

Socio-economic factors determining low-income households' food expenditure patterns in City of Kigali, Rwanda

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DOI: 10.29322/IJSRP.10.06.2020.p10234

<http://dx.doi.org/10.29322/IJSRP.10.06.2020.p10234>

Abstract- Urban setting and urban life style that follow global market trends and standards; mismatch between poor families limited purchasing power to afford the primary needs in Cities, this has led to the increase of poverty progressively in the cities of developing countries. This phenomenon can be explained by the situation of increasing city dwellers with no capacity to afford food and shelter, increased number of city vendors, street children and uncontrolled robbery and other criminalities within Cities in Developing Countries: poor trying to find out their ways of living through illegal practices and criminality.

The low agricultural activities in Cities make City inhabitants to buy almost every food they eat from the market. Therefore, food prices are determinants of the quality and quantity a buyer can afford, hence the prices become determinant of food security. This is the case in City of Kigali with very limited agricultural activities within the City and in the suburbs of the City.

Results from this research have revealed that majority of the low-income households income **59.2%** demonstrated an observable attribution of high priority to "food expenditure" and very low priority was attributed to other categories of expenses; like rent, schooling and leisure, also the research has revealed that on average, the low-income households spend on average **60%** of their income on food expenditure.

The results from the Multiple Linear Regression Model have revealed positive and statistically significant relationship at ($p < 0.01$) between household head's Salaries and received remittances with the low-income households' food expenditure in the City of Kigali.

Index Terms- Socio-economic factors, Food Expenditure Patterns, Low-income households

I. INTRODUCTION

Researchers and economic reports have declared poverty to become an urban phenomenon: the shift of rural to urban poverty started to occur with the urbanization of Cities mostly in developing countries whereby rural-urban migration has been an alarming phenomenon since the independence of African Countries; with the commitment to take over the economies, derive the development and build the Cities. It was obvious and

inevitable for this to happen in early stages of development of Cities in Africa after in the aftermath of the independences; most of African Cities were built from zero and African leaders had to mold every aspect of the cities; build infrastructures and get the cities populated. However, the trends rural to urban migration were not well managed; monitored and controlled over last four to five decades it took another dimension and created false perceptions and expectations for the people thinking that, urban settings offer all they need as basic needs at lower cost especially employment.

This has created the imbalance and influenced people's mindset over time that cities are the best places that can accommodate whoever wants to live in them and with no condition. The inter-continental, global partnerships and the globalization have also interfered and brought in new factors as African a new market was offering opportunities, this has led to African Cities becoming centers of regional and international interests: business and employments follow international standards.

The transition for local people to compete at the international markets could not be easy always, low skills and lack of capital for local citizens couldn't allow them equally compete at the market whereby they couldn't benefit from opportunities offered by the developing Cities to the maximum, hence, the one who migrated from rural to urban looking for opportunities, they remained poor and co-habited with the poverty without alternatives.

The growing poverty in urbanizing cities has been observed and highlighted by researchers in different publications, and the fact that the poverty has been migrating from rural to urban settings with impact on food security in urban areas has been also subject to different research work. Due to the dynamics and realities in urbanizing cities, poverty phenomenon has become transferable from generation to generations and has defied some old theories relating the basic education with decent livelihood.

"In the early 1990s, two-thirds of all Africans lived in rural areas. Around 2030, Africa will enter its urban age with 759.4 million people - half of its total population - living in cities. It is projected that by 2050 there will be more than 1.2 billion African city dwellers. That means that by 2050 there will be more people living in African cities than the combined urban and rural populations of the Western hemisphere". "Despite African cities generating about 55 percent of the continent's total GDP, a

massive 43 percent of its urban populations live below the poverty line” (UN-HABITAT, 2008).

“As populations become increasingly urban, so the general problem of poverty will become predominantly an urban one. World Bank projections from 1980 suggest that there will be a decrease in rural households in the worst poverty up to the year 2,000 (from 83 million in 1975 to 57 million), while urban poor households will more than double from 34 to 74 million” (T. Vinod, 1978).

The land in cities is used in a very competitive manner for competing priorities; infrastructures development, green spaces etc..., it is very rare that agriculture activities like urban and peri-urban agriculture be given a priority and be allocated enough of land for farming activities. This situation makes the city inhabitants to depend mostly on imported food from the rural areas or from international markets. Again the situation will make the urban families to depend on purchased food, this dependency food and income will bring in other factors for the group of urban low-income households whose normally income is limited or uncertain. Any shocks at the market on food products will have serious repercussions on the food security for the low-income families, in different researches; scholars investigated the relationship between household income and expenditure in Urban and have always found out that income determines expenditures for the urban families and that households spend a big portion of their income on food, more than 60% of their income.

Historically the City of Kigali started developing after the colonial period in 1960ies, as the colonial team had selected Kigali as their residence region, it had attracted some economic activities to start around Kigali, after the independence Kigali remained the main center of economic activities therefore proclaimed the capital of independent Rwanda. From the 1960ies, the City was still small and kept expanding as the population increased and economic activities expanded.

