



Rwanda's Economic
Transformation: A Sectoral
Analysis of Agriculture,
Industry, and Services (2011
& 2021)

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Foreword

This white paper, Rwanda's Economic Transformation: A Sectoral Analysis of Agriculture, Industry, and Services (2011 & 2021), aims to give insight into the path Rwanda has travelled and the opportunities that lie ahead.

Hiedberg is home to an ecosystem of brands whose overarching mission is to partner with organizations and companies to facilitate innovation and operational efficiencies. In light of our mission, we are committed to empowering stakeholders in Rwanda as they embrace this pivotal journey of economic transformation.

Rwanda's transformative journey toward economic development is one worth examining, with agriculture, industry, and services standing out as its major sectors. Every so often, different sectors have played a specific role in the national development trajectory, one that speaks to the resilience, innovativeness, and sustainable development ethos that is synonymous with Rwanda. By leveraging data to assess trends and growth over the past decade between 2011 and 2021, this white paper, Rwanda's Economic Transformation: A Sectoral Analysis of Agriculture, Industry, and Services (2011 & 2021), aims to give insight into the path Rwanda has travelled and the opportunities that lie ahead.

This analysis forms the basis for our commitment to support stakeholders in Rwanda as they explore opportunities for inclusive growth while responding to ongoing challenges. Highlighting these strengths and needs with these sectors, this document gives stakeholders the actionable insights needed to guide policy decisions, inform investments, and support the long-term goals.

Thank you for engaging with our work. We look forward to contributing to Rwanda's continued progress and collaborating with all stakeholders to realize a sustainable and prosperous future.

Best Regards,

Miriam MacCarthy

CEO, Hiedberg

Notes

SAM	Social Accounting Matrix
Country	Rwanda
Years	2011 & 2021
Units	Millions FRW



Introduction

The economic landscape of Rwanda has changed a lot in the past decade, with great shifts in agriculture, industry, and services.

Agriculture

The agriculture sector in Rwanda is a pillar of the country's economy, providing livelihoods for most of the population. It consists of crop farming, livestock rearing, and horticulture. Key commodities include coffee and tea, which are Rwanda's top export earners due to their high quality and global demand. Other significant products are pyrethrum, a natural insecticide; maize, beans, and rice, which serve as staple foods; and horticultural crops like fruits, vegetables, and flowers. The livestock sector contributes through dairy, meat, and hides. This diverse production base underpins Rwanda's food security, rural employment, and export revenue.

Industry

The industry sector includes construction, manufacturing, mining, and energy production. Construction is also an important sector of large-scale infrastructure projects like roads, housing, and commercial buildings influencing the country's development. In manufacturing, processing products such as meat, fish, and dairy products as well as beverages, textiles, and furniture are key outputs. A large part of disbursement comes from mining activity — specifically when it comes to extractive industries for minerals like tin, tungsten, or tantalum. The energy sector is developing, and one sector taking advantage of this situation is electricity generation and renewably sourced energy, such as hydropower. These industries collectively drive Rwanda's economic growth by producing goods and services for both domestic use and export.

