



Bank of Papua New Guinea

# FINANCIAL DIARIES OF LOW INCOME HOUSEHOLDS IN PAPUA NEW GUINEA

## TOPICAL BRIEF: SHARE OF WALLET



Created by the Pacific Financial Inclusion Programme and Microfinance Opportunities

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## ACRONYMS

**PGK** Papua New Guinean Kina

## DEFINITIONS

**Active Respondent** An active respondent is a respondent that has more than 5 weeks of data; those weeks do not have to occur consecutively.

**Branchless Banking** The delivery of financial services outside conventional bank branches through the use of retail agents and information and communications technologies to transmit transaction details.<sup>1</sup>

**Multiple Item Purchase** Multiple item purchases consisted of one to five items. The variation in this category was very large and included everything from purchases of Tang to sheep.

**Point of Sales Device** Electronic devices that are used in place of or in conjunction with traditional cash registers to allow retail locations to process transactions that require electronic access to a bank account or financial service provider such as a credit card.

**Share of Wallet** A share of wallet refers to the amount of a participant's total household spending that is devoted to a particular spending category (food, household items, recreational expenses, etc.). The share of wallet analysis focuses on non-business expenditures only.

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<sup>1</sup> Consultative Group to Assist the Poor. "Branchless Banking Policy." *CGAP*. CGAP, 2013. Web. 13 Jan. 2014.

## ABOUT THIS BRIEF

Financial Diaries have the ability to provide insight into how people prioritize their non-business expenditures. It can also show how these spending priorities vary across different categories of individuals. This brief will analyze how the respondents in Papua New Guinea spent their money during the study period, providing a detailed picture of the major spending categories that composed their share of wallet. The brief also captures the types of places where transactions occurred and the distance traveled from home to carry out these transactions. These findings will help provide the private sector and policy-makers with an understanding of how people's expenditure patterns could impact financial service use and product design.

## KEY FINDINGS

- In all research sites, respondents devoted the bulk of their monetary, non-business resources to securing food supplies.
  - Food expenditures were the top spending priority, on average, for respondents across all three sites; at least 50 percent of all expenditures went towards purchasing food.
  - Providing insurance to both cash-crop and medium-sized, non-commercial farmers could help insulate both suppliers and consumers from food shocks.
- On aggregate, roughly 50 percent of the total volume of expenditures flows through a formal place of business.
  - Integrating point of sale devices that enable banking transactions to occur at these locations could reduce transaction costs associated with traveling long distances to access bank accounts.

## STUDY SAMPLE OVERVIEW

This Financial Diaries study was conducted between November 2012 and May 2013 in Goroka, Kimbe, and Port Moresby. Field workers travelled to respondents' homes each week and interviewed them about their transactions from the previous week. Through this process, field workers collected 2,057 person-weeks of data from 149 active respondents in 149 different households.

The sample was reasonably balanced by gender in each site; respondents from Kimbe accounted for the majority of the final sample. The age distribution of respondents was relatively consistent across the sites with some variation between males and females. The age range for respondents was concentrated around the life period in which income earning capacity and dependent support requirements are at their highest. The average household size and number of dependent children varied between the three locations. There was a clear difference between Port Moresby and the other research sites with regard to the number of children per household (see **Table 1**).<sup>2</sup>

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<sup>2</sup> There was greater attrition in the Goroka sample than the other two locations. This resulted in a concentration of sampling in locations in or proximate to the Goroka Township and a reduction in sampling in

**Table 1: Study Sample**

	Sample Size			Average Age		Average Household Size	
	Male	Female	Total	Male	Female	Total	Children
Goroka	19	16	35	40	41	5.9	3.7
Kimbe	36	38	74	43	37	6.4	3.9
Port Moresby	17	23	40	41	37	4.7	2.0

There were significant differences in reported levels of education across the three locations. In each of the locations, women tended to participate in formal education less than men. Non-participation was particularly high in Port Moresby and very low in Kimbe. Additionally, previous studies<sup>3</sup> have found a correlation between functional English literacy and participation in the formal financial system. As shown in **Table 2**, the correlation between level of education and bank account ownership was also found in this study.

