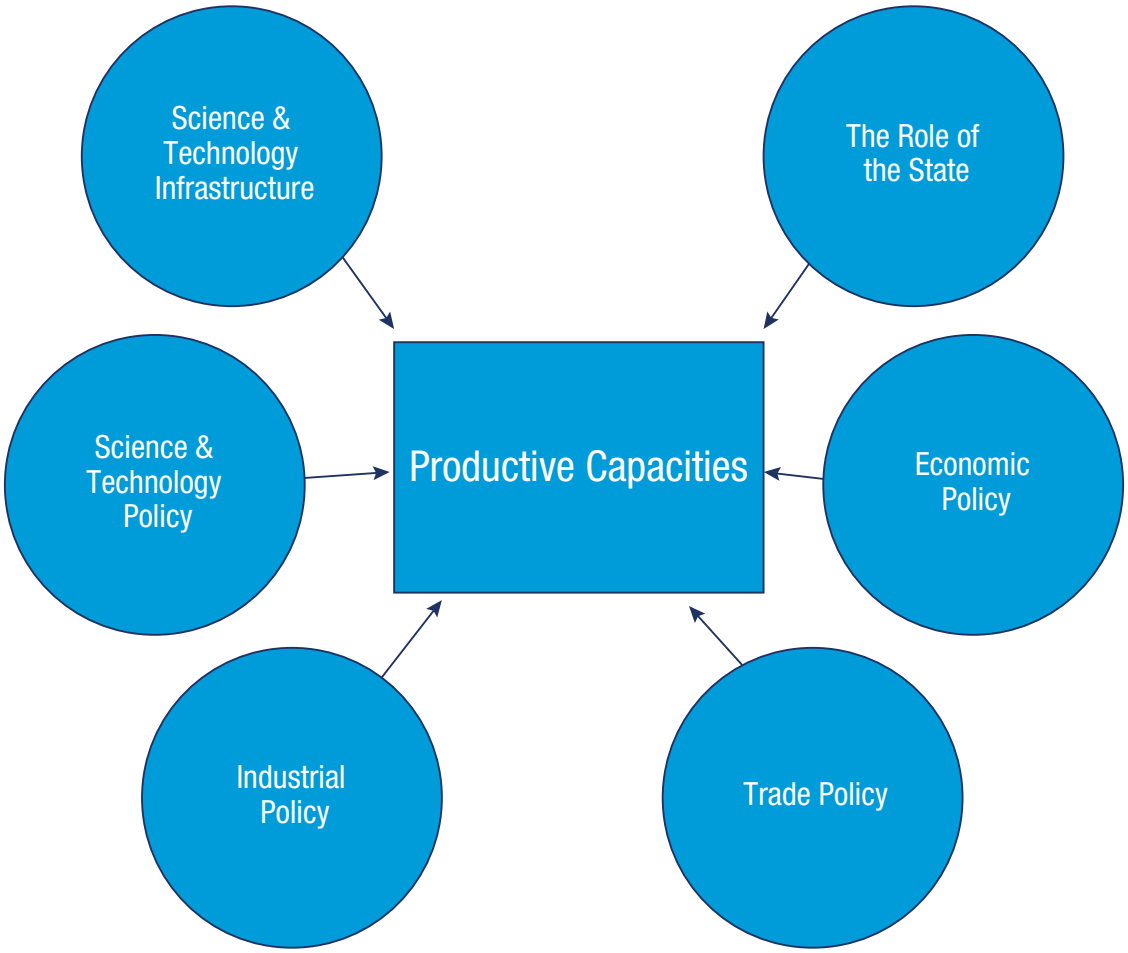
Investment Policies: Women need to move away from unpaid household work, and engage in productive activities in the industrial, agro-processing, ICT and service sectors. This can only happen if Rwanda and Tanzania have a critical mass of private and foreign investors in these important sectors. Private investment can generate backward and forward linkages that spur women to diversify the range of products they produce. Private investors are also major conduits through which women acquire skills, technology, and knowledge. Thus, the quality of investment policies can play a major role in determining women's productive capacities. One of the reasons why women's productive capacities have not been fully developed is the low levels of investment in productive sectors of the economy. In the 1990s, investment in Rwanda averaged on 12 percent of GDP in the 1990s. That of Tanzania was higher at 26 percent, but still below the threshold of 30 percent that economists believe is necessary for a robust economic growth. Both countries have seen investment increase over the past decade, with Rwanda's averaging 23.8 percent and Tanzania 35.4 percent (IMF World Economic Outlook Database, April 2021). This momentum should be maintained by creating a conducive environment for private investment through regulatory reforms that make investment less bureaucratic, tax incentives, unfettered access to finance and foreign exchange, provision of high-quality infrastructure, and liberalization of trade.

Science and Technology Policy (S&T): Economic and trade policies can be effective in promoting technological development only if they are juxtaposed with a well-articulated S&T policy. S&T policy can be defined as governmental actions *explicitly* designed to influence the intensity, nature and direction of innovative activity. A well-articulated S&T policy is one that explicitly identifies a country's development objectives and then incorporates scientific, technological and skill-intensive programs for the achievement of those objectives. In other words, a country's S&T policy must be mission and goal-oriented, rather than abstract (Onyeiwu, 2015). One example would help clarify the above proposition. Suppose Rwanda and Tanzania want to alleviate poverty by enhancing the capacity of peasant farmers to process agricultural products for sale in both domestic and foreign markets. The country might then formulate an S&T policy that establishes research institutes that focus on agro-processing. Higher educational institutions would also be encouraged to establish programs that train agricultural students in food processing. Local equipment producers might be incentivized to produce cost-effective machines and equipment for agro-processing. Venture capital may also be mobilized to support entrepreneurs willing to invest in the marketing and export of processed agricultural products. The S&T policy may well include the establishment of a cluster of agro-processors within a region of the country. Producers in the cluster would then enjoy agglomeration economies, in government subsidized infrastructures. The point being made here is that, when S&T policies are not tied to development goals, they become vacuous, incoherent, and ambiguous. If a major goal of Rwanda's and Tanzania's S&T policy is to build women's productive capacities, that policy should incorporate programs and mechanisms for encouraging women's participation in R&D, process and product innovation, industrial training, shop-floor apprenticeship programs in various fields of manufacturing, programming and operation of machines, etc.

Science and Technology Infrastructure: A country's S&T infrastructure consists of all the scientific, technological, and educational resources that are available outside of industry, which firms can use to strengthen their technological capabilities. Specifically, S&T infrastructure includes public research institutes, technology transfer agencies, science parks, business and technology incubators, professional and skill development centers, and higher educational institutions. Firms will have a higher propensity to innovate if they operate in a country with a well-developed S&T infrastructure. For instance, the multi-billion Kigali Innovation City (KIC) established in 2018 is expected to attract high-tech firms and transform Rwanda into East Africa's technology and business hub (Mitchell, 2020). The level of development of a country's S&T infrastructure depends, to a large extent, on the nature of the state. A state that is genuinely committed to promoting technological development will have a higher propensity to develop a strong S&T infrastructure.

Chart 2 provides a panoramic view of the interconnections of various "macro" factors that influence productive capacities. It shows the multi-sectoral nature of building productive capacities, as well as the need to coordinate economic, trade, investment, and technology policies.

Chart 2: Enabling environment for building women's productive capacities



Source: Authors

7

STRATEGIES FOR DEVELOPING WOMEN'S PRODUCTIVE CAPACITIES IN RWANDA AND TANZANIA

7 STRATEGIES FOR DEVELOPING WOMEN'S PRODUCTIVE CAPACITIES IN RWANDA AND TANZANIA

The productive capacities of women in Rwanda and Tanzania can be divided into two categories: static and dynamic capacities. Static productive capacities are those needed to perform *existing* activities better. Raising women's static productive capacities would enable them to increase their productivity, output, and quality. This would boost income, consumption and investment in resources that further enhances their productive capacities. Take, for instance, a coffee farmer in Rwanda. If, by providing her with fertilizers, high-yielding seedlings, and extension services, she increases her output and income, then we shall say she has raised her static productive capacity. On the other hand, if she receives training in how to process, package and brand her harvests for sale to GVCs, this would be regarded as dynamic productive capacity. Perhaps a coffee-bean processing plant exists in the community in which this coffee farmer works. If this plant hires the coffee farmer to work in company-owned coffee farm, and trains her in how to work in a large coffee plantation, that can be characterized as dynamic productive capacity. Box 4 clarifies the nature of static productive capacities.

Box 4: Raising static productive capacities: The case of coffee farming in Rwanda

Dorotee Uwimbabazi's story illustrates how training in better farm practices can significantly raise women's static productive capacities. She grew up in the village of Kiguri, near Lake Kivu, where her parents grew coffee. She learned how to grow and process coffee, while working on her parents' farm. After she got married, Dorotee saved money and purchased a 1.2-acre land that had coffee trees on it. Her husband, who works as a security guard, assisted her with paying for laborers who worked on the farm. In 2016, the farm was producing about 500 kilograms of coffee from 700 coffee trees. Dissatisfied with this output, she joined a producer association that received training in best-practice coffee farming from agronomists employed by Nestle and the Kahawatu Foundation. Dorotee and members of her association also received training in managerial skills, and how to reinvest their income. After these trainings, her output rose from 500 to 600 kilograms per season. The increase in her income enabled Dorotee to purchase school uniform for her children, as well as pay their school fees. Dorotee's story showcases how an increase in static productive capacities can raise a household's income, and support investments that raise the productive capacities of future generations. The involvement of Nestle and the Kahawatu Foundation shows how partnerships between the private sector and NGOs can be instrumental in building women's productive capacities. This issue is discussed later in this report.

