Developing Country Studies
ISSN 2224-607X (Paper) ISSN 2225-0565 (Online)
Vol.3, No.2, 2013

Effects of World Financial Crisis on Food Consumption Spending Among Households in Jamaica

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Abstract

The world financial crisis of 2008/2009 derailed macro-economic stability in most countries, triggering a global recession and wide spread food crises. Using data from the Jamaica Survey of Living Conditions, this study examines how the recession, as a macro condition, accounts for differences in Jamaican household food consumption before (2007) and during the recession (2009), and compares the impact of micro characteristics such as households' income, sex of household head, household size and area of residence on food consumption between both periods. The results indicate that income level and area of residence are consistently significant determinants of food consumption in Jamaica. In addition, the findings indicate that food consumption expenditure in all income categories remained basically unchanged between 2007 and 2009. Surprisingly however, female-headed households were found to spend significantly more on food consumption than male-headed households during the recession, which might be attributable to a combination of factors including the possibility that female-headed households accessed more social welfare and remittances than male headed households during the recession.

Keywords: Recession, Household food consumption, Jamaica

1. Introduction

The world financial crisis of 2008/2009 derailed macro-economic stability in most countries, triggering a global recession and widespread food crises. The recession heralded significant declines in global investments, trade, employment and real earnings, which spiked poverty rates in most countries, including Jamaica (Dullien et al 2010; Floro & Swain 2013). The end result was global increases in food prices, food insecurity and levels of inequalities. These were more apparent in developing countries (Piasea & Mitchell 2004; Studder et al 2001), where acute changes in households' food consumption behaviours were evident (Floro & Swain 2012). In Jamaica, the adverse impacts of the world financial crisis and recession have been manifested at both the macro and micro levels. For example, the country experienced GDP growth of 1.4 per cent in 2007 (the pre-recession year), but contracted by 0.6 per cent and 3.0% in 2008 and 2009 respectively in the heat of the recession (Statistical Institute of Jamaica [STATIN] 2010). Poverty rates, too, jumped from 9.9 percent in 2007 to 16.5 percent in 2009 (STATIN, 2010). Similarly, average household income and consumption in Jamaica declined during the recession (STATIN 2010), prompting the government's statistical agency to conclude that "the effects of the global recession were evident as, in real terms, Jamaicans consumed less and the reduced consumption levels placed more households below the poverty line" (STATIN 2010, I).

Household food consumption behaviours have long interested academics as indicators of health statuses (Bowman et al, 2004; Patterson 1994), inequalities (Krueger & Perri 2006), and inter alia, for social policy planning (Anderson 1989). However, there is increasing attention to the relationship between food consumption and household's micro characteristics such as income levels (Hossain 2005; Lokshin and Yemtsov 2001), gender (Charles & Kerr 1994) and household size (Charles & Kerr 1994; Handa 1996). At the macro level, researchers have traditionally compared food consumption with indicators such as levels of development, per capita income and employment rates (Blandford 1984; Mellor 1984) or on explaining income-consumption models (Chen & Wallace, 2009). Ironically though, while recessions are recognised as structural conditions which can impinge upon household consumption spending (Anderson 2001; Lokshin & Yemtsov 2001; STATIN 2010), their impacts on food consumption at the household levels have been under-researched in academic literature. Consequently, using the economic recession as a macro variable, this study examines: 1) how Jamaican households' food consumption changed from 2007 to 2009; and 2) how food consumption patterns varied among income levels, household size, and sex of head of households and area of residence in 2009 in the midst of the recession.

