



Centre for Affordable
Housing Finance
in Africa

COMPARING HOUSING ECONOMIC VALUE CHAINS IN FOUR AFRICAN COUNTRIES

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HOUSING AND THE
ECONOMY

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Abstract

Understanding how developing economies build housing, and how housing contributes to the growth of developing economies, is a key requirement for implementing evidence-based economic, housing and housing finance policy. Yet, in many developing nations, insufficient macroeconomic and housing sector data exists to quantify how, where and to what extent housing influences economic growth.

This paper outlines the findings from a pioneering methodology developed by the Centre for Affordable Housing Finance in Africa (CAHF) that has been used to describe, quantify and compare the impact of housing on the economies of South Africa, Rwanda, Kenya and Nigeria. This paper analyses the impact that housing construction and housing rental have on developing economies, and which sectors of the national economy are most impacted by these activities. The relative roles of formal and informal housing markets are also considered in the analytical framework. Specific reference is made to the findings for South Africa, Rwanda, Nigeria and Kenya.

An economic value chain framework is used to quantify the direct impact of the construction and rental of housing on the gross domestic product of these countries. The Housing Economic Value Chain (HEVC) analysis quantifies intermediate inputs into housing construction and rental from 'upstream' primary, secondary and tertiary economic sectors, and disaggregates this into Standard Industry Classification (SIC) sectors. Further, the value-added components of residential construction and rental (labour remuneration, gross operating surplus and net indirect taxes less subsidies) are quantified.

The HEVC methodology uses the best available economic and socioeconomic data for each country and is adapted through applying proxy data or assumptions where sufficient, accurate data does not yet exist. An important outcome of this study is to illustrate to policy-makers the importance of collating and analysing relevant economic and housing data for diagnostic purposes. The HEVC findings highlight the importance of housing as a contributor to gross fixed capital formation, show its catalytic role as both a secondary and tertiary domestic market stimulant, and illustrate the comparatively high value-added and employment creation potential of housing.

The HEVC methodology also helps to build a shared understanding between economic and housing specialists. The HEVC outcomes can therefore inform the development of more nuanced economic, housing and housing finance policy focused on further stimulating economic growth and housing provision. To date, these HEVC analyses have formed the basis for policy discussions with national treasuries, central banks, human settlements departments, financial intermediaries and private sector financial institutions. At the core of these interactions is the principle that a more efficient housing-economy nexus improves the potential for every household to secure adequate housing whether through formal or informal processes, and that all housing activity ultimately contributes to national economic well-being.

Based on the success of the country studies completed to date, this methodology will be extended to include Cote D'Ivoire in 2019 and is also being applied to analyse the economic impacts of South Africa's subsidised housing value chain.

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Glossary

Domestic production: The production of goods within a particular geographic area – whether for consumption in that area, or for export.

Domestic supply: The supply of goods and services for consumption within a country's borders - regardless of whether those products were produced locally or imported.

Economic value chain: An interlinked set of value-adding activities that convert inputs into outputs in the process of producing both intermediate inputs for use within other economic value chains, and final products.

Factor income: Income received from the different factors of production, including land (rent), labour (wages) and capital (profit).

Final demand: The total value of goods and services that are purchased in their final form in an economy in a given period. In national accounts terms, this includes products that are consumed by households and by government, capital goods that form part of gross capital formation, and products that are exported.

Full-time equivalent employment: The hours worked by a "typical" full-time employee in a particular sector or industry in a given period (day/week/month/year). The concept is used to convert the hours worked by part-time employees into the hours worked by full-time employees. For example, if a particular industry sector currently operates on a basis where full-time employees work 40 hours per week, and three people are employed on a part-time or casual basis to work 20 hours per week, their labour collectively represents 1.5 full-time equivalent employment opportunities.

Government consumption: Government expenditure used for the purchase of final goods and services. This excludes government expenditure on capital assets, which are accounted for under gross fixed capital formation.

Gross domestic product (GDP): The value of all goods and services produced within a particular geographic area (usually a country) within a particular period. It can be measured in three ways: i) as the sum of all factor incomes (labour remuneration, interest, rent and profits) earned within the defined geographic area (the income method); ii) as the value added in each sector of the economy (the production method); and iii) as expenditure on goods and services in their final form (the expenditure method). The first two methods measure the value of aggregate supply in the economy, while the third measures aggregate demand. Differences in the valuation of each method arise because of the levying of indirect taxes and subsidies at different stages of the production process, and at the final point of sale. The expenditure method is usually valued at market prices and takes account of all indirect taxes and subsidies. The production method is usually valued at basic prices and includes only indirect taxes and subsidies on production processes.

Gross fixed capital formation (GFCF): The expenditure on capital assets (buildings, civil works, machinery and equipment, transport equipment, computer and telecommunications equipment, research and development, computer software, mineral exploration, cultivated biological resources that yield repeat products - such as vineyards and orchards) - and transfer costs. It does not account for the consumption (depreciation) of fixed capital, and also does not include land purchases. The value of housing construction in a particular period (adjusted for work on hand at the start of the period) is included in GFCF.

Gross operating surplus (GOS): Represents the aggregate of returns to land (rent), capital (interest) and entrepreneurial endeavours (profits). This is often referred to generically as 'returns to capital'. It reflects that part of the value added by a company that is not attributable to labour.

Gross value added (GVA): Represents the payments (returns) made to the owners of the different factors of production (labour, land, capital and entrepreneurship) by a producer of goods and services in a particular period. It reflects the difference between the sales/income of the producer and the payments made to third-party suppliers of intermediate goods and services.

Highly skilled employment: Employment requiring a high level of skill, often at a senior management or professionally certified level.

Household consumption: Expenditure on final goods and services by households, or on behalf of households. The purchase of these goods and services may be facilitated by the factor incomes of the households themselves (earned income), or from transfers and subsidies from government or individuals outside the household unit (unearned income).

Imports and Exports: An import is a good or service brought into a country from another country. An export is a good or service taken from a country to another. These imports and exports may be in either a final, or intermediate form. For simplicity, we consider houses themselves to be supplied and demanded only within the domestic market, albeit that small numbers of prefabricated houses may be exported or imported.

Imputed rent: Represents the opportunity cost of owning and living in a property. Choosing to occupy a property that you own means that any rent that could have been earned on that property is foregone. According to the OECD,¹ "Imputed rents are defined as rental equivalents – that is, the estimated rent that a tenant would pay for identical accommodation let unfurnished, taking into consideration factors such as the type of dwelling (single-family or multi-family), its size (useable surface, number of rooms), its facilities (running water, indoor toilet and bathroom, electricity, central heating, etc.), its location (city centre, suburban or rural) and neighbourhood amenities." Failure to take account of imputed rents in the national accounts makes it difficult to compare the GDP of countries with significantly different levels of private home ownership, and - in the case of a single country with rapidly changing home ownership patterns – to compared GDP from one period to the next. For this reason the rental equivalent value of owner-occupied dwellings are imputed and the GDP of the country (and its components) is adjusted accordingly. Methods of determining the imputed rent vary depending on the nature and extent of the rental market in that country and the data available.

Informal employment: The informal sector or informal economy represents that part of the total economic activity that is not registered with, and directly monitored by, relevant government departments and agencies and not directly taxed (it will typically be subject to at least some forms of indirect taxation such as value added tax). Informal employment relates to all people deriving income from this informal activity. Because of its prevalence, most countries include some estimates of the economic contribution of the informal sector in the construction of their national accounts.

Intermediate demand: Demand for a product that undergoes further transformation through value adding activities during a production process. The output of a particular sector or industry can be used to satisfy either intermediate demand from other sectors and industries, or final demand.

Intermediate inputs: Goods and services that are inputs into a production process and that undergo further transformation as a result of value-added activities during the production process. For example, bricks, sand and cement are just some of the intermediate inputs that are used in the process of producing a house by the construction sector.

Labour: Economic measure of work done by human beings. Labour is a factor of production that is remunerated by wages and salaries that constitute one possible source of income for households.

Multiplier effect: a multiplier is an economic factor that, when increased or changed, causes increases or changes in other related economic variables. In terms of gross domestic product, the multiplier effect causes gains in total economic output that are greater than the change in spending that caused it.

National Accounts: National accounts or national account systems (NAS) are the implementation of complete and consistent accounting techniques for measuring the economic activity of a nation.

Net Indirect Taxes: The value of indirect taxes paid, less any subsidies received, by an economic actor. An indirect tax may be levied on part of a production process (such as a skills levy on labour remuneration) or on a product (such as an excise duty or value added tax). Indirect taxes are distinguished from direct taxes (such as corporate tax or personal income tax).

Primary sector: Those sectors of the economy related to primary industries including agriculture, forestry, fishing and mining and quarrying. They are often referred to as extractive industries because they extract resources and products from the environment. These extracted products may be "renewable" or "repeatable" - as in the case of sustainable agriculture and fishing - or "non-renewable" - such as metals and minerals extracted by mining and quarrying.

Secondary sector: Those sectors of the economy related to secondary industries including manufacturing, electricity, gas and water and construction works of finished goods and services.

Semi- and unskilled employment: Employment requiring less skills than skilled employment.

¹ OECD/Eurostat (2012), "Housing", in Eurostat-OECD Methodological Manual on Purchasing Power Parities, OECD Publishing. Page 138.

Skilled employment: Employment requiring a special skill, training, knowledge, and (usually acquired) ability to be productive. Organisationally, skilled employment typically includes artisans, supervisors and lower levels of management.

Tertiary sector: Those sectors of the economy that produce and sell a wide range of services including wholesale and retail trade, transport, storage and communication, financial, insurance, professional business advisory, and community and personal services. Because of this the tertiary sector is often referred to as the services sector.

1. Introduction

This study analyses how developing economies build housing, and how housing builds developing economies. It explores the role of housing in the economies of developing countries and quantifies and explains the inputs, processes and outputs of housing economic value chains in South Africa, Kenya, Nigeria and Rwanda. The HEVC methodology was piloted in South Africa in 2016 and has – where necessary - been adapted to describe the housing economic value chains in a number of other African countries including Nigeria, Uganda, Tanzania, Rwanda and Kenya.

Importantly, this study takes an aggregated economic view of housing production that is fundamentally different from the approach that housing practitioners are generally familiar with – the housing production value chain. The housing production value chain examines the sequence of steps through which housing is created, occupied and traded. Raw land is identified, planned, surveyed, subdivided, registered and serviced, and then accommodation is built, either as a complete unit or incrementally, and financed either by mortgages, small loans or personal resources. The land and houses are then traded and occupied - whether formally or informally, owned or rented - and are generally improved over time.

However, the more detailed mechanics of the housing economic value chain (HEVC) are less clearly understood. While there is a body of literature that quantifies the role of housing in developed economies, these approaches are often not applicable in most developing economies. What we understand housing to be, how it is developed, and therefore the role it plays in an economy and in driving economic growth is substantially different in developing economies. Also, it is often challenging for housing specialists and economists to “talk housing” without losing each other, which negates the effectiveness of the housing-economy policy nexus. Finally, in many developing countries data of the necessary accuracy and breadth is not yet collected in order to make a reasoned estimate of the impact of housing on the economy.

By calculating residential housing economic value chains for South Africa, Kenya, Nigeria and Rwanda, we estimate the economic contribution and impact of housing on those economies. Through better understanding the housing value chain, we are then able to answer other important questions such as:

- How influential a sector is housing in a developing economy?
- How does this vary across different developing economies, and between developing and developed economies?
- Is housing an engine that fuels sustainable economic growth?
- To what extent do housing construction and rental generate and sustain employment?
- How do we start to unpack and quantify the different roles played by house construction and house rental in an economy, and understand the contribution of both the formal and informal housing sectors?

This understanding makes it possible for us to start to predict the economic impact of increased investment in housing, as well as the potential impact of an improvement in economic or housing policies that address blockages and bottlenecks across the housing economic value chain.

2. The Economic Impact of Housing

In economic terms, every housing action is important. Whether it is the construction and sale of a million-dollar penthouse in a capital city, or the rental of a shack produced out of recycled materials in an informal settlement, each action contributes to a country’s economy.

The housing sector influences national economies in three important ways. Firstly, while housing fulfils a basic human need for shelter, it also provides the base from which households participate in the economy. Secondly, housing is the largest single asset most households will accumulate over their lives and therefore comprises an important part of most countries’ stock of wealth. Thirdly, the construction, trading and rental of housing stimulates the production and sale of related goods and services, impacting on many other sectors of economies.

