

**Food security in Solomon Islands:
Preliminary results from a survey
of the Honiara Central Market**

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Abstract

This article presents preliminary descriptive data findings from a study focusing on vendors and produce at the Honiara Central Market (HCM), the largest fresh food market in Solomon Islands and the main source of fresh produce for Honiara's growing population. The study aims to map the supply of fresh produce to HCM to provide baseline data that will enable the assessment of risks and vulnerabilities to the human and food security of Solomon Islands. This article first presents an overview of the relationship between human security and food security in Solomon Islands. It then provides a summary of the study method, before presenting descriptive data on HCM vendors and their produce. Data show that female vendors are most common at HCM by a factor of four to one over males. Most vendors are married and sell the food they grow. Most vendors sell leafy vegetables, fruits or root vegetables, and stay for between half a day and a day at market. The majority of most produce categories come from East Guadalcanal, and are transported by truck to HCM. The data supports the contention that the HCM provides an opportunity for rural farmers to earn income through the sale of produce as well as helping urban Honiara residents meet their food security needs.

Keywords: Solomon Islands; food security; human security; Honiara; gender

Introduction

Human security and food security in Solomon Islands

From 2003-2017 Australia invested AUD3bn into making Solomon Islands stable through the Regional Assistance Mission to Solomon Islands (RAMSI) (Doherty, 2017). During the RAMSI presence the focus of Australia's support changed over time from an initial concern with imposing the rule of law following 'the Tensions', to statebuilding and economic growth (Hawksley and Georgeou, 2015: 141). In evaluating the short and long-term outcomes of internationally funded

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state-building projects, a human security approach takes us beyond the state-centric securitisation discourse to acknowledge the various causes of threats and vulnerabilities to peace, stability and sustainable development. A human security paradigm thus allows us to explore the implications of the Food and Agriculture Organization (FAO) identifying Solomon Islands as achieving its Millennium Development Goal 1C hunger target (halving the proportion of the chronically undernourished), yet retaining Oceania's highest incidence of undernourishment at 11.3 per cent of the population (FAO, 2015: 47).

Human security is a complex and multifaceted paradigm that developed in opposition to orthodox state-centric notions of security. It places the interests of individuals and communities ahead of those of the state. An example of a human security approach is outlined in former UN Secretary General Kofi Annan's 'In Larger Freedom Report' (Annan, 2005), which emphasised non-traditional threats to people's livelihoods, such as HIV/AIDS, sanitation, civil conflict and environmental degradation, over military threats from other states. UN General Assembly Resolution 66/290 recognises the concept of human security as an approach that "brings together the three pillars of the United Nations in an interlinked and mutually reinforcing manner: development, human rights and peace and security" (FAO, 2016: 3).

A conceptual framework of human security allows us to explore changes in people's lives and livelihoods, including political tensions, stemming from differential access to resources (such as land and water), changing social patterns of food production and land usage, gender-based violence, and access to markets (Buzan, et al., 1998; Curley & Wong, 2008). These factors highlight the relationship between human security and food security, one "predicated on the idea of the full realization of the human right to adequate food, as a fundamental human right" (FAO, 2016: 3). The relationship between food and security is often neglected in traditional security studies, which generally views the establishment of law and order as sufficient for creating future security (Hawksley and Georgeou, 2014; 2015; 2016). Food security thus becomes a conflict prevention and mitigation tool (FAO, 2016) in post-conflict societies such as Solomon Islands.

Some 80 percent of Solomon Islanders live in rural areas (FAO, 2012: 124). In the 2009 census remittances from extended family (wantoks) working in the capital Honiara, other urban centres, or overseas, were important as a source of income for around a quarter of all Solomon Islands households, but the sale of fish, crops and handicrafts contributed on average to forty-four per cent of household income across the country (SIG, 2009: 113-114). The smallholder agricultural sector is thus an important contributor to national development, and to the food security of all Solomon Islanders. An AusAID funded study (2006: 27) estimated that income derived from sale of market produce ranged from being a minor contributor to household income generation to the main source of cash income. UN Women (2009; 2014) have identified markets as a driver of household income generation for women in the Pacific through the Markets for Change Program.

Almost a decade on from the 2009 census, and with continued population growth and squatter settlements, the population of a 'Greater Honiara' in 2018 is quite likely now well over 100,000 (Georgeou and Hawksley, 2017: 69; Keen et. al. 2017: 19). Solomon Islanders mostly produce their own food, and country-wide only eleven percent of households are not involved in growing any crops. This figure rises in urban centres to forty-three percent, but in Honiara this increases even further to fifty-seven percent (SINSO, 2009: 118). Honiara residents have a range of options, depending on income, when it comes to access to food. The HCM is the main site to purchase fresh produce, but imported food products, especially rice (FAO, 2012: 131) and instant noodles, are readily available from trade stores and supermarkets, and are price competitive. The HCM operator (Honiara City Council) does not allow imported foods to be sold at the HCM, and produce at HCM is cheaper than in supermarkets. Honiara's urban residents, especially those on

limited budgets, are thus increasingly reliant on farmers from the rural hinterland bringing food into the city to sell.

Changing consumption patterns and rapid urban population growth in Honiara are key threats to food security in Solomon Islands (FAO, 2012: 125-126), components exacerbated by a rise in the cost of living. ADB figures (2016: 4) suggest food prices rose eleven per cent between 2009 and 2015 (Georgeou and Hawksley, 2017: 69) placing greater stress on the food security of people living in Honiara and other urban areas because of their greater dependency on cash incomes to purchase fresh food produce.

Food insecurity negatively affects the nutritional status of individuals and the status of communities. Changes in dietary habits in Honiara are having negative impacts on health and well-being for segments of the population, as evidenced by the rise of non-communicable diseases, which are now the leading cause of death in Solomon Islands (World Bank, 2016: 1).

The Study

This study aimed to map the supply of fresh produce to HCM to provide baseline data that will enable the assessment of risks and vulnerabilities to the human and food security of Solomon Islands. The objective of the study was to collect data on: the origins and diversity of the fresh produce sold; the mode of transport to market; the volume and quality of fresh produce sold; how seasonal variation affects food supply and volume; and gendered activity surrounding the sale of produce. Results will build on previous studies by UN Women (2009; 2014) to inform policy makers concerned with transport, infrastructure, gender and economic development.

Research Design

The research adopted a quantitative research design. The CI (Georgeou) and Solomon Islands research team adapted Shanks et. al.'s (2015) validated Farmers' Market Audit Tool (F-MAT) to fit the Solomon Islands context and then adjusted it to meet the main aims of the study. This process was focused on ensuring questions would be understood in the local context, and that what was being asked could be quantified and coded. The latter aspect presented a challenge given the diversity and fluidity of measures used at HCM for the produce sold (i.e. bunches, piles, stacks).

The local enumerators underwent one day of survey protocol training to ensure consistency in survey application and to address any queries about the survey instruments and data collection procedures. The survey instrument was then tested and validated by the Solomon Islands enumerators at HCM on Friday 30 June, 2017.