**Table 2: Levels of Education and Bank Account Ownership**

	Goroka		Kimbe		Port Moresby		All Sites % of Bank Account Ownership
	Male	Female	Male	Female	Male	Female	
None	21.05%	31.25%	0.00%	2.63%	11.76%	56.52%	12%
Primary	42.11%	56.25%	42.86%	50.00%	52.94%	26.09%	50%
Secondary	36.84%	12.50%	57.14%	44.74%	35.30%	17.39%	55.35%
Post-Secondary	0.00%	0.00%	0.00%	2.63%	0.00%	0.00%	100%

The study sample was selected through a randomized process.<sup>4</sup> Nevertheless, in a country as diverse as Papua New Guinea, it is not possible to conduct a Financial Diaries study with a sample that is representative of the country as a whole, without considerable expense. Thus, even though the data and findings are of a high quality and instructive of the financial lives of people in Papua New Guinea, the results are not meant as a statistically representative picture of the entire country. Extrapolation to other populations within Papua New Guinea and abroad should be taken with care.

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more remote villages. This has impacted the data, biasing numbers like income, spending, and education upwards making it appear more different from Kimbe, the other predominantly rural location in the study, than it otherwise would be.

<sup>3</sup> *'The Financial Competency of Low Income Households in PNG'*, Sibley Jonathan, Pacific Financial Inclusion Programme, UNDP Pacific Centre, 2013

<sup>4</sup> For a full explanation of the sampling process, please see our final report on the Financial Diaries project in Papua New Guinea

## EXPENDITURES

During the study period, active respondents spent a total of PGK 212,389. This amounts to each respondent spending PGK 103<sup>5</sup> per week on average. However, that number masks significant disparities between the three research sites. As **Table 3** shows, respondents in Kimbe spent only PGK 55 a week while respondents in Goroka and Port Moresby spent between two and a half and three times as much.

**Table 3: Average Weekly Expenditures**

Location	Goroka	Kimbe	Port Moresby
Expenditures in kina (Respondent/Week)	134	55	182
Percent Above/Below Average	+30%	-47%	+77%

The data suggest that food purchases constituted the greatest share of any individual's spending, regardless of research site; however, as discussed below, there was variation in the share of spending on food across the research sites. Household items, consisting of a broad range of common items like batteries, candles, paper, etc., were the next largest category. The third most common category of spending was on recreational substances like betel nut, cigarettes, tobacco, beer, and alcohol (see **Figure 1**).

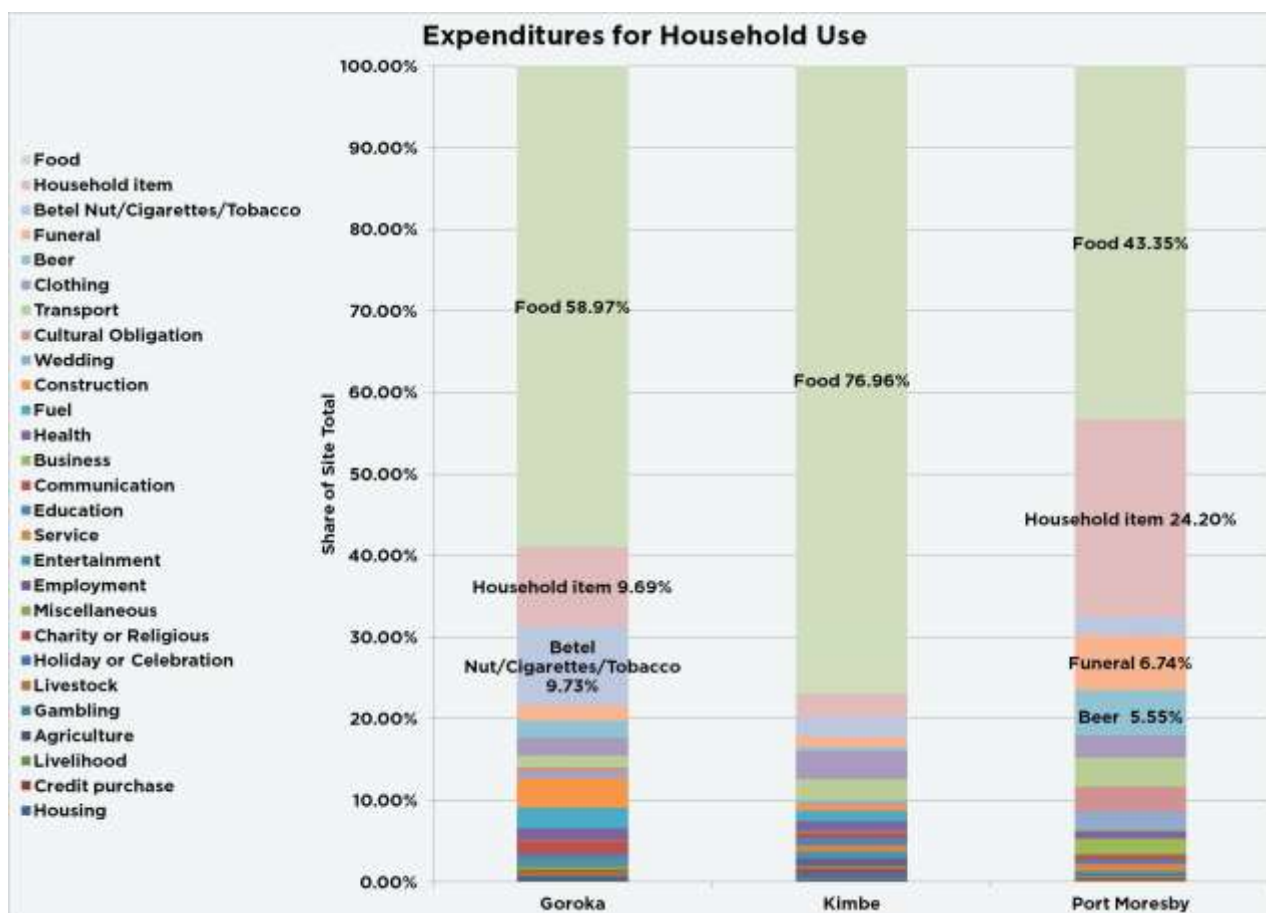
Purchases of food, household items, and recreational substances were so large that other expenditure categories were dwarfed, both in terms of absolute volume and shares of total expenditures. These three categories accounted for 79 percent of total expenditures. By comparison, education and health together accounted for only 1.8 percent of total expenditures across all three sites; clothing and fuel contributed about 2.8 percent and 1.1 percent respectively.

