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# UGANDA BICYCLE MARKET SYSTEM PROFILE

## USAID Bicycles for Growth Project

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## ABBREVIATIONS AND ACRONYMS

ARUWE	Action for Rural Women's Empowerment
BFG	Bicycles for Growth
COOP	Cycling Out of Poverty
DHS	Demographic and Health Survey
EU	European Union
FCDO	Foreign, Commonwealth and Development Office
FGD	Focus Group Discussion
JAA	J.E. Austin Associates, Inc.
JICA	Japanese International Cooperation Agency
KCCA	Kampala Capital City Authority
KII	Key Informant Interview
LC	Local Council
MoWT	Ministry of Works and Transport
NDP	National Development Plan
NGO	Non-Governmental Organization
NMT	Non-Motorized Transport
NRM	National Resistance Movement
SACCO	Savings and Credit Co-operative
TEENS	Training, Education and Empowerment for Neighborhood Sustainability
UBOS	Uganda Bureau of Statistics
UGX	Uganda Shillings
UNRA	Uganda National Roads Authority
UN	United Nations
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax
VSLA	Village Savings and Loan Association
WBR	World Bicycle Relief

### **Note on Currency and Exchange Rates**

The Ugandan Shilling (UGX) and US dollar (USD) are both referenced in this report depending on the source of information. All UGX figures are also presented in USD terms. The USD: UGX exchange rate used throughout the report is 1 USD: 3800 UGX based on the approximate rate over the period of data collection. In some cases, USD values may be rounded.



## EXECUTIVE SUMMARY

The Uganda bicycle market system is not operating to its full potential. While many elements within the system are functioning well, several notable constraints limit bicycle access and uptake in Uganda, such as cultural barriers for women, bicycle affordability, and spare part durability, among others. To identify constraints and potential solutions, the USAID-funded Bicycles for Growth activity (BFG) conducted an on-the-ground market system assessment in August of 2022 through a market survey, focus group discussions, key informant interviews, secondary research, and market observation.

This market system profile highlights BFG's primary findings in the Executive Summary, and then offers details on the market system's demand, supply, and supporting systems in the subsequent sections. The report provides conclusions on constraints in the final section and includes further details (e.g., methodology) in the annexes.

## MARKET SYSTEMS PROFILE KEY FINDINGS

### DEMAND

Demand for bicycles in peri-urban and rural areas of Uganda is high and is primarily driven by individuals and households for mobility, transportation, and facilitating economic activity. While motorcycles have become the preferred mode of transportation in urban centers such as Kampala, bicycles saw an increase in urban demand during COVID-19 lockdowns, starting in 2020. It is yet to be seen if this demand is sustainable. Institutional demand for bicycles in Uganda is low, with few examples of significant international donor, NGO, or government purchases or distributions of bicycles.

There are strong indications that existing barriers to bicycle ownership, most notably affordability, lead to unmet demand. Additional factors such as poor road safety and repair costs further discourage individual bicycle use. Addressing these barriers has the potential to increase bicycle access, uptake, and ownership.

### SUPPLY

The supply of bicycles at the national level is broad with many different categories and price points available. The wholesale and retail markets are highly competitive, with many sellers present, limiting the ability for individual sellers to set prices that exceed those of their competitors. Nonetheless, affordability issues remain. Bicycle prices are elevated in part due to geography, as Uganda is a landlocked and geographically large country, and recent global supply chain shocks resulting from the COVID-19 pandemic. Local bicycle supply is particularly limited in rural areas: in many cases the only options for acquiring a bicycle in a rural area are purchasing a used bicycle from an individual community member or traveling to the nearest town center where bicycle sellers are available.

### SYSTEMS

The bicycle market system's supporting systems vary in how effectively they contribute to market system functioning. While spare parts and maintenance services are widely available and owners are generally able to find replacements, bicycle users report challenges with both the cost and quality of components. These issues contribute to elevated long-term costs and inconveniences of ownership.

Bicycle financing is largely an untapped market: a select number of NGOs offer bicycle loan products, yet BFG found no obvious examples of bicycle loans on offer from financial institutions. The policy environment for non-motorized transport (NMT) is challenging. With the assistance of international donor organizations, Uganda developed an NMT policy in 2012. However, the implementation and funding of this policy has not been a priority at any level of government.

## INTRODUCTION

BFG conducted a bicycle market system assessment to better understand the dynamics that influence the usage and availability of bicycles in five target countries through the application of a market systems approach. The assessments provide detailed findings that USAID, research partners, host country governments, other donors, bicycle suppliers and others in the market system, civil society organizations, and citizens can use to increase bicycle availability and use.

### ABOUT BFG

Launched in October 2021, BFG is a three-year initiative to address mobility challenges in rural and peri-urban areas in sub-Saharan Africa by developing and demonstrating the means to promote functional bicycle market systems leading to rapid increases in bicycle access and uptake. BFG has two phases. In the first phase, BFG is conducting market systems assessments of the supply, demand, and supporting systems for bicycles in Ghana, Malawi, Rwanda, Uganda, and Zambia, leading to reports such as this one. Based on the results of the assessment phase, BFG will implement pilot projects in four to six localities across two of the targeted countries. The pilots will reduce barriers to the supply and uptake of fit-for-purpose, affordable, and durable bicycles.

In addition to the assessments and pilots, BFG is identifying local partners in each country to serve as Convening Partners and members of Bicycle Market System Advisory Committees, which will continue to advocate and serve the interests of bicycle market stakeholders, building on the work of the assessments.

### REPORT ORGANIZATION

This report is primarily structured around three market systems pillars (Demand, Supply, and Systems) introduced in more detail in the next section. Each pillar of the market system is described in detail, providing an overview of market dynamics, issues, and structures, as well as enablers and constraints to market system functionality.

### ACKNOWLEDGEMENTS

BFG thanks Brian Ariho, Uganda Country Assessment Manager, and Shoreline Services Ltd., Uganda Research Partner, for their expertise in conducting the Uganda market assessment. We would also like to thank all focus group participants, interviewees, survey respondents, government officials, and the dozens of other stakeholders who generously gave their time and perspective to the BFG team. This market system profile would not have been possible without their insights and participation. Finally, BFG thanks Wes Day from USAID's Office of Innovation, Technology, and Research for his time, guidance, input, and support before, during, and after the assessment.



## MARKET SYSTEM OVERVIEW

The framework used for this assessment considers three core, interrelated pillars which collectively form the bicycle market system (see Figure 1, following page):

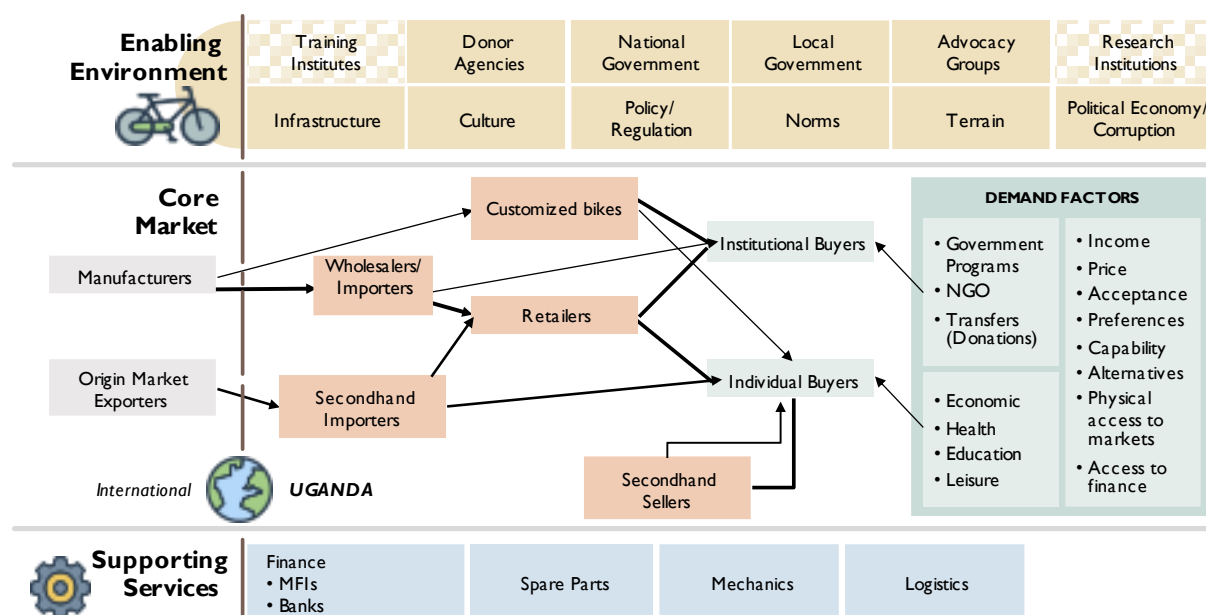
1. Demand,
2. Supply, and
3. (Supporting) systems.

The Demand pillar of the market system consists of both the individuals and institutions that generate demand for bicycles. While the acquisition and ownership of bicycles are important aspects of demand, they are not the sole consideration. Demand for bicycles is also generated by those individuals utilizing bicycles even as non-owners, such as when borrowing or renting bicycles from neighbors or hiring a bicycle taxi for personal transportation or moving goods. These use cases are important to recognize in the Ugandan context, as a substantial share of bicycle users are not bicycle owners. In the survey conducted by BFG in eight market locations across four districts, 41 percent of respondents that never owned a bicycle or were previous bicycle owners but are no longer owners, reported using a bicycle at least once a month. Very few institutions, including government agencies, donor institutions, and NGOs within Uganda make use of bicycles in the course of their activities. Although bicycle affordability and resource considerations are typically the most pressing constraints, users and non-users consider a range of factors when deciding whether and how to use a bicycle, including road safety and transportation alternatives.

Within the Supply pillar, bicycles ultimately reach interested buyers through several channels. The majority of bicycles within the market system are imported from international sources. These imported bicycles include new mass market bicycles (typically manufactured in China and India and available at relatively low price points), new upmarket bicycles mostly manufactured in Korea, and used bicycles (sourced from a variety of locations, including Japan and Korea). Bicycles are sold across the country in dedicated bicycle stores, repair shops, and other outlets. Consumers do not report challenges in accessing bicycles for sale. Further, the secondary bicycle market is quite active, with most bicycle owners reporting that their bicycles were used at the time of purchase. Many individuals acquire their bicycles from other individuals in their community. Bicycle owners surveyed by BFG reporting owning their bicycles for an average of six years.

The Systems pillar includes actors that directly support the ongoing usability of bicycles (namely mechanics and spare parts sellers), sources of finance, and government agencies. Maintenance and repair services directly impact the lifespan of bicycles and remain perhaps the most consequential element of the market system's supporting systems. The market for spares parts is healthy, and like the bicycles themselves, spare parts are widely available (with some exceptions). However, market actors report spare parts are not affordable and can be of poor quality. Bicycle mechanics are accessible and owners can usually find one to address common problems. Despite a standalone NMT policy, in practice, policymakers generally do not focus on bicycles or bicycle issues, and often do not make special consideration of bicycles during planning, infrastructure development, or policymaking. When policymakers consider bicycles, bicycle use is often framed in terms of road safety issues and particularly the interaction between cyclists and motorized transport. Market system actors seldom use finance: individuals rarely seek loans for bicycle acquisition, and retailers rarely use finance to address working capital constraints.

**FIGURE 1: BICYCLE MARKET SYSTEM MAP**



## ASSESSMENT METHODOLOGY

In carrying out this assessment, BFG used a combination of desktop research and primary data collected through key informant interviews, focus group discussions, and a quantitative survey. The BFG team conducted more than 65 interviews and meetings with actors representing all three pillars of the market system, including importers, wholesalers, retailers, institutional buyers, national and local government officials, NGOs, community leaders, microfinance institutions, spare parts sellers, mechanics, and researchers. BFG carried out ten focus group discussions, primarily to collect insights from users—especially women—and bicycle-based businesses. The survey collected information from individual demand side actors at an urban market site in one pre-test district (Kampala), and eight rural and peri-urban market sites in four districts (Isingiro, Lira, Mityana and Tororo). Unless otherwise noted, all references to survey data in the report refer to the survey conducted by BFG. Annex 2: Methodology and Annex 3: Questionnaire provide details on BFG’s approaches to data collection.

# UGANDA OVERVIEW

## COUNTRY CONTEXT

Uganda's population is estimated at 47 million people, the vast majority of which (74 percent) reside in rural areas.<sup>12</sup> Females comprise 50.7 percent of the population, while two thirds of the population is aged 0 to 24 years.<sup>3</sup> Uganda's unemployment rate is estimated at 11.8 percent. Approximately 36 percent of the working population is in purely subsistence agriculture work, 62 percent are in some form of employment (mainly self-employed), and 2 percent are in other forms of work.<sup>4</sup> The most recent estimates indicate that a substantial share of the population (42 percent) is poor based on the international poverty line of \$2.15 a day.<sup>5</sup>

## MOBILITY CONTEXT

In both rural and urban areas of the country, mobility is constrained by poor road infrastructure and lack of affordable, safe, and reliable transportation. Walking and cycling are the most common modes of transport in Uganda. Walking is the primary mode in rural areas where decisions are informed by the cost and availability of transportation. Thus, people walk regardless of the weather or the season; even when individuals have access to bicycles, they walk for shorter distances. Further, Uganda does not have an integrated, multi-modal transport system to complete longer journeys. The private minibus (matatu) network and intercity Postbuses are the existing modes for longer haul travel, but they less commonly serve rural areas and are costly for low-income riders.

The average time people spend walking or cycling for transportation is estimated at 72.8 minutes per day. Men spend slightly more time (76.3 minutes) than do women (67.7 minutes).<sup>6</sup> Uganda's most recent national household survey reports that 61 percent of Ugandans walk to the nearest health facility.<sup>7</sup> The BFG survey found 59 percent of respondents walked or used bicycles during the harvest season preceding the survey. A greater percentage (74 percent) relied on walking or bicycles for travel to work or to access markets.

Walkers and cyclists face hazards on the road. Data from 2016 shows that pedestrians constitute 40 percent of road fatalities, and cyclists 6 percent of road fatalities.<sup>8</sup> Motorcycles are making dramatic inroads into mode share in Uganda, with Kampala "choked" by motorcycle taxis as commuters seek to overcome traffic gridlock. In 2016, motorcycle drivers constituted 33 percent of road deaths; by 2021, traffic police reported motorcycle taxi crashes contributed to almost 50 percent of road deaths. Almost a million largely unregulated motorcycles operate on Uganda's roads, often replacing bicycle taxis, amid calls for the import of motorcycles to be stopped. In 2018, Uganda banned the import of all motor vehicles older than 15 years in a bid to improve air quality and emissions.

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<sup>1</sup> <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=UG>

<sup>2</sup> <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=UG>

<sup>3</sup> <https://www.ubos.org/mid-year-population-projections-national-and-sub-national/>

<sup>4</sup> Uganda Bureau of Statistics 2019, *The Annual Labour Force Survey 2018/19 – Main Report*, Kampala, Uganda

<sup>5</sup> World Bank Data Bank. *Poverty headcount ratio at \$2.15 a day (2017 PPP) (% of population) - Uganda*.

<sup>6</sup> United Nations Environment Programme, *Walking and Cycling in Africa – Evidence and Good Practice to Inspire Action*. 2022.

<sup>7</sup> Uganda Bureau of Statistics (UBOS), 2021. *Uganda National Household Survey 2019/2020*. Kampala, Uganda; UBOS

<sup>8</sup> World Health Organization (WHO), 2018, *Global Status Report on Road Safety*

Despite the increased uptake of motorcycles, Uganda continues to exhibit fairly high demand for bicycles, with some policy support. Uganda is one of the few countries in Sub-Saharan Africa to develop a standalone, NMT policy, as well as context-specific NMT infrastructure guidelines. Yet, current road infrastructure in Uganda does not provide the minimum level of service to pedestrians and cyclists in either urban or rural areas. Topography, access to affordable bicycles, and lack of infrastructure, are barriers to increased cycling. The Uganda Ministry of Works and Transport (MoWT) developed an NMT Policy in 2012 to help overcome these barriers, and an NMT Implementation Manual in 2019. Although these key documents exist, cities and local government still lack appropriate guidelines and funding to implement the 2012 NMT Policy. Facing challenges such as high population density and traffic jams, cities such as Kampala also lack space for expanding cycling facilities.

Transport expenditure in Uganda is the third most important consumption item for households, after food and housing. Nearly 10 percent of total household expenditure is allocated to transport. However, spending varies significantly across geographical locations and socio-economic levels. In some areas, such as Central Uganda, which is more urbanized compared to other parts of the country, an average of 12.5 percent of total household expenditure is allocated to transport, compared to 8.3 percent in rural areas.<sup>9</sup> Absolute transport expenditure is lower in low-income households compared to wealthier households: ownership and use of non-motorized transportation is higher in the latter.

## TRANSPORT AND MOBILITY NEEDS

Mobility needs are a key driver of bicycle demand. In rural areas where the main mode of travel has historically been walking, demand for bicycles is higher than in urban areas: bicycles are easily accessible and quicker than walking. Affordability is another factor that makes bicycle use attractive, especially in rural areas (discussed further in the next section).

Slightly more than half of BFG respondents reported walking as the primary mode of travel to work or to market, though this varies by geography (see Figure 2). Bicycles were the second most common mode of transportation to work or market after walking, used by 22 percent of all respondents. Bicycle use is especially common during the harvest season where agriculture is the main source of livelihoods, mainly due to the increased need for transport of farm produce and the load-carrying capacity of bicycles (see

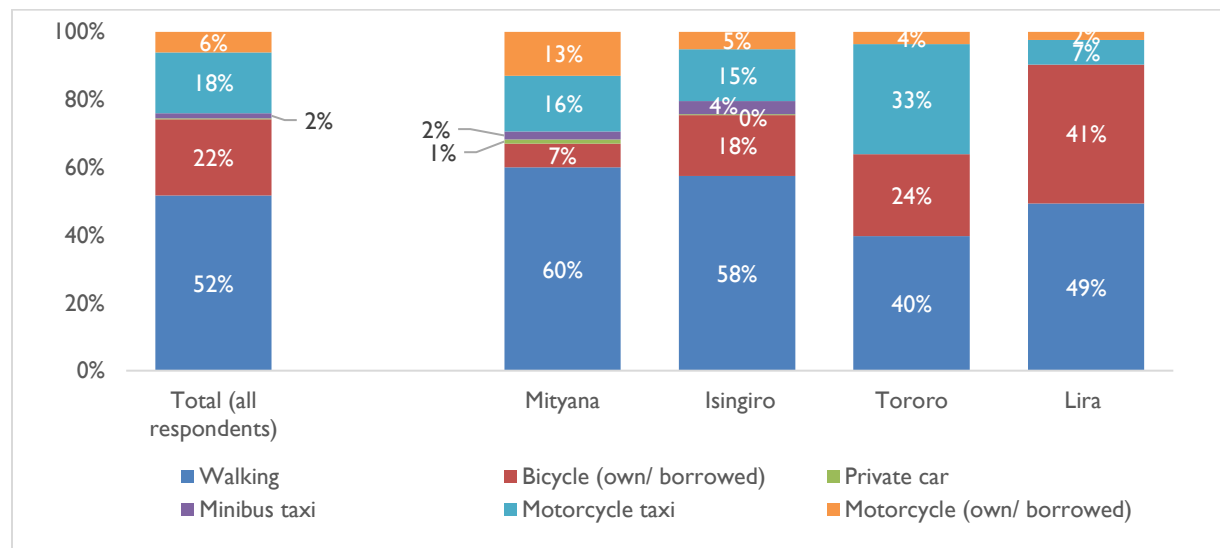
Figure 3).

In urban areas, motorcycle taxis (boda bodas) are the dominant mode of transportation, not only because they are more affordable compared to other motorized modes, but because they are a quick way to navigate the inordinate road congestion common in cities like Kampala. BFG found that, while motorized boda bodas are commonly available in peri-urban and rural areas, privately owned bicycles and bicycles-for-hire are perceived as more affordable and are therefore more common. When bicycles are not the main mode of travel, they are used as a secondary mode. One-third of the BFG respondents who did not use bicycles as the primary mode of travel to work still used them regularly (either daily or several times a week), suggesting that people make daily decisions about transport modes, based on cost, convenience, distance, or access.

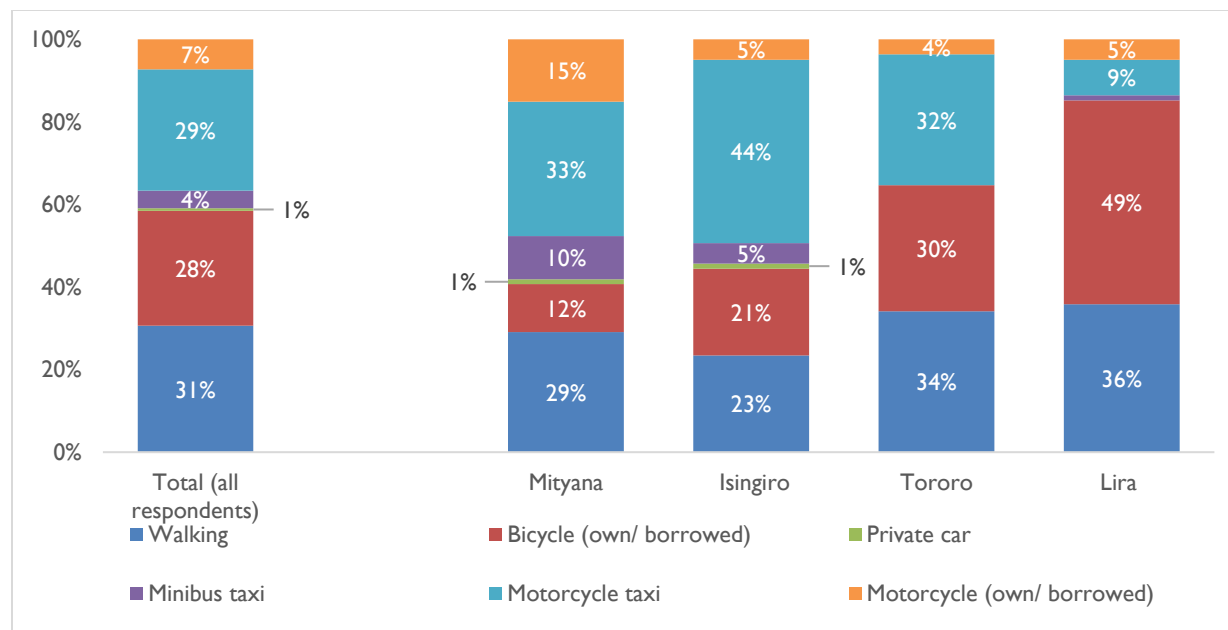
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<sup>9</sup> Uganda Bureau of Statistics (UBOS), 2021. Uganda National Household Survey 2019/2020. Kampala, Uganda; UBOS

**FIGURE 2: PRIMARY MODES OF TRANSPORTATION TO WORK/MARKET**



**FIGURE 3: PRIMARY MODES OF TRANSPORTATION DURING HARVEST SEASON**





## DEMAND

Overall, demand for bicycles in Uganda is high – particularly in peri-urban and rural areas relative to urban ones. Bicycle owners tend to purchase used bicycles, likely due to their lower up-front cost. Pre-owned bicycles cost almost 40 percent less, on average, than a new bicycle, according to BFG survey data. Fifty-nine percent of BFG survey respondents who owned a bicycle reported they purchased pre-owned bicycles. Among households that own bicycles, men tend to be the primary owners (69 percent of owners) and users of bicycles. Cultural barriers are an impediment to women's uptake of bicycles, with the exception of Northern Uganda, which exhibited higher rates of bicycle use by women surveyed by BFG. Finally, those aged 35 and above are more likely to own and use bicycles, likely due to higher incomes and asset accumulation associated with non-youth populations.

### CHANNELS OF DEMAND

The main channels of bicycle use in Uganda include individual users (for transport), commercial users (for taxis and transport), and institutional purchasers (for programs). Users select bicycles based on cost, perceived speed and strength, and perceived brand attributes.

### INDIVIDUAL

The main source of demand in the Ugandan bicycle market system is individual purchasers, who use bicycles for a variety of purposes such as travel, transporting goods, and household chores. Over a third (35 percent) of BFG survey respondents reported they owned bicycles, while an additional 23 percent reported having owned a bicycle in the past. Cost is the greatest barrier to increased usage and ownership; over 70 percent of respondents who have never owned a bicycle said the primary reason they are not owners is due to the cost of acquisition (63 percent) or the cost of maintenance and repair (9 percent).

Bicycles in the market system are primarily sourced from individual suppliers (cited by 44 percent of bicycle owners in the BFG survey), retailers (37 percent), and hardware stores (5 percent).

Most surveyed current or former owners reported their bicycle was pre-owned at the time of purchase. Acquisition of pre-owned bicycles is highly correlated with the lower cost of used bicycles, especially when purchased from an individual. The average reported price paid by owners for new bicycles was 64 percent higher than for a used bicycle. And, the perceived durability of used bicycles is comparable to new imports.

Individual and household demand is highest in rural areas and varies by geography. Bicycles are less common in urban areas, although there was a spike in demand during the COVID-19 lockdown period when the government banned public and private motorized transportation.<sup>10</sup> Data on increased demand is limited and it is not yet clear if this increased demand is sustainable because the COVID-19 pandemic is ongoing and supply chain issues have dramatically increased the cost of bicycles in Uganda over the past 12 months.

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<sup>10</sup> UN Habitat. "Uganda's capital promotes cycling to protect against COVID-19." 3 June 2020.

Demand is greatest in the Northern and Eastern regions, where bicycles are a primary mode of travel. BFG's survey found 53 percent of respondents in Tororo (Eastern) and 73 percent in Lira (North) currently own or previously owned bicycles.

Bicycles are less widely used in urban areas relative to peri-urban and rural areas. BFG survey data indicates ownership levels were lower in more urbanized regions. Urban areas are generally less conducive to cycling because of greater hazards from road conditions and motorized transport, and the absence of bicycle infrastructure such as a cycle network (cycling routes) and bicycle storage. At the same time, the greater prevalence of motorized transport provides alternatives to bicycles for many users. Additionally, the negative perception towards the bicycle as a transportation tool for the poor could be one of the contributors to low demand in urban areas, particularly among households in middle or upper socio-economic strata.

Men constitute the majority of bicycle owners represented in the BFG survey, and therefore are likely the primary source of demand across the country. In the BFG survey, 69 percent of all bicycle owners were men. Although the rate of bicycle ownership among women is lower relative to men, the gap in ownership is smallest in Northern Uganda, where 40 percent of female respondents were previous or current bicycle owners; well above the average rate of bicycle ownerships across all districts represented in the BFG survey.

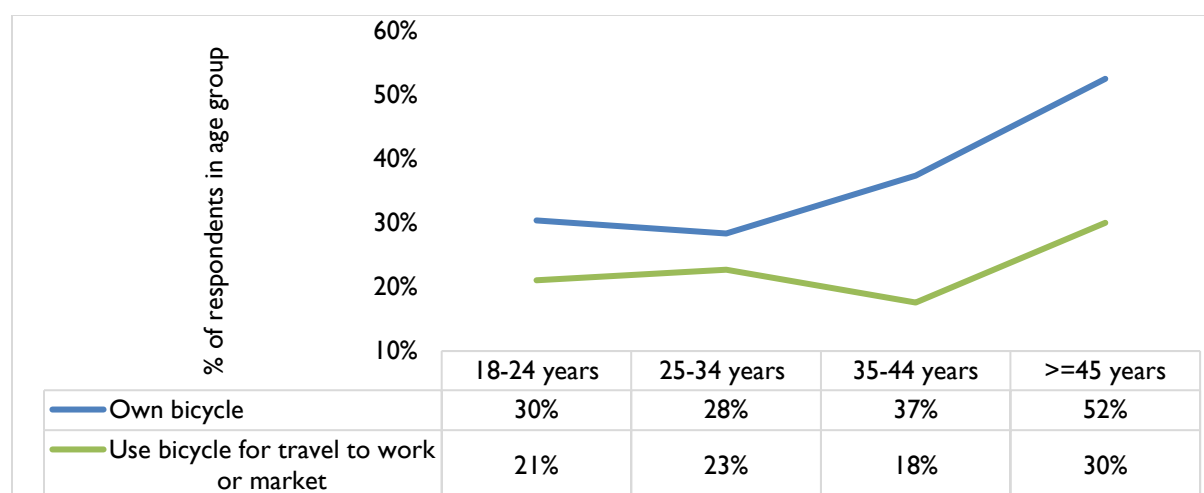
Younger age groups are also less represented among bicycle owners. Higher ownership rates in older age groups are likely linked to higher income levels and asset accumulation. Forty-eight percent of surveyed youths (individuals aged 18 to 24) owned bicycles compared to 60 percent of adults aged 25 and older. There were no significant differences in bicycle ownership rates across economic occupations, indicating demand is not necessarily driven by economic activity.<sup>11</sup>

Most bicycle owners (88 percent) purchased their bicycles, while the remainder received bicycles from family members, friends, employers, or as a donation. BFG respondents who purchased bicycles owned them for an average of 5.7 years.

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<sup>11</sup> Nearly all (97%) of BFG survey respondents were in some form of employment, with the majority (58%) either farmers or informal merchants, 24% in private sector employment (including casual work) and 14% formal merchants.

**FIGURE 4: BICYCLE OWNERSHIP AND USAGE BY AGE GROUPS**



## INSTITUTIONAL BUYERS

Data on institutional buyers' demand for bicycles is limited. While only 1 percent of bicycle owners in the BFG survey reported they received their bicycle from an institution, BFG did find examples of local and international NGOs and political parties distributing new imported bicycles, mostly of Indian and Chinese origin, as part of one-off social welfare programs.