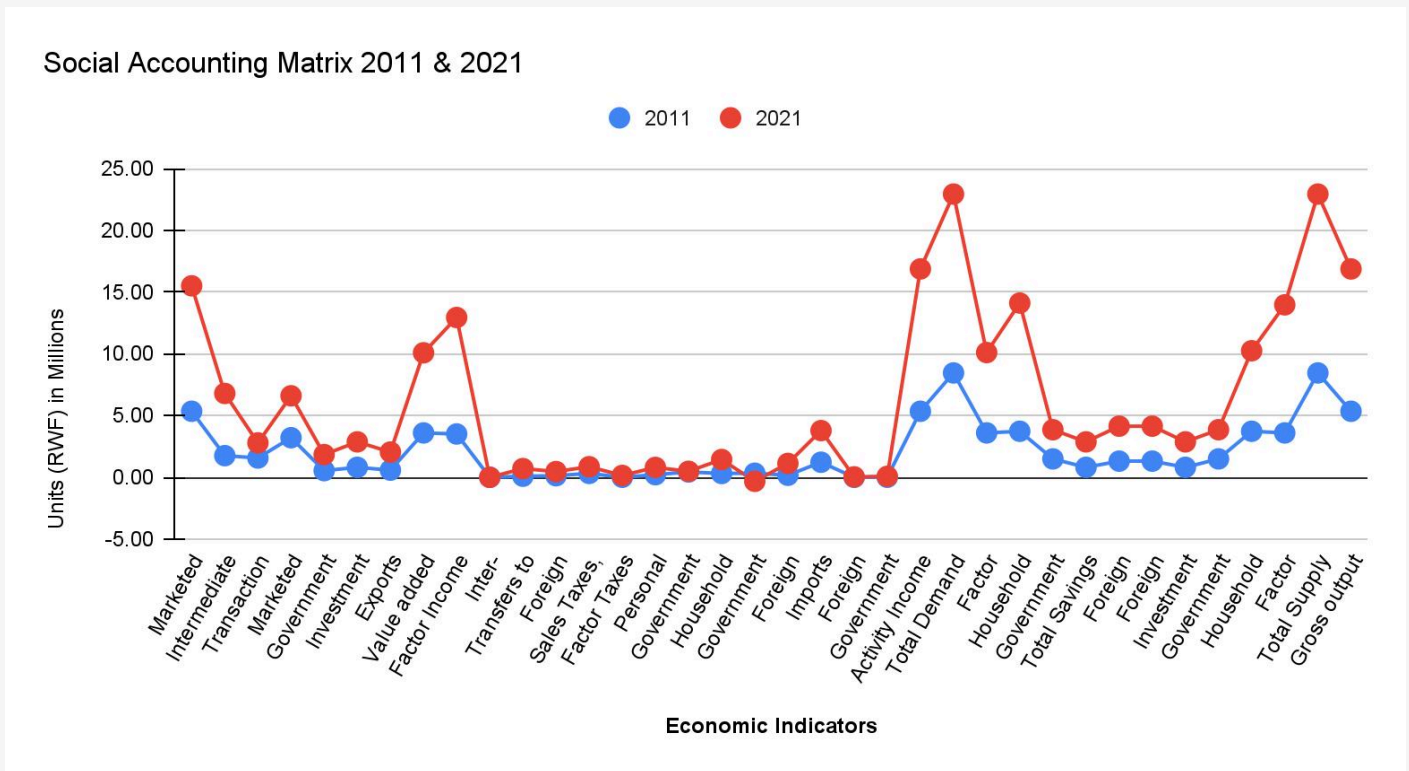
Services,

The service sector includes many industries like tourism, finance, telecommunications, trade, education, healthcare, and transport. It adds significantly to the country's GDP, supported by infrastructure investments and digital improvement. The financial sector is seeing remarkable advancement, led by the emergence of innovative services like mobile banking and fintech solutions. These developments promote financial inclusion by supplying formerly underserved populations with a gateway to vital financial services, thereby championing greater economic empowerment and participation in the global economy.

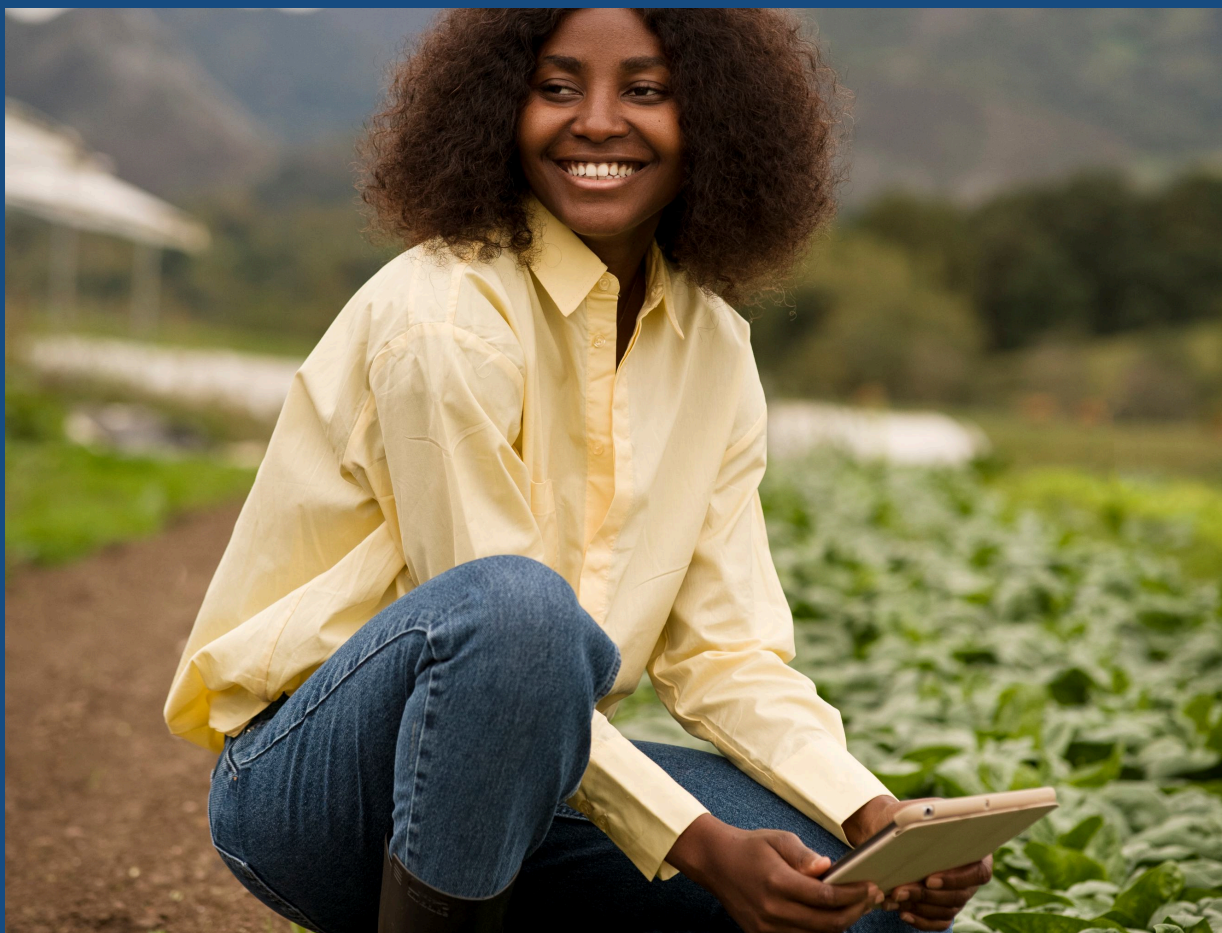
Moreover, Rwanda's ICT sector, known as the "Silicon Valley of Africa," is growing quickly, encouraging new digital

