

Racial and Gender Discrimination in the Micro Firms Credit Market?: Evidence from Trinidad and Tobago

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Abstract. This paper examines the Market for loans from banks to micro- and small enterprises in Trinidad and Tobago. It tests for the presence of racial and gender discrimination. It takes the reported refusal to grant loans to groups, when all other indicators of credit-worthiness are taken into account, as evidence of discrimination. The paper distinguishes between Application and Denial Rates. It finds that, once all other indicators of credit-worthiness are taken into account, neither Application nor Denial rates differ significantly by gender. Reported Denial rates are, however, higher for Africans compared with other ethnic groups, implying the possible presence of discrimination.

1. Introduction

This paper examines the market for loans from banks to small and micro enterprises in Trinidad and Tobago. It examines whether there is evidence that certain types of businesses are less likely to receive loans than others- most notably businesses owned by females and by those of African origin. In short, is there discrimination by banks against such groups?

The paper views discrimination as occurring when the distribution of loans is influenced by factors not relevant to the transaction – in this case race and gender. Its key analytic distinction is to recognise that the distribution of loans is influenced by applications received, as well as decisions made by the bank. Confirming the results of Raturi and Swamy (1999), it finds some evidence of racial and gender differences in Application and Denial Rates. Discrimination,

however, is only defined to occur when race/gender influence Denial rates independently of other risk indicators. Data limitations, however, preclude an assessment of whether ethnicity or gender influence borrower discouragement.

In contrast with Raturi and Swamy it finds, for Africans, evidence of higher Denial rates, implying the presence of discrimination. It finds no evidence of higher Denial rates for females.

The paper is structured as follows. It begins with the analytical framework for testing for discrimination, distinguishing between Application and Denial Rates, generating five hypotheses to be tested. It then describes the data set to be used in the analysis. The paper provides simple univariate statistics on Loans, Application and Denial Rates, and how these vary according to firm and owner characteristics. The bulk of the analysis is devoted to testing the hypotheses in a multi-variate framework.

2. Literature review and hypotheses derivation

Becker (1957) defined financial discrimination to exist when loans, normally made at interest rate r , are made to the discriminated group at $r(1 + \delta)$ where δ is the interest premium. However Stiglitz and Weiss (1981) show financial institutions favour outright loan refusal to high risk applicants, rather than making loans at higher interest rates. Discrimination may therefore also be reflected in a refusal to grant loans (Denial) rather than an interest premium.

To demonstrate the presence of discrimination requires more than the observation that specific groups (G) – which we shall take as Africans/Females – are consistently less likely to have loans than other groups. Only after all other Non-

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ethnic/Gender measures of creditworthiness are held constant, and the G coefficient remains positive and significant, can discrimination be shown to be present. This is formulated in Equation (1).

$$L = \alpha + \beta X' + \phi G + \varepsilon \quad (1)$$

Where L = Loans; X are risk indicators; G = Group for which discrimination is being investigated.

Raturi and Swamy (1999), however, show that even a significantly lower ϕ , need not necessarily reflect discrimination. They distinguish between wanting a loan (W), applying for a loan (A), not applying (NA) and being denied a loan (D).

They argue that rejection (R), is a preferred measure to denial since the latter also includes those discouraged from applying through fear of rejection. Rejection is set out in Equation (2) below.

$$P(R) = P(W) P(NA|W) + P(A) P(D|A) \quad (2)$$

or

$$PCR = P(W) [1 - P(A|W) [1 - P(D|A)]] \quad (3)$$

Equation (3) shows credit constraints reflect four influences. First, that the individual wants a loan, second that they apply and thirdly that they are rejected. The fourth element are those who want a loan but who do not apply, with these being referred to as discouraged borrowers. Kon and Storey (2003) provide a theoretical treatment of this group, but they are not covered further in this paper.

Raturi and Swamy then analyse enterprises in Zimbabwe, examining the ethnicity of owners. Although it is not a focus of their study, they also incorporate the gender of the owners.

Their key results are shown below in Table I.

TABLE I
Credit constraints: Ethnicity and gender

	Black	Male
Credit-constraint	More	No
(i) Want loan	More	More
(ii) Apply	More	More
(iii) Denial, given application	No	More

Table I shows Blacks are more likely than other racial groups to be “credit constrained” because they are more likely to both want loans and to apply for loans. Raturi and Swamy, however, find denial rates for Blacks are not significantly different from other ethnic groups and so argue that discrimination does not exist.