Some notable institutional purchasers include the Ministry of Local Government, which procured and is distributing 70,000 bicycles to Local Council (LC) Chairpersons to support their work within communities.<sup>12</sup> Bicycles are also used for political mobilization: the National Resistance Movement (NRM) party recently distributed 68,000 bicycles to support mobilization activities for the party's village chairpersons.<sup>13</sup>

The Malaria Consortium procured approximately 1,000 bicycles in 2020 for village health teams to collect supplies from health centers and deliver them to communities.<sup>14</sup> FABIO, based in Jinja, is another key institutional purchaser. FABIO has distributed more than 25,000 bicycles to school-going children and community members (through savings groups) since its inception. Cycling Out of Poverty (COOP), also based in Jinja, procures approximately 1,000 bicycles per year for school-going children who reside two to three kilometers from school, and health workers, volunteers, and for those who need bicycles for income-generation purposes.

In contrast to individual demand, institutions prefer new, imported bicycles to the exclusion of used bicycles, and distributions tend to be motivated by political, educational, or health goals. While owners responding to the BFG survey overwhelmingly reported using their bicycle for economic activities or household tasks, the intended uses of bicycles purchased by institutions are generally not economic in nature.

<sup>12</sup> <https://ugandaradionetwork.net/story/lc-l-chairmen-pour-scorn-as-magyezi-hands-over-the-long-awaited-bicycles->

<sup>13</sup> <https://observer.ug/news/headlines/66167-museveni-flags-off-68-000-bicycles-for-nrm-village-chairpersons>

<sup>14</sup> <https://www.malariaconsortium.org/news-centre>

## BICYCLE OWNERSHIP AND ACCESS MODELS

There are several modes of bicycle ownership and access. Although bicycle usage is widespread across Uganda, ownership is less common than usage. In addition to ownership, users have multiple means of access to bicycles, such as shared access with family or community members, or rental.

### HOUSEHOLD AND INDIVIDUAL OWNERSHIP

Bicycles are important assets, means of transportation, and source of livelihoods for rural and peri-urban households in Uganda. The most recent national Demographic and Health Survey (DHS) shows that a third of households in the country own at least one bicycle, while nearly 40 percent of households in rural areas own a bicycle.<sup>15</sup> The BFG survey found that 49 percent of all respondents reported a bicycle in their household, owned either by themselves, or their spouse, child, or relative. Ownership was greatest in Tororo where 65 percent of all respondents reported having a bicycle in their household, compared to 60 percent in Lira, 38 percent in Mityana, and 35 percent in Isingiro. Bicycle ownership and use is often shared by household members and between households in a community. In Lira, women report owning bicycles, sharing bicycles with family and household members, and borrowing from neighbors. In Tororo, Isingiro and Mityana, women report varying levels of bicycle use with the male household head usually being the primary owner and user of the bicycle.

Ownership and usage are highly correlated: 70 percent of bicycle owners were also the primary user of the bicycle. Women were less likely to be the primary user in their household; 36 percent of women reported being the primary user, compared to 56 percent of men. Only 24 percent of bicycle owners were women. However, the majority of women were the primary users of the bicycle they owned. These dynamics are discussed in more detail below under Gender & Bicycle Use and Access.

### SHARING AND BICYCLE HIRE

Within Uganda's bicycle market system, informal bicycle sharing is common among individuals and households, indicating usage is high, but purchasing power may be limited. The vast majority of bicycle owners (84 percent) in the BFG survey reported lending bicycles to people outside their households. Bicycle share rates were highest in Tororo and Lira, where 97 percent and 90 percent of owners lent their bicycles to others, and lowest in Mityana and Isingiro (68 percent). The terms of informal lending vary widely. BFG found that many focus group respondents lend or borrow bicycles at no cost, while some lenders may charge a small borrowing fee on a daily or weekly basis.

While informal bicycle sharing is common, BFG key informant interviews indicate that formal bike share pilots have not attracted government attention or the financial resources necessary for local or national scaling. BFG found no permanent formal national or local bicycle share programs of notable size in Uganda. Some NGOs, such as Training, Education and Empowerment for Neighborhood Sustainability (TEENS) in Kampala, have piloted bicycle share programs in partnership with international donors, however these were short-term projects. TEENS reported significant demand for a bicycle sharing service when implementing two pilots in Kampala. However, these projects have not yet been taken up by the local government. TEENS also implemented a bicycle-share program piloted at Makerere University's Pharmacy between 2013 and 2017. This program was reportedly popular amongst students, and other faculties

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<sup>15</sup> Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF.

requested similar programs. However, the program ultimately did not receive government or university funding necessary for sustained implementation.

Beyond these pilot activities, some small businesses and non-profit organizations, such as the First African Bicycle Information Organisation (FABIO), have also trialed bicycle rental programs. FABIO's program is mostly oriented to users in Jinja, typically tourists, offering full day rentals.

Use of bicycle taxis is rare in Uganda, although they were historically a common mode of travel in Uganda. In the 1960s-1980s in the Eastern region along the Ugandan and Kenyan border, for example, bicycles were used to smuggle goods and transport people across the border.<sup>16</sup> The term *boda boda*, now commonly referring to motorcycles, originally described bicycle taxis. The rise in demand for motorcycles is viewed as one of the key drivers of the decline in demand for bicycle taxis.

## **GENDER & BICYCLE USE AND ACCESS**

Low bicycle ownership rates among women are attributed to cultural norms and beliefs, limited experience riding a bicycle, and affordability, factors to consider when promoting bicycle access. Among BFG women respondents, less than one quarter (22 percent) owned bicycles, compared to 47 percent of men. Besides ownership, bicycle use is also low among women. Sixty-four percent of respondents who never used bicycles for travel were women. Ownership and usage rates among women vary significantly among geographic locations. Despite low ownership and usage rates, survey respondents enthusiastically support women owning bicycles, a promising insight to drive demand among women.

With the exception of the Northern districts, male and female focus group participants described their communities' perceptions of women's bicycle use as follows (though not necessarily their own belief): women should not ride bicycles because it is not feminine, will reduce their dependence on men, or could cause damage to their reproductive organs. Other women participants say they had either tried riding a bicycle but failed, or had simply never learned, as they did not foresee ever owning a bicycle. They report that "most people know that bicycles are ridden by men."

Cycling is more common among men and women in Lira because the terrain is flat and more conducive to bike riding, and Northern Ugandans tend to experience higher rates of poverty than the Central and West districts.<sup>17</sup> Higher female use and ownership of bicycles in Northern Uganda may be due in part to a higher need for women to participate in economic activities and a more welcoming terrain for cycling, however more research is needed to fully understand gender norm differences between surveyed districts.

In many instances women report that if they did have a bicycle, they would use it rather than walk or pay for a motorcycle taxi. This suggests women's underlying, unmet demand for bicycles, partially resulting from cultural norms in some areas.

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<sup>16</sup> <https://www.newvision.co.ug/news/1185829/evolution-motorcycle-transport>

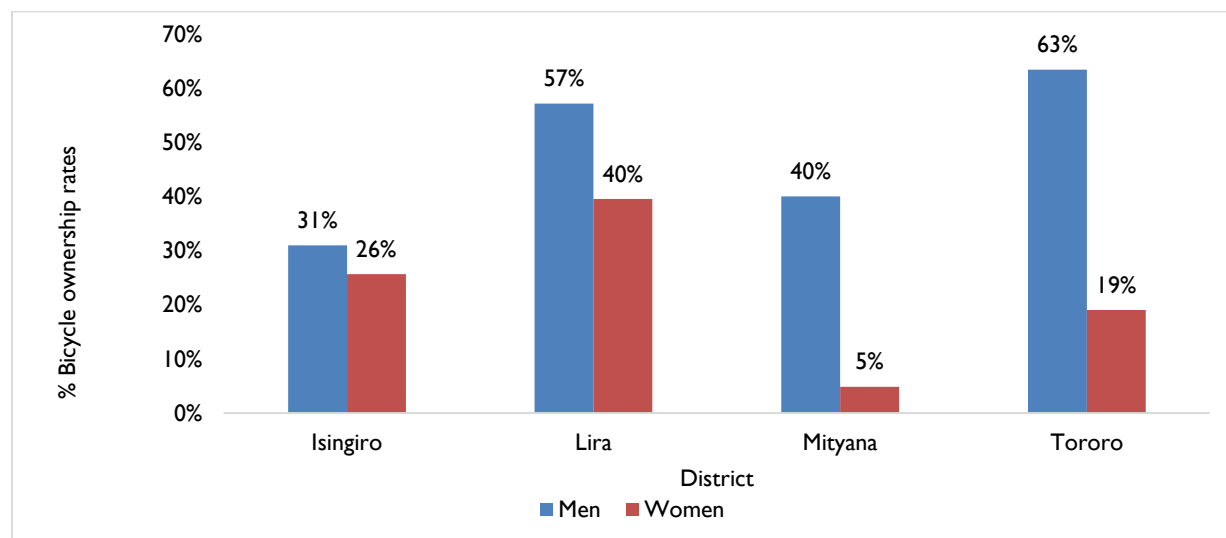
Dzisi, EMK & Lugada, T. Modeling the potential shift from motorcycles (boda bodas) to bicycles among young people on a Ugandan university campus. 2021. Scientific African, Volume 12, e00741. ISSN 2468-2276, <https://doi.org/10.1016/j.sciaf.2021.e00741>

<sup>17</sup> UNICEF, "Going Beyond Monetary Poverty: Uganda's Multidimensional Poverty Profile," 2020. <https://www.unicef.org/esa/reports/ugandas-multidimensional-poverty-profile-2020>



These factors help explain the lower ownership of bicycles by women, which was evident in all districts except in Lira (see Figure 5). Demand by women was particularly low in Mityana (Central region): only 5 percent of women owned bicycles compared to 40 percent of men.

**FIGURE 5: BICYCLES OWNERSHIP RATES AMONG MEN AND WOMEN BY DISTRICT**



In Lira and Tororo, nearly all respondents reported that it is acceptable for women to ride/use bicycles. In Lira (see above), women not only are bicycle owners, but they also ride long distances (between 10 to 30 kilometers), carrying loads to markets and for other purposes. In the BFG survey, 63 percent of women respondents in Lira reported that they used bicycles frequently (either daily or several times a week). This points to a significant potential demand among women where acceptability constraints are overcome. However, this viewpoint did not seem to increase demand for bicycles by women in Tororo where only a fifth of women owned bicycles, which implies that other barriers (e.g., cost) may be impacting demand. Thirty eight percent of women in Tororo used bicycles frequently, much lower than reported in Lira. However, the findings in Lira and Tororo deviate significantly from the other two districts surveyed (see Table I below). Despite these findings, a large majority of respondents (at least 90 percent) in all districts felt that women would benefit from owning bicycles.

**TABLE I: PERCEPTIONS REGARDING USAGE OF BICYCLES BY WOMEN**

	Respondents agreeing that it is acceptable for women to use bicycles			Respondents agreeing that women will benefit from owning bicycles		
	% of all respondents	% of Men	% of Women	% of all respondents	% of Men	% of Women
<b>Total (all districts)</b>	<b>83%</b>	<b>79%</b>	<b>88%</b>	<b>92%</b>	<b>88%</b>	<b>95%</b>
<b>District</b>						
Mityana	57%	51%	63%	76%	67%	85%
Isingiro	78%	69%	87%	95%	93%	97%
Tororo	99%	98%	100%	100%	100%	100%
Lira	100%	100%	100%	96%	95%	98%

**BICYCLE USAGE**

The primary use of bicycles in Uganda is transportation of people and goods. Bicycle ambulances are also common in rural areas.

**FREQUENCY AND INTENSITY OF USE**

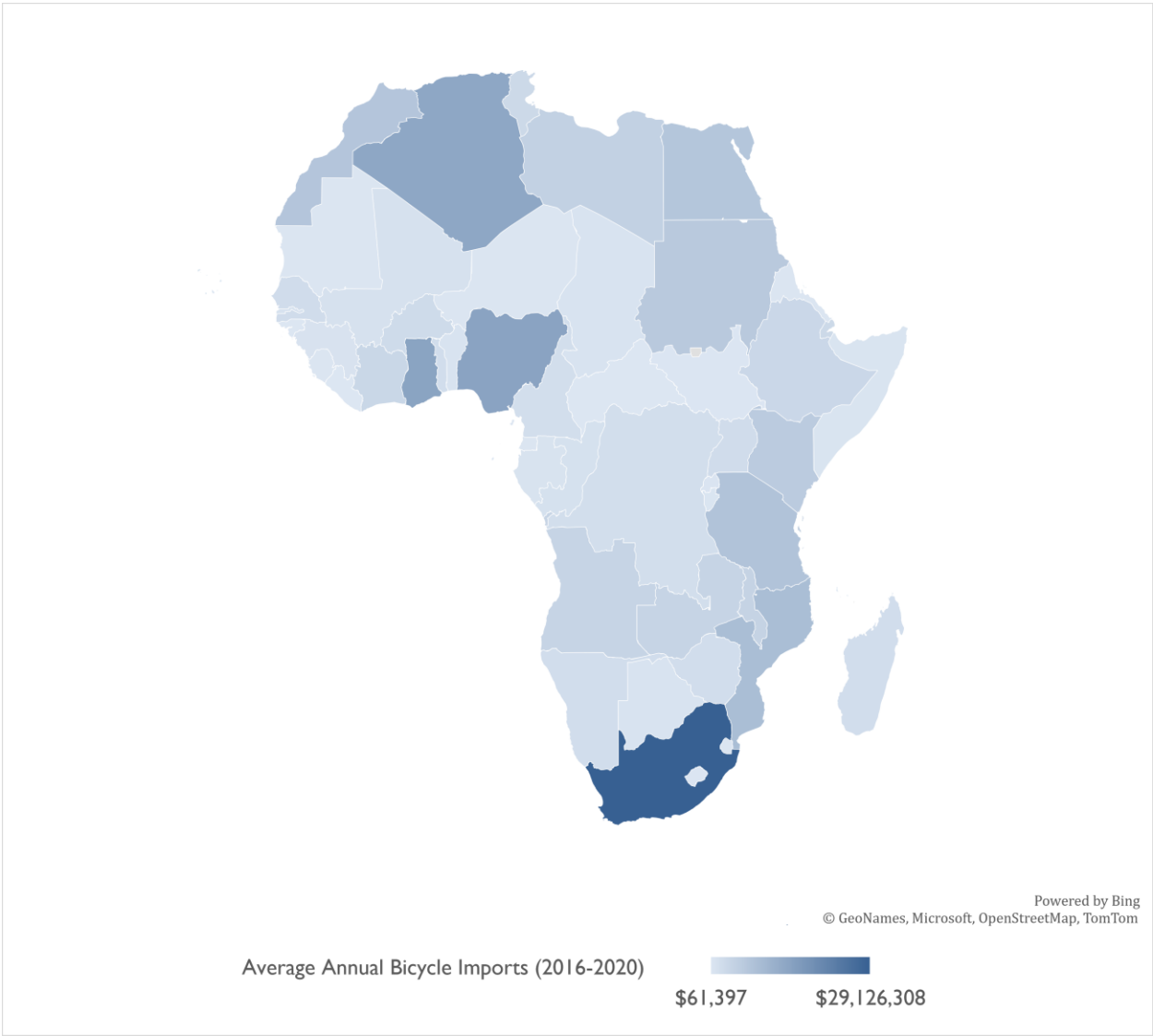
Frequent bicycle usage is common in many parts of the Uganda bicycle market system, although it is more apparent in Eastern and Northern parts of the country where people use bicycles for travel within and outside their villages (including to markets) and for transportation of goods. Overall, nearly half (44 percent) of all respondents used bicycles regularly (either daily or several times a week). The use rate was significantly higher in Lira than in other districts. High frequency and intensity of use is a significant demand driver for a quality bicycle.

Seventy percent of current bicycle owners in the BFG survey used bicycles regularly, compared to 30 percent of non-owners, suggesting an access issue. In addition, more than a quarter (27 percent) of non-owners reported that they preferred to use their own or borrowed bicycle for travel, given the option to choose. Half (49 percent) of non-owners in Tororo and 57 percent in Lira reported preference for own or borrowed bicycle. These findings suggest a substantial unmet demand for bicycles in Tororo and Lira, and that access could lead to increased usage.

Those who do use bicycles use them intensively. On average, people who travel by bicycle travel about five hours a week, regardless of geography, ownership, gender, and/or occupation. Bicycles are used most intensively (i.e. hours per day) by those under 24 years of age and by informal merchants and casual workers. A quarter of respondents spent at least seven hours per week traveling on bicycles. A more complete picture of bicycle frequency and intensity of use by demographic categories and survey districts is available in Annex 4: Africa Bicycle Import Market Overview

Presented in below Figure 15 and Table 10 is a summary of 5 years of bicycle import data for 54 African countries. All data is sourced from the CEPII BACI dataset and includes all reported imports for bicycles (HS Code 871200) during this period. Figure 15 displays the annual average imports for countries during this period, while Table 10 includes the annual figures for all countries as well. Countries in which BFG has conducted market systems assessments are highlighted in orange on the data table.

FIGURE 15: AFRICA REGION BICYCLE IMPORTS - ANNUAL AVERAGE (2016-2020)



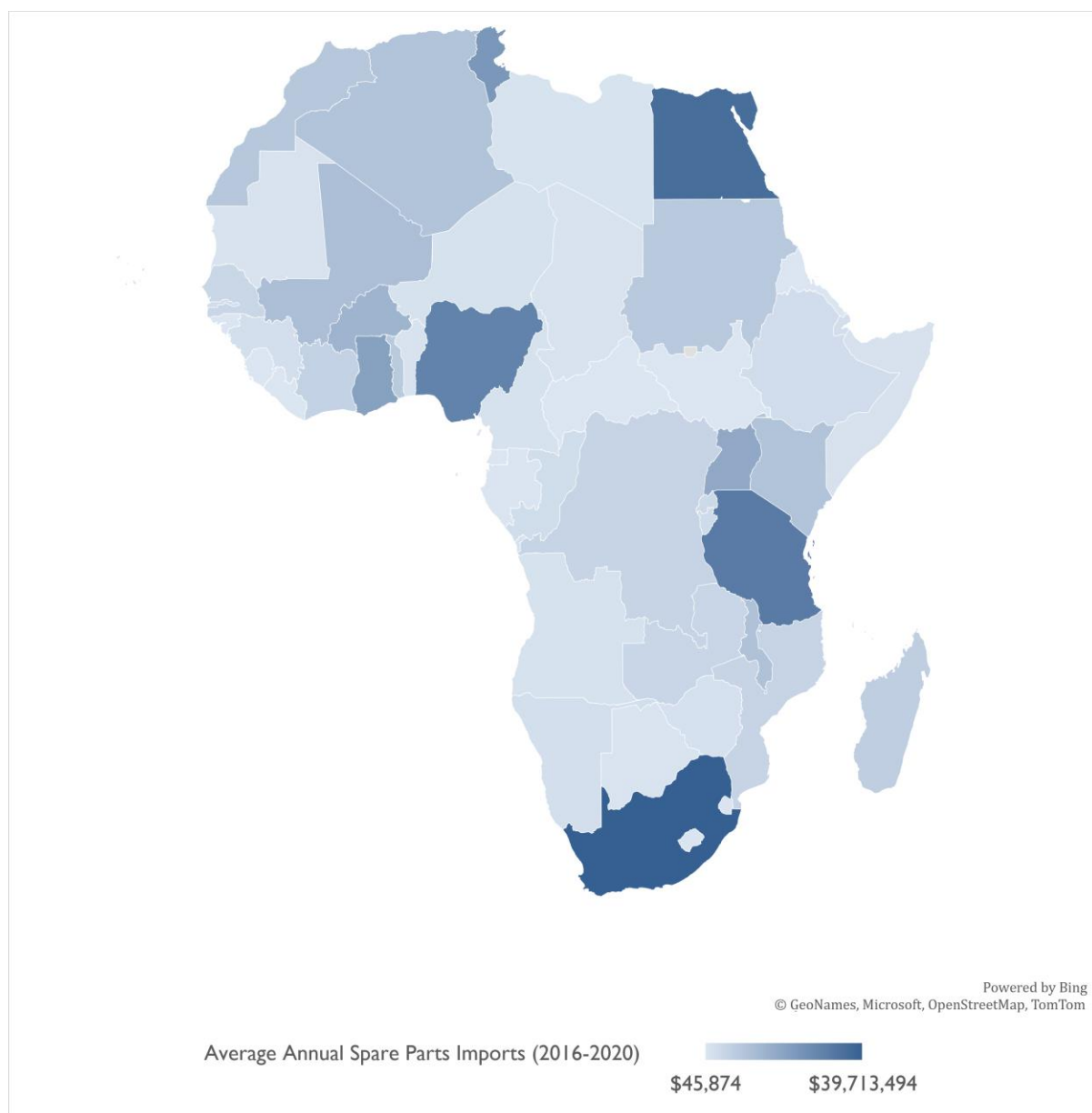
**TABLE 10: AFRICA BICYCLE IMPORTS (2016-2020)**

Country	2016	2017	2018	2019	2020	5-Year Total	Avg. Annual Bicycle Imports (2016-2020)
1 South Africa	\$25,990,303	\$28,226,146	\$37,102,643	\$28,592,130	\$25,720,320	\$145,631,542	\$29,126,308
2 Nigeria	\$10,192,040	\$10,248,451	\$10,230,851	\$25,773,142	\$16,069,218	\$72,513,702	\$14,502,740
3 Ghana	\$16,742,609	\$14,755,735	\$12,759,652	\$13,212,675	\$14,892,034	\$72,362,705	\$14,472,541
4 Algeria	\$12,444,043	\$12,057,572	\$10,296,356	\$14,032,083	\$19,834,305	\$68,664,359	\$13,732,872
5 Mozambique	\$7,292,303	\$6,366,513	\$10,044,355	\$10,979,843	\$9,396,424	\$44,079,438	\$8,815,888
6 Tanzania	\$8,489,858	\$6,644,234	\$6,958,100	\$6,532,608	\$9,198,815	\$37,823,615	\$7,564,723
7 Morocco	\$5,106,090	\$5,737,478	\$7,303,912	\$7,379,293	\$10,031,271	\$35,558,044	\$7,111,609
8 Egypt	\$4,300,480	\$6,827,729	\$8,585,210	\$7,515,549	\$7,903,046	\$35,132,014	\$7,026,403
9 Sudan	\$5,251,113	\$9,077,093	\$4,288,168	\$6,299,589	\$6,449,419	\$31,365,382	\$6,273,076
10 Kenya	\$4,167,532	\$4,769,939	\$5,999,576	\$6,429,504	\$8,275,221	\$29,641,772	\$5,928,354
11 Libya	\$3,087,576	\$1,069,377	\$3,970,860	\$9,044,195	\$5,751,769	\$22,923,777	\$4,584,755
12 Malawi	\$3,766,841	\$4,970,306	\$4,559,601	\$4,398,389	\$3,161,075	\$20,856,212	\$4,171,242
13 Angola	\$2,286,648	\$10,898,840	\$2,251,232	\$1,958,585	\$2,437,130	\$19,832,435	\$3,966,487
14 Zambia	\$4,267,402	\$4,518,752	\$3,672,414	\$3,893,269	\$3,345,005	\$19,696,842	\$3,939,368
15 Ivory Coast	\$3,232,611	\$3,095,580	\$2,824,464	\$2,675,685	\$5,136,468	\$16,964,808	\$3,392,962
16 Ethiopia	\$1,981,251	\$1,575,996	\$2,765,823	\$5,891,177	\$3,817,870	\$16,032,117	\$3,206,423
17 Tunisia	\$2,157,317	\$2,813,738	\$2,921,115	\$2,449,095	\$4,416,499	\$14,757,764	\$2,951,553
18 Djibouti	\$1,604,803	\$1,651,118	\$2,495,285	\$2,725,898	\$6,242,944	\$14,720,048	\$2,944,010
19 Mauritius	\$2,814,768	\$2,232,388	\$2,276,431	\$1,617,400	\$3,579,411	\$12,520,398	\$2,504,080
20 Burk. Faso	\$3,303,002	\$3,357,047	\$2,174,987	\$1,965,933	\$1,579,727	\$12,380,696	\$2,476,139
21 Uganda	\$1,206,686	\$1,251,521	\$1,810,114	\$1,828,413	\$4,678,026	\$10,774,760	\$2,154,952
22 Senegal	\$2,885,784	\$1,440,177	\$1,810,890	\$1,912,681	\$2,711,539	\$10,761,071	\$2,152,214
23 Namibia	\$1,823,839	\$2,388,746	\$2,223,118	\$1,784,478	\$1,847,145	\$10,067,326	\$2,013,465
24 Zimbabwe	\$2,645,361	\$1,911,208	\$2,439,115	\$1,393,568	\$1,562,085	\$9,951,337	\$1,990,267
25 Madagascar	\$1,354,851	\$2,157,633	\$2,335,326	\$1,538,211	\$2,496,864	\$9,882,885	\$1,976,577
26 Togo	\$1,305,773	\$1,760,797	\$2,197,867	\$2,540,809	\$1,944,608	\$9,749,854	\$1,949,971
27 DR Congo	\$1,266,250	\$1,815,312	\$2,207,373	\$2,510,727	\$1,291,733	\$9,091,395	\$1,818,279
28 Cameroon	\$1,983,261	\$1,265,404	\$1,198,166	\$1,975,579	\$2,481,541	\$8,903,951	\$1,780,790
29 Congo	\$1,592,705	\$643,919	\$1,186,648	\$983,239	\$1,792,146	\$6,198,657	\$1,239,731
30 Mali	\$1,696,678	\$1,123,121	\$1,362,391	\$835,868	\$684,806	\$5,702,864	\$1,140,573
31 Gambia	\$990,855	\$1,176,420	\$903,133	\$953,723	\$885,430	\$4,909,561	\$981,912
32 Guinea	\$819,951	\$813,565	\$743,655	\$923,452	\$814,130	\$4,114,753	\$822,951
33 Gabon	\$820,447	\$589,083	\$924,100	\$858,936	\$904,982	\$4,097,548	\$819,510
34 Botswana	\$875,110	\$804,346	\$702,430	\$707,960	\$768,658	\$3,858,504	\$771,701
35 Benin	\$669,276	\$710,545	\$605,483	\$878,408	\$876,357	\$3,740,069	\$748,014
36 Chad	\$254,822	\$422,102	\$745,169	\$843,286	\$1,206,380	\$3,471,759	\$694,352
37 Somalia	\$448,130	\$347,835	\$494,079	\$894,329	\$755,788	\$2,940,161	\$588,032
38 Seychelles	\$466,136	\$494,931	\$534,871	\$398,717	\$201,472	\$2,096,127	\$419,225
39 Rwanda	\$501,620	\$419,537	\$357,153	\$537,931	\$246,029	\$2,062,270	\$412,454
40 Burundi	\$64,974	\$126,757	\$186,348	\$1,306,168	\$200,220	\$1,884,467	\$376,893
41 Cape Verde	\$212,624	\$340,016	\$477,011	\$266,409	\$466,251	\$1,762,311	\$352,462
42 Sierra Leone	\$636,061	\$330,053	\$293,258	\$59,354	\$108,068	\$1,426,794	\$285,359
43 Eswatini	\$334,921	\$272,067	\$343,699	\$265,841	\$184,020	\$1,400,548	\$280,110
44 Eritrea	\$124,646	\$90,533	\$153,679	\$336,161	\$604,774	\$1,309,793	\$261,959
45 Mauritania	\$163,647	\$181,860	\$300,751	\$426,485	\$216,936	\$1,289,679	\$257,936
46 Eq. Guinea	\$694,585	\$111,389	\$168,028	\$134,567	\$122,496	\$1,231,065	\$246,213
47 Niger	\$201,906	\$206,559	\$121,339	\$271,352	\$273,600	\$1,074,756	\$214,951
48 South Sudan	\$216,862	\$269,180	\$165,042	\$154,742	\$195,438	\$1,001,264	\$200,253
49 Lesotho	\$216,972	\$166,936	\$188,132	\$195,916	\$100,725	\$868,681	\$173,736
50 Liberia	\$39,040	\$95,473	\$152,436	\$175,472	\$248,024	\$710,445	\$142,089
51 Comoros	\$126,355	\$77,703	\$87,839	\$150,921	\$70,204	\$513,022	\$102,604
52 Guinea-Bis.	\$137,079	\$17,533	\$118,653	\$142,340	\$56,375	\$471,980	\$94,396
53 C. Afr. Rep.	\$41,624	\$122,854	\$114,464	\$6,547	\$75,825	\$361,314	\$72,263
54 São Tomé	\$37,726	\$57,786	\$45,213	\$76,476	\$89,786	\$306,987	\$61,397
Region Total	\$155,349,092	\$164,905,573	\$171,185,539	\$191,637,102	\$198,418,464	\$881,445,628	\$176,289,126

## ANNEX 5: AFRICA BICYCLE SPARE PART IMPORT MARKET OVERVIEW

Presented in below Figure 16 and Table 11 is a summary of 5 years of bicycle spare part import data for 54 African countries. All data is sourced from the CEPII BACI dataset and includes the sum of all spare part imports inclusive of tires and tubes (HS Codes 87149X, 401320, and 401150) during this period. Figure 16 displays the annual average imports for countries during this period, while Table 11 includes the annual figures for all countries as well. Countries in which BFG has conducted market systems assessments are highlighted in orange on the data table.

