



THE NATIONAL
RESEARCH INSTITUTE
PAPUA NEW GUINEA

DISCUSSION PAPER

DO WOMEN FACE
DIFFERENT BARRIERS THAN
MEN WHEN PARTICIPATING
IN SMES?

EMPIRICAL EVIDENCE FROM
PAPUA NEW GUINEA

Vinod Mishra
Francis Odhuno
Russell Smyth

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Abbreviations & Acronyms

- ADB Asian Development Bank
- AFI Alliance for Financial Inclusion
- DNPM Department of National Planning and Monitoring
- GDP Gross Domestic Product
- GEM Global Enterprise Monitoring
- IFC International Finance Corporation
- PNG Papua New Guinea
- PNGNRI Papua New Guinea National Research Institute
- SMEs Small and Medium Enterprises
- UNDP United Nations Development Program

Abstract

We examine gender differences in perceived obstacles to operation and expansion, and options for business expansion, for a sample of formal small and medium enterprises (SMEs) in Papua New Guinea. We find some evidence of differences in perceived obstacles to operation and expansion and options for business expansion between firms with, and without, majority female ownership. Specifically, we find that firms with majority female ownership are more likely to find access to professional services, such as accounting and legal services, as well as taxation rates, an obstacle to expansion, while they are less likely to find remote location of business, an obstacle to operation and expansion. We also find that firms with majority female ownership are more likely to view marketing and advertising services, and less likely to view technology, including internet access, as an option to improve business. Overall, though, our results suggest that for most obstacles to expansion and options to improve business, gender differences are likely to channel through other attributes such as differences between genders in terms of human capital. This means that when we control for a wide range of other factors gender differences disappear for most obstacles and options for expansion. Our results imply that policies designed to promote SMEs in Papua New Guinea should not overly focus on gender issues, but instead should address obstacles to expansion, and develop initiatives to support SME expansion more generally.

Ch. 1 Introduction

Women represent the fastest-growing group of entrepreneurs in the world (Brush et al., 2006; Brush & Cooper, 2012). Women have been establishing enterprises internationally at double the rate of men (Heilman & Chen, 2003; Mauchi et al., 2014). In 2010, 187 million women either established or operated enterprises globally, meaning that 42 percent of entrepreneurs in the world were women (GEM, 2010). In the same year, there were between eight and ten million formal female-owned small and medium enterprises (SMEs) in emerging markets, representing somewhere between 31 and 38 percent of SMEs in emerging markets (IFC, 2011). Female-owned SMEs make important contributions to employment growth and investment in research and development in a number of countries across the world (Brush et al., 2006; Brush & Cooper, 2012; IFC, 2011; Mauchi et al., 2014).

There are multiple benefits of greater female involvement in SMEs. As the International Finance Corporation (IFC, 2011) notes, female involvement in SMEs assists to reduce gender inequalities. SMEs are important vehicles to promote employment opportunities and create wealth. Female participation in SMEs contributes to realising these objectives while, at the same time, narrowing the income gap between men and women. Greater female involvement in SMEs also assists to realise broader development goals. Income earned from SMEs gives women a source of outside earnings and improves their intra-household bargaining position (Duflo, 2003, 2012; IFC, 2011; Piesse & Simister, 2003). This has positive intergenerational effects because women are more likely than their partners to invest income earned outside the home in their children's education and health (see e.g. Duflo, 2012; IFC, 2011; Schultz, 2002; Thomas, 1994).

Yet, despite the growth in female-owned and controlled SMEs and the economic benefits that this brings, there are obstacles to realising the goal of greater female involvement in SMEs. According to the World Bank's (2016) latest edition of *Women, Business and the Law*, female entrepreneurs are most likely to cite lack of access to finance as the first, or second, largest barrier to developing their business. Consequently, female-owned businesses tend to be undercapitalised relative to their male-owned equivalents. There are also often a number of non-financial barriers as well related to the broader business environment that may affect male and female-owned businesses differently. These include gender differences in access to market information, social networks, human capital and training and cultural norms, and differential effects of the legal and regulatory environment¹.

In this paper we use data collected by Tebbutt Research (2014) on 1,117 formal SMEs in all 22 provinces of Papua New Guinea (PNG) to examine gender differences in: (i) ease of accessing credit, (ii) perceived obstacles to operation and expansion and (iii) views on options to improve business². PNG makes an interesting case study with which to examine the barriers to greater female participation in SMEs. PNG has high levels of gender inequality. In 2014, PNG was ranked 158th of 188 countries on the United Nations' Gender Development Index (UNDP, 2015) and in 2015 ranked 116th of 173

¹ We discuss the literature pertaining to these obstacles in more detail in the next section.

² Formal SMEs are businesses that are formally registered with the Investment Promotion Authority. We do not consider, in this paper, SMEs in the informal sector. Tebbutt Research (2014) also surveyed 521 unregistered SMEs, but the raw data for this subsample is not currently available for public use.

countries for gender differences in legal barriers to doing business (World Bank, 2016). Despite strong recent economic growth — PNG gross domestic product (GDP) grew on average 9.4 percent per annum over the five-year period 2011–2015 inclusive (ADB, 2016) — women have generally not benefited from high growth rates (Drucza & Hutchens, 2008). And female participation in SMEs in PNG is relatively low. According to the data collected by Tebbutt Research (2014) there is at least 50 percent female ownership in just 26 percent of SMEs and majority female ownership in 9 percent of SMEs in PNG. Research from the PNG Business Coalition for Women suggests that narrowing the gender gap in employment could increase household income by 14 percent by 2020³.

The PNG government is aiming to increase female participation in SMEs. The PNG Development Strategic Plan 2010–2030 (DNPM, 2010a) expresses a general commitment to improving gender equality, including a commitment to improving the female-to-male enrolment rate that will translate to higher levels of human capital among women. PNG Vision 2050 (DNPM, 2010b) includes initiatives such as expanding microfinance with the objective of improving female access to credit for entrepreneurial activities. A new SME Policy 2016 and accompanying SME Master Plan 2016–2030 were adopted in February 2016 that provide more detail about the operational requirements of delivering the specific targets or desired outcomes of PNG Vision 2050 and PNG Development Strategic Plan 2010–2030 (Ministry of Trade, Commerce & Industry, 2016a,b). The SME Policy 2016 identifies the main factors hindering female participation in SMEs as lack of access to finance, lack of skills and entrepreneurial training, lack of access to information and markets, lack of support from government agencies and unfair business environment.

