RWANDA

SELECTED ISSUES

December 2025

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RWANDA

SELECTED ISSUES

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Approved By
African Department

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CONTENTS

RESILIENCE THROUGH INCLUSION: WOMEN AND DATA-DRIVEN CLIMATE POLICIES IN RWANDA

Climate shocks represent a recurrent macroeconomic risk for Rwanda, affecting growth, fiscal stability, and household welfare. Gender inclusion is macro-critical to Rwanda's growth and resilience strategy, shaping the effectiveness of adaptation and fiscal policy responses. Women are highly exposed to these shocks due to their concentration in agriculture and informal employment, as well as more limited access to finance, assets, and coping mechanisms. Using both micro- and macro-level analysis, this paper finds that climate shocks widen gender income disparities and that closing gender gaps enhances the effectiveness of adaptation policies and accelerates post-shock recovery. Rwanda's data-driven policy tools—climate budget tagging, gender budget tagging, and the dynamic social registry—offer a strong foundation for linking climate and gender objectives within fiscal policy. Strengthening these instruments and promoting women's participation in the green transition would help sustain resilience, inclusion, and long-term growth.
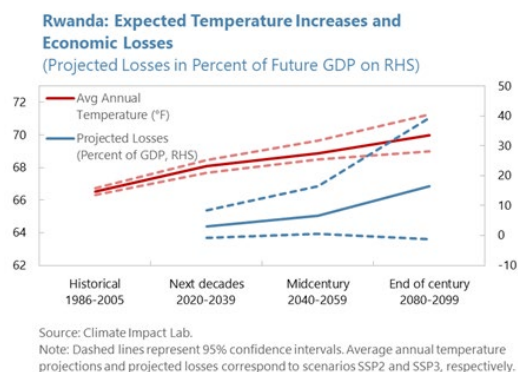
A. Introduction

1. **Rwanda's strong development record faces growing challenges from climate change and persistent gender gaps.** More frequent floods, droughts, and landslides are already weighing on growth and livelihoods, damaging farmland and housing, and threatening to reverse hard-won progress (Figure 1). While women have been central to Rwanda's economic transformation—contributing nearly half of labor force growth over the past two decades—they remain underrepresented in higher-productivity and formal sectors and earn less on average than men. These gaps, rooted partly in barriers to access to higher-skills training, finance, and productive assets, weaken productivity and growth in their own right and heighten vulnerability to climate shocks, as women are disproportionately employed in climate-sensitive and informal activities. Together, climate vulnerability and gender inequality constrain potential growth and call for a coordinated, data-driven policy response.

2. **Rwanda is recognized for its strong gender-inclusion agenda—an area that is macro-critical to the country's growth and resilience—supported by robust institutional frameworks and investments in women's skills and economic participation.** Gender objectives are integrated into national planning, budgeting, and climate strategies through coordination led by the Ministry of Gender and Family Promotion (MIGEPROF) and the Gender Monitoring Office (GMO), with the Ministry of Finance and Economic Planning (MINECOFIN) ensuring alignment via gender- and climate-budget tagging. Complementary initiatives such as Ireme Invest, the Financial Sector Development Strategy, and the Technical and Vocational Education and Training (TVET) policy further embed gender priorities in the development and climate agenda (Table 1). The long-standing TVET policy has enhanced women's empowerment by equipping them with practical, entrepreneurial, and communication skills that improve access to traditionally male-dominated jobs and foster economic self-reliance (Minani and Sikubwabo, 2022). More recently, the Women Entrepreneurs Finance Code introduced gender-disaggregated financial reporting and the development of tailored financial
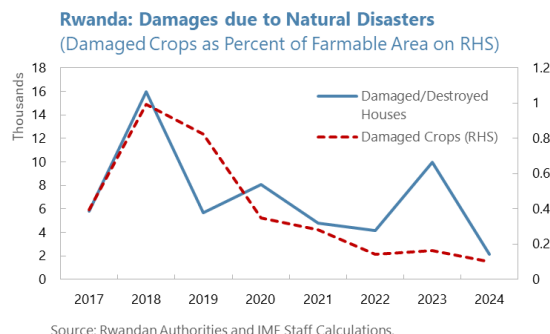
products to expand access for women-led MSMEs. Despite this progress, women remain over-represented in agriculture and informal employment—sectors that are lower-productivity and more exposed to climate shocks.

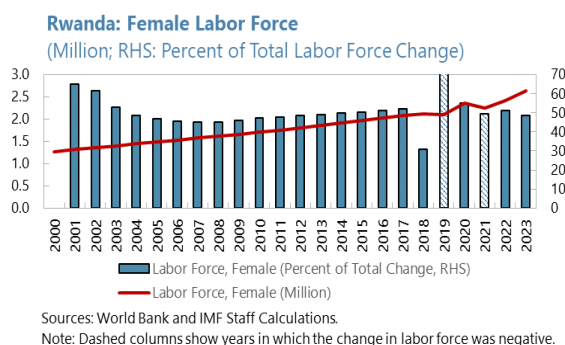**Figure 1. Rwanda: Macroeconomic Impact of Natural Disasters and Inclusive Growth**

Rising temperatures are projected to cause significant economic damage in the coming decades by exacerbating the effects of natural disasters.

Rwanda: Expected Temperature Increases and Economic Losses
(Projected Losses in Percent of Future GDP on RHS)

Source: Climate Impact Lab.
Note: Dashed lines represent 95% confidence intervals. Average annual temperature projections and projected losses correspond to scenarios SSP2 and SSP3, respectively.

Economic damages to farmland and housing are already substantial, although adaptation policies have mitigated some of the more severe impacts.

Rwanda: Damages due to Natural Disasters
(Damaged Crops as Percent of Farmable Area on RHS)

Source: Rwandan Authorities and IMF Staff Calculations.

Women accounted for about a half of the increase in the labor force in the last 20 years, which has been a significant contributor to Rwanda's economic success.

Rwanda: Female Labor Force
(Million; RHS: Percent of Total Labor Force Change)

Sources: World Bank and IMF Staff Calculations.
Note: Dashed columns show years in which the change in labor force was negative.

Yet, a sizable gender gap remains, hindering productivity and opportunities for further economic growth.

Rwanda: Gender Disparities in Employment
(LHS: Unemployment Rate; RHS: Gender Gap in Wages)

Sources: Rwandan Authorities and IMF Staff Calculations.
Note: Gender gap in wages is expressed as male-to-female ratio of average hourly wages.

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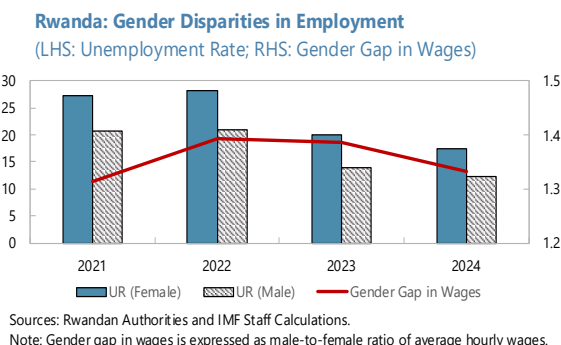
3.   This paper examines how Rwanda's data-driven policy frameworks support inclusive and climate-resilient development. Climate Budget Tagging (CBT), Gender Budget Tagging (GBT), and the dynamic social registry have strengthened the integration of climate and gender considerations into budget allocation, monitoring, and social protection. Together, these frameworks underpin the National Strategy for Transformation (NST2) and Rwanda's Green Growth and Climate Resilience Strategy, positioning Rwanda as a global frontrunner in aligning adaptation, inclusion, and fiscal management. By improving the targeting and efficiency of public spending, these frameworks help strengthen fiscal resilience and reduce macroeconomic and external imbalances arising from climate shocks.

Table 1. Rwanda: Institutional Framework for Gender and Climate Integration				
Pillar	Policy Focus	Institutional Anchors / Instruments	Recent Reforms and Key Documents	Gender–Climate Relevance
Policy Coordination and Oversight	Gender mainstreaming across national development and climate policy	Ministry of Gender and Family Promotion (**MIGEPROF**): policy lead on gender equality Gender Monitoring Office (**GMO**): oversight and accountability for gender mainstreaming **National Women's Council**: community engagement and advocacy Ministry of Finance and Economic Planning (**MINECOFIN**): integration of gender objectives into budgets and macroframeworks	**GMO five-year plan (2024–29)**: strengthens gender-mainstreaming and monitoring systems, providing an institutional anchor for integrating gender priorities into national development and climate policies **Revised National Gender Policy (2021)**: updated framework for gender mainstreaming across sectors **Laws & Policies for Gender – GMO repository**: Official reference for gender legal and institutional framework	Provides overarching coordination ensuring that gender equality goals are embedded in climate, economic, and social policies. Strengthened oversight helps align national gender objectives with Rwanda's Green Growth and Climate Resilience Strategy, ensuring accountability for gender-responsive climate action.
Financing and Implementation Tools	Gender-responsive and climate-smart budgeting and investment	**MINECOFIN**: GBT and CBT integrated in the PFM system **Development Bank of Rwanda (BRD)**, **FONERWA**, and **Ireme Invest**: green-finance facilities supporting private-sector climate investment **Financial Sector Development Strategy (FSDS)** and **WE Finance Code (2025)**: expanding MSME and women-led business access to credit	**Financial Sector Development Strategy 2024–29**: emphasizes inclusive finance for women, youth, MSMEs, and agriculture **Financial Sector Development Strategic Plan 2018–24**: foundational framework still in effect pending rollout of FSDS 2025–30 **FinScope 2024 Gender Thematic Report (BNR)**: key data source for tracking progress on women's financial inclusion and informing gender-responsive financial-sector reforms	Directs resources toward green sectors and ensures that women entrepreneurs benefit from climate-finance flows. GBT and CBT integrate gender and climate objectives in budget allocations, while Ireme Invest and FSDS help expand green employment opportunities for women.
Capacity and Inclusion Enablers	Skills, technology, and data systems for inclusive participation	**Rwanda TVET Board (RTB)**: oversees technical and vocational training **Dynamic Social Registry**, **VUP**, and **Ejo Heza**: delivery and data tracking platforms **National Bank of Rwanda (BNR)**: monitors financial and digital inclusion **MINECOFIN**: oversees data-driven fiscal tools (CBT, GBT)	**RTB Strategic Plan 2021–24**: modernizes curricula, expands access, and integrates ICT skills into TVET programs **National FinTech Strategy 2024–29**: prioritizes digital financial inclusion and cybersecurity for women and MSMEs **National Employment and Skills Strategy**: aligns education and labor-market needs	Builds human capital for green and digital economies while reducing climate vulnerability. Expanding TVET and digital skills enables women to participate in resilient, higher-productivity sectors and supports the use of data tools (CBT, GBT, social registry) to target climate adaptation policies more effectively.

4.   **The paper is diagnostic rather than prescriptive.** It examines the broader relationship between climate risks, gender gaps, and macroeconomic resilience—and how Rwanda's data-driven systems can be leveraged to amplify policy effectiveness. The remainder of the paper is organized as follows. Section II discusses the economic impact of climate shocks on women, underscoring the macro-critical nature of climate risks and the structural factors that heighten women's vulnerability. Section III presents empirical evidence based on microdata, quantifying how climate shocks affect
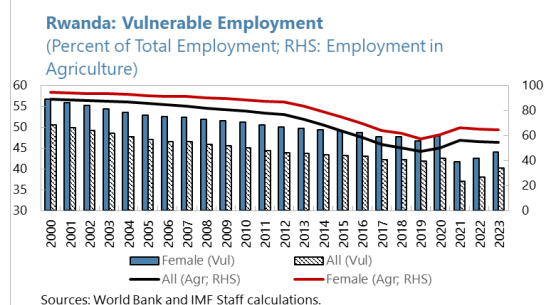
women's labor-market outcomes and household resilience. Section IV develops the complementary macroeconomic analysis using a general equilibrium model, showing how closing gender gaps can enhance the effectiveness of adaptation investment and accelerate post-shock recovery. Section V examines Rwanda's data-driven policy instruments—Climate Budget Tagging (CBT), Gender Budget Tagging (GBT), and the dynamic social registry—and explores opportunities and risks in the green transition, with a focus on women's participation in emerging sectors. Section VI concludes with policy priorities to strengthen linkages across these initiatives and further integrate gender and climate considerations into policymaking.