Rwanda like any other developing Country, is engaged in the development of backbone infrastructures, urbanization is taking place and attracting both international and local investors, City of Kigali opening urbanizing quickly and becoming the hub for the most business and employment opportunities in the region: the City’s growth has been ranked among the fastest growing Cities in Africa, green and clean City.

II. LITERATURE REVIEW

The Canberra Group Handbook (2011) “defines **household income** to be all the receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts”.

The United Nations’ Food and Agriculture Organization Globally/FAO (2010) highlights that as “the world is becoming more urban, although the urban residents have access to a wider array of foods, without land to farm, their food security is dependent on their income and ability to purchase food products. It is of the general knowledge that any expense depends on available capacity or resources to exchange for the goods or services purchased; in urban settings different from rural regions, any food consumption is greatly depending on available income

and market prices for food stuff. Therefore, consumption of calories depends on income in urban areas”.

This research analyzed the relationship household’s income and food security for the low- income earners in City of Kigali. Households sources of income are mainly; **wages and salaries, remittances and Households income generating activities:**

Wages and salaries: In the urban areas people depend on income for their survival, urban poor people who don not have the same capacity to compete for high paying jobs due to lack of skills and experience they will mainly concentrate in the informal sectors which offer mostly man power types of employment opportunities with relatively low remunerations. In the same context of urban poor people, few can earn monthly salaries as the majorities are employed in the informal sectors and they are paid with wages against the provided labor. Salaries and wages are the key sources of income for this category of population in urban areas as other sources of income like businesses they impose other conditions that can not easily be met by poor people; start up capital, standard of businesses in the urban setting, taxation etc..

Remittances (Total) being defined by the United Nations (2006) to “include *personal remittances* and *social benefits* directly to households from other institutional sectors, namely corporations, government and non-profit institutions serving households: And the *Personal transfers* thus include all current transfers from resident to non-resident households, independently of (a) the source of income of the sender (be it wages and salaries, *social benefits* or any other type of transfers, including transfers from a person receiving no income and running down his/her assets); (b) relationship between the households (be it between related or unrelated persons); (c) purpose for which the transfer is made (be it inheritance, alimony, lottery, etc.)” (UN, 2006). The vulnerability of urban poor households place them in the situation of dependency on assistance that may come from different sources; remittances and support from the government and other development partners that work in the social assistance, supports from relatives and family members who send the support in forms of remittances, or food support that are provided from rural to urban. But also social capital plays an important role in helping urban poor families to get alternatives for the needed capacities to cater for the basic needs for their family members including food. Still in the context of urban poor households, their disposable income will be subject to other factors at macro-economy level like the inflation, which affects their purchasing power regardless of their limited income; the low-income earners are affected the same way at the market like any other players, rich and wealth families, hence their purchasing power diminishes and this affects obviously their food security.

Income Generating Activities (IGA) is defined by Action against Hunger (2009) as an “activity that generates income for the family, the activity can include agriculture, livestock rearing, fishing, post-harvest processing and services”. According to Food Agricultural Organization/FAO (1994) IGA includes “both agricultural and non-agricultural activities like commercial activities and handicraft. Income generating activity have been directed towards economic focus with an aim to increase the cash available into the family, improve the local economy, and strengthen the livelihood strategies so that the population is less vulnerable”. “The urban poor must survive through undertaking a variety of income-generating activities. In most developing cities,

the main part of these income-generating activities takes place in the informal sector” (Dhar Chakrabarti, 2001).

III. RESEARCH METHODOLOGY

This study was carried out to investigate the social and demographic determinants of the low-income household’s food security in the City of Kigali Rwanda, the survey was conducted in 3 districts of the City of Kigali namely; Nyarugenge, Gasabo and Kicukiro districts in their 35 Sectors which are distributed by 10 Sectors in Nyarugenge, 15 Sectors in Gasabo and 10 Sectors in Kicukiro.

The study focuses on the on **Household Income** defined by total household wages and salaries, remittances and income generating activities in relationship with the Dependent variable: Households’ food expenditure explained by the monthly household expenditures on food.

The respondents (Heads of household) were selected using simple random sampling. Data on household food expenditure and

HHs’ perception on of food security using HFIAS were provided by household heads using a memory recall method. A total of four hundred and forty five copies of the questionnaires were administered but 407 were found useful for the analysis. The data gathered were analyzed using SPSS for descriptive statistics and a Multiple Linear Regression Model.