services. Trade and logistics are important too, due to the country's prime location as a hub in East Africa. Together, these services improve Rwanda's image as a place for investment and a model for sustainable growth in the area. This paper looks at the growth, trade balance, and value addition in Rwanda's main economic sectors, giving insights into policy and investment choices. By focusing on data from the 2011 and 2021 Social Accounting Matrix (SAM) for Rwanda, this paper reviews trends in agriculture, industry, and services, providing a comparison of their roles in Rwanda's economic growth

Key findings reveal that while the services and industry sectors have grown rapidly over the decade agriculture remains foundational for domestic stability and trade, underscoring its enduring importance in Rwanda's economic evolution.



The line chart indicates the key economic indicators extracted from the Social Accounting Matrix For Rwanda in 2011 and 2021, highlighting the country's economic transformation over the decade. The chart reveals significant insights across multiple economic indicators, including marketed output, government consumption, exports, and household income, reflecting the robust expansion of economic activities. Notably, the sharp increase in value-added output and household expenditure underscores the rising economic productivity and improved living standards. The trends also capture shifts in savings, imports, and government income, offering a comprehensive view of the structural changes driving Rwanda's economic development.



Agriculture (2011 vs. 2021)

Agriculture is a cornerstone of Rwanda's economy, employing approximately 64.5% of the population and contributing around 25% to the national GDP

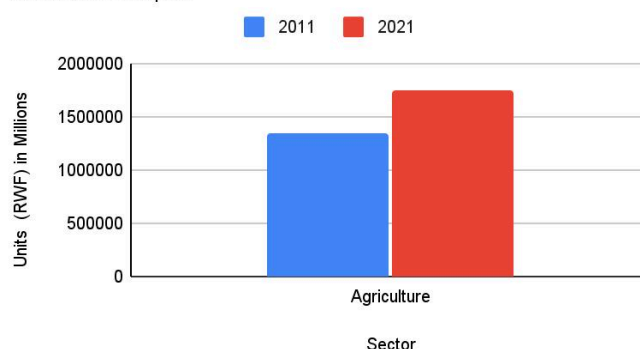
.Smallholder farmers, who make up 83.1% of agricultural production, are pivotal to the sector. Major exports, including coffee, tea, livestock products, and horticulture, generate significant foreign exchange earnings. About 61% of Rwandan soil is suitable for agriculture due to fertility, and the government has actively invested in infrastructure, productivity, resilience, market inclusivity, value addition, and innovation to foster growth within the sector. Key investment opportunities include dairy, poultry, meat processing, horticulture, aquaculture, mechanization, crop sourcing, blockchain, agro-tourism, manufacturing of irrigation equipment, and cold chain logistics. To fully grasp the current state of Rwanda's agricultural sector, it is essential to analyze its transformation over the past decade. By comparing key metrics from 2011 and 2021, we can uncover the sector's progress and challenges providing valuable insights into its role in Rwanda's broader economic landscape.

Marketed Output

Agricultural output increased from 1,350,486 RWF in 2011 to 1,749,725 RWF in 2021. This represents consistent growth in agricultural output but not as fast as the development in the other sectors. That implies that agriculture was significant but did not grow as aggressively as Industry or Services. This is due to a structural transformation, a kind of a sectoral shift, whereby the different factors of production, be it labor, capital, etc., are reallocated to higher productivity sectors like industry and services. The significant increase in value-added for industry and services highlights this shift. Value-added in industry expanded by 233.7% and for services it was 250.4% during the same period. These proportions have increased significantly compared to the growth of agriculture, i.e. 116.9% growth. Exports and trade data provide additional evidence that manufacturing and services have become much more

competitive on a global scale, helping to propel their faster growth. That those dynamics are taking place is a sign of structural transformation, in which resources have shifted to more productive sectors, transforming the economy over the past decade.