B. The Economic Impact of Climate Shocks on Women
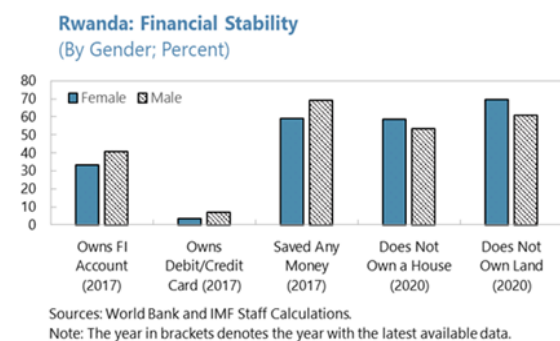
5.   Climate shocks have tangible macroeconomic and social consequences in Rwanda, with disproportionate effects on women. Structural inequalities increase women's exposure to disasters shocks and slow their recovery (Figure 2). Women's concentration in agriculture and informal employment makes them particularly vulnerable to weather-related shocks, while heavier care responsibilities constrain their ability to adapt and rebuild. Limited access to credit and productive assets further hampers recovery and exacerbates existing inequalities.

Figure 2. Rwanda: Drivers of Women's Exposure to Natural Disasters

Agriculture is the main source of employment, particularly for women, who are often engaged in vulnerable, informal work lacking decent conditions.

Rwanda: Vulnerable Employment
(Percent of Total Employment; RHS: Employment in Agriculture)

Sources: World Bank and IMF Staff calculations.

Female-headed households have limited access to disaster communications and early warnings, and their homes are more vulnerable to damage during disasters.

Rwanda: Households Prone to Disasters
(Percent)

Sources: Rwandan authorities and IMF Staff calculations.
1/ Households that did not receive any environmental information in the last 12 months.
2/ Houses that have walls made of mud bricks without cement or tree trunks with mud without cement.

Women's ability to respond to shocks is limited by their restricted access to credit and financial buffers.

Rwanda: Financial Stability
(By Gender; Percent)

Sources: World Bank and IMF Staff Calculations.
Note: The year in brackets denotes the year with the latest available data.

Also, women's time poverty, higher due to household chores, makes them more vulnerable to disasters.

Rwanda: Domestic Chores by Gender
(Hours Spent per Week; RHS: Female-to-Male Ratio of Hours Spent per Week)

Sources: Rwanda Household Survey (EICV7) and IMF Staff calculations.
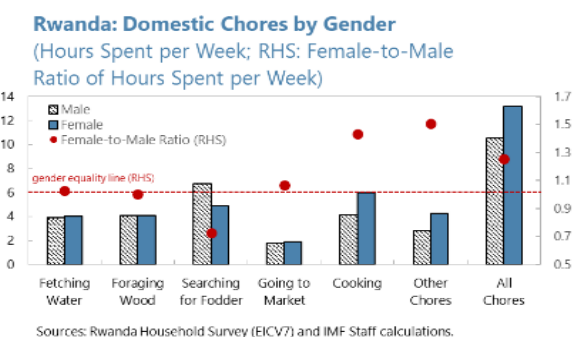
6.   Microdata indicate that women in private agriculture and domestic work are among the most affected by climate shocks. Individuals hit by shocks report allocating more time to domestic responsibilities, reducing time available for productive work (Figure 3). In response to these shocks, households tend to work longer hours, reduce consumption, and draw down savings, yet most had not fully recovered at the time of the sur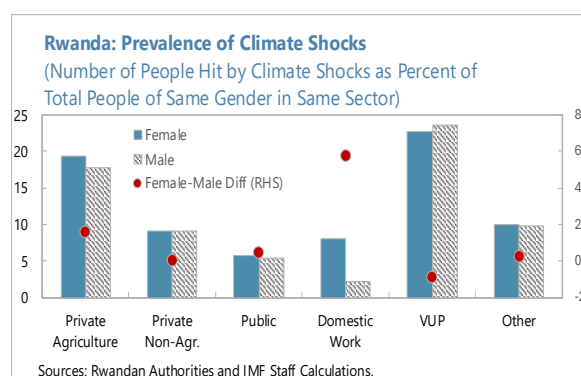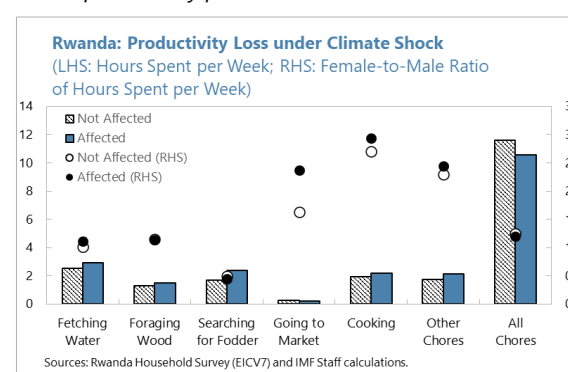vey. Recovery is slower for female-headed households, highlighting how pre-existing vulnerabilities shape the distributional impact of climate events.
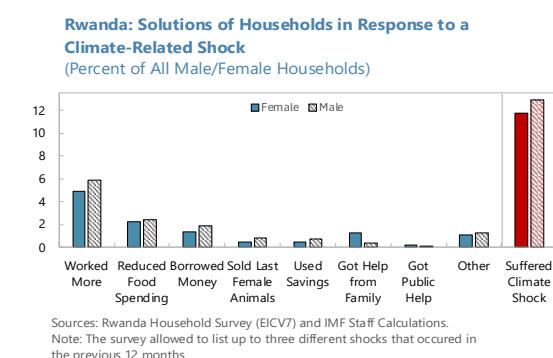
Figure 3. Rwanda: Response to Natural Disaster Shocks

Women in private agriculture and domestic work were disproportionately hit by climate-related shocks.

Rwanda: Prevalence of Climate Shocks
(Number of People Hit by Climate Shocks as Percent of Total People of Same Gender in Same Sector)

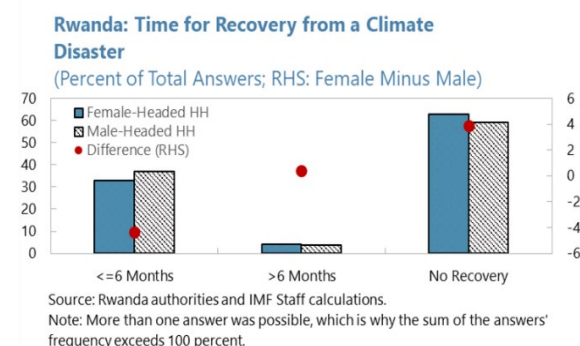Sources: Rwandan Authorities and IMF Staff Calculations.

Individuals affected by climate shocks allocated increased time to domestic responsibilities, thereby diminishing their overall productivity potential.

Rwanda: Productivity Loss under Climate Shock
(LHS: Hours Spent per Week; RHS: Female-to-Male Ratio of Hours Spent per Week)

Sources: Rwanda Household Survey (EICV7) and IMF Staff calculations.

In response to the shocks, households report working longer hours, decreasing their consumption and depleting savings.

Rwanda: Solutions of Households in Response to a Climate-Related Shock
(Percent of All Male/Female Households)

Sources: Rwanda Household Survey (EICV7) and IMF Staff Calculations.
Note: The survey allowed to list up to three different shocks that occured in the previous 12 months.

The majority of households have not recovered from those shocks at the time the survey was taken.

Rwanda: Time for Recovery from a Climate Disaster
(Percent of Total Answers; RHS: Female Minus Male)

Source: Rwanda authorities and IMF Staff calculations.
Note: More than one answer was possible, which is why the sum of the answers' frequency exceeds 100 percent.

C.   Micro-Level Evidence: How Climate Shocks Affect Women's Economic Outcomes
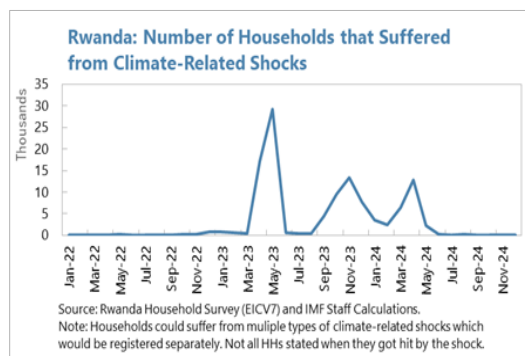
7.   This section analyzes the impact of climate-related disasters on the gender wage gap. Drawing on micro-level data published by Rwanda's National Institute of Statistics (NISR), the analysis explores whether women are disproportionately affected by climate shocks relative to men. It also examines potential drivers underlying observed gender disparities in wage outcomes.
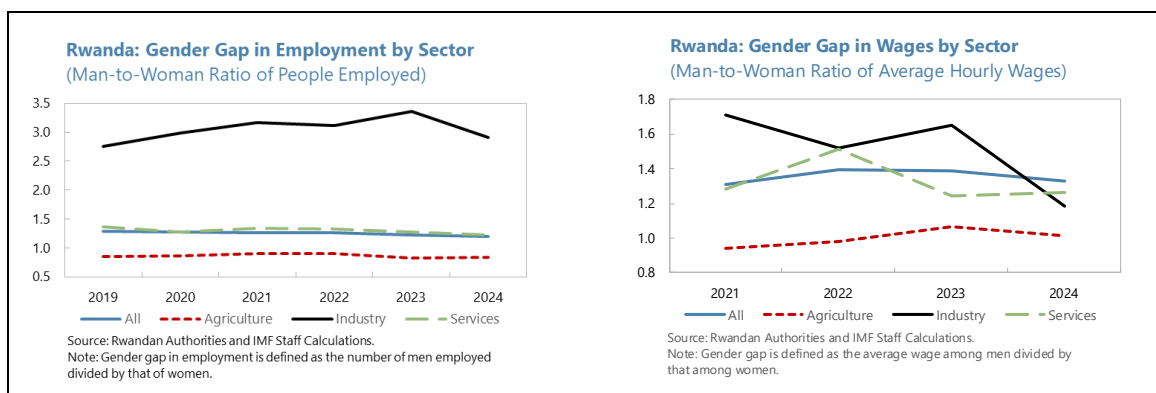
Data

8.   The primary data source for this analysis is the latest Integrated Household Living Conditions Survey (EICV7), conducted between October 2023 and October 2024, which provides comprehensive data at both the individual and household levels. Key variables include: (i) individual characteristics, such as gender, education level, and housing materials; (ii) socioeconomic indicators, including hourly wages, sector of employment, and receipt of government support; and (iii) a variable capturing exposure to climate-related disasters.

9.   The climate disaster variable is derived from self-reported responses. Each household in the survey was asked whether it had experienced any problems affecting the household in the preceding 12 months. Among the listed options were climate-related events, including heavy rainfall, floods, droughts, and landslides or mudslides. A household is classified as having experienced a climate-related shock if it reported at least one of these events.

Rwanda: Number of Households that Suffered from Climate-Related Shocks

Source: Rwanda Household Survey (EICV7) and IMF Staff Calculations.
Note: Households could suffer from muliple types of climate-related shocks which would be registered separately. Not all HHs stated when they got hit by the shock.

10.   Government support is captured through the Vision Umurenge Program (VUP), a flagship social protection initiative aimed at alleviating extreme poverty. The program comprises several components, including Direct Support (DS); Classic Public Works (cPW) and Expanded Public Works (ePW), which provide employment opportunities for individuals from extremely poor and labor-constrained households; and Nutrition-Sensitive Direct Support (NSDS), which offers cash transfers to households with pregnant women and/or children under the age of two. The EICV7 dataset includes information on whether a household receives any of these forms of VUP assistance.

11.   To complement the main analysis, micro-level data from Rwanda's Labor Force Survey (LFS) are also utilized. While the survey has been conducted annually since 2017, wage data are available from 2021 onward. By aggregating the data at the district-year level, a repeated cross-section dataset was constructed, capturing average wages for men and women across employment sectors in each of Rwanda's 30 districts over time.

Rwanda: Gender Gap in Employment by Sector
(Man-to-Woman Ratio of People Employed)

Source: Rwandan Authorities and IMF Staff Calculations.
Note: Gender gap in employment is defined as the number of men employed divided by that of women.

Rwanda: Gender Gap in Wages by Sector
(Man-to-Woman Ratio of Average Hourly Wages)

Source: Rwandan Authorities and IMF Staff Calculations.
Note: Gender gap is defined as the average wage among men divided by that among women.

12. **The aggregated LFS dataset was merged with** annic<u>annual disaster reports</u> **published by the Ministry in Charge of Emergency Management (MINEMA).** These reports provide district-level information on the number of houses and hectares of crops damaged by natural disasters. To facilitate comparability across districts, the number of houses destroyed was scaled by district population, and crop losses were scaled by the corresponding farmland area. A composite "disaster damage" index was then constructed by normalizing these scaled indicators and computing their equally weighted average.