Model specification:

$$Y_i = \alpha + \sum_0^n \beta X_i + \varepsilon$$

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where

- Y_i refers to Household Food Expenditure
- α is a constant term.
- β : Refers to parameter estimates
- X_i : Refers to a latent of explanatory variables assumed to affect household food expenditure.
- ε : Error term

Table 1: Description of Variables

Variables	Description of variable
HH_Food Security	- HH food expenditure - HH perception on Quality & Quantity of Food (Sufficiency & Affordability) - Number of meals taken a day
HH_Income	- Wages & salaries - Remittances - Income generating activities
HH_Demo Charact	- Age of Head of HH - Dependency Ratio - Gender of HH Head
HH_Econ Charact	- HH owned assets (Shelter and land) - Employment status of HH head - HH access to financial services (Loan)
HH_Soc Charact	- Household Size - Social capital - Education level of HH head

IV. RESULTS AND DISCUSSIONS

4.1 Descriptive statistics

Table 2: Respondents Demographic Characteristics

I. Age range	Frequency	Percent
20-30 Years	104	25.6
31-40 Years	131	32.2
41-50 Years	78	19.2
51-65 Years	66	16.2
> 65 Years	28	6.9
Total	407	100
<u>II. Gender</u>		
Male	186	45.7
Female	221	54.3
Total	407	100
<u>II. Monthly income</u>		
0-10,000 Rwf	112	27.5
10,001-30,000 Rwf	145	35.6
30,001-50,000 Rwf	77	18.9
50,001-80,000 Rwf	42	10.3
80,001-100,000 Rwf	18	4.4
100,001-150,000 Rwf	9	2.2
> 150,000 Rwf	4	1
Total	407	100
<u>III. Received support</u>		
None	366	89.9
1-10,000 Rwf	9	2.2
10,001-20,000 Rwf	15	3.7
20,001-40,000 Rwf	11	2.7
40,001-60,000 Rwf	6	1.5
Total	407	100
<u>IV. Owned Assets</u>		
House	118	29.2
Land	10	2.5
TV	8	2
Sofa set	34	8.4
Telephone	90	22.3
Radio	30	7.4
Bicycle	10	2.5
Moto	1	0.2
None	97	23.3
Other	10	2.5
Total	407	100
<u>V. Employment status</u>		
Unemployed	254	62.4
Self employed	70	17.2
By Government	10	2.5
By the private sector	71	17.4
By Civil society	2	0.5
Total	407	100
<u>VI. Profession</u>		
Agriculture/Agribusiness	62	15.2
Plumber	2	0.5
Masson	18	4.4
Carpenter	1	0.25
Teacher	1	0.25
Other	72	17.7
None	251	61.7
Total	407	100
<u>VII. Access to Finance</u>		
SACCO	81	19.9
MFI	7	1.7
Commercial banks	26	6.4
None	284	69.8
Others	9	2.2
Total	407	100

Source: Author's field study, 2019

4.1.1 Age

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<http://dx.doi.org/10.29322/IJSRP.10.06.2020.p10234>

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The survey sought to study demographic characteristics of the Low Income Households in City of Kigali with focus on the households' heads; age, gender, marital status, gender ratio and dependency ratio at household level. The survey revealed that majority of the households (**93 %**), are headed by people in the working age range between **15 and 64 years old**, and the age average for the heads of the low-income households in City of Kigali is around 41 years old (Table 2).

4.1.2 Gender and Sex ratio

The research has also revealed that 35% of the low-income HHs in City of Kigali counts between 2 to 3 females members while the household that has minimum of male has is 0 and household with maximum of males has 7 males. The sex ratio Male/Female is 99.1% as per the table 3 below, meaning that there are 99 males for every 100 females. NISR (2014) defines "Sex ratio as an indicator that shows the balance between sexes within a given population in relation to a given time period. It is calculated as the number of males divided by the number of females, thus providing the number of males per 100 females within a given population".

Table 3: Ratio Statistics for total male / total female

Minimum	Maximum	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.000	7.000	1.306	.670	99.1%

Source: Author's field study, 2019

4.1.3 Marital status

The research also revealed that the majority of the low-income households **68%** are headed by married people and **15%** of the households are headed by widows while only **9 %** of households are headed by single people and **8%** headed by divorced people. The research has revealed also that the majority of low-income households in City of Kigali 71% count between 3 and 6 members and the average number of members is 4 members (Table 4).

Table 4: Marital statuses and Size of Households

Status	Marital Status		Household Size		
	Frequency	Percent	# Of HH Members	Frequency	Percent
Single	37	9.1	1-2 Members	60	14.7
Married	277	68.1	3-6 Members	289	71.0
Divorced	32	7.9	7-10 Members	49	12.0
Widow	61	15.0	>10 Members	9	2.2
Total	407	100.0	Total	407	100.0

Source: Author's field study, 2019

4.1.4 Salaries and wages

The research revealed that the majority 82 % of the low income-households in City of Kigali earns a monthly income between 10,000 and 50,000 Rwf, with an average income of 34,646 Rwf (Figure 4.4). The majority of the head of low income-households are involved in informal and non skilled types of labor; they mentioned street vendors and other informal businesses which occupy 4.9%, those involved in man power category are 2.7%, cleaners are 1.3%, aid-masons are 1.3% and those involved in security employments are 1.1 %, the reason of the low earnings.