Research Site

Honiara Central Market (HCM) (see Figure 1) is one of two markets operated by Honiara City Council (HCC). The original HCM Market Haus roofed building was constructed in 1996 with the assistance of Japanese funding (Moore and Bouro, 2017). HCM has space for around 1,000 stalls, about half of which are under cover. HCM has sections for selling fresh produce and cooked produce. For the purposes of this study only vendors of fresh produce were surveyed (see Table 1).

Figure 1: Market Haus layout

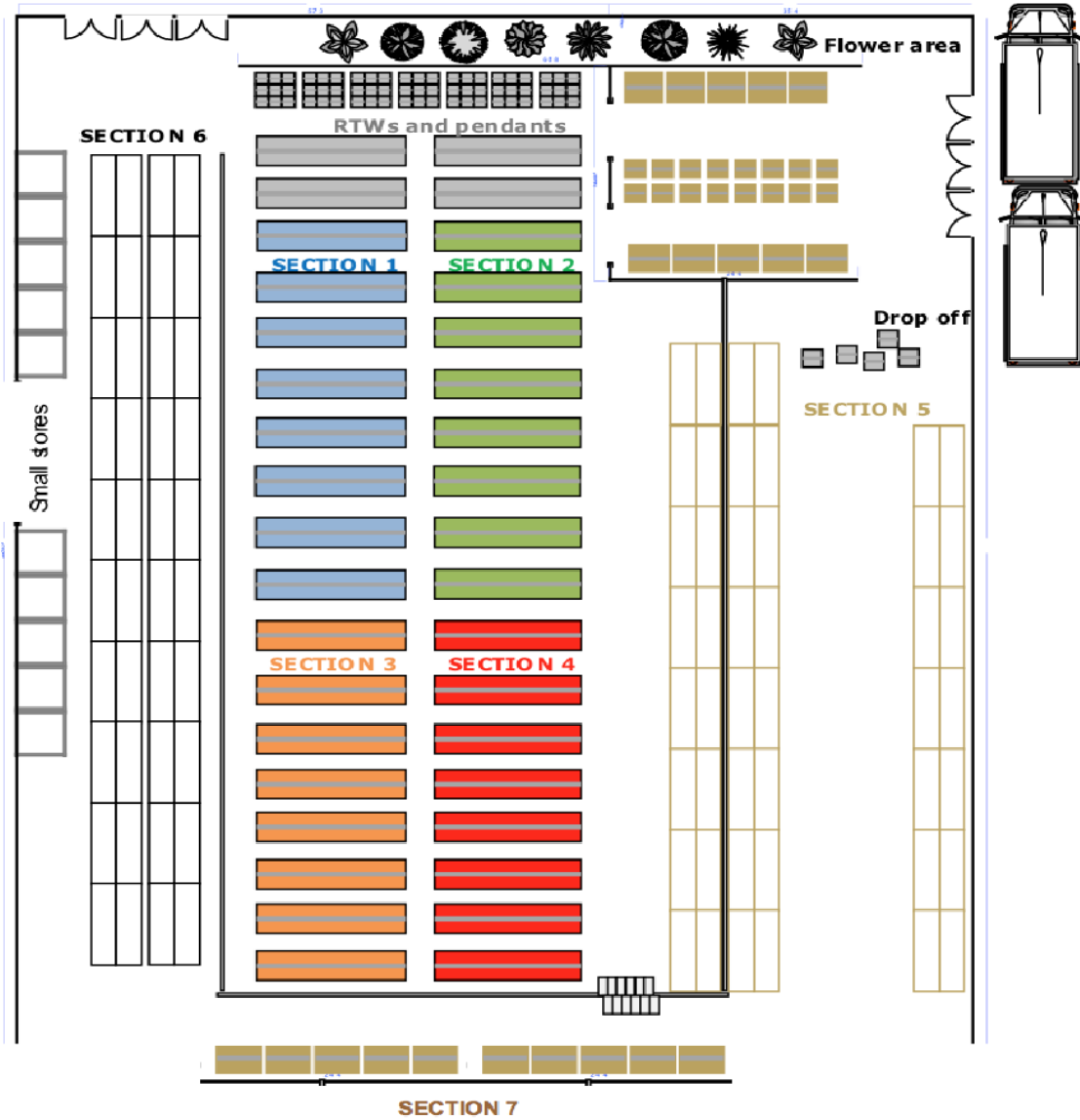


Diagram adapted from Genova et .al (2010). The covered areas include Sections 1-4, and Section 7. Part of Section 5 is also covered.

Table 1: HCM Sections and Vendors surveyed

Section	Produce Sold	Surveyed (Y/N)
Section 1	Fresh fruit and vegetables	Y
Section 2	Fresh fruit and vegetables	Y
Section 3	Cooked food	N
Section 4	Cooked food	N
Section 5	Fresh fruit and vegetables	Y
Section 6	Fresh fruit and vegetables, shell fish; crabs	Y
Section 7	Fresh poultry; 'eskies' of reef fish, squid and crayfish	Y
Left of Section 7	Fresh tuna and other whole fish	Y
Car park to the left of the Market Haus diagram)	Firewood, building materials and furniture	N
Above Sections, 1, 2 and 5	Clothes, handicrafts and flowers	N

Method

Data collection was achieved through a paper and pencil survey of fresh produce vendors at HCM administered by the four local enumerators every Friday over a twelve-week period between 7 July 2017, and 22 September 2017. Friday was selected for data collection for three reasons: (1) Friday is the second busiest market day after Saturday, so there were a large number of vendors present; (2) Friday is not the busiest trading day, so vendors had more time to speak to enumerators without interfering with their trade; and (3) Friday has a high flow of fresh produce moving through the market.

Vendors were approached in the HCM during the day by the enumerators. The enumerators informed the potential project participants in Solomon Islands Pijin about the research and the limitations of the research prior to requesting consent to participate in the survey. Oral consent was sought from all participants. Participation in the survey was voluntary and potential participants could decline on the spot without repercussion.

Approximately 500 vendors sell fresh produce at the HCM each Friday, and a minimum of 120 surveys were completed each survey day. Cochran's (1963) formula was used to calculate the minimum number of surveys required in order to obtain a sample large enough to make statements about a population with a given degree of confidence. The minimum sample size was 683, however the research team collected 1214 surveys, 987 of which contained usable data about the quantity of food. The high number of surveys provides a more accurate account of the produce and vendors at HCM during the survey period than previous surveys, i.e. Genova et. al. (2010). The information gathered provides a snapshot of the HCM and its vendors on sixteen different days during changing seasons and crop cycles.