Methodology

13. **The analysis based on the EICV7 dataset employs a cross-sectional regression at the individual level. The empirical specification is as follows:**

$$\log(Wage_i) = \alpha + \beta_C Climate_i + \beta_W Woman_i + \beta_{CW} Climate_i \times Woman_i + \sum_{m=1}^{M} \beta_{Vm} VUP_{im} + \sum_{m=1}^{M} \beta_{CVm} Climate_i \times VUP_{im} + \sum_{m=1}^{M} \beta_{WVm} Woman_i \times VUP_{im} + \sum_{m=1}^{M} \beta_{CWV} Climate_i \times Woman_i \times VUP_{im} + \sum_{k=1}^{K} X_{ik} + \epsilon_i \,,$$

where $\log(Wage_i)$ is the natural logarithm of the hourly wage of an individual i, $Climate_i$ is a dummy indicating whether the individual suffered from a climate-related disaster, $Woman_i$ is a dummy indicating whether the individual is a woman, VUP_{im} is a dummy for the type of VUP support (among M options) the individual is receiving, $\{X_{ik}\}_{k=1}^{K}$ is a set of additional control variables, and ϵ_i is the error term.

14. **The main coefficient of interest is the interaction term between the climate shock and gender indicators, denoted as β_{CW}.** This parameter captures the differential impact of climate-related shocks on women's wages compared to men's. Specifically, it reflects the additional effect on hourly wages experienced by women, relative to men, when both are exposed to a climate-related disaster, holding other factors constant. Standard errors are clustered at the district level to account for potential intra-district correlation.

15. **Control variables capture individual and socio-economic characteristics.** These include binary indicators for the area of residence (urban or rural), household position (household head or not), level of educational attainment, employment sector, housing materials, and province of residence (Rwanda comprises five provinces). Including these variables in the regression mitigates potential omitted variable bias. For instance, an individual affected by a natural disaster may earn lower wages because inexpensive housing materials—associated with lower income—are less resilient to shocks. In this case, low wages, rather than disaster exposure, would explain the observed outcome, underscoring the importance of controlling housing characteristics.

16. **The regression is estimated for various population subsets.** These include groups defined by employment sector—agriculture, industry, and services—and by educational attainment, distinguishing between primary and secondary education levels. A final specification restricts the sample to household heads.

17.   **For the analysis based on the LFS dataset, a repeated cross-section regression is estimated at the year–district level. The empirical specification is as follows:**

$$\log\big(Wage\_Gap_{jt}\big) = \alpha + \beta_D\,Climate\_Damage_{jt} + \epsilon_{jt} \, ,$$

where $\log\big(Wage\_Gap_{jt}\big)$ is the natural logarithm of the gender wage gap in district j in year t, $Climate\_Damage_{jt}$ is the "disaster damage" index defined above, and ϵ_{jt} is the error term. The gender wage gap is measured as the ratio of the average hourly wage of men to that of women.

18.   **The coefficient of interest, β_D, captures the relationship between natural disaster damages and the gender wage gap.** The regression includes year and district fixed effects. In addition, the specification is estimated for subsamples defined by employment sector—agriculture, industry, and services.

Results

19.   **At the individual level, based on the EICV7 dataset, results are mixed.** As expected, climate disasters are generally associated with lower hourly wages across most population subsets (Table 2). However, no additional adverse effect is observed for women in agriculture and industry, while in services the estimated effect is positive—suggesting that women's wages increase relative to men's following natural disasters. Given the counterintuitive nature of these findings, further analysis was conducted to explore the underlying mechanisms.

Table 2. Rwanda: Hourly Wage Regressions, EIVC7 Data

	(1) All	(2) Agr	(3) Ind	(4) Ser	(5) Prim ED	(6) Sec Ed	(7) HH Head
Climate	-0.13**	0.01	-0.12**	-0.20***	-0.11**	-0.20**	-0.10
	(0.05)	(0.08)	(0.05)	(0.06)	(0.05)	(0.09)	(0.06)
Woman	-0.21***	-0.06**	-0.45***	-0.18***	-0.21***	-0.25***	-0.42***
	(0.02)	(0.03)	(0.05)	(0.03)	(0.03)	(0.04)	(0.03)
Climate × Woman	0.13***	-0.06	-0.03	0.27***	0.13**	0.20**	0.11*
	(0.05)	(0.06)	(0.09)	(0.08)	(0.05)	(0.10)	(0.06)
VUP_NSDS	-0.11**	0.01	0.04	-0.34***	-0.06	-0.29***	-0.08*
	(0.04)	(0.06)	(0.06)	(0.07)	(0.05)	(0.08)	(0.04)
Climate × VUP_NSDS	-0.09	-0.14	-0.34***	0.12	-0.11	0.11	-0.13*
	(0.07)	(0.09)	(0.11)	(0.16)	(0.09)	(0.15)	(0.08)
Woman × VUP_NSDS	0.08	-0.10	-0.17	0.39**	0.10	0.18	0.16
	(0.08)	(0.07)	(0.12)	(0.16)	(0.08)	(0.13)	(0.15)
Climate × Woman × VUP_NSDS	0.22*	0.29***	0.52**	-0.25	0.16	0.11	0.50**
	(0.12)	(0.10)	(0.20)	(0.25)	(0.11)	(0.21)	(0.22)
Rural	-0.15***				-0.12***	-0.09**	-0.20***
	(0.02)				(0.03)	(0.03)	(0.03)
HH Head	0.39***	0.16***	0.29***	0.59***	0.35***	0.46***	
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	
Const	10.64***	8.89***	9.69***	9.41***	9.15***	11.68***	10.25***
	(0.32)	(0.06)	(0.10)	(0.05)	(0.05)	(0.07)	(0.54)
Other Controls							
Other VUP Programs	+	+	+	+	+	+	+
Education Level	+	+	+	+	-	-	+
House Materials	+	+	+	+	+	+	+
Employment Sector	+	-	-	-	+	+	+
Clustering at District Level	+	+	+	+	+	+	+
N	3,645,043	1,159,063	749,206	1,734,122	2,449,499	899,516	1,839,861
Adj. R^2	0.48	0.15	0.43	0.45	0.27	0.29	0.54

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

20.   In the individual-level regressions, a positive association emerges between wages and the triple interaction term capturing the joint effect of climate shocks, gender, and NSDS VUP support. This relationship is statistically significant for the full sample as well as for the agriculture and industry subsamples, but not for services. These findings suggest that NSDS support—targeting pregnant women and households with young children in poverty—may help explain the absence of an additional adverse effect of climate shocks on women's wages relative to men's. Such support likely cushions vulnerable women from income losses associated with climate shocks. However, the positive and unexplained relationship between the $Climate_i \times Woman_i$ interaction and wages in the services sector warrants further investigation.

21.   At the aggregate level, based on the LFS dataset, results indicate a positive relationship between disaster damages and the gender wage gap. This relationship is statistically significant for the full sample and the services subsample, while the β_D coefficient not significant in agriculture and industry (Table 3). In other words, districts experiencing greater natural disaster damages tend to exhibit wider gender wage gaps among workers in the services sector. At first glance, this finding appears to contrast with the individual-level results, which suggested a positive association between women's wages and exposure to natural disasters.

Table 3. Rwanda: Hourly Wage Regressions, LFS Data

	(1) All	(2) Agr	(3) Ind	(4) Ser
Disaster Damage	0.06**	-0.00	0.14	0.13**
	(0.03)	(0.02)	(0.12)	(0.06)
Constant	1.39***	0.94***	2.07***	1.48***
	(0.06)	(0.02)	(0.25)	(0.12)
Year FE	+	+	+	+
District FE	+	+	+	+
N	106	106	105	106
Adj. R²	0.06	0.09	0.04	0.08

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

 Taken together, the results from the two regressions suggest that the observed patterns may reflect the specific characteristics of the services sector. Natural disasters may damage infrastructure critical to service-related activities—such as roads for traders or business premises for hospitality workers—thereby reducing earnings indirectly. In this case, an individual's wages could decline due to disruptions in their work environment rather than direct exposure to a disaster. Consequently, the self-reported disaster variable in the EICV7 survey may not capture such indirect effects, while the aggregated LFS data at the district level would reflect them. At the same time, because women are more likely to be involved in vulnerable employment and in positions of lower seniority than men, disasters affecting workplaces may disproportionately impact women, helping to explain the positive relationship between disaster damages and the gender wage gap in the services sector.

D.   Macro-Level Evidence: How Gender Equality Enhances Climate Adaptation

22.   With Rwanda's structural context in mind, this section introduces a small open-economy model to analyze the interplay between policies that mitigate the impact of natural disasters and those that foster female labor force participation. The model draws inspiration from the DIGNAD model, widely applied in IMF work,[1] while maintaining a simple and transparent

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[1] See IMF (2023) for the latest DIGNAD application for Rwanda.

structure. A gender dimension is incorporated to explore two questions: (i) whether complementarities exist between disaster-resilience policies and women economic empowerment policies; and (ii) how the economy's recovery from a major flood would differ if resilient infrastructure were in place and the wage gap had been reduced ex ante.

Figure 4. Rwanda: Distribution of Hourly Wages by Gender, LFS Data
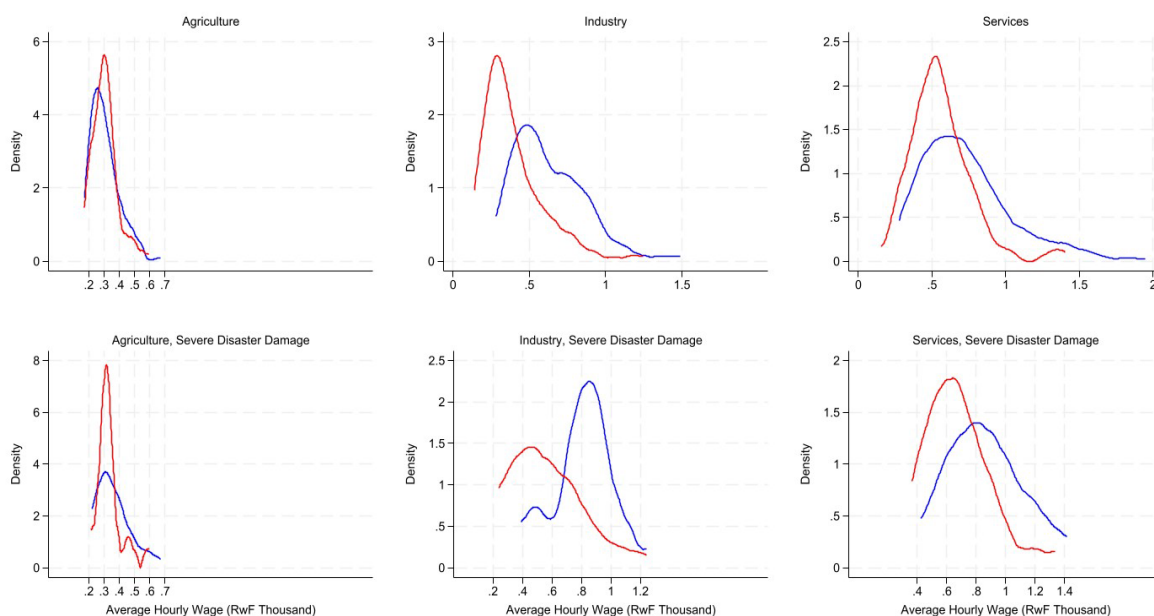
Sources: Rwandan Authorities and IMF Staff Calculations.

Note: Lines depict the distribution of average hourly wages for men and women across districts and years. The blue line represents male wages, while the red line corresponds to female wages. Severe disaster damage is defined as observations falling within the top quintile of the disaster damage index distribution.

23.   In this model, the government can invest in standard infrastructure (e.g., roads) as well as in adaptation capital (e.g., flood defenses, resilient roads, drought-ready irrigation). Both raise the effective infrastructure available to firms (entering their production function) and improve productivity. In addition, adaptation capital depreciates at a lower rate and reduces the damages inflicted by natural disasters. In the model, these damages manifest as temporary losses of productivity. More adaptation capital means smaller losses when a disaster hits.

24.   Policies that promote women's economic empowerment enhance growth, foster stability, and reduce poverty and inequality. In this model, gender empowerment is captured through a reduction of the wage gap between men and women—the difference in their average hourly earnings.[2] Gender wage gaps often reflect structural barriers that constrain the full use of

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[2] In the model, the wage gap is reduced mechanically by recalibrating the steady state—adjusting the parameters that pin down the gap to achieve a 50 percent reduction while holding all other parameters fixed. In practice, achieving such a decline would require a comprehensive policy package that both diagnoses the drivers of the gap and tackles the underlying frictions (e.g., improving access to education and expanding pathways into higher-productivity occupations).

human capital, with adverse effects on productivity and growth. Such barriers include unequal access to education, health care, and finance; occupational and sectoral segregation (e.g., women concentrated in lower-productivity activities and smaller firms); higher rates of informal employment with weaker protections; and limited representation in higher-paying or leadership roles. Narrowing these gaps encourages women to enter and remain in the labor force, unlocks underused talent, and improves job–skill matching, thereby supporting inclusive growth (see Gender Mainstreaming: Interim Guidance Note).