The 63% of the low income HHs who earn between 10,000 and 30,000 Rwf they can spend up to **23%** of their earning {Max 7,000 Rwf} on food. The second group of HHs that earn between 30,001 and 50,000 Rwf they seem to have tendency as they can spend up to **60%** of their earning on food {Max 30,000 Rwf}. Therefore, we can say that the low income HHs in City of Kigali spends between **23 to 60 %** of their income on food. This research has revealed that, the low-income households in City of Kigali spend on average **60.5%** of their income on food.

4.1.5 Income Generating Activities (IGA)

The research has revealed that a very small portion 23.1% of the low income households in City of Kigali are involved in income generating activities while the majority 76.9% do not have any income generating activities. Among the few who own income-generating activities; 4.4% are involved in agribusiness, 1.7% involved in small animals rearing and 17% in micro-enterprises (Table 5).

Table 5: Income generating activities

Income generating activities	Frequency	Percent
Agriculture produces retailing	18	4.4
Animal rearing {small ruminants}	7	1.7
Micro-enterprise	69	17.0
None	313	76.9
Total	407	100.0

Source: Author’s field study, 2019

The above situation of only 17% of the poor families involved in income generating activities within the City of Kigali reveals certainly the absence of purchasing power for these families and uncertainty on their capacities to feed their family members. Small businesses and entrepreneurial spirit should be among sources of income for the poor families who depends on purchased food.

4.1.6 Remittances

According to National Institute of Statistics of Rwanda (NISR, 2015), the “Government of Rwanda considers that social protection provides income support to poor households or those at risk of falling into poverty, as well as interventions to help them overcome financial barriers to accessing public services such as health care and education, and also provide associated in-kind assistance essential in contribution to the achievement of its development goals”.

The Rwanda's main National Social Protection Programme is the Vision 2020 Umurenge Program (VUP), which began, in mid 2008, run by MINALOC. It contains three components: a regular cash transfer for very poor households with no labour capacity ('VUP Direct Support'), a public works programme for very poor households who are able to work ('VUP Public Works') and a microcredit scheme that provides small loans at low interest rates to individuals or groups ('VUP Financial Services'). Only households classified as ubudehe categories 1 and 2- the two poorest categories in the six-point ranking determined by local communities in their own neighborhood are eligible for Direct Support or Public Works.

The research has revealed that only 12.5% of the low-income households in city of Kigali receives support under Government social protection programs. Among the surveyed households 4.9% receive “food support” while 7.6% receive “cash support” (Table 6).

Table 6: Access and Types of remittances in low income HHs

HH receiving remittances	Types of Remittances				
	Frequency	Percent	Type	Frequency	Percent
No	356	87.5	No	356	87.5
Yes	51	12.5	Cash	31	7.6
			Food	20	4.9
Total	407	100	Total	407	100

Source: Author’s field study, 2019

Among those who confirmed that they receive food and cash support, 30% said that the provider is the Government, 30% they receive the supports from other providers, 25% they receive the support from friends while 15% they receive them from relatives. The low income HHs in City of Kigali who receives special support from Governments project like Vision 2020 Umurenge Project (VUP¹) and Ubudehe² they spend between 40 and 60% of the support buying the food for their households.

The Vision 2020 Umurenge Project/VUP as most of its approach is “Cash for work” it the mostly found within some areas of the City because of projects; construction of infrastructures like roads etc... that are implemented within the City which give employment opportunities to members in poor families. 41 households confirmed that they benefited from the VUP program

and they have received from it on average the income of 26,707 Rwf (Figure 4.8) and only 7 households confirmed to benefits from Ubudehe Government support.

4.1.7 Employment Status of Heads of HH

The findings of the research reveal that only 39.8% of the heads of low-income households are employed: 19.4% do have permanent employment while 80.6% they do casual work (Table 7). 45.8% have confirmed that they are self-employed and 30% that are employed in the private sector. In regards to who employ them; 45.8% said to be self-employed, 46.4% are employed by in the private sector while only 6.5% are employed by government and 1.3% employed by the civil society.

¹ VUP: Govt program targeting poor families {Food and work}.

² Ubudehe: Govt program targeting to finance IGA for the poorest of the poor.

Table 7: Employers for the Heads of HH

Employment status	Frequency	Percent
Have a Job	156	39.8
Unemployed	236	60.2
Total	392	100.0

Source: Author’s field study, 2019

According to UN-HABITAT (2008), “when urban growth combined with limited employment opportunities in cities it leads to a more rapid increase in poverty in urban areas than in rural areas. A massive 43 percent of African’s urban populations live below the poverty line. In several Sub-Saharan nations that share even exceeds 50 percent and Africa’s urban slum populations continue to grow: 69% of all households in Addis Ababa, 65% in Dar es Salaam and 50% in Kampala and Nairobi are slum households”.