Consider the case of an investment in the construction of housing for rent in a city in Africa. **Figure 1** shows ten separate yet related economic impacts cascading from this one investment decision.



Figure 1: Ten impacts from a housing investment

While it is widely accepted that housing does play an important role in most economies, it is more challenging to quantify the degree of economic impact, and where in the developing economy housing impacts. The highly complex economic models used to calculate the impact and interrelationships between housing and economic growth in developed economies are poorly suited to the informally-dominated, thin, formal housing markets that characterize most African housing sectors, especially given the paucity of data.

3. A Conceptual Understanding of the Housing Economic Value Chain

The economic impact of housing arises predominantly from two activities: the construction, maintenance and improvement of the housing structure; and activities associated with housing rental. The HEVC is a consolidation of the economic value chains associated with these two activities, namely: i) the housing construction value chain (HCVC); and ii) the housing rental value chain (HRVC).

An economic value chain describes the linkages – both on the input (upstream) and output (downstream) sides of a particular economic activity and quantifies the economic value creation in an economy arising from that activity. Producing residential housing involves construction value-adding activities (digging and laying foundations, bricklaying, plastering carpentry, plumbing, electrical, tiling, roofing etc.) that are typically coordinated and undertaken by construction contractors. Similarly, housing rental and related activities may be undertaken by the property owner directly or be outsourced to letting or managing agents who act on the owner’s behalf. The HEVC describes the extent to which this array of economic actors add value to the economy during the process of building, improving and renting houses or housing units through the addition of their intellect, skills and physical endeavors (labour), and their payments of rent and interest, and their generation of profits (gross operating surplus). The valuation of these activities may also be impacted by the extent to which they are subjected to indirect taxes or are subsidized by government (net indirect taxes).

However, in order to engage in these value-adding activities, housing construction contractors need to purchase material and service inputs from other sectors of the economy. These inputs can range from sand procured from the mining and quarrying sector; to cement, bricks, window frames, doors, plumbing, tiles, timber and electrical equipment procured from various manufacturing sub-sectors; to electricity and water; and to transport, financial, architectural and even legal services provided by various tertiary sectors. The housing construction economic value chain sets out what raw materials and manufactured goods and services (intermediate inputs) are required to support housing construction and rental activity, and where these are sourced in the economy. Similarly, the renting of accommodation units may entail payments to third party letting and managing agents, cleaners and gardeners, security firms, and lawyers (to name a few) for their services that are required inputs into the provision, maintenance and management of rental housing stock. In

less formalized rental markets, many of these activities may be vertically integrated and are provided to a lesser or greater extent by the owner of the rental unit/s themselves.

While owner-occupied dwellings and rented accommodation incur similar maintenance and operating costs, and support similar activities (gardening, repairs, security, household management etc.), the principal difference is that rental agreements explicitly capture an income stream (the rent) against which many/some of these costs can be offset. This is part of the reason why many systems of national accounts impute a rent to owner-occupied dwellings that should approximate the market value or user cost of the rent for an equivalent dwelling and property. According to the OECD,² the System of National Accounts (SNA), 2008 states that: "An imputed rental on owner-occupied housing should be included in the production boundary and form part of household consumption." However, a 2011 study found that many developing economies – including many African economies – did not include estimates of imputed rents in their national accounts, and that there was some inconsistency in the methods used to estimate the value of imputed rents in those that did.³ Consistent treatment of housing rental and related activities across African economies is therefore difficult.

At present, the focus of this analysis is on rental activity that is accompanied by an explicit payment. There are, however, country differences that may make even this comparison difficult. For example, prevailing income levels and levels of market sophistication mean that rentals in many African economies do not include many of the services (such as gardening, security, management services) that may be included in more sophisticated markets. As a consequence, rental values are lower and such services – to the extent that they are provided – are for the personal account of the tenant, and may then not be effectively captured in the housing rental value chain. Until there is greater consistency in the treatment of owner-occupied dwellings, in the collection of data and construction of national accounts, and in the definition of household expenditure items that should be linked to house ownership and rental (such as gardening, cleaning, security etc.), it will be hard to develop housing rental value chains that are entirely comparable.

The housing value chain calculates the economic value of the housing stock produced and rented in a given period (domestic production). In many other economic value chains, this production may be supplemented through imports of products and reduced by exports. However, the nature of products in the HEVC (that is, immovable property in the form of accommodation) means that international trade makes no discernible difference, with the result that the value of domestic production is also the value of domestic supply. This supply is required to meet domestic demand in the economy – irrespective of whether that demand arises from a citizen or foreigner, provided that the product is consumed within the country. In most economic value chains, this demand may arise from producers in other sectors of the economy (intermediate demand) such as the demand for electric motors being an input into fridge manufacture and from demand from households, governments and expenditure on fixed capital assets (final demand). However, in the case of the HEVC all housing construction forms part of fixed capital formation and all accommodation rents form part of the final consumption expenditure of households. The entire domestic supply of the HEVC is therefore used to meet final demand.

If – at constant prices for a particular base year (that is, removing the impact of inflation) – the value of additional housing constructed in a particular period exceeds that which is "consumed" through use or demolished in the same period, then the value of the country's housing stock increases, implying more households can be housed, and/or that there are quantitative and qualitative improvements in the housing that people are already accommodated in. All other things remaining the same, this should contribute to an increase in the productive capacity of the economy as a whole.

In summary, intermediate inputs (materials and services from upstream in the economy) added to gross value added (by the developers, contractors, managing agents and households through the factor inputs of labour and gross operating surplus adjusted for pricing impacts of net indirect taxes)⁴ makes up the value of domestic production (the creation of new value in rentable or sellable housing stock). In the case of the HEVC this is also equal to the value of domestic supply, which meets the final demand of households for rental accommodation (household consumption expenditure) and owner occupied housing assets (gross fixed capital formation).

² OECD. (2016). "Meeting of Providers of OECD Income Distribution Data - February 2016."

³ Blades, Derek. (2010). "Owner Occupied Housing - Housing in ICP 2011 : Issues to be Resolved."

⁴ Gross value added is adjusted for any pricing impacts brought about as a result of the levying of indirect taxes and provision of subsidies in order to ensure gross value added is equal to the value of domestic expenditure at market prices.

In the event that more housing units were produced in a particular period than were sold in that period, the value of the unsold units would be reflected as a positive change in inventories that would be carried over for sale or rent in subsequent periods. Conversely, if more housing units were demanded in a particular period than were produced in that period, the only way that this “excess” demand could be met would be through a reduction in housing inventories on hand (if available), or by carrying over this notional demand to subsequent periods. A shortage would also be likely to drive up the price of housing units, and also contribute to overcrowding (as more households are accommodated in fewer houses) or lowered median standards of housing across the society such as through the growth of informal housing. Changes in housing inventories over a particular period are captured as part of a country’s gross capital formation. This economic process is illustrated in the conceptual economic value chain in **Figure 2**.

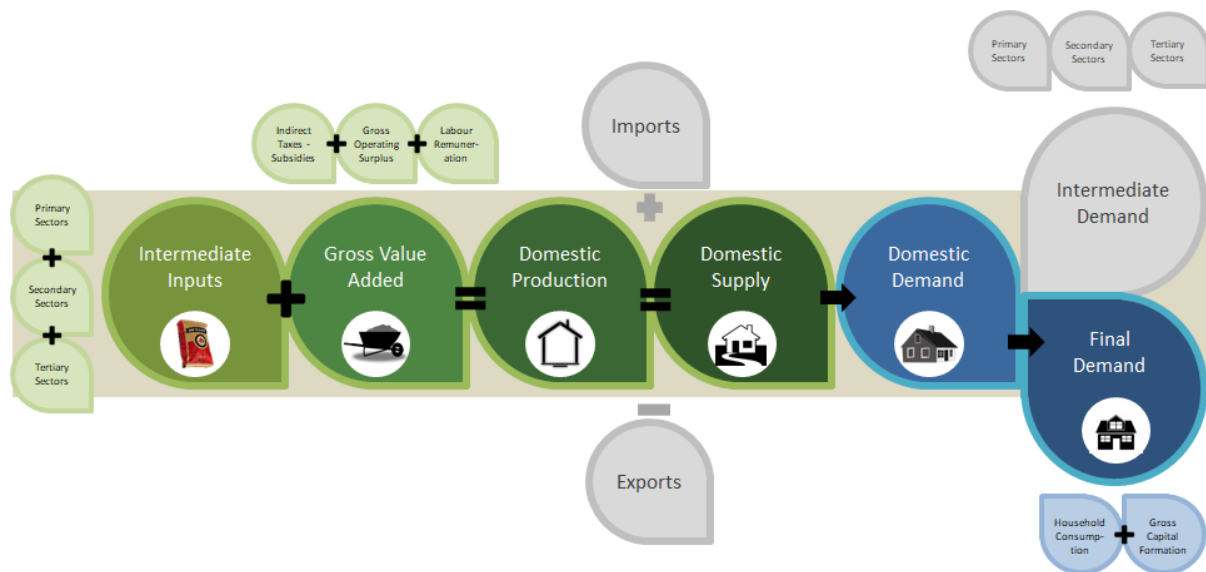


Figure 2: Conceptual Housing Economic Value Chain

Because neither imports and exports, nor intermediate demand are features of the housing value chains, they have been reflected in grey in the value chain diagrammes in this document.

Just as there are linkages between different sectors of the economy (both upstream and downstream) within economic value chains, there are also linkages across sectors and value chains. What starts out as a sales order to a firm in one sector ultimately has – to varying degrees - an impact on all sectors of the economy. These are referred to as multiplier effects and give rise to economic multipliers that can be used to estimate the typical impact of spending in one sector on the sales, value added, employment, imports and tax collections in other sectors and across the whole economy. These multipliers are usually calculated using the construction of supply and use tables (SUT) or input-output tables. The different types of multiplier effects are illustrated in **Figure 3** below.

- Direct impact:** To supply a good or service that is the subject of an initial order (sale), the firm receiving the order needs to employ different factors of production (labour, capital, land, entrepreneurship). The sales order (and others like it) provides an income stream to other firms or households that provide production factors to the firm in some proportion to the value that each production factor is deemed to add during the production process. These incomes represent the initial impact of the sales order. Inevitably, the firm supplying the product cannot efficiently source all the inputs required to produce that product itself, so it has to place orders with other suppliers of the intermediate inputs required. Each of these suppliers needs – in turn – to employ factors of production so the orders placed with them also give rise to additional household income streams. Collectively this is regarded as the first-round impact of the initial sales order. The initial impact and first round impact combined are referred to as the direct impact of the sale.

- **Indirect impact:** In order to fulfil their orders, each of these intermediate suppliers need to order intermediate inputs from their suppliers, which generates additional income streams. This is referred to as the indirect impact of the initial order.
- **Induced impact:** Finally, when the households that received income as a direct or indirect consequence of the initial order use that income to purchase goods and services, this gives rise to the generation of further sales in those sectors of the economy that supply household goods and services. This is referred to as the induced impact of the initial sales order.

The economy-wide impact of the initial sales order is the sum of each of the impacts that it gives rise to (direct, indirect and induced).