25. **The model captures the sectoral distribution of male and female workers observed in Rwanda for the latest available data.** The small open economy model features two production sectors: (i) an exportable agricultural sector, where women are over-represented, and (ii) a non-tradable sector that accounts for the remaining sectors (services, construction, and manufacturing). Both sectors employ men and women and are subject to a natural disaster, being partially shielded from its impact by public adaptation capital. Men and women decide how much to work in each sector in response to gender-specific wages. A smaller wage gap makes market work relatively more attractive for women and can shift labor toward sectors where their productivity is higher. Calibrated to match the following observations targets three salient facts from Rwandan data: (i) the average wage gap is 30 percent, that is, for every RWF 1,000 a man earns, women earn RWF 700; (ii) roughly half of the working men work in agriculture; and (iii) this figure jumps to 72 percent for female workers.

26. **The model was calibrated to match features of the Rwanda economy using country-specific macroeconomic indicators, while parameters that determine the standard and resilient infrastructure are in line with the literature.** The calibration of initial values and parameters, where possible, is based on historical averages so the model's steady state lines up with Rwanda's long-run data. Table 4 shows the matched moments along with the historical data targets. The natural disaster shock is calibrated to mimic an extreme flood event associated with a 7.5 percent reduction in total factor productivity. According to the EM-DAT international disaster database, Rwanda was affected by disasters almost every year, with floods being the most prevalent type of disasters. However, low probability but high impact shocks, such as the one calibrated in this simulation, are predicted to occur more frequently going forward.

Table 4. Rwanda: Historical Data and Model Moments Targeted in Calibration Strategy		
Moment	**Data**	**Model**
Value-added in non-tradable sector	48.0%	41.6%
External private debt to GDP ratio	20.4%	20.5%
Domestic public debt to GDP ratio	15.7%	11.5%
Imports to GDP ratio	35.5%	35.5%
Public infrastructure investment to GDP ratio	13.1%	16.9%
Average wage gap between men and women	30.5%	29.8%

27. **This setup enables transparent policy counterfactuals on resilience, empowerment, and their interaction.** We quantify: (i) the payoff from resilient infrastructure in limiting output and income losses during floods; (ii) the payoff from narrowing the wage gap in normal times and

recovery; and (iii) whether these policies are mutually reinforcing —for example, whether a smaller wage gap helps the economy make better use of resilient infrastructure after a disaster. We implement two simulations: (i) a long-term steady state comparison between economies with the current level of wage gap versus a lower one, and (ii) a short-to-medium-term disaster scenario that traces recovery under alternative adaptation-capital stocks and wage gap settings.

Simulation 1: Long-Term Results

28.   **In the first simulation, we assess the gains from alternative adaptation capital paths under two wage-gap regimes and find sizeable complementary gains when resilience and gender equality advance together.** In this experiment, two otherwise identical economies differ only in their gender wage gaps: a current gap scenario, which assumes no change in the observed wage gap, and a low gap scenario, with the observed gap cut by half. Both start with very low adaptation infrastructure. We then raise public investment so that the steady state stock of adaptation capital increases in 5-percentage-point steps up to a 50 percent increase. For each step, we recompute the balanced growth steady state and track macroeconomic outcomes. Higher adaptation capital augments the effective public capital bundle feeding firm productivity, while a lower wage gap improves labor allocation and average human-capital utilization. Together, these policies reinforce each other: the low-gap economy attains higher steady-state output at every resilience level. Quantitatively, a 1 percent increase in the adaptation capital stock yields GDP that is 0.13 percentage point larger in the low-gap economy; the advantage accumulates with bigger investments—for the same 30 percent increase in adaptation capital stock, the low-gap economy grows 1.15 percentage point higher, and for a 50% increase it reaches 1.73 percentage point larger GDP (Figure 5).

29.   **Adaptation investments pay more when wage gaps are lower because misallocation falls, external constraints ease, and the fiscal base strengthens.** First, the misallocation channel is the strongest mechanism in our framework: with narrower gaps, firms draw more—and more appropriately—on women's and men's skills across sectors. This raises the effective labor input and amplifies the output response to any TFP-like boost, such as better public infrastructure and lower replacement needs after disasters (see Figure 5). Second, the external constraint channel improves adaptation investment requires imported inputs for its installation and must be financed by exports; with more equal wages, it is easier to attract both male and female labor into the tradable (agriculture) sector, expanding exports and relaxing the balance-of-payments bind. Third, the fiscal base channel widens as higher female earnings broaden the tax base, making public investment less fiscally "expensive" in general equilibrium (see Figure 5). For example, at a given 1 percent increase in adaptation capital, the tax-revenue-to-GDP ratio in the low-gap economy is about 4.25 percentage points higher than in the current-gap economy. Moreover, even with no additional adaptation, the low gap economy already raises roughly 4.1 percentage points more, indicating that most of the fiscal gain stems directly from narrowing the wage gap—which raises women's earnings and increases their labor force participation, both margins expanding the tax base. Finally, adaptation alone slightly narrows the wage gap through a composition effect: as adaptation protects the sector where women are over-represented, their wages and hours fall less when shocks hit, supporting their average earnings and moving it a bit closer to men's. In short, resilience investment and gender-equality
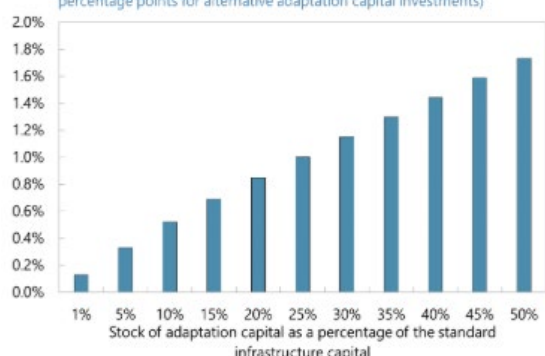
reforms are mutually reinforcing, with the productivity, external, and fiscal channels all pushing in the same direction.

**Figure 5. Rwanda: Simulation 1: Long-Term Results**

Adaptation pays more when gaps are lower, yielding larger GDP growth rates and...

...higher tax-revenue-to-GDP ratios.

Difference in Real GDP Growth Rates
(Difference in growth rates between low gap and current gap economies in percentage points for alternative adaptation capital investments)

Difference in Tax Revenue to GDP Ratio
(Difference between low gap and current gap economies in percentage points for alternative adaptation capital investments)
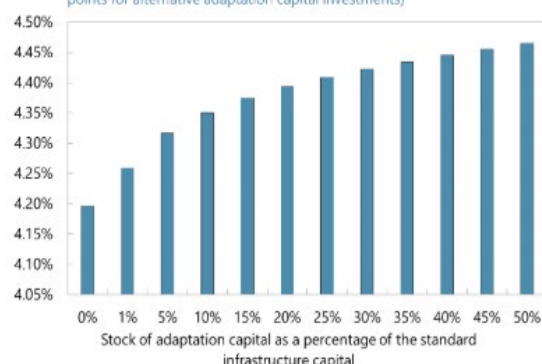
Simulation 2: Short-Run Recovery to Shocks

30.   Pre-positioning resilience and narrowing the wage gap slightly reduce the peak-to-trough output loss and speed up the post-disaster recovery. We hit the two economies with the same natural-disaster shock—modeled as a temporary TFP drop that goes back to its previous level in an AR(1) fashion—and compare paths when, before the shock, the government has (i) low vs. higher adaptation capital and (ii) a current vs. a reduced gender wage gap. Higher adaptation capital raises the effective public capital bundle and, in the model, dampens the pass-through of the TFP shock to sectoral productivity; a lower wage gap improves labor allocation across sectors, so output, employment, and incomes fall by less and recover sooner. Three forces underpin these gains: (1) a smaller effective supply shock, because resilience lifts underlying productivity and attenuates the TFP hit; (2) faster reallocation, as a tighter wage gap improves incentives to supply labor—especially women—toward the higher return margin (notably tradables) exactly when the economy needs flexibility; and (3) stronger automatic stabilizers, since the broader tax base from higher female earnings cushions revenue shortfalls and lowers the required fiscal adjustment. The result is a milder output contraction and a steeper recovery of output and employment relative to the current-gap, low-resilience baseline (see Figure 6).

Figure 6. Rwanda: Simulation 2: Short-Term Results

Reducing the wage gap yields a quicker rebound and a slightly smaller output hit.

GDP Recovery Paths (2025 = 100)

- Current gap
- Current gap and investment
- Low gap and investment
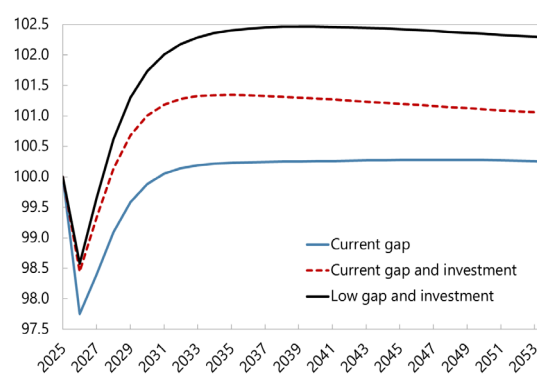
E. Policy Instruments for Inclusive Climate Resilience

Strengthening Data-Driven Policy Tools

31. **Rwanda's data-driven policy systems provide a strong foundation for integrating climate and gender objectives into fiscal decision-making (Figure 7).** CBT and GBT have improved the visibility of spending on climate adaptation and programs that benefit women, helping ensure that resources are aligned with the objectives of the NST2 and the Green Growth and Climate Resilience Strategy. These tagging frameworks enhance transparency in budget allocation and monitoring, enabling policymakers to track the share of public investment devoted to resilience and inclusion.

Figure 7. Rwanda: Policy Tools for Economic Resilience

CBT helps track and prioritize adaptation and resilience spending across sectors.

Rwanda: Climate Budget Spending
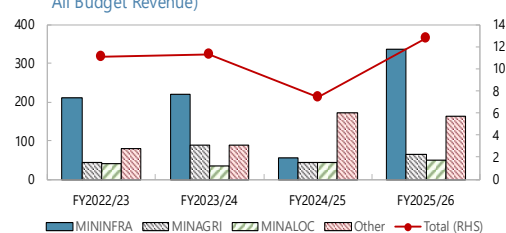(RWF Billion; RHS: Total Climate Budget as Percent of All Budget Revenue)
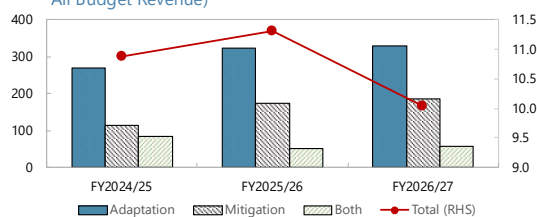
Sources: Rwandan Authorities and IMF Staff Calculations.

GBT aligns resource allocation with inclusion and empowerment objectives.

Rwanda: Gender Budget Spending
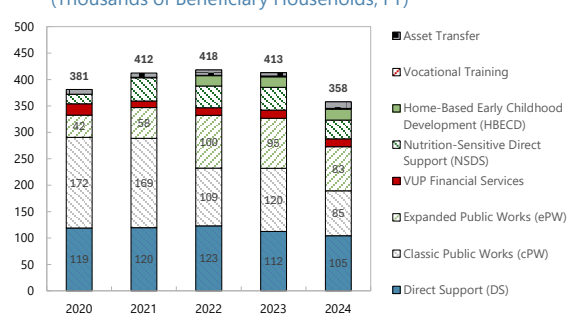(RWF Billion; RHS: Total Gender Budget as Percent of All Budget Revenue)

Sources: Rwandan Authorities and IMF Staff Calculations.

Rwanda's digital registry expands social protection coverage through real-time household data.

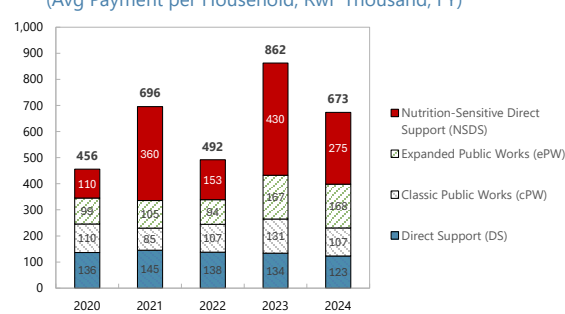Rwanda: Social Protection Programs
(Thousands of Beneficiary Households; FY)

Source: Rwandan Authorities.

It enables rapid targeting of disaster-affected and female-headed households through VUP.