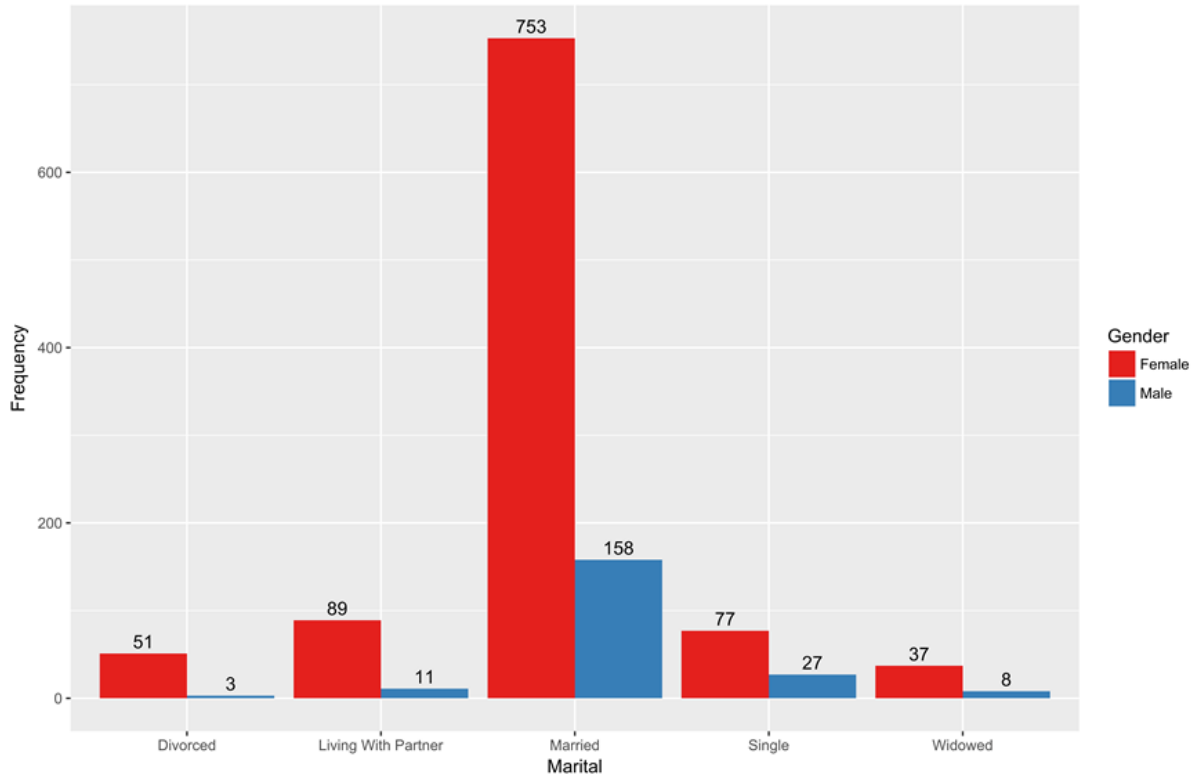
Preliminary results

Vendor profile

Of the total 1214 vendor respondents, 1007 (82.9%) were female and 207 (17.1%) were male. Women are thus the most numerous vendors at HCM, a finding that correlates with Genova et al.'s (2010) figure of women comprising 88% of vendors at HCM. Married people comprise 75%

of all HCM vendors. Figure 2 shows that 753 of the 1007 (74.6%) female vendors were married, 77 were single, 51 were divorced, 89 were living with their partner and 37 were widowed. Of the 207 male vendors, 158 were married (76.3%), 27 were single, 11 were living with their partner, eight were widowed and three were divorced.

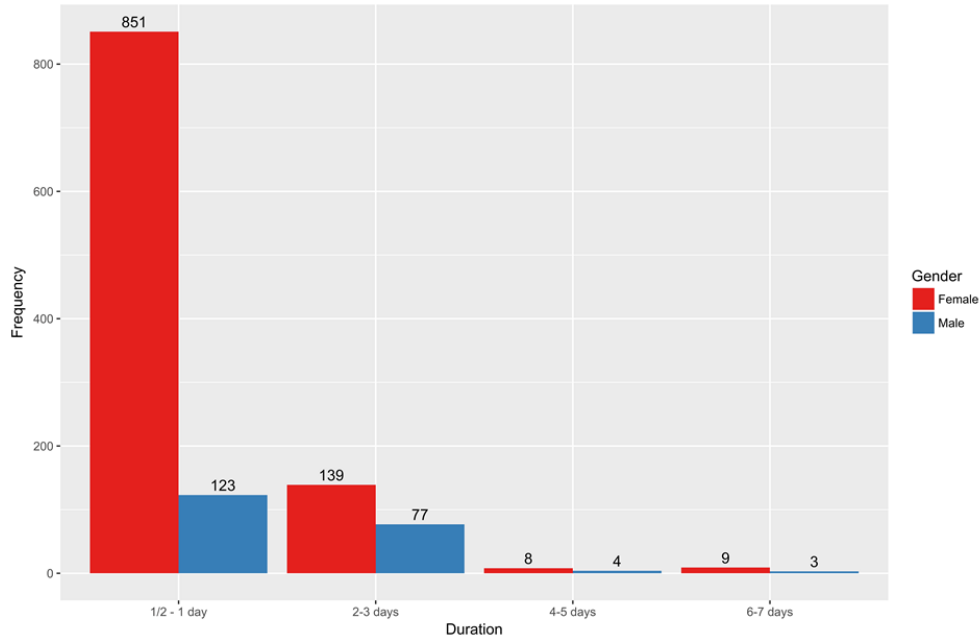
Figure 2: Vendor Relationship Status



Duration of stay at HCM

Genova et al. (2010: 8) found that the length of time vendors stayed at market ranged between one and six days. Data in Figure 3 below suggests lengthy stays are uncommon as a large majority of vendors, (974/1214 or 80.2%) stayed at the HCM for between a half to one day, with the second most common length of stay being 2-3 days (216/1214 or 17.8%). Very small numbers (21/1214 or 1.7%) reported staying over three days.