A series of programs have been introduced to increase female participation in SMEs, including entrepreneurial skills development and training in basic skills such as cooking, handcrafts and sewing (Drucza & Hutchens, 2008). There have been attempts to develop women's business forums to address women's lack of opportunities to network and improve information flows to women about market opportunities (Drucza & Hutchens, 2008). The Women in Business Initiative was established in 2013 to improve opportunities for women to move into senior management positions, better equip workplaces to deal with the consequences of family and sexual violence and develop a mentoring program that connects Australian business women with their counterparts in PNG (Blacklock, 2013). The Asian Development Bank (ADB, 2015) is focusing on improved female access to microfinance and programs to improve financial literacy among women in PNG. In 2014, the PNG Women's Micro Bank, which is the first female only micro bank in the Pacific, and only the sixth in the world, was established to improve women's access to finance (Mishra & Smyth, 2016).

We contribute to the literature in the following ways. First, we contribute to the broader literature on obstacles to greater female involvement in SMEs. A large literature exists on barriers to female entrepreneurship for several countries, but this is largely based on case studies and surveys collected from a small number of female entrepreneurs (see e.g. De Vita et al., 2014; Moses et al., 2016 for reviews). Our analysis is based on a survey of 1,117 formal SMEs containing a mixture of female and male-owned and controlled firms. Compared with previous studies to examine barriers to female entrepreneurship, the survey we use has a much larger sample size and greater number of respondents who are male and female owners, so we can examine gender differences.

Second, we provide the first such empirical evidence for PNG. Previous research for PNG has examined barriers to female participation in SMEs based on interviews with female

³<http://bcfw.org.pg/empowering-women/> (last accessed 7 July 2016).

entrepreneurs (Anderson, 2008; Druza & Hutchens, 2008; Wang, 2014) or drawn conclusions based on presentation of descriptive data (Tebbutt Research, 2014). There are, however, no studies that have analysed, or quantified, gender differences in perceived obstacles to SME expansion or views on options to improve business.

Third, we contribute to the public policy debate about the status of women in SMEs in PNG. Specifically, our results speak directly to the 2016 SME Policy on the main obstacles to greater female participation in SMEs, as well as broader debates in PNG about obstacles to increasing gender equality (Druza & Hutchens, 2008).

Broader literature on barriers to female entrepreneurship

A large literature has evolved that examines barriers to female entrepreneurship in general, and participation in SMEs in particular, for myriad countries. It is generally accepted that the barriers faced by women are larger than, and in some cases are different from, those faced by men (Naidu & Chand, 2017) and that women in developing countries face more barriers than those in developed countries (Guma, 2015). The barriers that women face are also heterogeneous; they differ based on age, culture, education, ethnicity, geographical region and marital status (Azmat, 2013; Godwin et al., 2006; Naidu & Chand, 2017; Thomas & Mueller, 2000).

Several studies suggest that the biggest barrier to female participation in SMEs is lack of access to finance (see e.g. AFI, 2016; Guma, 2015; IFC, 2011; Mauchi et al., 2014). Some studies have found that banks discriminate against female borrowers in the incorrect belief that women are a higher credit risk, despite evidence that women's loan repayments are higher than men's (IFC, 2011). Other studies suggest that women lack confidence in negotiating with bank managers (Niederle & Vesterlund, 2007). In some cases, budding female entrepreneurs are unable to access finance because the law states that women are not able to enter into legal transactions (World Bank, 2016). Where the law allows women to borrow, they often lack collateral, such as title deeds to housing that will typically be in their husband's name, or find it difficult to borrow because of lack of business, or managerial, experience. Reflecting difficulties in accessing finance, female-owned SMEs tend to be undercapitalised (Guma, 2015).

Another barrier for many women is poor access to market information and lack of availability of business information and advice more generally. Several studies have found that budding female entrepreneurs lack access to information about business and markets (see e.g. Adkins et al., 2013; Allen & Truman, 1993; Mauchi et al., 2014; Naidu & Chand, 2017). Lack of access to such information reflects, at least in part, lack of social networks that are a source of credit and market information (Guma, 2015). Social capital has been shown to have a positive effect on the success of female entrepreneurs (Lawal et al., 2009). However, because women have lower social positions than men in many developing countries (Moses et al., 2016), they lack the social networks of men (Adkins et al., 2013; Allen & Truman, 1993; Bogren & von Friedrichs, 2016; Klyver & Grant, 2010). Another contributing factor is the lack of strong female role models (Klyver & Grant, 2010; Moses et al., 2016).

A further reason for low female participation in SMEs is low levels of human capital and lower training than men. Using firm-level data for 73 countries, Amin and Islam (2015) find that countries with higher school enrolment rates for women have a higher proportion of female managers. Other studies find that women have less education and training opportunities than men and that this contributes to lower female participation in SMEs (see e.g. Majenga & Mashenene, 2014; Mauchi et al., 2014).

One barrier to participation in SMEs that is largely gender specific to women is lack of family and spousal support. For example, Majenga and Mashenene (2014) in a sample of female-owned SMEs in Tanzania found that women who lacked their husband's support,

and women who had husbands who interfered in the operation of the business, were less likely to be successful. Lack of spousal support is critical in societies in which men hold the title deeds, without which women cannot access credit. In many societies, opportunities for women to participate in SMEs are limited by the prevalence of gender stereotypes and the gendered division of labour (Mauchi et al., 2014; Majenga & Mashenene, 2014). Several studies point to multiple demands on women's time creating work-life conflict (see e.g. Bedeian et al., 1988; Guma, 2015; Naidu & Chand, 2017). In patriarchal societies women have primary responsibilities for home duties, which limit the amount of time that they can allocate to running a business (see e.g. Birley, 1989; Fasci & Valdez, 1998; McGowan et al., 2012).

The gendered division of labour is reinforced by cultural norms in patriarchal societies, reflected in slogans such as 'the man is the breadwinner' or 'a woman's place is in the home'. Cultural norms make female participation in business less culturally and socially acceptable and portray female entrepreneurs as seeking to take over 'leadership' from their husband (Mauchi et al., 2014). For example, based on a survey of 160 female entrepreneurs in Fiji, Naidu and Chand (2017) found that gender stereotypes and cultural barriers — whereby entrepreneurship was seen as a masculine activity — were the biggest barriers to female participation in SMEs in the formal sector. In another study, Ahmad (2011) found that in six Pacific countries, including PNG, the main reasons that women were not formalising their businesses were demands on their time due to work-life conflict and that 'culturally, women are in general not expected to become successful in business' (p.427).