Rwanda: Social Protection Programs
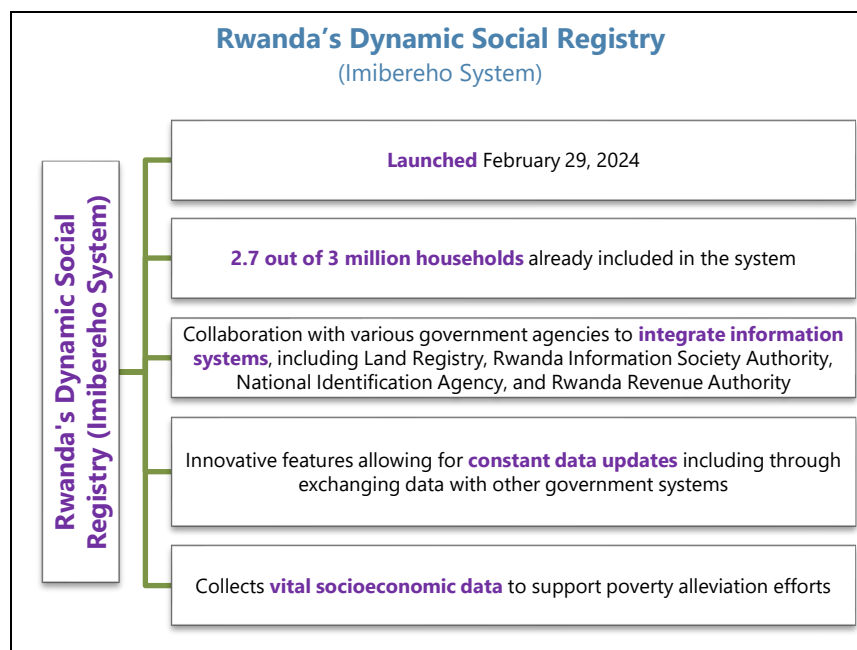(Avg Payment per Household; RwF Thousand; FY)

Source: Rwandan Authorities.

32. **CBT and GBT have strengthened the evidence base for fiscal decisions by tracking how public spending supports resilience and inclusion.** The CBT framework identifies and classifies expenditures that contribute to climate mitigation and adaptation. By tracking these flows across sectors such as agriculture, energy, and infrastructure, it allows policymakers to assess whether fiscal priorities are consistent with resilience targets and to adjust resource allocations accordingly. In

parallel, the GBT framework provides information on how public spending supports women's economic participation and welfare outcomes, strengthening gender-responsive budgeting practices. The combination of these two systems creates scope for cross-analysis—linking adaptation spending with gender impacts—to better evaluate the inclusiveness of climate investment.
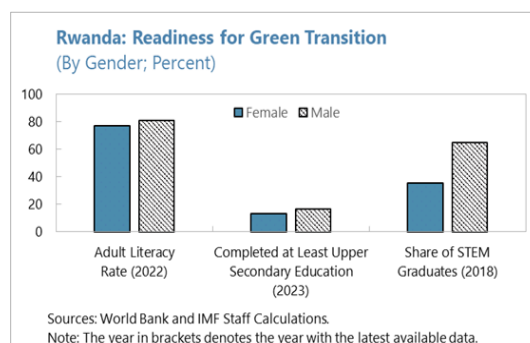
33.   Complementing these tools, the dynamic social registry has become central to adaptive social protection. It integrates household-level data from multiple sources, enabling rapid identification of vulnerable households during shocks and improving the efficiency of fiscal responses. Its linkages with programs such as the VUP allow temporary scaling-up of assistance to those most affected, including women and informal-sector workers. This data infrastructure supports timely, well-targeted, and fiscally sustainable responses to climate events.

Rwanda's Dynamic Social Registry
(Imibereho System)

Rwanda's Dynamic Social Registry (Imibereho System)

- **Launched** February 29, 2024
- **2.7 out of 3 million households** already included in the system
- Collaboration with various government agencies to **integrate information systems**, including Land Registry, Rwanda Information Society Authority, National Identification Agency, and Rwanda Revenue Authority
- Innovative features allowing for **constant data updates** including through exchanging data with other government systems
- Collects **vital socioeconomic data** to support poverty alleviation efforts

Opportunities and Risks in the Green Transition

34.   Rwanda's green transition presents opportunities to advance both resilience and inclusion, but realizing these benefits will require deliberate policy design. Investments in renewable energy, climate-smart agriculture, and the circular economy can generate employment and productivity gains, yet women remain under-represented in many of these emerging sectors. Without targeted interventions, the transition could widen existing labor-market gaps.

Rwanda: Readiness for Green Transition
(By Gender; Percent)

Sources: World Bank and IMF Staff Calculations.
Note: The year in brackets denotes the year with the latest available data.

35.   Expanding access to TVET and strengthening MSME finance initiatives can help women participate more fully in green industries. The RTB Strategic Plan 2021-24 and recent investments in TVET centers of excellence aim to modernize curricula, integrate ICT skills, and build stronger links with employers, yet gaps remain in digital infrastructure and female enrolment in technical fields. On the finance side, the 2025-29 Financial Sector Development Strategy and the FinScope 2024 Gender Report highlight ongoing efforts to close credit gaps for women-led MSMEs, including commitments to dedicate at least half of microfinance and SACCO lending to women. Integrating gender criteria

into green-investment facilities such as [Ireme Invest](#) would ensure that new financing channels support women entrepreneurs and employment creation in sustainable sectors. As Rwanda accelerates digitalization; however, risks of digital exclusion persist: women remain less likely to own smartphones, access the internet, or possess digital literacy skills needed to benefit from e-finance, e-commerce, and online training. Continued investment in data systems like CBT, GBT, and the social registry will be critical to track outcomes, inform course corrections, and ensure that Rwanda's climate and gender agendas reinforce each other.

F.   Policy Priorities and Conclusions

36.   Rwanda's case study illustrates that closing gender gaps and building climate resilience are mutually reinforcing goals that strengthen macroeconomic stability and inclusive growth. Microdata analysis shows that women's concentration in agriculture and informal employment heightens their vulnerability to climate shocks and slows household recovery. Macroeconomic simulations further demonstrate that reducing gender wage gaps amplifies the growth and fiscal benefits of adaptation investment. These findings underscore that policies promoting inclusion are not only socially desirable but also macro-critical for sustaining resilience and long-term development.

37.   Rwanda's data-driven policy frameworks already provide a solid foundation for aligning climate and gender objectives. The integration of CBT, GBT, and the dynamic social registry has enhanced fiscal transparency, improved targeting, and strengthened adaptive social protection. Deepening coordination across these systems would enable systematic tracking of how adaptation spending affects women's livelihoods and resilience outcomes.

38.   Building on these achievements, the following priorities can help deepen inclusive climate resilience:

- Strengthen the integration of CBT and GBT. Establish consistent cross-analysis of adaptation and gender-related expenditures, supported by clear institutional responsibilities and regular reporting by MINECOFIN, sector ministries, and the Rwanda Gender Monitoring Office.

- Expand adaptive social protection through the social registry. Continue improving coverage, interoperability, and real-time updating to allow programs—particularly the VUP—to scale up efficiently during shocks while maintaining fiscal discipline.

- Promote women's participation in the green transition. Facilitate access to green finance, technical and vocational training, and digital skills to ensure women benefit from employment opportunities in renewable energy, sustainable agriculture, and the circular economy. Integrate gender criteria into green-investment facilities such as Ireme Invest.

- Enhance access to productive assets and finance. Broaden financial inclusion, strengthen women's property and land rights, and expand tailored support for women-owned MSMEs to raise productivity and resilience.

- Invest in data and evaluation. Expand the use of gender-disaggregated and climate-tagged data to assess the effectiveness of adaptation and inclusion programs and guide evidence-based policy refinement.

Together, these measures would help Rwanda consolidate its progress toward a resilient, low-carbon, and inclusive economy. The country's experience highlights how institutional innovation, data-driven policymaking, and sustained attention to gender equality can reinforce both economic resilience and fiscal sustainability.

Table 5. Rwanda: Largest[1] CBT and GBT Projects in FY25/26			
Sector	**CBT/GBT**	**Description**	**Budget (RWF Billion)**
Agriculture	GBT	Improved access to farm inputs for women	53.9
	CBT	Climate-smart agriculture and input access	71.0
Employment	GBT	Job creation and training for women	84.7
	GBT	Employment in housing/construction for women	48.1
	GBT	Employment in road construction for women	97.4
Energy	GBT	Expansion of electricity access for women	128.0
	CBT	Renewable energy and energy efficiency	169.9
	CBT	Resilience-focused energy infrastructure	44.6
Environment	CBT	Integrated environmental protection	67.9
Transport	CBT	Road rehabilitation and resilient transport	88.1
Social Protection	GBT	Direct VUP support to women	36.3
	GBT	Support to female genocide survivors	16.4
	CBT	Support to households affected by climate shocks	39.1
Education	CBT	Climate-resilient schools; awareness programs	15.3
Health	GBT	HIV prevention and treatment for women	15.0
Water and Sanitation	GBT	Improved access to water/sanitation for women	55.7
	CBT	Expansion of water and sanitation infrastructure	47.1
	CBT	Improved water treatment and sanitation systems	34.3

[1] Projects larger than USD10 million.

RWANDA

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World Bank. Placing Gender Equality at the Center of Climate Action. World Bank Group, 6 Feb. 2025, https://documents1.worldbank.org/curated/en/099718102062367591/pdf/IDU08c737dd00f8580412b0aed90fce874ab09b0.pdf

20 INTERNATIONAL MONETARY FUND

UNLOCKING RWANDA'S EXPORT POTENTIAL: REMOVING STRUCTURAL BOTTLENECKS

Summary: Rwanda's export landscape is anchored in primary commodities and a small set of trading partners, prompting concerted initiatives to diversify and expand its export base. Despite progress in improving trade openness, logistics, and institutional capacity, the country continues to experience difficulty boosting its net-export earnings due to high import needs and weak export services. The government's Vision 2050 and the National Strategy for Transformation provide a strong framework to address these challenges through targeted efforts in industrial development, trade facilitation, regional integration, and capacity building. This SIP outlines strategic priorities and development initiatives to support Rwanda's export competitiveness, foster economic diversification, and promote sustainable growth.

A. Introduction

1. **Owing to structural factors, diversifying and expanding the export base remains a key challenge for Rwanda.** Export competitiveness is a critical pillar of the Rwanda's long-term Vision 2050 to achieve high-income status. This commitment is operationalized through the 2024–2029 National Strategy for Transformation (NST2) with a focus on industrial development and export promotion, which has started to yield some results. Despite policy efforts, the country continues to face a persistent trade deficit partly due to sticky goods imports as well as services export sector whose full potential is yet to materialize. This deficit is symptomatic of a narrow export base composed mainly of primary products, constrained by deep structural challenges including human capital gaps, geographic disadvantages such as landlockedness and distance from major markets, and the critical need to improve transport logistics and strengthen private sector participation for broader market integration.

2. **This selected issues paper (SIP) provides a detailed analysis of export performance and impediments and proposes policy pathways.** The SIP will assess both non-price factors—such as product composition, diversification and export survival—and price competitiveness. It identifies structural impediments to export growth and outlines policy priorities to enhance competitiveness and narrow Rwanda's external gap, drawing comparisons with regional peers.

B. Rwanda's Trade Deficit: A Structural Challenge

3. **Rwanda's external position has been marked by persistently high trade imbalances.** Current account deficit averaged well above 10 percent of GDP and reached nearly 15 percent in recent years, which is deeper than that of many Sub-Saharan Africa (SSA) peers—even after accounting for Rwanda's lower income level. In contrast to some East African Community (EAC) countries that have managed to narrow their external imbalances as income rose, Rwanda's trade deficit has shown only marginal improvements, indicating its structural nature.

4.   **The imbalance stems from weak exports and strong import demand.** Rwanda's export base is narrow, dominated by a few primary commodities like tea, coffee and mineral products that are vulnerable to global price volatility. Efforts to diversify into horticulture, light manufacturing, and services are under way but remain small in scale. The weak export performance is due to structural constraints—including landlockedness, logistic challenges, high transportation costs, skill gaps, and so on—that reduce export competitiveness. By contrast, imports have expanded rapidly, driven by food, fuel, construction materials, and capital goods that underpin Rwanda's investment-led growth model. The import content of domestic production is also increasing, with consumer demand shifting toward a greater share of imported goods in the consumption basket.

5.   **Two structural factors explain why trade deficit has persisted despite export growth:**

- Sticky imports. More than half of the increase in exports-to-GDP since 2016 came from gold and re-exports, which require high import content. Imports have therefore risen in parallel with exports, preventing an improvement in the trade balance (Figure 1).

- Limited contribution of services. Services have not generated a sufficient surplus to offset goods trade deficits. While travel and ICT exports expanded, these were fully offset by deficits in transport services.