2. The Recession and Household Food Consumption

The world financial crisis and the resultant global recession has been implicated in increased food insecurity as individuals and households faced lower disposable income, fewer employment opportunities and lower remittance receipts (Dawkins 2010; Habib, Narayan, Olivieri & Sanchez-Paromo, 2010; International Labour Office 2010; Overseas Development Institute 2009). Prior to the recession in 2007, unemployment rate in Jamaica was 9.8 per cent, but increased to 10.3 per cent in 2008 and 11.4 per cent in 2009 (STATIN 2008: PIOJ 2011). The government's statistics also show reductions in Jamaica's major GDP generating sectors such as mining, construction and tourism (PIOJ 2011). For example, in 2009, there was 8.9 per cent shrinkage in the mining, manufacturing, agriculture and construction sectors (Economic Commission for Latin America and the Caribbean 2009; Arana 2009). The declines in these sectors penetrated down to the household level resulting in increased poverty and decreased household consumption in Jamaica (Anderson 2001). Consequently, during recessions Jamaican households tend to be cautious in spending because of future income uncertainty (Anderson 2001; STATIN 2010). In fact, Jamaica Survey of Living Condition 2009 reports a 3.9 per cent reduction in per capita consumption as a result of the recession (STATIN 2010). Oldewage-Theron, Dicks and Napier (2006) reiterate that when faced with declined income, households often target consumption expenditure; limiting the variety and amount of food consumed and even changing diets in more acute cases.

Another impact of the world financial crisis which led to recession in Jamaica has been significant declines in remittances (CCMF 2010). Remittance is one of Jamaica's largest sources of foreign exchange and a main contributor to Gross Domestic Product and household income in Jamaica (Ramocan 2011). In the midst of the recession, inflows to Jamaica from the main remittance transmitting countries, such as the US and UK, decreased to US$1790.3 million in 2009, compared to 2007 and 2008 inflow of approximately US$1900 million and US$2021.3 million respectively (Planning Institute of Jamaica [PIOJ] 2011) (see table 8). Households' food securities in developing countries are particularly dependent on remittances. In Nigeria for example, Babatunde & Martinetti (2010, 2) assert that "total household income, household assets as well as food consumption are greater in remittance-receiving households than non-remittance households in [rural] Nigeria". Official statistics show that in Jamaica, the main uses of remittances are to facilitate consumption of necessities such as food, utility bills, health care and education (STATIN 2010). Therefore, with the decrease in remittance inflow during the recession, it is no surprise that the statistics show decreased per capital consumption and increased poverty in Jamaica (STATIN 2010).

Recessions also impinge on governments' resources, often resulting in decreased public spending, especially on social welfare (Institute of Development Studies [IDS] 2009). However, government transfers are integral for cushioning decreased per capita household consumption (IDS 2009; Overseas Development Institute 2009). As such, in 2009, the government of Jamaica increased expenditure on the Programme of Advancement through Health and Education [PATH]- a conditional cash transfer programme which targets vulnerable households, to ensure that basic needs such as food, healthcare and education are met (PIOJ 2011). The number of beneficiaries for PATH also increased from approximately 200,000 in 2008 to 300,000 in 2009 (PIOJ 2011). In addition, the government increased its other social protection programmes including: labour market programmes such as the STEPS-TO-WORK programme, which is designed to engage or reintegrate persons in the labour market by improving employment skills and capabilities; and the Youth Empowerment Strategy (YES) which is a programme that provides financial assistance to young persons for education or business development (PIOJ 2011). Thus, while recessions can reduce food consumption through decreased employment income, government transfer programs can cushion the effects.

2.1 Micro Factors and Food Consumption

There are several economic theories which explain the determinants of household food consumption. The Keynesian Consumption Theory holds that there is a positive relationship between income and the marginal and average propensity to consume (Palley 2010). It explains that, "men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income" (Keynes 1936, 96-97). Similarly, Friedman's permanent income hypothesis (PIH) predicts that consumption is a function of income but with one distinction; the choices made by consumers regarding their consumption patterns are determined not by their current income, but by their longer-term income expectations. Thus for Friedman, transitory or short-term changes in income have little effect on consumer spending behaviour. The theory holds that the individual will consume a constant proportion of his/her permanent income. Notwithstanding differences,

both theories imply that income level is the main determinant of household consumption level, and corroborate Engles Law, which asserts that while there is a positive relationship between income and food consumption, consumption can reach a saturation point. Thus, one should expect food consumption to vary with economic conditions up to a point, after which it should level off. In other words, at the higher end of the income scale, differences in consumption should begin to narrow. The reverse is also true in that, even in a recession, household consumption is not expected to decrease beyond certain (survival) point.