**FIGURE 16: AFRICA REGION BICYCLE SPARE PARTS IMPORTS - ANNUAL AVERAGE (2016-2020)**





**TABLE 11: AFRICA BICYCLE SPARE PARTS IMPORTS (2016-2020)**

Importing Country	2016	2017	2018	2019	2020 Total	5-Year Avg Annual Spare Parts Imports
1 South Africa	\$46,408,079	\$49,505,649	\$41,504,224	\$36,395,593	\$24,753,923	\$198,567,468
2 Egypt	\$31,227,720	\$20,776,614	\$35,171,342	\$36,381,685	\$54,032,261	\$177,589,622
3 Tanzania	\$33,396,488	\$25,929,936	\$27,300,280	\$36,275,217	\$35,075,124	\$157,977,045
4 Nigeria	\$28,098,719	\$29,807,015	\$29,499,073	\$35,054,019	\$24,203,709	\$146,662,535
5 Tunisia	\$30,177,985	\$22,161,852	\$17,875,854	\$20,669,137	\$25,795,643	\$116,680,471
6 Ghana	\$21,633,096	\$21,542,074	\$16,264,326	\$16,246,475	\$27,307,411	\$102,993,382
7 Uganda	\$18,725,301	\$21,335,824	\$18,733,089	\$15,679,169	\$15,339,201	\$89,812,584
8 Burkina Faso	\$15,011,864	\$14,687,526	\$12,868,306	\$16,909,725	\$13,648,657	\$73,126,078
9 Mali	\$16,884,515	\$10,525,922	\$10,337,971	\$13,543,614	\$6,410,611	\$57,702,633
10 Malawi	\$10,153,343	\$12,264,161	\$10,786,719	\$12,378,623	\$8,128,423	\$53,711,269
11 Algeria	\$9,758,261	\$9,306,602	\$9,218,351	\$9,546,171	\$12,573,834	\$50,403,219
12 Kenya	\$9,568,897	\$9,648,047	\$9,828,527	\$9,625,118	\$11,553,242	\$50,223,831
13 Morocco	\$9,252,768	\$7,632,076	\$9,192,290	\$8,945,450	\$9,645,558	\$44,668,142
14 Sudan	\$8,870,492	\$9,877,308	\$5,754,065	\$7,713,711	\$9,384,728	\$41,600,304
15 Togo	\$6,228,065	\$5,764,336	\$9,444,944	\$11,758,467	\$7,720,673	\$40,916,485
16 Madagascar	\$7,466,506	\$7,112,418	\$7,555,846	\$6,523,189	\$6,428,894	\$35,086,853
17 Ivory Coast	\$4,477,774	\$7,057,035	\$4,852,939	\$6,799,095	\$6,834,711	\$30,021,554
18 DR Congo	\$4,908,692	\$4,872,698	\$5,821,268	\$5,364,240	\$6,236,474	\$27,203,372
19 Mozambique	\$4,994,759	\$4,222,501	\$5,660,064	\$7,051,367	\$4,603,450	\$26,532,141
20 Zambia	\$4,036,908	\$4,425,308	\$5,185,661	\$4,935,123	\$4,810,905	\$23,393,905
21 Senegal	\$5,346,951	\$4,128,225	\$4,279,936	\$4,083,153	\$4,546,668	\$22,384,933
22 Rwanda	\$3,818,570	\$1,846,377	\$4,140,315	\$4,298,788	\$3,862,076	\$17,966,126
23 Burundi	\$3,079,020	\$2,995,580	\$3,041,446	\$2,957,629	\$3,219,473	\$15,293,148
24 Congo	\$2,203,745	\$2,131,883	\$3,200,845	\$3,287,129	\$3,226,568	\$14,050,170
25 Gambia	\$2,144,881	\$2,569,204	\$3,047,682	\$3,032,915	\$2,535,910	\$13,330,592
26 Ethiopia	\$1,678,677	\$3,137,217	\$1,932,329	\$3,235,615	\$3,137,966	\$13,121,804
27 Djibouti	\$1,435,201	\$2,279,394	\$2,437,769	\$3,183,565	\$2,381,695	\$11,717,624
28 Namibia	\$2,614,839	\$2,678,742	\$1,992,682	\$2,135,216	\$1,438,974	\$10,860,453
29 Guinea	\$2,291,051	\$2,163,350	\$1,858,269	\$1,778,174	\$1,995,620	\$10,086,464
30 Mauritius	\$1,617,361	\$1,511,706	\$1,824,755	\$1,686,230	\$1,634,376	\$8,274,428
31 Zimbabwe	\$2,184,953	\$1,778,913	\$1,686,615	\$589,071	\$673,961	\$6,913,513
32 Niger	\$1,552,504	\$1,538,850	\$1,372,610	\$977,981	\$1,087,375	\$6,529,320
33 Angola	\$1,117,748	\$1,408,306	\$1,531,261	\$1,236,185	\$676,594	\$5,970,094
34 Cameroon	\$1,031,077	\$673,063	\$844,652	\$1,344,242	\$1,971,197	\$5,864,231
35 Somalia	\$2,045,137	\$1,156,017	\$1,505,135	\$350,725	\$473,272	\$5,530,286
36 Libya	\$1,190,402	\$685,686	\$848,590	\$1,207,359	\$814,747	\$4,746,784
37 Benin	\$1,091,442	\$1,286,667	\$874,061	\$589,180	\$502,409	\$4,343,759
38 Mauritania	\$553,565	\$1,047,878	\$1,185,905	\$679,930	\$845,162	\$4,312,440
39 Chad	\$419,316	\$437,283	\$909,655	\$1,202,536	\$1,159,966	\$4,128,756
40 Botswana	\$946,558	\$959,313	\$602,249	\$504,806	\$656,192	\$3,669,118
41 Eswatini	\$371,715	\$650,392	\$573,604	\$326,461	\$238,186	\$2,160,358
42 Gabon	\$90,123	\$45,499	\$32,195	\$442,229	\$1,412,943	\$2,022,989
43 Lesotho	\$335,364	\$485,434	\$321,714	\$229,322	\$136,305	\$1,508,139
44 Cape Verde	\$109,883	\$217,425	\$198,939	\$436,920	\$275,836	\$1,239,003
45 Seychelles	\$277,555	\$314,686	\$305,827	\$152,432	\$165,412	\$1,215,912
46 So. Sudan	\$52,615	\$129,539	\$167,839	\$415,123	\$151,733	\$916,849
47 Liberia	\$217,742	\$40,481	\$109,409	\$172,681	\$107,848	\$648,161
48 Sierra Leone	\$59,160	\$111,547	\$209,490	\$80,454	\$65,124	\$525,775
49 S. Tomé	\$68,847	\$88,379	\$95,001	\$125,036	\$14,983	\$392,246
50 Eq. Guinea	\$116,087	\$98,220	\$59,725	\$16,916	\$69,091	\$360,039
51 Comoros	\$39,625	\$43,205	\$111,793	\$51,911	\$59,539	\$306,073
52 Guinea-Bissau	\$172,024	\$12,562	\$106	\$79,802	\$25,806	\$290,300
53 Eritrea	\$32,303	\$31,293	\$17,564	\$46,185	\$161,808	\$289,153
54 Cen. Afr. Rep.	\$15,617	\$99,651	\$81,795	\$9,388	\$22,919	\$229,370
Regional Total	\$361,601,890	\$337,236,869	\$334,256,901	\$358,740,477	\$354,235,166	\$1,746,071,303

**TABLE 12: AFRICA AVERAGE ANNUAL IMPORTS BY SPARE PART CATEGORY (2016-2020)**

Importing Country	Bicycle Tires	Bicycle Tubes	Frames, and Frames	Brakes	Hubs	Saddles	Wheel Rims and Spokes	Pedals and Cranks	Other Parts	All Spare Parts
1 So. Africa	\$3,082,363	\$1,602,072	\$10,807,890	\$1,889,617	\$1,898,282	\$852,557	\$4,349,221	\$2,733,466	\$12,498,024	\$39,713,494
2 Egypt	\$3,883,672	\$2,697,725	\$6,130,849	\$1,331,611	\$1,118,057	\$1,981,410	\$3,398,740	\$1,607,117	\$13,368,742	\$35,517,924
3 Tanzania	\$7,787,754	\$4,915,461	\$2,138,769	\$1,621,591	\$1,611,385	\$1,314,273	\$2,396,062	\$2,308,316	\$7,501,797	\$31,595,409
4 Nigeria	\$5,930,581	\$5,274,007	\$989,474	\$1,319,880	\$3,448,704	\$785,483	\$3,153,450	\$1,823,415	\$6,607,513	\$29,332,507
5 Tunisia	\$2,344,232	\$934,695	\$5,020,261	\$1,077,302	\$854,979	\$710,270	\$755,573	\$1,369,436	\$10,269,347	\$23,336,094
6 Ghana	\$3,457,554	\$4,098,849	\$1,026,499	\$968,619	\$653,338	\$1,605,211	\$760,812	\$943,328	\$7,084,467	\$20,598,676
7 Uganda	\$2,912,500	\$2,746,413	\$1,788,306	\$739,422	\$2,174,044	\$354,028	\$1,307,747	\$1,489,593	\$4,450,462	\$17,962,517
8 Bur. Faso	\$1,916,796	\$2,170,907	\$2,067,534	\$635,668	\$1,509,759	\$929,923	\$775,847	\$1,799,214	\$2,819,568	\$14,625,216
9 Mali	\$2,455,493	\$729,495	\$595,765	\$178,183	\$2,065,408	\$288,911	\$289,632	\$550,544	\$4,387,095	\$11,540,527
10 Malawi	\$2,556,292	\$1,475,762	\$1,127,017	\$410,900	\$975,658	\$336,520	\$906,091	\$603,252	\$2,350,761	\$10,742,254
11 Algeria	\$1,505,463	\$1,716,901	\$483,075	\$626,004	\$338,361	\$486,433	\$541,254	\$473,054	\$3,910,099	\$10,080,644
12 Kenya	\$1,558,580	\$1,575,630	\$543,323	\$418,109	\$652,996	\$377,246	\$1,372,458	\$595,483	\$2,950,941	\$10,044,766
13 Morocco	\$2,229,541	\$1,694,309	\$176,525	\$368,911	\$356,978	\$358,900	\$525,395	\$353,145	\$2,869,925	\$8,933,628
14 Sudan	\$1,020,857	\$1,191,965	\$164,984	\$186,686	\$227,227	\$288,308	\$234,486	\$358,156	\$4,647,390	\$8,320,061
15 Togo	\$1,988,740	\$1,499,819	\$167,517	\$368,475	\$189,570	\$457,694	\$235,044	\$444,525	\$2,831,913	\$8,183,297
16 Madag.	\$1,257,144	\$526,621	\$382,675	\$257,618	\$318,791	\$380,627	\$599,578	\$546,492	\$2,747,826	\$7,017,371
17 C.d'Ivoire	\$1,835,129	\$606,367	\$903,639	\$209,282	\$210,604	\$433,525	\$642,898	\$322,275	\$840,591	\$6,004,311
18 DRC	\$1,220,967	\$606,979	\$753,176	\$186,280	\$311,243	\$83,190	\$330,738	\$117,386	\$1,830,716	\$5,440,674
19 Mozamb.	\$747,823	\$681,200	\$249,428	\$119,603	\$433,212	\$148,853	\$365,258	\$307,051	\$2,254,001	\$5,306,428
20 Zambia	\$870,094	\$963,089	\$300,725	\$82,825	\$453,890	\$86,936	\$243,686	\$271,793	\$1,405,744	\$4,678,781
21 Senegal	\$720,444	\$822,364	\$437,022	\$130,268	\$161,023	\$311,381	\$238,259	\$242,867	\$1,413,358	\$4,476,987
22 Rwanda	\$728,811	\$189,484	\$321,361	\$94,445	\$190,569	\$63,725	\$500,666	\$231,442	\$1,272,721	\$3,593,225
23 Burundi	\$827,166	\$256,006	\$326,036	\$76,008	\$174,034	\$83,519	\$148,030	\$257,179	\$910,652	\$3,058,630
24 Congo	\$58,570	\$35,520	\$457,156	\$135,456	\$526,150	\$48,637	\$387,753	\$580,550	\$580,242	\$2,810,034
25 Gambia	\$510,302	\$448,677	\$137,471	\$85,949	\$197,867	\$173,431	\$142,299	\$254,396	\$715,727	\$2,666,118
26 Ethiopia	\$157,062	\$266,935	\$204,789	\$191,041	\$151,473	\$32,117	\$292,671	\$37,834	\$1,290,439	\$2,624,361
27 Djibouti	\$429,058	\$278,765	\$84,030	\$80,812	\$72,339	\$112,035	\$197,906	\$83,668	\$1,004,912	\$2,343,525
28 Namibia	\$165,636	\$59,118	\$354,281	\$51,710	\$71,835	\$28,436	\$614,393	\$46,495	\$780,187	\$2,172,091
29 Guinea	\$409,748	\$389,971	\$62,748	\$126,853	\$101,196	\$52,841	\$79,161	\$144,816	\$649,959	\$2,017,293
30 Mauritius	\$277,324	\$209,740	\$53,985	\$58,483	\$134,807	\$21,688	\$74,554	\$28,616	\$795,688	\$1,654,886
31 Zimba.	\$476,942	\$240,762	\$23,857	\$56,837	\$125,519	\$22,222	\$35,888	\$78,742	\$321,936	\$1,382,703
32 Niger	\$764,435	\$24,997	\$38,945	\$8,036	\$11,256	\$70,683	\$18,058	\$18,979	\$350,476	\$1,305,864
33 Angola	\$98,517	\$43,392	\$50,118	\$105,777	\$44,376	\$17,260	\$50,663	\$58,058	\$725,857	\$1,194,019
34 Camer.	\$86,838	\$132,709	\$77,442	\$35,337	\$138,416	\$21,616	\$226,278	\$61,565	\$392,644	\$1,172,846
35 Somalia	\$26,705	\$590,778	\$11,720	\$28,800	\$5,343	\$1,160	\$41,004	\$3,875	\$396,672	\$1,106,057
36 Libya	\$158,526	\$199,061	\$17,115	\$23,653	\$33,179	\$39,728	\$84,753	\$42,432	\$350,910	\$949,357
37 Benin	\$78,410	\$67,430	\$215,635	\$54,891	\$97,168	\$8,415	\$136,056	\$10,350	\$200,396	\$868,752
38 Mauritan.	\$25,562	\$173,000	\$26,451	\$8,258	\$10,690	\$6,606	\$42,871	\$10,387	\$558,665	\$862,488
39 Chad	\$100,023	\$130,180	\$79,075	\$21,485	\$105,976	\$27,283	\$85,525	\$127,590	\$148,614	\$825,751
40 Botswana	\$88,153	\$51,722	\$33,548	\$103,940	\$28,389	\$17,174	\$127,996	\$24,922	\$257,978	\$733,824
41 Eswatini	\$27,862	\$12,404	\$58,786	\$22,956	\$29,877	\$1,770	\$100,578	\$25,150	\$152,689	\$432,072
42 Gabon	\$12,859	\$2,718	\$2,635	\$4,752	\$110,715	\$174	\$10,365	\$533	\$259,847	\$404,598
43 Lesotho	\$3,931	\$2,813	\$34,283	\$29,880	\$3,904	\$3,355	\$100,050	\$3,560	\$119,853	\$301,628
44 C. Verde	\$30,621	\$27,508	\$3,521	\$112,536	\$2,152	\$2,183	\$12,346	\$1,050	\$55,883	\$247,801
45 Seych.	\$13,606	\$11,614	\$11,791	\$21,969	\$5,668	\$2,447	\$77,723	\$5,052	\$93,313	\$243,182
46 So. Sudan	\$8,058	\$4,778	\$2,304	\$8,660	\$10,795	\$0	\$20,756	\$3,547	\$124,470	\$183,370
47 Liberia	\$14,753	\$8,924	\$2,306	\$8,929	\$1,198	\$157	\$5,624	\$2,243	\$85,498	\$129,632
48 S. Leone	\$18,802	\$2,823	\$19,473	\$4,715	\$15,007	\$92	\$8,585	\$1,623	\$34,034	\$105,155
49 S. Tomé	\$4,440	\$2,667	\$1,141	\$6,375	\$1,710	\$555	\$13,636	\$2,218	\$45,708	\$78,449
50 Eq. Guinea	\$22,181	\$5,125	\$4,190	\$424	\$13,266	\$71	\$15,560	\$149	\$11,043	\$72,008
51 Comoros	\$4,035	\$1,890	\$470	\$3,089	\$913	\$23	\$2,458	\$2,521	\$45,816	\$61,215
52 Guinea-B.	\$42,732	\$6,059	\$754	\$0	\$2,505	\$2	\$662	\$49	\$5,296	\$58,060
53 Eritrea	\$11,545	\$37	\$617	\$100	\$4,533	\$39	\$6,431	\$27	\$34,502	\$57,831
54 Cen. Af. Rep.	\$397	\$4,093	\$3,014	\$1,404	\$363	\$0	\$2,638	\$0	\$33,965	\$45,874
Regional Total	\$3,082,363	\$1,602,072	\$10,807,890	\$1,889,617	\$1,898,282	\$852,557	\$4,349,221	\$2,733,466	\$12,498,024	\$39,713,494

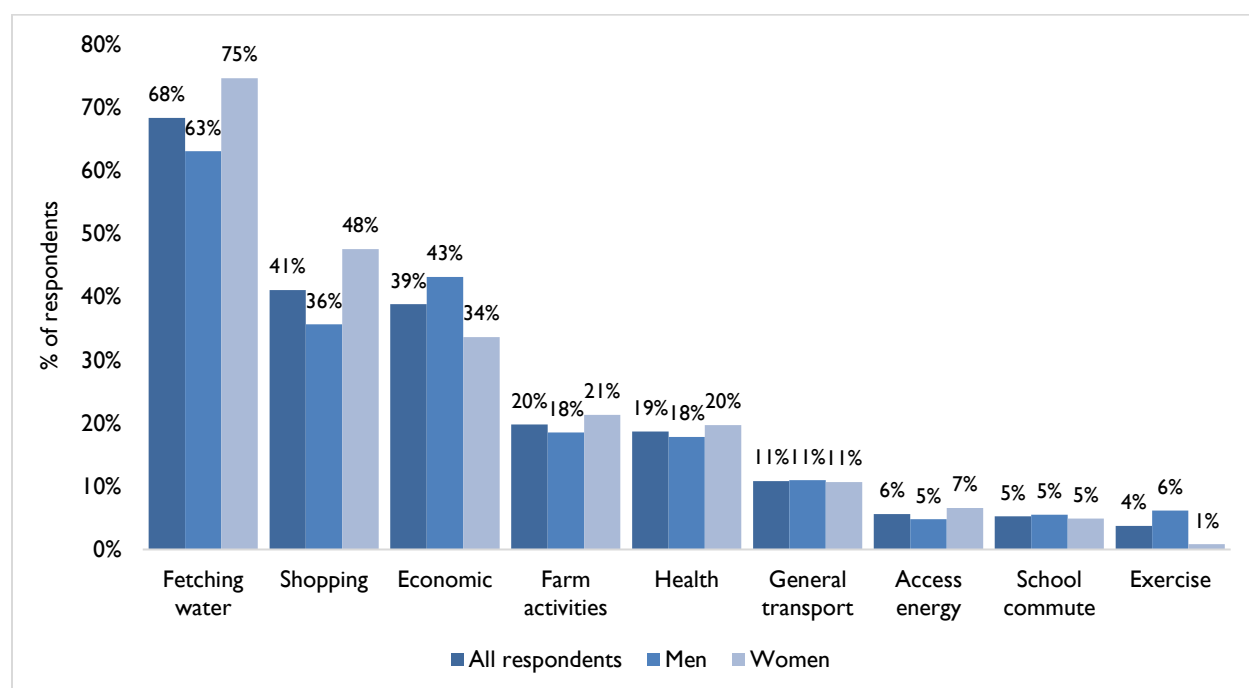
## Annex 6: Survey Respondent Bicycle Usage and Intensity.

### PURPOSES OF USE

Bicycles are used for a variety of household and economic purposes. The most common use of bicycles was for water collection, reported by 68 percent of bicycle users. Shopping was the second most common use of bicycles, reported by 41 percent of users.

More than two-thirds of households in Uganda use water sources that require travel, such as boreholes and public taps.<sup>18</sup> Respondents reporting using bicycles to access water because bicycles can be used to carry water-filled containers, reduce travel time (an average of 24 mins in rural areas), and mitigate physical fatigue. Fetching water is one of the main forms of unpaid care work, and this burden mainly falls on women and girls. Thirty-nine percent of bicycle users cited use of bicycles for economic purposes, with more male users (43 percent) than female users (34 percent) using bicycles for this purpose. Other common uses of bicycles include travel to health facilities and undertaking farm activities such as transporting produce from farm to home.

**FIGURE 6: KEY USES OF BICYCLES AMONG BICYCLE USERS**



### BICYCLES AS HOUSEHOLD ASSETS

In addition to their functional utility, bicycles serve as household assets. They are items of value which can be utilized by households to create liquidity through the sale of a bicycle or by utilizing it for collateral in obtaining a loan. Some focus group participants also indicated bicycles could be used indirectly to access informal loans, with the bicycle representing a means of income generation and therefore

<sup>18</sup> Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF.

creditworthiness. Microfinance institutions interviewed by BFG indicated that bikes would be considered a household asset when assessing creditworthiness and loan conditions.

## CONSUMER PREFERENCES AND DEMAND FACTORS

In the Ugandan bicycle market system, consumer preferences and demand are driven by geographic location, bicycle cost, bicycle availability, and consumers' access to other means of transportation.

Consistent with the survey data, demand for bicycles as a preferred mode of transport is concentrated in the North (42 percent of respondents) and East (42 percent). In comparison, bicycles emerged as the least preferred option, selected by only 9 percent of respondents in Mityana and 5 percent in Isingiro. Across all survey respondents, 44 percent stated motorcycles are their preferred transport mode. Bicycles (25 percent) and private cars (25 percent) were the second most preferred mode among those surveyed. Only 3 percent of respondents said they would prefer to use minibus taxis.

Most consumers said access to cheaper bicycles would increase their bicycle usage (see Table 2). Just over one-third cited better road safety, while 31 percent reported better infrastructure (either bicycle paths or secure bicycle parking/ storage) would increase their usage.

**TABLE 2: TOP FACTORS THAT WOULD ENCOURAGE INCREASED BICYCLE USAGE**

	% of Respondents Indicating Factor Would Increase Bicycle Use
Cheaper bicycles	63%
Better road safety	36%
Bicycle paths	20%
Improved bicycle repair accessibility	20%
Secure bicycle parking/ storage	16%
Better bicycle design	12%
Availability of bicycles	3%
Financial support/access to bicycle loans	2%
Economic opportunities for bicycle use	2%
Availability of spare parts	1%

## ELECTRIC BICYCLES

Demand for electric bicycles in rural areas is almost non-existent, although “e-bikes” would be well-suited for hilly terrain. The high price of e-bicycles (approximately US\$475-\$600),<sup>19</sup> lack of supporting infrastructure (electricity and charging points), and lack of product awareness, are factors that make this form of bicycle less attractive to consumers. Even in urban areas with higher levels of e-bicycle awareness, demand remains low.

However, e-bicycles are generating interest from institutional purchasers, who have begun to procure them for philanthropic programs. FABIO in collaboration with EURIST, recently secured 100 e-bicycles

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<sup>19</sup> FABIO.

for distribution to user groups in Jinja, including to individuals for income generation and for transportation of water. FABIO secured a tax exemption for the e-bicycles in their pilot. As part of the project, FABIO has established two service centers where the e-bicycles can be charged or where batteries can be swapped. From the project's preliminary research, the e-bike batteries have a range of about 40 kilometers, though range partly depends on the terrain.

## **DEMAND DRIVERS AND CONSTRAINTS**

### **BICYCLE AFFORDABILITY AND QUALITY**

The cost of acquiring a bicycle is the key barrier affecting ownership. Nearly two-thirds of non-owners in the survey cited price as the main reason for lack of current ownership. This was the most common barrier identified by both men and women non-owners, although slightly more women (71 percent) than men (52 percent) reported this. An additional 9 percent of non-owners indicated that the cost of ownership (including maintenance and repair services) was the primary limiting factor for why they do not own a bicycle. Among the more than 70 percent of non-owners citing a cost-related reason for non-ownership, there was a strong preference for bicycles among other transport modes. Bicycles were the second most preferred mode of transportation among respondents who had never owned a bicycle and were concerned about cost (33 percent reporting a preference for bicycle transport). Still, 42 percent of these respondents prefer to use a motorcycle or motorcycle taxi. Although many non-owners who are concerned about the purchase price of bicycles may prefer motorcycle options, these respondents expressed significant demand for bicycles as a transport mode: more affordable bicycle prices and fewer maintenance-related expenses would likely result in increased bicycle ownership rates.

Bicycle users struggle to find the balance between cost and quality: buyers tend to purchase cheaper, poor-quality bicycles which they must subsequently replace, as they cannot afford a high-quality one-off capital investment. Buyers also tend to purchase cheaper second, third, or fourth-hand bicycles with damaged parts that require replacements. The BFG survey, for example, found that approximately one-third of bicycle owners who acquired used bicycles purchased new parts to replace broken ones, compared to 11 percent of those who acquired new bicycles. The most common replacement was tires, cited by half of those who purchased replacements. Brakes were the second most commonly purchased spare part (cited by 22 percent), followed by spokes (16 percent), pedals (16 percent), and tubes (13 percent).

At the time of the BFG survey, 40 percent of bicycle owners reported their bicycles were not in working order. Fixing bicycles was a consistent constraint among focus group participants, one of whom describes the challenge thus: "Our bicycles [are] very old.... You can fix a pedal, then the saddle, then the carrier, from there the chain, bearings, spokes, wheels – everything is weary and finished." Eventually, many bicycle owners give up, as they can no longer afford repairs. Responses like these indicate that potential owners are at times wary of the long-term costs of bicycle ownership, not just the upfront purchase costs. Spare parts and the cost of repairs are analyzed further in a later section.

### **COST OF TRANSPORTATION**

Bicycle use reduces transport expenditure compared to motorized alternatives. Bicycles are therefore important where consumers have low disposable income and have other competing needs (such as food).

One focus group participant noted that either she walks or uses a bicycle, or ‘we don’t eat’. Therefore, absolute expenditure on transport tends to be low in rural areas and among low-income households.

The BFG survey found average transport expenditure over the 30 day-period preceding the survey was UGX 52,149 (US\$13.54), which translates to less than a dollar per day.<sup>20</sup> Areas with high bicycle usage have lower average transportation expenditure. Lira had the highest demand and use, but the lowest average transportation expenditure (UGX 37,354 [US\$9.71]). By comparison, average transportation expenditure in the other three districts was significantly higher: UGX 45,913 (US\$11.94) in Isingiro, UGX 55,518 (US\$14.43) in Mityana, and UGX 70,001 (US\$18.20) in Tororo. The likely explanation for the higher expenditure in Tororo is the use of motorcycle taxis, which was highest of all districts surveyed. There is no significant variation in expenditure between rural or peri-urban settings.

Bicycles are the second most affordable and accessible option, after walking. Average expenditure among those who used motorized modes (mainly motorcycles) was considerably higher (UGX 84,819 [US\$22.05]) than those who walked (UGX 38,309 [US\$9.96]) or used bicycles (UGX 48,563 [US\$12.63]).

Bicycles become more costly when they require repair. Focus group discussion participants commented on the need for daily bicycle repair and maintenance (in some cases) and indicated that spare parts such as tires are expensive. Still, BFG’s findings indicate that, on average, cycling is significantly less expensive than motorized alternatives.

## SATISFACTION WITH BICYCLE TRAVEL

Bicycles are relatively inexpensive, do not require fuel, and are easily accessible when needed. Focus group participants reported that bicycles “ease work at home” and their “uses are immense.” However, while women participants talk of the significant benefits of cycling rather than walking or taxis, in many instances they would prefer to own a motorized vehicle. As standards of living rise, more individuals are able to purchase motorcycles, and bicycles are seen as old-fashioned. Although respondents of all genders preferred motorcycles over bicycles, focus group respondents noted that bicycles meet the need for more affordable transport and dexterous navigation of footpaths and jungle or forested areas where motorcycles cannot pass.

More than half (56 percent) of respondents said bicycles met their transportation needs. Bicycle owners were highly satisfied (both men and women), with 73 percent reporting bicycles met their transportation needs. This is not to say they see bicycle travel as optimal, or the most desired form of transport, but bicycles serve their needs. As one woman puts it: “as long as I can [borrow it] and it helps me to pick my water, I can say I am satisfied with it.” For many bicycle owners interviewed by BFG, a stable increase in income would be needed to switch to motorcycles.

Across districts, a high percentage of respondents in Lira (71 percent) reported bicycles met their transportation needs, suggesting this may be one reason for the high demand for bicycles in that district. In districts where there is high demand for motorcycle taxis for travel to work or market, the percentage of those who felt that bicycles met their transportation needs was much lower: 59 percent in Mityana, 53 percent in Tororo and 41 percent in Isingiro.

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<sup>20</sup> Current prices and not PPP (Purchasing Power Parity)

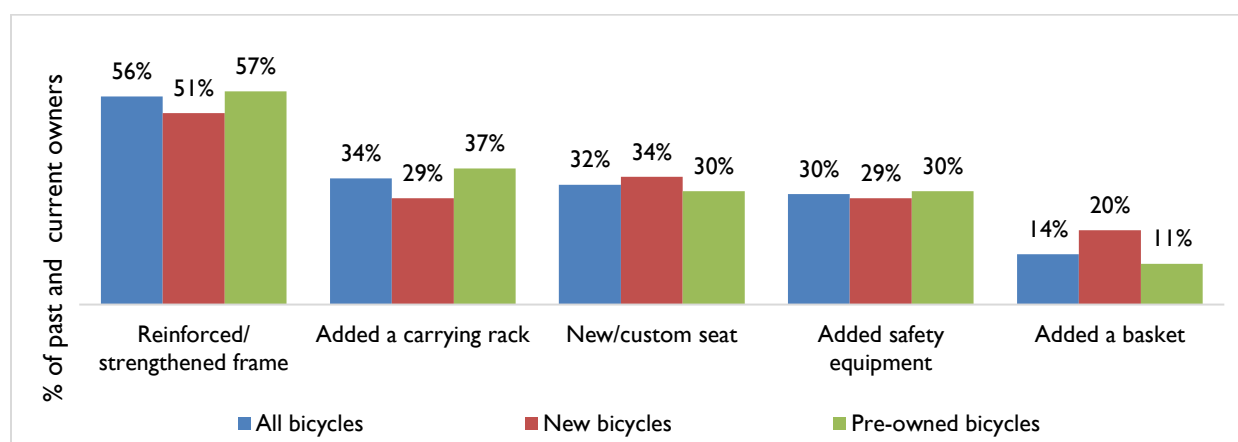


## DESIRED CHARACTERISTICS IN A BICYCLE

Both men and women identified quality/durability as the most important factor they consider when purchasing a bicycle. Among women participants, 27 percent identified design/features as important factors they consider when purchasing a bicycle, while 25 percent identified ease of riding, 59 percent identified price as the second most important factor, and 79 percent identified quality/durability as the most important factor. This pattern was also observed among men: durability (80 percent) and price (57 percent) were the most common considerations, well-above bicycle features and ease of riding, which were mentioned by 20 percent and 24 percent of men respectively.