6.   **The story of Rwanda's trade deficit is therefore one of a country growing faster than it can build up its exports.** Rapid domestic demand and investment have outpaced the capacity of the export sector, leaving a significant gap financed by external resources. As the external resources may become more limited in the future, strengthening Rwanda's export capacity becomes essential to securing external sustainability in the years ahead. In short, Rwanda's trade deficit reflects both the success of its growth model—sustained investment and rising incomes—and one of the sources of its vulnerabilities.
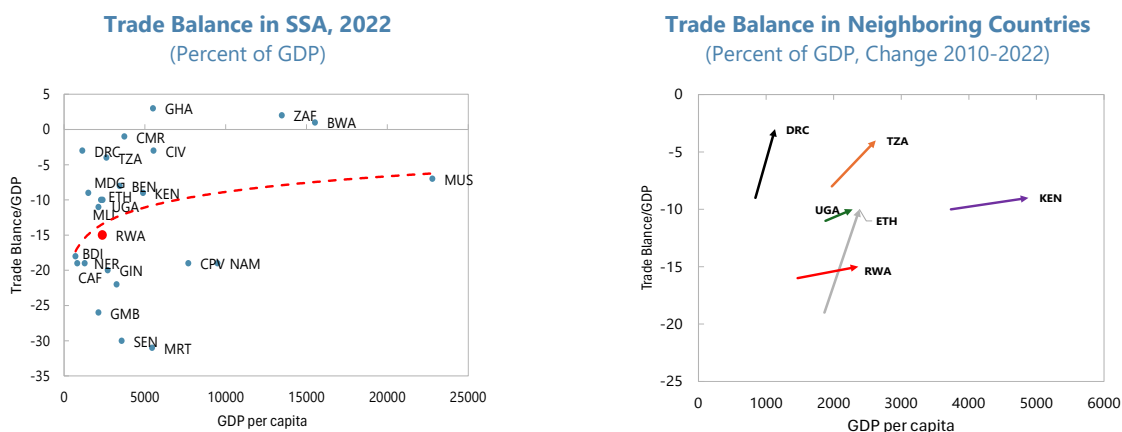
7.   **Export performance presents a mixed picture of growing dynamism alongside persistent structural weaknesses.** Trade openness has steadily increased, with exports and imports together representing a growing share of GDP that now exceeds regional peers (Figure 1). Rwanda has also managed to increase its world goods' export market share, *albeit* from a low base, and the export sector has shown dynamism through the introduction of new products in agro-processing, light manufacturing, and digital services. Service exports—tourism, conference hosting, ICT, and transport— have gained visibility but its growth has stalled in recent years (Figure 2).

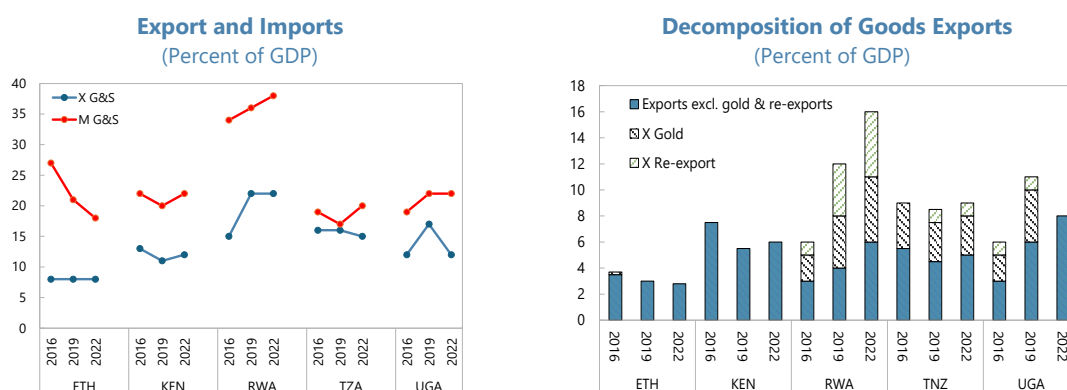## C.   Structural Underpinnings of Rwanda's Exports

8.   **Growth and diversification of exports remain central to sustain Rwanda's strong economic performance and address persistent external imbalances.** Cross-country evidence suggests that until countries reach advanced-economy status, diversification in production and exports is positively associated with higher per capita income (Imbs and Wacziarg 2003). More diversified production structures are also linked to lower output volatility and greater macroeconomic stability (Ghosh and Ostry 1994; Bleaney and Greenaway 2001). As it is the case for

other low-income countries (LICs) in SSA, broadening the export base is therefore critical for Rwanda in order to strengthen its resilience against external shocks and reduce persistent trade imbalances.
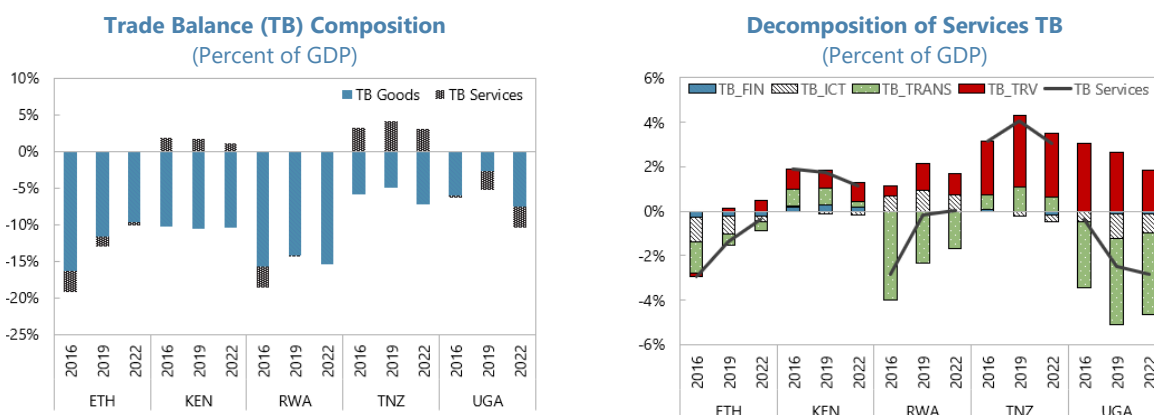
Figure 1. Rwanda: Trade Deficit Has Been Persistently Larger Than Its Peers'

Trade Balance in SSA, 2022
(Percent of GDP)

Trade Balance in Neighboring Countries
(Percent of GDP, Change 2010-2022)

Sticky imports partly explain Rwanda's persistent trade deficit ....

Export and Imports
(Percent of GDP)

Decomposition of Goods Exports
(Percent of GDP)

.... while services trade has not created any surplus to offset the high goods deficit

Trade Balance (TB) Composition
(Percent of GDP)

Decomposition of Services TB
(Percent of GDP)

Note: TB=Trade balance, FIN=finance, ICT=Information communication technology, TRANS=Transport services, TRV=Travel and tourism services, ETH=Ethiopia, KEN=Kenya, RWA=Rwanda, TNZ=Tanzania, and UGA=Uganda.
Source: UNCOMTRADE, the Growth Lab at Havard University and IMF Staff Calculations

Figure 2. Rwanda: World Market Shares in Goods Increased but Services Appear Stagnated
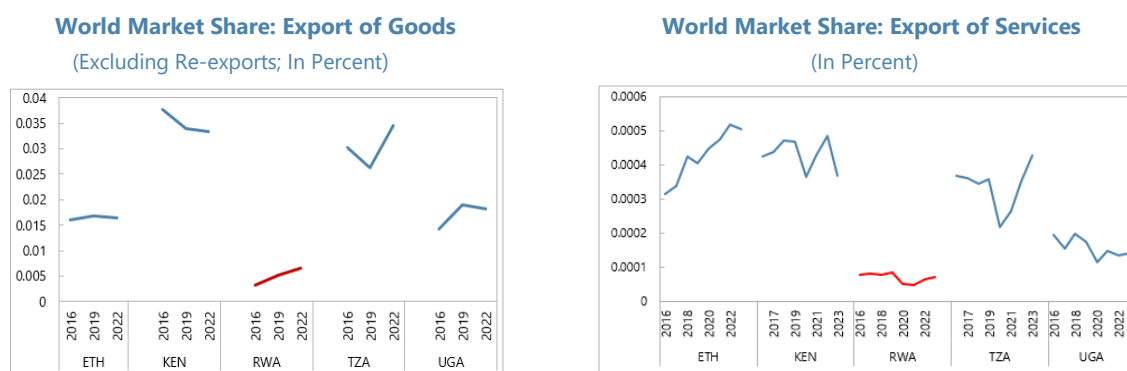
Source: Growth Lab at Havard University and IMF Staff Calculations.

9.   However, limited diversification in export products and trading partners continues to be intrinsic features of the external sector. Rwanda's export earnings have historically been dependent on a narrow range of traditional primary products such as coffee, tea, and minerals as well as a limited set of trading partners, like neighboring DR Congo, China and recently UAE. Rwanda's export structure has also become increasingly concentrated in recent years, with gold accounting for nearly one-third of total goods exports by 2022, up from less than 1 percent in 2010(Figure 3). Non-traditional exports such as horticulture, light manufacturing, and ICT remain relatively small. Similarly, Rwanda's exports were spread across a relatively diverse set of partners including China, the United States, and several European and African markets in 2010. By 2022, however, exports had become heavily concentrated in the United Arab Emirates (36 percent) and the Democratic Republic of Congo (24 percent), largely reflecting gold re-exports and regional trade flows (Figure 3). As a result of elevated product and market concentrations, Rwanda's external sector continues to be exposed to structural vulnerabilities emanating from global commodity price fluctuations and market disruptions.

10.   A significant share of the current export basket is also linked to downstream participation in global value chains (GVC). Rwanda imports intermediate goods, refines or processes them (e.g., gold), and then re-exports, implying a high share of foreign value-added in its exports. While this has boosted overall GVC participation, Rwanda's role remains primarily downstream. By contrast, more industrialized peers (e.g., Kenya's car assembly) are increasingly engaged in upstream activities, which carry stronger technology and productivity spillovers. However, recent large-scale FDI in strategic infrastructure illustrates Rwanda's efforts to position itself more centrally in regional and global value chains. By enhancing logistics capacity, reducing transport costs, and strengthening its role as a services and trade hub in the medium- to long-term, such investments could generate positive spillovers for both goods and services exports, provided they are complemented by broader reforms. Participation in GVC, particularly at upstream stages where domestic value-added feeds into third-country exports, enhances productivity and growth (Raei and Ignatenko 2019). For Rwanda, this suggests that deeper integration within EAC and fuller participation in the African Continental Free Trade Area (AfCFTA) could deliver substantial growth dividends (Box 1).


Box 1. Determinants of African Firms' Exports and Participation in Global Value Chains

The African Continental Free Trade Area (AfCFTA)—signed by 54 countries, covering 1.3 billion people and a $3 trillion GDP—is the world's largest free trade area. Yet, Africa's trade remains below its potential. Exports are dominated by commodities, services exports are stagnant, and intra-African trade accounts for only 15 percent of total exports, albeit more diversified and processed than exports to the rest of the world. High tariffs (about 6 percent), large nontariff measures (roughly equivalent of 18 percent tariff), and weak trade and transport infrastructure continue to constrain integration. Against this backdrop, AfCFTA implementation could be transformational, shifting Africa from a fragmented, commodity-dependent trade structure to a dynamic and diversified continental market.

Firm-level data from the World Bank Enterprise Surveys provide insights into what drives African firms to export and participate in global value chains (GVCs). The Survey covers 96,000 firms across 45 countries during 2010–22 period. Export activity is assessed through three measures (i) exporter status (≥10 percent of sales exported), (ii) GVC participation (≥10 percent exports and ≥10 percent imported inputs), and (iii) export intensity (exports-to-sales ratio). The findings suggest that firm behavior is shaped much more by domestic operating conditions than by tariffs.

Key Determinants of Export and GVC Participation:

- *Trade environment.* Customs clearance times, access to finance, reliable energy and transport infrastructure, and security conditions strongly shape export behavior. For GVC participation, customs efficiency and access to imported inputs are particularly critical.

- *Firm characteristics.* Larger, older, foreign-owned firms, and those located in major cities are more likely to export. Female ownership is also positively associated with export propensity.

- *Skills and innovation.* Firms with better-trained employees, skilled managers, and those introducing new products or processes are significantly more export-active.

Impact of Increase in Trade Openness on GDP Per Capita
(PPP 2017 International Dollar)

Source: "Trade Integration in Africa: Unleashing the Continent's Potential in a Changing World", IMF Departmental Paper, DP/2023/003; Atlas of Economic Complexity; and IMF staff calculations.

- *Market conditions.* Competition from informality and corruption in procurement reduce the incentives for formal firms to engage in exports.
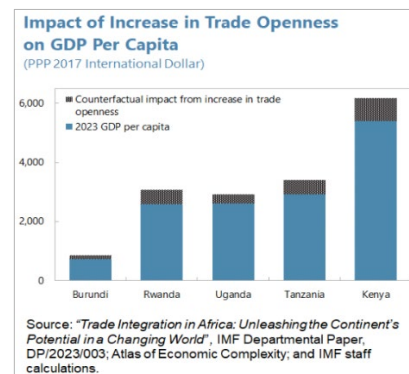
For African firms, the decisive factors for exporting and joining GVCs lie less in tariff policy and more in the domestic trade environment. Complementary reforms to customs, finance, infrastructure, skills, and governance are essential for AfCFTA to realize its full potential. For Rwanda, improving trade and export competitiveness could translate into better living standards.