Many empirical studies corroborate the notion that household food consumption goes up as income rises (Charles & Kerr 1987; Kingsey 1994; Handa 1996; Lokshin & Yemtsov 2001; Hossain 2005). Charles & Kerr (1987) for example, assert that not only do higher social classes expend more on food, but they are also able to afford more expensive food items (Charles & Kerr 1987) and greater varieties (Kingsley 1994). By virtue of their higher incomes, they are also better able to withstand economic vagaries such as recessions. On the flip side, poorer households suffer from greater food insecurity, especially in economic crises (Kennedy & Peters 1992), as other competing needs and more conservative spending behaviours might result in lower expenditures on food.

In addition to income, the other micro factors considered in this study are: sex of head of households, area of residence (rural or urban), and size of household. With regards to household size, past studies have produced conflicting findings on whether larger households spend more per capita on food consumption (Banskota et al 1985; Deaton & Paxson 1998; Gonzalez de la Rocha 1988; Senauer, Asp & Kinsey 1991;). Gonzalez de la Rocha (1988) for example stipulates that it is not so much the size of the household that affects income and consumption but the domestic cycle and composition of households. At the earlier stage of the family cycle, that is when families are young, incomes, and conversely, consumption on a per capita basis is smaller (Gonzalez de la Rocha 1988). However, as children grow up, they are able to engage in economic activity and contribute to the household and stabilise incomes, which raises food consumption. Gonzales de la Rocha (1988) also looks at consolidation (mergers) of households as a means of coping with economic crises. Consolidation results in more wage earners and thus more stable income and consumption expenditure. On the other hand, there is the view that larger households can benefit from economies of scale, and therefore have lower per capita consumption that larger ones (Banskota et al 1985; Senauer, Asp & Kinsey 1991; Deaton & Paxson 1998).

Literatures on the impact of sex of head of households and food consumption suggest that male headed households consume more and a greater variety food products than female headed households (Kennedy, 1992; Deaton, 1998; Handa, 1996; Duhaime, Chabot & Gaudreault, 2002) mainly as a result of gender differences in income levels. For example, it has been argued that female headed households in Jamaica tend to be poorer than male headed households due to systematic differences in employment and salary; women tend to be involved in more precarious employment and earn less than males (Handa 1996; Anderson 2001). Kennedy & Peters (1992), note that female headed households are not only poorer with less disposable income, but are less food secure than their male headed counterpart, despite spending a higher proportion of their incomes on food. Likewise, Gonzalez de la Rocha (1998) stipulates that women are more vulnerable to poverty when heading single parent households – which is predominant in Jamaica –and would have lower expenditures on food consumptions.

Finally, evidences suggest that there are disparities in food consumption spending amongst rural and urban households, with rural households having lesser per capita consumption expenditure than urban households (Asra 1999; Ajewole and Omonona 2006; STATIN 2010). In fact, poverty is found to be more pronounced in rural than urban areas where food consumption is used as the basic measurement of the poverty line index (Asra 1999).

3. Data and Method

The study utilises data from the Jamaica Survey of Living Condition 2007 and 2009 published jointly by the Planning Institute of Jamaica [PIOJ] and the Statistical Institute of Jamaica [STATIN] in 2008 and 2010 respectively. The Jamaica Survey of Living Condition is an annual survey which collects data on living standards of Jamaicans using detailed interview questionnaires to collect data from respondents between the months of April and October of each year. The surveys data files are released to the University of the West Indies Mona Campus' Sir Arthur Lewis Institute of Social and Economic Studies (SALISES) Data Bank, from which we obtain the data.

The sample size is 1,994 and 1,797 respondents in 2007 and 2009 respectively. The sample is drawn using a two-staged stratified random sampling design where there is a Primary Sampling Unit (PSU) and a selection of dwellings from those units. The PSU is an Enumeration District (ED), which constitutes a minimum of 100 dwellings in rural areas and 150 in urban areas. An ED is an independent geographic unit that shares a common boundary; hence the country was grouped into strata of equal size based on dwellings (STATIN 2010). From the PSUs, a listing of all the dwellings is made, and this becomes the sampling frame from which a master sample of

dwelling is compiled, which in turn provides the sampling frame for the panel Labour Force Survey. One third of the Labour Force Survey is selected for the Jamaica Survey of Living Condition.