A large percentage (60 percent) of owners reported making modifications after purchasing their bicycles to make them more functional. Those who bought pre-owned bicycles were more likely to make modifications (71 percent) than those who bought new bicycles (44 percent). The most common modification was strengthening or reinforcement of the frames, followed by addition of carriers, custom seats, and safety equipment. Users reported a need to reinforce the frames of their bicycles so they can carry heavier loads without damaging their bicycles. Carriers also help transport goods for economic and household activities. The least common modification—but still a significant number—was the addition of a front basket, also to improve ease of transport.

**FIGURE 7: TYPES OF MODIFICATIONS MADE TO BICYCLES AFTER ACQUISITION**



## FINANCE

Although affordability is the main constraint on individual acquisition of bicycles (particularly new ones), credit is rarely used in bicycle transactions. In cases where finance is utilized, it is mainly sought from family members rather than formal lending institutions. Among bicycle owners, the main source of financing was personal savings, or income from sale of farm produce or household assets (reported by 71 percent of owners). A small percentage (1 percent) of respondents relied on loans from savings groups, while 1 percent reported borrowing from informal lenders. A larger percentage (7 percent) borrowed from family members. More common was the use of payment plans: 16 percent of owners paid in installments, usually through informal agreements with the seller, while another 7 percent made in-kind payments (goods or services). Only 4 percent borrowed from banks or microfinance institutions. Formal payment plan programs are not commonly offered by bicycle retailers, as indicated by BFG key informant



interviews and focus group discussions, reportedly due to merchant-client trust. Informal payment installment agreements seem to be more common between private citizens during informal bicycle sales.

The low use of formal credit is likely due to limited access to services at financial institutions. The World Bank reports that only 37 percent of individuals over the age of 15 in Uganda have an account with a financial institution, and are therefore excluded from accessing formal savings and credit.<sup>21</sup> A variety of reasons underlie this, the most common being poverty. More than three quarters of those without accounts report lack of sufficient funds as the reason for not having an account, and 51 percent feel that financial services are too expensive.<sup>22</sup> A large percentage (41 percent) also report that they need to travel long distances to access financial institutions. Easier access to affordable credit could potentially improve use of credit for purchase of bicycles. Easier access to official documentation needed to open accounts (e.g., government-issued personal identification documents) is also important: half of those without bank accounts reported that lack documentation is a barrier.

The cycling advocacy organization, FABIO, introduced a credit option under a program called Women on The Move: FABIO sold used bicycles at a subsidized rate and purchasers could also pay in installments. However, this scheme could not be sustained or scaled as the cost of managing it was high. Many installments had to be recouped in person due to a lack of cell tower penetration that would have facilitated mobile money payments. FABIO then pursued group-based credit provision, interacting with a group chairperson, rather than only individuals. Through a group finance model, women's groups submitted written applications explaining their need for bicycles for their members. FABIO then selected the beneficiaries from a long list of group applicants. Demand was significant. Even though applications were made by groups, bicycles would belong to individual members once the group application was successful. Through this scheme, bicycles were sold to individuals (via groups) at subsidized price that were approximately 30 percent cheaper than the market. Individuals would submit payments in installments to FABIO via the group leaders. The bicycles that FABIO provided were assembled by youth within the communities, together with FABIO technicians.

## BICYCLE AVAILABILITY AND QUALITY

Rural consumers who purchase new bicycles are forced to travel outside their immediate communities (divisions or local councils) to buy from retailers mainly found in urban areas. Rural residents primarily seek traditional roadster-type bicycles, which are often the only options available in their local markets. Roadsters are also less expensive than cargo bikes, which are more suited for economic use, especially when they are strengthened through modifications. Only 13 percent of those surveyed reported being aware of bicycle retailers operating in their communities. However, buyers who purchased used bicycles from individuals in their local markets spent about half the cost of a new bicycle. In addition to lower upfront costs, the availability of pre-owned bicycles in local markets is another key factor underlying high demand for bicycles sold by individuals.

Bicycle advocacy organizations expressed their belief in a latent demand for bicycles in urban areas and among middle-income individuals, but that the 'fancy' bicycles that would appeal to this market are not available in Ugandan retail stores.

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<sup>21</sup> World Bank. *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*.

<sup>22</sup> Ibid.

## MAINTENANCE COSTS AND SPARE PART AVAILABILITY

The high cost of spares, repairs, and maintenance was raised as a challenge limiting the demand for bicycles in every focus group discussion conducted by BFG. Spare part availability does not appear to be a limiting factor to demand; almost all current and previous bicycle owners responding to the BFG survey reported being able to source parts easily. Focus group statements, coupled with the fact that 40 percent of bicycles were not in use due to repairs needed, show that costs of maintenance and spare parts are an obstacle to ownership and use.

Bicycle users exhibit great demand for spare parts and maintenance services, both of which are primarily provided by local mechanics. More than half (56 percent) of respondents with bicycles reported they needed to repair their bicycles several times a month; 24 percent reported that they need to do this at least once per week. Demand for accessories is low.

Bicycle owners reported spending an average of UGX53150.6 (US\$13.84) on spare parts and accessories over the six-month period preceding the survey. This is equivalent to 40 percent of the average cost of a pre-owned bicycle. About 10 percent of owners spent at least UGX100,000 (US\$26.04) over the same period, nearly twice the average reported by all owners. The most commonly replaced parts are tires and tubes. Although these are relatively low cost parts, many users report having to replace these frequently, leading to substantial costs over time.

Spare parts are generally easy to find: 87 percent of bicycle owners reported it was easy to find spare parts or accessories when needed. However, some spare parts from refurbished pre-owned bicycles are challenging to obtain locally, say bicycle advocacy organizations. This forces organizations to import parts compatible with these bicycles.

## BICYCLE SECURITY

Survey respondents and focus groups participants expressed a high level of concern about bicycle security, mainly due to lack of secure bicycle parking. Sixty percent of BFG survey respondents reported they were concerned about bicycle theft. Although BFG observed that many spare parts stores and mechanics sell bicycle locks, these purchases may be considered a luxury by many owners. Furthermore, one focus group respondent reported that the bicycle locks available for purchase are not strong enough to prevent theft. In Lira and Tororo, 86 percent and 74 percent of respondents were concerned, compared to 42 percent in Mityana and 37 percent in Isingiro. Despite high levels of concern, bicycle theft did not appear to be a key barrier to bicycle demand. Only 13 percent of all survey respondents reported that this affected their decision to purchase a bicycle.

## INCOME GENERATION POTENTIAL

The vast majority (84 percent) of survey respondents (owners and non-owners, and even in areas with low bicycle use) felt that owning a bicycle could improve economic activity. However, these positive perceptions do not necessarily translate to increased demand, as many users may not view bicycles as directly generating benefits that exceed total costs. Moreover, while respondents may recognize the potential for bicycles to generate income, they may prioritize others income generating tools. Bicycle users most commonly generated income through transportation of goods (reported by 37 percent of respondents) and on-farm activities.



## SUPPLY

The supply side of Uganda's bicycles market consists mainly of wholesalers established principally in Kampala, and retailers that supply some urban and peri-urban areas. In rural areas, bicycle retailers usually work as brokers and transporters of bicycles, and many buyers stated they had to travel to district centers or cities to purchase their bicycles. Non-market supply channels like NGO donations, bestowal by institutions, and individual transfers represent a small portion of bicycles supply, with just 8 percent of surveyed bicycle owners reported having not paid for their bicycle.

New mass market imported bicycles are common in Uganda's bicycle market. Importer-wholesalers and manufacturers source bicycles and spare parts mainly from factories in India and China. These mass-market bicycles tend to be the least expensive new option for buyers. In contrast to other countries in the region, like Zambia and Malawi, Uganda does not have a dominant heavy-duty bicycle brand. Instead, mass market imported bicycles are adapted and modified to function as heavy-duty bicycles.

An estimated 73,000 bicycles, worth more than US\$3 million at wholesale, were imported to Uganda in 2019.<sup>23</sup> The main sources for these were India and China (for new bicycles) and Japan and South Korea (for pre-owned imports). (See Annex 4: Africa Bicycle Import Market Overview for more information on bicycle imports across Africa.)

During the COVID-19 pandemic, bottlenecks in supply chains and elevated raw material costs impacted wholesale and retail bicycles prices in Uganda by disrupting availability and increasing costs faced by supply chain actors and end-buyers.

New imported mass market bicycles are priced starting around US\$80 and run upwards of US\$100. Prices vary relatively little across location, although it should be noted that sellers are primarily located in population centers and rarely in rural areas with low population densities.

Imported pre-owned bicycle prices range widely depending on several factors, like the style of bicycle, brand, and materials. Most used bicycles typically start at prices around US\$65 and can reach above US\$500 for premium sports bicycles. However, used imported bicycles are still on average more expensive than the new Chinese or Indian alternatives, mainly because the new imported bicycles are perceived as less durable than used bikes used in Europe, the United States, and Japan.

Major constraints on the supply side of the market system include the rising costs of raw materials used in bicycle production, extended manufacturing lead times, the disruption of global supply chains due to the COVID-19 pandemic and the Russia-Ukraine conflict, limited availability of bicycles in rural areas, and insufficient transmission of market feedback from the end-consumer through the supply chain.

## BICYCLES ON THE MARKET

Most bicycles available in the Uganda market fall into either the category of mass market imports or used imports. New mass market bicycles are typically manufactured in India and China, while pre-owned imports are commonly sourced from Japan and Korea. These pre-owned imports are a distinct product

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<sup>23</sup> UN Comtrade.

category from other bicycles that may be sold in the secondary market (especially in transactions between individuals).

Heavy duty durable, upmarket, and electric bicycles are present to varying degrees, but do not appear to represent a significant share of bicycles for sale or use in the Ugandan market system.

### MASS MARKET IMPORTS

Mass market imported bicycles are common in the Ugandan bicycle market system under many brand names. These bicycles are typically roadster-style bicycles made of steel, and are usually single speed or with limited gearing with single straight bar frames.

Kampala wholesalers commonly source bicycles and spares from the same factories in India and China. All wholesalers that BFG spoke to established relationships with exporters abroad through family or social networks. Manufacturers and importer-wholesalers often make verbal or informal agreements around the right of a wholesaler to be the exclusive seller of a particular brand of bicycle within Uganda. Wholesalers tend to carry different brands of bicycles and spare parts, but at least one wholesaler reported that these bicycles vary only by sticker or associated name brand, as the largest manufacturers in India and China tend to produce a variety of bicycles, many with minimal differences beyond branding.

These mass market bicycles tend to be the least expensive new option for retail buyers, although many respondents reported that prices increased during the COVID-19 pandemic and remain high relative to previous levels. Mass market imports at the time of research were priced anywhere from UGX 300,000 to 400,000 (US\$79 to \$105) retail. Chinese imports are generally perceived by users to be less durable than other imports.

End users frequently modify mass market import bicycles to recreate or adopt some of the features of heavy-duty bicycles, especially when the bicycle is used for economic activities and carrying heavy loads. For example, a common strengthening modification is the addition of a second, weight-bearing center bar through welding. Carriers are commonly added as modifications, especially by those using bicycles for transporting goods and other economic activities, and many owners reported reinforcing the frames of their bicycles after purchase. BFG spoke to many retailers and users that described assembling their bicycles from parts to ensure that the bicycles were stronger and fit for their intended use, as compared to a standard mass market import.

### PRE-OWNED IMPORTS

Pre-owned bicycles account for a large share of Uganda's bicycle market. Nearly 60 percent of BFG survey respondents that own or previously owned bicycles indicated their bicycle was pre-owned at the time they acquired it.<sup>24</sup> These include bicycles that were imported into Uganda as new bicycles and later sold by their original owners to others, and previously owned imports. Japan and Korea are the major sources of used imports. Importers source a number of popular brands, including American (e.g., Trek, Giant, Cannondale, Schwinn), European (e.g., Peugeot, Raleigh), and Japanese brands (e.g., Panasonic, Shimano, Yamaha). Brands of bicycles are usually only distinguished by upmarket, pre-owned bicycle retailers. Wholesalers and consumers tend to classify used imports based on the country from which they were

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<sup>24</sup> BFG survey.

sourced (uniformly Japanese or Korean without reference to the original manufacturer). Imported pre-owned bicycle models vary widely, from basic steel bicycles to higher quality aluminum and carbon racing bicycles. Retailers do not market these in a consistent way – in some cases they will be promoted on the basis of the brand name and in others they will be marketed more generically as a foreign used import.

Pre-owned bicycle retailers and wholesalers report that imported used bicycles are perceived to be more durable than most new, imported bicycles available in Uganda. Retailers, focus group discussion participants, and survey respondents consistently reported that bicycle and spare part durability are a high priority for bicycle users, and are major challenges for bicycle owners. The perceived durability of used bicycles may partly account for the rationale for the majority of bicycle owners who said their bicycle is used or previously owned, and why owners of new bicycles reported being unsatisfied with their bicycles at significantly higher rates (55 percent) than used bicycle owners (27 percent).

Individual sales drive the domestic used bicycle trade. Of the 80 percent of respondents owning or previously owning a used bicycle, 70 percent reported they bought their bicycle from an individual (70 percent), while 10 percent said they were given their bicycle by a friend or family member; 14 percent were purchased directly from a retailer. Donated pre-owned bicycles do not represent a significant part of the Ugandan bicycle market system.

Prices of used, imported bicycles are set according to bicycle material and performance, and range widely from US\$66 up to eight times that price, at US\$526 per unit. The average price difference between an imported used roadster and new Chinese and Indian alternatives is approximately US\$13 to \$26, making pre-owned bicycles more competitive on price and perceived durability than new imported roadster bicycles. Table 3 below shows more detailed pricing information for foreign used imports based on reports from two wholesalers/retailers in Kampala.

**TABLE 3: ILLUSTRATIVE PRICES FOR IMPORTED SECONDHAND BICYCLES**

	Price range (UGX)	Price range (USD)
Japanese import, roadster (wholesale)	230,000	\$61
Japanese import, roadster (retail)	250,000 – 270,000	\$66 - \$71
Aluminum frame (retail)	300,000 – 500,000	\$79 - \$131
Upmarket foreign imports (retail)	300,000 – 800,000	\$79 - \$210
Upmarket fiber frame, 10 gears	1.5 million – 2 million	\$395 - \$526

## HEAVY-DUTY DURABLE BICYCLES

Heavy-duty durable bicycles in Uganda are less common than mass market roadster bicycles. In contrast to Zambia and Malawi, where BFG has also conducted bicycle market system assessments, there is not a dominant heavy-duty durable bicycle brand similar to Buffalo Bicycles. Relative to mass market roadsters, heavy-duty bicycles typically feature more robust frames and components as well as features for carrying goods. Some retailers report stocking cargo bicycles, although users more commonly buy roadster bikes and modify them for carrying cargo. Common modifications include adding a second crossbar so the bike can support more weight and adding a strong carrier on the back. Given how common modified roadsters are in peri-urban and rural Uganda, there is strong evidence that demand for a heavy-duty durable option exists, but this option must also be affordable.

## NEW PREMIUM BICYCLES

Less common are upmarket bicycles that are typically used for exercise and sport. Ultimate Cycling is one example of the few Ugandan-owned upscale retailers of relatively expensive, premium bicycles present in Uganda. Ultimate holds exclusive rights to sell Gorilla brand bicycles, which are manufactured in Japan. Gorilla bicycle frames cost between US\$7,000 to \$25,000, and tend to be made from carbon or aluminum for strength and to minimize weight. Gorilla customers are part of a small cohort of Ugandans that can afford this comparatively expensive bicycle and use them for exercise and social rides.

## DOMESTICALLY PRODUCED BICYCLES

There are no active domestic producers of bicycles in Uganda operating at scale. Roadmaster was the lone domestic producer of bicycles identified by respondents. However, production ceased in 2021, reportedly due to competition from less expensive imported bicycles and internal management issues. Although the factory has recently closed, Roadmasters continue to be widely present in the Ugandan market and the brand was among the most widely owned as reported by survey respondents.

Roadmaster benefitted from protectionist policies from the national government, including a period of import duty exemption, which allowed the company to grow and begin to export to other East African markets, such as Tanzania, Rwanda, and Kenya. However, the Ugandan government stopped granting Roadmaster tax privileges, and the value of the Ugandan shilling dropped significantly, contributing to the company's inability to compete with lower cost, new imports. Domestic bicycle manufacturing at a commercial scale in Uganda is not competitive at this point in time.

Domestic production of bamboo bicycle frames occurs at the artisanal level, primarily for export. These products are in line with a small, but apparently growing number of artisanal bamboo bicycle producers across several African countries (notably including Ghana). BFG identified one company, Boogaali Bikes, actively producing bamboo bicycle frames in Uganda. The company produces between 10 to 15 frames annually, with frames sold for US\$500 per unit – well above the cost of complete bicycles on the domestic market. This relatively high price is due to the cost of materials and the craftsmanship involved. Boogaali's frames are primarily marketed to collectors in Europe, the United States, and South Africa.

## ELECTRIC BICYCLES

While electric bicycles (“e-bikes”) have expanded in popularity globally, they are not widely available or used in Uganda. No retailers interviewed by BFG sell e-bikes and no individuals surveyed or interviewed by BFG indicated they own or use an e-bike. The price point of many e-bikes is more than that of a secondhand motorcycle, which can be purchased for UGX 800,000 (US\$210), presenting a poor value proposition for income generation relative to faster motorcycles with greater load capacity. Although price data in Uganda is scarce, one Kampala-based retailer advertised an in-stock LeBron e-bike in 2018 for UGX 1.8 million (US\$475). A key informant interviewee reported that e-bikes in Uganda can cost up to US\$600.

FABIO, EBIKES4AFRICA, and international NGO EURIST are jointly piloting a 100-bicycle e-bike project in two districts in Uganda. The pilot is mostly providing market research on demand for e-bikes; in some cases, the e-bikes are rented to boda drivers for UGX 2,000 (US\$0.53) per day. In other cases, the bicycles are purchased outright by hotels for tourism. The consortium sees demand for e-bicycles as a more



efficient motorized transport option for boda bodas, as well as other economic activities. However, these bicycles are still too costly for the average person to afford, costing EUR 900 (US\$891). Replacement parts for the e-bikes, especially the batteries, remain scarce and expensive compared to the non-motorized bicycles and spare parts present in the market.

## PRODUCT-MARKET FIT

BFG data collection respondents gave conflicting reports on product-market fit. New imported bicycles from India and China appear to dominate the market in Uganda and represent the most affordable retail option for most consumers. Although there is a large market for these bicycles, key informants such as bicycle mechanics, bicycle taxi operators, individuals, and advocacy organizations reported that new imported bicycles, especially those from China, tend to be low-quality and break down easily and soon after purchasing. Despite an apparent consensus that new imports are unreliable and poor quality, a majority of BFG survey respondents that own or previously owned a bicycle reported being satisfied with their bicycle.

This high level of reported satisfaction and commonly reported dissatisfaction with the quality of new imports may be explained by the frequency of modifications made by consumers after purchasing their bicycle. A clear majority (60 percent) of survey respondents that own or previously owned bicycles reported making modifications to one or more parts of their bicycles. As previously discussed, in focus group discussions, BFG learned modifications are often made to strengthen bicycles and add elements such as carriers to allow the user to carry cargo and other heavy loads. This is especially the case for those who use bicycles for economic activity. However, the quality and authenticity of spare parts is critical in these modifications, as respondents often spoke of “original” parts, and “duplicate” Chinese products that are a poor investment if the consumer does not know how to identify fake or duplicate parts.

BFG saw many new, imported bicycles that had been modified to carry agricultural goods such as plantains, as well as small animals such as chickens. Bicycle taxi operators in Kampala also emphasized the importance of daily bicycle maintenance for ensuring the durability and functionality of their bicycles.

This behavior and product feedback from users indicates a potential gap in the supply of bicycles in the market that could potentially be satisfied through the wider availability of heavy-duty bicycles. Nonetheless, other challenges such as the affordability and availability of specialized spare parts for heavy-duty bikes could serve as constraints to this new product segment and would need to be addressed in parallel.

User satisfaction does appear to slightly differ across gender lines. Fifty-eight percent of female owners reported satisfaction compared to 64 percent of male owners. In women’s focus group discussions, female respondents debated the appropriate size of a bicycle. While a handful of women reported pride in being able to ride any size of bicycle, there were multiple debates over what size of bicycle is more comfortable for a woman. Some reported that a size 24” is too tall for women, and size 22” can be ridden by everyone.<sup>25</sup> In the words of one participant, “the size of the bike and frame matters a lot” for whether or not a woman feels comfortable riding the bicycle.<sup>26</sup> Both sizes are available in the Ugandan market, but it

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<sup>25</sup> These figures refer to the size in inches of the wheels.

<sup>26</sup> BFG FGD, women in Isingiro Town Council (Isingiro District)

appears that resellers in rural and peri-urban areas less frequently stock the smaller sized bicycles that are more comfortable for some women. For this reason, the availability of smaller bicycles does appear to be a limitation to some women's uptake of bicycles.

## **BICYCLE MARKETS**

Bicycles are widely available across Uganda, however local availability in less populated areas is a challenge. In larger population centers, substantial numbers of bicycle retailers and related businesses can be found clustered together, such as at the Energy Center building on Market Street in Kampala. These bicycle outlets are mostly dedicated to bicycles and spare parts, where spare parts generally make up the majority of sales by wholesalers. BFG encountered some bicycle and parts wholesalers that sell other household assets, such as sewing machines, but this is less frequent and depends on their customers' requests. Fewer bicycle sellers operate in peri-urban areas, and it is uncommon to find any bicycle retailers in rural areas. Instead, retailers with storefronts are typically concentrated in the district trading centers. Peri-urban and rural respondents to the BFG survey and focus group questions frequently reported they traveled to district trading centers to purchase their bicycles or hired someone to source bicycles from the trading centers and transport them to their community for them.

## **WHOLESALE MARKET**

The wholesale market in Uganda is dominated by importer-wholesalers that are based principally in Kampala at either the Energy Center Building on Market Street or the Katwe business. This market is highly competitive with many actors that regularly adjust to dynamic conditions.

Wholesalers tend to specialize in either new imported bicycles or pre-owned bicycles – new bicycle wholesalers are clustered in Energy Center, while used bicycle wholesalers are generally found in Katwe. Although multiple representatives of these businesses reported there is effectively “no demand” for bicycles in Kampala, bicycle wholesaling is clustered here because of the centrality of Kampala to commerce in Uganda and the city's infrastructure linking to Mombasa, Kenya, where most containers of bicycle imports arrive at port.

Wholesalers told BFG their typical customers are buyers from peri-urban and rural areas outside of Kampala that resell bicycles in storefronts in other parts of the country, are filling orders from individuals in their communities, or are simply transporting bicycles for resale on behalf of other people. While some of the larger retailers in districts that purchase wholesale bicycles from Kampala may sell bicycles in bulk to other resellers, this line of business appears to be an offshoot of the retailer's core business model of selling directly to the end customer, which could be individual consumers or organizations.

Wholesalers typically sell both bicycles and spare parts, with spare parts often comprising the bulk of their sales. One importer-wholesaler reported that 98 percent of sales were of bicycle spare parts. He reported that consumers may construct their own bicycles from the parts they prefer over time, as a savings mechanism and to ensure durability.

Importers often maintain trade linkages with manufacturers or exporters in one particular country – typically, either India or China in the case of new imports, or either Korea or Japan in the case of pre-owned bicycles. Importers often deal in goods from one of these four countries depending on where they have social and family ties. Many reported family members abroad are coordinate orders and shipping of

bicycles to Uganda. While many importers have arrangements with manufacturers to be the exclusive Uganda supplier of a particular brand, this is not universal. BFG found it common for widely available brands, such as Hero, to be distributed by multiple importer-wholesalers.

This market space is dynamic and many wholesalers report that despite facing increasing transport and tax costs, they have no flexibility to adjust sale prices without losing a competitive advantage. One wholesaler reported a desire to move to motorcycles due to low margins for bicycles and significant competition, while another reported he expects to exit the market within the next five years.

## RETAIL MARKET

Bicycle sellers are present throughout the country, although dedicated retailers with storefronts are generally concentrated in urban and peri-urban areas. As distance increases from urban centers, bicycle sellers are more commonly brokers and transporters than retail storefronts. Peri-urban and rural respondents mostly reported having to travel to district trading centers or to cities to purchase their bicycles. BFG encountered bicycle sellers in rural areas that were known to be present at local markets on certain days, once or twice a week, but otherwise not present in the community. When interviewing retailers and wholesalers in Kampala, BFG also found most buyers had traveled to Kampala from other areas to fill bicycle orders or to stock their inventory for reselling to members of their communities. Their sales are also highly seasonal, with more bicycle sales occurring during the harvest season when buyers in peri-urban and rural areas have more liquid income from crop sales.

Similar to the wholesale market, some bicycle sellers also specialize in either new or used bicycles, and may offer other products for sale. For example, one used bicycle importer also sells pressure cookers and other small household goods, but in smaller quantities than bicycles. When asked about her product mix, she reported people in Kampala have demand for these goods and they are small enough to fill spaces in shipping containers that are carrying bicycles. In this way, she can maximize her profit on her transportation costs from Japan because she is using as much of the space in her containers as possible on profitable items.

Some retailers, particularly in peri-urban and rural areas, are involved in the purchase and sale of used bicycles from community members. Retailers told BFG that individual owners approach them in times of economic hardship or when they no longer have need for a bicycle. Arrangements between individual owners and shops vary based on negotiations, but prices typically depend on the quality and state of the bicycle. It is common for retailers to sell a mixed stock of new and used bicycles. However, retailers also report cases where a previously owned bicycle on display is later reported stolen. Retailers have faced issues with law enforcement when someone has sold them a stolen bicycle, leading to the retailer having to return the bicycle to the rightful owner and having to endure a net loss on the item, and possible legal consequences. For this reason, some retailers only buy bicycles from customers that they trust, or from those who are able to prove ownership of their bicycle. Despite these reports, BFG survey data on used bicycle sourcing indicate that person-to-person used bicycle sales are much more common than used bicycle purchases from retailers.

## INSTITUTIONAL BUYER MARKET

As previously mentioned, institutional buyers do not distribute a significant proportion of the bicycle supply in Uganda, with just 1 percent of BFG survey respondents reporting having received a bicycle from

an institution. There is little evidence that government institutions and international donors are currently impacting bicycle supply in Uganda on a regular basis. While BFG found some examples of small and medium scale bicycle distribution campaigns, bicycle wholesalers reported that they do not respond to the infrequently released government or NGO tenders, as they perceive these processes to be bureaucratic and with challenging payment terms compared to other buyers. However, large scale bicycle procurement and distributions have occurred in conjunction with political campaigns. In 2020, the National Resistance Movement, the majority party in government, began distribution of nearly 70,000 bicycles to village chairpersons across the country in the lead up to elections in 2021.<sup>27</sup>

## NON-MARKET SUPPLY

In addition to traditional market channels, bicycles reach owners through non-market channels, such as gifts from family members or through limited NGO donations and government-funded distributions. This non-market supply is closely tied to market channels, with bicycles initially acquired through market transactions. The bicycles are then transferred through mechanisms outside of the market. These non-market transfers occur through several channels including most commonly transfers between individuals and less commonly donations from NGOs and bestowals by institutions. However, this appears to be a relatively small share of the market – just 8 percent of bicycle owners surveyed by BFG reported not paying for their bicycles. Further, just one respondent in the BFG quantitative survey sample indicated they had received a donated bicycle from an NGO.

It is possible that non-market supply is more widespread in Uganda than BFG data indicates given the limited scope of data collection and the often highly localized nature of NGOs and donation programs. Nonetheless, respondents did not indicate they were aware of such programs elsewhere.

## SECONDARY MARKET

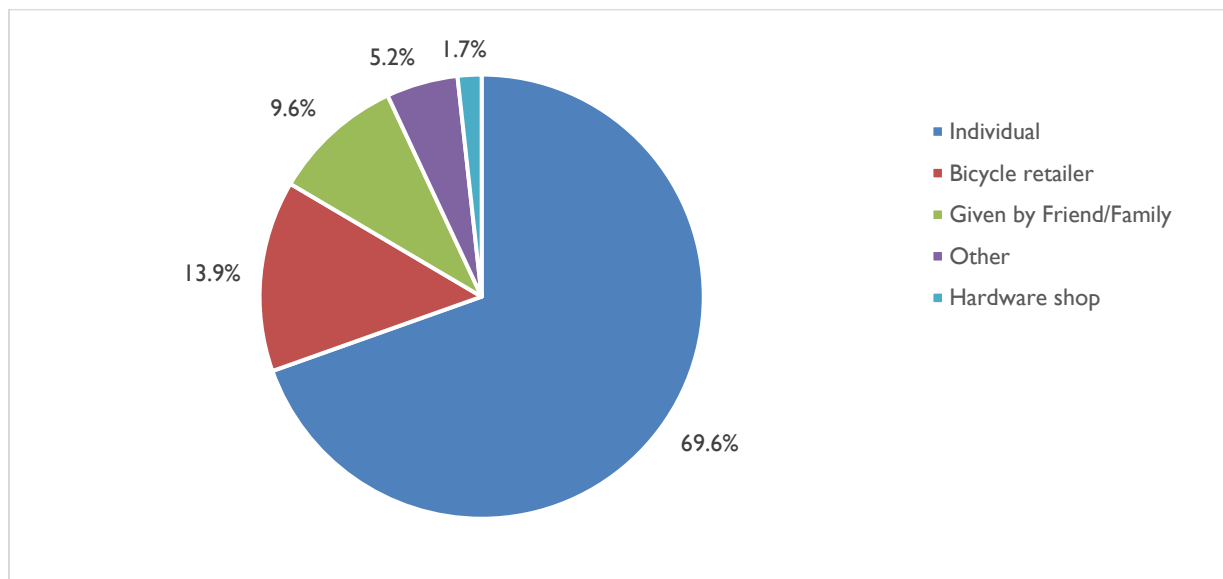
Uganda's secondary market for bicycles is substantial and, based on BFG survey data, is similar in size, if not larger than, the primary market for new bicycles. More than half of bicycle owners interviewed by BFG indicated their bicycle was previously owned at the time they acquired it. A clear majority of used bicycles owners reported purchasing their bicycles from individuals in their community and family members/friends (80 percent), compared to those that purchased their preowned bicycle from a market bicycle retailer (14 percent).<sup>28</sup> This indicates that interpersonal acquisition is a critical pathway to bicycle ownership (see Figure 7).