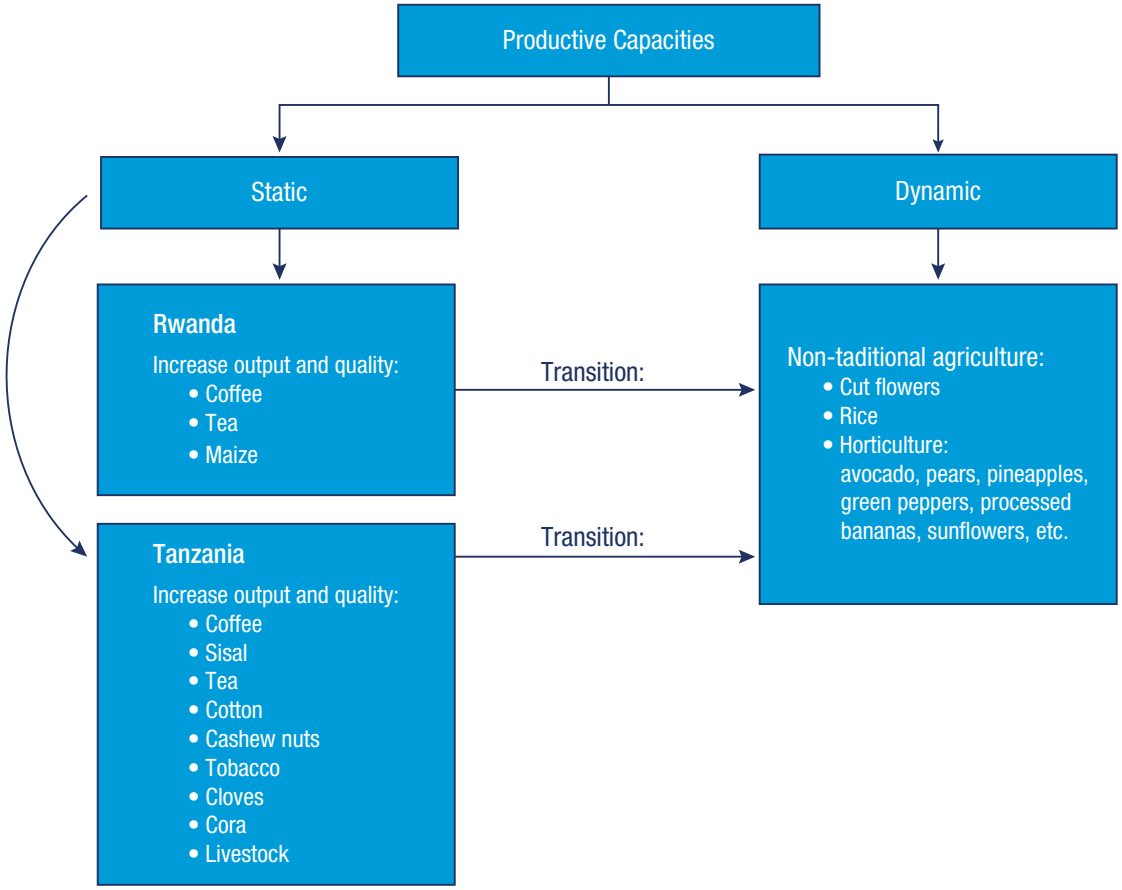
Source: Nestle Corporation, 2021

There are other examples that could be used to distinguish between static and dynamic production capacities. Consider the case of Tanzanian women who produce cloves. As with the Rwandan coffee farmer, the static capacities of clove producers could be raised through the provision of physical assets that raise their output. Cloves are highly valued by GVCs, but Tanzanian women do not have the capacities to serve the regional and global markets. If they are trained in how to upgrade their products to the attributes and specifications desired by GVCs, then that would constitute dynamic productive capacities. In the dairy industry, women's dynamic production capacities can be enhanced if they are trained to process and package cow milk and cheese for sale to supermarkets and other outlets.

About 80 percent of women in Rwanda and Tanzania depend on agriculture for their livelihood. That will not change in the short term. While efforts should be made to build their capacities to transition into non-agricultural sectors in the medium to long term, attention needs to be focused on how their static

and dynamic productive capacities can be developed within the agricultural sector. Chart 3 illustrates the interactive nature and overlap between static and dynamic production capacities. It shows how women can transition from static to dynamic productive capacities within the agricultural sector. This transition is further illustrated in Table 13.

Chart 3: Mapping women's productive capacities in agriculture



Source: Authors

Table 13: Women's static and dynamic productive capacities in the Agricultural and Agro-processing sectors

Low Productive Capacities	Static Productive Capacities	Dynamic Productive Capacities	Strategy
Unprocessed Cassava	Processed Cassava Flour	Packaging and Marketing of Processed Cassava	Access to Finance Basic Technical Skills Managerial, Entrepreneurial and Financial Skills
Animal Husbandry	Improved Access to High-Quality Feeds	Processed Milk and Cheese or Production of Hides and Skin	Subsidies for Animal Feeds Training for Processing Animal Products

Low Productive Capacities	Static Productive Capacities	Dynamic Productive Capacities	Strategy
Cashew Nuts	High-Yielding Inputs	Packaging and Marketing to Supermarkets and other Outlets	Training Entrepreneurship Access to Finance
Subsistence Farming	Increased Acreage of Farmland	Skills for Employment in Agro-processing Firms	Technical, Vocational Education and Training (TVET)
Fishery	Access to Productivity-Enhancing Fishing Equipment	Processing and packaging of fish for sale to supermarkets and exporters to regional markets.	Training Agro-entrepreneurship Access to Finance
Unpaid Household Work	Access to art and craft materials for Mats, Baskets, Ropes, Twines	Worker at Agro-Processing Factories Poultry/Fish Farming	Training

Source: compiled by authors

Rwandan and Tanzanian women need to develop both static and dynamic productive capacities. This can be accomplished by providing them access to land, high-yielding inputs, farm equipment, and training in new farming techniques, extension services, and markets. It could also involve simple things such as teaching them how to build rainwater banks/reservoirs in their homes, and thus ensure sustained water supply for long periods of time. This saves time and energy they would have expended walking long distances to fetch water from fountains. The saved time and energy can be used for agricultural production, which then boosts their productivity, output, and income.

Since most Rwandan and Tanzanian women are in the agricultural sector, in the short run, it seems logical to prioritize building their productive capacities in this sector, as well as in agro-processing. But efforts should also be made to enhance their productive capacities in non-agricultural sectors in the medium to long term. Building women's productive capacities in agriculture and agro-processing activities can be leveraged for women's participation in other segments of manufacturing and services where women have been traditionally excluded. Some of skills and knowledge gained from agro-processing and related activities may be transferrable to the health sector, ICT, manufacturing, etc.

Given the heterogeneity of women (age, education, marital status, socio-economic background, geographical location, etc.), there is no one-size-fits-all approach to building women's productive capacities. One approach may be effective for one group of women, but counter-productive for another group. Policy makers, therefore, should undertake due diligence and match women with the appropriate mode of capacity-building. The following are some of the strategies that can be used to strengthen women's static and dynamic productive capacities in Rwanda and Tanzania:

Basic Education: One of the important foundations of women's productive capacities is basic education. It enables women not only to read and write, but also to engage in continuous learning; acquire new knowledge and develop a wider network of friends, which could open economic opportunities. Women with basic education tend to be more endowed with social capital, which they can leverage to access finance and other inputs that raise their productive capacities. Educated farmers have better access to information and new technologies. They also have higher managerial, organizational, and decision-making skills than uneducated farmers (Maiga and Kazianga, 2016, p. 9).

Raising the productive capacities of women should start early at the elementary and primary school levels. According to Sawhill and Ludwig (2007), "Findings from a number of rigorously conducted studies of early childhood and elementary school programs suggest that intervening early, often, and effectively in the lives of disadvantaged children from birth to age ten may substantially improve their life chances for higher educational attainment and greater success in the labor market, thereby helping impoverished children avoid poverty in adulthood."

Without basic literacy, women's productive capacities would be limited to low-productivity agricultural and informal sector activities. Illiteracy is a major reason why women marry early and are confined to unpaid household work. Basic education is essential for women to engage in life-long learning and be able to adapt to changes in skills and technology. According to Hendren and Sprung-Keyser (2019), investments in the health and education of low-income children up to their mid-twenties have the highest rate of return on investment of all government programs. Nobel Laureate Heckman, et al. [quoted in Sperling (2020, p. 28)] found that every $1 investment in high-quality early education yields a return of about $8.60. In Rwanda and Tanzania, this kind of return is more than enough to extricate at least 50 percent of women from extreme poverty. Indeed, investment in the early education of women pays for itself over time.

When women are educated early, their propensity to marry early diminishes precipitously. When they do get married, their quest for knowledge does not stop, compared to those with no early education. Early education makes women to be effective learners, which enables them to take advantage of new opportunities in the economy. In contrast, women without basic education are unable to learn new skills and are forced to depend on their physical labor, which not only depreciates as they age but also earns diminishing marginal returns. Women are unlikely to be employed by business and public enterprises without the ability to read, write and communicate. By educating women early, they will be prepared for whatever skills will be required in the next 15-20 years. To accomplish this, there should be more investment in quality and free elementary and primary education.

Because young girls are expected to assist with household chores, marry early or generate income from the informal sector for the family's upkeep, they are unable to attend school regularly. Investment in basic education should be accompanied by measures designed to keep girls in school. One of those measures involves carrot and stick; for instance, a law that mandates households to send their children to primary schools. The carrot could be cash transfers to households who enroll their children in primary schools, in addition to free lunches for those children. A public enlightenment campaign should be mounted to sensitize parents to the salience of basic education for the girl child, as well as discourage the girls from early marriage. Village and community heads, as well as religious leaders, should be engaged to help encourage girls in rural communities to acquire basic education. As Table 14 and Table 15 show, Rwanda and Tanzania have made significant progress with girls' primary education. In 2015-2016, for instance, about 57 percent of females within the age range 35-39 completed primary education in Tanzania (Table 14). In Rwanda, half of students enrolled in primary school in 2018 were girls (Table 15). But female adult literacy remains a challenge. As noted by UNCTAD (2018c), "full adult literacy is far from achieved and the gender gap in literacy remains particularly high in rural areas."

Table 14: Educational attainment of the female household population, 2015-2016 – Tanzania

Age	No education	Some primary	Completed primary	Some secondary	Completed secondary	More than secondary	Total	Number	Median years completed
6-9	44.1	55.9	0.0	0.0	0.0	0.0	100.00	3,764	0.0
10-14	9.0	77.0	10.0	4.0	0.0	0.0	100.00	4,140	3.3
15-19	6.3	144	43.7	26.7	8.8	0.0	100.00	2,993	6.6
20-24	10.1	9.4	43.6	9.8	25.6	1.4	100.00	2,534	6.7
25-29	16.8	10.6	48.9	4.9	15.9	2.9	100.00	2,159	6.5

Age	No education	Some primary	Completed primary	Some secondary	Completed secondary	More than secondary	Total	Number	Median years completed
30-34	20.8	12.7	52.4	2.6	9.5	2.0	100.00	1,772	6.3
35-39	20.3	10.5	56.9	3.2	7.9	1.2	100.00	1,665	6.3
40-44	22.0	10.9	57.7	2.3	5.8	1.4	100.00	1,370	6.3
45-49	18.9	10.2	60.7	2.9	5.7	1.6	100.00	975	6.3
50-54	33.1	15.0	46.5	1.4	3.7	0.3	100.00	988	6.4
55-59	45.4	20.4	27.4	1.3	5.3	0.3	100.00	680	1.7
60-64	54.7	28.6	13.0	1.0	2.4	0.3	100.00	583	0.0
65+	75.9	18.6	3.9	0.1	0.9	0.6	100.00	1,391	0.0

Source: Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016, p 42

Table 15: Number and % of students enrolment, 2018 – Rwanda

Levels	Male students	% of male	Female students	% of female	Total	% of total students
Pre-nursery	3,199	49	3,292	51	6,491	0.18
Nursery	112,044	49	114,662	51	226,706	6.25
Primary	1,259,344	50	1,244,361	50	2,503,705	69.04
General secondary	264,782	46	314,115	54	578,897	15.96
TVET	57,643	56	44,842	44	102,485	2.83
General Tertiary	41,458	55	34,255	45	75,712	2.09
Adult literacy	51,220	39	81,145	61	132,365	3.65
Total	1,789,690	49	1,836,672	51	3,626,362	100

Source: Republic of Rwanda Ministry of Education, 2018 Education Statistics, p 1

Building women's productive capacities requires that that momentum be sustained. Efforts should be made to educate girls beyond primary school. The perception that post-primary education is only for boys should be changed. Educating girls beyond primary school would enable them to enroll in tertiary technical institutions, as well as STEM programs at the higher education levels. Primary education, while important for general literacy, may confine women to low-productivity agricultural production and informal-sector activities.