There is widespread evidence to suggest that, irrespective of gender, high costs to entry hamper the creation of firms in the formal sector and stymie entrepreneurship (see e.g. Klapper et al., 2006). Bureaucratic red tape pushes SMEs into the informal sector (Kavan, 2013). However, legal and regulatory barriers to participation in the formal SME sector are often higher for women than men. The World Bank (2016) found that in over 75 percent of the 173 countries that it examined, economic opportunities for women are impaired by one or more differences in the way that laws affect men and women. Examples are inheritance laws and property rights that favour men over women, making it more difficult for women to access credit (IFC, 2011). Several studies find that bureaucratic red tape hinder opportunities for women to participate in the formal sector, pushing them into the informal sector (Jamali, 2009; Wang, 2014; Yousafzai et al., 2015). The problems generated by bureaucratic red tape for women are exacerbated by their lower levels of human capital and appropriate business training that impair their ability to understand the paperwork.

Literature on barriers to female entrepreneurship in PNG

The literature on barriers to female participation in formal SMEs in PNG suggests that many of the factors identified in the broader literature on barriers to female entrepreneurship are relevant to PNG⁴. As in other patriarchal societies, there are strong cultural norms that make it more difficult for women to become involved in business in the first place (ADB, 2012; Druza & Hutchens, 2008; Tebbutt Research, 2014). As Druza and Hutchens (2008, p.3) put it, 'PNG women operate in "a man's world" which makes it hard for them to do business'. Women interviewed by Druza and Hutchens (2008) and Tebbutt Research (2014) reported that a major constraint on their entrepreneurial activities was that they were expected to work in the home, which limited their opportunities to develop social networks. Women often require support from their husbands to be successful. For example, as one female entrepreneur interviewed by Tebbutt Research (2014, p.156) noted,

⁴Parts of this section draw on Mishra and Smyth (2016) who provide an overview of the barriers hindering female participation in SMEs in PNG.

‘she was fortunate that her husband supported [her] as without his approval to start her business it would not have been culturally acceptable for her to proceed’. Similarly, Druzca and Hutchens (2008, p.3) suggest that those women who are successful in PNG, ‘have supportive husbands and family (or female friends) and have a strong character’.

Compared with men, women in PNG have lower levels of human capital and training (ADB, 2012; Druzca & Hutchens, 2008; Mishra & Smyth, 2016). Fifty percent of adult women in PNG are illiterate and the enrolment ratio is skewed in favour of men (ADB, 2012). This has been shown to have flow-on effects that hinder female participation in formal SMEs. For example, there is evidence that, compared with men, women in PNG have greater difficulties understanding government regulations (Druzca & Hutchens, 2008), reduced capacity to market products (Anderson, 2008) and are more likely to be forced into the informal sector (Kavan, 2013; Wang, 2014). Druzca & Hutchens (2008) suggest that women who are successful entrepreneurs in PNG are more likely to be better educated, which is consistent with findings in Amin and Islam (2015), although rates of female education in PNG are relatively low.

There are several factors that make it more difficult for women than men to access finance in PNG (ADB, 2012; Druzca & Hutchens, 2008). First, women in PNG have lower levels of financial literacy than men, making it more difficult for women to understand the financial reporting requirements of banks as well as resist pressure from *wantoks*⁵ (Druzca & Hutchens, 2008). Second, women tend to face greater pressure from *wantoks* for money, making it difficult for them to save or meet loan repayments (Druzca & Hutchens, 2008). Third, compared with men, it is more difficult for women to provide land as collateral for loans (ADB, 2012). Druzca & Hutchens (2008) note that often customary land tenure in PNG passes under patrilineal ownership, such that, while not universal, widows can be alienated from their deceased husband’s land by his *wantoks* and left with no land as security.

⁵ ‘*Wantok*’ system, which is fundamental to Melanesian culture, is a system of interrelationships within a clan or cultural groups. It is based on the idea that *wantoks* come from the same village or area and often speak the same language, i.e. ‘one talk’. It creates a sense of belonging whereby a member in need who is assisted by his/her *wantoks* is obligated to return favour when the need arises.

Ch. 3 SMEs in PNG

Overview of SMEs in PNG

Our overview of SMEs in PNG is based on a survey of 1,117 formal SMEs administered by Tebbutt Research (2014), which was commissioned by the World Bank and the Government of PNG as part of the SME Access to Finance Project. The survey, which covered formal SMEs in urban and rural areas across the 22 provinces of PNG was carried out between October and December 2013. The findings from the Tebbutt Research (2014) survey provide the only detailed information on SMEs in PNG.⁶ Here we also use the Tebbutt Research (2014) survey to provide a descriptive overview of female participation in SMEs and examine gender differences in access to finance and perceived obstacles to operation or expansion in SMEs.

To constitute a formal SME, Tebbutt Research (2014) needed four conditions to be satisfied; namely, be a business that is formally registered, have between 3 and 150 paid employees, have maximum borrowings of PGK 1.5 million and have an annual turnover between PGK100,000 and PGK15 million.⁷ Tebbutt Research (2014) estimates that there are between 28,323 and 32,692 enterprises in PNG that satisfy these four requirements to be defined as a formal SME.⁸ Table 1 shows the location of formal SMEs across sectors. Just under half of all formal SMEs (49 percent) are in retail trade or hospitality and tourism. Each of the other seven sectors listed in Table 1 have less than 10 percent of the total SMEs.

Table 1: Formal SMEs in PNG by sector Figure

Sector	Percentage
Retail trade	35
Hospitality and tourism	14
Motor vehicle related retail	9
Transportation	8
Construction	7
Wholesale trade	4
Professional services	3
Farming	3
Manufacturing	3
Other	14
	100

Source: Based on Tebbutt Research (2014, p.46, 165).

⁶A more recent survey of SMEs was conducted in 2015. However, the sample size was much smaller. The questionnaire was sent to 41 finalists filtered from a sample of 80 SMEs that entered the Kumul GameChangers Competition. Of the 41 target participants, 31 completed the survey. Of the 31 firms, just nine had women in senior management (see Ganesh et. al. 2015). The small sample coupled with the low number of firms with women in senior management positions make this later survey unsuitable for empirically examining barriers to female participation in SMEs.

⁷As of February 2017, 1 PNG Kina = 0.31 USD.

⁸In the rest of this paper, when referring to percentage of SMEs, we are referring to the percentage of 28,323.