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<sup>27</sup> *The Daily Monitor*. "Museveni Gives Bicycles to NRM Village Leaders." 17 August 2020.

<sup>28</sup> BFG survey

**FIGURE 8: ACQUISITION SOURCE - SECONDHAND BICYCLES**

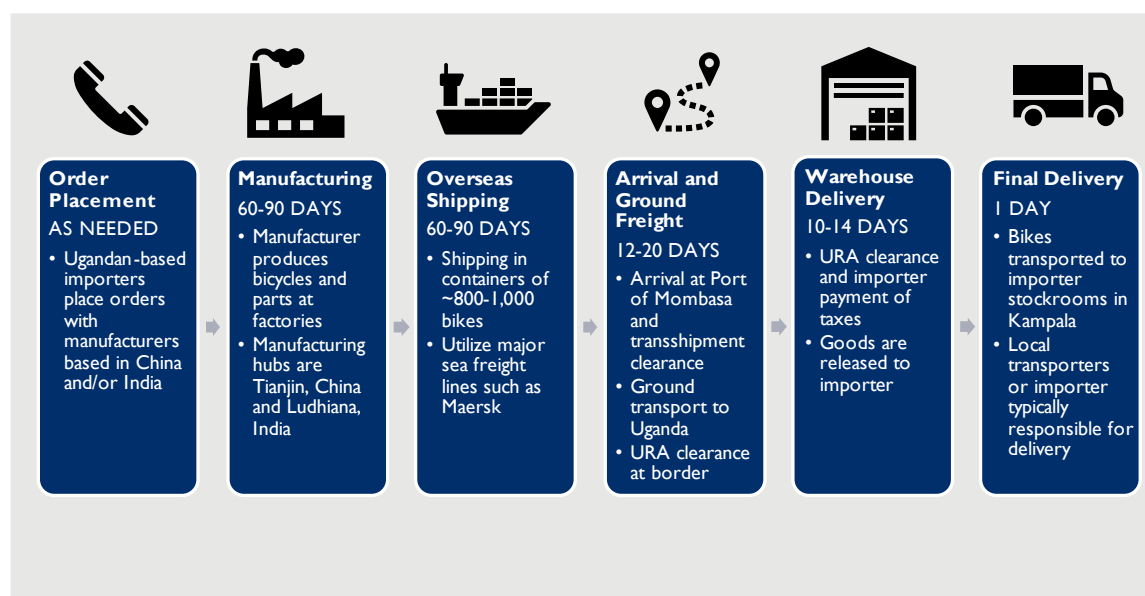


## SUPPLY CHAIN

Uganda's bicycle supply chain for new bicycle imports follows a relatively standard structure (see Figure 8). Importer/wholesalers order large volumes of bicycles and spare parts from overseas manufacturers. These manufacturers, primarily based in China and India, produce bicycles based on these orders. Newly manufactured knock-down bicycles are then shipped in containers via sea between origin countries and major regional ports in East Africa, with Mombasa being the preferred port. These containers of bicycles are offloaded from ships and placed on trucks to transport them from port inland across the Kenya-Uganda border. The Ugandan Revenue Authority (URA) provides an initial review of goods and import paperwork, usually on the same day of arrival. Containers of bicycles are then transported to transporters' warehouses in Kampala, awaiting final URA inspection and verification. URA then assesses the value of the goods and taxes due, which are then generally paid by the importer themselves or a contracted clearing agent. Finally, the goods are released and transported within Kampala to the importer/wholesaler's warehouse or stockroom for sale in the local market. This process, from initial order placement to delivery of a complete bicycle to a retailer has a lead time of approximately seven months. Supply chain disruptions due to the COVID-19 pandemic and the Russia-Ukraine war have exacerbated lead times.

The process for the import of pre-owned bicycles, notably from exporters in Japan and South Korea, are similar to those for new bicycles. Exporters in Japan aggregate and sell used bicycles in lots. The lots are typically 40-foot containers of approximately 600 disassembled bicycles. Upon export, the shipping and customs processes are essentially no different than for new bicycles. Containers of pre-owned goods are treated on the basis of the container's origin and not the original manufacturer of the good. This approach streamlines the customs process so individual items do not require inspection or categorization.

**FIGURE 9: ILLUSTRATIVE UGANDA BICYCLE SUPPLY CHAIN**



According to the most recently available UN Comtrade data, Uganda formally imported more than 73,000 bicycles at a trade value exceeding US\$3 million in 2020. As previously noted, Japan and China are the primary sources for bicycle imports, which together account for 47 percent of Uganda's imports. Korea and India are also important sources of bicycle imports in the Ugandan market system. Notably, India exported fewer bicycles to Uganda in 2019 compared to Japan, China and Korea, but the trade value of Indian bicycles is more than double that of Japan. A new bicycle wholesaler in Kampala partially validated these estimates in his report that Indian cargo bicycles can cost up to UGX 350,000 (US\$92), depending on the model, compared to the Chinese equivalent that is of lower quality and costs UGX 100,000 (US\$26). Table 4 presents details of major sources of Ugandan bicycle imports.

**TABLE 4: UGANDA BICYCLE IMPORTS 2019<sup>29</sup>**

Country	Number of Bicycles	Trade Value (US\$)	Average Dutiable Bicycle Value	Share of Total Volume
Japan	17,525	\$341,048	\$19.40	23.4%
China	17,506	\$516,031	\$29.48	23.3%
Rep. of Korea	14,558	\$352,902	\$31.45	19.5%
India	14,009	\$855,297	\$61.05	18.7%
Rest of World	11,387	\$198,981	\$17.47	15.2%
<b>Total</b>	<b>73,467</b>	<b>\$3,029,347</b>	<b>\$41.23</b>	<b>100.0%</b>

## MANUFACTURING AND SHIPPING

Similar to other BFG assessment countries and much of Sub-Saharan Africa, manufacturing of bicycles that enter the Ugandan market is clustered in India (around the city of Ludhiana) and China (around the city of Tianjin). Bicycle supply chains face several challenges at this time, including several driven by COVID-

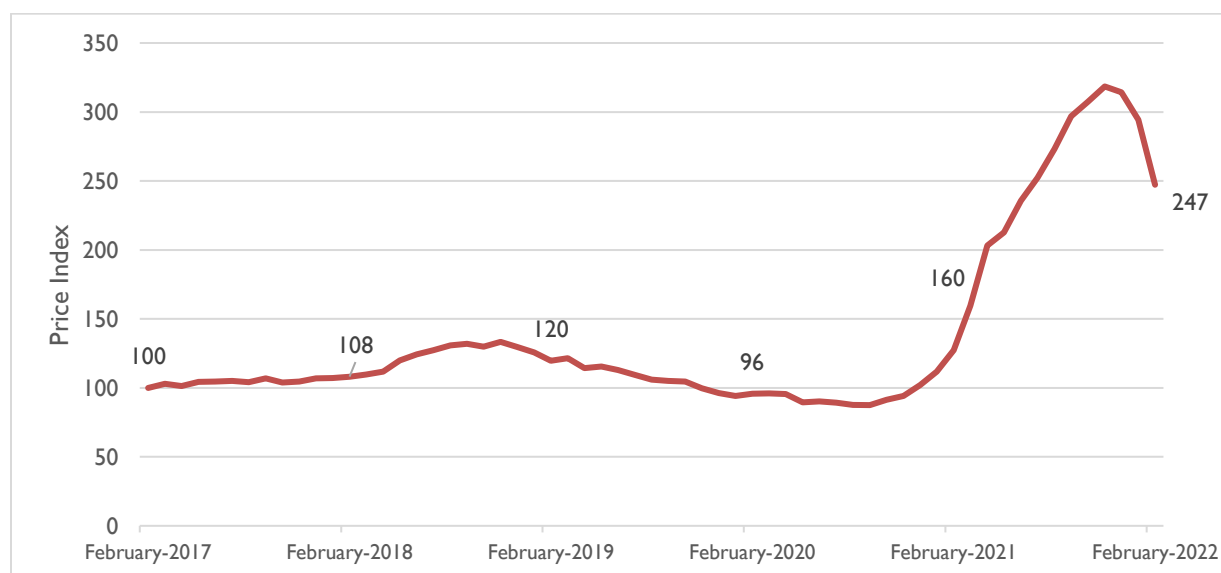
<sup>29</sup> UN Comtrade, most recently available data including quantity.

19. Respondents emphasized that these supply chain challenges have increased costs and manufacturing lead times.

Global bicycle demand has increased substantially during the COVID-19 pandemic, and this is also reflected in the Ugandan market system. Frequently cited reasons include a desire to maintain social distancing, fewer transport options, and the desire to realize health benefits. Increased global demand led to notable bicycle shortages during 2020-21, particularly at the lower end of the bicycle market. In the Ugandan context, many survey respondents and interview subjects indicated that bicycle demand increased dramatically during COVID-19 related government restrictions that prohibited the use of motorized transport around the country, making it very challenging to travel to attend to errands, business, or family. With manufacturing concentrated in China and India, and manufacturers already operating at or near maximum capacity, importers in Uganda compete with importers globally for supply.

Raw materials, particularly steel, account for 70 percent to 80 percent of the cost of bicycles.<sup>30</sup> Steel costs have risen sharply since 2020, after several years of relative price stability (see Figure 10). These and similar rising material costs have created upward pressure on wholesale and retail bicycle prices in Uganda. Suppliers indicated they expect input prices and the corresponding cost of bicycles will remain elevated in the short- to medium-term.

**FIGURE 10: STEEL PRICE INDEX (FEBRUARY 2017 = 100)<sup>31</sup>**



In line with the rising cost of inputs and extended manufacturing lead times, the cost and time required for shipping has also risen during the COVID-19 pandemic. These increases have been substantial. One supplier reported their transportation costs from India to Uganda quadrupled from approximately US\$1,000 to \$1,200 per container to approximately US\$4,000 per container during the pandemic. These increases are significant when considering the costs of bicycles from factories and the number of bicycles per shipment (ranging from approximately 600 to 1,000 depending on the type of bicycle and how they

<sup>30</sup> KPMG. *Pedaling India's Growth: Cycling into the future*. June 2021.

<sup>31</sup> Federal Reserve Bank of St. Louis. "Producer Price Index by Commodity: Metals and Metal Products: Hot Rolled Steel Sheet and Strip, Including Tin Mill Products, Index Dec 2003=100, Monthly, Not Seasonally Adjusted."



are shipped). The same importer also indicated these significant transport cost increases are a primary cause of his business’s rapidly eroding profit margins (reported at just 2 percent to 3 percent).

**MARKET INFORMATION TRANSMISSION**

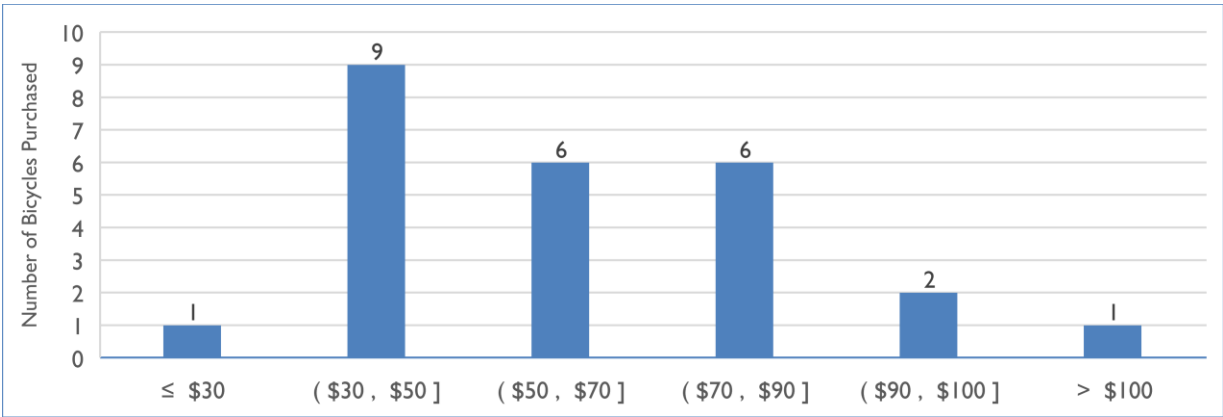
Market feedback is generally not transmitted effectively from the individual consumer upstream through supply chains. Most retailers collect only limited feedback from customers beyond basic sales information and observations related to pricing within the market. Retailers note that some return customers do deliver feedback to them upon their return to the store, usually on durability issues, and resellers may report on local demand in their communities. However, this feedback is not typically collected or aggregated in a systematic manner. Durability and other feedback related to demand are used by retailers in making inventory decisions, but the feedback on product design is generally not reported to wholesalers or manufacturers.

The gaps in market information transmission, both from consumer to retailer and retailer to wholesaler, is a potential source of poor product-market fit. More deliberate market research and feedback collection on the part of retailers and improved upstream supply chain linkages may address some of these issues.

**PRICE ANALYSIS**

Bicycle prices in the Ugandan market are segmented according to the type of bicycle for sale and their new or pre-owned status. Capturing specific price data is challenging for several reasons, including the ongoing trend of rising costs from manufacturers, currency fluctuations over time, brand, and the specifics of individual bicycles. Nonetheless, survey data and market observations lend insights into the market segments, trends, and local market prices of bicycles at the time of data collection. The distribution of the prices paid in BFG survey districts for new and used bicycles can be seen in Figure 11 and Figure 12 below.

**FIGURE 11: DISTRIBUTION OF PRICES PAID FOR NEW BICYCLES (USD)<sup>32</sup>**

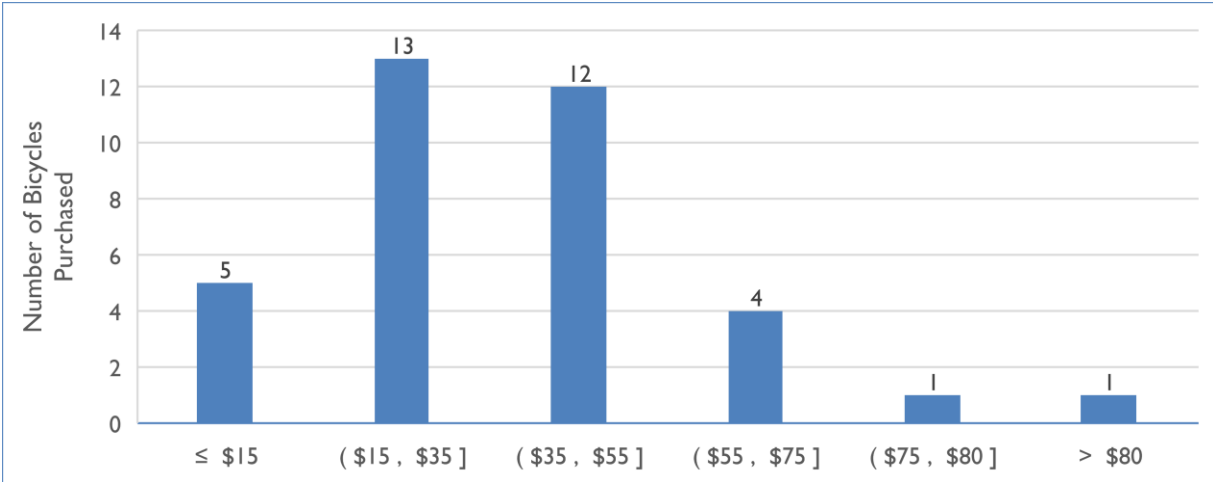


While prices observed in the market during data collection started at 300,000 UGX (US\$79) for a new imported bicycle, most BFG survey respondents that had purchased bicycles in the past two years reported paying US\$70 or less for their bicycle. However, BFG survey data indicates that five of the seven

<sup>32</sup> BFG survey. Prices converted from UGX to USD. Data includes only bicycles purchased in the last 24 months. Does not include donated or gifted bicycles.

respondents that purchased new bicycles in the last six months paid 300,000 UGX or more for their bicycle, corresponding to the upward trend in bicycle costs described by suppliers.

**FIGURE 12: DISTRIBUTION OF PRICES PAID FOR USED BICYCLES (USD)<sup>33</sup>**



This significant difference in the retail price of used bicycles compared to purchase price in the last two years may be explained by the individual used bicycle market. Nearly 70 percent of the BFG survey respondents represented in Figure 12 said they bought their bicycle from an individual, compared to the other respondents that purchased from a retailer or other source. However, the results are mixed as there is at least one case of a respondent purchasing a bicycle from an individual for UGX 320,000 (US\$84), and another report of an individual who purchased their bicycle from a retailer for UGX 85,000 (US\$22). More detail on used bicycle type is needed to clarify these results.

Retail prices within Kampala for pre-owned imports were observed in the range of UGX 300,000-800,000 (US\$79-\$210) for a typical adult bicycle, while higher-end used imports with multiple gears or fiber frames can reach UGX 2 million (US\$526). This contrasts with the prices reported by BFG survey respondents that purchased used bicycles in the past two years, who reported paying just a fraction of these estimates, with over 80 percent paying between US\$10 to \$55. These reported prices provide evidence that the secondary market for bicycles that were first used in Uganda is both distinct from the market for secondhand imports in terms of supply (i.e., the types of bicycles being offered and how they are marketed) and scale (i.e., volumes of sales), with the secondary market being lower priced and larger.

Across all districts, the average price paid by respondents for used bicycles was just 55 percent of the average price paid for new bicycles in the past two years. New bicycles were reported to be more expensive than pre-owned bicycles in all districts. The BFG survey did not observe a notable difference in bicycle pricing in rural and peri-urban areas; the price difference between geographies did not exceed \$5 in the cases of new and used bicycles.

<sup>33</sup>BFG survey. Prices converted from UGX to USD. Data includes only bicycles purchased in the last 24 months. Does not include donated or gifted bicycles.

**TABLE 5: UGANDA AVERAGE REPORTED BICYCLE PURCHASE PRICES (USD)<sup>34</sup>**

	All bicycles	New bicycles	Pre-owned
<b>Overall</b>	\$ 46.23	\$ 59.89	\$ 36.73
<b>Geographic Setting</b>			
Rural	\$ 45.11	\$ 62.50	\$ 34.67
Peri-urban	\$ 47.46	\$ 57.49	\$ 39.31

## REGULATION, PRICE DISTORTIONS, AND TAXES

Assembled imported bicycles and common bicycle parts and accessories, such as tires, innertubes and lights, are subject to a 10 percent duty on the cost, insurance, and freight (CIF) value of the goods, collected by the URA according to the East African Customs Union Common Tariffs regulations.<sup>35</sup> This duty is consistent across assembled and knock-down new and used bicycles, as well as all spare parts. Wholesalers usually import knock-down bicycles, which are more efficiently stacked for shipment in containers, leading to a lower transport cost per unit to the importer compared to assembled bicycles.

Taxes and duties are cumulative: an 8 percent value added tax (VAT) is levied against the combined value of the bicycle or bicycle part and 10 percent import duty, and 1.5 percent infrastructure tax is then charged against the total.

Bicycles and spare parts are generally given preferential tax treatment relative to other transportation goods, such as motorcycles, giving bicycles a greater cost advantage relative to alternatives. Bicycle tubes are subject to a 10 percent duty, while a substantially higher 25 percent duty is applied to motor vehicle tubes. A 25 percent duty is applied to motorcycles, except motorcycle taxis compared to the 10 percent rate for assembled bicycles.<sup>36</sup> Rubber tires for bicycles and motorcycles are both subject to duty at the 10 percent rate. While respondents to the BFG survey did not directly indicate that lower import duties affect their decision to choose bicycles over motorcycles, they did indicate that the overall higher cost of motorcycles does influence their transport choices.

Import duties are an important factor in end-market pricing – contributing additional cost to bicycles beyond the underlying goods and the costs of transportation to the market. Further reducing or waiving duties as well other taxes and government charges would mitigate one important cost element and contribute to affordability at an important margin given the limited incomes and resources available to individuals and households currently facing the greatest mobility challenges due to reliance on walking.

<sup>34</sup> BFG survey. Prices converted from UGX to USD. Data includes only bicycles purchased in the last 24 months. Does not include donated or gifted bicycles.

<sup>35</sup> East African Customs Union Common Tariffs, CET 2022

<sup>36</sup> East African Customs Union Common Tariffs, CET 2022

## SYSTEMS

Underlying demand and supply are the supporting systems in the bicycle market system. Key to the functioning of the bicycle market systems are providers of spare parts and maintenance services (i.e., mechanics) which keep bicycles themselves functioning. The spare parts market, as represented by import figures, is substantially larger than the market for new bicycles.

Notable within the Systems pillar are those elements or actors which are not present or operating to their fullest potential to support the functioning of the bicycle market system. Financial institutions, especially in the microfinance space, have great potential to help address affordability and resource challenges for individuals and households, and assist SMEs to overcome working capital constraints. However, financial institutions are minimally active in the bicycle market system at present, although the microfinance sector in Uganda is growing. Additionally, bicycles and related NMT issues have been often neglected by policymakers in their efforts to address transportation, infrastructure, and mobility. International donor agencies that serve as key sources of expertise and resources for Uganda's development, have also largely overlooked the role and need for bicycles.

## SUPPORTING SERVICES

Supporting services are essential to the functioning of the Ugandan bicycle market system. Spare part suppliers and mechanics play a crucial role in directly maintaining bicycle functioning. In 2020 an estimated \$2.7 million worth of spare parts were imported to Uganda, and almost all owners surveyed by BFG reported they visit a mechanic at least once per month.<sup>37</sup> Owners, even in rural areas, also reported they have easy or very easy access to mechanic services. The logistics sector facilitates the transportation of bicycles and spare parts between supplier connections, and helps end customers in isolated areas access to these products. Formal financing services for the purchase of bicycles in Uganda is uncommon, yet remain a potential tool to increase bicycle ownership and access.

## MAINTENANCE

### SPARE PARTS

The availability and affordability of bicycle spare parts are critical to the functionality of the Ugandan bicycle system. Of current and previous bicycle owners surveyed by BFG, 89 percent reported they bought replacement parts or accessories for their bicycle. Repairs are common, with 66 percent of past or current bicycle owners surveyed by BFG reporting they visit a mechanic for repairs several times a month. Furthermore, this figure may understate repair frequency; 6 percent of surveyed past and current bicycle owners said they repair their bicycles themselves, or receive assistance from a household member. Interviewees and focus group participants noted frequent repairs were associated with poor road conditions and spare parts' limited durability. Participants in livelihoods-centered focus group discussions indicated that bicycle and spare part durability is especially important when ferrying customers on bicycle taxis or heavy loads, such as crops or animals.

Spare parts are widely available in the market system. Most often these are imported from India and China and are standardized such that they are compatible with the bicycles that are most widely available in the market. Standardization increases accessibility and minimizes the need for specialized parts. Exceptions to

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<sup>37</sup> UN Comtrade

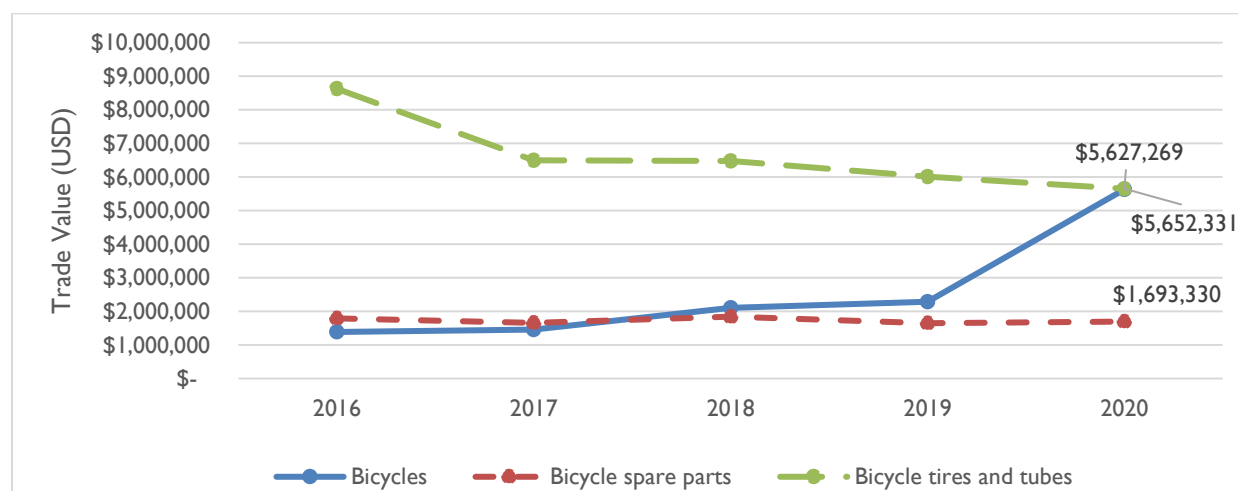
this include upmarket bicycles used primarily for recreation, such as the Gorilla bicycle, which require specialized parts to ensure efficiency and longevity of the bicycle. However, owners of such bicycles can usually afford to pay for genuine, specialized parts, so this is not usually a constraint for the owners of premium specialty bicycles.

Spare parts sellers, whether dedicated shops or non-specialized traders, are present in virtually all urban and peri-urban markets. Acquiring spare parts in these markets is relatively easy – if a seller is out of stock of a particular part, customers can readily seek alternatives. Past and current bicycle owners surveyed by BFG indicated they successfully located the needed spare part or accessory the last time they needed a repair.

Demand for spare parts is highly impacted by the durability and quality of spares available in the market. BFG focus group participants and key informant interviewees commonly reported two primary classes of spare parts present in the Ugandan bicycle market system: originals and duplicates. Duplicates were commonly described as less durable counterfeit parts manufactured to copy reputable brands. One spare parts retailer described needing to know how to identify a duplicate, or inauthentic, Shimano part from the real thing, as it affects his reputation with his customers. Many retailers and mechanics expressed that their best interest is to supply consumers with authentic, durable parts. Such a relationship develops trust with their customers, which may then lead to more business as customers recommend the business as a trusted source of materials and services. Respondents commonly stated that duplicate parts are generally imported from China; they are attractive because they are priced lower than authentic parts, but they likely cost a consumer more money over the lifetime of their bicycle because the counterfeit parts breakdown more rapidly, sometimes within a single ride. It is not clear what proportion of spare parts in the Ugandan market could be considered duplicates.

The market for spare parts, tires, and tubes in Uganda is sizable, but the trade value of these imports has not varied significantly, despite a dramatic increase from 2019 to 2020 in the value of bicycles imported to Uganda, when bicycle imports jumped from just above US\$2 million to US\$5.7 million. As explained in previous sections, this change in value may be attributed to increased demand for bicycles during COVID-19 lockdowns in Uganda, increasing bicycle costs, and international supply chain shortages, all of which have driven bicycle prices up in the Ugandan market. It is possible that a corresponding increase in spare parts imports will be more apparent with more recent data as bikes imported in 2019 begin to age and other demand and supply shocks, such as rising petroleum costs, affect the spare parts market. Figure 13 below shows these trends in more detail.

**FIGURE 13: UGANDAN BICYCLE AND SPARE PART IMPORT VALUE (2016-2020)** <sup>38</sup>



## MECHANICS

Mechanic services are widely available in all BFG data collection sites in Uganda. BFG encountered mechanics in all survey districts, with the majority of survey respondents who use mechanics indicating it was either easy or very easy to find a mechanic. Most mechanics are trained through apprenticeship agreements with established mechanics in their communities. They may operate informally as hired labor, or more formally for a garage, with at least one mechanic reporting their business is licensed and pays local taxes. Dedicated bicycle mechanic training institutions are nonexistent. Further, formal bicycle mechanic training programs are uncommon, and where they exist, are typically integrated into general mechanic certifications that are not affordable for average peri-urban or rural residents.

BFG survey results indicate that identifying a mechanic in rural areas is more difficult than in peri-urban areas, as demonstrated in Table 6. However, mechanic availability does not appear to be a major constraint on the Ugandan bicycle market system. Bicycle mechanics are widely available, and their service charges are generally affordable, between 1,000 UGX to 3,000 UGX (US\$0.26 to \$0.79) for simple repairs. Parts and transportation costs for stocking parts are however the primary limiting factors in a cyclist's ability to repair their bicycle.

**TABLE 6: DISPARITIES IN EASE OF IDENTIFYING MECHANIC SERVICES ACROSS GEOGRAPHIC AREAS**

Level of Difficulty	Peri-urban	Rural	Total (N)
Very Difficult	4.4%	1.1%	5
Difficult	2.2%	2.2%	4
Easy	20.9%	32.2%	48
Very Easy	72.5%	64.4%	124
<b>Total (N)</b>	<b>91</b>	<b>90</b>	<b>181</b>

<sup>38</sup> UN Comtrade. "Bicycle Spare Parts" includes all imports under HS Codes within 8714.9 range. "Bicycle Tires and Tubes" includes imports under HS Codes 401330 and 401150.