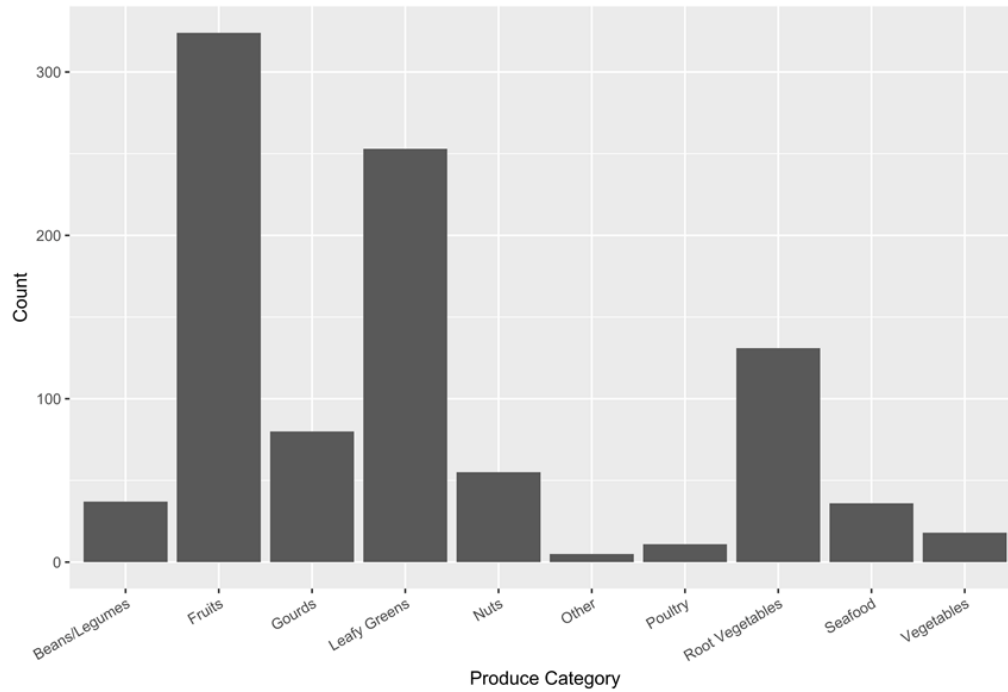
Figure 3: Duration of Stay at HCM



Produce sold

The two most prevalent produce categories as measured by the number of vendors present are Fruits and Leafy Greens (both over 250). Apart from these, Root Vegetables are also relatively common (120 vendors), however, the majority of other produce categories have relatively low numbers of vendors (mostly under 50).

Figure 4: Total count of vendors selling goods by produce category



Vendor length of stay by produce type

Figures 5 and 6 show that in all categories of produce except for seafood, the vast majority of vendors stay at market for half a day to one day. Over half of the seafood vendors spent two to three days at HCM with their produce. Vendors of root vegetables have longer stays than for other crops, a possible indicator of a bulk crop from a distant region that takes a while to sell, i.e. taro from Temotu.

Figure 5: Time spent counts by produce category

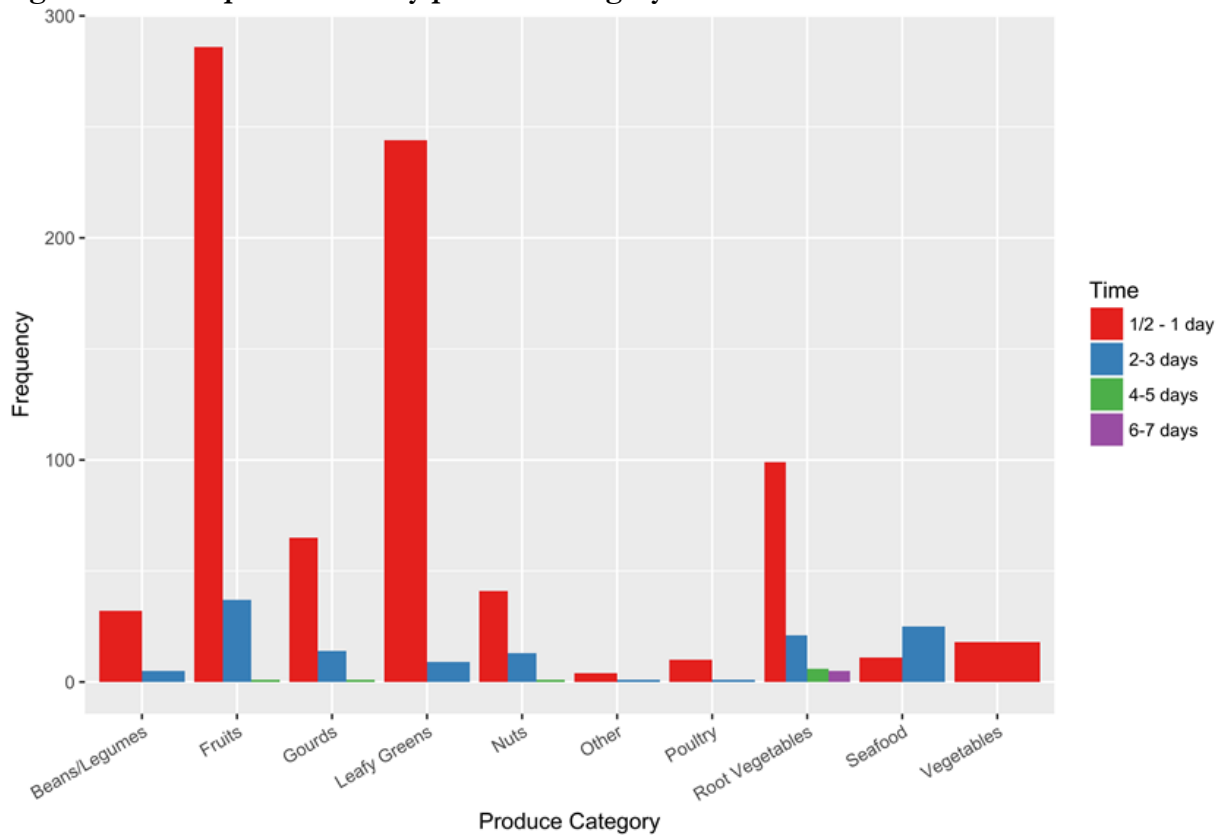
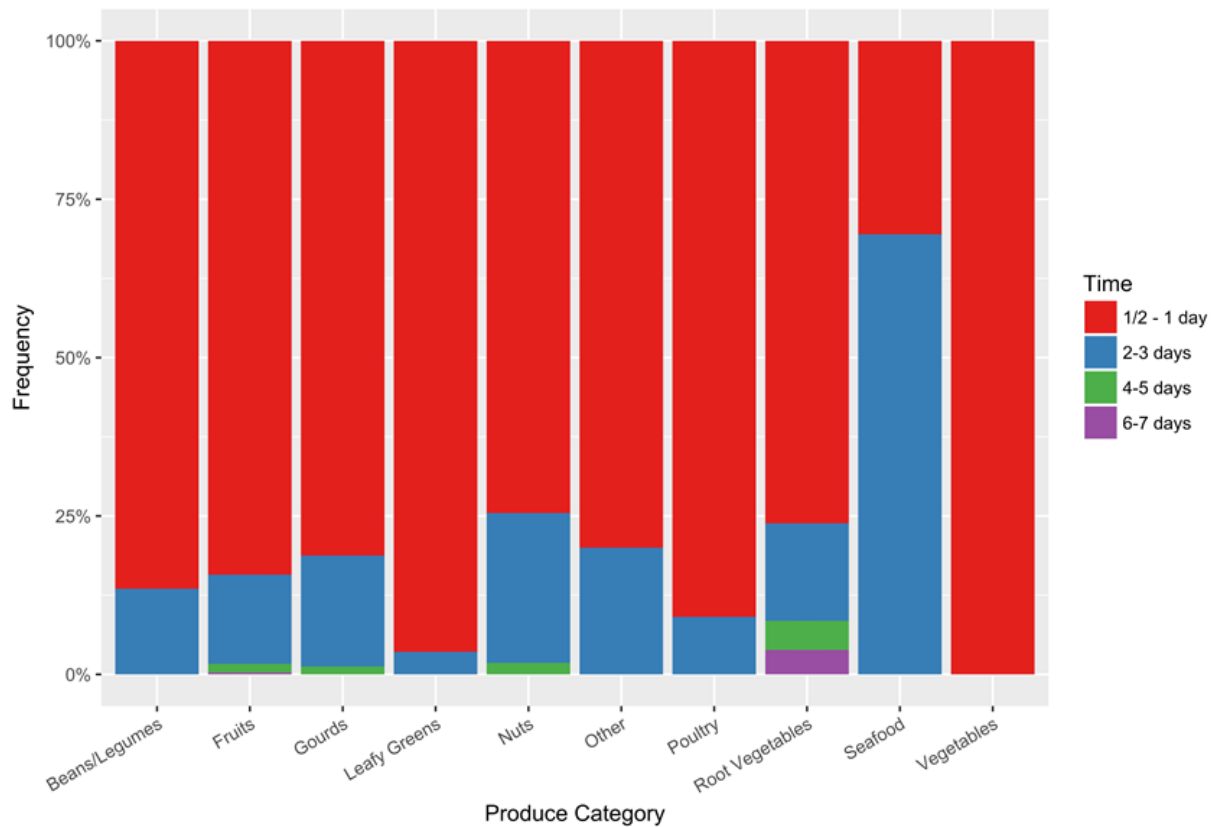