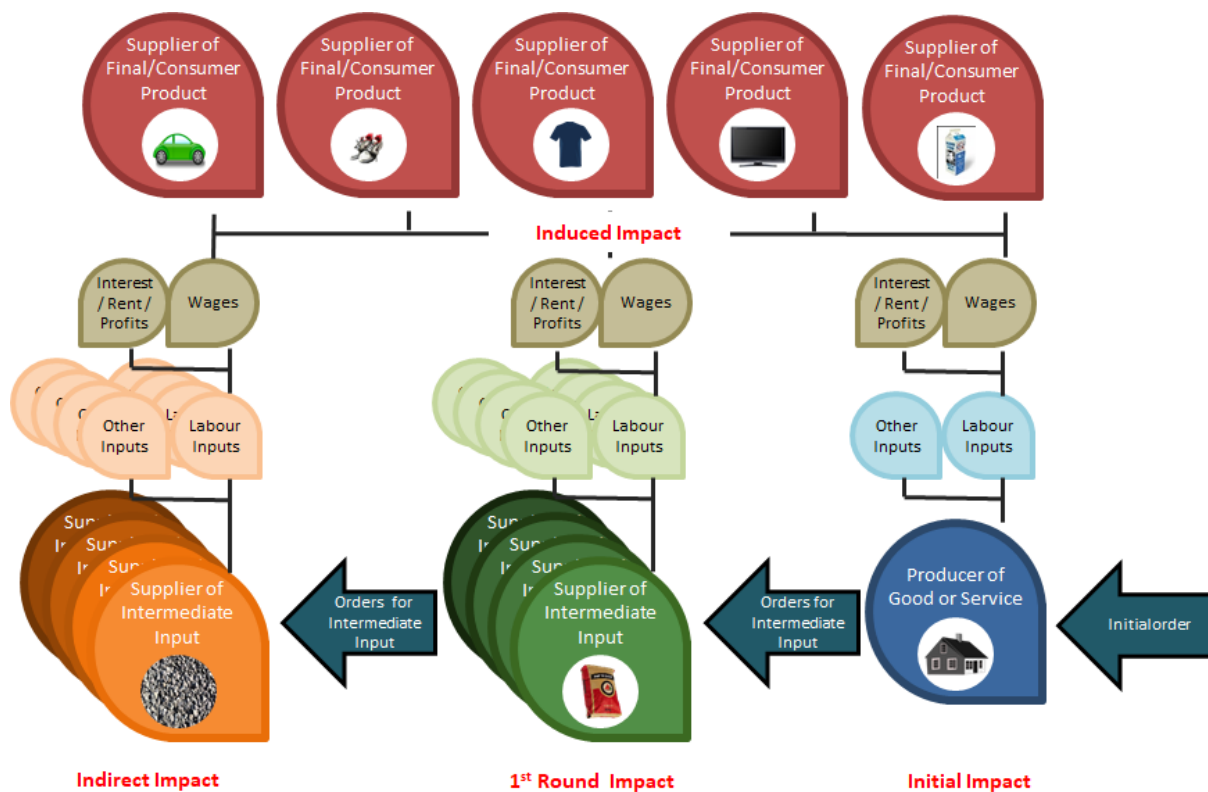


Figure 3: Direct, indirect and induced impacts of economic activity

For example, housing developers may require skilled inputs from architects, quantity surveyors, bricklayers, plasterers, carpenters, plumbers and electricians, as well as a range of less skilled labour inputs. Depending on the scale of operation of the developer, these functions may be “in-house”, or be “outsourced” or sub-contracted to independent, third party providers. As long as the developer continues to receive a stream of orders for housing units, it will continue to generate income streams for those economic actors directly associated with it. However, in order to construct a house, the various activities will require intermediate products from other suppliers. For example, a bricklayer will typically require bricks, cement and sand as well as equipment such as spirit levels, trowels and mortar boards. A plumber will require piping and connectors for the hot and cold-water systems, as well as taps and geysers and the machinery and equipment necessary for plumbing installation. Each of these intermediate suppliers will, in turn, require intermediate inputs from other suppliers as well as factor inputs (labour, capital, etc.) to produce their products. For example, a cement producer will – amongst other things - require calcium, silicon, iron and aluminium inputs, as well as paper for packaging and electricity to drive plant and equipment. A geyser manufacturer sources metals, plastics, insulation and pre-manufactured plumbing and electrical components, and adds value to these to create a product that meets downstream demand in the housing construction value chain. The sales order in the housing value chain placed with a geyser manufacturer therefore creates an economic pulse into “upstream” sectors in

the economy (the mining, smelting, metals manufacturing, plastics, electrical and plumbing components sectors of the economy).

While the sectors and sub-sectors stimulated by the rental value chain are often different, they follow a similar pattern to those in the housing construction value chain. A managing agent for a block of flats or a townhouse complex may, for example, require maintenance skills and security, cleaning and gardening services in addition to accounting, banking and legal services. These could be vertically-integrated under a single entity or could – to varying degrees – be outsourced. Each of these activities will require additional intermediate inputs: cleaning materials and equipment in the case of cleaners; fertilisers, compost, lawnmowers and garden tools in the case of gardeners. In addition, households typically spend a portion of their incomes on various furniture items, furnishings and household appliances, the demand for which arises because their basic need for shelter has been satisfied. This forms part of the induced impact of housing construction and rental, as well as all other economic activities that generate household incomes.

The focus of this HEVC analysis is on the direct impact (i.e. the initial impact and the first-round impact) of housing construction and rental-related activities. It would, however, be possible to estimate the indirect and induced impacts of these activities if sufficiently disaggregated supply and use or input-output tables existed for the particular economy being analysed. The value of the indirect intermediate inputs is, in any case, captured in the sales of the first-round suppliers. It is, however, important to note that the multiplier effects of an initial sales order are diluted by the extent to which the products being procured, or any of their upstream intermediate inputs, are imported.

4. Quantifying Housing Economic Value Chains

The United Nations' System of National Accounts (SNA) is a set of recommendations on how countries should measure economic activity using internationally-agreed concepts, definitions, classifications and accounting rules.⁵ The International Standard Industrial Classification of All Economic Activities (ISIC)⁶ defines different types of economic activities according to a hierarchy of sections, divisions, classes and sub-classes that become progressively more disaggregated and detailed.⁷ According to this system, the two classifications most directly relevant to this study are as shown in **Table 1**.

⁵ See the complete 2008 SNA at <https://unstats.un.org/unsd/nationalaccount/docs/snazoo8.pdf>

⁶ The comprehensive ISIC definitions can be accessed at https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

⁷ In cases where lower level descriptions (i.e. Group or Class descriptions) are the same as their higher levels (Division or Group), it implies that there is currently no provision for further disaggregation of data within that Division or Group. In cases where the numbering of Group or Class breakdowns is not sequential (421, 422, ... 429), it simply reflects a provision for future expansion of the number of Groups or Classes to incorporate greater disaggregation and detail.

Section	Division	Group	Class
F Construction	41 Construction of buildings	410 Construction of buildings	4100 Construction of buildings
		42 Civil engineering	421 Construction of roads & railways
	422 Construction of utility projects		4220 Construction of utility projects
	429 Construction of other civil engineering projects		4290 Construction of other civil engineering projects
	43 Specialised construction activities	431 Demolition & site preparation	4311 Demolition
			4312 Site preparation
		432 Electrical, plumbing & other construction installation activities	4321 Electrical installation
			4322 Plumbing, heat & air-conditioning installation
		4329 Other construction installation	
	433 Building completion & finishing	4330 Building completion & finishing	
439 Other specialized construction activities	4390 Other specialized construction activities		
L Real estate activities	68 Real estate activities	681 Real estate activities with own or leased property	6810 Real estate activities with own or leased property
		682 Real estate activities on a fee or contract basis	6820 Real estate activities on a fee or contract basis

Table 1: ISIC breakdown of construction and real estate activities Source: United Nations. (2008). *International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4.*

It is noteworthy that there is currently no provision to disaggregate *Construction of buildings* below the divisional level, which implies that the fourth revision of the ISIC system doesn't differentiate between the construction of residential buildings and non-residential buildings. It is also important to recognize that very few developing countries collect and publish data at a Group and/or Class level across all Divisions and Sections. Countries tend to move to greater disaggregation only for those activities that are perceived to be particularly significant or important to their current and future development. Illustrating the importance of housing to developing economies using the HEVC methodology creates strong motivation for disaggregation of the housing construction and rental accounts. They may also adopt variations of the ISIC system for domestic purposes.

Nevertheless, adoption of ISIC definitions (or systems that closely align to the ISIC classifications) by most countries means that it is possible to apply a standardized conceptual approach to estimating the HEVC across different African countries. The challenge of a standardized application of the model arises from the fact that many countries only collect and publish data at the Section or Division level – requiring some form of apportionment or estimation of the lower levels that are relevant to the HEVC component. This inevitably requires assumptions to be made, the nature of which may vary from country to country, depending on the prevalence and quality of economic data that is available to support them.

5. Illustrating the housing construction and housing rental economic value chains in South Africa

As has been noted, the direct contribution of housing to the economy arises from two key activities: first, the construction of the residential housing unit, its maintenance and any future additions and alterations, and second, rental-related activities linked to the leasing out of a portion of the entire stock of housing. The following sections discuss these two value chains in detail.

5.1 The housing construction economic value chain in South Africa

The best place to start with the housing construction value chain is at the point where a developer, contractor or household decides to produce accommodation in order to meet a perceived demand in the economy. Suitable land is identified and secured, rights to build may be obtained, and infrastructure installed. The housing product is specified, designed and costed, and finance is raised for its construction. Then intermediate inputs such as building materials and manufactured components are ordered from upstream suppliers and brought to site. At this point, production inputs (different types of labour, capital and entrepreneurial abilities) are combined with these intermediate inputs to build the accommodation. This process results in new economic value being created in the economy through the construction sector, as well as through those upstream sectors that supply the intermediate inputs.

Figure 4 below illustrates the value of the intermediate goods inputs required to construct a standardised 46m² house in Pretoria, South Africa – as determined by a CAHF housing cost benchmarking study undertaken in 2015 for the same house specification across sixteen different African countries.⁸ This study is briefly explained in Annexure 1.

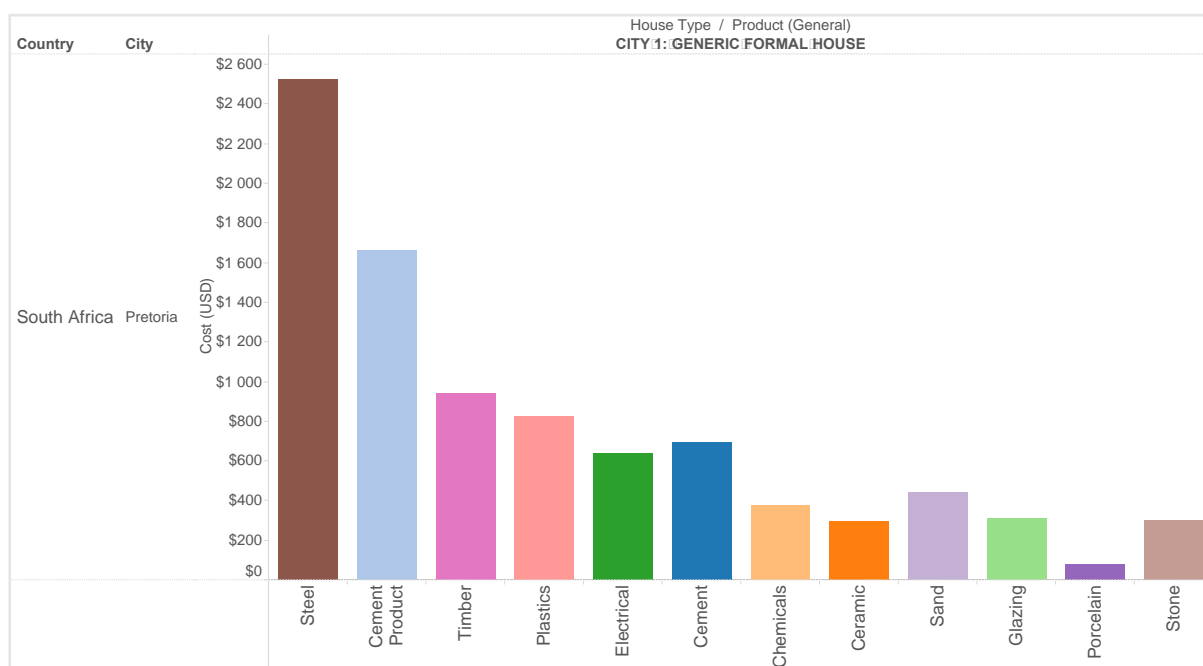


Figure 4: Intermediate inputs by value for a generic conventionally constructed house in South Africa (US\$ 2015) Source: CAHF (2015): Benchmarking Housing Costs in Sixteen African Countries.

There are two principal sources of gross value-added during construction:

- i) The value added by labour (which includes all managerial, supervisory, professional, skilled and semi-skilled labour inputs – whether permanent, contract or employed on an informal basis – that are directly involved during the construction process), measured by the combined remuneration that such labour inputs receive; and
- ii) The combined value added by the other three factors of production (capital, land and entrepreneurship) which is referred to as the gross operating surplus and which comprises the sum of interest, rent and profit paid by the developer or contractor to the owners of those factor inputs.

In addition, account needs to be taken of the extent to which the selling price of the accommodation produced diverges from the cost of the factor and intermediate inputs employed in its construction as a result of the application of indirect taxes and subsidies to the production units. For example, in South Africa value added tax is applied to the value added at each stage of production which causes the selling price of the product to differ by approximately 15 percent from what it costs to produce (the combined returns to the different production

⁸ CAHF (2015): Benchmarking Housing Costs in Sixteen African Countries.

<http://housingfinanceafrica.org/dashboards/benchmarking-housing-construction-costs-africa/>

factors). There may also be indirect taxes on production processes (such as the one percent skills levy on the wage bill of employers in South Africa) and subsidies paid by government to entities producing certain types of accommodation that cause the market price of the housing produced to diverge from what it costs to produce.