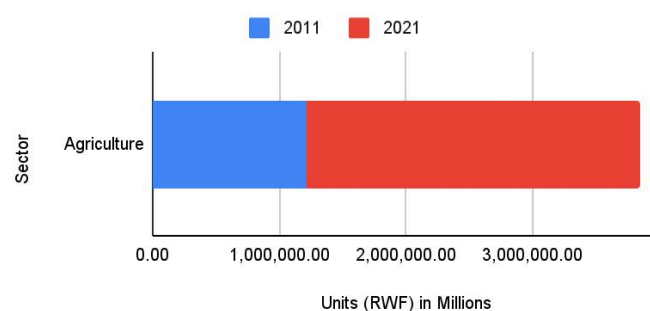
Marketed Output



Value Added

Agriculture more than doubled from 1,212,574 RWF to 2,630,980 RWF. This 116.9% growth for the decade is a consequence of gains in productivity, improved infrastructure, and international markets for the sector. An increase in marketed output points to better production efficiency and better access to markets. Agriculture exports further rose, demonstrating the sector's greater integration into global markets. All these factors contributed in aggregate to the growth of agriculture-sector Value-added.

Value Added



Balance of Trade

Agricultural exports grew substantially from 30,551 RWF in 2011 to 241,250 RWF in 2021, while imports increased only modestly from 38,986 RWF to 47,580 RWF. This shift resulted in a positive trade balance of 193,670 RWF in 2021, a significant improvement from the trade deficit recorded in 2011. The growing competitiveness of Rwanda's agricultural products in international markets can be attributed to enhanced production efficiency, better infrastructure, and policies promoting export growth. Quality-focused trade regulations and investments in exportable crops like coffee and tea further supported this trend. Additionally, the increase in the sector's added value, which more than doubled, highlights improvements in agriculture productivity and the capacity to meet export demands.

Specific Observations

The agricultural sector has solidified its role as a critical pillar of Rwanda's economy, contributing significantly to domestic stability and export growth. The rise in home consumption highlights efforts toward achieving food security and reliance on local production, while the significant expansion in exports underscores improved productivity and competitiveness in international markets. On the other hand, the decrease in marketed consumption could highlight a shift in market dynamics, which may need consideration regarding accessibility, demand trends, or pricing mechanisms. Sales taxes (growing) and import tariffs also indicate new fiscal contributions; investment in stock management is evidence of increasing storage and inventory capacity, which facilitates potential long-term sustainability. These trends highlight how far the sector has come and showcase opportunities for additional growth for continued success.

The Role of Technology and Data In the Agricultural Sector

Data and technology have played a pivotal role in the development of Rwanda's agriculture sector. Digital soil mapping, smart irrigation systems, and mechanization have improved productivity and efficiency throughout the sector. Farmers having these technologies at their disposal can use their lands more efficiently, produce higher yields, and minimize post-harvest losses, all of which are directly related to the rising marketed output and agro-based exports. The Rwandan government's incorporation of data-driven policies such as targeting export-oriented production, has also accelerated this downtrend by broadening access to foreign markets. Public-private partnerships have also contributed in closing the gap between innovation and implementation, especially for smallholder farmers. These initiatives are closely linked to the 116.9% increase in agricultural value added between 2011 and 2021 as well as the increase in agricultural exports from 30,551RWF in 2011 to 241,250RWF in 2021. Moreover, engaging youth in mechanization and modern farming techniques has ensured the sustainability of these advancements.





Industry (2011 vs. 2021)

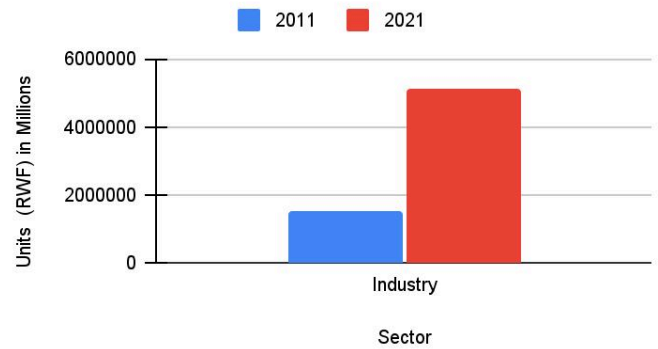
Rwanda's industrial sector, which includes mining, construction, manufacturing, and water and electricity industries, contributed approximately 21 percent to the nation's GDP and employed 19 percent of the population in 2021

Rwanda's industrial sector, which includes mining, construction, manufacturing, and water and electricity industries, contributed approximately 21 percent to the nation's GDP and employed 19 percent of the population in 2021. This sector plays a pivotal role in Rwanda's economic development, reflecting the country's focus on infrastructure and industrialization. Rwanda's Import Dependence and Current Account Deficits: Despite being one of the fastest growing economies, Rwanda's current account deficits still persist, due to its high reliance on the importation of goods. The most important imported goods in 2021 were electrical machinery and parts, electronic equipment, construction materials, and energy products. China, Tanzania, Kenya, India, and the United Arab Emirates are among Rwanda's main trading partners. To understand the development and contribution of the industrial sector in Rwanda, it is imperative to consider its performance as at 2011 with that of 2021.