Skill-Related Education: In addition to basic and post-primary education, there should be opportunities for women to acquire skills that are demanded by the private and public sectors. Young women should be encouraged to acquire skills, while older women could be reskilled to engage in new productive activities. For instance, women who engage in household work could be taught how to raise poultry for supply to supermarkets, or how to operate fishponds for the market. Job-related vocational training for women can be transformative. It gives them the opportunity to transition from underemployment to full employment, thereby raising their income and helping them escape extreme poverty. Because on-the-job training is costly to business enterprises, they would have the incentive to retain workers for a long period of time, which in turn ensures that women are gainfully employed during their working lives. After working for a business enterprise for a long time, women gain idiosyncratic knowledge and skills that make them indispensable for that enterprise.

Hybrid Secondary School: This includes a combination of secondary education and vocational technical skills. In this model, students spend half their time studying general subjects like English, Basic Mathematics, Social Studies, Sciences, etc. The other half would be spent studying a vocation: carpentry, electrical repairs, precision machining, auto repairs, ICT, plumbing, construction, etc. By shifting emphasis from general education to skills acquisition, a pathway is created for women to be employed in productive sectors of the economy, rather than ending up in service jobs. This hybrid approach can also be replicated at the post-secondary levels of education. Girls' technical skills can be enhanced through the adoption of the "P-TECH" model of secondary education. P-TECH is a public-education system whereby underserved and unprivileged secondary school students are provided with the academic, technical, and professional skills needed to compete for STEM jobs and jobs of the future. What makes this model distinctive is that it is a partnership between a secondary school, a post-secondary technical college (or university), and an industry partner. This way, the education and practical experience received by the students allow them to be career ready. This model is similar to the German system of technical education, described in Box 5.

Box 5: Learning from the German experience

Although Rwanda and Tanzania have established technical institutions and vocational training schools/centers, these programs are not strongly embedded within industrial and practical settings. Indeed, these technical institutions are appendages to the educational systems of these countries. The central goal of education in Rwanda and Tanzania is to prepare students for university education and white-collar jobs. Most of the students who enroll in technical institutions are those unable to gain admission into universities. In the same token, students in vocational schools are regarded as second-rate, not academically strong enough to enroll in tertiary institutions.

Rwanda and Tanzania have a lot to learn from the German experience, where vocational education and technical education are considered just as important as university education. Germany has two educational tracks: one track prepares students (as early as age 10) for vocational technical skills, and the other for university education. Students enrolled in the vocational track acquire problem-solving skills such as technical drawing and applied mathematics, as well as economics, science, and social studies. Between ages 16-18, students who opt for the vocational track enroll in an apprenticeship program that runs 3-4 days per week, in addition to an academic component. One day per week, the students also take academic courses that complement their apprenticeship program, including communication skills, writing skills, workplace ethics, time management, and job-related mathematics. Thus, students acquire both practical skills and academic knowledge. Students on the vocational track are required to have a "mentor" in businesses such as Bosch, Siemens, Mercedes-Benz, and Deutsche Bank. The mentorship program enables students to gain an array of skills such as "reading blueprints, calculating industrial formulas, understanding advanced manufacturing operations, maintenance, and computerized operations."

The German vocational educational system has enabled the country to generate a continuous stream of girls and youths endowed with industrial and managerial technical skills. It should be emphasized that the vocational track has more prestige and status in Germany, compared with the general education track. This contrasts with Rwanda and Tanzania, where vocational education is regarded as a last resort, meant only for "dropouts." Ironically, vocational, and industrial technical skills are very important for attracting global corporations that would generate job opportunities for youths. It is indeed time for Rwanda and Tanzania to follow a different trajectory from its current path, a path that has exacerbated women's exclusion from productive sectors of the economy and jobs of the future.

Source: Kidwell and West, 2012.

Training in Productivity-Enhancing Agricultural Practices: If women cannot be moved immediately from subsistence agriculture and unpaid household work to high-productivity non-agricultural and non-informal-sector jobs, then agriculture needs to be modernized and women's productive capacities in agricultural and non-agricultural activities need to be raised, so they can move up the value chain and acquire static productive capacities. Women's productivity in the agricultural sector of Rwanda and Tanzania is low because of lack of mechanization, limited access to high-yielding varieties of seeds, and lack of access to credit to purchase fertilizers (FAO, "Rwanda at a glance"; Sarris, Savastano and Christiaensen, 2006). Agriculture will continue to remain an important source of livelihood for Rwandan and Tanzanian women in the short and medium term. Consequently, raising their productive capacities within the agricultural sector is important for raising their incomes and alleviating poverty. Value addition to agricultural production can also help support agro-processing by easing supply constraints and improving capacity utilization. This can be achieved through training in the effective use of agrochemicals, safe use of PPE when administering agrochemicals, and farm input management. Raising women's productive capacities should b accompanied by complementary investments in infrastructure, access to land and finance.

Agricultural input suppliers could play an important role in enhancing women's productive capacities in Rwanda and Tanzania. They could train farmers in the effective use and management of input, to raise their productivity and output. Agricultural extension workers could help facilitate the interactions between women farmers and input suppliers. Periodic training sessions can be organized by the extension workers, whereby the input suppliers would demonstrate the effective use of inputs and how to enhance yields from those inputs. Box 6 illustrates how partnerships between input suppliers and farmers can boost productive capacities.

Box 6: The case of Bayer Corporation in Nigeria

In building women's productive capacities in modern agriculture, Rwanda and Tanzania should learn from Bayer Corporation's initiatives in Nigeria. Bayer is a German global corporation that specializes, among other things, in crop science. Its crop science portfolio includes high-value seeds, innovative chemical and biological pest management solutions, and extensive customer service for modern and sustainable agriculture. In 2021, Bayer trained 75 farmers and 75 agriculture extension officers in Nigeria on best agronomic practices in the production of rice, maize, and cassava. The participants were trained in pest management, safe and responsible use of pesticide. Bayer also demonstrated to the farmers how to use the company's products effectively and efficiently to enhance productivity. In collaboration with extension offices and a state agricultural development agency, Bayer plans to extend its training and outreach to more farmers. This approach to raising agricultural productivity should be adopted by Rwanda and Tanzania, and women should be prioritized in the selection of farmers to participate in the project. Female farmers are disadvantages when it comes to access to land, finance, and farming equipment. Assisting and training them in the use of productivity-enhancing inputs would be impactful.

Source: Nimat Otori, "Bayer Nigeria trains farmers," Vanguard Newspaper, April16, 2021

The Role of the Private Sector: The public sector cannot do it all. There is always the temptation to assign the role of training, education, skills development, innovation, technology, etc. to the government. While the government should play an active role in facilitating industrial and economic development, that role should not crowd-out the private sector. The government should foster a synergistic relationship with the private sector to ensure optimal investment in productive capacities, as well as investment in the relevant capacities. It should also avoid undue political influence on the choice of capacities to develop.

Building women's productive capacities per se is a necessary but not a sufficient condition of extricating them from poverty. There are several cases in which women's productive capacities were thought to have been built, only for policy makers to find that those capacities were not useful to private enterprises. Private enterprises allocate resources to activities that yield the maximum returns to their investment. Except

when they are engaged in corporate social responsibility, enterprises would invest in skills and training only when that investment yields a sizable return on investment. Without private sector involvement in the development of women's skills, there is the risk of creating "trust gaps" in the labor market. A trust gap exists when women do not have confidence that their skills will be valued by business enterprises. On the other hand, business enterprises may not have confidence that women's skills are useful for their own activities. For women, the trust gap may arise from the patriarchy and male dominance that characterize African societies. Women have come to believe that men will always be prioritized in employment decisions and job opportunities, and therefore may not see value in investing to raise their skills and productive capacities. One consequence of trust gaps is the problem of skills mismatch. A skills mismatch problem exists when business enterprises cannot find suitable workers to hire, though there is a large pool of unemployed people in that country. There are various ways of closing trust gaps in Rwanda and Tanzania. One strategy is the use of the private sector-NGO skill development partnership. NGOs can help identify women with talents, skills and abilities that are needed by firms, and then help match these women with the relevant enterprises. Another way of closing the trust gap is to encourage firms to de-emphasize certification and academic credentials in their hiring practices. They should rather focus on talents, abilities, and potentials. Too much focus on credentials hurts women because most of them have not had the opportunity to acquire academic certificates, though they do have the potential to perform just as well as credentialed men. The Rwandan and Tanzanian governments should encourage firms to embrace a policy of "Affirmative Action" that prioritizes women in the recruitment of workers. Firms should be encouraged to set goals and action plans about how they intend to prioritize women in their hiring practices. They should highlight ways by which they intend to train and mentor women.

Partnership between Private Sector and NGOs: This model has proven to be an effective way to build women's productive capacities. It ensures that the capacities acquired by women are well-aligned with the demand by the private sector for skills. When the public sector is the main driver of capacity and skills development, the result is often a skills mismatch problem, whereby the skills acquired by women are not valuable to private enterprises. The partnership between the private sector and NGOs ensures that capacity-building initiatives are targeted at the needs of firms, as the case of McCormick shows in Box 7.

Box 7: Building women's productive capacities through private-sector/NGO partnerships: The case of McCormick, NCBA CLUSA.