Note that the percentage of food purchases in Goroka and Port Moresby were likely biased downwards because the majority of the expenditures in the "household item" category (about 90 percent) consisted of the aggregated item "groceries," which was composed of everyday goods *and* food. The percentage of food purchases was likely biased slightly downward in Kimbe also, but the impact was not nearly as significant since household items accounted for less than three percent of total expenditures there.

Additionally, the share of wallet analysis looked at all three research sites by a variety of different sub-groups – gender, inflow behavior, household size, etc. The analysis tended to return similar patterns across each group. Consequently, this analysis focuses on each research site as an aggregated unit except in cases where a unique and interesting pattern emerged.

<sup>5</sup> As of October 29, 2013, PGK 1 = \$.36 so every PGK 10 is approximately \$3.60

Figure 1: Household Expenditures by Research Site\*



\*For this and other figures, only categories with at least a five percent of the total are labeled. However, the legend at left outlines all the major categories seen in the figure.

### Focusing on Food

Within the food category, it initially appears as if there was a considerable amount of variation in the amounts of money people were spending and the quantity in which they were buying different items, but closer analysis shows that respondents were relying on a common diet of rice and vegetables (see **Table 4**). Chicken purchases, which made up a large share of total expenditures, were likely a luxury purchase as indicated by its high share of volume and lower transaction count.<sup>6</sup> Information from the in-depth interviews with respondents supports this view: one respondent said that she would like to purchase protein but often could not.

<sup>6</sup> There were 224 transactions involving an expenditure on chicken in the study.

Table 4: An Overview of Food Expenditures<sup>789</sup>

Count of Transactions		Total Amount Spent		Average Amount Spent	
Item	Count	Item	Amount	Item	Average
Rice	782	Rice	14,391	Chicken	33
Multiple Item Purchase	766	Multiple Item Purchase	11,143	Egg	31
Tinned fish	560	Vegetables	8,893	Flour	20
Vegetables	487	Chicken	7,458	Sausage	19
Noodles	303	Tinned fish	4,700	Rice	18

### Recreational Substance Spending

When food is excluded from the expenditure analysis (along with the grocery component of “household item”), recreational substances emerged as the second highest expenditure category, far ahead of other spending categories.<sup>10</sup> Its placement was driven predominantly by the consumption of betel nuts in Goroka and beer and alcohol consumption in Port Moresby.