The sum of the value of intermediate inputs, gross value added and net indirect taxes represents the value of domestic production of housing in a particular period, which – because there are no material imports or exports of housing – also represents domestic supply of housing in that period. In a well-functioning housing market where there is enough accommodation of different types to meet the different needs of the population, this total supply should closely match the demand profile of that society, in terms of housing type, affordability sub-markets, tenure types (ownership, rental or informal) and location.

The housing construction economic value chain for South Africa in 2016 is reflected in **Figure 5** below.

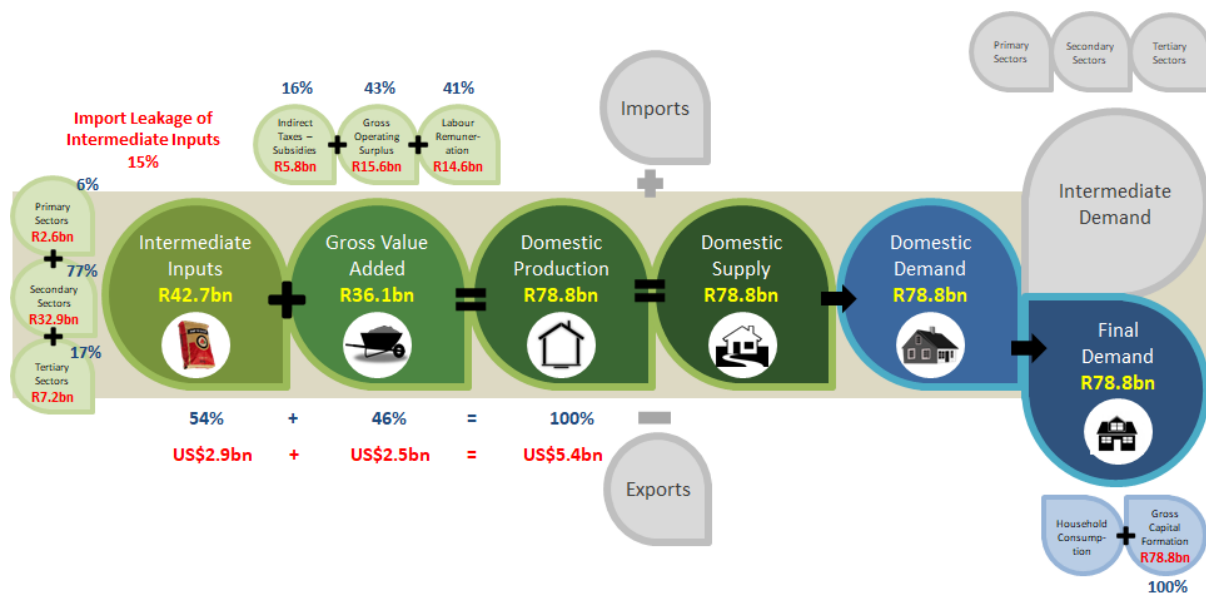


Figure 5: Housing construction economic value chain for South Africa in 2016 Source: Own calculations.

It shows total domestic supply of housing in that year valued at almost ZAR79 billion (US\$5.4bn at the rates that prevailed in 2016),⁹ of which ZAR36 billion (46 percent) was gross value added and nearly ZAR43 billion (54 percent) were intermediate inputs. The intermediate inputs were sourced primarily from secondary sectors (77 percent) followed by tertiary sectors (17 percent) and primary sectors (6 percent). Eighty-five percent of intermediate goods and services inputs by value were locally sourced, with the balance being imported. The relatively high local content of intermediate inputs contributes to significant direct impact multipliers.

The gross value added comprised of ZAR14.6 billion of labour remuneration and ZAR15.6 billion of gross operating surplus. Indirect taxes less subsidies added a further ZAR5.6 billion to the value of production. The ZAR79 billion of domestic supply was used to meet an equivalent value of domestic demand that was classed as gross capital formation.¹⁰

Based on the estimated value of labour remuneration in the housing construction sector, and the prevailing average remuneration rates for building construction, it is estimated that around 323 000 people were employed in housing construction during 2016. As reflected in **Figure 6** below, almost two thirds of these jobs

⁹ The average ZAR/US\$ exchange rate in 2016 was ZAR14.71/US\$ according to the South African Reserve Bank (2017).

¹⁰ It is assumed that the value of work in progress carried over from the previous year (2015) was offset by work in progress carried over from 2016 to 2017. This will not be the case during periods of acceleration and deceleration in the number of housing starts but will tend to average out over time.

were categorised as informal.¹¹ However, the average remuneration rates are very low, even by informal employment benchmarks. This suggests that the duration and/or level of utilisation of this employment was generally limited and implies that, in the event of increased real expenditure on residential housing construction, there would probably not be a commensurate increase in aggregate employment numbers immediately. Instead, formal and informal labour would likely first experience an increased intensity of employment and a corresponding increase in average earnings before significant numbers of new employment opportunities are created. In other words, if there is increased construction activity, developers and contractors will first increase the amount of work undertaken by their existing workers, and only at a later stage (when there is sustained demand and work capacity is at or above 100 percent) would new employees be recruited into the sector. This level of capacity utilisation is a key reason why sustained economic throughput is essential to the economic benefits that accrue from any economic sector.

It is difficult to quantify exactly how many new houses this construction value chain creates, because the stimulus of the residential construction sector on the economy is not only related to new housing construction, but also house expansions and qualitative improvements. **Table 2** below shows data collected from all municipalities in South Africa by the Statistics South Africa and reflects the residential buildings completed during 2016 for which formal plans had been lodged. It shows that a total of 63 333 housing units were completed with an average size of 104m² and an average value of around ZAR626 000 per unit according to municipal records. At what may be regarded as the more affordable end of the market, close to 35 000 units were produced with an average size of 46m² and an average recorded value of almost ZAR156 000 per unit.¹²

The total recorded value of all the completed residential housing units for which plans were lodged with municipal authorities was close to R40 billion in 2016. The difference between this value and the ZAR79 billion recorded by the South African Reserve Bank in their breakdown of gross fixed capital formation comprises residential housing construction for which plans were not lodged and/or captured with a local authority, as well as renovations, additions and cost variations not reported to the authorities

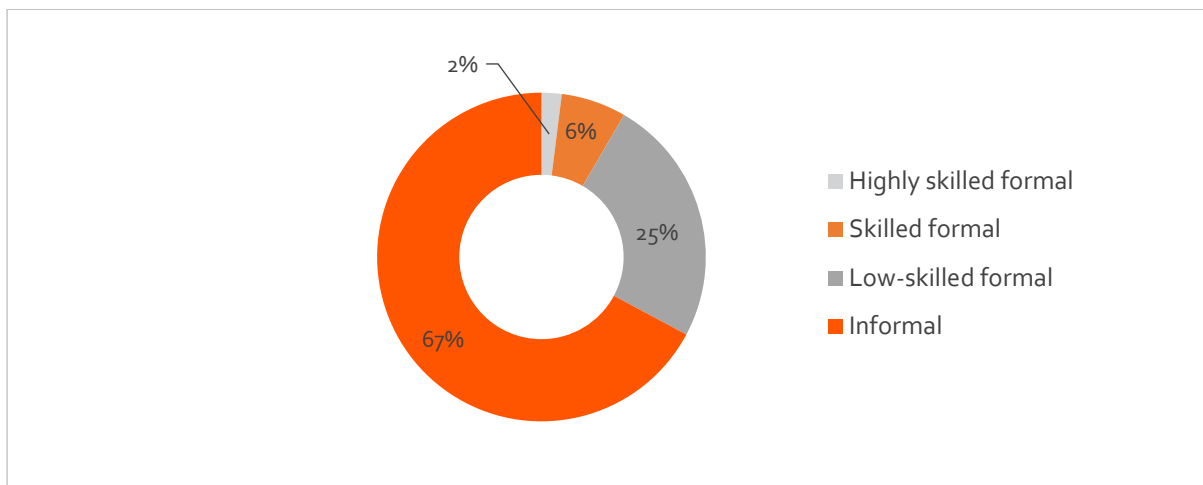


Figure 6: Estimated composition of employment supported by housing construction in 2016 in South Africa by skills level and formality Source: Quantec. (2018). Standardised Industry Database, own assumptions.

¹¹ Average remuneration rates were determined for construction by dividing estimated aggregate remuneration for a particular category of skills by the estimated number of workers who earned that remuneration. These estimates are published by Quantec and are derived from Statistics South Africa’s two labour-related publications: Po211 - Quarterly Labour Force Survey (QLFS), and Po277 - Quarterly Employment Statistics (QES). It is assumed that average remuneration and the composition of labour in housing construction matches that of construction as a whole. In 2016, the average remuneration rates for each category of labour were as follows: Formal skilled – ZAR250 807; Formal semi-skilled – ZAR89 397; Formal low-skilled ZAR81 033; and Informal – ZAR10 706.

¹² This almost certainly does not include payments for land, bulk and internal services and other associated infrastructure as building plan data considers the price of fulfilling the house plan rather than aggregated total cost of the sellable or lettable property.

Between 2015 and 2016 South Africa's population increased by around 890 000 according to official estimates.¹³ At an average of 3.6 people per household,¹⁴ this suggests that an additional 248 000 households were formed during 2016. For this number of additional households to be accommodated, it would have required that almost ZAR29 billion of the remaining ZAR38.8 billion estimated as housing construction expenditure was used to construct units of equivalent average cost to the 46m² dwellings reflected in **Table 2**.¹⁵ To the extent that this did not occur, it implies that there would have been an increase in the housing backlog in the country, and an increase in the average number of people per household.

Type of Residential Unit	Number of Units	Area (m ²)	Value (ZAR '000)	Average Size (m ²)	Average Value (ZAR/unit)	Average Value (US\$/Unit)
Dwelling houses <80m ²	34 670	1 582 924	5 405 410	46	ZAR 155 910	US\$ 10 599
Dwelling houses >80m ²	14 101	3 481 450	22 930 156	247	ZAR 1 626 137	US\$ 110 546
Flats	7 241	570 909	4 744 363	79	ZAR 655 208	US\$ 44 542
Townhouses	7 321	920 864	6 571 466	126	ZAR 897 619	US\$ 61 021
Total	63 333	6 556 147	39 651 395	104	ZAR 626 078	US\$ 42 561

NOTE: Average value per unit was converted at the average exchange rate of ZAR14.71/US\$

Table 2: Housing construction statistics reported by municipal authorities in 2016 Sources: Statistics South Africa Building Statistics, Report No. 50-11-01 (2016), SA Reserve Bank (2017).

Figure 7 shows the composition of residential housing units by type in 2016, based on data on buildings completed that was collected by municipalities. Fifty-five percent of housing units were stand-alone houses with areas of less than 80m², while a further 22 percent were dwelling houses with sizes of 80m² or more. Flats (11 percent) and townhouses (12 percent) made up the balance.

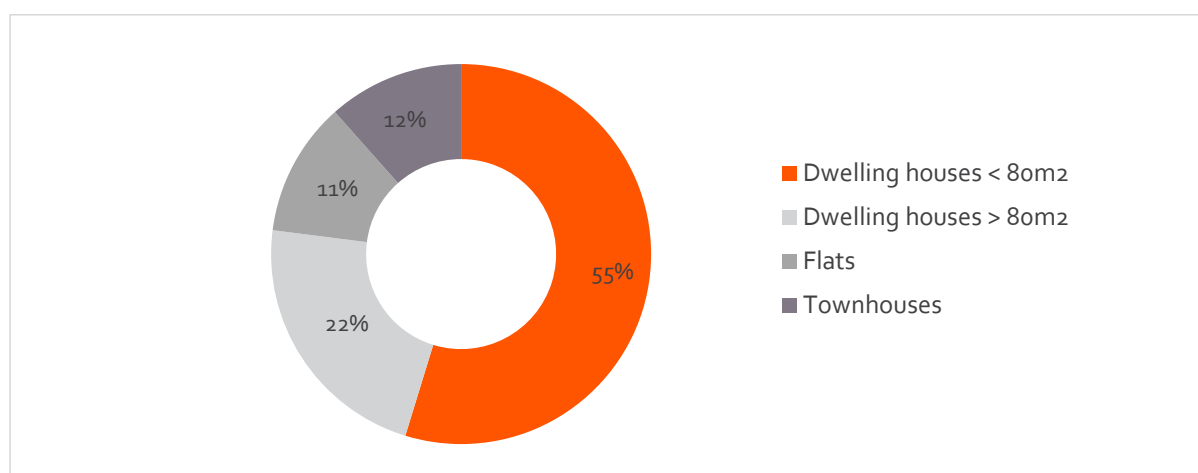


Figure 7: Composition of residential buildings completed in 2016 in South Africa by type for which plans were lodged with municipalities Source: Statistics South Africa Building Statistics, Report No. 50-11-01 (2016).