All bicycle mechanics interviewed by BFG said their income from bicycle repair is too low to support their families. Mechanics expressed very little flexibility in their pricing for repairs and parts; profit margins for mechanics are low due to consumer willingness to pay. Sixty-one percent of current and past owners in the BFG survey reported concern about the cost of bicycle maintenance and repairs. Spare parts prices and transportation costs have increased during the COVID-19 pandemic, and at least one mechanic working close to a trading center with wholesalers reported his customers are aware of how much spare parts cost at the wholesale level, and they are unwilling to pay retail prices for parts. Higher retail prices usually include the mechanic's transportation costs associated with sourcing parts, but this mechanic highlighted the need to price his parts wholesale prices to remain competitive, decreasing his overall profits.

Multiple mechanics interviewed by BFG offer other goods and services to supplement their income. Some mechanics are also farmers and may transport their produce to market or display their produce for sale while performing repairs. In the past, many would buy broken down bicycles from customers and fix them for resale. However, this model is not currently profitable as the cost of parts oftentimes exceeds the sale price of a used bicycle (one mechanic reported that a bicycle can cost him UGX 400,000 (US\$105) in spare parts to fix, and he cannot sell it for more than UGX 300,000 (US\$79)). One mechanic reported that he rents three refurbished bicycles to people in his community for UGX 5,000 (US\$1.30) per week. He reported this is not a lot of money to charge, but this additional stream of income ensures he has money to buy lunch each day if he does not receive any customers seeking repairs.

## FINANCE

### DEMAND-SIDE FINANCING

Formal bicycle financing is uncommon in Uganda, according to BFG data, and most demand-side bicycle transactions are made using cash or savings. Furthermore, buyers reported only using one mode of payment, rather than using multiple financing modes to purchase a bicycle.

Some bicycle and spare parts sellers offer goods to retail customers on credit or layaway, but this is not universal and often done in an unsystematic way. Retailers reported to BFG that they will only make such arrangements with highly trusted customers; in most cases, bicycle retailers demand upfront payment in full. Under layaway arrangements, customers will put down an initial payment to reserve a bicycle and then make regular contributions to the seller over time. Once the buyer has paid off the cost of the bicycle, the sale will formally take place and the buyer will take ownership. Customer credit arrangements in which the customer takes ownership of the bicycle upfront and makes payments over time typically have no standard terms and the conditions are made on case-by-case basis. Although the mechanisms described here are limited in scale, they indicate a high degree of trust between market actors, even in the absence of formal enforcement mechanisms, with potential for expansion or increased structure.

Since affordability is a major barrier for many potential bicycle owners and users, formal financing is a high potential tool for increasing bicycle ownership and access. Currently, most individuals purchase through household savings, while financing purchases through an institution or group such as a village savings and



loan association (VSLA) or informal lender is relatively rare: just 5 percent of past or current owners reported paying for their bicycle through these types of loans (see Table 7). However, a combined 20 percent of respondents used payment plans or loans from members of their social networks, including bicycle sellers, to pay for their bicycles. This share of respondents is a strong indicator of demand for bicycle financing in peri-urban and rural Uganda, and the potential for a bicycle loan product in the market.

**TABLE 7: PAYMENT MODE FOR BICYCLE PURCHASES**

Mode of Payment	Number of Responses	Percent
Own savings/sale of assets	140	62.2%
Making payments to seller	31	13.8%
I did not pay	15	6.7%
In kind payment	14	6.2%
Borrowed from family/friend	14	6.2%
Borrowed from banks	6	2.7%
VSLA	2	0.9%
Borrowed from informal lender	2	0.9%
Microfinance	1	0.4%

Ugandan microfinance institutions (MFIs) generally do not offer bicycle loan products. Several factors contribute to loans for bicycle purchases being unappealing products from the perspectives of lenders, especially if such loans are made to individuals as opposed to groups. First, such loans are relatively small and fall below the lowest value individual loans offered by most MFIs. Related to this, the costs of screening applicants and servicing small loans is relatively high and much larger loans require similar levels of resources and effort for MFIs to issue. Additionally, repossessing a bicycle used as collateral can be complicated as the bicycle may be non-functional and difficult for the lender to locate or offload. Combined, these factors effectively raise the total potential cost faced by borrowers to the point of undermining affordability and make lending commercially unviable.

Many MFIs do offer asset lending for businesses and entrepreneurs, but on a larger scale than the costs associated with individual bicycles. One MFI interviewed by BFG reported they offer motorcycle loans to motorcycle taxi drivers. In these cases, the motorcycle is an asset that directly impacts the borrower's income. For motorcycle or other asset-based loan products to be adapted to the bicycle market, lenders must see bicycles as income-generating assets.

**WHILE PROVIDING INDIVIDUAL LOANS FOR BICYCLES IS CHALLENGING FOR FINANCIAL INSTITUTIONS, GROUP LENDING MODELS OFFER SOME PROMISE. VSLAS OR SAVINGS AND CREDIT CO-OPERATIVES (SACCOS) BRING TOGETHER INDIVIDUALS WITHIN A COMMUNITY AS A UNIT FOR ACCESSING FINANCIAL SERVICES BY POOLING RESOURCES AND SHIFTING SOME OF THE BURDEN OF DUE DILIGENCE AND SERVICING FROM FINANCIAL INSTITUTION AGENTS TO THE GROUPS. AS A GROUP THEY ARE ABLE TO ACCESS LOANS FROM FINANCIAL INSTITUTIONS AND DISTRIBUTE THESE. IT APPEARS THAT GROUP MODELS ARE BEING LITTLE UTILIZED AT THIS FOR BICYCLE LENDING. THIS COULD BE ADDRESSED BY ENGAGING THE GROUPS AND THE FINANCIAL INSTITUTIONS THAT WORK THEM TO SENSITIZE THEM TO BICYCLE LENDING AND DEVELOP PRODUCTS**

## **AND APPROACHES THAT ARE VIABLE FOR INDIVIDUAL MEMBERS, GROUPS, AND FINANCIAL INSTITUTIONS.SUPPLY-SIDE FINANCING**

Financing for bicycle suppliers diverges between retailers, who face substantial challenges in accessing finance, and wholesalers, who are generally well-capitalized and able to access commercial loans when needed.

In interviews, most independent retailers noted their business was partially constrained by limited working capital or access to finance. Spare parts retailers and mechanics echoed these constraints. As a result, impacted retailers, spare parts sellers, and mechanics (who offer spare parts) could not expand or manage inventory optimally. Underdeveloped business systems are barriers for retailers. Relatively weak linkages with wholesalers mean that most wholesale transactions are cash-based rather than through financing provided by either the wholesaler or a third-party.

### **TRANSPORT AND LOGISTICS**

Transports and logistics service providers are important to effective functioning of bicycle supply chains. The system of service providers which facilitate the importation of bicycles into Uganda, notably shipping providers and customs clearing agents, is well-developed. Suppliers report generally high levels of satisfaction and relatively few problems with these service providers. Bicycle importers note their primary concern with inbound logistics is delays either at ports or at the border, either of which can generate significant unplanned costs for storage of shipping containers. However, these cases appear to be relatively rare.

Currently, the primary challenges in transportation and logistics are the increase in fuel costs, shipping times, and limited available capacity on shipping routes. This is a global issue affecting supply chains everywhere.

Once bicycles have reached wholesaler warehouses within Uganda, wholesalers and retailers engage domestic transporters for distribution to final destinations. Domestic transporters include professional transporters and informal operators. Transporters may use containerized vans or open trucks for transportation purposes. The sector is relatively competitive, however logistics and transport firms in Kampala report increasing shipments of motorcycles relative to bicycles over the past four years. One firm reported that in 2018 they were transporting at least one container of bicycles per month, but in 2022 they average about one container of bicycles every three months.

### **POLICY AND INSTITUTIONAL ENVIRONMENT**

Uganda's official transport narratives state NMT is important for reducing the country's carbon emissions and contributing to sustainability objectives, in addition to improving social, health, and economic opportunities and reducing costs of travel over short distances. However, this official standpoint is not necessarily the view of all decision-makers, where walking and cycling are still seen as low-status modes to be eradicated, and where climate mitigation is seen as a developed world responsibility. Despite NMT training and workshops, attitudes do not necessarily change, and decision-makers may delegate attendance to others. While "political will" may exist for NMT interventions, some stakeholders note a lack of "political commitment," which translates into a lack of funding.

## INSTITUTIONAL SET-UP

The Uganda National Roads Authority (UNRA), established in 2006, manages the national road network. District Local Governments manage and maintain the district roads, while various urban councils, municipalities, and the Kampala Capital City Authority (KCCA) manages the roads in the capital. Community Access Roads are managed by sub-counties. The Uganda Road Fund (URA), established in 2008, is the principal agency for financing routine and periodic maintenance of public roads. UNRA oversees road maintenance implementation. The Ministry of Works and Transportation (MoWT) supervises both UNRA and URA .

## NATIONAL POLICY ENVIRONMENT

MoWT is responsible for establishing NMT policy and standards in the country. The Ministry's NMT Policy, developed in 2012, aims to increase the recognition of walking and cycling in transport planning, design, and infrastructure provision; the provision of safe infrastructure for pedestrians and cyclists; resources for walking and cycling mainstreaming in agencies' financial planning; the development and adoption by all agencies of universal design standards; and an improvement in regulation and enforcement to enhance safety for pedestrians and cyclists.

Uganda's National Urban Policy (2017) offers support for NMT facilities and use in cities, as it aims to manage urban sprawl and deliver effective urban planning. The national government has also approved city-status for 11 urban areas and, led by the Ministry of Urban Development, expressed interest in the concept of a "20-minute neighborhood" and its applicability to these new cities. Walking and cycling access are the pillars of this urban design concept that places most critical goods and services within a 20 minute bicycle ride or walk.

The Transport and Logistics Policy and Strategy (2020) also supports NMT. It aims to accelerate investment in infrastructure for multi-modal transport services, including NMT. The Strategy commits to sustainable, equitable, and inclusive planning of transport services, which in theory means planning for the most vulnerable road users.

The Transport Sector Working Group approved a revision of the current National Transport Master Plan. The working group will present the plan to stakeholders in 2022 for national consultation before presenting it to the Cabinet. NMT is emphasized in the plan, according to the Ministry of Transport and Works, although the BFG team cannot elaborate on this as BFG was not permitted to review the document.

The tax regime is a significant obstacle to bicycle ownership and uptake, with import tax, withholding tax, import commission, and VAT (the largest tax on bicycles) amounting to 30 percent of the cost of a bicycle. In the 2012 NMT Policy, MoWT suggests that adopting a tax-free model similar to Kenya and Madagascar would increase bicycle ownership.

## KAMPALA POLICY ENVIRONMENT

Kampala's multi-modal Urban Transport Master Plan, for the Greater Kampala Metropolitan Area, was approved in 2018. Although its primary ambition is to develop light rail and a bus rapid transit (BRT), walking and cycling are envisioned as key feeder modes. To this end, the plan envisions 13 NMT corridors,

spanning 68 kilometers in total. KCCA and the Ministry of Works and Transport will implement the Urban Transport Master Plan, though funding has constrained implementation.

## OPPORTUNITIES AT LOCAL GOVERNMENT LEVEL

At local government level, BFG found very little implementation of the NMT policy. Uganda has district development plans, which present an opportunity to ensure NMT issues are included in local government planning. Every five years, local governments develop their district development plans, which feed into the National Development Plan (NDP). The next NDP will be published in 2026, at which point MoWT intends to ensure that NMT issues are mainstreamed into national development planning.

## ADVOCACY AND SUPPORTING INSTITUTIONS

Advocacy organizations are, in many instances, also (or initially) institutional purchasers or involved with bicycle donations and distribution. A number of organizations have expanded their field of interest from donations to broader advocacy for cycling infrastructure and policy.

FABIO (First African Bicycle Information Organization) is possibly the oldest bicycle advocacy organization in sub-Saharan Africa, founded in 1995 in Jinja. Working with German partners at the NGO EURIST (European Institute for Sustainable Transport), FABIO was established as an ‘information office’ to provide information about bicycle maintenance and repairs. Soon the organization became more involved with bicycle distribution, raising funds to donate used bicycles from Germany and the Netherlands to Ugandan beneficiaries.

Bicycle advocacy followed, as FABIO became a highly visible stakeholder in cycling policy developments. The group organized cycling seminars (2001) and presented at international cycling conferences (e.g., VeloCity) about cultural factors, taxes and duties, road safety, and infrastructure constraints to cycling and bicycle ownership. FABIO now collaborates with government entities, such as the Ministry of Transport Working Group, and is a key stakeholder in programs such as the NMT pilot in Kampala, and the development of the NMT Policy.

Two Dutch individuals residing in Uganda founded Cycling Out of Poverty (COOP) in 2007, with a mission to “improve the livelihood of African families by making bicycles ... accessible and available for everyone.” COOP works with donors to distribute approximately 1,000 bicycles a year, including to school learners, health-care workers, and farmers, vendors, and entrepreneurs. The organization has expanded its advocacy work, and partners with Jinja City Council, for example, to organize car-free day events. In 2020, the organization developed an “infrastructure-lite” design for a bicycle lane network for Jinja. Although the project has not been implemented, the engagement with users and decision-makers has been an important learning exercise for authorities about bicycle planning and user needs.

Action for Rural Women’s Empowerment (ARUWE) is a non-profit organization that targets marginalized groups. Bicycles are evident solutions to the transportation challenges they see; five years ago ARUWE implemented a program called Wheels of Life, where they distributed bicycles to community groups, particularly to improve access to antiretrovirals for older women. Access to health facilities is difficult due to long distances, and a community volunteer with a bicycle can ride and collect medication for three or four people. Adherence to ARV medication has dramatically improved as a consequence: up to 96 percent adherence has been reported.

Training, Education and Empowerment for Neighborhood Sustainability (TEENS) is an organization advocating for sustainable mobility and inclusive cities. They are one of the key organizations that have been involved in organizing several open streets in Kampala.

## TRAINING, CAPABILITY, AND CAPACITY

As with most countries in Africa, highway engineers are trained in motorized transport issues and not bicycle travel; pedestrian infrastructure is partially accommodated in engineering guidelines. Stakeholders note that change must start from institutions of learning which should change the curriculum to also focus on NMT, especially cycling.

The lack of focus on NMT in learning institutions translates to little focus at government level. Stakeholders propose that at the least, short courses and research workshops could help close knowledge gaps, together with NMT pilot schemes that institutionalize monitoring, evaluation, and revision.

A further challenge is the lack of capacity at national government to support the large number of local districts, given the need to transverse all the areas, with limited finances. MoWT cannot fully rely on local offices to oversee implementation and monitor progress of infrastructure programs or policy. Where the Ministry cannot deploy its own officers, Members of Parliament are able to monitor technical implementation as part of their oversight responsibilities, but again, this is not ideal for quality assurance.

## INFRASTRUCTURE

### ROAD CONDITIONS AND INFRASTRUCTURE

There is evidence that road maintenance projects and NMT infrastructure projects are ongoing, although the scale appears to be small and concentrated in Kampala. The most recent annual report from the Uganda Road Fund indicates that budget allocations present a primary challenge to expanding road maintenance programs. The Fund indicates that the inadequate funding of maintenance has consistently led to a backlog of scheduled road maintenance projects nationwide. Funding is a constant constraint, and the government is reluctant to borrow too heavily at high interest rates; one consequence is that UNRA is forced to design roads without sufficient road shoulders or space for NMT facilities, and only 20 percent of the entire road network is paved. Further, stakeholders note that the high cost of land compensation is a constraint for pedestrian and bicycle infrastructure development. Widening roads and developing NMT infrastructure entails not only increased costs in terms of construction materials but also acquisition of scarce land, exacerbating funding limitations. Even when development partners provide funding for roads, it is meant typically allocated for construction and not land compensation.

### BICYCLE INFRASTRUCTURE

UNRA estimates that there are 30,000 kilometers of community roads; 20,000 kilometers of national roads; 12,300 kilometers of district roads; and 2,800 kilometers of urban roads. The total paved roads network as a percentage of total national roads has more than doubled, from 8 percent in 1986 to 21.1 percent (or 4,551 kilometers) as of May 2018.

These roads include little infrastructure for walking or cycling. Instead, footpaths and trails are used by cyclists and pedestrians in rural areas, and road shoulders are used by these groups on national roads (rural roads are likely to have a shoulder of between 1.5 meters to 2 meters).

The majority (59 percent) of BFG survey respondents (all from peri-urban and rural areas) reported that the dirt pathways shared with pedestrians was the only bicycle infrastructure in their communities. The second most common infrastructure (cited by 11 percent of respondents) was paved shoulders along main roads, followed by bicycle parking (6 percent). Only 5 percent of respondents reported dedicated bicycle lanes, and 4 percent reported street lighting.

Dust and flooding are the main issues that affect bicycle users. Gravel roads are especially difficult to maintain with the two rainy seasons in Uganda. Some roads are periodically cut off due to rains. Within its funding constraints, UNRA seals roads where possible to reduce dust, but cannot afford to lay asphalt. Dust affects cyclists' visibility, and prolonged exposure to dust is a discomfort to non-motorized travelers. Bicycle users do not report that poor road conditions contribute to their needing to repair their bicycles more often.

Urban roads also provide challenges to cyclists and pedestrians as shoulders and sidewalks can be blocked by vehicles and vendors or can be risky to traverse due to traffic and drains.

Uganda's NMT policy ambition (2012) proved difficult to implement and operationalize without NMT design standards in place. To this end, the Uganda MoWT developed an NMT Implementation Manual in 2019, which specifies standards for road infrastructure projects, street elements, standard cross-sections, intersection design, bicycle parking, crossing places, and access to public transport hubs, among others. This Manual does not yet have statutory authority, but the processes are in place to do so. Once the guidelines have this authority, the MoWT will be able to operationalize the Policy elements that require enforcement of infrastructure provision and standards.

Kampala Capital City Authority (KCCA) is the country's NMT champion. Funded by the World Bank, KCCA commissioned a study for a 15km NMT facility along the Kampala-Namanve railway reserve, and 4km of pedestrianized streets within Kampala with bicycle parking, and a 500m cycling lane on Acha road. The CBD pilot is complete; the infrastructure is intended to be accessible only to pedestrians and cyclists, with vehicle access only for emergencies and deliveries at specific hours. However, lack of enforcement is a challenge as motorcycle taxis frequently use the corridor. Additionally, cyclists share this space with a large number of pedestrians and traders, making it difficult to cycle. The dedicated cycling lanes are too narrow. Advocacy groups view the NMT corridor as an important investment, but are critical of its lack of integration, isolated nature (ie, it is not part of a network), and the manner government stakeholders have used the corridor as a showpiece without collecting sufficient data to demonstrate impact.

## ROAD SAFETY

Pedestrians are at greatest risk on Uganda's roads, accounting for 40 percent of road fatalities. Cyclists constitute 6 percent of road fatalities and motorized two- and three-wheelers account for 33 percent. Most severe road crashes involving pedestrians and cyclists take place at intersections and junctions, thus UNRA pays particular attention to cross-sections.

Participants in the BFG survey reported they were concerned about safety while using bicycles. A higher percentage (37 percent) were concerned about safety on tarmac roads than on dirt roads (17 percent). These concerns influenced the decision to use bicycles for 38 percent of respondents and influenced the decision to purchase bicycles for 26 percent.

Uganda's lead road safety agency is the National Road Safety Council (NRSC), within the Ministry of Works and Transport, and it is funded through the national budget; its functions include coordination, legislation and monitoring and evaluation of road safety strategies. Uganda's NMT Policy (2012) states that safety will be enhanced through education and awareness creation, coordinated by the National Road Safety Council, and later the National Road Safety Authority once it is established, together with a Multi Sectoral Transport Regulatory Authority (MTRA). The Uganda Road Safety Audit Manual (2004) specifies the processes by which road safety audits are to be followed. However, lack of stakeholder collaboration and poor community participation have been identified by public health researchers as a gap in developing safety interventions. The National Road Safety Policy (2014) highlights the need for measures to protect cyclists and pedestrians.

Safety around schools is a concern, and the World Bank is currently funding a project in rural Northern Uganda that focuses on safe routes to school; footways at least 5 m from the roads are to be provided at least 2 km in all directions from school entrances.

## **DONOR SUPPORT**

There are several donors actively engaged in supporting transportation and infrastructure development in Uganda, including the European Union (EU), the United Kingdom Foreign, Commonwealth and Development Office (FCDO), the Japan International Cooperation Agency (JICA), and the World Bank are among the donors which have been most involved in this space.

JICA has historically been heavily involved in road and transportation development in Uganda, especially on major roads that access Uganda's international borders. In 2010, JICA provided a loan to the Government of Uganda for the redevelopment of a cable-stay bridge and access roads across the Nile River, on the Kampala-Jinja Road, the major highway that connects the capital city to one of the tourism capitals of Uganda. This highway continues from Jinja to the Ugandan-Kenyan border in Busia, a major artery for Ugandan-Kenyan international trade. JICA has also supported rural road development and paving via various projects since 2009.

Other donors, such as the World Bank, have programmed funds for infrastructure development into larger projects. For example, the World Bank's Greater Kampala Metropolitan Area Urban Development Program, valued at US\$5.7 million, will dedicate 41 percent of the project budget to urban infrastructure and service delivery. However, bicycle uptake is considerably lower in Kampala than in peri-urban and rural areas, so it is unclear how much this project will impact NMT users.

Road development projects in Uganda have historically focused on enabling motorized transport and have been used as tools for international trade over land borders by encouraging long-haul container transport. International donor infrastructure projects do not appear to integrate facilities for cyclists at this time.

International donor institutions have done relatively little to actively promote bicycle adoption and use, although they acknowledge the benefits of bicycle use in terms of mobility, health, and environmental



considerations. There is little evidence that international donor institutions directly or indirectly promote bicycle use in Uganda; BFG did not learn of any funding provided by international donors for the procurement of bicycles for programmatic use.

## CONCLUSION

Based on the findings of this report, BFG identified significant constraints within the bicycle market system that indicate that the market system is not functioning to its full potential. Some of these constraints are challenging and multicausal, such as affordability – which brings together issues ranging from the seasonality of household incomes in peri-urban and rural Uganda, rising global steel prices, trade policy, poor local infrastructure, and limited access to finance. Others may be more straightforward to address, such as the lack of secure parking facilities in public areas. Regardless of their complexity, BFG sees multiple opportunities for market system actors, including the private sector, government, donor agencies and projects, and NGOs, to make an impact and improve the functionality of the market system.

BFG distilled the highest potential areas for interventions in response to market system constraints in Annex I: Constraints Matrix.

Additionally, further research could explore issues or utilize approaches including:

- **Economic impacts of bicycle ownership:** BFG's research identified a close relationship between bicycle ownership and a variety of direct and indirect economic activities. Additional research to quantify the economic benefits of bicycle ownership on households and individuals could build on this. If tied with the costs of acquisition and ownership, opportunity costs, and available alternatives, such an analysis would provide evidence for prioritizing the regions, demographics, and sectors in which bicycle ownership is most economically beneficial.
- **Bicycle use and mobility issues: geography and temporal trends:** While BFG conducted research across a broad swath of the Ugandan bicycle market system, BFG's assessment was not necessarily comprehensive or representative given that data was not collected in all of the country's regions, and only eight districts were represented in the sample. Additionally, the report does not comprehensively address the underlying factors driving temporal dynamics in bicycle usage and mobility patterns, as this was not a key focus of the assessment.
- **Expanded or enhanced surveys:** BFG was limited to relatively small samples of respondents at a particular location (i.e., a market). Future surveys could follow similar lines of inquiry as BFG, but expand the sample size for greater explanatory power and utilize approaches such as household surveys to create more representative samples.
- **Financial products for bicycles:** Financial service providers' recent experience in the Ugandan market has included both successes and failures, while suggesting potential for financing to at least partially address affordability constraints for some consumers.
- **Potential for domestic manufacturing:** The experience of the Roadmaster Cycles Ltd. offers important lessons for the viability of future efforts to manufacture bicycles and/or bicycle components in Uganda (or similar contexts elsewhere). Additional research could examine the reasons for the ultimate failure of Roadmaster and whether conditions have changed or could be managed in a way to overcome those challenges.

Following the publication of this report and similar reports covering the bicycle market systems in Ghana, Malawi, Rwanda, and Uganda, the BFG project will design and implement pilot activities to address constraints or scale up successes identified through the assessment process in two of the countries. In addition, BFG will support the formation of Bicycle Market System Advisory Committees in each of the five countries to build on these assessments and continue advocacy around identified issues.

Development agencies, NGOs, the private sector, and other parties are also invited to use the work of BFG as a catalyst for their own activities to promote bicycle uptake and access as an affordable means of linking individuals, households, and companies with opportunities by overcoming mobility challenges.

## ANNEX I: CONSTRAINTS MATRIX

Constraint Symptom	Causes	Potential Solutions
<b>DEMAND</b>		
Perceived high prices of bicycles	Limited household resources	Financing for bicycle purchases through microfinance institutions or banks
Concerns about costs and burdens of maintenance	Affordability of quality spare parts  Poor road conditions	Advocacy to reduce VAT and/or duties on spare parts to promote affordability  Advocacy to limit the entry of counterfeit parts to the market  Advocacy to promote improved infrastructure for bicycle users
Concerns about bicycle security	Limited facilities in public areas to lock or secure bicycles	Increased construction of bicycle racks and similar low-cost security measure in high traffic areas such as markets and workplaces  Awareness campaigns and marketing around security devices such as locks
Concerns about road safety	Dangerous behavior on the part of drivers  Lack of dedicated infrastructure for bicycles and pedestrians leading to increased interface with motorized transport  Limited awareness of road rules on the part of bicyclists  Low levels of safety device usage	Advocacy by bicycle users and suppliers to raise government awareness and follow through on commitments to infrastructure development  Awareness campaigns to promote familiarity with road rules  Awareness campaigns to promote helmets, reflective material, and other safety measures

Constraint Symptom	Causes	Potential Solutions
<b>SUPPLY</b>		
Limited knowledge of consumer preferences and feedback on the part of upstream supply chain actors	<p>Limited information collection by retailers</p> <p>Weak linkages between retailers and wholesalers</p>	<p>Creation of deliberate market information collection process</p> <p>Strengthened retailer-wholesaler linkages</p> <p>Creation of market information systems</p>
Suboptimal retailer inventory management and offerings	<p>Limited retailer working capital</p> <p>Weak linkages between retailers and wholesalers</p>	<p>Strengthened retailer-wholesaler linkages</p> <p>Support to retailers for improved business process and skills to facilitate access to finance and supplier trust</p>
Rising bicycle prices and uncertainty	Rising input costs in global markets	Limited viable options under market conditions
<b>SYSTEMS</b>		
Low utilization of finance for bicycle purchases	<p>Limited MFI and bank awareness of bicycles as income generating tools</p> <p>Loose structure of associations for bicycle-based businesses</p>	<p>Support MFIs to develop bicycle lending products to offer directly to buyers or to sellers as intermediaries – especially through utilization of group lending models</p> <p>Support to associations of bicycle-based businesses to formalize and engage with MFIs</p>
Lack of consideration or tailored measures for bicycle users in policy decisions	Limited awareness of cycling issues and viewpoints on part of policy makers	<p>Engagement and advocacy with policymakers by market system actors</p> <p>Increased organization of bicycle actors through associations and civil society groups</p> <p>Creation of platforms for public-private dialogue</p>

Constraint Symptom	Causes	Potential Solutions
Engineers and other actors in road design lack capacity related to NMT	Training is focused on motorized transport and related issues	<p>Development of tailored courses and material emphasizing NMT in design and implementation of infrastructure for inclusion in engineering training programs</p> <p>Inclusion of modules on NMT issues and updated best practices in continuing education programs</p>
Limited follow through on commitments to improve cycling conditions in official policy	<p>Limited awareness of cycling issues and viewpoints on part of policy makers</p> <p>Adoption of approaches/policies from external sources without tailoring to Ugandan context</p>	<p>Engagement and advocacy with policymakers by market system actors</p> <p>Capacity building for policy makers in non-motorized transport areas</p>

## ANNEX 2: METHODOLOGY

### OVERVIEW

The BFG Uganda Bicycles Market System Assessment was a cross-sectional, mixed-methods data collection activity across four districts in Uganda. The assessment used primary and secondary data sources to answer research questions around supply, demand, and systems in the Uganda bicycles market system.

Primary data was collected through qualitative and quantitative methods, including a quantitative survey of 379 respondents in five districts (including 38 pre-test respondents in Kampala), 66 key informant interviews (KIIs) and 8 focus group discussions (FGDs). Data collection districts included: Isingiro, Lira, Mityana and Tororo, with Kampala as the pre-test district and location of many KIIs.

Primary quantitative data was collected and managed by BFG's Uganda research partner, Shoreline Services Limited (SSL) starting from July 4, 2022. Primary qualitative data was jointly collected and managed by SSL, World Bicycle Relief and J.E. Austin Associates.

Secondary data was sourced during desktop research, examining existing literature and reports on cycling and non-motorized transport in Uganda, as well as existing data on relevant trade and economic activity in Uganda.

### SELECTING STUDY SITES AND DATA COLLECTION LOCATIONS

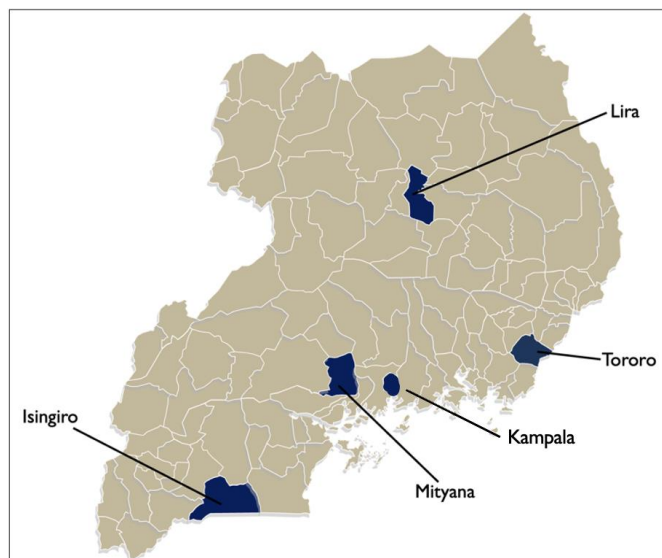
SSL led the selection of study and data collection sites with guidance from the project. The BFG selected implementation districts based on the following criteria:

- User demographics – income, age, gender, transportation needs, etc.
- Interest of local leaders and stakeholders
- JAA and/or WBR team footprint
- Bicycle distribution available – volume and variety of bicycles
- Transport alternatives and geography
- Cycling culture, perceptions and gender norms

Isingiro, Lira, Mityana and Tororo were selected as the districts of interest because they represented a broad range of economic, social, and geographic characteristics across the country. Additionally, initial piloting of data collection tools was conducted in Kampala district.