Of all the money spent on these recreational substances in Goroka, 61 percent was spent on a transaction that involved betel nut; 67 percent of all money spent on recreational substances in Port Moresby was spent on beer or alcohol. Together, these purchases totaled roughly PGK 9,500 – more than was spent on vegetables or chicken.

On the surface, this seems to support the common perception that recreational substances specifically betel nut, cigarettes and tobacco are a public health issue in Papua New Guinea. However, the data do not provide enough detail to support or refute this perception definitively. For instance, of the 149 active respondents in the sample, 109 had at least one recreation transaction related to beer, alcohol, or betel nuts. And while that sounds high, 10 respondents accounted for over 50 percent of total betel nut and beer expenditures while

<sup>7</sup> Data in Table 4 are based on items that were purchased at least 20 times during the study period, excluding the generic sub-category “food” because it was commonly used for bulk food purchases and included a variety of items.

<sup>8</sup> “Multiple item purchase,” while another aggregated category, is significantly narrower than the “food” category. As listed in the definition section, a multiple item purchase consisted of a purchase of one to five items, but the variation in this category was massive and included everything from purchases of Tang to sheep. Its inclusion here is mainly for the reader to understand the numerous transactions involving only a few small items that respondents were engaging in.

<sup>9</sup> It is important to note that this analysis only includes items that respondents purchased. Thus, food acquisition resulting from non-commercial agriculture at a home (like a private garden or chicken farming) is not included.

<sup>10</sup> The only potential contender – “funeral” in Port Moresby with 6.7% of expenditures – was anomalously high, driven by a single PGK 4500 transaction.



38 respondents accounted for over 90 percent of expenditures. Additionally, the same group of respondents accounted for 30 and 58 percent of individual transactions, suggesting that they were over-represented in the purchase of betel nuts and beer respectively.<sup>11</sup>

### TRANSACTION PATTERNS OVER TIME

Financial Diaries provide a unique insight into transaction patterns over time. While the present study did not cover a full calendar year, the study did cover the key periods before and after the Christmas and Easter festive seasons.

**Table 5** shows the average amount spent by each respondent during a week in a given month. The data include all three sites. Overall, expenditures from week to week were reasonably consistent. Some clear peaks and valleys emerge. For instance, overall spending was higher during the holiday periods around Christmas and Easter; there was a notable increase in spending on cultural obligations during this period. In addition, education expenditures reduced over November and December, leading up to and during the period of the annual school summer holiday. Reflecting the previous analysis, food, household items, and recreational substances make up a large percentage of average monthly spending.

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<sup>11</sup> It should be noted that many of these frequent users were also sellers of betel nut. It is possible that these “household” expenditures were actually business expenditures that were miscoded or misreported. It is also possible that the heavy users are also large buyers of the product.

Table 5: Average Outflow Transaction Value (PGK) and from November to May\*

Categories	Nov N=56	Dec N=345	Jan N=328	Feb N=328	Mar N=329	Apr N=301	May N=64	Total
Agriculture	0.00	0.36	0.02	0.36	0.00	0.00	0.00	0.14
Beer or Alcohol	0.39	3.32	4.73	1.80	4.07	4.27	11.94	3.83
Betel Nut, Cigarettes, or Tobacco	5.20	4.61	4.17	2.75	4.96	5.66	6.43	4.51
Charity or Religious	1.13	0.24	0.24	0.62	0.27	0.31	0.00	0.35
Clothing	2.84	2.29	3.11	2.53	4.20	4.54	5.39	3.37
Communication	0.20	1.50	0.42	0.56	2.11	0.76	2.05	1.09
Construction	0.00	6.48	0.04	0.00	0.43	0.33	0.66	1.45
Cultural Obligation	0.00	2.14	0.40	0.21	4.16	3.14	0.47	1.88
Education	1.61	0.07	0.10	2.68	0.67	0.68	0.00	0.83
Entertainment	3.88	1.11	0.66	0.43	0.28	0.76	0.16	0.74
Food	73.23	67.76	54.82	63.36	74.89	74.76	110.47	68.79
Fuel	0.04	0.77	0.98	1.80	1.45	1.72	3.53	1.37
Funeral	0.00	1.30	1.63	1.89	17.80	1.40	5.39	4.70
Gambling	0.00	0.11	0.06	0.02	0.06	0.40	2.06	0.19
Health	1.62	0.70	0.82	1.11	1.59	2.30	2.51	1.34
Household item	8.23	14.99	18.87	16.19	20.17	14.45	30.49	17.17
Livestock	0.89	0.04	0.63	0.00	0.00	0.00	3.44	0.28
Service	0.13	0.11	0.48	0.37	1.48	1.22	1.88	0.74
Transport	0.79	3.29	4.37	4.57	2.40	2.20	3.59	3.31
Wedding	0.00	0.14	0.61	1.22	3.34	2.36	2.66	1.50
<b>Total</b>	<b>104.21</b>	<b>118.24</b>	<b>99.38</b>	<b>103.29</b>	<b>146.59</b>	<b>122.69</b>	<b>194.79</b>	<b>120.35</b>