The case of vanilla farmers in the Sava and Analanjirofo regions of Madagascar illustrates how firms can collaborate with NGOs and donors to build capacities that support supply chains, while also improving the livelihood of women and protect the environment. McCormick, a US-based global leader in the manufacturing of spices, teamed up with the USAID and a Washington DC-based NGO, NCBA CLUSA, to train vanilla producers in Madagascar on how to increase the production of high-quality vanilla for supply to McCormick. Dubbed the Sustainable Vanilla for People and Nature (SVPN) program, this three-year, $3 million project is co-funded by USAID and McCormick. Economists would characterize this as a classic case of enlightened self-interest. The project focuses on the building of the capacities of vanilla farmers, organized in producer cooperatives, to increase their production, while also "reduce threats to biodiversity, improve natural resource management, reduce GHG emissions, and improve the wellbeing of farmers and their families." By developing the productive capacities of vanilla farmers, many of whom are women, the partnership hopes to "promote a sustainable vanilla supply chain and improve farmers' livelihoods."

This model should be encouraged and replicated in Rwanda and Tanzania. It can be an effective strategy for building women's productive capacities, and adding value to products such as coffee, tea, cloves, cashew nuts, etc. This would then improve supply chains for agro-processing firms and GVCs in the region. Partnerships between firms and NGOs can be important mechanisms for moving women from unpaid household work to participants in supply chains, production and trade.

Source: Brown, 2020

Agricultural Development Led Industrialization Strategy (ADLI): Manufacturing is the key for the transformation of developing economies. It is a sector that generates linkages, synergies and complementarities for sustaining inclusive economic growth and poverty reduction. A large number of Rwandan and Tanzanian women have not escaped poverty because they have not made that critical transition from unproductive agriculture and household work to manufacturing. The longstanding mindset that agriculture is for women must be jettisoned. A new approach to development that explores how women can engage in manufacturing, either as workers or participants in supply chains, should be promoted.

Most Rwandan and Tanzanian women depend on agriculture for their livelihood and reside in rural communities. Therefore, attempts at building women's productive capacities must occur within the context of the agricultural sector, at least in the short to medium term. Establishing agro-processing enterprises is not only an effective strategy for building women's productive capacities, but it can also help Rwanda and Tanzania to move up the agricultural value chain and strengthen their manufacturing base, diversification and international competitiveness. Rwanda and Tanzania can use agro-processing as a platform for building women's productive capacities; spur industrial development; diversify their economies, promote structural transformation, boost export earnings, and shore up inflows of foreign exchange.

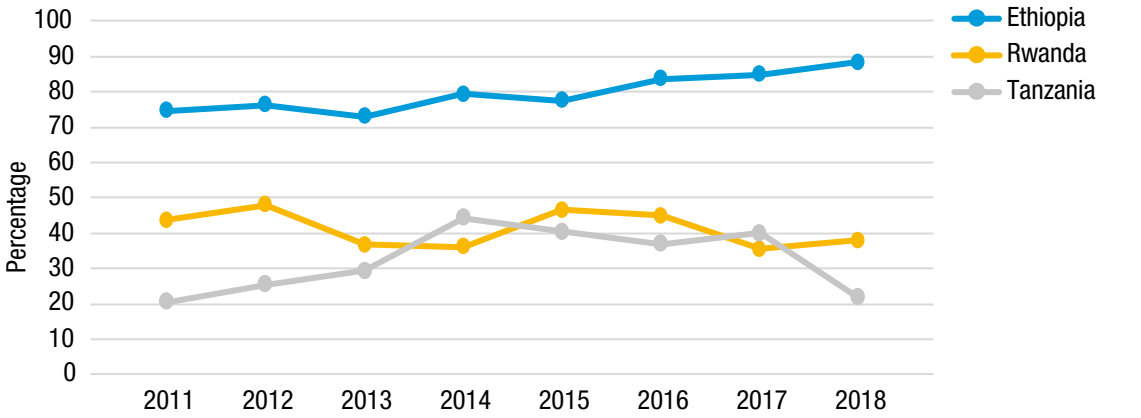
The Standard Industrial Classification (SIC) divides agro-processing into the following categories: food products, beverages, tobacco, textiles, wearing apparel, leather and leather products, footwear, paper and paper products, wood and wood products, rubber, and furniture (Shafi, Muchie and Sedebo, 2021). For Rwanda and Tanzania, the relevant categories to be developed are food processing, beverages, textiles, tobacco, wearing apparel and leather products.

Agro-processing is a preferred approach to industrial development because its technology is relatively simple and more labor-intensive. It is a sector in which the dynamic productive capacities of women can be easily developed. Promoting manufacturing processes other than agro-processing would require capital-intensive technologies that may result in widespread unemployment. Because Rwanda and Tanzania are not well-endowed with capital, manufacturers in these countries would not gain regional and international competitiveness.

Apart from using appropriate technologies and the factor endowments of Rwanda and Tanzania, agro-processing generates forward and backward linkages that spur the development of women's productive capacities. The backward linkages arise from the fact that agro-processing firms would upgrade women's skills for employment. Their demand for high-quality raw materials would incentivize farmers to add value to their products, thereby investing in developing the capabilities to produce better products. The forward linkages may come through corporate social responsibility investments. When enterprises thrive in a community, they would want to invest in raising the welfare of residents of the community. This investment may come in different forms, including the establishment of schools, vocational training centers, health centers, etc. As discussed in chapter 3, the Rwandan and Tanzanian governments have introduced policies to attract both foreign and domestic investments in the agro-processing sector. But they need to step-up their efforts, especially about ensuring that investors in this sector have access to high-quality raw materials at lower costs; a large pool of skilled workers; and the ability to market their products domestically, regionally, and internationally. There is a very large pool of women in Rwanda and Tanzania, ready to be trained in value addition to their products and in the acquisition of skills needed by agro-processing enterprises.

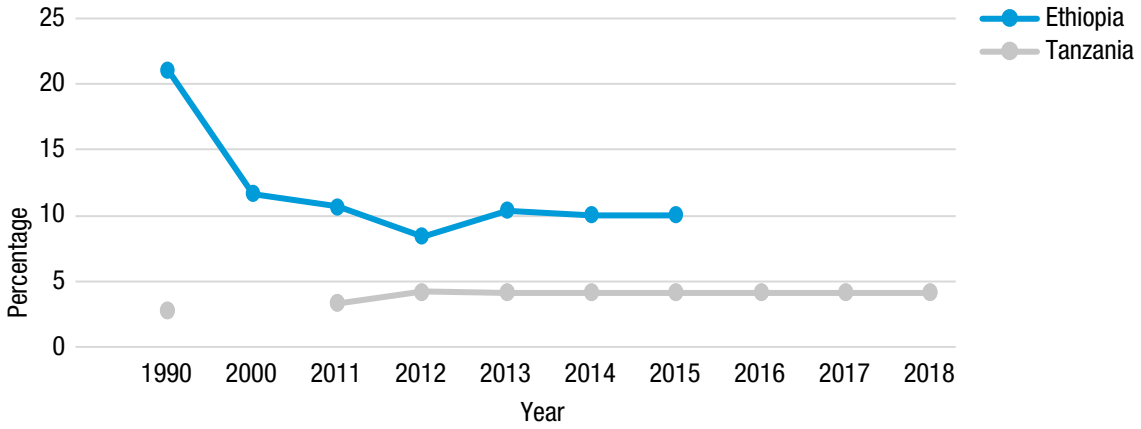
Rwanda and Tanzania are missing out on these important linkages because of the sub-optimal development of their agro-processing industries. This can be observed from the low shares of food exports in both countries (Figure 32). The share of food exports as a percentage of merchandise exports has remained flat for Rwanda and declining for Tanzania. Ethiopia, on the other hand, has succeeded in promoting economic growth through agro-processing. Figure 32 shows that its food exports are more than twice those of Rwanda and Tanzania and have been on the increase. Likewise, Tanzania's textiles and clothing manufacturing has not improved during the past decade, as its share of manufacturing value added has remained flat (Figure 33). This is despite its endowment in raw cotton.

Figure 32: Food exports (% of merchandise exports)



Source: compiled using data from WDI

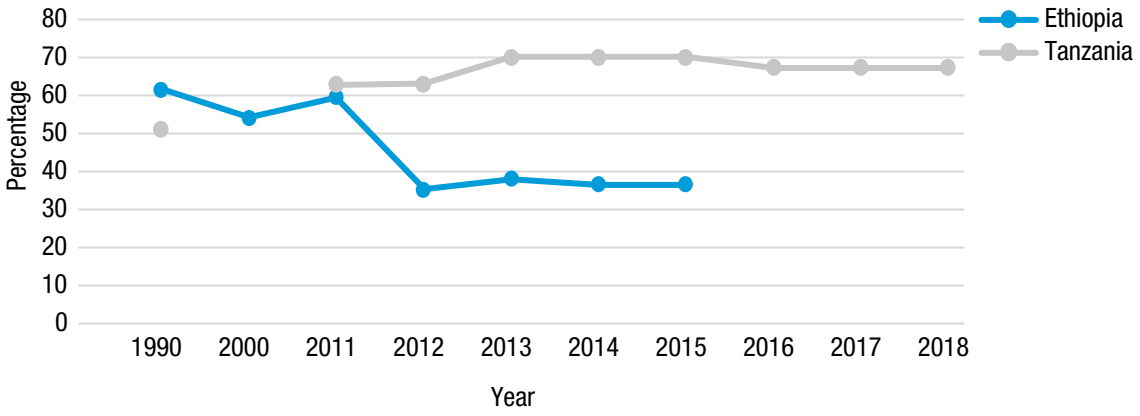
Figure 33: Textiles and clothing (% of value added in manufacturing)



Source: compiled using data from WDI

Tanzania has performed fairly well, with regard to food, beverages, and tobacco as a category, and has been contributing up to 70 percent to value added in manufacturing (Figure 34). It has outperformed Ethiopia in this regard. This success can be replicated in other agro-processing sub-sectors, if certain measures are taken.

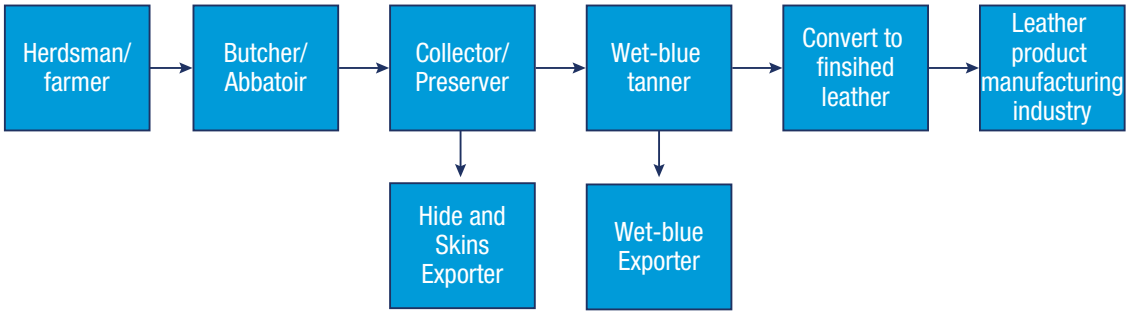
Figure 34: Food, beverages, and tobacoo (% of value added in manufacturing)



Source: compiled using data from WDI

The case of leather processing illustrates how under-developed agro-processing is in Tanzania. To contextualize the discussions, it might be helpful to have a basic understanding of the leather value chain (see Chart 4). Building productive capacities would add value to each stage of the value chain. Women in particular can participate in each of the various stages, as long as their capacities are developed. Extrapolating from the leather industry example, the processing of other agricultural products offer numerous value chain opportunities for women's participation in production and trade. Women who are engaged in unpaid household work could find a niche within the web of value chains created by agro-processing.