Marketed Output

Industrial output showed a significant jump, from 1,530,074 RWF in 2011 to 5,105,522 RWF in 2021. This is the largest growth in marketed output among all sectors, signaling rapid industrialization and production capacity expansion. As marketed output is closely linked to economic activity, the industrial sector's increased output highlights its growing contribution to Rwanda's GDP and economic transformation.

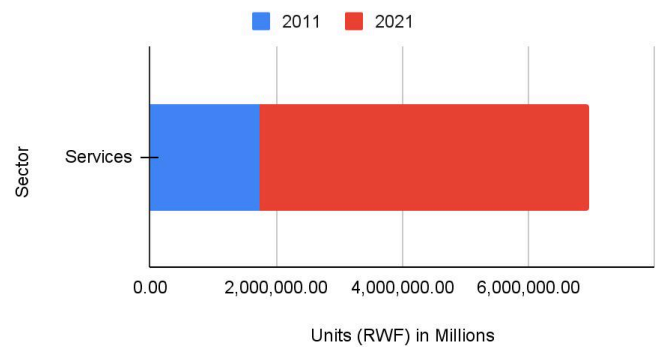
Marketed Output



Value Added

Value added in Industry more than tripled, rising from 650,517 RWF to 2,228,011 RWF, showing significant growth in industrial productivity and contribution to the economy. The increase in value added in Rwanda's industrial sector can be directly linked to the rise in imported machinery, equipment, and vehicles. The imports are important as they help in boosting industrial production. The rise in the import of these goods also plays an essential role in value-added growth in the industrial sector, which enables industries to produce more efficiently with more value added.

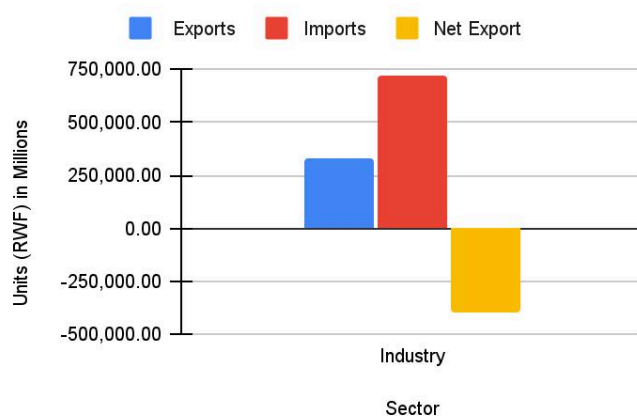
Value Added



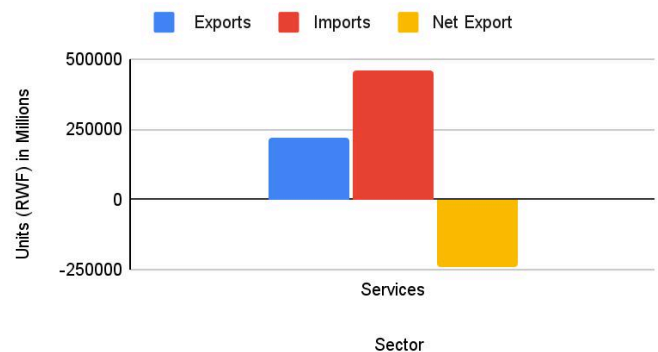
Balance of Trade

Industry had a substantial trade deficit in both years, but this worsened in 2021. Exports grew from 327,913 RWF to 1,152,550 RWF, while imports jumped from 724,308 RWF to 3,136,714 RWF, resulting in a negative trade balance of -1,984,164 RWF in 2021. This indicates a high dependency on imported goods, raw materials, or production inputs despite the sector's growing output. This import dependency can be attributed to a few factors, including limited local production capabilities, the need for advanced technology and equipment, and global supply chain integration. As a result, although export growth shows an increase in the sector's output, the high import levels exacerbate the trade imbalance, hindering the sector's progress toward self-sufficiency and increasing its vulnerability to global market fluctuations.

Trade Balance 2011



Trade Balance 2011



Intermediate Inputs

Intermediate input needs in the Industry increased by 668 161 RWF in 2011 to 4 091 790 RWF in 2021. This is consistent with the large output rise and suggests a more complex production chain needing a higher volume of inputs. Since industries derive revenues by providing intermediate inputs both at domestic and international levels, significant increases in industry output (value added) lead to a reasonable increase in demand for intermediate inputs as well. More complex production processes often require a variety of raw materials and semi-finished goods. Also, the growing diversification of Rwanda's industrial sector in areas like agro-processing, construction materials, and manufacturing, requires a more diverse set of inputs. The growth in industries such as cement, chemicals, and food processing, for example, drives demand for specific raw materials.