The dependent variable in this study is total food expenditure, which is an aggregate annualised dollar amount spent by households. In addition to actual spending on food, the Jamaica Survey of Living Condition estimates the value of food received as gifts and food produced by households in the dollar amount. The independent variables used are areas of residence (Urban –Kingston Metropolitan Area [KMA]; Other towns and Rural), sex of household head, household size and income level measured in quintiles-with 'quintile 1' being the lowest level and 'quintile 5' being the highest level. The study also uses the same measure of Income quintile as used by the Jamaica Survey of Living Condition which ranks households` total expenditure on both consumption (food, healthcare, education etc) and non-consumption items (savings, mortgage, insurances etc). Finally, the study uses 2007 as the pre-recession year and 2009 as the recession year for comparative purposes.

4. Findings

In 2007, the highest income quintile spent twice as much on food as the lowest one (Table 1). This trend was repeated in 2009. In fact, the relationship between food consumption and quintile followed a linear pattern, with higher quintiles progressively expending more on food than preceding quintiles in both periods. This pattern is reflective of the overall expenditure (consumption and non-consumption) pattern among quintile levels. In terms of food expenditure as a proportion of total consumption expenditure, the two lowest quintiles expended 55 per cent and 52.6 per cent of their consumption income on food in 2007 compared to the 44.8 for quintile 4 and 36.9 per cent for quintile 5. Similarly, in 2009 quintiles 1 and 2 expended 57.6 per cent and 53.4 per cent of their consumption budget on food respectively, compared to 48.6 per cent and 40.1 per cent for quintiles 4 and 5 respectively. This indicates that food expenditure takes up a greater portion of overall consumption spending for the lower quintiles. In addition, the recession resulted in food consumption expenditure accounting for a greater portion of the total consumption budget for all income quintiles in 2009. In nominal amounts, all income quintiles experienced similar growth in their food consumption between the two periods. In fact, the GINI coefficient indicates that there was a minute reduction in inequality during the 2009 recession year (Table 1).

Average food expenditure also varied significantly by area of residence. In 2007, households in Kingston (KMA) had the highest expenditure ($317,914), those in other towns spent $311,081 and those in rural areas spent $255,777 or 20 per cent less than those in Kingston (Table 2). During the recession, rural households continued to have to the lowest food consumption expenditure ($336,973), however households in other towns had higher food consumption ($387,401) than those in the KMA ($356,648).

In the pre-recession year, female headed households expended on average $11,168 more than male-headed households on food but the ANOVA test indicates that this difference was not statistically significant at the 95% level confidence (Table 3). However, in 2009, female headed households outspent male headed households by an average of $28,743, which was significant at the 95% confidence level. This is reflective of the overall consumption patterns between the two periods, whereby overall female headed households' consumption was greater than male headed households. Thus, the consumption advantage experienced by female headed households over their male-headed counter parts was reinforced in the recessionary period.

Despite the fact that in 2007, the smaller the household, the greater it's mean food consumption expenditure, the ANOVA results indicate that these differences were not statistically significant (Table 4). In 2007, single member households' food expenditure averaged $279,489 but this was only $5,329 more than households with 2 to 4 members and $14,576 more than households with 5 or more members. However, this result was reversed in 2009 with single member households having the lowest food consumption; both households with 2 to 4 members and those with 5 or more members had similar food consumption expenditure (see table 4). However, the differences in these means were again not statistically significant.

Two-way ANOVA examining the combined effects of area of residence and income quintile on food consumption, unearthed statistically significant differences in means in both 2007 and 2009 (Table 5). In 2007, the KMA's quintile 1 mean food consumption expenditure was $216,000 compared to quintile 1 in Other Town-$167,000 and Rural -$169,000. KMA's quintile 5 had the highest mean food consumption among area of residences at $393,000 compared to $386,000 for quintile 5 in other towns and $327,000 in rural Areas. However, Other Towns' middle quintile (3) had the highest mean food consumption expenditure ($312, 000) compared to $297,000 for the KMA and $279,000 for rural areas. Thus, rural areas households at all quintile levels expended lower dollar amounts on food compared to the other areas. The differences in the mean interacting effects of area of residence and consumption quintile explained 14.9 per cent of variation in food consumption in Jamaica in 2007

Similarly, in 2009, two-way ANOVA between area of residence and income quintile on food consumption reveal a statistically significant relationship (Table 6) although no clear and constant direction is discernible. Households in Quintile 1 in Other Town had the lowest food expenditure ($190,000) compared to Rural areas $217,000 and KMA $221,000. However, it was households in quintile 5 in rural areas that had the highest food expenditure of any of the subgroups ($483,000) compared to Other Towns $463,000 and the KMA with the lowest comparative quintile 5 food consumption of $447,000. At the middle quintile level (3), Other Towns' households had the highest food consumption level at $420,000 compared to Rural areas $391,000 and the KMA with the lowest at $352,000. Area of residence and income level explain 18.6 per cent of the variation in food consumption expenditure in 2009.