Table 8: Types of Employments

Type	Frequency	Percent
Casual work	125	80.1
Permanent job	31	19.9
Total	156	100.0

Source: Author’s field study, 2019

Table 9: Sector of Employment

Profession	Frequency	Percent
Agriculture/Agribusiness	62	39.7
Plumber	2	1.3
Masson	18	11.5
Carpenter	1	.6
Teacher	1	.6
Other	72	46.2
Total	156	100.0

Source: Author’s field study, 2019

According to the research, the majority 89.7% of low-income households they earn daily wages and only 10.3% earn monthly salaries, only 29.5% they have confirmed that their salaries/wages are regular while 70.5% said that it is irregular (Table 10). Apart from the listed skilled employments categories that were given as options for respondents, from the survey it was observed that the majority of respondents said that they are employed in the category of “Other types” of employments. The

provided details show that other occupations that heads of households are involved in cut across all various informal and non-skilled categories of employment in City of Kigali; they mentioned street vendors and other informal businesses which occupy 4.9%, those involved in man power category are 2.7%, cleaners are 1.3%, aid-masons are 1.3% and those involved in security employments are 1.1 %.

Table 10: Type of Remunerations

Type of remuneration			Regularity		
Received	Frequency	Percent	Regular	Frequency	Percent
Daily	140	89.7	No	110	70.5
Monthly	16	10.3	Yes	46	29.5
Total	156	100.0		156	100.0

Source: Author’s field study, 2019

4.1.8 Household Access to Finance

According to the findings of the research, majority of the HHs 66% they have bank accounts with SACCOs, 6% they have accounts with MFIs and 21% they have bank accounts with commercial banks On the types of the services, 87.8% of the households the relate with FSPs for only cash deposit and withdrawal operations, while only 10.6% have confirmed that they even do request for loans (Table 11).

Table 11: Low income HHs access to FSPs³ & Types of Services

		Type of services received				
		Loans	Deposit & Money Withdrawal	Others	Total	%
Accessed FSPs in Last 12 Months	SACCO	4	75	2	81	66%
	MFI	3	4	0	7	6%
	Commercial Banks	3	23	0	26	21%
	Others	3	6	0	9	7%
Total		13	108	2	123	100

Source: Author’s field study, 2019

4.2 Household’s income allocation patterns

The research has captured patterns around households income allocation in the low income households in City of Kigali, the captured information focused on 4 categories of household expenses; **rent, food, schooling and leisure** and reasons that inform household’s prioritization and decision on where to allocate the budget. As per table 12 below, for priority one (High), only two categories of expenses are observed, food is given 61.3%, is given 39.3%. This to confirm with the UNDP (2009) findings which revealed that poor families in urban areas spend up to 60 percent of their budget on food, and low incomes combined with high prices can increase their risk of hunger and malnutrition. Same observations were reiterated by FAO (2011) report which said that “in countries such as Bangladesh, Malawi and Viet Nam, the poor often spend 35 percent or more of their income on staple foods and total expenses on food is about 70 percent of total expenditures”.

Table 12: HH prioritization for expenses

HH Priority		Rent	Food	Education	Transport	Clothing	Leisure
Priority one	Frequency	137	244	48	1	1	1
	%	39.3%	61.3%	14%	0.3%	0.3%	0.3%
Priority two	Frequency	94	133	68	3	14	-
	%	26.9%	33.4%	19.8%	0.9%	4%	-
Priority three	Frequency	15	16	112	27	49	5
	%	4.3%	4%	32.6%	7.9%	14%	1.5%
Priority four	Frequency	4	2	12	85	79	5
	%	1.1%	0.5%	3.5%	25%	22.6%	1.5%
Priority five	Frequency	9	-	18	83	79	18
	%	2.6%	-	5.2%	24.4%	22.6%	5.5%
Priority six	Frequency	90	3	86	141	127	298
	%	25.8%	0.8%	25%	41.5%	36%	91.1%
Total		349	398	344	340	349	327

Source: Author’s field study, 2019

Table 13: Household income allocation patterns

³ FSPs: Financial Service Providers

HH expenses		Budget spent on rent	Budget spent on food	Budget spent on schooling	Budget spent on leisure
Allocated budget					
{0-10K Rwf}	Frequency	282	93	341	403
	%	69.3%	22.9%	83.80%	99%
{11-30K Rwf}	Frequency	109	241	43	4
	%	26.8%	59.2%	10.6%	1%
{31-50K Rwf}	Frequency	12	41	10	-
	%	2.9%	10.1%	2.5%	-
{51K Rwf<}	Frequency	4	32	13	-
	%	1%	7.9%	3.2%	-
Total		407	407	407	407

Source: Author’s field study, 2019

The research captured low-income households income allocation among what should be the four common categories for household expenses; **rent, food, schooling and leisure**, the research revealed a very distinct behavior for the low-income households on the choices for their expenses; there is an observable high priority attributed to “food expenses” whereby the majority **59.2%** spend between **11-30K Rwf** from their income, the research also revealed a very low priority attributed to the rest of the three categories namely rent, schooling and leisure whereby the majority of households **69.3% , 83.8% and 99%** respectively spent only between **0-10K Rwf** out of their income on those categories.