Chart 4: The leather value chain in Tanzania



Source: REPOA, 2020, p. 16

Tanzania is the second largest producer of livestock in Africa, after Ethiopia (Table 17). This large supply base should have served as a platform for promoting agro-processing in leather products, just like Ethiopia. However, Tanzania is not a major player when it comes to the production of leather products. Table 18 shows that it is the least exporter of hides, skins, leather and footwear amongst the countries endowed with livestock.

Capacity underutilization has been a major challenge for agro-processing firms in Rwanda and Tanzania. A major cause of this dilemma is related to supply chain constraints, which can be eased if women's productive capacities are developed. A KPMG report identified supply constraints that are negatively affecting agro-processing for the major agricultural products in Rwanda and Tanzania. (Table 16)

Table 16: Main challenges in sourcing of raw materials supplies and technology

Priority Products	Challenge	Processing/Management
Processed Fruits & Vegetables	Available period of a material is commonly short with wide annual fluctuation.	Very costly packaging materials relative to material costs, poor processing skill may erode export competitiveness
Tea	Low quality, low yield of smallholders' raw material opposition to machine-cutting	Majority exported as semi- products, difficulty in establishing Rwandan brand
Coffee	Highly variable quality among producers' Rapid decline of material supply	Majority exported as semi- products, difficulty in manufacturing finished ones
Dairy Products & Meats	Meat-cattle herds are expanding but dairy herds level off. Still epizootic problem continues	Slaughtering and processing are not satisfactory for export quality
Hides and Skins	Low quality due to hurts over the skin surface	Domestic processing is affected by aggressive exports of raw hide
Leather	Enough raw materials but mostly salted and exported	Processing requires dear inputs of foreign origin
Fish and fishery products	Resources are depleting Aquaculture promising but problem of fish feed	Hygiene management is poor for both aquaculture and capture fish. Minimal processing save for smoking Untreated wastes heap up
Cereals, Feeds	Domestic materials are procurable, but it takes time to collect large amount at a time	Many small millers are competing, but processing machines are cheap

Source: KPMG, 2014-2020

Table 17: Livestock production in 2018 (head of animals)

Country	Cattle	Goats	Sheep
Tanzania	27,427,658	18,385,463	7,782,332
China	63,417,928	138,383,129	164,079,093
India	184,464,035	132,749,780	61,666,343
Tunisia	649,690	1,199,383	6,494,939
Ethiopia	62,599,736	33,048,456	31,688,157
Kenya	19,635,142	26,710,775	19,485,699

Source: REPOA, 2020, p. 27

Table 18: Exports of leather and leather products in 2019

Country	Export value (US$ million)	Share in the world export (%)	Country rank
Raw hides, skins, and leather			
Tanzania	11.61	0.0591	76
China	1614.46	8.2197	6

Country	Export value (US$ million)	Share in the world export (%)	Country rank
India	554.8	2.8247	11
Tunisia	14.66	0.0746	70
Ethiopia	71.08	0.3619	43
Kenya	30.40	0.1548	058
Articles of leather			
Tanzania	0.14	0.0002	137
China	33993.42	38.3054	1
India	2513.32	2.8321	8
Tunisia	166.75	0.1879	39
Ethiopia	14.52	0.0164	71
Kenya	2.21	0.0025	91
Footwear, upper of leather			
Tanzania	0.06	0.0001	132
China	10719.87	19.1080	1
India	1886.43	3.3625	8
Tunisia	357.42	0.6371	27
Ethiopia	30.62	0.0546	56
Kenya	1.84	0.0033	84

Source: REPOA, 2020, p. 28

Rwanda and Tanzania could boost agro-processing by undertaking the following measures:

- Increase the capacity utilization of agro-processing firms. This can happen if farmers, especially women, are assisted in adding value to their products. As pointed out in chapter 3, capacity underutilization is one of the problems that agro-processors face in both countries.
- Train women in how to increase output and the quality of their products.
- Encourage agro-processing firms to train women on the job, so they can acquire the technical skills for working in various aspects of agro-processing plants.
- Provide incentives for agro-processing firms to adopt cutting-edge technologies to boost output and quality, and thus become internationally competitive.
- Coordinate value chains to ensure that the upstream and downstream activities are complementary and synergistic.
- Prioritize women in training and employment in agro-processing plants.
- Avoid trade policies that are detrimental to the growth of agro-processing firms.

The Ethiopian experience shows that agro-processing can be a very effective way for initiating and sustaining economic growth (Box 8).

Box 8: Learning from the Ethiopian experience

Like Rwanda and Tanzania, Ethiopia has achieved impressive economic growth rates during the past two decades. Unlike both countries, however, Ethiopia's economic growth has been driven by an Agricultural Development-Led Industrialization (ADLI) strategy. Its ADLI strategy targeted two products: leather and cut flowers. It chose leather because the country is the largest producer of livestock in Africa, and therefore has a robust supply chain in the industry. It also has large swaths of suitable land, favorable climate, and labor endowment to support the production and export of cut flowers. But resource endowments alone cannot ensure the success of agro-processing. Recognizing this fact, the Ethiopian government proactively set out to develop productive capacities in these two sub-sectors. In collaboration with the Common Market for Eastern and Southern Africa (COMESA), it created the Leather Products Technology Institute (LLPI) in 1998. A major goal of the LLPI is to train potential workers in the leather industry and upgrade the skills of the current workers. Trainees were assisted in finding jobs in the industry. It is estimated that the number of workers in the industry increased from 7,000 during 1994-1995, to 14,000 in 2010-2011. As members of COMESA, Rwanda and Tanzania could take advantage of these training opportunities for developing their leather industry.

Ethiopia has also achieved remarkable success with cut flowers. One important measure undertaken by the Ethiopian government to build productive capacities in the cut flower industry was massive investment in TVET centers and new universities. This investment resulted in an increase in the number of TVETs, from 15 in 1994 to 437 in 2012-2013 and eight in 2006 to 33 in 2013-2014 for universities. The goal is to make sure skilled workers are available to support the cut flower industry.

Source: Maiga and Kazianga, 2016

Building Women's Entrepreneurial Capacity: Building women's productive capacities need not focus solely on how to raise their productivity and output. It is also about imbuing them with the knowledge of how to leverage markets; how to reap the economies of scale and scope; and how to think strategically. As Schumpeter (1934) suggests, an entrepreneur is not only one who carries out "new combinations, but also seeks new markets and sources of raw materials." Because of their lack of entrepreneurship skills, women enterprises in Tanzania rarely grow beyond the level of family ventures (EFG, 2009). Building women's productive capacities is also about helping them to learn the spirit of entrepreneurship, as the cases in Boxes 9 and 10 illustrate.

Box 9: Building women's entrepreneurial capacities through donor support: The case of SIDO and UNIDO in Tanzania

SIDO and UNIDO, with the support of the Austrian government, have developed the *Integrated Training Programme for Women Entrepreneurs in the Food Processing Industry.* Based in Tanzania, this program targets micro enterprises owned by women, and strives to identify new women enterprises that could grow into small and medium enterprises. It focuses primarily on the development of women's technical, business, and managerial skills in food processing. Through the use of training manuals, trainers, exposure to the private sector, access to credit, etc., the program strengthens women's entrepreneurial skills in food processing; promotes new ventures; improves product quality, productivity, efficiency and sustainability of existing and new enterprises; creates jobs; improves the quality of life of low-income women through increased income generation, and helps women develop links with private sector institutions and other technical cooperation projects in the food processing industry. This program can be scaled up to include other sectors and can be replicated in Rwanda. It empowers women by enabling them to use their productive capacities for self-employment, thus eliminating the problem of patriarchy and trust gaps in the labor market.

Source: UNIDO, "Tanzanian Women Entrepreneurs"

Box 10: Building dynamic productive capacities through entrepreneurship: The case of TiGA in The Gambia

The success story of Ms. Ndeye Fatou Njie illustrates how the dynamic productive capacities of women can be developed, based on local materials, talents, confidence, and entrepreneurial ingenuity. Though she trained as a lawyer, Ndeye founded TiGA in 2016 as a business that uses African wax print to make swimwear. Her initial targets were tourists who come in large numbers every year to enjoy Gambia's pristine beaches, and who desire locally made accessories. She tested the market and found a very strong demand for swimsuits made with different designs of African wax print. Her business expanded to include a major store in The Gambia and nine other stores. TiGA also sells online to customers in the United States. Her product lines now include leisurewear, accessories, and household products. TiGA has moved up the value chain by using recycled car tires to make furniture and accessories. Ms. Njie has been training and mentoring other young girls in how they can build confidence and use their talents to explore various uses of the African wax print. In 2018, UNCTAD awarded her the prestigious Empretec Women in Business Award.

Source: UNCTAD, "Ndeye Fatou Njie: Founder TiGA"

The above cases highlight the need to promote women entrepreneurship in all sectors as a driver for increased participation of women in economic and financial activities. According to the ILO (2019), enterprises with a gender inclusive culture (i.e., at least 30% of women in management, senior leadership and on boards of directors) are 9% more likely to have improved business performance; enterprises with a female CEO are 2.8% more likely to have increased productivity and profits; and companies with higher levels of gender diversity are 1.4 times more likely to have sustained profitable growth. Additionally, women entrepreneurs and investors tend to hire /invest in more women entrepreneurs and diverse sectors than their male peers. Consequently, strengthening productive capacities that can accelerate the growth of women-owned enterprises deserves attention. Some of those productive capacities include financial capability and managerial skills, in addition to other productive capacities mentioned in this report (e.g. access and use of digital technologies, access to land and other productive resources).