Two-way ANOVA tests between food consumption and the combined effects of consumption quintile with a) sex of household head and b) consumption quintile and household size; yielded no statistically significant differences among means (see Table 7).

5. Discussion

The evidence suggests that the recession led to a near 10 per cent decline in aggregate real consumption expenditure between 2007 and 2009 in Jamaica (STATIN 2010) and for the first time since the Jamaica Survey of Living Condition started in 1989, overall household consumption expenditure decreased in 2009. The results corroborate the assertion that in a recession, households do reduce basic consumption expenditure (Anderson 2001; Overseas Development Institute 2009). At the same time, it is noted that as a proportion of total consumption, food consumption grew from 44.5 per cent in 2007 to 44.9 per cent in 2008 and 45.9 per cent in 2009 (STATIN 2010, 28). This is likely due to the need to maintain existing levels of food consumption during the recession, which would support the notion that there is a minimum amount below which households will not fall. As Lokshin et al (2001) posits, in economic crisis, households, especially the poor households, tend to increase the proportion of their income spent on food, even as they drift further into poverty. Thus, while the recession triggered increased poverty rates in Jamaica, which rose from 9.9 per cent in 2007 to 16.5 per cent in 2009, consumption expenditure on food did not decline (STATIN 2010).

In spite of the above, consumption inequality as measured by the GINI coefficient was rather stable (0.3675 in 2007 and 0.36674 in 2009) which indicates "little change in distribution of income and wealth in Jamaica (STATIN 2010, II). Thus, it can be concluded that the recession did not widen the distribution of gap in consumption spending between the rich and poor households. This is probably as result of the influence of the scaling up of social protection programs such as PATH. The evidence suggests that application and receipt of PATH benefit is inversely related to socio-economic and consumption status. In 2009, there was an increase in the receipt of benefits amongst households that applied for PATH, and the percentage of households in quintile 1 that received benefits increased from 47.5 per cent in 2007 to 61.1 per cent in 2009. Similarly, beneficiary household in quintile 2 increased from 36 per cent in 2007 to 58.3 in 2009 (STATIN 2010). The wealthy quintile remained low users of PATH benefits in both the pre-recessionary and recessionary years.

The fact that rural areas were the most vulnerable to food consumption insecurities in both pre-recession and recession years is not surprising, and is consistent with previous research (Ajewole et al 2006; Babatunde et al 2010; Floro et al 2013). However noteworthy, is that persons in Other Towns had the highest food expenditures compared to persons in KMA and Rural areas, and experienced an overall increase in real terms of 4.8 per cent compared to negative growth for their counterparts in 2009. One possible explanation for the increase in food and overall consumption expenditure in these Other Towns in 2009, is the 4.4 percentage point increase in remittances, which resulted in Other Towns having the largest portion of remittances inflow 50.6 per cent, in comparison to the KMA 47 per cent and Rural areas 40.5 per cent in 2009 (STATIN 2010). As afore mentioned, remittances are one of Jamaica's largest sources of foreign exchange, and also one of the most important sources of income for many Jamaican households and are used to sustain household consumption of basic necessities such as food and utilities (Ramocan 2011). Of course, an assessment of remittances is outside the scope of this study and further empirical data is warranted to assess how remittances affect consumption in Jamaica, and how it may have interplayed in giving Other Towns consumption advantage over other areas in the midst of the recession in Jamaica.

The findings of this study also challenge a number of suppositions, especially those relating to food consumption patterns in Jamaica. Household size is found to have no significant relationship with food consumption in neither 2007 nor 2009 in contrast to other suggestions (Senauer et al 1991). This is even more bewildering given that in 2007 and 2009, 22 per cent and 24 per cent of households were single member and were found mainly in the wealthiest quintiles (STATIN 2010). Base on the evidence that food consumption vary by income levels, one might have expect a relationship with household size. This was likely because differences in household sizes are

captured by differences in income levels.