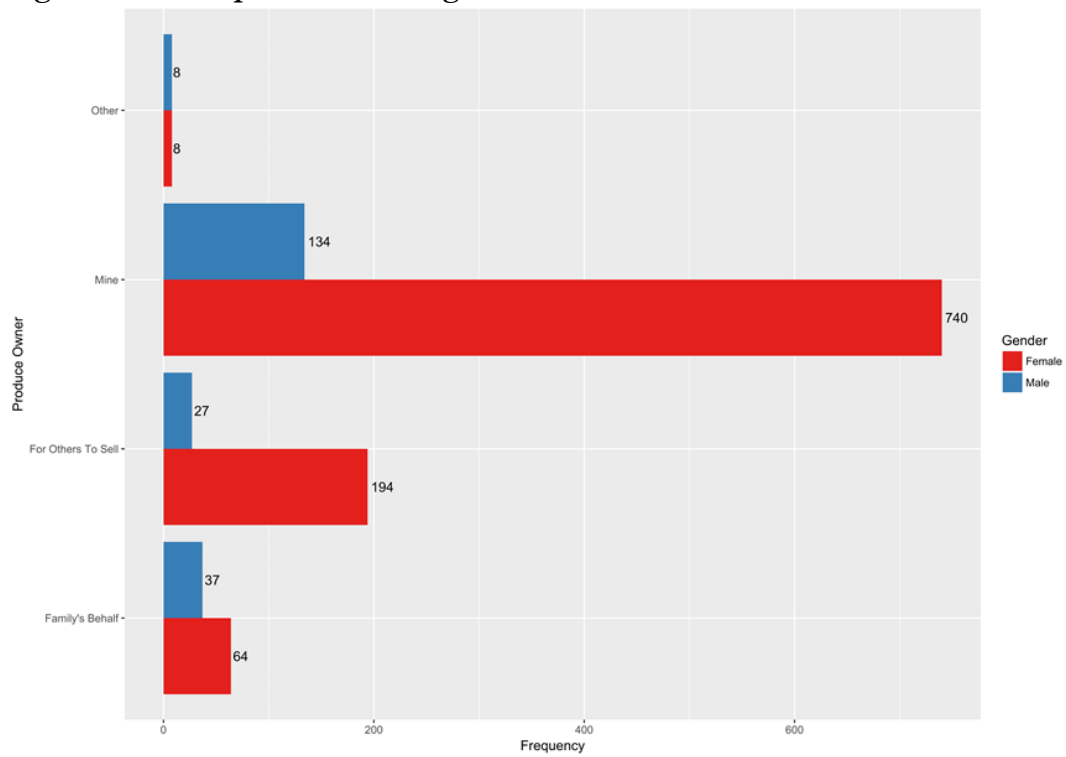
Figure 6: Time spent percentage by produce category



Whose produce is being sold?

Over seventy per cent of vendors were selling their own produce (874/1214), with 221 resellers (about 18%) the next largest group, while 101 vendors (8.3 %) were selling on behalf of their families. Production for market sale appears to be thriving, yet the role of the resellers remains significant. In a 2015 pilot study of food production and community sustainability on Savo Island, resellers were identified as having both positive and negative effects on vendor profits (Georgeou & Hawksley, 2017: 77-78). From the data below in Figure 7, 18.2% of vendors were resellers, lower than the 2010 study (Genova et. al., 2010: 8) that identified 29% (43/147) of vendors as resellers.

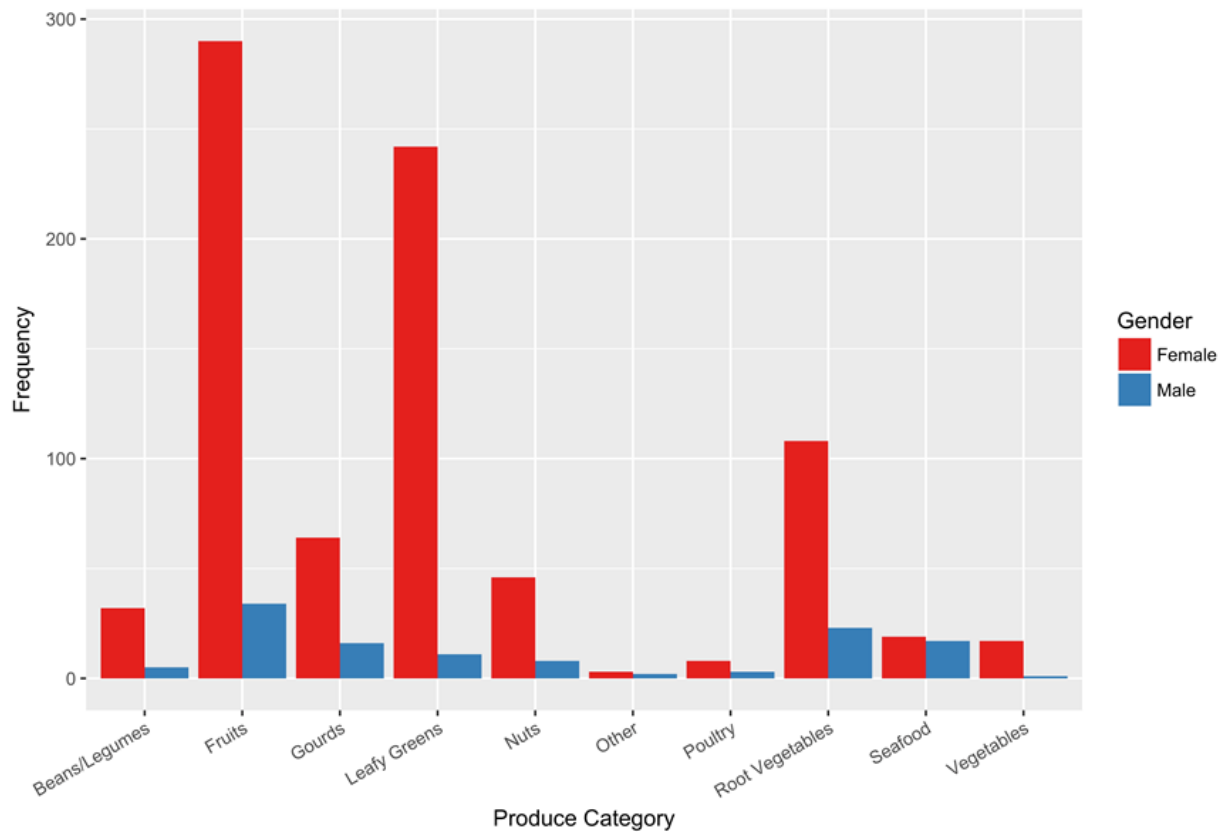
Figure 7: Whose produce is being sold?