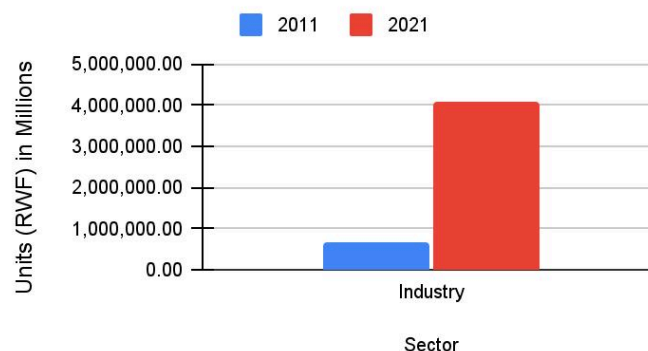
Investment Change in Stock

Industry saw a large increase in investment, from 807,749 RWF in 2011 to 2,861,040 RWF in 2021. This demonstrates significant capital investment and expansion within the industrial sector. This can be attributed to government initiatives such as the Rwanda Industrial Policy of 2011. This policy will focus on productivity growth and industry restructuring through infrastructure development and initiatives such as the Kigali Special Economic Zone, which drew large amounts of FDI. Such a policy also facilitated the structural transformation of the economy in favor of higher productivity firms and emphasized investments in manufacturing and construction.

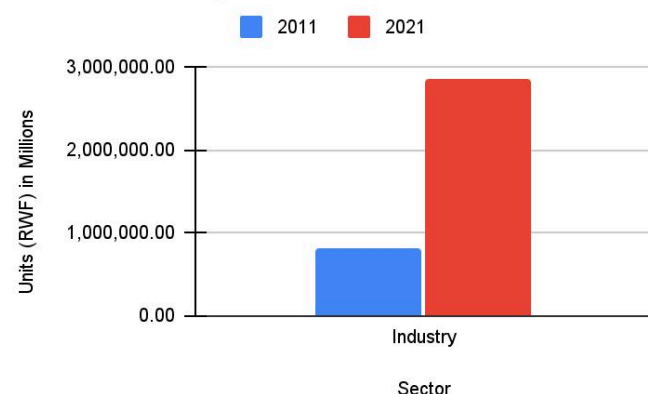
Specific Observations

The industrial sector has played a vital role in Rwanda's economic transformation, significantly boosting its contribution to GDP, investment inflows, and export growth between 2011 and 2021. The sector's increased production and competitiveness have enhanced foreign exchange earnings, created job opportunities, and spurred urbanization and improved household incomes. It can be seen from the increase in marketed output and value-added figures that there has been diversification and growth in the main sectors such as construction, manufacturing and processing. But the sector has some problems such as input sourcing from imports and the increase in the cost of production which call for means to enhance local competence and efficiency. Overcoming these sorts of challenges is an important condition for maintaining the growth rate and attaining the level of industrial self-sufficiency.

Intermediate Input



Investment Change in Stock



The Role of Technology and Data In Industry Sector

Technology and data have significantly contributed to the industrial growth seen in Rwanda over the past decade, aligning with the tripling of value added in the sector in 2021. Technological innovations such as horizontal integration of ICT, digital manufacturing systems and automation have expanded and streamlined production processes, contributing to the increased output of the sector and greater input of intermediate inputs. Moreover, the data-based approaches for integrating the value chain and the processes of operational management have complemented the huge amount of investment that has been made. But not only has this technological and infrastructural development enabled higher levels of industrial productivity, it has also aided in the fulfilment of Rwanda's wider structural transformation agenda particularly in the vision 2020 and the setting up of technological hubs.



Service (2011 vs. 2021)

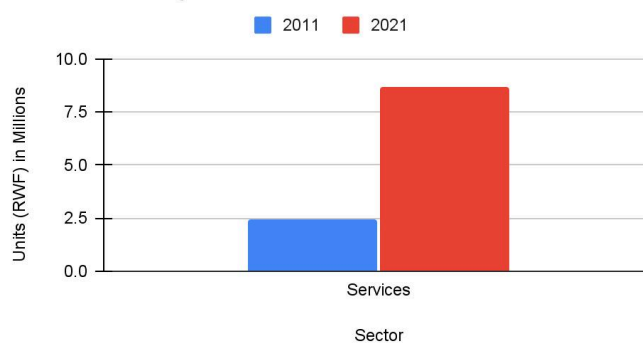
Rwanda's service sector is a key pillar of its economy, contributing over 50% of GDP and offering significant employment opportunities.

Key industries include tourism, boosted by attractions like mountain gorillas and sustainable eco-tourism initiatives; ICT, with Kigali emerging as a regional tech hub; and financial services, driven by digital innovation and financial inclusion. The government helps growth with policies such as Vision 2050, investment incentives and a business friendly environment. Although there are hurdles such as shortage of skilled labour and regional rivalry, the e-commerce potential, green tourism and regional trade integration are likely to boost the growth of the sector and its value addition to the economy. In this analysis, data from the service sector from the years 2011 and 2021 will be compared to give a better understanding of the evolution of the sector during these periods.