Figure 14 demonstrates this distribution below:

**FIGURE 14: DISTRICTS OF FIELD DATA COLLECTION**



BFG collected survey data at a site in each of the eight primary assessment districts, taking into consideration the project research questions and criteria for data collection sites. The descriptions of each site and explanations of their relevance to the evaluation are described below in Table 8.

**TABLE 8: FIELD DATA COLLECTION SITES**

No.	District	Region	Site	Site Description
1	Tororo	East	Kisoko Sub County (rural)	A small trading center along Tororo municipality - Nagongera dirt road in Tororo district.
2	Tororo	East	Merikit Town Council (peri-urban)	A fairly busy trading center with dirt access roads to Apokor, Kidoko and Maliri.
3	Lira	North	Barr Sub County (rural)	A small trading center along the Lira – Aloï dirt road with dirt access roads to Abunga, Aber, and Alebere.
4	Lira	North	Amach Town Council (peri-urban)	A busy trading center located south east of Lira municipality neighboring Barr, Abako and Aloï, accessed by dirt roads.
5	Mityana	Central	Bulera Sub County (rural)	A small rural trading center along the Mityana Municipality – Binyonyi tarmac road surrounded by farming communities with dirt access roads to neighboring parishes.
6	Mityana	Central	Zigoti Town Council (peri-urban)	A busy trading center in Central Uganda along the Kampala – Mityana tarmac highway.
7	Isingiro	South	Kabingo Sub County (rural)	A hilly rural farming community located about 7km from Isingiro town council in Western Uganda. The 7km distance is covered by hilly dirt roads. It connects to the tarmac road of Isingiro –Mbarara.
8	Isingiro	South	Isingiro Town Council (peri-urban)	A fairly busy trading town on a tarmac highway connecting Mbarara City in Western Uganda to Kikagati border with Tanzania.



## STUDY PARTICIPANTS

The selection of study participants varied depending on the data collection tool being used. The quantitative survey was administered as an intercept survey in markets in the selected data collection sites. Respondents included bicycle users and non-users, as well as individuals that use other forms of non-motorized and motorized transportation.

Participants in Focus Group Discussions were approached based on the purpose of a given focus group. These included women (bicycle users and non-users), as well as mechanics and livelihood groups.

Key Informant Interviews targeted stakeholders and government agencies within the bicycle market system who can provide deeper insights into the bicycle market system in Uganda according to the three pillars of the assessment: demand, supply, institutions/policy environment. Key informants interviewed included government officials, wholesales, bicycle retailers, donor institutions, and civil society groups.

**TABLE 9: DATA COLLECTION OVERVIEW BY DISTRICT**

District	Completed FGDs	Completed KIIs	Completed Surveys
Kampala	2	4	38
Tororo	2	6	83
Lira	2	6	85
Mityana	2	6	86
Isingiro	2	6	81
Total	10	28	373

## DATA COLLECTION INSTRUMENTS

Each tool collected responses to the key research underlying this study. The data collection instruments were drafted in English and were translated into the relevant local languages by accredited translators. Translations will remain true to the nuances of the way in which questions have been drafted and structured in the original as far as possible. A copy of the quantitative questionnaire is available in Annex 3. KII and FGD guides were tailored to the targeted respondents.

## DATA ANALYSIS METHODS

Descriptive and bivariate analysis was applied to quantitative data to provide average estimates on key demographics and socio-economic status, and bicycle ownership and utilization. Where possible, the analysis presents results stratified across gender, age groups, socio-economic levels, occupation, and location. Through statistical analysis, BFG also explored associations between bicycle ownership/use and other variables of interest, including demographic and geographical characteristics, transportation needs, bicycle acquisition and ownership, enabling conditions, and attitudes and perceptions.

The qualitative data was translated or recorded in detailed notes. These notes and translations were reviewed thoroughly and organized into the key themes represented in this assessment report. Other methods such as literature reviews were used for the desktop, secondary data research phase of this assessment.

## ANNEX 3: QUESTIONNAIRE

Hello. My name is ..... and I am working with the Bicycles for Growth (BFG) Project, funded by USAID. We want to learn about how your community uses bicycles and what your personal experience with bicycles is. We are conducting a survey and would appreciate your participation. I would like to ask you about your transportation and mobility experiences. This information will help the BFG project to assess whether there is a healthy market for bicycle use in your community. Whatever information you provide will be kept strictly confidential. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You can also choose to stop participating at any point in the survey. However, we hope that you will participate in this survey since your views are important. There is no compensation for participating in the survey. If at any time during this survey you have any questions about our study, please feel free to ask to speak with our manager.

The interview will last between 30-45 minutes. Would you be willing to participate in the survey? Do you agree ? Yes \_\_\_\_\_ No \_\_\_\_\_

<b>A11</b>	Enumerator:	<b>A15</b>	Region	Central, Eastern, Northern, Western
<b>A12</b>	Date:	<b>A16</b>	District	Lira, Isingiro, Mityana, Tororo
<b>A13</b>	Start/Finish Time:	<b>A17</b>	Division/ Town Council/ Subcounty	
<b>A14</b>	Geography Type: Urban, Periurban, Rural	<b>A18</b>	Village or Cell	

Demographic							
B1	B2	B3	B4	B5	B6	B7	B8
Household status  *Note to enumerators: We do not interview minors (under age 18)	Marital status	Gender	On average what is your household monthly income?  *Note to enumerators: Enter [98] if "I don't know"; [99] if "No response"	What was your age at your last birthday?  *Note to enumerators: We do not interview minors (under age 18)	How many individuals live in your household for at least four nights a week?  *Note to enumerators: Include the respondent in this count	How many children under the age of 15 live in your household for at least four nights a week?	What is the highest level of education you have completed?
[1] Head of Household [2] Other adult in the house [3] Youth (age 24 or under) in house	[1] Single [2] Married [3] Divorced [4] Widowed	[0] M [1] F [95] Other	* Local currency  _____ x 52 Weekly Or _____ x 12 Monthly	_____ *Years  [98] I don't know [99] No response	# male  # female  # other (nonbinary)	# male  # female  # other (nonbinary)	[1] Completed (preschool) [2] Less than primary [3] Completed primary (completed P7) [4] Less than o-level [5] Completed o-level [6] Less than a-level [7] Completed a-level [8] Tertiary (certificate or university degree and above)

Demographic (continued)				
B9	B10	B11	B12	
Primary economic activity (choose only ONE)  *Note to enumerators; Merchants are considered self-employed, compared to [4] Private sector employment	Do you or anyone in your household currently own a bicycle?	If B10=yes, who in your household owns the bicycle?	If B10=yes, Who is the primary user of the bicycle?	
[1] Farmer [2] Informal merchant [3] Formal merchant [4] Private sector employment (including casual worker) [5] Gov't employee [6] Unemployed [95] Other (specify) [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Myself [2] Spouse [3] Child [4] Other relative [95] [95] Other (specify) [98] I don't know [99] No response	[1] Myself [2] Spouse [3] Child [4] Other relative [95] Other (specify) [98] I don't know [99] No response	

Transportation Needs							
C1	C2	C3	C4	C5	C6	C7	C8
During the last 30 days, how much did you spend on transportation?  Note to enumerators: Enter [98] if "I don't know"; [99] if "No response"	In the previous harvest season (past three months), what types of transportation did you use?  (check ALL that apply)	In the previous harvest season (past three months), what was your primary form of transportation?  (choose only ONE)	Are you satisfied with your primary form of transportation on a scale of 1 (very dissatisfied) to 5 (very satisfied)?	If you had the option, what would be your preferred form of transportation?  (choose only ONE)	What is your primary form of transportation to your place of work or market?	How much time do you currently spend on a one-way trip using your primary form of transportation to your place of work or market?	Does your primary form of transportation prevent you from working more/ expanding your business?
*Price in Local Currency	[a] Walking [b] Bicycle (owned/ borrowed) [c] Animal transport [d] Bicycle taxi [e] Private car [f] Minibus taxi [g] Motorcycle taxi [h] Motorcycle (owned/ borrowed) [95] Other (specify) [99] No response	[a] Walking [b] Bicycle (owned/ borrowed) [c] Animal transport [d] Bicycle taxi [e] Private car [f] Minibus taxi [g] Motorcycle taxi (boda boda) [h] Motorcycle (owned/ borrowed) [95] Other (specify) [99] No response	[1] Very dissatisfied [2] Dissatisfied [3] Neutral [4] Satisfied [5] Very satisfied	[a] Walking [b] Bicycle (owned/ borrowed) [c] Animal transport [d] Bicycle taxi [e] Private car [f] Minibus taxi [g] Motorcycle taxi [h] Motorcycle (owned/ borrowed) [95] Other (specify) [99] No response	[a] Walking [b] Bicycle (owned/ borrowed) [c] Animal transport [d] Bicycle taxi [e] Private car [f] Minibus taxi [g] Motorcycle taxi [h] Motorcycle (owned/ borrowed) [95] Other (specify) [99] No response	[1] Less than 30 minutes [2] 30 minutes to an hour [3] More than an hour [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response

Transportation Needs (continued)					
C9	C10	C11	C12	C13	
Do you think that owning a bicycle improves/ would improve your ability to increase your economic activity?	Are you familiar with any bicycle retailers in your area (division/town council/subcounty)?  Note to enumerator: area refers to subcounty	If C10=yes, Does the retailer offer bicycles that you would be interested in purchasing?	Do you currently or have you in the past ever owned a bicycle?	If you do not currently own a bicycle, what is the primary reason?  (choose only ONE)	
[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Currently own [2] Owned in the past [3] Never owned [99] No response	[1] Cost of acquisition [2] Cost of ownership [3] Disabled/ physical [4] Not interested [5] Unsafe [6] No place to ride [7] Lack of bicycles available near me [95] Other (specify) [98] Don't know [99] No response	

**If C12 = [1] Currently Own, GO STRAIGHT TO SECTION D; IF C12 = [2] Owned In The Past, ANSWER C13 AND PROCEED TO SECTION D ..... If C12 = NEVER OWNED, ANSWER C13 AND THEN SKIPTO SECTION F**

Bicycle Ownership – Acquisition							
D1	D2	D3	D4	D5	D6	D7	D8
If C12= CURRENTLY OWN, or PREVIOUSLY OWNED how long have/did you own(ed) your primary bicycle? *Note to enumerators: Enter [98] if “I don’t know”; [99] if “No response”	What is the brand of your primary bicycle?  (open ended) *Note to enumerators: Enter [98] if “I don’t know”; [99] if “No response”	Where did you acquire your primary bicycle?  (choose only ONE)	When you acquired your primary bicycle was it new or previously owned?	Why did you select the bicycle you acquired?  (check ALL that apply)	When you first acquired your bicycle, did you make any modifications or customize it for your use?	If D6 = YES, what modifications did you make?  (check ALL that apply)	Are you satisfied with the quality of the primary bicycle?
_____ months  [98] I don’t know [99] No response	_____  [98] I don’t know	[1] Bicycle retailer [2] Hardware shop [3] Other shop [4] Individual [5] Provided by employer [6] Donated by NGO [7] Given by friend/ family [95] Other (specify) [98] I don’t know	[1] New – never used [0] Used/ pre-owned [98] I don’t know [99] No response	[a] Price [b] Quality/ durability [c] Availability (only option) [d] Features/ design [95] Other (specify) [99] No response	[1] Yes [0] No [98] I don’t know [99] No response	[a] Added a carrying rack [b] Added a basket [c] New/custom seat [d] Added safety equipment [e] Reinforced/ strengthened frame [95] Other (specify) [99] No response	[1] Yes [0] No [98] I don’t know [99] No response

Bicycle Ownership – Acquisition (continued)				
D9	D10	D11	D12	
If D8 = NO, would you spend more money next time for a higher quality bicycle?  (choose only ONE)	How much did you pay for your primary bicycle?  *Note to enumerators: Enter [98] if “I don’t know”; [99] if “No response”	How did you pay for the purchase of your bicycle?  (check ALL that apply)	What is the maximum amount of money you would be willing to pay for a bicycle today?  *Note to enumerators: Enter [98] if “I don’t know”; [99] if “No response”	
[1] Yes [2] No [98] I don’t know [99] No response	* price in local currency  [98] I don’t know [99] No response	[a] Own savings/ sale of goods or assets [b] In kind payment [c] Borrowed from bank [d] Borrowed from family/friend [e] Microfinance [f] VSLA [g] Making payments to seller [h] Borrowed from informal lender [i] I did not pay [95] Other (specify) [98] I don’t know [99] No response	* price in local currency  [98] I don’t know [99] No response	

Bicycle Ownership – Parts							
E1	E2	E3	E4	E5	E6	E7	E8
Is your primary bicycle currently in working order?	Have you ever needed to buy replacement parts or accessories for your bicycle?	If E2 = yes, the last time you needed to repair, what was the part or accessory you needed to replace?  (check ALL that apply)  Add bike diagram here in surveyCTO that labels these parts	If E2 = yes, the last time you needed to repair, were you successful in finding the spare part or accessory?	If E2 = yes, how difficult was it to find the spare part or accessory?	In the last 6 months, how much money did you spend on maintenance of your bicycle, including purchase of spare parts and accessories, and mechanic costs?  *Note to enumerators: Enter [98] if “I don’t know”; [99] if “No response”	On average, how frequently do/did you take your bicycle to a mechanic for repair?  (choose only ONE)	Are/were you concerned about the maintenance costs of your bicycle?
[1] Yes [0] No [98] I don’t know	[1] Yes [0] No [98] I don’t know [99] No response	[a] Tire/ tube [b] Saddle [c] Chain [d] Pedal [e] Carrier [f] Fork [g] Frame [h] Brakes [i] Wheel/ spoke [j] Pump [k] Patch/ puncture kit [l] Bearing [m] Hub [98] Other (specify) [98] I don’t know [99] No response	[1] Yes [0] No [98] I don’t know [99] No response	[1] Very easy [2] Easy [3] Difficult [4] Very difficult [98] I don’t know [99] No response	<hr/> *Price in Local Currency  [99] No response	[1] Daily [2] Several times a week [3] Weekly [4] Several times a month [5] Several times a year [6] Once a year or less [98] I don’t know [99] No response	[1] Yes [0] No [98] I don’t know [99] No response

Bicycle Ownership – Parts (continued)		
E9	E10	
Who usually fixed/fixes your bicycle? (choose only ONE)	If E9 = local mechanic, how difficult is it to find a mechanic to fix your bicycle?	
[1] Self [2] Household member [3] Local mechanic [4] Other (specify) [98] I don’t know [99] No response	[1] Very easy [2] Easy [3] Difficult [4] Very difficult [98] I don’t know [99] No response	

Bicycle Utilization							
F1	F2	F3	F4	F5	F6	F7	F8
How often do you use a bicycle?	What is the average amount of time you spend traveling by bicycle per week?  *Note to enumerators: Enter [98] if "I don't know"; [99] if "No response"	What activities do you use a bicycle for?  (check ALL that apply)	Do you ever use a bicycle to access other forms of transportation? (e.g. transport to main road)	If you own a bicycle, do you ever lend your bicycle to people outside of your household?	Do you use a bicycle for your business?	What income generating activities have you used a bicycle for?  (check ALL that apply)	Does a bicycle meet your transportation requirements?
[1] Daily [2] Several times a week [3] Several times a month [4] Monthly [5] Very infrequently [6] Never [98] I don't know [99] No response	* time in minutes  <div style="text-align: center;">x Days      Min</div>	[a] Economic [b] Health facilities [c] School commute [d] Shopping [e] Exercise [f] Fetching water [g] Access energy [95] Other (specify) [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [97] Never owned [98] I don't know [99] No response	[1] Yes [0] No [97] Do not own a business [98] I don't know [99] No response	[a] Transporting goods [b] Bicycle taxi [c] Bicycle rental [d] On farm activity [e] I don't use a bicycle to generate income [95] Other (specify) [98] Don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response

Bicycle Utilization (continued)		
F9	F10	
What would help increase the frequency with which you use a bicycle?  (check ALL that apply)	What do you think is a fair price to pay for a bicycle?  *Note to enumerators: Enter [98] if "I don't know"; [99] if "No response"	
[a] Bicycle paths [b] Cheaper bicycles [c] Better road safety [d] Secure bicycle parking/storage [e] Improved bicycle repair accessibility [f] Better bicycle design [g] I have no need to increase my bicycle usage [95] Other (specify) [98] I don't know [99] No response	* price in local currency  [98] I don't know [99] No response	



Enabling Conditions							
G1	G2	G3	G4	G5	G6	G7	G8
What kinds of bicycle infrastructure or facilities exist in your community?  (check ALL that apply)	Do you think using a bicycle on the tarmac roads is dangerous?	Do you think that using a bicycle on a dirt road is dangerous?	If G2 or G3 = yes, does your concern [about cycling on tarmac roads and/or paved roads] influence your decision to use a bicycle?	If G2 or G3 = yes, does your concern [about cycling on tarmac roads and/or paved roads] influence your decision to own a bicycle?	Are you concerned about bicycle theft in your community?	If G6 = yes, does your concern [about bicycle theft] influence your decision to own a bicycle?	Do any organizations or institutions encourage or promote bicycle use in your community?
[a] Dedicated bicycle lanes [b] Dirt pathways shared with walking [c] Paved shoulder on main road [d] Street lighting [e] Secure bicycle parking/ storage [f] Other (specify) [g] None [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response

Enabling Conditions (continued)		
G9	G10	
If G8=yes, how do these organization(s) promote bicycle use?  (check ALL that apply)	Do you think the government should do more to encourage bicycle use?	
[a] Public awareness campaigns [b] Financial incentives [c] Giving bicycles for free [d] Dedicated infrastructure [e] Formal policies [95] Other (specify) [98] I don't know [99] No response	[1] Yes [0] No [98] I don't know [99] No response	

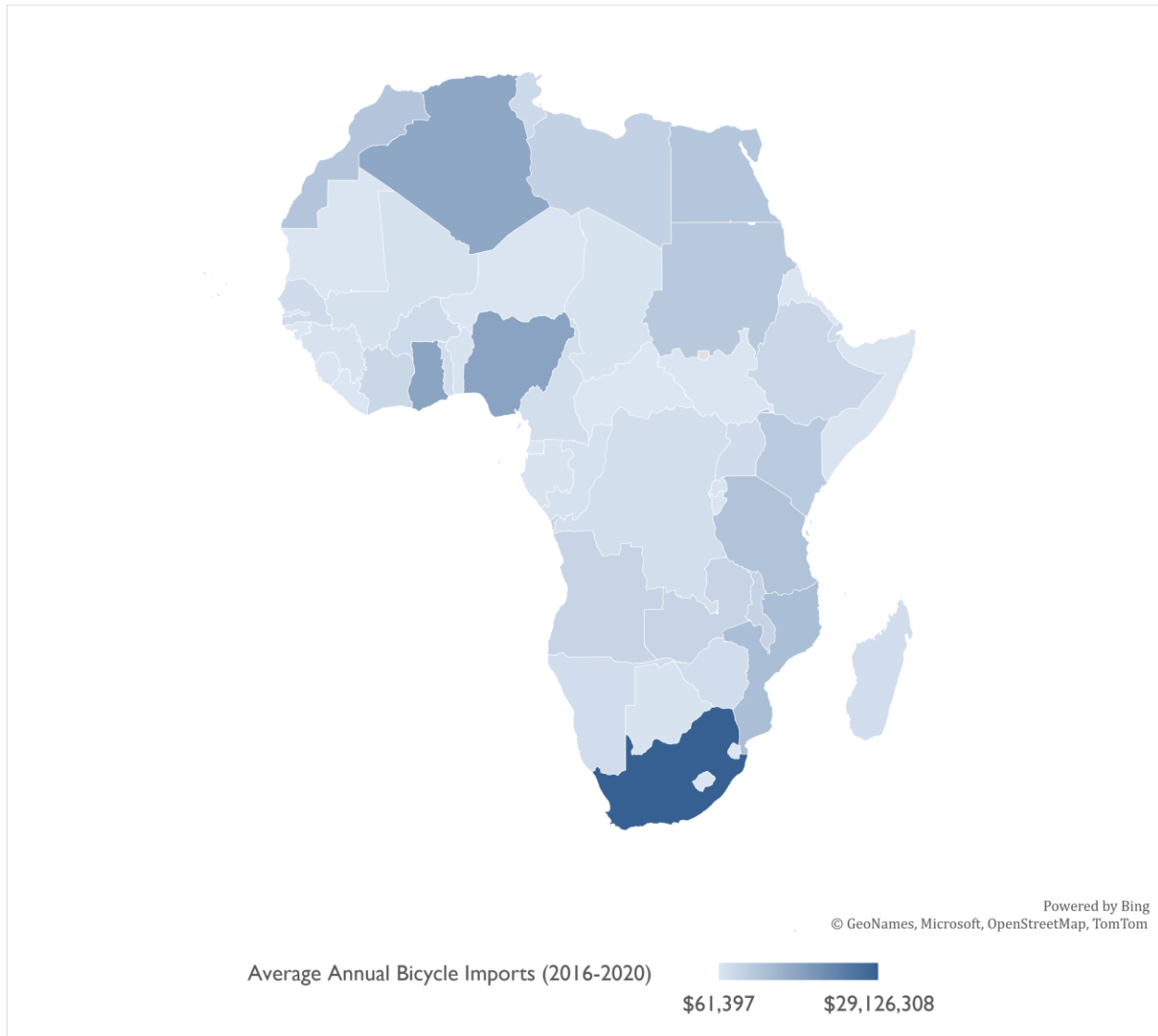
Attitudes and Perceptions						
Z1	Z2	Z3	Z4	Z5	Z6	Z7
In general, I feel bicycle use is looked upon favorably in my community.	In general, I feel (would feel) safe while using a bicycle around my community.	In general, I feel that it is acceptable for women in my community to use bicycles.	In general, I feel that women in my community would benefit from having a bicycle.	I am satisfied with the availability of bicycles in my community.	I am satisfied with the quality of bicycles available in my community.	From this list below, which are the three most important reasons you would choose a particular bicycle. (Choose <i>THREE</i> options)
[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[1] Strongly agree [2] Somewhat agree [3] Somewhat disagree [4] Strongly disagree [98] I don't know [99] No response	[a] Cost [b] Quality/ durability [c] Ease of acquiring bicycle [d] Ease of maintenance [e] Ease of acquiring spare parts [f] Lightweight [g] Ease of riding [h] Style/ design [i] Other [98] I don't know [99] No response

~ Thank you for answering our questions ~

## ANNEX 4: AFRICA BICYCLE IMPORT MARKET OVERVIEW

Presented in below Figure 15 and Table 10 is a summary of 5 years of bicycle import data for 54 African countries. All data is sourced from the CEPII BACI dataset and includes all reported imports for bicycles (HS Code 871200) during this period. Figure 15 displays the annual average imports for countries during this period, while Table 10 includes the annual figures for all countries as well. Countries in which BFG has conducted market systems assessments are highlighted in orange on the data table.

**FIGURE 15: AFRICA REGION BICYCLE IMPORTS - ANNUAL AVERAGE (2016-2020)**



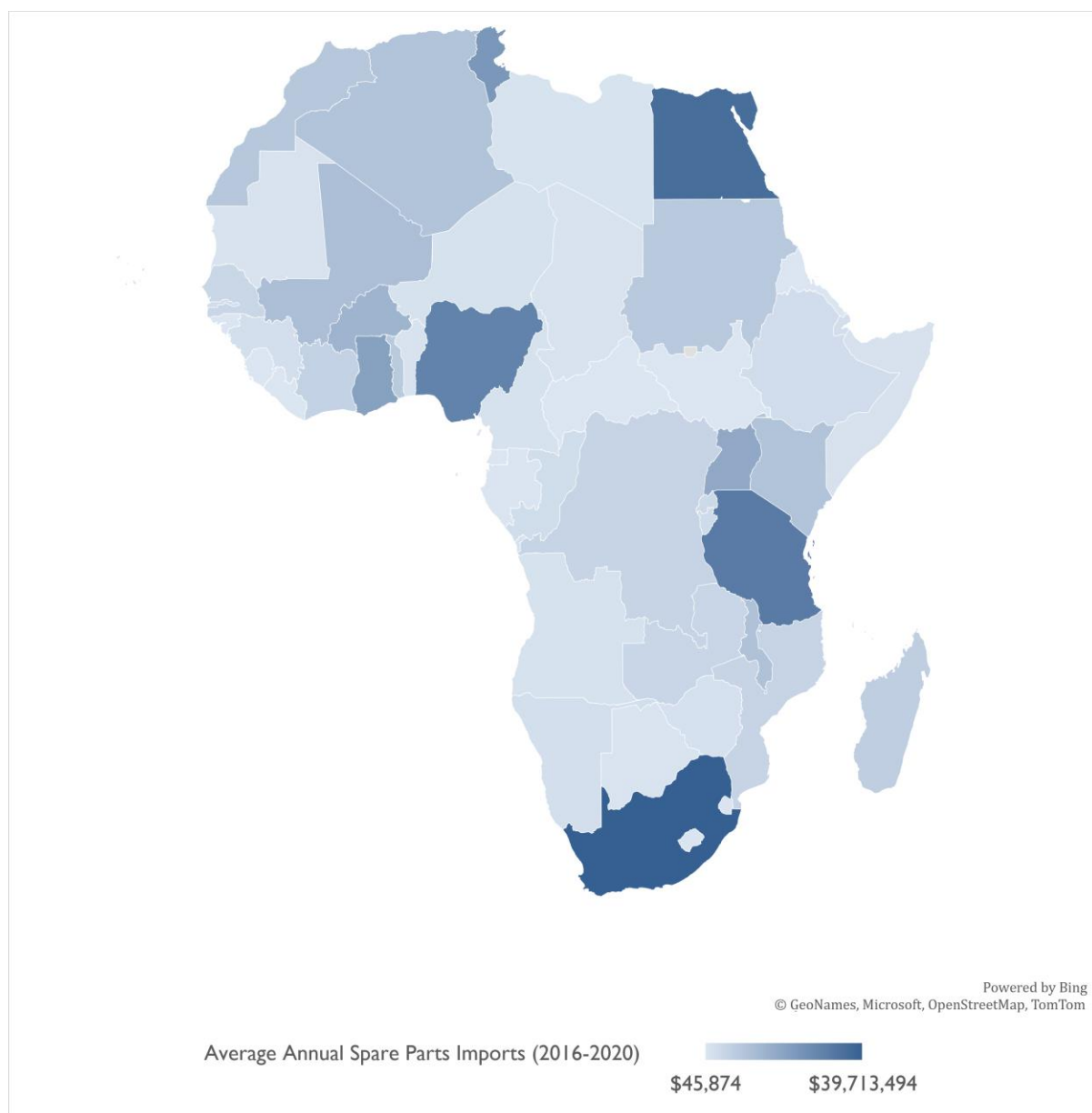
**TABLE 10: AFRICA BICYCLE IMPORTS (2016-2020)**