¹³ Statistics South Africa, "Statistical Release P0302 Mid-year population estimates 2018".

¹⁴ Quantec estimates based on official Statistics South Africa population estimates divided by the estimated number of households.

¹⁵ If 248 000 additional dwellings are required and only 63 333 can be formally accounted for in municipal buildings completed statistics, then either the average household size would have had to increase, or the remaining 184 667 units would have needed to be constructed without the lodging of formal building plans with local authorities. If the average cost of each of these housing units was equivalent to the average for the smallest units in the formal statistics (i.e. ZAR155 910/unit) then it would have required an additional ZAR28.8 billion to produce these dwellings.

5.2 The housing rental economic value chain in South Africa

South Africa's residential rental value chain has a very different economic impact compared to construction. While the 2011 Census showed that only 25 percent of South African households (3.6 million) rented accommodation, the estimated value of the total domestic production from the residential rental value chain in 2016 is higher than the housing construction value chain. The value added, and employment associated with the construction of housing stock persists only for the duration of the construction. To be sustained, the completed projects must be replaced with orders for new construction. By contrast, rental activities associated with the letting of residential properties tend to persist and are derived from that proportion of the total housing stock that is made available for rental, not just from new additions to the housing stock.

According to Statistics South Africa's latest CPI expenditure weights for 2016,¹⁶ South African households spent an average of 3.17 percent of their disposable income on rent for housing in 2016, down from 4.22 percent in 2012. This translates into total spending of ZAR81.7 billion (US\$6.8 billion) in 2016. The reasons for the decline in the share of total housing expenditure spent on housing rental are not clear. It could reflect the fact that proportionately more people now own their own homes and therefore no longer pay rent. This tends to be supported by the fact that the share of total household expenditure imputed to owners' equivalent rent increased from 10.95 percent in 2012 to 11.93 percent in 2016.¹⁷ It could also be a reflection of the fact that housing rentals are not always consistently adjusted, and in the relatively low growth environment of that period, landlords may have been unable to secure rent adjustments that matched inflation.

Figure 8 shows the estimated value chain for housing rental activities in South Africa in 2016. It reflects output valued at ZAR81.7 billion (US\$5.6 billion). This consisted of intermediate inputs of ZAR39.6 billion (US\$2.7 billion) and GVA of ZAR42.2 billion (US\$2.9 billion).¹⁸ In contrast to the manufacturing stimulus created by residential construction, 71 percent of the rental intermediate inputs were sourced from tertiary sectors, with the remainder (29 percent) from the secondary sectors. No inputs were sourced directly from the primary sectors.

The ZAR42.2 billion of gross value added is estimated to have comprised ZAR17.1 billion (US\$1.2 billion) of labour remuneration, and ZAR21.0 billion (US\$1.4 billion) of gross operating surplus (the sum of interest and rent costs and profits). Net indirect taxes (less subsidies) amounted to ZAR4.1 billion (US\$0.3 billion).

If it is assumed that the composition of labour inputs and its average remuneration is similar to the real estate sector as a whole, then activities associated with the letting of residential housing supported total employment of around 157 000 in 2016, of which around 84 percent was formal employment, and about 16 percent informal. In excess of 100 000 of these employment opportunities are either skilled, or semi-skilled. To the extent that housing construction is more cyclically-volatile than housing rental, employment in most parts of the HRVC is also likely to be relatively more stable over time than employment in the HCVC. This is, in part, a function of the fact that shelter is a basic need. The principal threat to employment in the HRVC is therefore likely to arise from shifting attitudes in favour of home ownership, but these are likely to be gradual.

¹⁶ Statistics South Africa (2017). "Po141.5 - Consumer Price Index (CPI): Weights, 2016". 27 January 2017.

¹⁷ Statistics South Africa (2017). "Po141.5 - Consumer Price Index (CPI): Weights, 2016". 27 January 2017. Imputed rent is a value ascribed to owner-occupied dwellings to reflect expenditure that households would have incurred if they did not occupy dwellings that they owned and in the process put them in a similar position to households renting accommodation. The increase in the weight of imputed rents within the CPI basket means that either property prices rose faster than other expenditure items within the CPI basket between 2012 and 2016, or/and relatively more households owned their own homes in 2016 than in 2012.

¹⁸ In the absence of data to show otherwise, it has been assumed that the composition of GVA and intermediate inputs is largely consistent with that of real estate activities more generally (including commercial rentals).

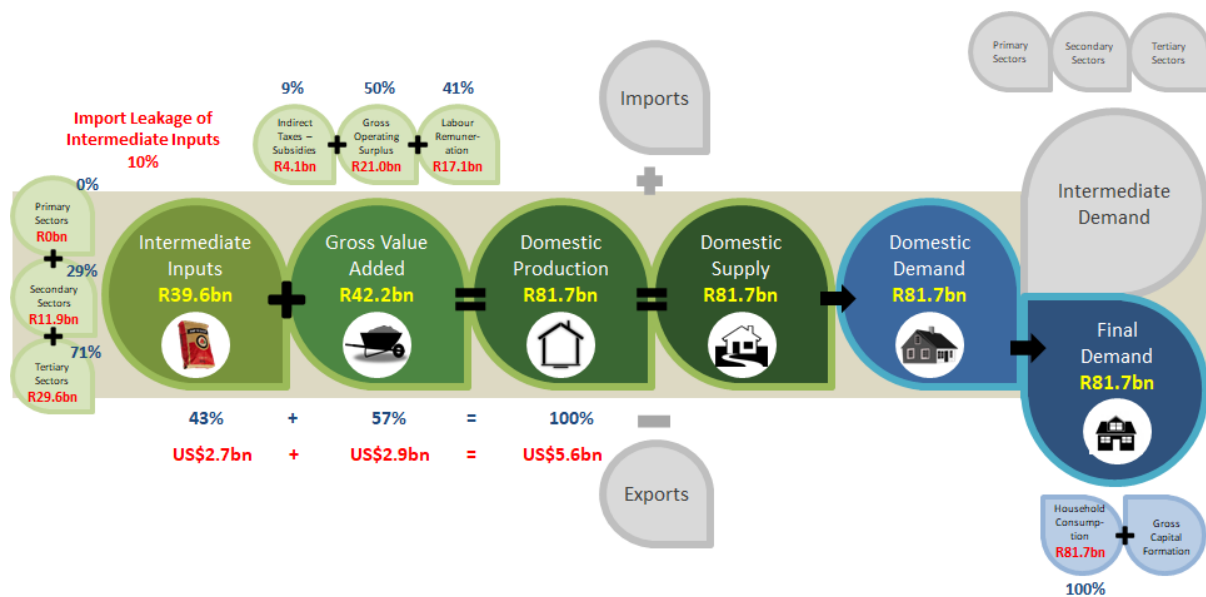


Figure 8: Estimated economic value chain for South African residential housing rental activities in 2016 Source: Own calculations.

5.3 The combined economic contribution of residential construction and rental in South Africa

What then is the total impact of the housing sector (construction and rental) on South Africa’s economy? The estimated direct economic impact of residential housing construction and residential rental in South Africa in 2016 was ZAR160.5-billion (US\$10.9 billion) in terms of direct gross value added and intermediate inputs into new housing construction, ongoing home improvements and residential rental. The combined gross value added contributed by residential rental and construction was equivalent to 2 percent of national GVA in 2016, making it almost as significant as agriculture (2.1 percent), equivalent in contribution to the sale, maintenance and repair of motor vehicles, and larger in contribution than coal mining (1.9 percent), platinum mining (also 1.9 percent) and gold mining (1.4 percent).

The estimated combined economic value chain for housing construction and rental-related activities in South Africa in 2016 is shown in **Figure 9**. The value of total domestic production is almost evenly split between GVA (49 percent) and intermediate inputs (51 percent), with GVA of ZAR78.3 billion (US\$5.3 billion), and intermediate purchases of ZAR82.2 billion (US\$5.6 billion). Slightly more than half of the intermediate inputs are sourced from secondary sectors, with 44 percent coming from tertiary sectors and the remaining 5 percent from primary sectors. The comparatively balanced contribution of the residential housing sector in terms of secondary and tertiary sector upstream intermediate inputs is notable, given the objectives of driving manufacturing growth, and capitalising on a growing, and quite sophisticated tertiary sector.

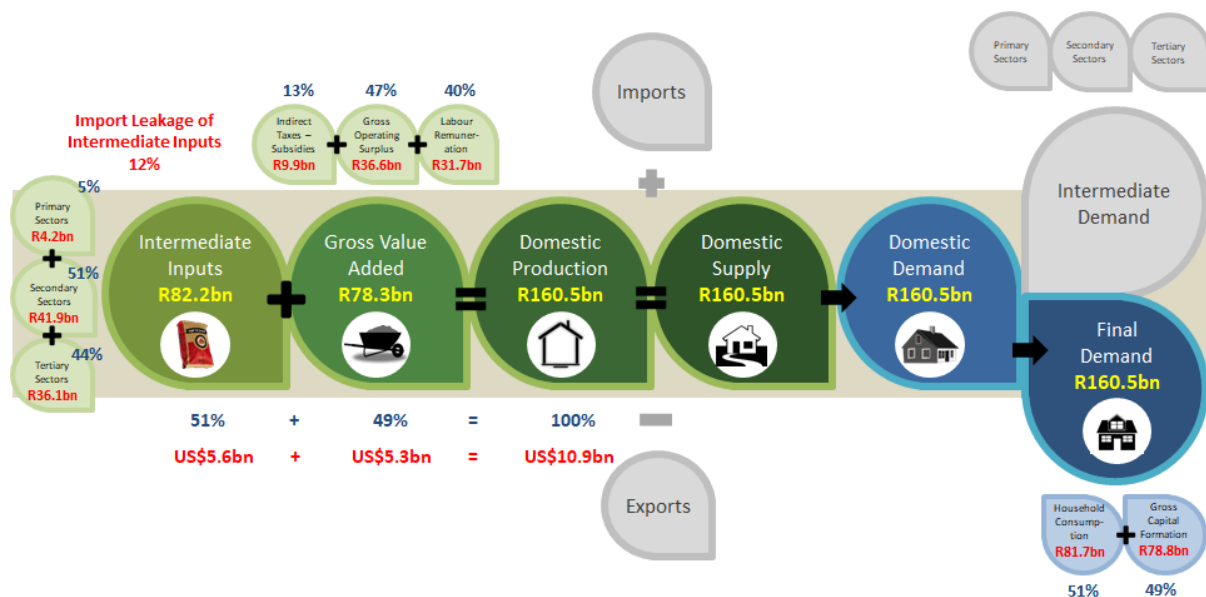


Figure 9: Combined economic value chain for South African residential housing construction and rental activities in 2016
Source: Own calculations.

Labour remuneration totalled ZAR31.7 billion (US\$2.2 billion) and supported an estimated 480 000 employment opportunities in 2016. Close to half of these (almost 234 000) were informal jobs. The residential sector is estimated to have contributed around ZAR10 billion (US\$0.7 billion) in net indirect taxes less subsidies, and to have generated an operating surplus (a combination of interest, rent and profit incomes) of close to ZAR37 billion (US\$2.6 billion).

The preceding analysis shows that residential housing construction and residential rental activities have very different economic impacts: construction stimulates manufacturing more, while rental stimulates services. However, they are both 'proudly local' sectors, with 85 percent of construction and 91 percent of rental intermediate inputs produced locally. Furthermore, the high level of value added in both the construction and rental sectors ensures that these two housing sectors make substantial and deep impacts on the economy.

According to Statistics South Africa estimates,¹⁹ informal construction activity has accounted for 16 percent to 17 percent of total construction GVA in recent years. It is likely that this informal activity is almost exclusively confined to residential housing construction (as opposed to non-residential building construction and civil construction works²⁰). This implies that around 30 percent of residential housing construction by value is currently delivered through informal activity.²¹ Quantec data suggests that labour remuneration in the informal sector is substantially lower than in the formal sector. Detailed comparative studies of both formal and informal sector contractors are required to determine whether there are meaningful differences between the composition of the value added of informal contractors and that of formal contractors, and to improve the quality and accuracy of future estimates.