Marketed Output

The Services sector recorded the largest increase in output over the ten years period (from 2,468,596 RWF in 2011 to 8,651,464 RWF in 2021). This is emblematic of the growing role of services in the economy. The substantial rise in Rwanda's service sector linked to increased marketed consumption shows growing demand for service provision in different sub sectors, namely Wholesale and retail trade, Transportation and hospitality. Increasing Investment in both Infrastructure, Especially ICT and Transport Network Enhanced Access to Markets and Service Delivery. Also increased private sector participation and foreign direct investment in areas like tourism and professional services further increased service output.

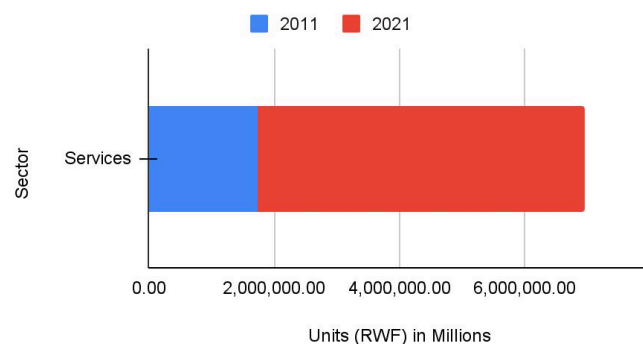
Marketed Output



Value Added

The Services sector increased significantly in added value, steeply rising from 1,731,810 RWF in 2011 to 5,224,499 RWF in 2021. This indicates tremendous change in the sector: it has turned into the most essential engine of economic performance in Rwanda. Factors driving this growth include advancement in Financial services, ICT, tourism and hospitality, professional services, as well as trade, transport and education and health services, reflecting Rwanda's strategic focus on modernizing and diversifying its economy.

Value Added

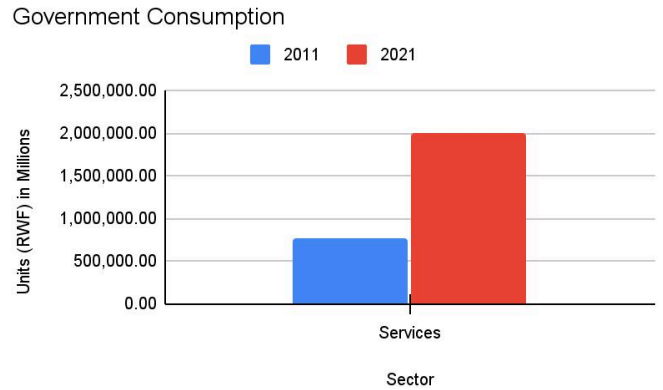


Balance of Trade

The trade balance in services improved modestly from a negative balance in 2011 to a positive balance of 52,707 RWF in 2021. Exports rose from 221,820 RWF to 651,890 RWF, while imports increased from 459,009 RWF to 599,183 RWF. Although imports are still higher, the gap has narrowed, reflecting increased competitiveness of service exports. Key service exports driving this growth include transportation and storage services, information and communications services and public administration-related services, which have significantly bolstered Rwanda's position in regional and international trade.

Government Consumption

The highest portion of government consumption belonged to the Services sector, resulting from an increase involving the consumption of government services from 539,309 RWF in 2011 to 1,839,110 RWF in 2021. It implies that possibly the public sector is using these services in areas such as education, health, and administration. The increase reflects the efforts that the government is making in improving their social infrastructures and service delivery; this is very significant for long-term developments across Rwanda.



Specific Observations

The data highlights the significant growth of Rwanda's service sector from 2011 to 2021, cementing its role as a key driver of the economy. The sector's marketed output more than tripled, reflecting substantial expansion across various services industries. Similarly, the value-added increased, showcasing its contribution to GDP growth.

Such observations of marketing are significant since they show an increase domestically in demand especially services, together with the increase in consumption the government was supposed to reflect over-reliance of the public sector on services. There was also an increase in exports demonstrating the growing competitiveness of Rwanda's service sector in international markets; however, imports also increased which indicates an overdependence on service providers abroad in some areas.

The high intermediate input of this sector points to increasing reliance on upper streams to sustain services. At the same time, the relatively low exports to marketed output indicate possible underutilization of Rwanda's chances to exploit further the services sector globally. The services subsector thus provides a much-needed impetus in the creation of jobs, generating income for the populace, as well as economic diversification for the case of Rwanda as it propels the economy on an onward march towards a classification of service economy.