4.11.1 Low income HH expenditure on food

The majority (55%) of the low income HHs who earn between 10,000 and 30,000 Rwf they can spend up to 23% of their earning {Max 7,000 Rwf} for food. The second group of HHs that earns between 30,001 and 50,000 Rwf they same to have tendency of those who can even spend up to **60%** of their earnings on food {Max 30,000 Rwf}. Therefore, we can say that the low-income HHs in City of Kigali spends between **23 to 60 %** of their income on food.

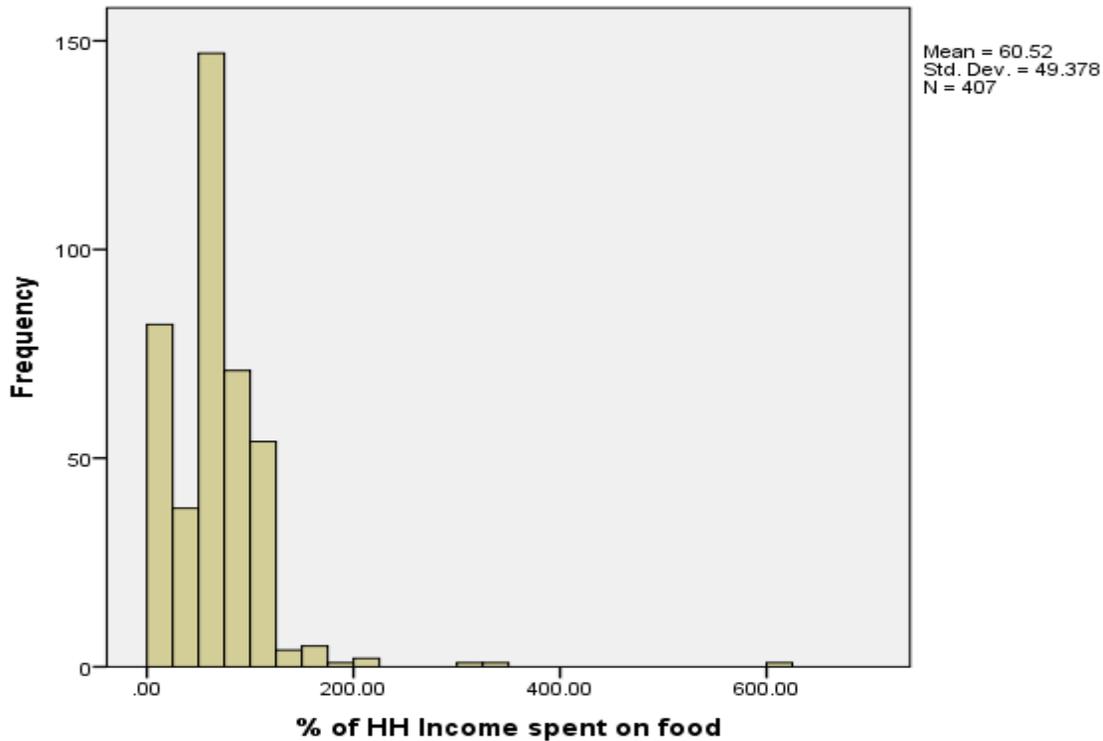
Table 14: % HH Income spent on food

% Income spent on food	Frequency	Valid Percent
0-10%	81	19.9
10-30%	9	2.2
30-50%	73	17.9
50-70%	94	23.1
70-100%	131	32.2
Beyond 100%	19	4.7
Total	407	100.0

Source: Author’s field study, 2019

The research has revealed that on average the low-income households in City of Kigali spend 60.5 % of their monthly income on food confirming FAO (2010), findings which stated “that globally as the world is becoming more urban. Although urban residents have access to a wider array of foods, without land to farm, their food security is dependent on their income and ability to purchase food products. Poor families in urban areas spend up to 60 percent of their budget on food, and low incomes combined with high prices can increase their risk of hunger and malnutrition”.

Figure 1: Portion of the Salary and Wages spent on food



Source: Author’s field study, 2019

4.3 Descriptive Analysis on Effect of Inflation on Food Security

According to Granville and Mallick (2006), “when the nominal wages on which low earners depend stagnate or grow at a lower rate than prices, inflation can depress workers’ real income and generate poverty. This will also be more likely the more the prices of basic goods are affected. On the other hand, the often-cited “inflation tax” reducing the purchasing power of monetary assets may not affect those already below the poverty line, since these individuals hold few liquid balances to begin with”.

Poor families in urban settings are exposed to the same realities as other categories of city inhabitants including wealthiest families; the marketers do not select or set prices according to categories of buyers, poor people with low purchasing power, they buy food from the same markets with the wealthiest families. As a result, poor families they exhaust their income buying food for their family members and they compromise on other basic needs.