Product type by gender

Figure 8 indicates goods commonly sold at HCM by gender and shows the majority of vendors of most goods are female. While women vendors dominate most produce groups, men make up a larger proportion of total vendors in seafood. Men dominate the ‘esky’ fish trade, while women tend to sell whole fish. The crabs and shellfish are roughly equal female to male vendors.

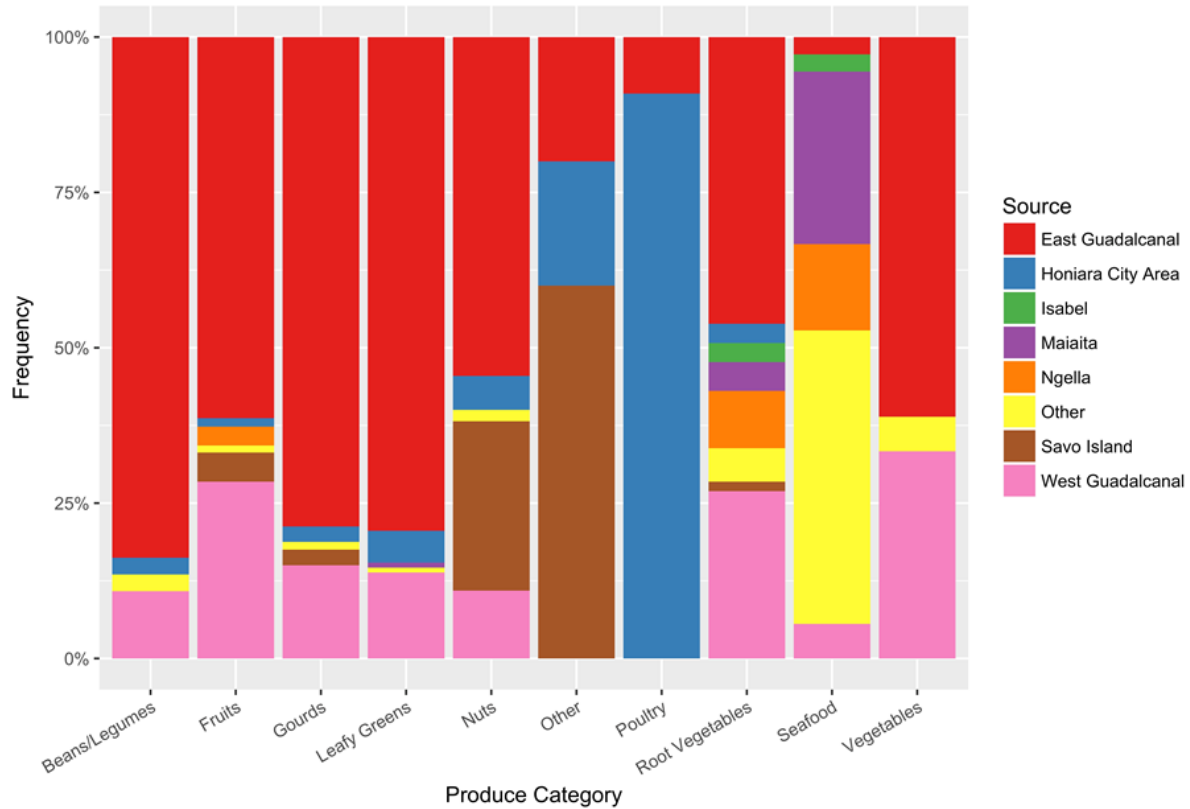
Figure 8: Gender Counts by Produce Category



Origins of HCM produce

Produce from East Guadalcanal comprises between fifty and eighty percent of produce at sale in the categories of Beans, Fruit, Gourds, Leafy Greens, Nuts, Root Vegetables and Vegetables. Produce from West Guadalcanal comprises between ten and twenty-five percent of these same categories (Figure 9). For seafood, the origin of the produce is more evenly distributed, including Malaita (crabs, shells), Ngella (reef fish) and whole tuna from Western Province, and possibly trawler by-catch (‘Other’). A proportionally large number of Nuts and Other includes Savo apple from Savo Island. Honiara and its environs dominate the poultry trade.

Figure 9: Source Proportions by Produce Category



Produce by source and weight

Figure 10 shows the origins of different produce types and their quantity. Figure 11 shows the weight of different produce by origin. East Guadalcanal dominates the sale at HCM of leafy greens and root vegetables. Fruits are sourced more equally from both East and West Guadalcanal. Savo Island produces a large proportion of nuts, while seafood has multiple origins. Figures 10 and 11 put the much smaller sample sizes for Other and Poultry in perspective, and reinforce the dominance of East Guadalcanal in market production for most categories of produce.