The Role of Technology and Data In Service Sector

Hugely transforming forces on the service sector in Rwanda are technology and data. They brought about efficiency, development, and competitiveness at a global level. Advances that occurred in the financial services area are mainly through the mobilization of banking and digital payments for better efficiency and applicability of financial inclusion for the public. The growing ICT service also caused spreading investment in critical digital infrastructure to make Rwanda a regional focal point for the technology industry and innovations in e-commerce, telemedicine, and e-learning. The integration of data analytics into public administration and healthcare, where electronic medical records and predictive models enhance service delivery. Technology has simplified the booking systems and personalized experiences in tourism while using digital tools to optimize logistics for transport services. The use of technology and data consequently improves and widens the services offered and positions Rwanda better in the regional and global markets.

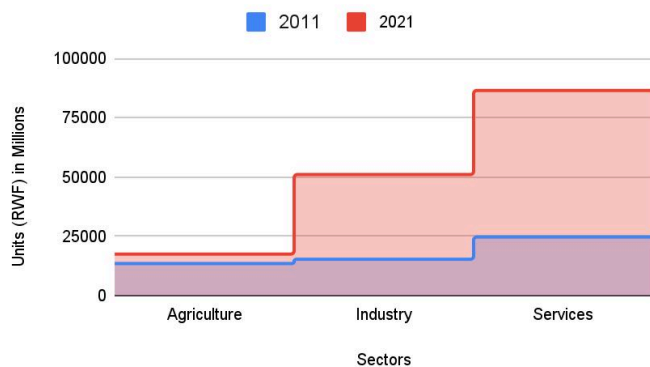


Overall Sectoral Observations (2011 vs. 2021)

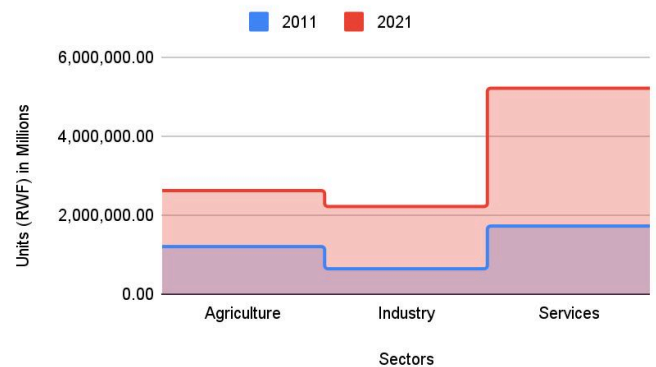
Overall Economic Growth

All three sectors recorded substantial growth in marketed output and value added, with the service sector leading in absolute terms and the industry sector showing the highest proportional growth. This aligns with Rwanda's economic diversification efforts.

Marketed Output



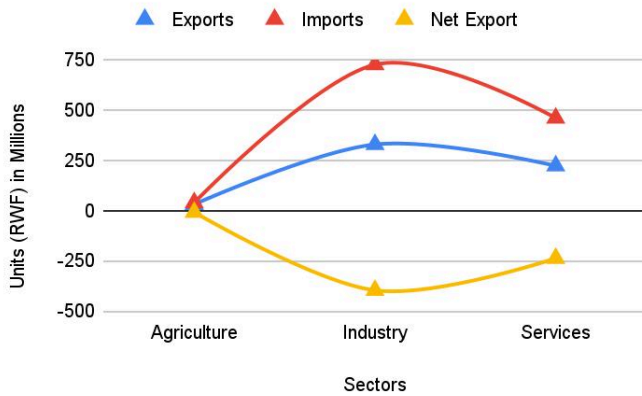
Value Added



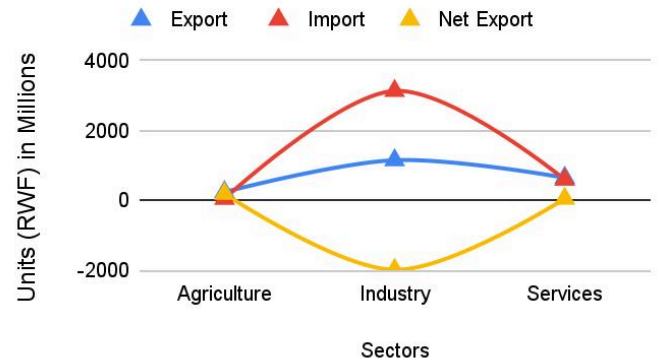
Export Expansion

Exports increased across all sectors, particularly in agriculture and industry, highlighting Rwanda's progress in integrating into global trade networks.

Balance of Trade 2011



Balance of Trade 2021



Domestic Consumption

The rise in home consumption in agriculture and services reflects improved self-reliance and the ability to meet domestic demand.

Sectoral Shifts

There has been an obvious shift towards Industry and Services as the primary drivers of economic growth and agriculture has grown less. The strength of this change reflects structural changes toward an economy of industries and services.

Conclusion

In summary, between the years 2011 and 2021, the economy of Rwanda has significantly transformed. Though the services sector remains the mainstay of the economy, the industry sector has emerged as a new vibrant area of growth. Agriculture, even though a traditional backbone, continues serving as a very strong foundation, mainly for exports and domestic consumption. All these trends are indications of the advancement made by Rwanda in terms of economic diversification, increased productivity, and global market integration.

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