The low-income households do have limited alternatives and options for coping up with their with food scarcity and limited purchasing power, the fact that urban agriculture is not an option with the city settings, these families they do rely entirely on purchased food and among the few alternatives they have is to rely on social networks either borrowing for money which they can use to cater for buying food for their families, however the later option involve other conditions and mighty a vicious circles for the indebtedness of the household.

The findings of the research reveal that majority **95.4 %** of low income HHs adjust to raise in markets prices by cutting down household’s expenses including food and this meaning reducing quality and quantity of the food consumed by household members, in other words compromising food security for the households member. Only **32.1%** of the households look for alternatives to keep the quality & quantity of food consumed at household.

Table 15: HHs adjusting to the rise in prices and rent by cutting down HHs expenses including food and relocating to cheap houses

	HHs adjusting to the rise in prices by cutting down HHs expenses including food		HHs moving to cheaper houses adjusting to the raise of rent	
	Frequency	Percent	Frequency	Percent
Sometimes	133	34.1	47	19.9
Rarely	62	15.9	21	8.9
Frequently	177	45.4	93	39.4
Never	18	4.6	75	31.8
Total	390	100.0	236	100.0

Source: Author’s field study, 2019

Majority of low income households, **75%** said they do **never borrow money from friends** to cater for feeding families when the prices go up, the majority **95%** said also they **never borrow from the Financial Service Providers (FSPs)** to cater for food when prices go up, and **85%** said they never borrow from **saving groups**.

According to table 8 above, majority (**68.2%**) of the low-income households in City of Kigali, they opt moving looking for cheaper houses as a strategy of dealing with the increase in rent which means in other words that low-income households attribute less priority to quality of houses they stay in. This also explains the mobility of this category of City inhabitants from the deep city location towards the city outskirts developed as the city expands.

4.4 Regression Results for determinants of Households Food Expenditure

The research aimed to study among other objectives how Household’s income determines food security for the low-income households in City of Kigali. The studied factors include; total household wages and salaries, remittances and income generating activities. The results from the multiple linear regression model (Table 16) have revealed positive correlation and significant relationships at ($p < 0.01$) between low-income households’ food

expenditure in City of Kigali with the Head of Households Salary and received remittances; a unit increase of in the Head of Households Salary will increase household food expenditure by 0.873 which means that the increase in Salary of the Head of Household in low income households will increase household’s expenditures on food. A unit increase in the received remittances in the low-income households it will make the household’s food expenditure to increase by 0.360.

The R Square was estimated to reveal how much of the variance in low-income household food security was explained by the model. The results in Table 16 showed that the model had an R^2 of 0.952. The $R^2 = 0.952$ implies that our model (which includes all variables under the socio-economic and demographic low-income household characteristics) explained 95.2 percent of the variance in low-income household food security. The statistical significance of the model was also assessed using analysis of variance (ANOVA). The ANOVA results (Table 16) also indicated that a significant relationship exists between socio-economic and demographic factors and low-income household food security with $F(8,225) = 36.973$, $p = 0.000$. The model reached statistical significance with $p = 0.000$ which is less than 0.0005.

Table 16: Aggregated Socio-Economic and demographic factors affecting HH food security

(A) Model Summary													
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics				Sig. F Change			
						F Change	df1	df2					
1	.976 ^a	.952	.926	.17827	.952	36.973	7	13		.000			
a. Predictors: (Constant), HH Size, HH Income G A, Remittances, HH H Salary, Depend Ratio, Age HH Head, Gender HH Head													
(B) ANOVA^a													
Model		Sum of Squares	df	Mean Square	F	Sig.							
1	Regression	8.225	7	1.175	36.973	.000 ^b							
	Residual	.413	13	.032									
	Total	8.638	20										
a. Dependent Variable: Household Food Expenditure/Food Security													
b. Predictors: (Constant), HH Size, HH Income G A, Remittances, HH H Salary, Depend Ratio, Age HH Head, Gender HH Head													
(C) Coefficients^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	Constant	.786	.612		1.285	.221	-.536	2.108					
	HH H Salary	.873	.062	.953	14.106	.000	.739	1.006	.923	.969	.856	.806	1.241
	Remittances	.360	.125	.193	2.889	.013	.091	.630	.035	.625	.175	.827	1.209
	HH Income_G_A	-.202	.109	-.128	-1.863	.085	-.437	.032	.000	-.459	-.113	.782	1.279
	Age_HH_Head	.004	.004	.062	.923	.373	-.005	.012	.229	.248	.056	.814	1.229
	Depend_Ratio	.124	.059	.143	2.104	.050	-.003	.251	.082	.504	.128	.799	1.252
	Gender_HH_Head	-.199	.114	-.122	-1.747	.104	-.444	.047	.219	-.436	-.106	.759	1.317
	HH_Size	.041	.017	.160	2.353	.035	.003	.078	.416	.547	.143	.793	1.262
a. Dependent Variable: Household Food Expenditure/Food Security													

Source: Author’s field study, 2019

Based on the table 4.42, the Multiple Linear Regression model is summarized by the equation 4.1.