Figure 10: Total quantity of produce by source

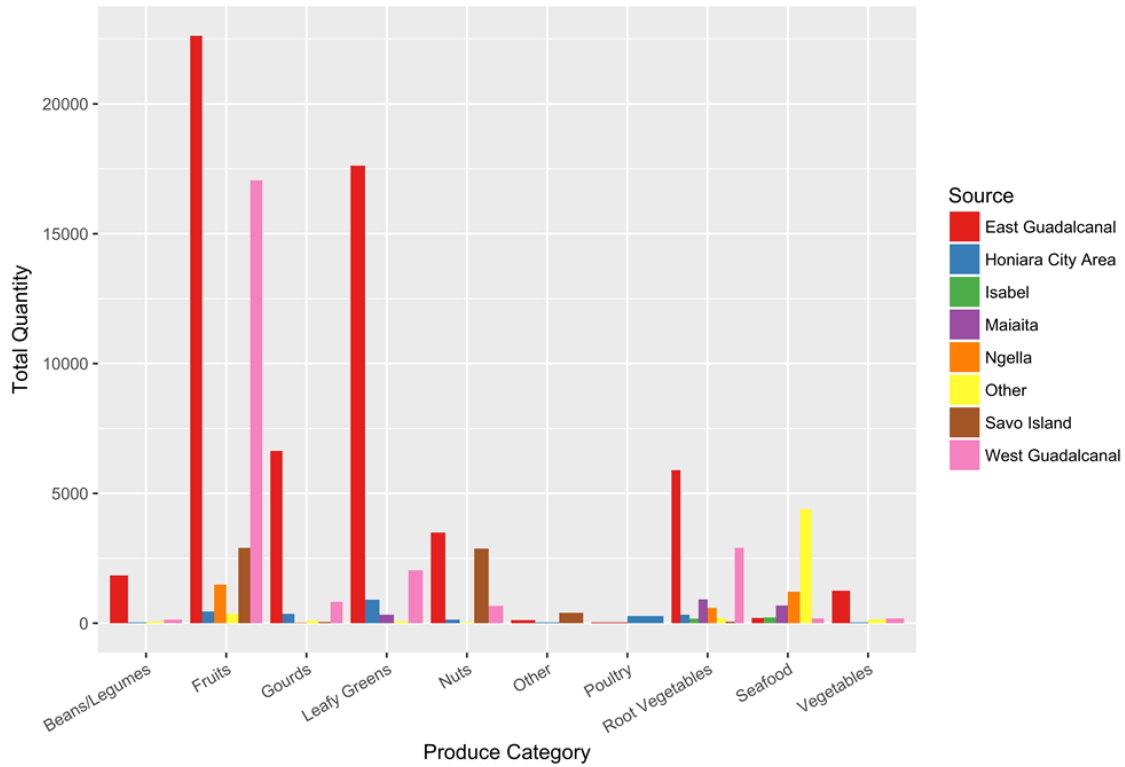
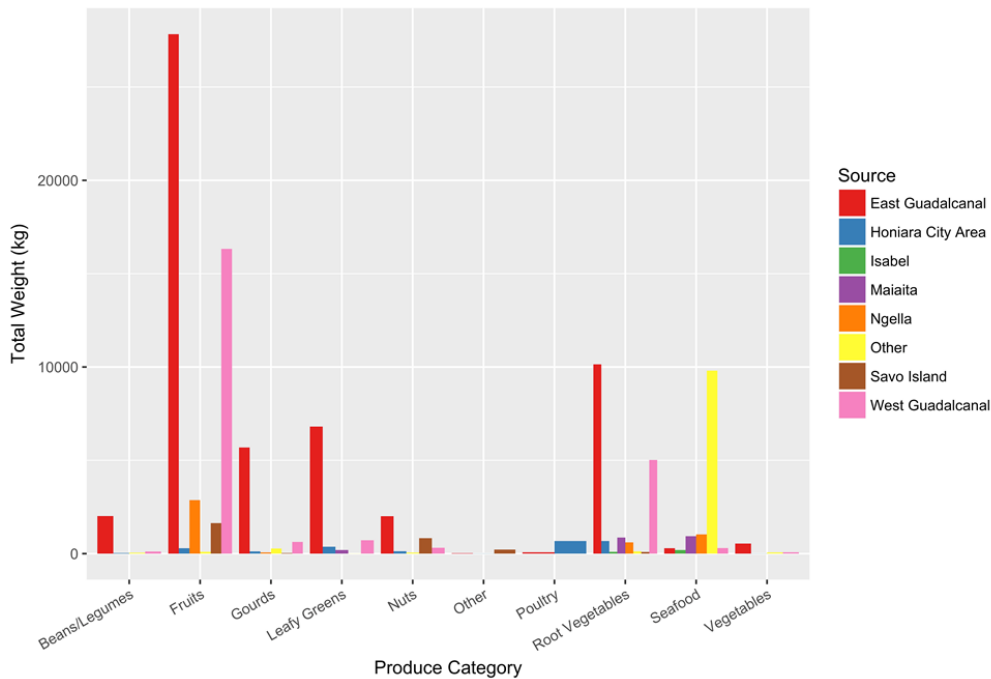