Table 2 summarises some key indicators of SMEs in the formal sector in PNG, based on the estimates provided by Tebbutt Research (2014). The average number of staff employed in formal SMEs is 15.4. Just under one third (31 percent) of formal SMEs have one or more unpaid staff and the average number of unpaid staff working in formal SMEs is 1.2.⁹ Just under two-thirds of SMEs (64 percent) have one owner. Four-fifths of SMEs are indigenous owned. A little less than one in three SMEs surveyed had been operating for three years or less while the average years of operation was eight. Among owners/managers who responded to the Tebbutt Research (2014) survey, exactly half had completed either university or technical/trade school. There are no discernible differences across genders.

Table 2: Key measures of formal SMEs in PNG

Measure	Overall	Male-owned SMEs	Female-owned SMEs
Median number of staff	15.4	16	10.4
Median number of unpaid staff	1.2	1.2	1.5
Percentage with any unpaid staff	31	30	41
Percentage indigenous-owned	80	80	83
Percentage with one owner	64	61	83
Average years of operation	8	8.1	7.7
3 or less years of operation (%)	28	28	25
Highest education of respondent			
• University	32	31	33
• Trade	18	18	14
• Primary school	12	13	7
• No formal education	2	2	0

Source: Based on Tebbutt Research (2014, p.163)

Table 3: Gender of owners of formal SMEs in PNG by region and area

Gender composition	Total	Region				Area		
		Southern	Highlands	Islands	Momase	Urban	Rural	Remote
		%	%	%	%	%	%	%
A man/all men	67	64	72	61	73	68	67	63
Majority men	4	3	4	5	5	4	3	4
A woman/all women	8	9	8	8	5	9	3	4
Majority women	1	1	1	2	0	1	–	3
Equal men and women	17	23	14	15	16	15	24	21
Does not apply	3	1	1	9	–	2	3	4
Base: sample size	1,117	317	335	263	202	862	184	71

Source: Tebbutt Research (2014, p.60, Table 23).

Notes: 'Does not apply' includes ownership forms such as shareholder organisations.

⁹ Unpaid staff mainly refers to family members working in the firm or farm.

Female participation in SMEs in PNG

Table 3 shows the gender of the owner of formal SMEs surveyed by Tebbutt Research (2014), broken down by region and area. Just over two-thirds (67 percent) of formal SMEs are owned by a man or all owners are men. In a further 4 percent of formal SMEs men represent the majority ownership. In contrast, just 8 percent of SMEs have 100 percent female ownership and a further 1 percent are majority female owned. In 17 percent of formal SMEs there is equal male and female ownership; so in 26 percent of firms there is at least 50 percent female ownership. This break down is fairly consistent across areas and regions.

Table 4 presents statistics on the gender of the owner of formal SMEs surveyed by Tebbutt Research (2014), broken down by sector. Female-owned SMEs (SMEs that are wholly or majority owned by women) are over-represented in the commercial fishing (15 percent), manufacturing (14 percent) and hospitality (13 percent) sectors.

Table 4: Gender of owners of formal SMEs in PNG by sector (%)

Sector	(Base: sample size)	Gender composition (%)					
		A man/all men	Majority men	A woman/all women	Majority women	Equal men and women	Does not apply
Total	(1,117)	(67)	(4)	(8)	(1)	(17)	(3)
Construction	124	77	2	2	–	12	6
Wholesale trade	63	70	10	3	2	14	–
Retail trade	608	64	4	8	2	19	3
Retail motor vehicle	160	79	4	3	–	13	1
Hospitality	241	65	4	11	2	17	1
Transport	142	67	4	7	2	17	3
Professional services	47	72	2	2	–	23	–
Manufacturing	44	70	5	14	–	9	2
Farming	41	54	5	5	2	34	–
Commercial fishing	33	64	3	12	3	18	–
Telecoms & IT	30	77	3	3	–	13	3
Other	199	67	3	5	1	21	3

Source: Tebbutt Research (2014, p.61, Table 24).

Notes: 'Does not apply' includes ownership forms such as shareholder organisations.

Table 5: Gender of managers of formal SMEs in PNG by region and area

Gender composition	Total	Region				Area		
		Southern	Highlands	Islands	Momase	Urban	Rural	Remote
		%	%	%	%	%	%	%
A man/all men	54	43	65	53	55	52	61	86
Majority men	14	13	8	12	25	14	14	–
A woman/all women	12	14	11	16	7	14	4	–
Majority women	2	4	–	2	4	2	–	14
Equal men and women	16	25	15	14	7	17	18	–
Does not apply	1	–	1	3	2	1	4	–
(Base: Sample size)	(270)	(83)	(74)	(58)	(55)	(235)	(28)	(7)

Source: Tebbutt Research (2014, p.62, Table 25).

Notes: ‘Does not apply’ includes ownership forms such as shareholder organisations. Base is SMEs with separate management (i.e. not owner/managed forms).

Table 5 shows the gender of management in SMEs surveyed by Tebbutt Research (2014), broken down by region and area. In just under 70 percent (68 percent) of SMEs surveyed, more than 50 percent of managers were men. In contrast in only 14 percent of SMEs surveyed, more than 50 percent of managers were women. This number increases to 30 percent for SMEs in which at least 50 percent of managers were female. The proportion of SMEs with a majority of female managers is higher in the Islands and Southern regions and in urban areas, relative to rural and remote areas, particularly for SMEs with all female managers.

Table 6 shows the gender of management according to whether the SME has at least 50 percent female ownership or more than 50 percent male ownership. SMEs with at least 50 percent female ownership are more likely to have at least 50 percent female managers (58 percent), which is much more than SMEs with majority male ownership (23 percent).

Table 6: Gender of managers of formal SMEs in PNG by gender of owner

Gender composition	Total	Owner gender	
		≥50% female ownership	>50% male ownership
	%	%	%
A man/all men	54	35	60
Majority men	14	5	16
A women/all women	12	19	10
Majority women	2	2	2
Equal number of men and women	16	37	11
Does not apply	1	2	0
(Base)	(270)	(57)	(205)

Source: Tebbutt Research (2014, p.62, Table 26).

Notes: 'Does not apply' includes ownership forms such as shareholder organisations. Base is SMEs with separate management (i.e. not owner/managed forms).

Table 7 shows a breakdown of the gender of management by sector. SMEs with more than 50 percent of female managers are more prevalent in telecommunications, manufacturing, hospitality, retail trade, transport and professional services. There were no SMEs with more than 50 percent female managers in the Tebbutt Research (2014) survey in construction, wholesale trade, farming or commercial fishing. In terms of sectors with any female management, wholesale trade (4 percent) and farming (11 percent) had the least female managerial representation.