Contrary to the literature, the relationship between sex of household head and food consumption is also not straight forward in Jamaica. The literature suggests that female headed households comprised larger number of members (Handa 1996; STATIN 2008a, 2010b) including more women, children and elderly, thereby increasing their vulnerability (STATIN 2010). However, this study finds that sex of household head had no significant association with food consumption prior to the recession, but interestingly there is a statistically significant relationship in 2009. Regarding food and total consumption, it is observed that "female households outstripped those headed by male....and for the first time in the history of the JSLC, in 2009....a larger proportion of female-headed than male-headed households recorded consumption in excess of $1.0 million" (STATIN 2010, 30). The reasons for this development are unclear at this time, and any supposition is at best tentative, but we suggest a possible combination of reasons. One possibility is that female headed-households accessed more remittances and social services than male headed households during the recession. Remittances for example was a main coping strategy used to negotiate the difficulties imposed by the recession (STATIN 2010) and research has shown that in Jamaica "remittances recipients are less likely to be headed by males…[as] male heads of households tend to migrate more than female heads" (Kim 2007,7). Regarding the cushioning effect of social security, it has been found that more persons accessed the services during the recession (Statin 2010). In addition, in the heat of the recession, the government established "a new initiative called 'Steps to Work' to assist adults in PATH households" to become active in the labour market (The Sunday Gleaner 2009). Official statistics reveals that females outpaced males 2:1 in enrolment in the Step-to-Work program (STATIN 2010). Also, the effects of the recession significantly affected certain industries than others in Jamaica. For example, it is reported that the recession resulted in significant job losses in mining, construction and manufacturing sectors in Jamaica (CCMF 2010), which traditionally employed more males than females. In fact, Jamaica's Ministry of Labour in 2009 blamed 30,000 job losses over 18 months on the recession, and singled out the bauxite sector as a main contributor due to the closure of three of the four plants in Jamaica (The Sunday Gleaner 2009). The bauxite industry, which employed mostly men, contracted by 50.2 per cent while the service sectors such as tourism and financial [which has strong female presence] remained stable during the recession (CCMF 2010). While none of these factors might single-handedly explain why female headed households were able to expend more on food than men for the first time, it is possible that they combine, or at least contribute in some way to influence the differences between gender consumption patterns in Jamaica during the recession.

6. Conclusion

The results from this study are at best tentative, but they provide important insight as to how households cope in periods of economic crises such as recessions. Household income and area of resident are primary determinants of food consumption in Jamaica in both recessionary and non-recessionary periods. However, there has been a shift toward female headed households having higher food and total consumption than male headed households and this is worthy of further investigation. Such scrutiny could not only unearth the reasons for this shift but also identify ways in which female successes can be applied on a wider scale. It is also observed that while the findings corroborate existing sentiments of the primacy of household income in determining consumption, it is worth considering that overall food consumption expenditure (nominal) increased amongst all household income levels in 2009 despite the recession. In addition, the gap between the richest and poorest households' food expenditure remained constant. This suggests that food insecurity in Jamaica might not worsen significantly despite the significant hardships in terms of increased poverty, lower income and other economic crises.

One might proffer that the stability in food consumption in Jamaica is partly due to households reallocating funds from non-food consumption items such as education and health care towards food. This might have been a cause of concern except that it appears that government interventions were paramount to the stability of food consumption in Jamaica during the recession. In addition to expanding social welfare programs, the fact that universal free education up to the secondary level and health care were implemented in 2008 might have helped households reallocate funds towards food. Otherwise, it is expected that that the recession would have resulted in even more poverty, especially amongst the poorest quintiles, thus causing further reduction in food consumption.

In large, the findings of this study partly corroborate Keynes, Friedman and Engels consumption theories of the positive relationship between income and food consumption. They also show no saturation consumption point (food and total non-food) in the quintiles in either of the comparative periods. Instead, wealthier quintiles continued to outspend poorer quintiles at a constant pace between both periods. The findings also supported Engel's law, which asserts that as income increases, the share of expenditure on food declines. In accordance with

these theories, the wealthier quintiles consistently spent less of their total incomes on food than poorer ones.