Source: IMF 2023 "*Trade Integration in Africa: Unleashing the Continent's Potential in a Changing World*"; Departmental Paper No. 2023/003. Washington, DC.

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11.   To boost economic gains from trade, Rwanda would therefore need to enhance the composition, quality, and skill intensity of its export basket. Its current export products are characterized by low technology and skills utilization, i.e., low levels of sophistication, and hence fetch low prices in the global market. Primary commodities and resource-based products dominate, while medium- and high-technology products account for less than 10 percent of exports. The overall export sophistication of Rwanda has declined largely due to the rising dominance of gold (Figure 3). To fully capture the benefits of international trade, the country needs not only to introduce new products and reach new markets but also significantly improve the quality and sophistication of its existing exports. Evidence consistently shows that goods and services with higher sophistication significantly contribute to long-term growth (Hausmann et al. 2007; Mishra et al. 2011), and that skill intensity of exports matters—with concentration in medium-skill

manufactured export products generating larger growth benefits compared low-skill intensity products (Beaton et al. 2017). This is critical for Rwanda as the high concentrated and low-skilled export basket can impede its potential economic gains from trade. Its investments in ICT and digital services are promising, but these sectors are still at an early stage and have yet to significantly alter the technological profile of the export basket.

12.   Rwanda's products have also low trade complementarity with its neighbors' output and low survival rates. Trade complementarity with regional partners has improved in recent years, and yet Rwandan export products remain broadly similar to that neighboring Kenya, Uganda and Tanzania. Furthermore, Rwandan is characterized by low survival rate of new products, with many of which disappear after a short period, underscoring the nascent stage of industrial development, weak competitiveness and lack of scale (Figure 3).

13.   Diversification into new products or industries typically proceeds gradually, through intermediate stages that build on existing comparative advantages. Standard trade theory would suggest that as Rwanda accumulates factors of production—labor, capital, and skills—its comparative advantage should evolve passively toward more sophisticated products. However, the "product space" framework developed by Hidalgo et al. (2007) highlights that diversification is not automatic: every product requires highly specific capabilities, and moving to more complex products is easier when a country already produces goods located in the dense core of the product space.

14.   The implication is that upgrading Rwanda's export base will take time and sustained policy effort. Moving from peripheral to core products will require targeted investments in skills, technology, and supporting industries. Broadening the scope of foreign direct investment and fostering linkages between services, agro-processing, and light manufacturing, could help Rwanda gradually reposition itself in the product space and unlock opportunities for structural transformation.

D.   Impediments to Export Diversification and Growth

15.   Export growth and diversification in Sub-Saharan Africa are driven by a combination of structural and policy factors that shape countries' competitiveness. The IMF study (Salinas 2021) was applied to sub-Saharan countries to identify several key factors driving export growth and diversification in the region. These include logistics and infrastructure quality, human capital and skills development, institutional strength (such as governance, labor market flexibility, and the role of the state-owned enterprises/SOEs), and tariff barriers. Addressing these gaps through targeted policy reforms is essential to enhance export performance. This section examines Rwanda's position relative to other SSA countries and its EAC peers across these key drivers of export growth and diversification.

Figure 3. Rwanda: Exports Products Remain Less Diversified and Destined to Few Markets

Export Product Concentration Index
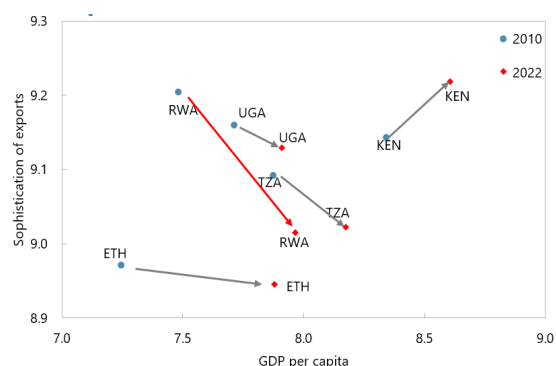[Index Range: 0(lowest) to 1(highest)]
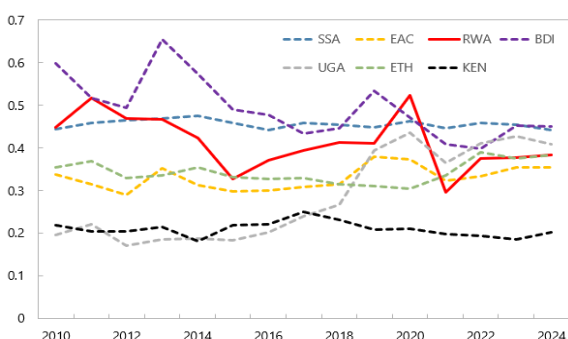
Market Concentration
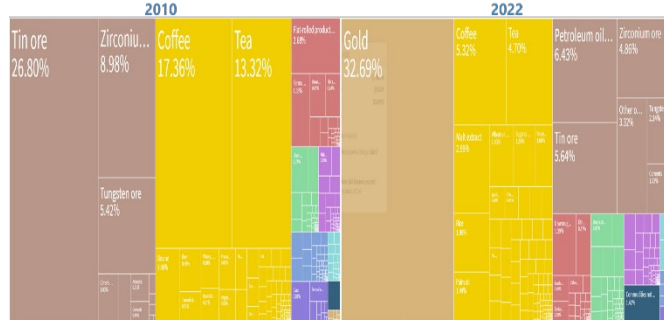(Percent of Total Export)
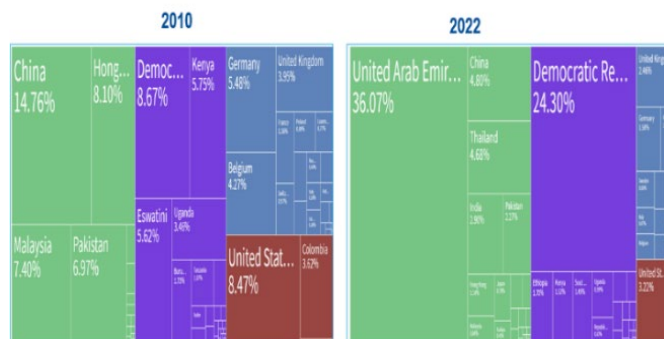
.... and their sophistication has also declined partly due to growing share of gold ....

Sophistication of Exports and GDP per Capita
[Index Range: 0 (low) to +∞ (high)]

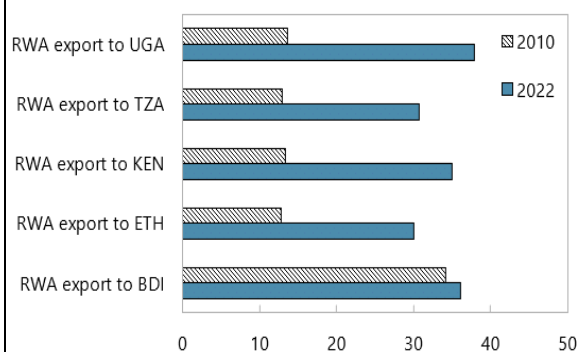**Gold Took Increasing Share of Total Goods' Exports**
(Percent of Total Goods Export)

Note: In 2010, gold's share was too small (below 0.1 percent) to even show in the chart.

.... and their complementarity with neighbors' products improved, but their survival rate is low

Trade Complementarity
[Index Range 1 (low)-100 (high)]

New, Extinct, and Surviving Products
(Number of Products, 2010-2022)
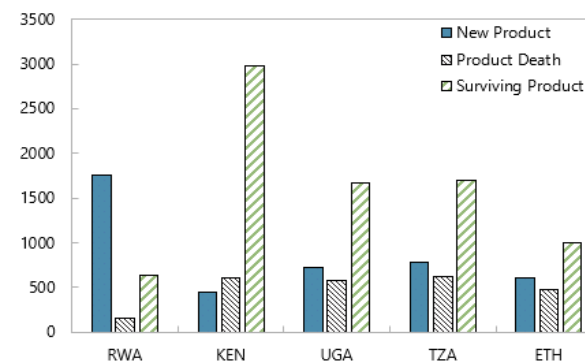
Source: UNCTAD, UNCOMTRADE, Growth Lab at Harvard University and IMF staff calculations.

16.   Rwanda's trade pattern reflects a set of logistics and infrastructure impediments that limited its ability to diversify its export base and markets. Evidence shows that proximity to large, high-income markets is associated with greater opportunities for technology transfer, export upgrading, and integration into global value chains (Behar and Freund 2011). Geography and landlockedness limit the scope of export growth and diversification by complicating logistics and increasing transportation costs. Much of Rwanda's international trade flows through Kenya and Tanzania, leading to high dependence on the Mombasa and Dar es Salaam corridors. This makes Rwanda vulnerable to external shocks (e.g., regional logistical bottlenecks or border closures) and leaves the country on the periphery of the global trade network. This reduces competitiveness relative to coastal economies and constrains export expansion beyond traditional products. Regional integration—through EAC and AfCFTA—offers an opportunity to mitigate these disadvantages by expanding market size and reducing non-tariff barriers.

17.   Partly owing to its geographic disadvantage, Rwanda ranks low in global logistics performance. Despite its landlocked status, its position in the global Logistics Performance Index (LPI) ranking improved from 151st in 2010 to 57th in 2018, placing it above the EAC and SSA averages, before declining to 73rd. Two LPI subcomponents primarily drove both the improvement and subsequent decline: timeliness (delivery of shipments within the expected timeframe) and international shipments (ease of arranging competitively priced international shipping). In terms of the cost of trading with neighboring countries, substantial progress was made up to 2010, largely due to a series of trade reforms (Box 2), but the momentum has since stalled (Figure 4).

18.   To fully realize its potential, Rwanda must further develop the skills required by exporters, manufacturers, and service industry. Diversification into higher value-added and more complex products requires a workforce with adaptable skills and technical capacity (Hausmann et al. 2007). While Rwanda has made important gains in education, it performs below SSA and EAC neighbors in terms of human capital (Figure 4). More investment is needed in secondary and tertiary enrollment, technical and vocational training, and STEM competencies. These shortfalls hinder the development of sectors such as ICT, agro-processing, and light manufacturing, and limit Rwanda's participation in global value chains. Addressing skills mismatches through targeted education reform and vocational training will be critical for supporting a more diversified export structure.

19.   Institutional quality is a key determinant of export diversification, as effective governance lowers uncertainty, fosters private investment, and ensures efficient resource allocation (Rodrik et al. 2004). Rwanda stands out in SSA for its strong governance indicators and ease of doing business, which have supported investment in tourism and services. Nonetheless, challenges remain in reducing the prominence of SOEs in competitive sectors, improving SOE governance, and ensuring a level playing field for private investment. Over the past few decades, SOEs have played a vital role in rebuilding Rwanda's economy and infrastructure, spurring growth, and delivering essential services. Going forward, their roles should be redefined to limit participation in competitive sectors, advance ongoing privatization, and leverage private finance through public–private partnerships where appropriate (IFC 2019). Deepening on financial sector development and sustaining reforms to regulatory quality will also help foster private sector–led diversification.