Gender differences in the reported ease of obtaining credit, perceived barriers to operation or expansion and options to improve business

Perceived barriers to operation and expansion of businesses

Table 8 depicts gender differences in self-reported barriers to SME performance and expansion. In general, there is little difference in ranking of the 27 potential barriers that male and female owner/managers face in operating, and expanding, their SMEs. Among the barriers for which there are gender differences, tax rates, which was cited by most female owner/managers (60 percent) as the number one major or moderate obstacle, was only the third most commonly cited by male owner/managers (57 percent) of SMEs in PNG. Most male owner/managers cited government corruption (58 percent) or access to finance, loans or capital (58 percent) as the most important major or moderate obstacle to expansion of SMEs. After tax rates, female owner/managers next rated difficulty dealing with banks and access to finance/loans/capital (both 54 percent) followed by unfair practices of competitors (53 percent). Government corruption was the fourth rated major or moderate concern cited by female owner/managers.

Table 7: Gender of managers of formal SMEs in PNG by sector

Sector	Gender composition (%)						(Base)
	A man/all men	Majority men	A woman/all women	Majority women	Equal men and women	Does not apply	
Total	54	14	12	2	16	1	(270)
Construction	60	23	–	–	13	3	(30)
Wholesale trade	79	17	–	–	4	–	(24)
Retail trade	56	14	13	2	14	2	(125)
Retail motor vehicle	67	15	9	3	6	–	(33)
Hospitality	56	10	14	2	19	–	(63)
Transport	52	15	7	4	19	–	(27)
Professional services	60	7	27	–	7	–	(15)
Manufacturing	41	18	18	12	6	6	(17)
Farming	89	–	–	–	11	–	(9)
Commercial fishing	50	25	–	–	25	–	(4)
Telecoms & IT	45	–	27	9	18	–	(11)
Other	47	8	16	–	24	4	(49)

Source: Tebbutt Research (2014, p.63, Table 27).

Notes: 'Does not apply' includes ownership forms such as shareholder organisations. Base is SMEs with separate management (i.e. not owner/managed forms).

Table 8: Gender differences in self-reported barriers to performance and expansion of SMEs (% , base: males = 861; females = 256)

	Major or moderate obstacle		Minor or no obstacle		Don't know / refused to answer	
	M	F	M	F	M	F
Tax rates	57.5	60.2	41.3	39.1	1.2	0.8
Difficulty leasing or buying land	56.7	52.7	43.2	46.5	0.1	0.8
Government corruption	58.6	54.3	40.6	44.9	0.8	0.8
Difficulty dealing with banks	56.5	54.3	43.1	45.3	0.3	0.4
Access to finance/loans/capital	58.3	52.4	40.9	46.5	0.8	1.2
Unfair practices of competitors	46.6	53.1	52.8	46.5	0.5	0.4
Government regulation	47.6	51.5	52.1	48.5	0.3	0
Difficulty transporting or moving goods across the country	51	45	48.3	54.3	0.6	0.8
Political instability	43.9	45	55.4	53.9	0.7	1.2
Customers not paying on time or at all for services purchased	40.8	42.6	58.4	57.4	0.8	0
Exchange rates for imports and exports	41.4	45.7	53.1	47.3	5.6	7.1
Access to international or domestic markets	39.6	43.4	56.5	53.1	4	3.5
Crime/security	34.5	33.2	65	66.5	0.6	0.4
Electricity – reliability, availability and cost	35.1	34.7	64.6	65.3	0.3	0
Access to technology (computers, Internet)	39.6	34.4	59.1	64.9	1.2	0.8
Finding and maintaining a skilled workforce	33.8	37.5	66.1	62.1	0.1	0.4
Lack of marketing/advertising experience and services	33.2	39.4	66.5	60.6	0.3	0
Having enough or the right equipment	36.6	39.1	63	60.1	0.4	0.8
Access to professional business services, like accountants or lawyers	35.4	33.2	63.8	65.6	0.8	1.2
Water/sewer services – reliability, availability and cost	30.2	27	69.5	72.7	0.2	0.4
Keeping up with demand for services with existing resources	37.1	42.2	63	57.4	0	0.4
Poor office or work space – too crowded, not well lit	27.6	29.7	72.2	70.3	0.1	0
Generating revenue/sales	31.2	32.8	68.6	66.4	0.1	0.8
Phone service – reliability, availability and cost	28.1	26.6	71.9	73.1	0	0.4
Keeping up with company growth	28.5	30.5	71.2	69.2	0.2	0.4

Lack of experience running a business/managing projects	25	28.5	74.9	71.5	0.1	0
Remote location of business	25	23.4	74.7	76.1	0.3	0.4

Source: Tebbutt Research (2014).

Table 9: Gender differences in reported ease/difficulty in getting a loan or credit

	≥50% female	>50% male	Total
	%	%	%
Very easy	12	11	11
Somewhat easy	22	26	25
Somewhat difficult	29	34	33
Very difficult	31	25	26
Don't know & refused to answer	6	4	5
	100	100	100

Source: Tebbutt Research (2014, Table 68).

Notes: females = 292; males = 795. Subsamples exclude shareholder organisations and cooperative societies (N = 30).

Reported ease of obtaining a loan or credit for business

Table 9 shows gender differences in self-reported ease/difficulty in getting a loan or credit for business. Overall, almost two-thirds of SMEs, in which either men (59 percent) or women (60 percent) were majority owners reported some difficulty in getting a loan or credit. Just over one quarter of men (26 percent), and less than one quarter (22 percent) of women, reported that getting a loan or credit for business was not as easy as they thought. On the other hand, just under one third (31 percent) of majority women-owned SMEs reported that getting a loan or credit for business was very difficult, compared with a quarter of their male counterparts (25 percent).

Options to improve business

After identifying the perceived barriers to operation and expansion of SMEs, respondents to the Tebbutt Research (2014) survey were asked to identify, and rank, four forms of assistance that would most help their businesses. Table 10 shows that better access to finance, loans or capital was cited by just under half (47 percent) of female owner/managers, and just over half (54 percent) of male owner/managers, as the main item that would greatly improve their businesses. One fifth of male and female owner/managers also mentioned management and financial skills training as the second most important form of assistance that their businesses needed. But male and female owner/managers had distinct views on the third most important item; 15 percent of male owner/managers mentioned management and financial skills training as the third most important way to improve the performance of their business. In contrast, 15 percent of female owner/managers cited both marketing and advertising services and staff skills training as the third most important.