Country	2016	2017	2018	2019	2020	5-Year Total	Avg. Annual Bicycle Imports (2016-2020)
1 South Africa	\$25,990,303	\$28,226,146	\$37,102,643	\$28,592,130	\$25,720,320	\$145,631,542	\$29,126,308
2 Nigeria	\$10,192,040	\$10,248,451	\$10,230,851	\$25,773,142	\$16,069,218	\$72,513,702	\$14,502,740
3 Ghana	\$16,742,609	\$14,755,735	\$12,759,652	\$13,212,675	\$14,892,034	\$72,362,705	\$14,472,541
4 Algeria	\$12,444,043	\$12,057,572	\$10,296,356	\$14,032,083	\$19,834,305	\$68,664,359	\$13,732,872
5 Mozambique	\$7,292,303	\$6,366,513	\$10,044,355	\$10,979,843	\$9,396,424	\$44,079,438	\$8,815,888
6 Tanzania	\$8,489,858	\$6,644,234	\$6,958,100	\$6,532,608	\$9,198,815	\$37,823,615	\$7,564,723
7 Morocco	\$5,106,090	\$5,737,478	\$7,303,912	\$7,379,293	\$10,031,271	\$35,558,044	\$7,111,609
8 Egypt	\$4,300,480	\$6,827,729	\$8,585,210	\$7,515,549	\$7,903,046	\$35,132,014	\$7,026,403
9 Sudan	\$5,251,113	\$9,077,093	\$4,288,168	\$6,299,589	\$6,449,419	\$31,365,382	\$6,273,076
10 Kenya	\$4,167,532	\$4,769,939	\$5,999,576	\$6,429,504	\$8,275,221	\$29,641,772	\$5,928,354
11 Libya	\$3,087,576	\$1,069,377	\$3,970,860	\$9,044,195	\$5,751,769	\$22,923,777	\$4,584,755
12 Malawi	\$3,766,841	\$4,970,306	\$4,559,601	\$4,398,389	\$3,161,075	\$20,856,212	\$4,171,242
13 Angola	\$2,286,648	\$10,898,840	\$2,251,232	\$1,958,585	\$2,437,130	\$19,832,435	\$3,966,487
14 Zambia	\$4,267,402	\$4,518,752	\$3,672,414	\$3,893,269	\$3,345,005	\$19,696,842	\$3,939,368
15 Ivory Coast	\$3,232,611	\$3,095,580	\$2,824,464	\$2,675,685	\$5,136,468	\$16,964,808	\$3,392,962
16 Ethiopia	\$1,981,251	\$1,575,996	\$2,765,823	\$5,891,177	\$3,817,870	\$16,032,117	\$3,206,423
17 Tunisia	\$2,157,317	\$2,813,738	\$2,921,115	\$2,449,095	\$4,416,499	\$14,757,764	\$2,951,553
18 Djibouti	\$1,604,803	\$1,651,118	\$2,495,285	\$2,725,898	\$6,242,944	\$14,720,048	\$2,944,010
19 Mauritius	\$2,814,768	\$2,232,388	\$2,276,431	\$1,617,400	\$3,579,411	\$12,520,398	\$2,504,080
20 Burk. Faso	\$3,303,002	\$3,357,047	\$2,174,987	\$1,965,933	\$1,579,727	\$12,380,696	\$2,476,139
21 Uganda	\$1,206,686	\$1,251,521	\$1,810,114	\$1,828,413	\$4,678,026	\$10,774,760	\$2,154,952
22 Senegal	\$2,885,784	\$1,440,177	\$1,810,890	\$1,912,681	\$2,711,539	\$10,761,071	\$2,152,214
23 Namibia	\$1,823,839	\$2,388,746	\$2,223,118	\$1,784,478	\$1,847,145	\$10,067,326	\$2,013,465
24 Zimbabwe	\$2,645,361	\$1,911,208	\$2,439,115	\$1,393,568	\$1,562,085	\$9,951,337	\$1,990,267
25 Madagascar	\$1,354,851	\$2,157,633	\$2,335,326	\$1,538,211	\$2,496,864	\$9,882,885	\$1,976,577
26 Togo	\$1,305,773	\$1,760,797	\$2,197,867	\$2,540,809	\$1,944,608	\$9,749,854	\$1,949,971
27 DR Congo	\$1,266,250	\$1,815,312	\$2,207,373	\$2,510,727	\$1,291,733	\$9,091,395	\$1,818,279
28 Cameroon	\$1,983,261	\$1,265,404	\$1,198,166	\$1,975,579	\$2,481,541	\$8,903,951	\$1,780,790
29 Congo	\$1,592,705	\$643,919	\$1,186,648	\$983,239	\$1,792,146	\$6,198,657	\$1,239,731
30 Mali	\$1,696,678	\$1,123,121	\$1,362,391	\$835,868	\$684,806	\$5,702,864	\$1,140,573
31 Gambia	\$990,855	\$1,176,420	\$903,133	\$953,723	\$885,430	\$4,909,561	\$981,912
32 Guinea	\$819,951	\$813,565	\$743,655	\$923,452	\$814,130	\$4,114,753	\$822,951
33 Gabon	\$820,447	\$589,083	\$924,100	\$858,936	\$904,982	\$4,097,548	\$819,510
34 Botswana	\$875,110	\$804,346	\$702,430	\$707,960	\$768,658	\$3,858,504	\$771,701
35 Benin	\$669,276	\$710,545	\$605,483	\$878,408	\$876,357	\$3,740,069	\$748,014
36 Chad	\$254,822	\$422,102	\$745,169	\$843,286	\$1,206,380	\$3,471,759	\$694,352
37 Somalia	\$448,130	\$347,835	\$494,079	\$894,329	\$755,788	\$2,940,161	\$588,032
38 Seychelles	\$466,136	\$494,931	\$534,871	\$398,717	\$201,472	\$2,096,127	\$419,225
39 Rwanda	\$501,620	\$419,537	\$357,153	\$537,931	\$246,029	\$2,062,270	\$412,454
40 Burundi	\$64,974	\$126,757	\$186,348	\$1,306,168	\$200,220	\$1,884,467	\$376,893
41 Cape Verde	\$212,624	\$340,016	\$477,011	\$266,409	\$466,251	\$1,762,311	\$352,462
42 Sierra Leone	\$636,061	\$330,053	\$293,258	\$59,354	\$108,068	\$1,426,794	\$285,359
43 Eswatini	\$334,921	\$272,067	\$343,699	\$265,841	\$184,020	\$1,400,548	\$280,110
44 Eritrea	\$124,646	\$90,533	\$153,679	\$336,161	\$604,774	\$1,309,793	\$261,959
45 Mauritania	\$163,647	\$181,860	\$300,751	\$426,485	\$216,936	\$1,289,679	\$257,936
46 Eq. Guinea	\$694,585	\$111,389	\$168,028	\$134,567	\$122,496	\$1,231,065	\$246,213
47 Niger	\$201,906	\$206,559	\$121,339	\$271,352	\$273,600	\$1,074,756	\$214,951
48 South Sudan	\$216,862	\$269,180	\$165,042	\$154,742	\$195,438	\$1,001,264	\$200,253
49 Lesotho	\$216,972	\$166,936	\$188,132	\$195,916	\$100,725	\$868,681	\$173,736
50 Liberia	\$39,040	\$95,473	\$152,436	\$175,472	\$248,024	\$710,445	\$142,089
51 Comoros	\$126,355	\$77,703	\$87,839	\$150,921	\$70,204	\$513,022	\$102,604
52 Guinea-Bis.	\$137,079	\$17,533	\$118,653	\$142,340	\$56,375	\$471,980	\$94,396
53 C. Afr. Rep.	\$41,624	\$122,854	\$114,464	\$6,547	\$75,825	\$361,314	\$72,263
54 São Tomé	\$37,726	\$57,786	\$45,213	\$76,476	\$89,786	\$306,987	\$61,397
Region Total	\$155,349,092	\$164,905,573	\$171,185,539	\$191,637,102	\$198,418,464	\$881,445,628	\$176,289,126

## ANNEX 5: AFRICA BICYCLE SPARE PART IMPORT MARKET OVERVIEW

Presented in below Figure 16 and Table 11 is a summary of 5 years of bicycle spare part import data for 54 African countries. All data is sourced from the CEPII BACI dataset and includes the sum of all spare part imports inclusive of tires and tubes (HS Codes 87149X, 401320, and 401150) during this period. Figure 16 displays the annual average imports for countries during this period, while Table 11 includes the annual figures for all countries as well. Countries in which BFG has conducted market systems assessments are highlighted in orange on the data table.

**FIGURE 16: AFRICA REGION BICYCLE SPARE PARTS IMPORTS - ANNUAL AVERAGE (2016-2020)**



**TABLE 11: AFRICA BICYCLE SPARE PARTS IMPORTS (2016-2020)**

Importing Country	2016	2017	2018	2019	2020 Total		5-Year Avg Annual Spare Parts Imports
1 South Africa	\$46,408,079	\$49,505,649	\$41,504,224	\$36,395,593	\$24,753,923	\$198,567,468	\$39,713,494
2 Egypt	\$31,227,720	\$20,776,614	\$35,171,342	\$36,381,685	\$54,032,261	\$177,589,622	\$35,517,924
3 Tanzania	\$33,396,488	\$25,929,936	\$27,300,280	\$36,275,217	\$35,075,124	\$157,977,045	\$31,595,409
4 Nigeria	\$28,098,719	\$29,807,015	\$29,499,073	\$35,054,019	\$24,203,709	\$146,662,535	\$29,332,507
5 Tunisia	\$30,177,985	\$22,161,852	\$17,875,854	\$20,669,137	\$25,795,643	\$116,680,471	\$23,336,094
6 Ghana	\$21,633,096	\$21,542,074	\$16,264,326	\$16,246,475	\$27,307,411	\$102,993,382	\$20,598,676
7 Uganda	\$18,725,301	\$21,335,824	\$18,733,089	\$15,679,169	\$15,339,201	\$89,812,584	\$17,962,517
8 Burkina Faso	\$15,011,864	\$14,687,526	\$12,868,306	\$16,909,725	\$13,648,657	\$73,126,078	\$14,625,216
9 Mali	\$16,884,515	\$10,525,922	\$10,337,971	\$13,543,614	\$6,410,611	\$57,702,633	\$11,540,527
10 Malawi	\$10,153,343	\$12,264,161	\$10,786,719	\$12,378,623	\$8,128,423	\$53,711,269	\$10,742,254
11 Algeria	\$9,758,261	\$9,306,602	\$9,218,351	\$9,546,171	\$12,573,834	\$50,403,219	\$10,080,644
12 Kenya	\$9,568,897	\$9,648,047	\$9,828,527	\$9,625,118	\$11,553,242	\$50,223,831	\$10,044,766
13 Morocco	\$9,252,768	\$7,632,076	\$9,192,290	\$8,945,450	\$9,645,558	\$44,668,142	\$8,933,628
14 Sudan	\$8,870,492	\$9,877,308	\$5,754,065	\$7,713,711	\$9,384,728	\$41,600,304	\$8,320,061
15 Togo	\$6,228,065	\$5,764,336	\$9,444,944	\$11,758,467	\$7,720,673	\$40,916,485	\$8,183,297
16 Madagascar	\$7,466,506	\$7,112,418	\$7,555,846	\$6,523,189	\$6,428,894	\$35,086,853	\$7,017,371
17 Ivory Coast	\$4,477,774	\$7,057,035	\$4,852,939	\$6,799,095	\$6,834,711	\$30,021,554	\$6,004,311
18 DR Congo	\$4,908,692	\$4,872,698	\$5,821,268	\$5,364,240	\$6,236,474	\$27,203,372	\$5,440,674
19 Mozambique	\$4,994,759	\$4,222,501	\$5,660,064	\$7,051,367	\$4,603,450	\$26,532,141	\$5,306,428
20 Zambia	\$4,036,908	\$4,425,308	\$5,185,661	\$4,935,123	\$4,810,905	\$23,393,905	\$4,678,781
21 Senegal	\$5,346,951	\$4,128,225	\$4,279,936	\$4,083,153	\$4,546,668	\$22,384,933	\$4,476,987
22 Rwanda	\$3,818,570	\$1,846,377	\$4,140,315	\$4,298,788	\$3,862,076	\$17,966,126	\$3,593,225
23 Burundi	\$3,079,020	\$2,995,580	\$3,041,446	\$2,957,629	\$3,219,473	\$15,293,148	\$3,058,630
24 Congo	\$2,203,745	\$2,131,883	\$3,200,845	\$3,287,129	\$3,226,568	\$14,050,170	\$2,810,034
25 Gambia	\$2,144,881	\$2,569,204	\$3,047,682	\$3,032,915	\$2,535,910	\$13,330,592	\$2,666,118
26 Ethiopia	\$1,678,677	\$3,137,217	\$1,932,329	\$3,235,615	\$3,137,966	\$13,121,804	\$2,624,361
27 Djibouti	\$1,435,201	\$2,279,394	\$2,437,769	\$3,183,565	\$2,381,695	\$11,717,624	\$2,343,525
28 Namibia	\$2,614,839	\$2,678,742	\$1,992,682	\$2,135,216	\$1,438,974	\$10,860,453	\$2,172,091
29 Guinea	\$2,291,051	\$2,163,350	\$1,858,269	\$1,778,174	\$1,995,620	\$10,086,464	\$2,017,293
30 Mauritius	\$1,617,361	\$1,511,706	\$1,824,755	\$1,686,230	\$1,634,376	\$8,274,428	\$1,654,886
31 Zimbabwe	\$2,184,953	\$1,778,913	\$1,686,615	\$589,071	\$673,961	\$6,913,513	\$1,382,703
32 Niger	\$1,552,504	\$1,538,850	\$1,372,610	\$977,981	\$1,087,375	\$6,529,320	\$1,305,864
33 Angola	\$1,117,748	\$1,408,306	\$1,531,261	\$1,236,185	\$676,594	\$5,970,094	\$1,194,019
34 Cameroon	\$1,031,077	\$673,063	\$844,652	\$1,344,242	\$1,971,197	\$5,864,231	\$1,172,846
35 Somalia	\$2,045,137	\$1,156,017	\$1,505,135	\$350,725	\$473,272	\$5,530,286	\$1,106,057
36 Libya	\$1,190,402	\$685,686	\$848,590	\$1,207,359	\$814,747	\$4,746,784	\$949,357
37 Benin	\$1,091,442	\$1,286,667	\$874,061	\$589,180	\$502,409	\$4,343,759	\$868,752
38 Mauritania	\$553,565	\$1,047,878	\$1,185,905	\$679,930	\$845,162	\$4,312,440	\$862,488
39 Chad	\$419,316	\$437,283	\$909,655	\$1,202,536	\$1,159,966	\$4,128,756	\$825,751
40 Botswana	\$946,558	\$959,313	\$602,249	\$504,806	\$656,192	\$3,669,118	\$733,824
41 Eswatini	\$371,715	\$650,392	\$573,604	\$326,461	\$238,186	\$2,160,358	\$432,072
42 Gabon	\$90,123	\$45,499	\$32,195	\$442,229	\$1,412,943	\$2,022,989	\$404,598
43 Lesotho	\$335,364	\$485,434	\$321,714	\$229,322	\$136,305	\$1,508,139	\$301,628
44 Cape Verde	\$109,883	\$217,425	\$198,939	\$436,920	\$275,836	\$1,239,003	\$247,801
45 Seychelles	\$277,555	\$314,686	\$305,827	\$152,432	\$165,412	\$1,215,912	\$243,182
46 So. Sudan	\$52,615	\$129,539	\$167,839	\$415,123	\$151,733	\$916,849	\$183,370
47 Liberia	\$217,742	\$40,481	\$109,409	\$172,681	\$107,848	\$648,161	\$129,632
48 Sierra Leone	\$59,160	\$111,547	\$209,490	\$80,454	\$65,124	\$525,775	\$105,155
49 S. Tomé	\$68,847	\$88,379	\$95,001	\$125,036	\$14,983	\$392,246	\$78,449
50 Eq. Guinea	\$116,087	\$98,220	\$59,725	\$16,916	\$69,091	\$360,039	\$72,008
51 Comoros	\$39,625	\$43,205	\$111,793	\$51,911	\$59,539	\$306,073	\$61,215
52 Guinea-Bissau	\$172,024	\$12,562	\$106	\$79,802	\$25,806	\$290,300	\$58,060
53 Eritrea	\$32,303	\$31,293	\$17,564	\$46,185	\$161,808	\$289,153	\$57,831
54 Cen. Afr. Rep.	\$15,617	\$99,651	\$81,795	\$9,388	\$22,919	\$229,370	\$45,874
Regional Total	\$361,601,890	\$337,236,869	\$334,256,901	\$358,740,477	\$354,235,166	\$1,746,071,303	\$349,214,261

**TABLE 12: AFRICA AVERAGE ANNUAL IMPORTS BY SPARE PART CATEGORY (2016-2020)**

Importing Country	Bicycle Tires	Bicycle Tubes	Frames, and Frames	Brakes	Hubs	Saddles	Wheel Rims and Spokes	Pedals and Cranks	Other Parts	All Spare Parts
1 So. Africa	\$3,082,363	\$1,602,072	\$10,807,890	\$1,889,617	\$1,898,282	\$852,557	\$4,349,221	\$2,733,466	\$12,498,024	\$39,713,494
2 Egypt	\$3,883,672	\$2,697,725	\$6,130,849	\$1,331,611	\$1,118,057	\$1,981,410	\$3,398,740	\$1,607,117	\$13,368,742	\$35,517,924
3 Tanzania	\$7,787,754	\$4,915,461	\$2,138,769	\$1,621,591	\$1,611,385	\$1,314,273	\$2,396,062	\$2,308,316	\$7,501,797	\$31,595,409
4 Nigeria	\$5,930,581	\$5,274,007	\$989,474	\$1,319,880	\$3,448,704	\$785,483	\$3,153,450	\$1,823,415	\$6,607,513	\$29,332,507
5 Tunisia	\$2,344,232	\$934,695	\$5,020,261	\$1,077,302	\$854,979	\$710,270	\$755,573	\$1,369,436	\$10,269,347	\$23,336,094
6 Ghana	\$3,457,554	\$4,098,849	\$1,026,499	\$968,619	\$653,338	\$1,605,211	\$760,812	\$943,328	\$7,084,467	\$20,598,676
7 Uganda	\$2,912,500	\$2,746,413	\$1,788,306	\$739,422	\$2,174,044	\$354,028	\$1,307,747	\$1,489,593	\$4,450,462	\$17,962,517
8 Bur. Faso	\$1,916,796	\$2,170,907	\$2,067,534	\$635,668	\$1,509,759	\$929,923	\$775,847	\$1,799,214	\$2,819,568	\$14,625,216
9 Mali	\$2,455,493	\$729,495	\$595,765	\$178,183	\$2,065,408	\$288,911	\$289,632	\$550,544	\$4,387,095	\$11,540,527
10 Malawi	\$2,556,292	\$1,475,762	\$1,127,017	\$410,900	\$975,658	\$336,520	\$906,091	\$603,252	\$2,350,761	\$10,742,254
11 Algeria	\$1,505,463	\$1,716,901	\$483,075	\$626,004	\$338,361	\$486,433	\$541,254	\$473,054	\$3,910,099	\$10,080,644
12 Kenya	\$1,558,580	\$1,575,630	\$543,323	\$418,109	\$652,996	\$377,246	\$1,372,458	\$595,483	\$2,950,941	\$10,044,766
13 Morocco	\$2,229,541	\$1,694,309	\$176,525	\$368,911	\$356,978	\$358,900	\$525,395	\$353,145	\$2,869,925	\$8,933,628
14 Sudan	\$1,020,857	\$1,191,965	\$164,984	\$186,686	\$227,227	\$288,308	\$234,486	\$358,156	\$4,647,390	\$8,320,061
15 Togo	\$1,988,740	\$1,499,819	\$167,517	\$368,475	\$189,570	\$457,694	\$235,044	\$444,525	\$2,831,913	\$8,183,297
16 Madag.	\$1,257,144	\$526,621	\$382,675	\$257,618	\$318,791	\$380,627	\$599,578	\$546,492	\$2,747,826	\$7,017,371
17 C.d'Ivoire	\$1,835,129	\$606,367	\$903,639	\$209,282	\$210,604	\$433,525	\$642,898	\$322,275	\$840,591	\$6,004,311
18 DRC	\$1,220,967	\$606,979	\$753,176	\$186,280	\$311,243	\$83,190	\$330,738	\$117,386	\$1,830,716	\$5,440,674
19 Mozamb.	\$747,823	\$681,200	\$249,428	\$119,603	\$433,212	\$148,853	\$365,258	\$307,051	\$2,254,001	\$5,306,428
20 Zambia	\$870,094	\$963,089	\$300,725	\$82,825	\$453,890	\$86,936	\$243,686	\$271,793	\$1,405,744	\$4,678,781
21 Senegal	\$720,444	\$822,364	\$437,022	\$130,268	\$161,023	\$311,381	\$238,259	\$242,867	\$1,413,358	\$4,476,987
22 Rwanda	\$728,811	\$189,484	\$321,361	\$94,445	\$190,569	\$63,725	\$500,666	\$231,442	\$1,272,721	\$3,593,225
23 Burundi	\$827,166	\$256,006	\$326,036	\$76,008	\$174,034	\$83,519	\$148,030	\$257,179	\$910,652	\$3,058,630
24 Congo	\$58,570	\$35,520	\$457,156	\$135,456	\$526,150	\$48,637	\$387,753	\$580,550	\$580,242	\$2,810,034
25 Gambia	\$510,302	\$448,677	\$137,471	\$85,949	\$197,867	\$173,431	\$142,299	\$254,396	\$715,727	\$2,666,118
26 Ethiopia	\$157,062	\$266,935	\$204,789	\$191,041	\$151,473	\$32,117	\$292,671	\$37,834	\$1,290,439	\$2,624,361
27 Djibouti	\$429,058	\$278,765	\$84,030	\$80,812	\$72,339	\$112,035	\$197,906	\$83,668	\$1,004,912	\$2,343,525
28 Namibia	\$165,636	\$59,118	\$354,281	\$51,710	\$71,835	\$28,436	\$614,393	\$46,495	\$780,187	\$2,172,091
29 Guinea	\$409,748	\$389,971	\$62,748	\$126,853	\$101,196	\$52,841	\$79,161	\$144,816	\$649,959	\$2,017,293
30 Mauritius	\$277,324	\$209,740	\$53,985	\$58,483	\$134,807	\$21,688	\$74,554	\$28,616	\$795,688	\$1,654,886
31 Zimba.	\$476,942	\$240,762	\$23,857	\$56,837	\$125,519	\$22,222	\$35,888	\$78,742	\$321,936	\$1,382,703
32 Niger	\$764,435	\$24,997	\$38,945	\$8,036	\$11,256	\$70,683	\$18,058	\$18,979	\$350,476	\$1,305,864
33 Angola	\$98,517	\$43,392	\$50,118	\$105,777	\$44,376	\$17,260	\$50,663	\$58,058	\$725,857	\$1,194,019
34 Camer.	\$86,838	\$132,709	\$77,442	\$35,337	\$138,416	\$21,616	\$226,278	\$61,565	\$392,644	\$1,172,846
35 Somalia	\$26,705	\$590,778	\$11,720	\$28,800	\$5,343	\$1,160	\$41,004	\$3,875	\$396,672	\$1,106,057
36 Libya	\$158,526	\$199,061	\$17,115	\$23,653	\$33,179	\$39,728	\$84,753	\$42,432	\$350,910	\$949,357
37 Benin	\$78,410	\$67,430	\$215,635	\$54,891	\$97,168	\$8,415	\$136,056	\$10,350	\$200,396	\$868,752
38 Mauritan.	\$25,562	\$173,000	\$26,451	\$8,258	\$10,690	\$6,606	\$42,871	\$10,387	\$558,665	\$862,488
39 Chad	\$100,023	\$130,180	\$79,075	\$21,485	\$105,976	\$27,283	\$85,525	\$127,590	\$148,614	\$825,751
40 Botswana	\$88,153	\$51,722	\$33,548	\$103,940	\$28,389	\$17,174	\$127,996	\$24,922	\$257,978	\$733,824
41 Eswatini	\$27,862	\$12,404	\$58,786	\$22,956	\$29,877	\$1,770	\$100,578	\$25,150	\$152,689	\$432,072
42 Gabon	\$12,859	\$2,718	\$2,635	\$4,752	\$110,715	\$174	\$10,365	\$533	\$259,847	\$404,598
43 Lesotho	\$3,931	\$2,813	\$34,283	\$29,880	\$3,904	\$3,355	\$100,050	\$3,560	\$119,853	\$301,628
44 C. Verde	\$30,621	\$27,508	\$3,521	\$112,536	\$2,152	\$2,183	\$12,346	\$1,050	\$55,883	\$247,801
45 Seych.	\$13,606	\$11,614	\$11,791	\$21,969	\$5,668	\$2,447	\$77,723	\$5,052	\$93,313	\$243,182
46 So. Sudan	\$8,058	\$4,778	\$2,304	\$8,660	\$10,795	\$0	\$20,756	\$3,547	\$124,470	\$183,370
47 Liberia	\$14,753	\$8,924	\$2,306	\$8,929	\$1,198	\$157	\$5,624	\$2,243	\$85,498	\$129,632
48 S. Leone	\$18,802	\$2,823	\$19,473	\$4,715	\$15,007	\$92	\$8,585	\$1,623	\$34,034	\$105,155
49 S. Tomé	\$4,440	\$2,667	\$1,141	\$6,375	\$1,710	\$555	\$13,636	\$2,218	\$45,708	\$78,449
50 Eq. Guinea	\$22,181	\$5,125	\$4,190	\$424	\$13,266	\$71	\$15,560	\$149	\$11,043	\$72,008
51 Comoros	\$4,035	\$1,890	\$470	\$3,089	\$913	\$23	\$2,458	\$2,521	\$45,816	\$61,215
52 Guinea-B.	\$42,732	\$6,059	\$754	\$0	\$2,505	\$2	\$662	\$49	\$5,296	\$58,060
53 Eritrea	\$11,545	\$37	\$617	\$100	\$4,533	\$39	\$6,431	\$27	\$34,502	\$57,831
54 Cen. Af. Rep.	\$397	\$4,093	\$3,014	\$1,404	\$363	\$0	\$2,638	\$0	\$33,965	\$45,874
Regional Total	\$3,082,363	\$1,602,072	\$10,807,890	\$1,889,617	\$1,898,282	\$852,557	\$4,349,221	\$2,733,466	\$12,498,024	\$39,713,494



## ANNEX 6: SURVEY RESPONDENT BICYCLE USAGE AND INTENSITY

TABLE 13: BICYCLE OWNERSHIP RATES

	n	% Bicycle owners
All respondents	335	35%
<b>Bicycle ownership</b>		
Owner	118	100%
Non-owner	217	0%
<b>Districts</b>		
Mityana	86	23.3%
Isingiro	81	28.4%
Tororo	83	tra
Lira	85	48.2%
<b>Geographical location</b>		
Peri-urban	165	37.0%
Rural	170	33.5%
<b>Gender</b>		
Male	170	47.6%
Female	165	22.4%
<b>Age groups</b>		
18-24 years	79	30.4%
24-34 years	120	28.3%
35-44 years	75	37.3%
45 years+	61	52.5%
<b>Economic occupation</b>		
Farmer	125	38.4%
Informal merchant	63	36.5%
Formal merchant	44	27.3%
Private sector (casual work)	83	34.9%

**TABLE 14: BICYCLE USAGE FREQUENCY AND INTENSITY**

	n	% using bicycles regularly (daily or several times a week)	Average hours per week that frequent and infrequent users spend on bicycle travel
All respondents	335	43.7%	5.10
<b>Bicycle ownership</b>			
Owner	118	69.5%	5.66
Non-owner	217	29.6%	4.54
<b>Districts</b>			
Mityana	86	41.9%	5.83
Isingiro	81	27.5%	5.61
Tororo	83	42.2%	5.23
Lira	85	62.4%	4.32
<b>Geographical location</b>			
Peri-urban	165	47.0%	5.96
Rural	170	40.6%	4.43
<b>Gender</b>			
Male	170	47.6%	5.34
Female	165	39.6%	4.79
<b>Age groups</b>			
18-24 years	79	45.6%	7.62
24-34 years	120	41.7%	4.18
35-44 years	75	48.0%	5.19
45 years+	61	40.0%	3.93
<b>Economic occupation</b>			
Farmer	125	44.4%	4.13
Informal merchant	63	41.9%	6.81
Formal merchant	44	36.4%	3.25
Private sector (casual work)	83	47.0%	6.48

**TABLE 15: AVERAGE TRANSPORT EXPENDITURE**

	n	Average expenditure for all respondents (UGX)	Average expenditure for all respondents (USD)
All respondents	335	51,572	13.57
<b>Bicycle ownership</b>			
Owner	118	51,682	13.60
Non-owner	217	51,368	13.52
<b>Districts</b>			
Mityana	86	53,202	14.00
Isingiro	81	47,104	12.40
Tororo	83	68,625	18.06
Lira	85	37,798	9.95
<b>Geographical location</b>			
Peri-urban	165	48,272	12.70
Rural	170	54,695	14.39
<b>Gender</b>			
Male	170	54,279	14.28
Female	165	48,781	12.84
<b>Age groups</b>			
18-24 years	79	46,278	12.18
24-34 years	120	47,291	12.44
35-44 years	75	55,597	14.63
45 years+	61	62,614	16.48
<b>Economic occupation</b>			
Farmer	125	57,512	15.13
Informal merchant	63	57,695	15.18
Formal merchant	44	65,881	17.34
Private sector (casual work)	83	33,000	8.68

TABLE 16: PRIMARY MODES OF TRAVEL

	n	Mode of travel to work or market				
		Walking	Bicycle	Private car or minibus taxi	Motorcycle taxi	Own motorcycle
All respondents	335	51.7%	22.5%	1.8%	17.9%	6.1%
<b>Bicycle ownership</b>						
Owner	118	65.1%	6.1%	2.8%	21.7%	4.2%
Non-owner	217	27.4%	52.1%		11.1%	9.4%
<b>Districts</b>						
Mityana	86	60.0%	7.1%	3.5%	16.5%	12.9%
Isingiro	81	57.7%	17.9%	3.8%	15.4%	5.1%
Tororo	83	39.8%	24.1%		32.5%	3.6%
Lira	85	49.4%	41.0%		7.2%	2.4%
<b>Geographical location</b>						
Peri-urban	165	52.5%	25.3%	3.7%	13.6%	4.9%
Rural	170	50.9%	19.8%		22.2%	7.2%
<b>Gender</b>						
Male	170	41.1%	31.5%	1.2%	15.5%	10.7%
Female	165	62.7%	13.0%	2.5%	20.5%	1.2%
<b>Age groups</b>						
18-24 years	79	52.6%	21.1%	1.3%	14.5%	10.5%
24-34 years	120	52.1%	22.7%	2.5%	19.3%	3.4%
35-44 years	75	52.7%	17.6%	1.4%	21.6%	6.8%
45 years+	61	48.3%	30.0%	1.7%	15.0%	5.0%
<b>Economic occupation</b>						
Farmer	125	60.0%	21.6%	1.6%	13.6%	3.2%
Informal merchant	63	43.5%	27.4%	1.6%	19.4%	8.1%
Formal merchant	44	37.2%	11.6%	2.3%	34.9%	14.0%
Private sector (casual work)	83	53.7%	26.8%		13.4%	6.1%

**TABLE 17: MOST REPORTED SPARE PARTS ACQUIRED**

	% of all bicycles	% of new bicycles	% of pre-owned bicycles
Tire/ tube	79.1%	78.8%	79.1%
Saddle	23.0%	23.8%	22.6%
Chain	49.0%	52.5%	47.0%
Pedal	31.6%	32.5%	31.3%
Carrier	18.4%	17.5%	19.1%
Fork	20.4%	13.8%	25.2%
Frame	16.8%	13.8%	19.1%
Brakes	35.7%	30.0%	40.0%
Wheel/ spoke	54.6%	56.3%	53.0%
Pump	3.6%	2.5%	4.3%
Patch/ puncture kit	16.3%	18.8%	14.8%
Bearing	24.5%	25.0%	24.3%
Hub	21.4%	22.5%	20.0%