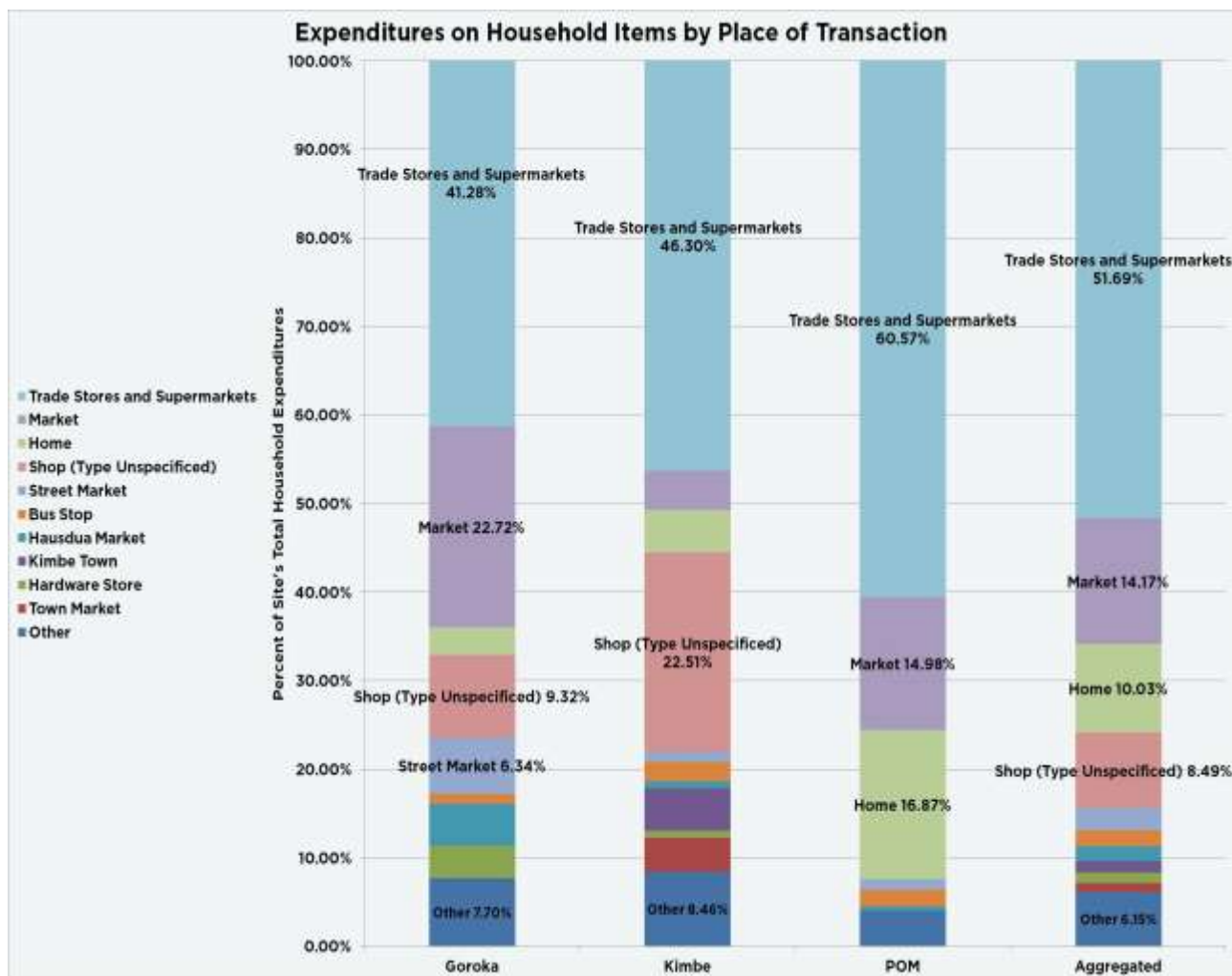
\*The “N” referenced in each month is equal to the sum of the number of weeks of data reported by each respondent during that time period.