Ch. 5 Data and method

As already noted, we use data from the SME survey collected by Tebbutt Research (2014), who surveyed 1,117 formal SMEs in urban and rural areas across the 22 provinces in PNG between October and December 2013.¹ After removing missing data, we were left with 1,087 formal SMEs in the dataset. We first examine the effect of gender on perceived obstacles to operation and expansion, using each of the obstacles listed in Table 8. We collapse the four responses ('not an obstacle', 'minor obstacle', 'moderate obstacle' and 'major obstacle') into a bivariate variable set equal to 1 if the respondent answered that the obstacle was moderate or major and 0 otherwise. We next look at the effect of gender on ease of accessing credit. To measure this, we use the four responses given in Table 9 and collapse them into a bivariate variable set equal to 1 for 'easy' and 0 for 'difficult'. Finally, we examine the effect of gender on perceived options to improve business. We use the options to improve business given in Table 10. If the respondent listed the option as one of the three most helpful, we set the variable equal to 1; otherwise it is 0.

Table 10: Gender differences in preferred most helpful item to improve business (rank, %, base: males = 861; females = 256)

	1st		2nd		3rd	
	M	F	M	F	M	F
Better access to finance/loans/capital	53.9	46.9	9.2	9.4	5.7	9.8
Management and financial skills training	9.9	13.3	20.3	19.5	14.5	10.5
Technology, including computers and reliable Internet	7.9	7.0	9.6	9.0	6.6	5.9
Better communications	5.3	6.3	7.9	10.5	7.7	7.4
Business coaching or mentoring services	4.3	6.3	12.3	9.4	9.1	9.4
Marketing/advertising services	4.1	4.7	7.1	8.6	11.8	14.5
Staff skills training	4.1	3.9	9.9	9.4	13.1	14.8
Help understanding and complying with government regulations	2.1	3.5	5.1	6.3	9.9	8.2
Easier ways to bank, like online or mobile banking services	1.5	2.7	5.1	3.5	5.0	3.9
Reliable phone, electricity or water supply	3.4	2.3	6.0	5.9	8.2	5.5
Affordable external professional services, e.g. accounting, legal	1.2	0.8	3.8	5.1	4.4	7.4
Transport/freight	0.5	0.4	0.5	0.4	0.3	0.4

¹ The Tebbutt (2014) survey was collected following a public tender and with the cooperation and support of the Department of Commerce and Industry in PNG and the World Bank. It followed best practice in obtaining a representative sample. Detailed information on how the sample was selected is provided in Tebbutt Research (2014, pp.30-40).

Reduce crime rate/security	0.3	0.4	0.0	0.4	0.1	0.0
Reduce tax	0.2	0.4	0.0	0.4	0.1	0.0
Bring in more investors	0.3	0.4	0.2	0.0	0.0	0.0
Acquiring land	0.0	0.0	0.2	0.4	0.0	0.0
Expand/extend business space/ building	0.0	0.0	0.2	0.4	0.1	0.0
Better machinery/tools/equipment	0.0	0.0	0.1	0.0	0.3	0.0
Better road condition/road network	0.2	0.0	0.1	0.0	0.0	0.0
More support from government to improve industry	0.0	0.0	0.2	0.0	0.0	0.0
Regulate the SME market – penalties for non-registered SMEs	0.6	0.0	0.1	0.0	0.0	0.0
Don't know/Some other item/ None of these/No choice indicated	0.2	0.8	1.8	1.6	2.9	2.4
	100.0	100.0	100.0	100.0	100.0	100.0

Source: Tebbutt Research (2014).

To examine the effect of gender on perceived obstacles to operation or expansion, ease of accessing credit and options to improve business we employ a logit model, given that in each case the dependent variable is a binary variable. We regress the dependent variable on a binary variable set equal to 1 if there is majority female ownership (i.e. female ownership is greater than 50 percent) and a full set of controls for firm and owner/manager characteristics. Specifically, we control for the age of the respondent, education of the respondent, number of owners, if indigenous owned, if foreign owned, years of operation, if the firm belongs to an industry organisation, if the firm has a computer, if the firm has a landline phone, if the firm has a mobile phone, if the firm has internet access, if the firm has mains electricity and if the firm has a website as well as area and regional fixed effects. We also control for industry fixed effects. We classified the SME economic activities by collapsing the main product or service, first according to broad classification of economic activities (four dummies), then according to PNG classification of industrial divisions (19 dummies) as shown in Table A1 (see Appendix). We do not include other factors known to hinder women entrepreneurship, like cultural norms and practices and burden of household management responsibilities, for which there is no data. Descriptive statistics for the controls are given in Table A2 (see Appendix).

Ch. 6 Results

Table 11 presents the results when perceived obstacles to expansion are regressed on a binary variable set equal to 1 if the firm has majority female ownership and a full set of controls. The results suggest that firms with majority female ownership are 9.21 percentage points more likely to see (lack of) access to professional business services, like accountants or lawyers, as an obstacle to expansion. This finding likely reflects that women tend to have fewer professional and social networks than men (Adkins et al., 2013; Allen & Truman, 1993; Bogren & von Friedrichs, 2016; Klyver & Grant, 2010). This result mirrors, for example, findings for female entrepreneurs in Fiji by Naidu and Chand (2017), who offer the same explanation.

Moreover, firms with majority female ownership are 9.13 percentage points more likely to see taxation as an obstacle to expansion to their business. This result could reflect lower levels of financial literacy among women and be related to the previous finding that women have less access to accounting services to cut through red tape. Previous studies suggest that women in PNG have more trouble than their male counterparts understanding government regulations, including tax laws (Druzca & Hutchens, 2008).

At the same time, firms that are majority owned by women are 9.12 percentage points less likely than firms owned by men to view remote location as an obstacle to business. This finding likely reflects that the proportion of SMEs with a majority female presence is higher in urban areas than rural or remote areas (see Table 5). There are no statistically significant gender differences in the extent to which the other factors were perceived to be obstacles to expansion.