Establishment of Women Production Cooperatives: Female farmers, on their own, are often unable to afford the tools, equipment, and materials necessary for adding value to their products. Private enterprises, in collaboration with NGOs, could facilitate the formation of cooperatives centered on specific products. The cooperatives could then be provided with the appropriate technologies, technical expertise, and managerial skills for adding value to their products. Another example of how women's productive capacities can be built is the establishment of cooperative irrigation schemes. According to Zhang et al., (2021), these schemes have enabled Tanzanian farmers to increase their output, while also creating market opportunities for them. To build women's productive capacities, Producer Organizations (POs) or cooperatives should be strengthened and supported by the government, the private sector, NGOs, bilateral and multilateral donors. A good example of how this can be accomplished is the World Bank partnership with an NGO, NCBA CLUSA, to promote the professionalization of POs in Tanzania. Women should not regard farming as a household activity or hobby, but as a business. One way of helping women make that transition is for them to join POs and leverage the collective resources that these cooperatives provide (training, finance, technology, inputs, etc.).

A Gendered Approach to Innovation and Technological Development: Purposeful and targeted investment in technology and innovation can be used to build women's productive capacities in Rwanda and Tanzania. Technology can be defined as the processes, resources, skills, and knowledge involved in the transformation of production inputs into outputs. It consists of two major components: *embodied* and *disembodied* technology. Technology is not only embodied in physical capital, but also in human capital, institutions, and social structures. It is customary for analysts to talk about the inputs and outputs of tech-

nology. Technological inputs are measured by investment in Research and Development (R&D) and the number of scientists and engineers employed in the R&D departments of firms and governments. Technological outputs are measured by patents, new products and processes, and the number of scientific publications.

Technological change is a process that leads to improvements in the ways in which inputs are transformed into outputs. These improvements are manifested in several ways. First, technological change could lead to the use of less quantities of inputs to produce the same level of output. Second, it could result in the production of a higher level of output with a given quantity of inputs. Lastly, technological change could result in new products with attributes that consumers consider to be desirable. Technological change should not be conflated with *factor substitution,* in which one input (say capital) is substituted for another input such as labor. Technological change helps to eradicate poverty and raise living standards.

There are three categories of technological change: (i) labor-saving, which results in the use of less labor and more capital, (ii) capital-saving, in which less capital is used relative to labor, and (iii) neutral, in which labor and capital are used in the same proportions. Because developed countries are endowed with capital and deficient in labor inputs, they try to minimize production costs by generating labor-saving technical change. Given the abundance of labor in Rwanda and Tanzania, capital-intensive technologies are not suitable for these countries. To minimize production costs, they should invest in the development of labor-intensive technologies, especially for use in agro-processing industries.

Innovation is not the same as technology, but they are interrelated. It is the process by which firms bring new products to market, or how they reorganize their internal processes to bring products to market in more efficient and effective ways (UNESCO, 2014). Innovation and technology are pre-conditions for structural transformation, as they enable the shifting of resources from low-productivity activities to high-productivity sectors.

The global economy has become knowledge and technology intensive. Technologies, skills, and products become obsolete very rapidly. To compete in the global economy, firms must have access to new technologies, and should also adapt to disruptive innovations. Evidence suggests that Rwanda and Tanzania have not invested optimally in innovation and technology. As Table 19 shows, Rwanda and Tanzania spend 0.6 percent and 0.5 percent on R&D, respectively. The world average is about 1.7 percent (UNESCO, 2020, p. 3). It can also be seen that both countries rank very low in terms of patent applications and the number of researchers. Apart from not investing optimally, women have not been prioritized in innovation and technology. Figure 35 shows that only 22 percent of Rwanda's researchers in R&D are women, less than those of many of the countries reported in the chart.

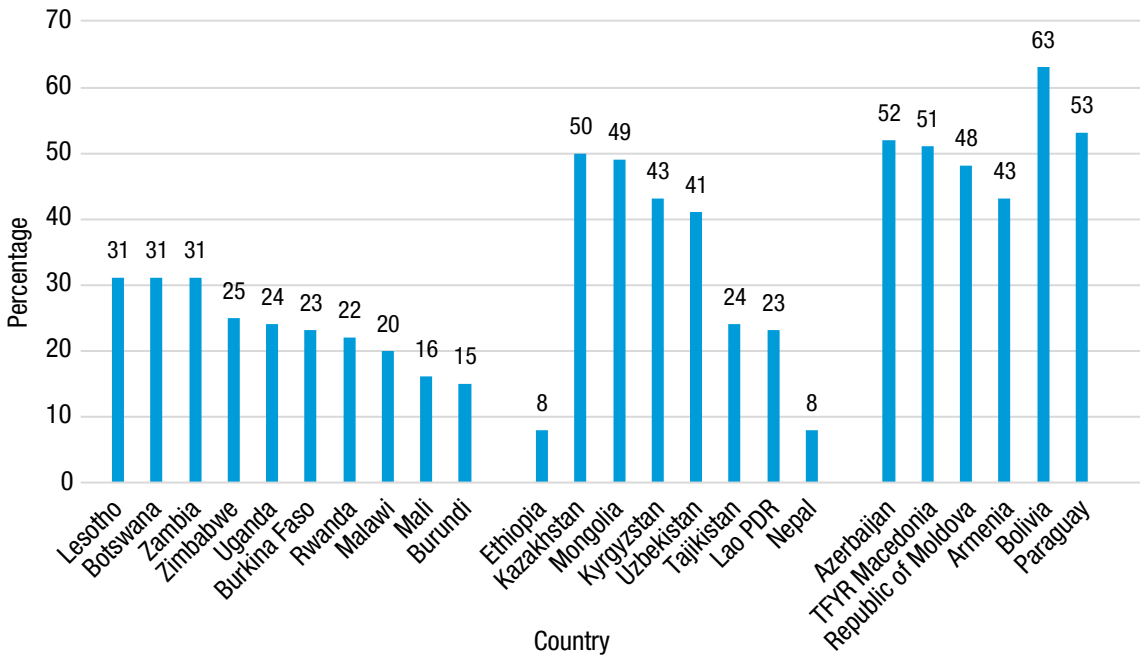
Table 19: Some science and technology indicators (2016)

Country	Research & development expenditure (% of GDP)	Patent Applications, residents	Researchers in R&D (per million people)
Rwanda	0.66627	3	14
Tanzania	0.51456 (2013)	1 (2015)	19 (2013)
Botswana	0.53728 (2013)	1	185 (2013)
Ethiopia	0.60474 (2013)	10	91 (2017)
Kenya	No data	144	221 (2010)
Madagascar	0.01504	6	34 (2018)
Mozambique	0.33751 (2015)	15	43 (2015)
Namibia	0.33996 (2014)	18	149 (2014)
South Africa	0.81882	704	518 (2017)

Country	Research & development expenditure (% of GDP)	Patent Applications, residents	Researchers in R&D (per million people)
Sudan	0.47277 (2000)	284	No data
Uganda	No data	16	28 (2014)
South Korea	4.22744	163,424	7,980 (2018)
Singapore	2.0801	1601	6,803 (2017)
Brazil	1.26417	5200	888 (2014)
Mexico	0.38801	1310	315
SSA	No data	No data	No data

Source: compiled using data from WDI

Figure 35: Female researchers as a % of the total (in headcount), latest year available



Source: UNESCO, 2014, p. 7

To raise women's productive capacities for participation in technology and skills-intensive sectors of the economy, the Rwandan and Tanzanian governments should introduce policies that foster innovation and industrial entrepreneurship. In formulating and implementing those policies, the governments should be aware of the following channels of technology transfer, and proactively get women involved in each channel:

While some aspects of technology can be transferred from one entity to another (*codified technology*), others are uncodified, *tacit* or idiosyncratic. African countries have traditionally relied on a number of channels for acquiring foreign technologies (particularly the codified ones), including the following:

(a) Purchase of Machines and Equipment: This channel is more viable when the technology is "mature," "standardized" and "stable." Rwanda and Tanzania should introduce policies and programs that enable their firms, especially small and medium-size enterprises, to acquire production machines and

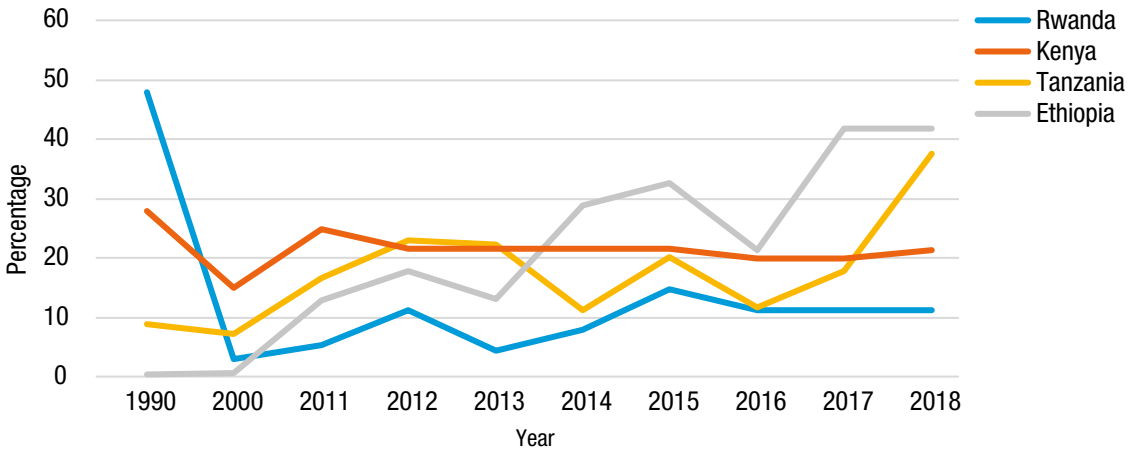
equipment at low costs, and also help in identifying equipment suppliers that offer better conditions and opportunities for local firms and their workers to enhance their technological capability.

(b) Licensing: This approach is usually adopted when the purchaser of the technology intends to use the seller's trademark or brand name on the final product. Thus, licensing is common in industries such as automobile, consumer electronics, soft drinks, cement and pharmaceuticals. In these industries, brand names and other methods of product differentiation are very instrumental in gaining market shares. Licensing is not necessary if Rwandan and Tanzanian firms merely buy production equipment from an equipment manufacturer, and then use the equipment to produce final goods or services.

(c) Turnkey/Joint Ventures: In a turnkey project, a foreign consulting firm or manufacturer undertakes all the major tasks involved in setting up a venture, including the following: feasibility study, choice of equipment and suppliers, machine layout, equipment installation and start-up and provision of managerial and technical skills. Some turnkey/joint venture agreements stipulate a timeframe within which the foreign partner is expected to "transfer" the relevant managerial and technical skills to the local partners, and the former is expected to withdraw gradually from the project.

This should include policies that encourage the emergence of innovative small and medium-size businesses, as well as those that attract FDI. Innovation and technology policies in Rwanda and Tanzania should intentionally seek to increase the numbers of women involved in technical training, STEM, R&D, process and product innovation, manufacturing technology, and ownership of technology-oriented enterprises. Strengthening innovative and technological capabilities, and leveraging women's technical skills, could help Rwanda and Tanzania to produce and export sophisticated products with higher values. As Figure 36 shows, they currently export relatively unsophisticated products, compared to some of their neighbors in East Africa.