Figure 11: Total weight of produce by source

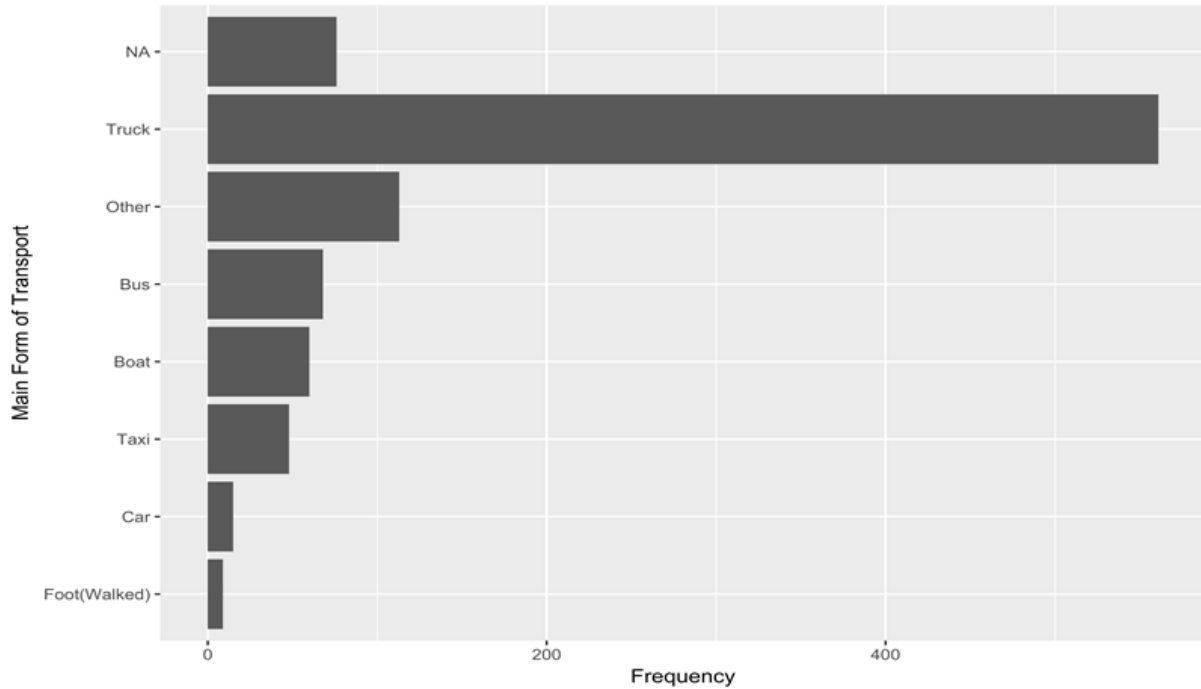


Vendor Modes of Transport to HCM

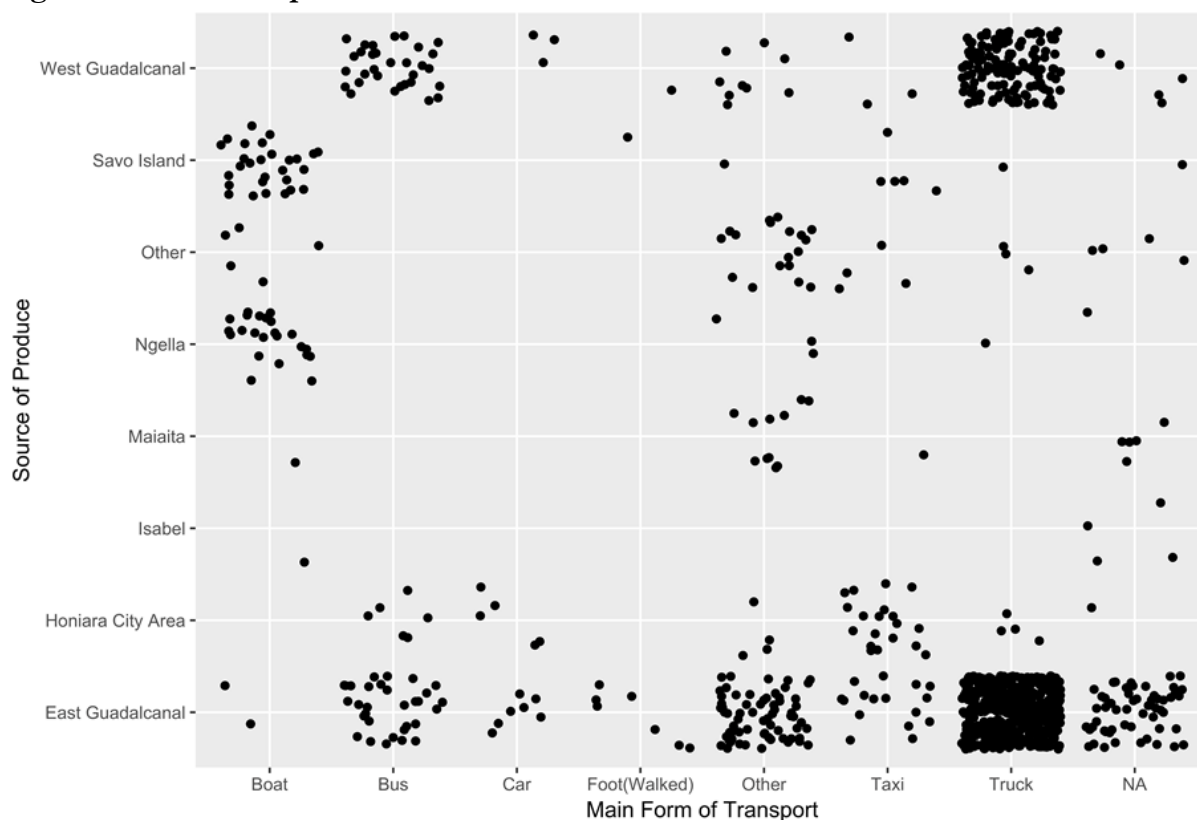
Bringing fresh food to HCM is often difficult as the sealed road transport infrastructure of Guadalcanal is limited. The main road runs across the northern coastal plain from Mangakiki on

the West Coast through Honiara and to the end of the Guadalcanal Palm Oil Limited Plantation at the Mberande river bridge (Fieldnotes 2014). Unsealed roads extend past these points. Truck is the most common form of transport in getting produce to market (Figure 12). Transport by boat (Outboard Motor Boat —OBM) is often expensive and can result in damaged produce (Georgeou et. al. 2015). In 2016 and 2017 HCC and Solomon Islands Government made improvements to the main road (Mendana Avenue), including dedicated bus bays at bus stops, which have enabled easier access to the market (Alu/HCC, 2017; Fieldnotes 2017). The ‘Other’ includes Ferries and small launches.

Figure 12: Main forms of transport (regions)



Charting every observation in the data set (Figure 13) makes it possible to see where each type of transport is most common. Trucks are very common for East and West Guadalcanal, however buses along these roads are also being used by a substantial number of vendors from these regions. OBM is more common for Savo Island, Ngella and ‘Other’ locations, which includes Isabel and South Guadalcanal. The ‘Other’ in mode of transport includes ferries from Malaita, small ocean-going boats for East Guadalcanal, ships from Temotu and Western Province.

Figure 13: Main transport densities

Discussion and conclusion

Women make up the majority of sellers, and the majority of resellers. The prevalence of women as vendors and as resellers supports findings of earlier studies that found produce sold at HCM is likely a significant contributor to household income for families in rural Solomon Islands (Pollard, 2000; Knott, 2009: 112).

While this study did not seek to discover the profitability or otherwise of market activity, previous studies (Georgeou et. al., 2015) and economic logic would suggest that the distances travelled by some vendors to reach market, and the relative difficulty of some journeys, indicates that some vendors are making substantial amounts of money from selling produce at market. While we know that transport costs affect pricing for market sale, further research on the profitability of small-scale agricultural activity linked to HCM would demonstrate the relative financial benefit gained from growing produce for market.

East Guadalcanal is the origin of over half of all produce sold at HCM and West Guadalcanal is the next largest contributor to the quantity of produce. Preliminary data indicates that growers in all regions bring what they can to market, and outside of specific local produce (i.e. Savo apple, megapode eggs and to an extent nuts from Savo Islands; mud crabs and pipis from Malaita), regions tend to grow the same produce. Further study is required to establish the relative percentage of produce grown specifically for market, as opposed to surplus produce brought to market, or even if people are selling their own staple foods for cash at market and then buying other foods (such as rice).

The majority of vendors grow their own produce and stay at HCM for relatively short lengths time. This indicates that the vast majority of vendors arrive daily and that their produce is

fresh. HCM thus presents an opportunity for rural communities to earn money by selling fresh food to Honiara residents. In doing so, the human security of rural populations is increased through generating cash income, while the food security of urban dwellers is enhanced by having access to fresh food. The relative affordability of food at HCM will be revealed by future data analysis from the consumer survey, but HCM is widely regarded as having cheaper food than supermarkets. Further study is required to understand which factors affect food supply at HCM, however the weather (including floods) can affect the condition of roads and bridges (Georgeou et al 2015).

Preliminary data and previous studies have shown the dominance of women in food production and market sale, but not in the transport of food to market. Gender is therefore a central issue in food supply and food security for Solomon Islands. Future donor development aid programs aimed at improving rural agricultural production and urban food security should therefore be informed by a gendered understanding of value chains.

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