Table 11: Effect of gender on perceived obstacles to expansion

Marginal effect (ME) of gender dummy (→)						
Dependent variable ↓	ME × 100	z-Stat	Obs.	Log likelihood	Pseudo R ²	
Access to finance/loans/capital	-0.82	-0.15	1,077	-671.60	0.08	
Generating revenue/sales	2.59	0.53	1,084	-647.84	0.05	
Finding and maintaining a skilled workforce	6.96	1.41	1,085	-687.21	0.02	
Access to technology (computers, Internet).	-1.68	-0.30	1,074	-634.21	0.12	
Electricity (reliability, availability and cost).	-5.30	-0.98	1,084	-635.87	0.10	
Water/sewer services (reliability, availability and cost).	-4.82	-0.95	1,084	-590.48	0.11	
Phone service (reliability, availability and cost).	0.89	0.19	1,086	-589.04	0.09	
Lack of experience running a business/managing projects.	0.25	0.05	1,086	-598.13	0.04	
Access to professional services, like accountants or lawyers.	9.21*	1.81	1,077	-651.94	0.07	

Remote location of business.	-9.12*	-1.81	1,083	-578.81	0.06
Difficulty transporting or moving goods across the country.	4.58	0.81	1,079	-684.49	0.09
Political instability.	1.70	0.31	1,078	-712.94	0.04
Government regulation.	-4.04	-0.74	1,084	-727.26	0.03
Difficulty leasing or buying land.	-5.05	-0.95	1,084	-719.56	0.03
Difficulty dealing with banks.	4.83	0.87	1,083	-693.51	0.06
Lack of marketing/advertising experience and services.	5.20	1.04	1,084	-667.41	0.05
Poor office or workspace – too crowded, not well lit.	5.50	1.20	1,086	-633.00	0.02
Tax rates.	9.13*	1.67	1,075	-715.37	0.02
Having enough or the right equipment.	1.52	0.29	1,081	-688.70	0.04
Keeping up with demand for services with existing resources.	-1.93	-0.37	1,086	-707.43	0.02
Keeping up with company growth.	-1.44	-0.30	1,084	-632.91	0.03
Crime/security.	0.50	0.10	1,081	-659.07	0.06
Government corruption.	1.79	0.33	1,078	-715.55	0.02
Customers not paying on time or at all for goods and services purchased.	0.06	0.01	1,080	-694.99	0.05
Unfair practices of competitors.	-1.74	-0.32	1,081	-728.91	0.03
Exchange rates for imports and exports.	8.25	1.48	1,023	-683.69	0.03
Access to international or domestic markets.	4.09	0.77	1,045	-704.05	0.01

*Notes: All the regressions were performed using respondent specific controls (education, age, gender), firm specific controls (number of owners, type of ownership, firms technical level), Industry dummies and location dummies; Gender dummy takes a value of 1 if majority of owners are women; * $p < 0.1$.*

Table 12 reports results in which a variable depicting ease of accessing credit is regressed on a binary variable set equal to 1 if the firm has majority female ownership and a full set of controls. There are no gender differences in ease of accessing credit. While access finance is repeatedly identified in the literature as a major constraint to female entrepreneurs, two factors may have contributed to our finding. One is that, compared with female entrepreneurs in other developing countries, female entrepreneurs in PNG may have relatively easy access to finance from the PNG Women's Micro Bank, the first female only micro bank in the Pacific. Second, it is possible that the PNG Microfinance Expansion Project, which aims to improve female access to microfinance (ADB, 2015), is beginning to bear fruit. These observations are consistent with earlier empirical evidence that access to finance/loan/capital is unlikely to be a significant obstacle that constrains the performance of SMEs in PNG (Mishra, Odhuno, and Smyth, 2017).

Table 12: Effect of gender on ease of accessing credit

Marginal effect (ME) of gender dummy (→)					
Dependent variable ↓	ME × 100	z-Stat	Obs.	Log likelihood	Pseudo R ²
Ease of accessing credit	-1.174	-0.216	1039	-640.73	0.067

Notes: The regressions were performed using respondent specific controls (education, age, gender), firm specific controls (number of owners, type of ownership, firms technical level), Industry dummies and location dummies; Gender dummy takes a value of 1 if majority of owners are women; * $p < 0.1$.

Table 13: Effect of gender on perceived options to improve business

Marginal effect (ME) of gender dummy (→)					
Dependent variable ↓	ME × 100	z-Stat	Obs.	Log likelihood	Pseudo R ²
Affordable external professional services, like accounting and legal services.	0.07	0.02	1,087	-346.16	0.05
Better access to finance/ loans/capital.	4.95	0.94	1,087	-633.77	0.07
Better communications.	-6.23	-1.43	1,087	-511.86	0.08
Business coaching or mentoring services.	-3.46	-0.75	1,087	-574.61	0.07
Easier ways to bank, like online or mobile banking services.	-2.08	-0.69	1,087	-360.18	0.05
Help understanding and complying with government regulations.	5.28	1.49	1,087	-479.25	0.03
Management and financial skills training.	1.76	0.32	1,087	-689.53	0.08
Marketing/advertising services.	7.10*	1.68	1,087	-583.55	0.03
Reliable phone, electricity or water supply.	5.08	1.40	1,087	-469.36	0.06
Staff skills training.	-4.39	-0.88	1,087	-610.56	0.04
Technology, including computers and reliable Internet.	-11.82**	-2.35	1,087	-558.62	0.06

Notes: All the regressions were performed using respondent specific controls (education, age, gender), firm specific controls (number of owners, type of ownership, firms technical level), Industry dummies and location dummies; Gender dummy takes a value of 1 if majority of owners are women; ** $p < 0.05$, * $p < 0.1$.

Table 13 reports results in which perceived options to improve business are regressed on a binary variable denoting female ownership and controls. Firms with majority female ownership are 7.10 percentage points more likely to see marketing/advertising services as an option to improve business and 11.82 percentage points less likely to view technology, including use of computers and having access to reliable internet, as an option to improve

business. For all other options there were no gender differences. The results for marketing/advertising services likely reflect the higher concentration of firms with a female presence in certain sectors, such as retail, in which advertising potentially brings the most benefits (see Table 7). The findings for technology use likely reflect well-recognised gender differences in technology use. Several studies have found that women are less likely than men to use technology, both in their personal lives and in their businesses, and that women generally have less confidence in, and are less trusting of, technology (see Goswami & Dutta, 2016 for a review of the literature). Gender differences in perceptions of technology use for expansion may also be related to the location of the business. Given that female-owned businesses are less likely to be located in remote areas, reliable internet access may not be so important.

Overall, the results in Tables 11 to 13 suggest that once controls are set for respondent and firm characteristics, as well as the industry and location of the firm, there are few differences between firms with majority female ownership and other firms. The raw numbers in Tables 8 to 10 suggest gender differences in perceived obstacles to expansion, ease of getting a loan and options to expand the business. However, these differences disappear when controls are set for other factors influencing these outcome variables. For example, a major reason why female-owned businesses may face more obstacles to business expansion in PNG, including ease of accessing credit, is that women have lower levels of human capital (ADB, 2012; Drucza & Hutchens, 2008; Mishra & Smyth, 2016). When we control for differences in education and other attributes in Tables 11 and 12, there are no statistical differences in gender. This result suggests that gender differences channel through characteristics such as education and it is the latter that is responsible for differences in perception, rather than gender *per se*.