Figure 36: Medium and high-tech exports (% of manufacturing exports)



Source: compiled using data from WDI

Raising women's technical skills through investment in innovation and technology can confer a comparative advantage to Rwanda and Tanzania. Comparative advantage is increasingly shifting away from labor abundance to skills and technology intensity. An analysis of the value chains of ten global corporations that operate in developing countries (including Africa) suggests that skills, innovation and technology are central to international competitiveness. Information on the value chains of the corporations was obtained through a content analysis of their annual reports, mission statements, strategic plans, websites and secondary sources. Attention was focused on keywords that define these corporations' competitive strategies. Table 20 summarizes the major components of their value chains.

Table 20: Drivers of value chains of selected major global corporations

Corporation	Sector/Industry	Drivers of Value Chains	Sales (2013)	Profit (2013)	Assets	Employment (2013)
General Electric (GE)	Conglomerate (aviation, consumer products, healthcare, power systems, finance)	Industrial capabilities, New Technologies, Superior Technology, Innovation and Quick-to-Response to Market Shifts	$143.3 Billion	$14.8 Billion	$656.6 Billion	307,000
Pfizer	Pharmaceuticals	Innovation, Transformation of advanced science and technology into Blockbuster therapies.	$52.7 Billion	$22 Billion	$172.1 Billion	77,700
ADM	Agriculture and Food Processing	R&D for product development. Research expertise, experience and state-of-the-art equipment to meet customers' needs. Applies science and technical skills.	$1.4 Billion	$0.4 Billion	$4.4 Billion	6,565
Siemens	Electrical, Engineering and Communication Equipment	"Innovation is a cornerstone of Siemens' success." Alignment of R&D activities with business strategy.	$99.7 Billion	$6 Billion	$140.1 Billion	362,000
Hewlett-Packard (HP)	IT Products, Software, IT Solutions and Services.	Technology as the main driver of competitive strategy; focus on R&D to support the design and development of innovative and high-quality products.	$112.1 B	$5.3 B	$105 B	317,500
Corporation	**Sector/Industry**	**Drivers of Value Chains**	**Sales**	**Profits**	**Assets**	**Employment**
Samsung	Conglomerate, with core Business in electronics	"R&D at the heart of everything Samsung does." Reinforcement of core competencies in R&D and design. Commitment to innovation and transformative technologies.	$208.9 Billion	$27.2 Billion	$202.8 Billion	90,700
IBM	Computer hardware/ Software/Services	"IBM researchers push the boundaries of science, technology and business."	$100 Billion	$17 Billion	$126 Billion	

Apple			$173.8 Billion	$37 Billion	$225.2 Billion	80,300
3M	Conglomerate (consumer products, electronics & energy, healthcare, industrial, safety & graphics)	Satisfy customers with innovative technology & superior quality, value and service. Global innovation company that never stops inventing.	$30.9 Billion	$4.7 Billion	$33.6 Billion	88,667
ABB	Power and automation equipment and technologies	Innovation with sustained commitment to R&D. Attract talent with a diverse global workforce and opportunity for advancement. Improve performance in productivity, reliability and efficiency.	$41.8 Billion	$2.8 Billion	$48.4 Billion	147,700

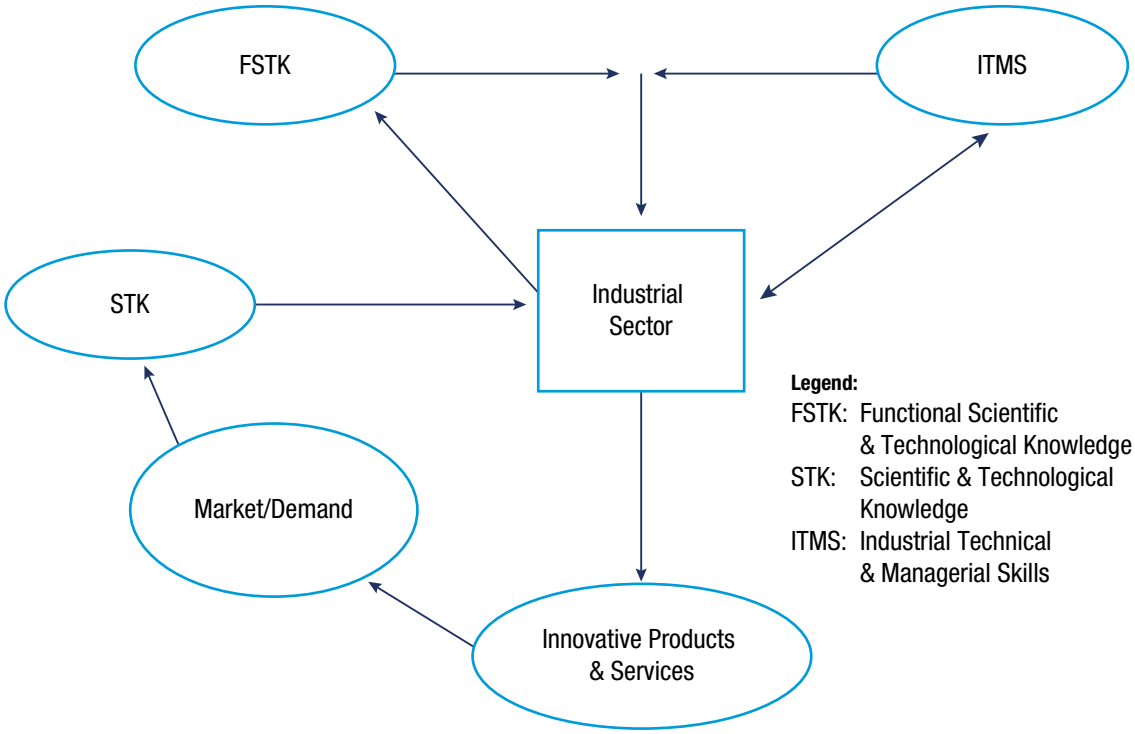
Source: compiled by author from corporate web sites

Analysis of the value chains of global corporations reveals two sets of skills that drive their competitive strategies. For lack of better terms, these skills and competencies can be called *Functional Scientific and Technological Knowledge (FSTK),* and *Industrial Technical and Managerial Skills (ITMS). FSTK* is knowledge that enables firms to conceive, execute and manage innovative ideas. Implementation of innovative ideas involves the production of innovative products, as well as the ability to respond to changes in demand and the competitive environment. *FSTK* enables firms to create inimitable value for their customers, and thus helps them consolidate their leadership position in the market. There is, however, an important distinction between *FSTK* and *Nominal Scientific and Technical Knowledge (NSTK*). While *FSTK* refers to science and technical knowledge that is transformative and embedded within innovative products and services, *NSTK* involves scientific and technological knowledge that is not only "purposeless," but is acquired as an end. In other words, *NSTK* has no instrumental value beyond scientific curiosity.

ITMS, on the other hand, are shop-level skills generated and acquired in an industrial setting, which enable corporations to achieve production and managerial efficiency. The acquisition of *ITMS* is not the same as the possession of science and engineering degrees, or other forms of certificates and diplomas. They are industry-specific skills that are essential for producing innovative products and services. In this regard, *FSTK* and *ITMS* are complementary and synergistic, as shown in Chart 5. Although *FSTK* helps generate knowledge for innovative products and services, transformation of this knowledge into marketable products and services requires *ITMS.*

In reviewing the annual reports and other documents of the sample corporations, certain keywords resurfaced frequently in the description of their competitive strategies: skills, innovation, technology, R&D, talented and creative workers, value for customers, etc. Perhaps more revealing is the fact that *labor abundance*, natural resources or minerals were not mentioned as important for competitive advantage. The example of ADM (a global agro-processing corporation) in Table 20 shows that, even in a labor-intensive sector like agro-processing, innovation and skills are very salient.

Chart 5: Complementarity between FSTK and ITMS



Source: Onyeiwu (2015).

Given the importance of skills, knowledge and innovation, corporations now locate in countries where *FSTK* and *ITMS* can be obtained at a lower cost. There is currently an acute shortage of industrial technical skills in developed countries. This shortage has occurred because youths in developed countries prefer careers in ICT, medical professions, the public sector, and financial services. Consequently, global corporations are reconfiguring their value chains in search of low-cost scientific and technical skills. Rwanda and Tanzania should train women in technical, scientific and technological skills, so that they can be attractive to global corporations. Their S&T policies should prioritize women and break the longstanding occupation segregations in the counties – segregations that exclude women from science, technology and skills-intensive jobs.

Government-to-Government Partnership: Rwanda and Tanzania receive huge amounts of Overseas Development Assistance (ODA), compared to many other African countries (see database). There is a need for bilateral development assistance that specifically targets women's productive capacities. One such example is the U.S. State Department's *TechWomen* initiative, which aims at enhancing the scientific and technological knowledge of women from developing countries. The program's major objective is to advance "the rights and participation of women and girls around the world by enabling them to reach their full potential in Science, Technology, Engineering and Mathematics (STEM)" (see *TechWomen*, U.S. State Department).

Discourage Patriarchy and Male Domination: Rwanda and Tanzania should remove cultural norms, practices and belief systems that foreclose certain occupations to women. Showcasing successful women entrepreneurs and workers in male-dominated occupations would encourage young girls to pursue those occupations. Mounting aggressive public enlightenment campaigns to correct cultural norms and perceptions about the role of women could incentivize them to acquire new capabilities. Building women's productive capacities, without addressing the issue of patriarchy and male domination, is like giving someone fishing gear, and asking the person to fish in a dry and empty pond. Investing in women's productive capacities will be wasteful, if employers are unwilling to hire women and accord them the same opportu-

nities for professional development as men. Because of a very long history of gender discrimination and biases at the workplace, women need extraordinary mentoring and support, as they are likely to be the first or trailblazers in many firms. As the case in Box 11 below shows, ICT will continue to be dominated by men, unless certain perceptions are changed.