It is also seen that area of residence as a unit of analysis continues to impact households' consumption expenditure, with rural areas continuing to be below the national average. However, in the heat of the recession, the Kingston Metropolitan Area [KMA] showed the largest percentage decrease in consumption and Other Town the highest increase in 2009. When remittances are considered, it is seen that the KMA recorded a decrease in remittance while Other Towns saw an increase. Nonetheless, the impact of area of residence appears to be dominated by income quintile of households in determining food consumption and must therefore be studied separately. Further investigation is needed to expose the underlying reasons for income and area of residence to dominate food consumption in Jamaica and to see if these factors extend elsewhere.

Finally, the tentative nature of these findings cannot be over-emphasised especially as it related to household behaviours. The scope of this study made it difficult to predict how households would have responded to the recession in the absence of external incomes. Future studies could explore these, as well as examine the observed shifts in the relationships between food consumption and household size and gender, especially during prolonged economic declines. Notwithstanding these limitations, there is reason to believe that if households have access to external sources of income, and are protected by formal government income transfer mechanisms, then the adverse effect of macroeconomic shocks such as recessions on food and non-food consumption, and overall poverty will be minimized.

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Table 1: ANOVA results showing difference in Households Total and Mean Food Consumption by Households Consumption Quintiles in 2007 and 2009

2007			2009		
Quintiles	Mean Consumption Income $JMD	Mean Food Consumption Expenditure $JMD	Quintiles	Mean per Capita Consumption Income $JMD	Mean Food Consumption Expenditure $JMD
1	318,951	175,602	1	376,368	214,728
2	499,529	262,766	2	578,097	308,636
3	582,338	292,023	3	724,592	385,965
4	717,935	321,764	4	802,526	390,299
5	1,016,303	375,211	5	1,154,992	463,378
National Mean	629,111	286,009	National Mean	730,973	353,635
*GINI Coefficient 0.3675 *F Stat 278.499 Sig. 0.000*			*GINI Coefficient 0.3667 *F Stat 332.948 Sig 0.000*		

**Source: Jamaica Survey of Living Condition 2009, STATIN*

Table 2: ANOVA results showing difference in Households Total and Mean Food Consumption by Area of residence in 2007 and 2009

2007			2009		
Area of Residence	Mean Total Consumption Income $JMD	Mean Food Consumption Expenditure	Area of Residence	Mean Total Consumption Income $JMD	Mean Food Consumption Expenditure $JMD
KMA	763,130	317,914	KMA	815,022	356,648
Other Towns	703,602	311,081	Other Towns	835,610	387,401
Rural	515,651	255,777	Rural	636,482	336,974
National Mean	629,111	286,008	National Mean	730,970	353,635
F stat 98.742 Sig 0.000			*F stat 30.052 Sig 0.000*		

Table 3: ANOVA results showing difference in Households Total and Mean Food Consumption by Sex of Households Head in 2007 and 2009

2007			2009		
Sex of Household Head	Mean Consumption Income $JMD	Mean Food Consumption Expenditure	Sex of Household Head	Mean Consumption Income $JMD	Mean Food Consumption Expenditure $JMD
Male	513,856	231,137	Male	601,138	286,689
Female	544,027	242,305	Female	660,778	315,432
National Mean	527,807	236,300	National Mean	628,196	277,729
*F stat 2.460 Sig 0.117***Not significant*			*F Stat 10.406 Sig 0.001*		

Table 4: ANOVA results showing difference in Households Total and Mean Food Consumption by Household Sizes in 2007 and 2009

2007		2009	
Household size	Mean Food Consumption Expenditure$ JMD	Household size	Mean Food Consumption Expenditure $JMD
Single member	279,489	Single member	343,620
2 to 4 members	274,160	2 to 4 members	349,920
5 or more members	264,913	5 or more members	349,740
Household Mean	272,993	Household Mean	348,365
*F stat Sig *** Not Significant*		*F Stat Sig ***Not Significant*	

Table 5: TWO WAY ANOVA results showing difference in Households' Mean Food Consumption by Area of Residence and Consumption Quintile in 2007 and 2009