Ch. 7 Conclusion and policy recommendations

Many countries are concerned about the broader business environment that may differentially impact on male and female-owned SMEs. There is also a perception, particularly in developing countries, that, due to their high growth potential, female-owned SMEs need additional support from policy-makers. Such concern has been especially strong in PNG, a country that largely failed to achieve Millennium Development Goal 3 on the promotion of gender equality. Despite this, policy-makers in PNG still have an interest in reducing inequality in men's and women's economic opportunities by facilitating inclusive gender participation in SME development (Ministry of Trade, Commerce & Industry, 2016 a, b). However, to formulate gender disparity reduction strategies, it is important to have evidence on those obstacles to business expansion in which women are more likely than men to feel disadvantaged.

The Tebbutt Research (2014) data is suggestive of some differences in the perceptions of male and female SME owner/managers with respect to the obstacles they face and options to improve their business. Better access to finance, loans or capital appears to be the consensus view on the best option to improve business. Moreover, it is also the biggest obstacle faced by both male and female SME owners/managers. Because the raw numbers might fail to capture the full significance of the differences by gender, we have used logistic regression to examine whether majority female-owned SMEs face more barriers than their majority male-owned counterparts, controlling for other respondent and firm characteristics that potentially influence perceptions.

We find that of the 27 obstacles to SME operations and expansion identified in Tebbutt Research (2014), once controls are set for other factors, there are significant gender differences in only three: access to professional services, the remote location of the business and tax rates. Thus, although there are barriers to SME operation and expansion, most of them do not appear to vary significantly with the gender of majority owners/managers. Even in the case of significant gender differences in perceptions about obstacles previously identified, there is not always bias against female entrepreneurs. While our results suggest that female entrepreneurs in PNG are more likely than their male counterparts to consider access to professional business services and tax rates as barriers to expansion, they are less likely than their male counterparts to view remote location of their business as a barrier. This result suggests that those implementing policies to support SMEs in PNG should not overly focus on gender issues in favour of addressing obstacles to expansion more generally.

It might then be asked whether there are any gender differences in the perceived initiatives or support programs that SME owners/managers believe would help improve their businesses if implemented correctly. With the exception of marketing/advertising services and information technology (IT), we find no significant gender differences in most of the perceived options to improve business. Even where we find evidence of gender differences, we do not always find evidence of bias against female entrepreneurs. While female-dominated SMEs are more likely than their male-dominated counterparts to value help with marketing and advertising services as an option to improve business, they are less likely to see accessing and using IT as an important option to improve their business than male-dominated SMEs.

We have considered gender differences in perceived obstacles to expansion of, and options to improve, SME businesses in PNG. A possible limitation is that perceptions may not accurately reflect actual obstacles and options to improve business outcomes. So, while we have found few gender-based differences, because the data used in the analysis is subjective, actual inequalities in male and female access to economic opportunities in PNG may exist. Another possible limitation is that we have used data for formal SMEs, yet most women are more likely to be engaged in informal enterprises. Therefore, as a related issue, it would be interesting to consider gender differences in the perception of informal SME sector participants. For example, it is believed that informal women traders in PNG are more disadvantaged than men by unsafe and insanitary markets. These issues could be usefully the subject of future work.

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Appendix A

Table A1: Classification SME economic activities and industrial divisions

Broad classification of economic activities	Broad PNG classification of industrial divisions	
Primary activities	Division A:	Agriculture, forestry and fishing
	Division B:	Mining
Secondary activities	Division C:	Manufacturing
	Division E:	Construction and infrastructure
Tertiary activities	Division D:	Electricity, gas, water and waste services
	Division F:	Wholesale trade
	Division G:	Retail trade
	Division H:	Accommodation and food services
	Division I:	Transport, postal and warehousing
	Division Q:	Healthcare and social assistance
Quaternary activities	Division R:	Arts and recreation services
	Division J:	Information media and telecommunications
	Division K:	Financial and insurance services
	Division L:	Rental, hiring and real estate services
	Division M:	Professional, scientific and technical services
	Division N:	Administrative and support services
	Division O:	Public administration and safety
	Division P:	Education and training
Division S:	Other services	

Table A2: Descriptive statistics of control variables

Variable	Descriptive statistics
Highest level of education of the respondent	No formal education: 12 (1.26%)
	Primary school: 116 (12.17%)
	High school (10 or 11 years): 207 (21.72%)
	High school (12 or 13 years): 123 (12.91%)
	Technical or trade school: 171 (17.94%)
	Some university: 157 (16.47%)
	University degree: 152 (15.95%)
	Post-graduate: 15 (1.57%)
	Average years of education: 11.6 years
Age of the respondent (in years)	Mean: 44.15
	Standard deviation: 12.98

	Min: 18
	Max: 99
Number of owners	Mean: 2.63
	Standard deviation: 10.35
	Min: 1
	Max: 200
Businesses with majority female ownership	82 (8.60%)
Businesses with majority Indigenous ownership	761 (79.85%)
Businesses with majority foreign ownership	151 (15.84%)
Businesses which are member of an industry association or group	388 (40.71%)
Businesses that currently use computer(s)	616 (64.6%)
Businesses that currently use landline telephone(s)	496 (52.05%)
Businesses that currently use mobile phone(s)	928 (97.38%)
Businesses that currently use Internet	432 (45.33%)
Businesses that currently use mains electricity	842 (88.35%)
Businesses that currently have a website	220 (23.08%)
The region in which business is located	Highlands: 290 (30.43%)
	Islands: 209 (21.93%)
	Momase: 179 (18.78%)
	Southern: 275 (28.86%)
Industry sector	Primary: 76 (6.99%)
	Quaternary: 120 (11.04%)
	Secondary: 53 (4.88%)
	Tertiary: 835 (76.82%)
PNG classification of occupations	Agriculture, forestry & fishing: 52 (4.78%)
	Mining: 4 (0.37%)
	Manufacturing: 28 (2.58%)
	Electricity, gas, water & waste service: 1 (0.09%)
	Construction & infrastructure: 45 (4.14%)
	Wholesale trade: 39 (3.59%)
	Retail trade: 604 (55.57%)
	Accommodation & food services: 119 (10.95%)
	Transport, postal & warehousing: 69 (6.35%)

	Financial & insurance services: 18 (1.66%)
	Rental, hiring & real estate service: 6 (0.55%)
	Professional, scientific & technical services: 90 (8.28%)
	Administrative & support services: 1 (0.09%)
	Education & training: 1 (0.09%)
	Arts & recreation services: 4 (0.37%)
	Healthcare & social assistance: 3 (0.28%)



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