The rental value chain also likely significantly under-estimates the role of informal rental, specifically backyard rental in lower-income areas. Consider for instance that an estimated one million households rent backyard rooms and shacks and considering an estimated average of two units per property, this equates to around 500 000 backyard rental landlords alone.

¹⁹ Source: Data received from Michael Manamela of Statistics South Africa on 19 February 2018 reflecting estimates of nominal and real informal sector GDP contributions from construction activity. Data is not part of an official publication.

²⁰ This assumption is made based on the prevailing controls on labour and safety on formal construction sites, which makes formal activity much more likely. Alternatively, it is known that residential construction relies heavily on informal contractors and labour.

²¹ This contribution of informal sector activity to housing construction assumes that the share of total construction GVA attributed to informal activity is expressed as a share of the estimates of housing construction GVA for 2016 that are used in this report.

This value chain does not capture or reflect the full impact that the residential construction and rental sectors have on South Africa’s economy. There are the further indirect and induced economic impacts that are generated by the direct economic impact of housing, which are not quantified at this stage.

6. Quantifying Housing Value Chains for Other African Countries

As was noted above, while adherence to the United Nations’ System of National Accounts and ISIC definitions by most countries makes it possible to conceptualise the housing economic value chains in a standardised and consistent manner, the application of the model cannot be standardised because different countries collect and publish economic data with varying levels of disaggregation. This necessitates that assumptions are made when disaggregating higher level data, and these assumptions are—in turn—influenced by the availability of a range of other data. For example, if consumer price index weights isolate spending on housing rentals, this can be used to estimate total spending on rentals in a particular year by multiplying national accounts estimates of household income or expenditure by the rental weight. However, where CPI weights are not sufficiently disaggregated to show rental expenditure, other assumptions need to be made. Determining the sector composition of intermediate inputs, and import leakages, requires sufficiently detailed, and up-to-date, input-output or supply and use tables. If these do not exist, other studies can sometimes be useful in informing assumptions, but these are typically *ad hoc*, not consistent across countries, and are in many cases quite dated.

Following the piloting of the conceptual approach to calculating the housing economic value chains for South Africa in 2016, CAHF has applied the model in a number of other African countries. This section compares the results of these applications of the housing value chain model to Nigeria, Kenya and Rwanda with the results for South Africa shown above. The differences are, in some cases, significant. In some cases, these differences are explained by unique features of a particular economy; in others they may point to weaknesses and inaccuracies in the official data, or to erroneous assumptions.

The four countries included in this comparative analysis have very different populations, household income profiles, economies and housing sectors. **Figure 10** summarises some of the key differences.

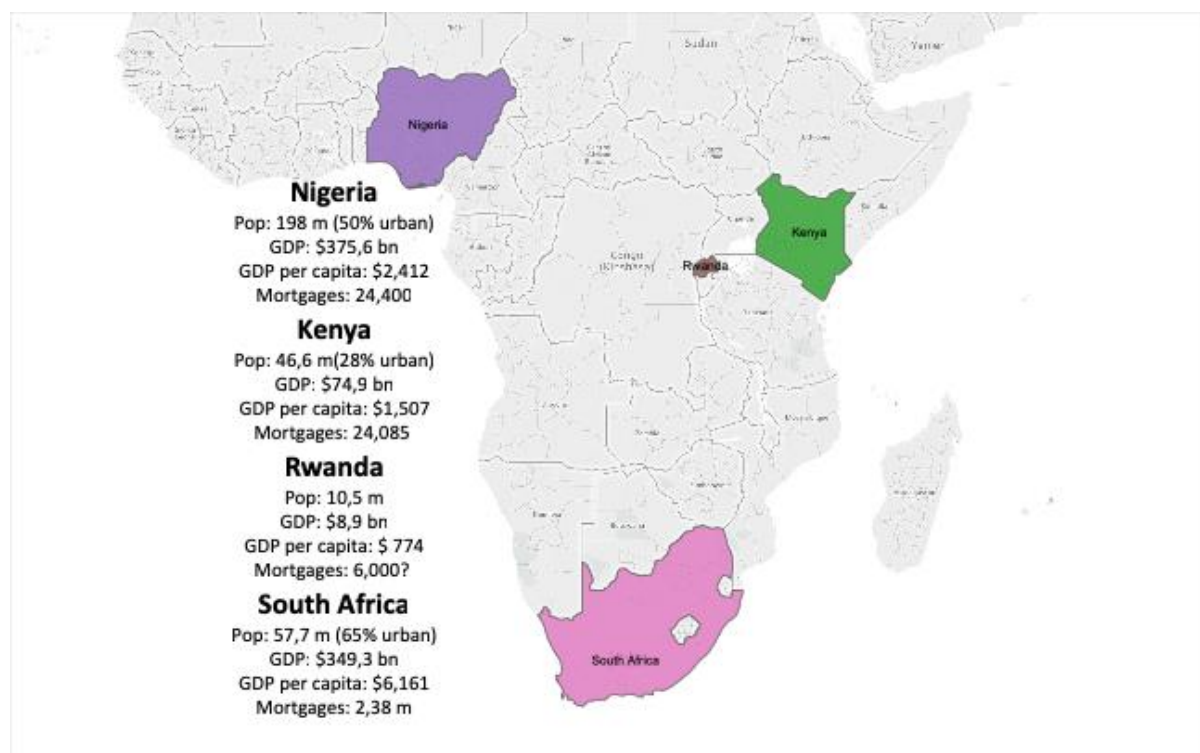
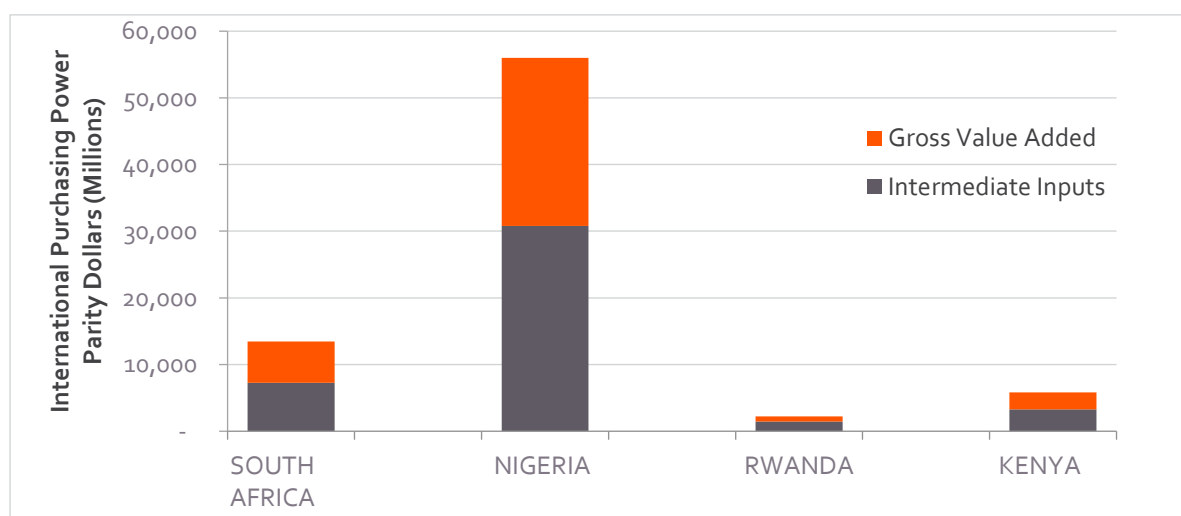


Figure 10: Comparative analysis of four African countries assessed Source: CAHF (2018). Housing Finance in Africa Yearbook.

Figure 11 shows the relative scale of the key elements of the housing construction value chain in each of the four countries, as well as their composition. To avoid the pitfalls associated with inter-country comparisons using a designated international currency – such as the US dollar – the values were converted from their respective domestic currencies into standardised international purchasing power parity (PPP) dollars²² – using conversion rates published by the International Monetary Fund in the World Economic Outlook database.

The scale of housing construction ranged from PPP\$56 billion in Nigeria to PPP\$13.4 billion in South Africa, PPP\$5.8 billion in Kenya and PPP\$2.2 billion in Rwanda. The estimated contribution of intermediate inputs to the value of domestic production was 65 percent in Rwanda, 56 percent in Kenya, 55 percent in Nigeria and 54 percent in South Africa.

Annexure B provides a detailed comparison of the different elements of the housing construction economic value chain in each of the countries.

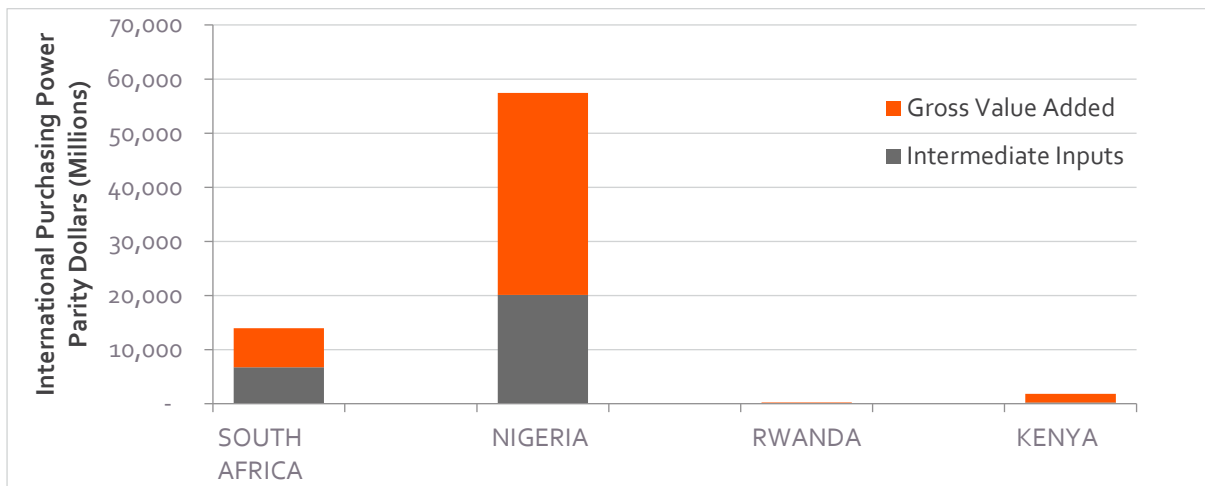


NOTE: Values for South Africa, Nigeria and Kenya are for 2016. Rwanda is for 2017.

Figure 11: Comparative value and composition of housing construction across four African countries Sources: Own calculations, IMF (2019).

A comparison of the scale and composition of housing rental and related activities reflects similar variations across the four countries – as shown in **Figure 12**. The value of housing rental in both Nigeria and South Africa is similar to the value of housing construction in both those countries but is substantially lower than housing construction in both Rwanda and Kenya

²² A PPP dollar is a notional currency that reflects the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. Use of PPP dollars provides a more accurate reflection of the relative costs and contributions of housing in each of the African countries included in the analysis.

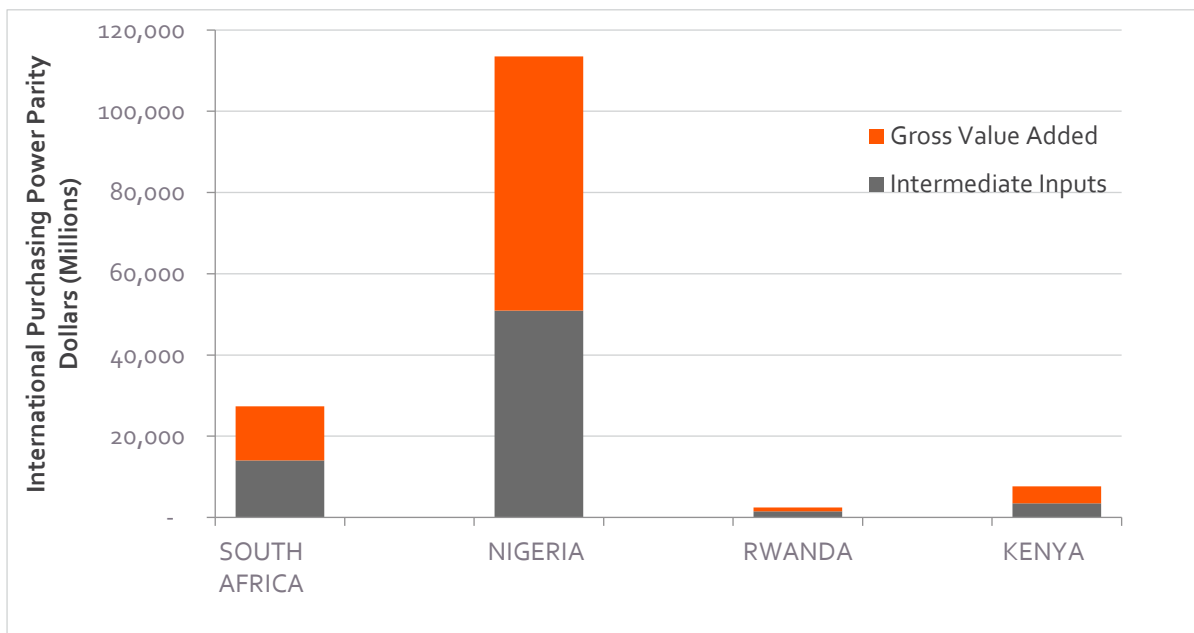


NOTE: Values for South Africa, Nigeria and Kenya are for 2016. Rwanda is for 2017.