Figure 4. Rwanda and Neighboring Countries: Structural Factors: Weak Logistics and High Transport Costs

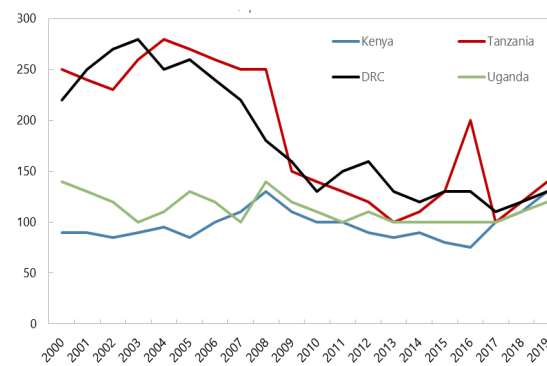**Logistic Performance Index (LPI)**

[Index range: 1 (lowest)-5 (highest)]
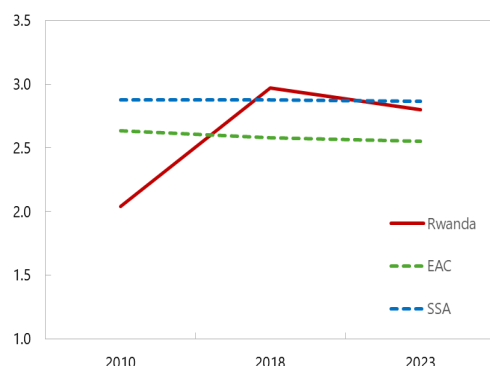
Source: World Bank Logistics Performance Index (LPI)

Rwanda's Trade Costs with its Neighbors
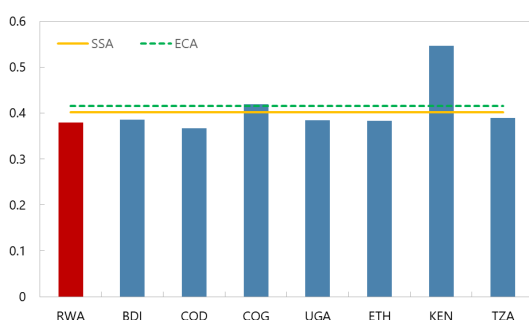
(Ad Valorem Trade Cost, percent)

Source: WB (2022) Rwanda Economic Update, January 2022

... along with low human capital and prominence of SOEs in competitive sector pause challenges to export growth and diversification.
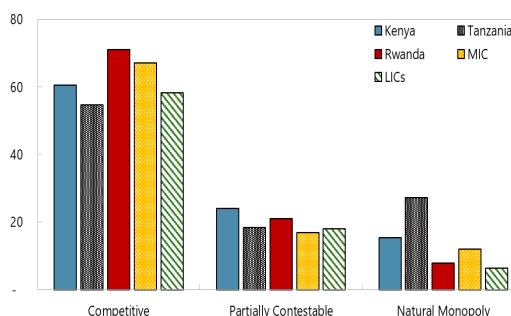
Human Capital Index, 2020

[Range: 0 (low) to 1 (high)]

Source: World Bank Development Indicators

SOEs by Sector

(Percent share of SOEs)

Source: World Bank Staff Elaboration Based on Businesses of State (BOS) database.

E.   Price Competitiveness

20.   Rwanda's external competitiveness has been supported by exchange rate dynamics and relative price adjustments. Since 2015, the nominal effective exchange rate (NEER) has depreciated steadily, reflecting policy efforts to maintain competitiveness and facilitate external adjustment. The real effective exchange rate (REER) has also trended downward, but to a lesser extent, as episodes of relatively high domestic inflation have partly offset gains from nominal depreciation (Figure 5).

Box 2. Selected Trade and Logistics Reforms in Rwanda		

Rwanda has implemented a series of strategic trade facilitation initiatives aimed at enhancing export competitiveness, reducing trade costs, and improving the efficiency of cross-border transactions. These efforts leverage digitization, infrastructure development, regulatory reforms, and regional cooperation to strengthen the country's integration into global and regional markets.

Initiative and Policy Area	Key Action / Mechanism	Measurable Impact on Trade
A. Digital Trade and E-Commerce	Rwanda Electronic Single Window (ReSW) centralizes all import/export document submissions.	Clearance time reduced from 11 days (2012) to 1.5 days (2014).
	e-Commerce Partnerships (e.g., Alibaba's eWTP) and digital infrastructure (e.g., Huawei).	Rwandan coffee sales volumes on Alibaba rose by seven folds. Facilitates virtual trade fairs and capacity building.
B. Cross-Border and Regional Infrastructure	One-Stop Border Posts (OSBPs), like the *Rusumo* OSBP (Rwanda-Tanzania).	Truck clearance time was cut to under 30 minutes at Rusumo.
	EAC Common External Tarriff (CET)	The EAC customs union reform of 2005 removed tariffs among member states and applying a tiered Common External Tariff to non-members: (i) 0 percent for raw materials and other essential inputs; (ii) 10 percent for semi-processed goods; (iii) 25 percent for most finished products; and (iv) 35 percent for specific products that are produced locally in sufficient quantities (introduced in 2022).[1]
	EAC Single Customs Territory (SCT) fully implemented in 2017.	Transit times from Dar es Salaam and Mombasa ports reduced significantly from 21 and 18 days to 7 and 4 days, respectively. Transport costs decreased from US$3,100 to US$1,025.[2]
	Inland dry Port Kigali Logistics Platform (KLP), a concession with Dubai Ports World.	Truck turnaround time reduced from about 2 weeks to 3 days.
	Air Cargo Hub development with Qatar Airways.	Critical infrastructure to boost air exports for high-value agriculture and horticulture (which comprise 50 percent of non-traditional exports).
	Inland Container Depots (ICDs) strategy (forward-looking)	ICDs in Tanzania/Kenya/Djibouti expected to further cut transit time and logistics costs at seaports for Rwanda's goods.[3]

[1] See details on the EAC CET: Customs Union.
[2] See details on the EAC SCT: Single Customs Territory.
[3] Anecdotal information gathered during consultation with trade authorities.

Box 2. Selected Trade and Logistics Reforms in Rwanda (concluded)		
Initiative and Policy Area	**Key Action / Mechanism**	**Measurable Impact on Trade**
C. Streamlining Regulations	Reduction of licensing and permits	Quality/safety licenses broadly extended from 2 to 5 years. Export licenses are no longer required.[4]
D. Business Environment and Incentives	The "one-stop shop" for private investment in Rwanda Development Board (RDB).	RDB is One Stop Shop, with 22 institutions consolidated to provide 440 services. These services include facilitation for participation in African Continental Free Trade Area (AfCFTA) and assistance with securing necessary approvals, certificates, and work permits.
	Rwanda Trade Portal (2017)	The Rwanda Trade Portal provides up-to-date trade regulations and a Simplification Dashboard for continuous reform tracking.[5]
	Business-friendly and multiple incentives for exports and priority sectors	Rwanda's World Bank Doing Business rank surged from 158th to 38th (2007–2020). Ranked No. 2 in Africa for Ease of Doing Business (after Mauritius). Key Strengths: High scores for ease of starting a business, accessing credit, paying taxes, and registering property. Offers a preferential CIT rate of 15 percent for companies exporting ≥50 percent of production or in priority sectors (0 percent for regional HQs). Provides 50 percent accelerated first-year depreciation and exemption from capital gains on assets sold. Enables duty-free imports of machinery and inputs within EAC.
E. Global Positioning	Liberal visa openness policy (since 2016) and African Union Protocols.	Rwanda has one of the most liberal visa regimes in Africa (leading Visa Openness index rank in 2023 and 2024), easing travel for business and promoting regional integration. Kigali ranked the 2nd most popular MICE destination in Africa (ICCA[6] ranking) 5 consecutive years.
	10 industrial parks and Special Economic Zones (SEZs)	e.g., Kigali SEZ provides firms with access to affordable, serviced land, reduced regulatory compliance costs, and enhanced trade facilitation measures.

[4] See details from the Ministry of Trade and Industry: Export and Quality Licenses.
[5] See the Trade Portal: Rwanda trade portal.
[6] International Congress and Convention Association (ICCA).

Sources: UNOSSC (2025), East African Community n.d., Discussions with authorities, Rwanda Trade Portal n.d., Twum (2022), ALN n.d., African Development Bank Group (2024), Steenbergen and Javorcik (2017) (ALN n.d.).

Figure 5. Rwanda and Neighboring Countries: Sustained Nominal and Real Depreciation Has Improved External Price Competitiveness
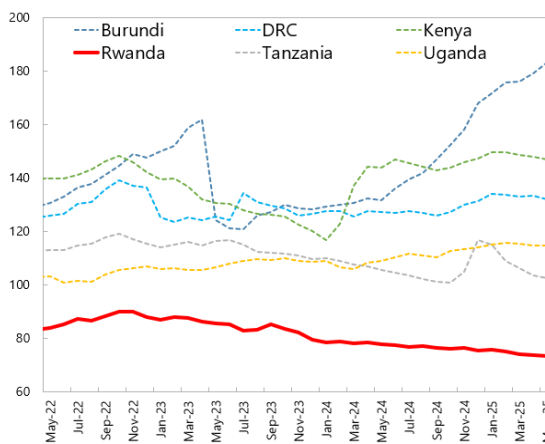
Nominal Effective Exchange Rate
（2010=100; decrease indicates depreciation）
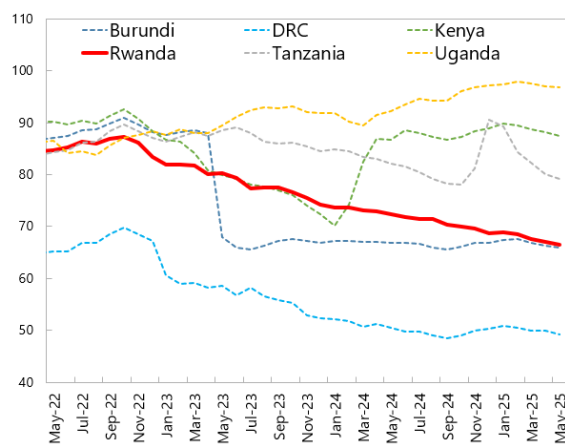
Real Effective Exchange Rate
（2010=100; decrease indicates depreciation）

Source: IMF STA Information Notice System (INS) Database.
Note: Series unavailable for South Sudan and Somalia.

21.   Despite recent REER depreciation, Rwanda's competitiveness remains impeded by structural factors. The IMF's External Balance Assessment (EBA-lite) suggests that Rwanda's REER is moderately undervalued relative to model-implied norms, consistent with a current account gap of about 3–5 percent of GDP (Annex V). These results highlight that while the exchange rate is broadly supportive of competitiveness, structural factors—such as high trade costs, limited export diversification, and quality gaps—remain the main impediments to external sustainability.

22.   Maintaining price competitiveness will require anchoring inflation close to target while allowing the exchange rate to act as a shock absorber. Given Rwanda's structural current account deficit, opportunistic sterilized foreign exchange purchases can help build reserves while mitigating the risk of exchange rate overshooting during large inflows. Over the medium term, further improvements in competitiveness will depend less on relative prices and more on structural reforms to expand and diversify the export base.

F. Policy Implications

23.   Overcoming impediments to export diversification and growth will require a comprehensive approach. Addressing the hard and soft obstacles entails investing in logistics and connectivity to reduce trading costs, tailoring education and training systems to address skills mismatches and meet skill demand as well as further strengthening institutions to encourage private sector–led export growth. These reforms are complementary to maintaining macroeconomic stability, which is essential for Rwanda to expand and upgrade its export base.

- Addressing logistics and infrastructure bottlenecks. The Government of Rwandan has been implementing various measures to improve logistics efficiency and ease cross-border trade,

including the introduction of Rwanda Electronic Single Window (ReSW), One-Stop Border Posts (OSBPs), EAC Single Customs Territory (SCT), Kigali Logistics Platform (KLP), and others. Despite these concerted efforts, high trade costs remain a central constraint to Rwanda's competitiveness. In the short- to medium-term, effective and relatively easier to implement measures could help ease logistics challenges: (i) the country has made progress in developing high-value, low-volume exports that leverage its air connectivity and skills base, and efforts to expand and deepen this focus should continue; (ii) the planned complementary investments in dry ports both in Tanzania and Kenya, along with customs modernization, will further enhance integration into regional and global value chains. In the long-term, completing strategic infrastructure projects such as the New Kigali International Airport and improving road and rail connectivity to the ports of Mombasa and Dar es Salaam would help reduce trading costs and broaden market access. (iii) connecting farmers to markets—though investment on storage, cold chains etc. to reduce post-harvest losses and increase their integration in the regional and global value chain; (iv) while internet coverage is high, improving digital literacy alongside increasing smartphone access is essential to fully benefit from digitized customs procedures and other digital services.

- Improving the business environment. A dynamic private sector is essential for export diversification. Key reforms include systematically reducing the role of the state in commercial activities, strengthening SOE governance, and ensuring a level playing field. Skills development and targeted investment in ICT are equally important to support both goods exports (e.g., agro-processing, light manufacturing) and services exports (e.g., ICT-enabled services, tourism), building capacity in areas such as product design, quality assurance, data analytics, and emerging technologies to foster higher value-added production and improve competitiveness across sectors. A concerted policy effort to support the sustainability of new firms and products is also essential to reduce high exit rates and ensure that entry translates into lasting export diversification, thereby sustaining Rwanda's efforts to broaden its export base.

- Capitalizing on regional integration. Regional integration can help ease Rwanda's geographic disadvantages. Deeper participation in EAC and the AfCFTA offers opportunities to expand market access, reduce non-tariff barriers, and attract FDI. Policies to improve trade facilitation, harmonize standards, and strengthen regional transport corridors would help Rwanda leverage these integration initiatives more effectively.

- Safeguarding and enhancing price competitiveness. Macroeconomic stability remains a prerequisite for external competitiveness. Maintaining inflation close to the center of the target band will help consolidate gains from nominal exchange rate depreciation. Exchange rate flexibility should continue to play a central role in absorbing shocks, supported by opportunistic sterilized FX purchases to build reserves. These measures need to be complemented by structural reforms that address underlying vulnerabilities, particularly high trade costs and the narrow export base.

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