### COMMON TRANSACTION PLACES

The data suggest that respondents purchased the majority of their home goods at formal businesses (“Trade Stores and Supermarkets”). As elaborated on later, this pattern suggests a significant opportunity to integrate financial services at these locations. The data also show that people supplemented these formal store purchases with those from informal shops – the types that are found attached to a house or on the side of a road – and from markets (see **Figure 2**).

While the percentages shown below are for volumes of expenditures at each place, they are also representative of the breakdown of number of transactions performed at each site. The patterns presented are also relatively consistent by gender and occupation.

Figure 2: Household Expenditures by Place of Transaction\*

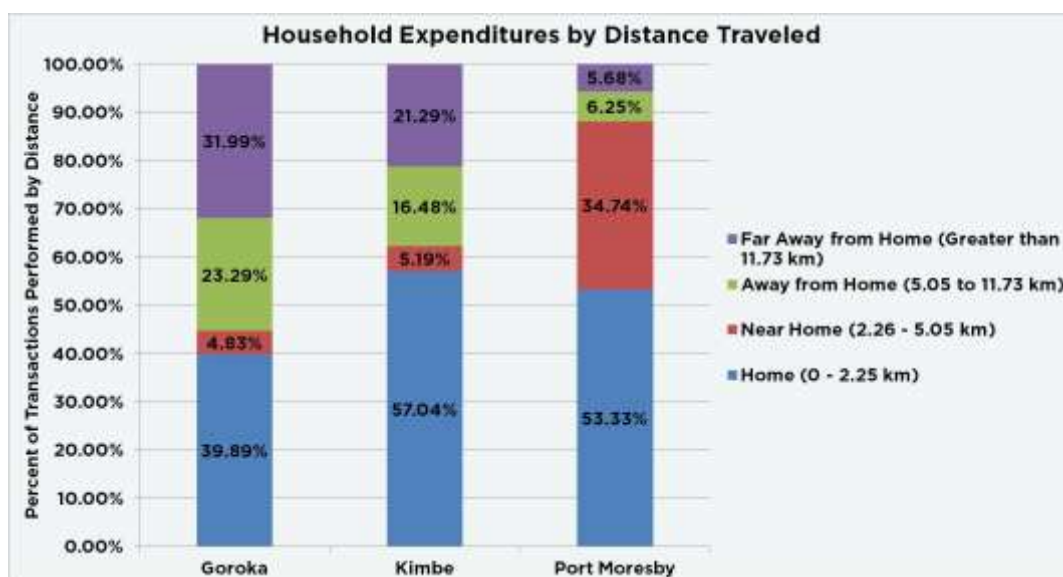


\*For this and other figures, only categories with at least a five percent of the total are labeled. However, the legend at left outlines all the major categories seen in the figure.

### TRANSACTIONS BY DISTANCE

What is especially interesting, though, is the wide geographic area over which respondents reported spending money. Respondents from Goroka reported having to travel at least five kilometers to complete the bulk of their transactions. Respondents in Kimbe showed a similar pattern, reporting that more than a third of their transactions occurred beyond five kilometers from the home. Only in Port Moresby, the most urban research site, did the bulk of transactions occur near the home (see **Figure 3**).