Figure 12: Comparative value and composition of housing rental and related activities across four African countries Sources: Own calculations, IMF (2019).

It is, however, noteworthy that the ratio of gross value added to intermediate inputs is higher in all four countries in the rental value chain compared to the housing construction value chain. A comprehensive breakdown of the different elements of the housing rental and related activities economic value chain is shown in Annexure C.

The combined contributions of both housing construction and housing rental at purchasing power parity are shown in Figure 13. The value of domestic production ranges from PPP\$113.5 billion in Nigeria to PPP\$27.4 billion in South Africa, PPP\$7.6 billion in Kenya and PPP\$2.5 billion in Rwanda. The contribution of intermediate inputs to the value of domestic production ranges from 60 percent in Rwanda to 45 percent in Nigeria.



NOTE: Values for South Africa, Nigeria and Kenya are for 2016. Rwanda is for 2017.

Figure 13: Comparative combined value and composition of housing construction and rental and related activities across four African countries Sources: Own calculations, IMF (2019).

Table 3 reflects the value-added contribution to each country's GDP of housing construction and housing rental respectively.

Contribution of Housing GVA	South Africa	Nigeria	Rwanda	Kenya
Housing Construction	0.9 percent	2.3 percent	3.6 percent	2.8 percent
Housing Rental	1.1 percent	3.5 percent	1.0 percent	1.8 percent
Total Housing	2.0 percent	5.8 percent	4.7 percent	4.5 percent

Table 3: Contribution of gross value added in housing construction and housing rental to each country's GDP Sources: Own calculations, IMF (2019), Kenya National Bureau of Statistics (2018), National Bureau of Statistics of Nigeria. (2018), National Institute of Statistics of Rwanda. (2018).

When the stimulatory impact of intermediate input purchases is taken into account, the contribution of housing to the GDP rises significantly, but is impacted by the extent to which such intermediate inputs are imported.

7. Contrasting the Combined Housing Construction and Rental Value Chains of Nigeria, Rwanda and Kenya

Figures 14, 15 and 16 contrast the combined housing economic value chains (construction and rental) for Nigeria, Rwanda and Kenya. These can be compared with **Figure 9** which reflects the equivalent value chain for South Africa. While there is some consistency across the countries, there are also notable differences. The most significant of these are:

- GVA is a more significant contributor to the value of domestic production than intermediate inputs in Kenya and Nigeria, but relatively less significant in Rwanda. This may be a reflection of more sophisticated/less traditional building methods being used more commonly in Kenya and Nigeria.
- The contribution of labour remuneration to the GVA ranges from 22 percent in Nigeria to 38 percent in Rwanda, while the gross operating surplus contribution varies from 44 percent in Rwanda to 62 percent in Kenya. This may reflect more extensive and formalised construction contractors, but could also be influenced by a range of other factors – including relative tax rates on individuals versus companies, which may promote switching between labour remuneration and profit distribution. Indirect taxes less subsidies make a more notable impact on the price of domestic production in Rwanda and Nigeria than in Kenya. This is due to differences in indirect tax rates and treatment of housing.
- Whereas the scale of housing construction and rental activities are fairly similar in size in South Africa and Nigeria, the values of housing rental and related activities in both Kenya, and especially Rwanda, are under-developed by comparison. In Rwanda, rental activities only account for 9 percent of the final demand from housing, compared with 24 percent in Kenya and 59 percent in Nigeria. This is likely due to lower urbanisation rates in Kenya and Rwanda but may also point to differences in the estimation of housing rental and related activities in the national accounts.

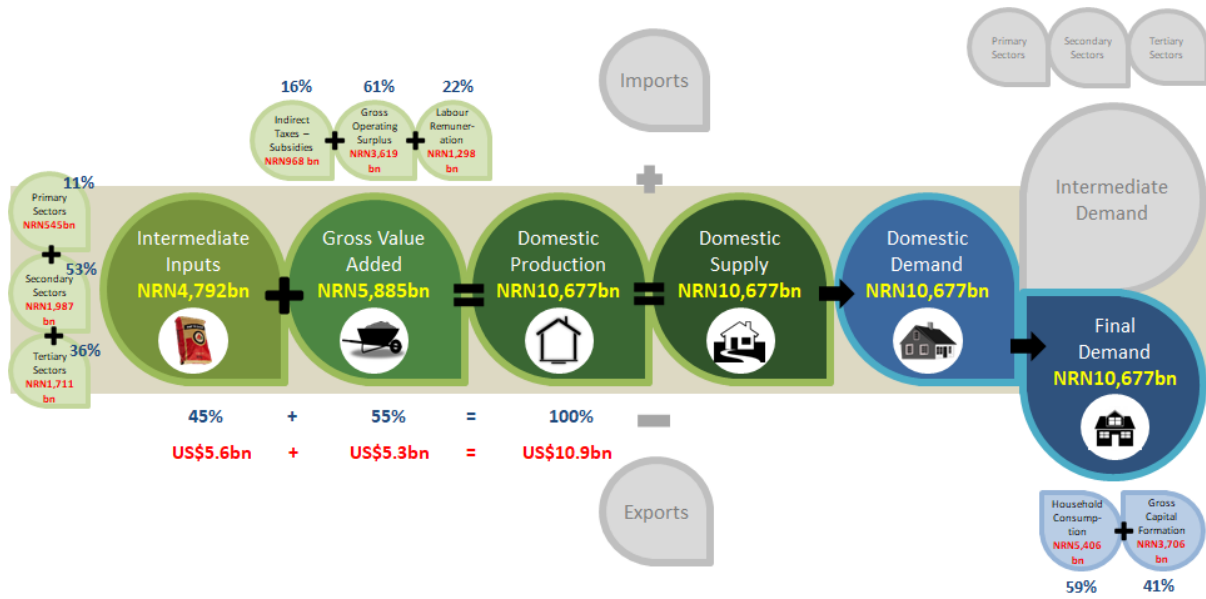


Figure 14: Combined housing construction and housing rental economic value chain for Nigeria in 2016 Source: Own calculations. IMF (2019).

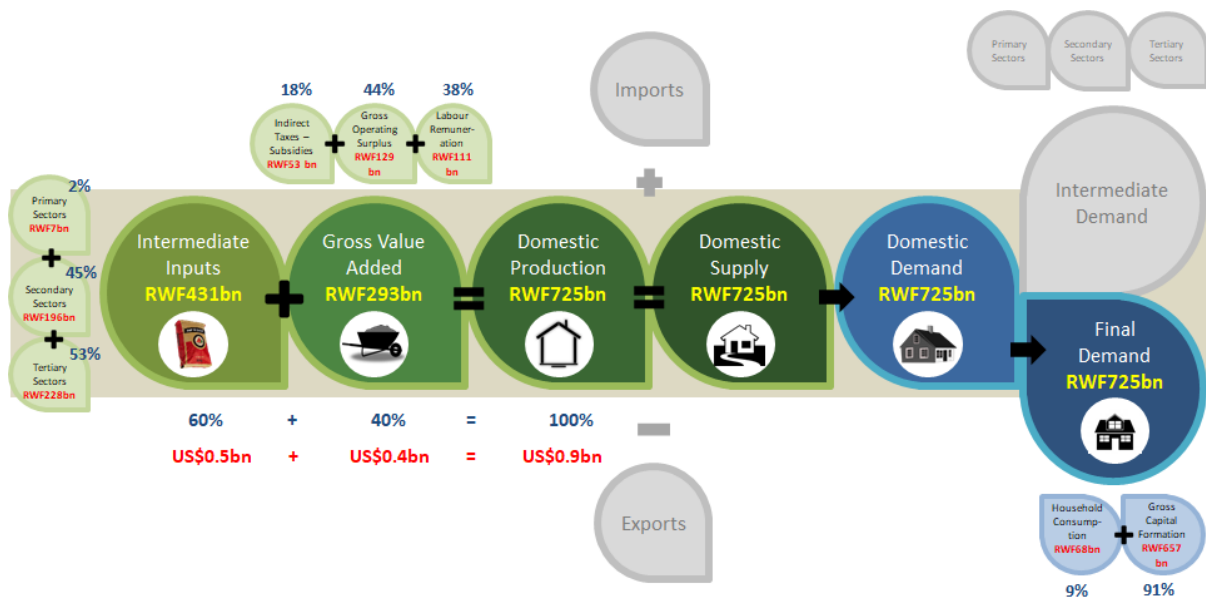


Figure 15: Combined housing construction and housing rental economic value chain for Rwanda in 2017 Source: Own calculations. IMF (2019).

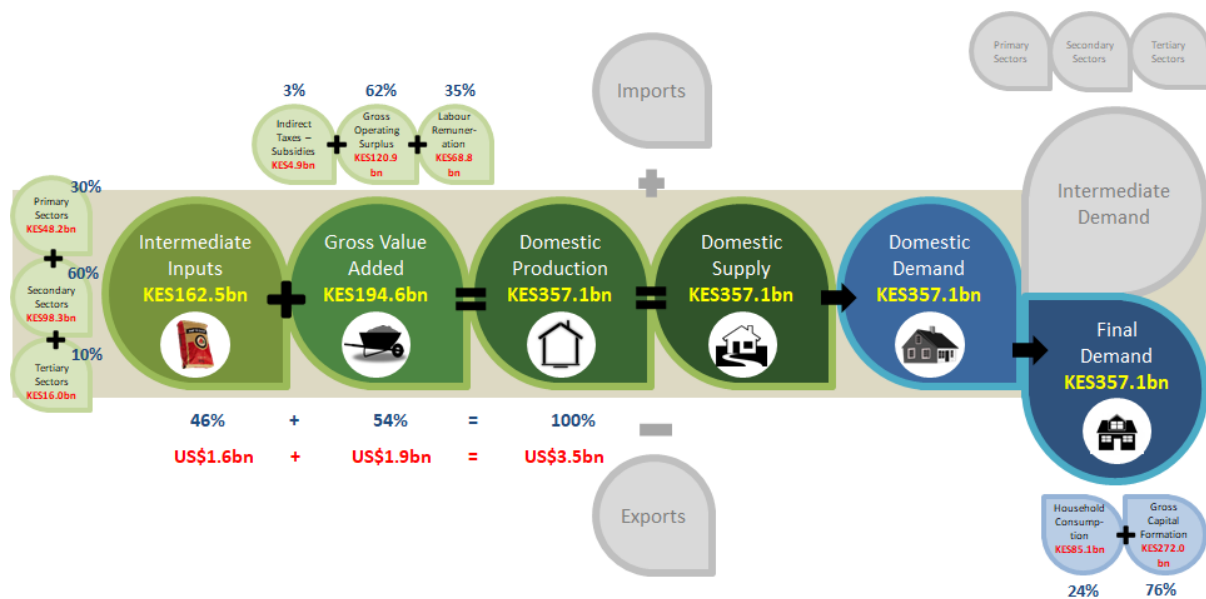


Figure 16: Combined housing construction and housing rental economic value chain for Kenya in 2016 Source: Own calculations. IMF (2019).

8. Conclusions and Policy Directions

This study is pioneering in its methodology, venturing into territories where accurate information is scarce, and data to build that information is limited or lacking. While we cannot yet definitively calculate the impact of housing on many African economies, this study develops a replicable methodology that provides a foundation for improved assessment of the impact of residential construction and rental on developing economies. We contend that by using whatever information is available, combined with reasoned and clear assumptions, a knowledge foundation is built which can be engaged with and improved on over time as improved information becomes available.