Area of Residence	Quintile	Mean Consumption Expenditure $JMD
KMA	1	216,017
	2	258,229
	3	297,048
	4	298,012
	5	393,102
Other Town	1	167,343
	2	261,926
	3	312,166
	4	340,417
	5	386,934
Rural	1	169,403
	2	264,356
	3	279,349
	4	332,283
	5	327,728
Area *Quintile F Stat 7.949 P=0.000 Statistically Significant at 95% Confidence Level of Means R^2 0.149		

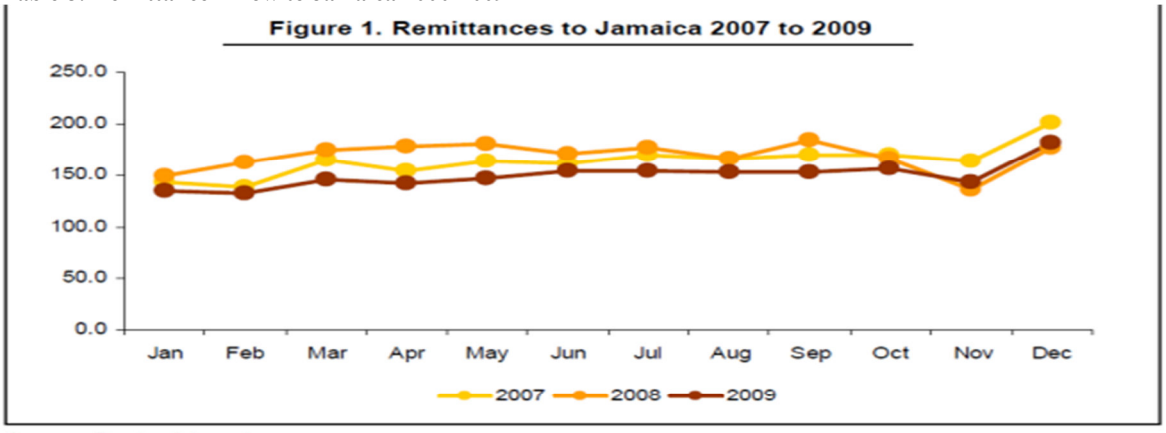
Table 6: TWO WAY ANOVA results showing difference in Households' Mean Food Consumption by Area of Residence and Consumption Quintiles in 2009

Area of Residence	Quintile	Mean Consumption Expenditure $JMD
KMA	1	220,821
	2	275,223
	3	351,578
	4	381,867
	5	446,982
Other Town	1	189,587
	2	291,213
	3	420,391
	4	413,984
	5	463,851
Rural	1	216,749
	2	326,307
	3	390,619
	4	379,994
	5	482,778
Area *Quintile F Stat 4.624 P=0.000 Statistically Significant at 95% Confidence Level of Means R^2 0.186		

Table 7: Summary of TWO WAY ANOVA results showing the effects of the independent variables on Households' Mean Food Consumption in 2007 and 2009

Independent Variables	Indicators	2007	2009
Quintile & Area of Residence	F-Stat	7.949	4.624
	P Value	0.000**	0.000**
	R^2	0.149	0.186
Quintile & Sex of Household Head	F Stat	1.613	1.698
	P Value	0.168	0.148
Quintile & Size of Households	F Stat	0.284	0.486
	P Value	0.971	0.867
**Statistically Significant at 95% Confidence Level of Means			

Table 8: Remittance inflow to Jamaica 2000-2009



Source: Bank of Jamaica

Table 9: Male and Female Employment in Jamaica between 2007 and 2009

MALE				FEMALE			
	2007	2008	2009		2007	2008	2009
Employed	650,400	661,200	647,400	Employed	488,500	501,000	486,800
Unemployed	42,700	52,000	59,400	Unemployed	81,300	85,400	84,900
Labour Force	693,100	713,200	706,800	Labour Force	569,800	586,400	571,700

**Source: Ministry of Labour and Social Security, Labour Market Information System*

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Acknowledgement

The authors would like to thank the University of the West Indies Mona Campus Sir Arthur Lewis Institute of Social and Economic Studies' [SALISES] Data Bank for providing the dataset for this study. We also like to thank Professor Peter Li at the University of Saskatchewan for his helpful insights.