$$Y_i = 0.786 + 0.873X_1 + 0.36X_2 + 0.124X_5 + 0.186X_5 + 0.041X_{10} + \square$$

Where,

Y: HH Food Expenditure

X₂: Remittances {Remittances}

X₃: Income Generating Activities {Income_G_A}

X₅: Dependency Ratio {Depend_Ratio}

X₁₀: Household size {HH_Size}

\square : Error term

V. CONCLUSION AND RECOMMENDATIONS

This section is aimed at giving conclusion and recommendations on the major findings of this study; it gives in a summarized manner the research findings in regards with the research and conclusions on study hypotheses. This section includes also recommendations on how best to address issue of food security in the low-income households in City of Kigali, Rwanda and provide indication on issues for further investigation. The study has revealed that demographic factors have strong influences on low-income households food security in City of Kigali.

5.1 Summary of Key Findings

The overall objective of this study was to determine how the socio-economic and demographic determinants affect household’s food expenditure for the low-income households in City of Kigali. In particular, the specific objective covered under this paper is to study how Household’s income determines food security for the low-income households in City of Kigali. The study collected data through a survey; data were analyzed and presented, for this paper specific attention is given to the objective mentioned above of

studying how demographic characteristics determine the level of food security in low income HHs in City of Kigali. Theoretical and empirical literatures were used to compare the results of the study with previous studies.

As the first objective of the study sought To investigate how Household’s income determines food security for the low-income households in City of Kigali with focus on following indicators; i) The total household wages and salaries, ii) Remittances and iii) Income generating activities.

The multi-linear regression model results has revealed positive correlation and significant relationships at (p<0.01) between low-income households’ food expenditure in City of Kigali with the Head of Households Salary and received remittances; a unit increase of in the Head of Households Salary will increase household food expenditure by 0.873 which means that the increase in Salary of the Head of Household in low income households will increase household’s expenditures on food. A unit increase in the received remittances in the low-income households it will make the household’s food expenditure to increase by 0.360security. We therefore, **reject H₀**, which says that HH level

of income in low income households in City of Kigali does not affect their level of income spent on food.

5.2. Recommendations

The situation of economic capacity and Food security and of the low-income households in City of Kigali can be addressed for a better and more improvement livelihoods. The most important factor to be addressed is the economic capabilities through the social economic empowerment of the low-income households and also increasing food accessibility for the low-income earners within the city of Kigali.

5.2.1 Social-Economic Empowerment for improved livelihood

The research results have revealed a low level of engagement of the low-income households in income generating activities within the City of Kigali, which normally should be one of the key sources of income for this segment of population. Looking at the factor that the majority of heads of households belongs to the working age range, this can allow for long term socio-economic behavioral transformational and support programs.

The City of Kigali should invest more effort to improve **entrepreneurship and financial literacy** among the low-income households, which will increase the skills of the low-income category (Ubudehe 1 & 2 Categories) and help them to improve their level of engagement into income generating activities, join the formal sector from the inform and increase their level of working with financial services providers as it was observed as an issue from the research results.

Depending on the City priority areas and competitive advantages; the City of Kigali should attract or initiate more programs that target for social –economic empowerment for the poor people within the City with an assumption that currently, fewer of the development partners put their focus and interventions in City of Kigali to benefit the low-income population. The low income/poor people within the cities tend to be forgotten in most programs targeting to improve livelihood of the poor yet they are more disadvantaged compared to the other poor persons in rural areas.

5.2.2. Explore potentials for Urban Agriculture

With the aim for jobs creation and improving food security for the poor families within the City of Kigali, the urban agriculture should be given much more priorities and be explored as a sector that can trigger the creation of employments and generate on and off farm businesses for a big number of City inhabitants especially the poor people.

FAO “defines urban agriculture as the growing of crops, vegetables, fruits and livestock keeping as well as non-food products” (Orsini et al., 2013). Maxwell et al. (1998) argued that urban agriculture increases household food and nutrition. Other scholars have explained how urban agriculture enhances livelihoods of the urban poor. For example, asserts that urban agriculture brings additional income.

Basing on the study findings, the study recommends that the City of Kigali give much more priority to urban agricultural practices, it is important that the City acknowledges the situation of the low-income households within the City and through Ministry of Agriculture formulates policies that govern and promote urban agricultural practices.

Also, the City of Kigali in collaboration with the Ministry of Agriculture together with Rwanda Cooperative Agency, should be at the fore front in empowering and organizing the city low-

income households in strong cooperatives to benefit and turn into economically viable the available non exploited swamps in the suburbs of the City of Kigali.

5.3. Areas for further research

- The low involvement of City of Kigali low-income household in income generating activities requires further studies to understand the reasons behind for further recommendations;
- There is a need for further researches in the area of Urban and Peri-Urban Agriculture development in City of Kigali;

There is a need to investigate further the phenomenon and impact of low-income households’ mobility searching for affordable shelters within the City of Kigali.

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