This analysis shows that, beyond producing housing as a social good, the residential construction and rental sectors are important builders, maintainers and stimulators of developing economies. The level of gross value added in both residential construction and rental exceeds many other economic sectors that rely on expensive, and often imported, intermediate inputs and have lower levels of value-added activity. Further, the intermediate inputs into housing rental and construction value chains are deeply embedded in local economies. While housing construction primarily stimulates the secondary sectors – especially manufacturing - housing rental contributes most significantly to the tertiary (services) sectors.

The economic contribution of rental housing in developing economies is overlooked. Rental generates and sustains significant economic activity, can have a higher skills profile, and is less affected by adverse economic cycles than the housing construction sector. In addition, households across the income profile rent accommodation, and even in the informal economy, landlords generate rental income from their existing household assets.

The housing value chain is also an important employment creator. While indications are that the housing rental sector is a stable source of employment, it is clear that housing construction employment is dependent on sustained levels of investment. However, the analysis also indicates that while housing construction and rental are significant employers, rates of informal activity and employment are comparatively high, and wages relatively low, even in comparison to other informal employment sectors. Therefore, the role that housing plays in offering survivalist economic opportunities is vital. However, it is also fragile.

As most Africa countries experience an acceleration in the pace of rural- urban migration, there is often a duplication of housing – with new migrants to cities requiring accommodation in the urban area, while simultaneously maintaining (and sometimes expanding and developing) their “rural” homes. These “divided” loyalties and the economic forces that they give rise to may be specific to the migrating generation. For as long as this persists it has the potential to increase the role and economic contribution of housing in these economies – provided that policies integrate all parts of the housing value chain. An economic perspective of housing places

the onus on a much wider group of actors to contribute to solving the housing crisis facing all of Africa's countries and to stimulate economic growth. Housing sector interventions in isolation are no longer sufficient, when it is evident that around half of all housing value is created in other sectors of the economy. Better and broader policy-making is required across sectors in order to unlock the housing value chain's potential for stimulating economic growth. Maintaining and growing investment in housing construction and rental activity must be seen as a national economic priority. It is therefore incumbent on central banks, economic, finance, labour and trade departments to recognise their joint role in engaging the housing value chain for growth, and to improve the housing outcomes of every citizen.

Financial markets play a critical role in deepening, widening and accelerating economic impacts of housing. Therefore, financial policy is as important to housing economies as land, planning and housing policy. Construction and end-user finance can stimulate the economic impact of housing by providing the opportunity to concentrate the timeframe within which housing investments can be completed and individuals can realise their housing demand.

It is clear from much of CAHF's other work that housing finance has the ability to convert housing demand into real housing supply. And where demand can be met, construction and rental activity follows.

In the end, to the economy, every house matters. The housing value chain is just as effective in tracing the impacts of the development of a luxury, multi-level mortgage-financed penthouse as the impact of an incremental process of a single household constructing an informal home – provided that all these diverse activities are captured in the national accounts and other data. Every action leading to the development, improvement or availability of shelter plays a role in driving economic growth and household prosperity, whether the outcome is formal or informal. This value chain analysis highlights the critical economic role that households and small businesses play in both the construction and rental sectors. In most African economies, 'massive small' dominates and must be encouraged. Based on official statistics for the number of housing units produced (which typically capture the activities of larger, formal contractors), and other measures such as the proportion of households without shelter, it is clear that informal housing value chains (driven by households and informal businesses) probably outweigh the value created by formal housing actors, and definitely produce more housing units in most African countries. While each of the countries that form part of this analysis include estimates of the contribution of the informal sector in the construction of their national accounts, it is not clear how accurate and comprehensive they are – especially in relation to housing and construction-related activities. Since the estimates of housing construction value added are supposed to capture new buildings as well and expenditure on the maintenance of the existing housing stock and any incremental additions to housing, the accuracy of these estimates also depends on how effectively and comprehensively such activity is measured. Policy and investment is too often focused on the limited, formal, high-income portion of the housing market, while the market of small-scale and household-level builders and landlords are ignored or even actively discouraged.

During the process of undertaking and disseminating this research, we have consistently experienced high levels of excitement and willingness to engage from political, official and private sector decision-makers. It is clear that this research begins to fill a gap in the housing-economy policy nexus and can contribute to political prioritization of housing as a contributor to economic growth, as well as to better inter-sectoral policymaking.

We recognise too that analyzing housing construction and rental value chains is useful, but not yet sufficiently informative and definitive. As we deepen and widen this research in the future, we will strive to better explain why these value chains present as they do and explore how these can be positively affected by finance and land policy, planning and permitting, tax regimes, economic maturity and structure, industrial policy and municipal systems. Specifically, CAHF is working closely with national governments and international development agencies to determine how this improved understanding of Africa's nascent housing value chains can be leveraged for economic growth and social transformation.

Annexure A: Benchmarking Housing Costs Across Africa

CAHF's 2015 "Benchmarking Housing Costs in Fifteen Countries in Africa" study develops and implements a consistent methodology for specifying, detailing and costing a standardised house on a uniform basis in two cities in each of fifteen African countries.²³ The study was undertaken in Cameroon, DRC, Ghana, Kenya, Liberia, Malawi, Morocco, Mozambique, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda and Zambia. A Housing Cost Dashboard is available on CAHF's website.²⁴

The pilot housing cost benchmarking study defines a 'standard house' that can be compared across divergent cultures, breaks this down into its component parts, and ensures that costing is consistent and comparable across English, French and Portuguese-speaking countries and different quantity surveying and costing conventions. A basic, generic house was designed that is viewed as acceptable across Africa. This 46m² house with a 9m² balcony, built on a 120m² stand was broken down into a detailed yet standard Bill of Quantities (BoQ), covering nearly 400 cost items: land, services, construction materials, labour, profit and financing costs. This BoQ was sent to qualified quantity surveyors identified in each country and was costed based on prevailing in-country costs for a notional 20-unit development in the capital city and a secondary city. This costing information has been collated, checked, consolidated and analysed.

CAHF now has an extensive database of the elemental costs of a standardised house in thirty cities across fifteen countries. We can compare the total cost of building to completion this standard house across countries and cities; break this cost down into broad categories (land, infrastructure, construction, other costs) or sub-categories (foundations, walls, roof, finishes); or separate costs into component costs (labour vs materials, cost of cement, or timber, or steel).

Finally, we have categorized the input costs according to their Standard Industry Classifications (SIC), so that we know what economic sectors are stimulated, and to what extent, by the construction of this generic house. Most importantly, we can compare these things - categories, components, inputs, products, sectors - across cities and countries and economic sectors.

This study shows that the dollarized cost of building this generic house varies by over 100 percent between countries, and even varies significantly between cities in the same country. More importantly, the analysis is able to demonstrate which element of the house accounts for the cost differences. Major differences are indicated in between countries and cities in almost all elements, including land, services, construction materials and labour costs.

Figure 17 compares the total cost of this generic house in the capital city of each country studied, and breaks this cost down into its first-level constituent parts.

²³ This study was conceptualized by CAHF, managed by David Gardner and implemented by our partners, the Affordable Housing Institute (AHI) with the support of local Quantity Surveyors in each country.

²⁴ <http://housingfinanceafrica.org/>

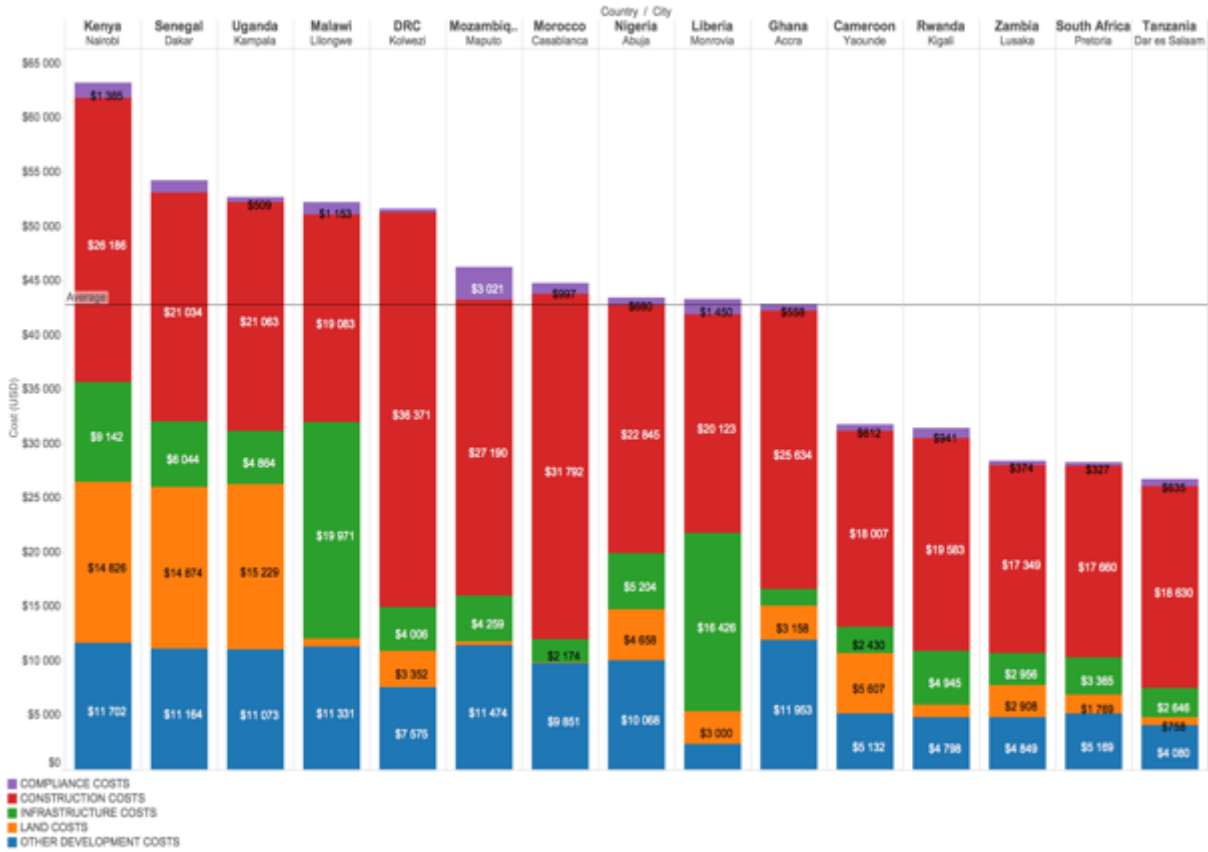


Figure 17: Construction cost of a generic house in fifteen countries

Annexure B: Comparative breakdown of the housing construction value chain in South Africa, Nigeria, Rwanda and Kenya

Housing Construction Value Chain Element	South Africa	Nigeria	Rwanda	Kenya
	(PPP\$ million)	(PPP\$ million)	(PPP\$ million)	(PPP\$ million)
Intermediate Inputs	7,282	30,810	1,462	3,261
Primary Sector	440	5,793	24	1,029
Secondary Sector	5,610	21,118	663	1,958
Tertiary Sector	1,232	3,900	776	274
Gross Value Added	6,159	25,208	782	2,548
Labour Remuneration	2,493	11,701	379	1,334
Gross Operating Surplus	2,668	10,947	263	1,109
Indirect Taxes less Subsidies	999	2,561	140	104
Value of Domestic Production	13,442	56,019	2,245	5,809
Value of Domestic Supply	13,442	56,019	2,245	5,809
Domestic Demand	13,442	56,019	2,245	5,809
Household Consumption	0	0	0	0
Gross Capital Formation	13,442	56,019	2,245	5,809

Source: Own calculations. IMF (2019).

Annexure C: Comparative breakdown of the housing rental value chain in South Africa, Nigeria, Rwanda and Kenya

Housing Rental Value Chain Element	South Africa (PPP\$ million)	Nigeria (PPP\$ million)	Rwanda (PPP\$ million)	Kenya (PPP\$ million)
Intermediate Inputs	6,749	20,118	11	209
Primary Sector	273	-	-	-
Secondary Sector	1,542	5,834	8	141
Tertiary Sector	4,934	14,283	4	68
Gross Value Added	7,194	37,334	220	1,608
Labour Remuneration	2,920	2,094	1	135
Gross Operating Surplus	3,576	27,514	178	1,473
Indirect Taxes less Subsidies	698	7,726	41	-
Value of Domestic Production	13,943	57,451	231	1,818
Value of Domestic Supply	13,943	57,451	231	1,818
Domestic Demand	13,943	57,451	231	1,818
Household Consumption	13,943	57,451	231	1,818
Gross Capital Formation	0	0	0	0

Source: Own calculations. IMF (2019).

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