Box 11: Patriarchy in Rwanda's ICT sector

The ICT sector is one of the fastest growing in Rwanda. During the fiscal year of 2014-2015, the ICT sector contributed about 3 percent to GDP, and has been growing since then. The sector remains a primary target for FDI into the country, with 61 million US $ attracted during 2014-2015. About 17.9 percent of the inflows of FDI to Rwanda in 2019 went into the ICT sector (Figure 17). Apart from the importance of the telecom sector in terms of revenue generation to the government, the broader ICT sector is also experiencing growth and gaining prominence. Although the government has made concerted efforts to train women for jobs in the ICT sector, the private sector has been slow at employing women in this sector. Take the case of a 24-year-old Sandrine Sangwa, who graduated with an ICT degree from the Akilah Institute in Kigali in 2017. After an internship at K-LAB, an incubator that assists software designers to market their ideas, she developed an app called Sangwapp. This app assists the visually impaired to read signs and provides audio descriptions of things they cannot see. But Sandrine had a difficult time finding a company to purchase her app, as well as clients to subscribe to it. Her difficulty stems from the fact that it is assumed in Rwanda that "men are better at coding, making it impossible for women software designers to compete." This mindset partly explains why women are grossly under-represented in the ICT sector, a sector that is growing rapidly and of which women will continue to be excluded from, unless this perception is jettisoned.

Source: Rwirahira, "Tackling the Gender Gap in Rwanda's Burgeoning Tech Sector," 2018.

8

POLICY IMPLEMENTATION ISSUES

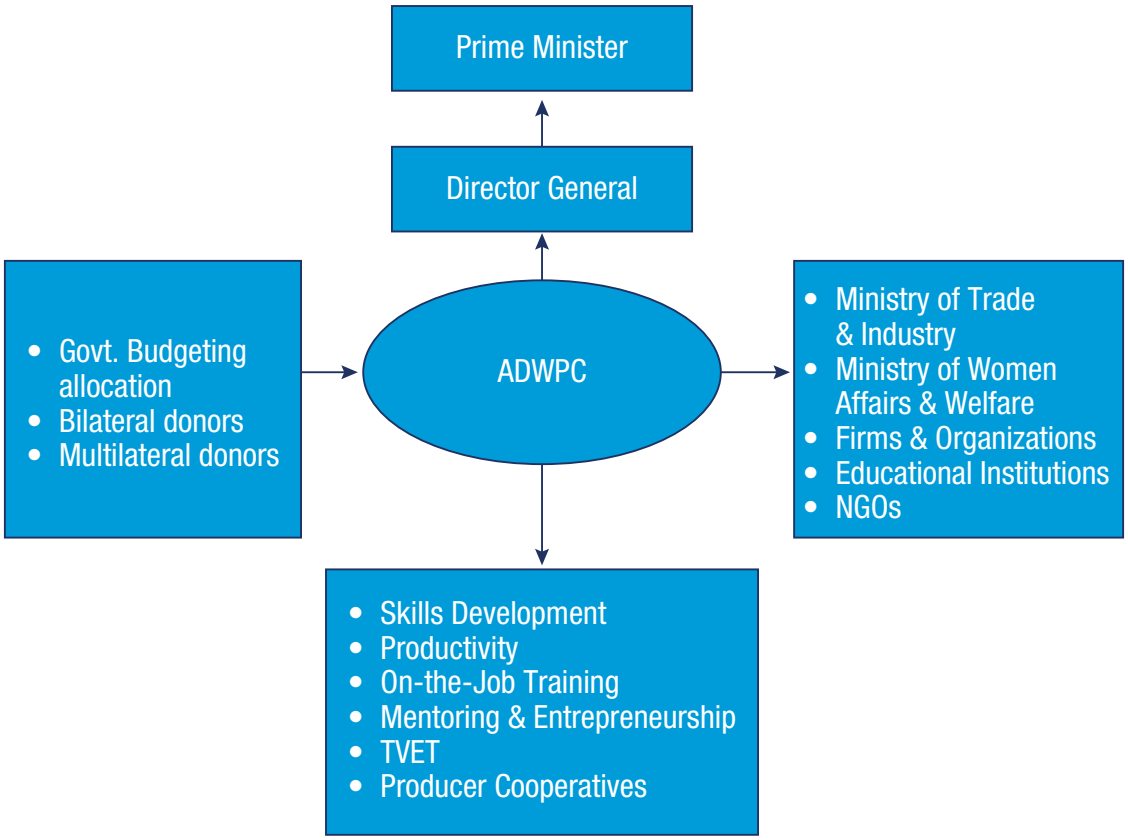
8 POLICY IMPLEMENTATION ISSUES

To ensure the effective implementation of the recommendations discussed in the previous section, it would be desirable for the governments of Rwanda and Tanzania to undertake the following complementary measures:

Establish an Agency for the Development of Women's Productive Capacities (ADWPC): It would be more efficient and effective if the initiatives outlined in chapter 7 are undertaken by an agency whose focus would be on women's productive capacities. Given the salience of women's productive capacities, and their gross underdevelopment in Rwanda and Tanzania, a transformative organizational structure is needed to shepherd the development of women's productive capacities. As discussed in chapter 2, building women's productive capacities has the potential to address many of the economic and non-economic problems that women face in the economy. It therefore would be more prudent to have a ministry, or at the very least an agency, that focuses on the development of women's productive capacities (Chart 6). In Rwanda and Tanzania, there is a ministry that oversees women's affairs. But the mandates of these ministries are too broad, and they focus mainly on political, human rights and gender equality issues. The issue of women's productive capacities is lost amid the myriad of tasks undertaken by the ministries. The establishment of this agency is feasible and non-duplicative, as it would mainly involve moving some resources away from existing government agencies that engage in gender issues and focus those resources on building women's productive capacities. With donor funding and additional resources from the governments of Rwanda and Tanzania, a critical mass of resources would be mobilized for supporting the ADWPC. The ADWPC has the following advantages:

- Advances women's productive capacities to the highest levels of government
- Signals high-level commitment to the development of women's productive capacities.
- Ensures adequate resource allocation to women's productive capacities.
- Promotes accountability and transparency in the use of resources to build women's productive capacities.
- Ensures oversight by legislators.
- Creates a mechanism/pipeline for investing resources in women's productive capacities at the grassroots, through constituency projects by legislators.
- Enables the crafting of a coherent policy and template for building women's productive capacities.
- A platform for attracting donor support for building women's productive capacities.

Chart 6: Agency for the Development of Women's Productive Capacities (ADWPC)



Source: Authors

Launch a Women-Focused Digital Initiative: Promoting digitization in Rwanda and Tanzania can be an effective conduit for building women's productive capacities. As noted by the African Union (2020), digital transformation is a major driving force for innovative, inclusive and sustainable growth, as well as a conduit for poverty reduction and equity. Concerned that African countries are still lagging other regions, the AU has launched a major initiative to enhance the capacities of African countries in this sector (see AU, 2020). chapter 5 shows that ICT is one of the areas where productive capacities have been the weakest in Rwanda and Tanzania. Thus, there is ample opportunity to build women's productive capacities in this sector. One strategy for building women's productive capacities in ICT is to attract FDI into the sector. Although FDI flows to the ICT sector in both countries have been rising (Figures 17 and 18), more efforts should be made to sustain the momentum and significantly increase flows to this critical sector. An increase in the flow of investment to the ICT sector would spur demand for ICT-related skills, which would in turn incentivize ICT enterprises to train and employ women, using one of the training models discussed in chapter 7. Digitization will continue to be a major driver of the global economy, especially in the post-COVID-19 era. It is estimated that, by 2022, over 60 percent of world GDP would be digitized (Stephenson, et al., 2021). About 50 percent of the world's population is currently excluded from participation in the global digital economy (Schwab, 2019). In Rwanda, only 13.5 percent of women ages 15 and 24 are computer literate, while 9.6 percent of women above 15 years are computer literate (NISR, 2021). Some of these measures that could be undertaken to build women's capacities in ICT include:

- Supporting start-up digital business through venture capital and tax incentives.
- Creation of a conducive business environment. Rwanda ranks high on the Ease of Doing Business Index, but Tanzania needs to improve on its rankings.

- Prioritizing women in the acquisition of ICT skills, which will increase labor supply in the sector and make skills available at low costs.
- Investing in ICT infrastructure such as low-cost laptops, tablets and internet access, especially in rural communities where most women reside.
- Incentivizing digital adoption by traditionally non-digital actors (Stephenson, et al., 2021).

Deepen Institutional Reforms: Some of the barriers to building women's productive capacities are institutional. Although Rwanda and Tanzania have accomplished a lot when it comes to institution reforms that favor women, those reforms need to be expanded, sustained and implemented effectively. Efforts should be made to ensure that the reforms that granted land rights to women are respected and implemented at the local level. Rwanda and Tanzania should emulate Burkina Faso, where land officers are being trained, with the support of USAID, to be more gender-sensitive in reviewing applications for land, and land transactions that involve women. In the same vein, there should be a major campaign in both countries to discourage patriarchy and male domination. This campaign should be organized across many facets of the society (schools, billboards, media, local communities, etc.).

Shared Household Responsibilities between Men and Women: When women do all the household work (childcare, elderly care, household chores, etc.), they spend little or no time building their productive capacities. They also do not engage in activities that help develop their productive capacities. There should be a campaign about gender equity in the allocation of household responsibilities. The government can work with civil society organizations like churches, human rights groups, schools, community leaders, traditional rulers, etc. to encourage households to share chores more equitably between male and female members of the family. In other words, the longstanding patriarchal "gender contract" that exists in many African countries should be jettisoned.

Implement Industrial Development Strategies that Prioritize Labor-Intensive Industries: Previous industrial development policies encouraged the masculinization of the labor force. To feminize the labor force and engage women in the manufacturing sector, agro-processing industries should be promoted. A focus on capital-intensive industries would have the effect of defeminizing the labor force and undermine women's participation in the labor force. Mining (gold, oil and gas) has recently become a growth driver in Tanzania. While this broadens the country's revenue base and buoys its foreign exchange earnings, it provides little opportunity for women to build their productive capacities. Apart from being capital-intensive, it is also an enclave activity that is not geographically accessible to women. Cultural norms and religion often make it difficult for women to migrate to mining regions in search of jobs. While leveraging opportunities in the mining sector, Rwanda and Tanzania should use revenues generated in that sector to develop labor-intensive manufacturing, with emphasis on agro-processing.

Gender-Disaggregated Data: Many important data sets in Rwanda and Tanzania are not disaggregated by gender. These include data on productive capacities, innovation and technology, employment in manufacturing, ownership of enterprises, ICT, etc. To facilitate evidence-based research that targets the welfare of women, the statistical offices of both countries should disaggregate data according to gender.

In conclusion, Rwanda and Tanzania should recognize that they sit on a gold mine of untapped productive capacities of women. Consequently, making the development of women's productive capacities a central core of their development strategy can transform their economies in unprecedented ways. Previous development plans and vision statements did not explicitly recognize this as a strategic priority. While the focus of Rwanda and Tanzania on gender equality is commendable, both countries should move the quest for women empowerment to the next level of building productive capacities. This is an approach that would not only sustain their impressive economic growth and foster structural transformation, but also promote inclusivity and poverty-alleviation.

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TABE OF CONTENTS