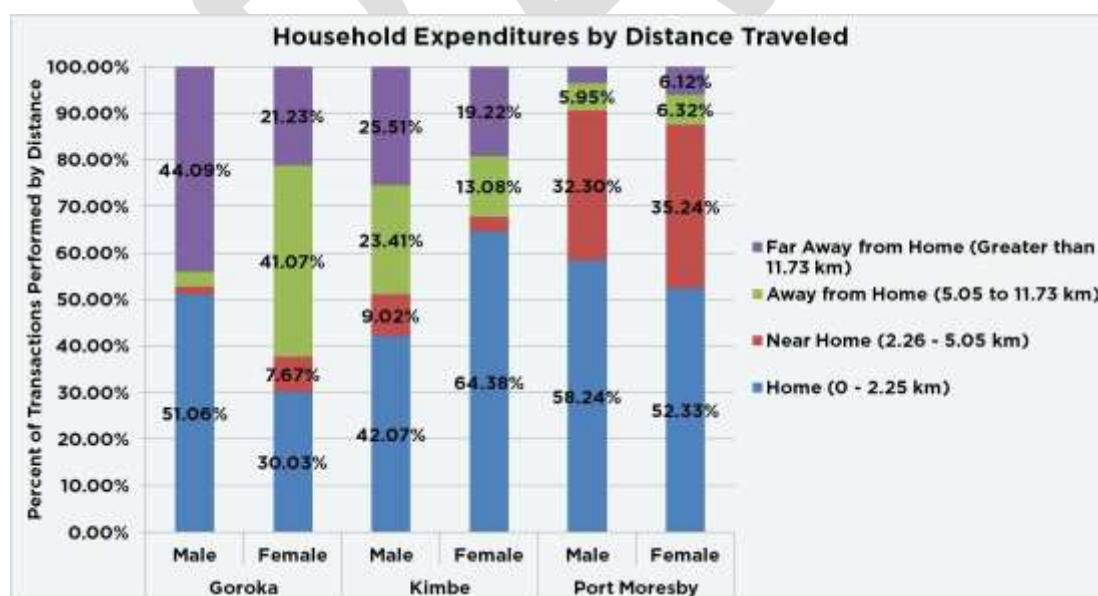
Figure 3: Household Transactions by Distance Traveled



### Distance by Gender

Distance traveled is one area in which there was distinct variation between men and women. While the nominal distances varied significantly across research site, the data suggest that males traveled farther relative to females at the same site to perform the bulk of their transactions except in Port Moresby where distance traveled was balanced between genders (*see Figure 4*).

Figure 4: Household Transactions by Distance and Gender\*



\*For this and other figures, only categories with at least a five percent of the total are labeled. However, the legend at right outlines all the major categories seen in the figure.

**Table 6** shows that, with the exception of Goroka, men tended to transact in larger amounts per transaction than women. In some cases, like distances greater than 11.73 km in Kimbe and Port Moresby, the average value of male transactions was more than double that of females. The data also suggest that men tend to spend almost twice as much when

performing transactions close to home, even though that is where women tend to perform the bulk of their transactions.

**Table 6: Average Outflow Transaction Value (PGK) by Distance and Gender\***

	Gender	Home (0 - 2.25 km)	Near Home (2.26 - 5.05 km)	Away from Home (5.05 to 11.73 km)	Far Away from Home (Greater than 11.73 km)
Goroka	Male	16.03	NA	NA	18.75
	Female	6.29	16.91	13.88	22.15
Kimbe	Male	16.54	25.46	22.52	45.20
	Female	8.29	15.88	14.52	16.13
Port Moresby	Male	30.18	24.28	69.55	239.81
	Female	15.75	17.27	29.56	41.45
	<b>Grand Total</b>	<b>13.90</b>	<b>18.37</b>	<b>18.78</b>	<b>27.59</b>

\*Due to attrition in the sample, there were an insufficient number of transactions by males in Goroka in the Near Home and Away from Home categories to draw meaningful conclusions. For that reason, those figures are omitted here.

## IMPLICATIONS

The results of the share of wallet analysis have two major implications for financial service providers, mobile network operators, policy-makers and other stakeholders in Papua New Guinea as they think about how to promote financial inclusion.

First, stakeholders interested in building formal financial networks like those built to support mobile money systems should take note of the concentration of expenditures that occurred in trade stores. These locations may be prime sites for the provision of financial services using point-of-sale devices or mobile phones. This is especially true when one considers that people are traveling a variety of distances to complete transactions at these stores. On average, a respondent traveled more than five kilometers twice a week to perform a transaction that was larger than those they performed near their home. This may present an opening to market mobile money or branchless banking initiatives based on the benefits of not having to carry medium to large sums of cash over comparatively long distances.

Second, our data suggest that stakeholders need to think hard about the gender dynamics of financial control when one considers this distance information. By not doing so, one could miss out on potential market activity because services were not marketed to the right people in the right place. For instance, financial services targeted at people who travel farther from home to perform their transactions will be more likely to reach men than women based on the expenditure and distance patterns described here. To include women in the financial system, stakeholders will have to take into account their propensity to perform localized transactions.