Their results however suggest there is discrimination against males. They are more likely than females to want loans and to apply, but are more likely to be denied.

Studies of discrimination in financial marketplaces abound in developed economies, particularly the United States. Of studies concerned with the small business marketplace, those by Cavalluzzo and Cavalluzzo (1998), Blanchflower, Levine and Zimmerman (1998) and Cavalluzzo, Cavalluzzo and Wolken (1999) and Bates (1991) are the most relevant. However these studies only quantify Application and Denial rates. Only Cavalluzzo et al. (1999) seek to estimate the proportion who want a loan but do not apply – the so-called “Discouraged Borrowers” – since this requires information on whether businesses wanted loans.

Table II summarises the findings from those studies, making a distinction between Application rates (A) and Denial rates $P(D|A)$. Where possible, Application and Denial rates are shown by gender and ethnicity. Interesting patterns emerge from the U.S. studies. Dealing first with Application rates, whilst Asians have lower Application rates, there are only small differences between the other ethnic groups. Second, for the U.S., for all ethnic groups, application rates are lower for females than males. Although not tabulated, the same result is found for Zimbabwe in a multivariate analysis.

The lower half of Table II shows Denial rates, $P(D|A)$. The U.S. findings are that, for their most recent loan application, Denial rates are high for African Americans, both males and females. Amongst whites, however, denial rates are non-significantly higher for females than males. In Zimbabwe denial rates are also much higher for Blacks than for the other two groups. The multivariate analysis for Zimbabwe shows denial rates are higher for males than females.

The above literature suggests the following hypotheses:

TABLE II
Loan application and denial rates for small business: By gender and ethnicity of owners

	White		Black (African)		Asian (Indian)		Mixed race		Others	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<i>Application rates</i>										
1. Trinidad & Tobago (1996)	–	–	32	26	32	19	31	29	45	25
2. Zimbabwe (1993)		64		54		46				
3. U.S.A. (1993)	36	31	37	28	26	17	–	–	36	13
<i>Denial rates</i>										
1. Trinidad & Tobago (1996)	–	–	32	24	15	18	3	24	0	0
2. Zimbabwe (1993)		11		47		22				
3. U.S.A. (1993)	16	23	49	37	25	–			19	13

Source: Trinidad & Tobago: This paper; Zimbabwe: Raturi and Swamy (1999); U.S.A: Cavalluzzo, Cavalluzzo and Wolken (1999).

Note: Date in brackets refers to the year in which the survey was conducted.

H1: Racial and gender variations exist in Application and Denial rates for Micro and small businesses

H2: Female small business owners are less likely than males to apply for loans from financial institutions.

H3: Female small business owners are no more likely to be rejected for loans than males.

H4: Small Businesses owned by Africans are more likely to apply for funds than those from other racial groups but also more likely to be denied.

H5: These differences continue even after account is taken of other influences on risk, reflecting the presence of discrimination in the marketplace for finance for small firms.

3. The data

Data for the analysis is derived from The First National Baseline Survey of small businesses in Trinidad and Tobago. The Survey was conducted 1995/96 and is derived from a sample from the Business Register of the Central Statistical Office of Trinidad and Tobago.¹ The Survey itself was organised and conducted by EIM Small Business and Consultancy in the Netherlands together with the Institute of Social and Economic Research (ISER), the University of the West Indies, St. Augustine.

A small business is defined as an establishment having 26 or less employees. A total of 3,847 firms were approached and responses obtained from 2,104. There were 19 cases in which information was not available either on the sector or size, and these firms are eliminated from further analysis. In total, analysis was conducted on 2,085 enterprises. The basic data are shown in Table III. It shows approximately one third of the enterprises have no employees other than the owner, and that only 10% have more than ten employees. The bulk (63%), of the enterprises are in distribution; only 8% are in manufacturing.

Information on the (human capital of the) entrepreneur was not collected from those businesses which were owned by more than a single individual on the grounds that this required a judgement about who was the “most important” owner. Hence data on the entrepreneur is only available for sole proprietorships, and not for either partnerships or limited companies. In total, 1,380 cases provide data on the entrepreneur, with these differing markedly from the remainder of firms, most notably because sole proprietorships have a mean employment of 2.09 workers, compared with 3.62 for partnerships and 8.90 for limited companies.

4. The variables

This section justifies the use of both the dependent and independent variables in the analysis.

TABLE III
Characteristics of data set: Number of businesses

Sector	No. of workers (excluding owner)						Total	
	0	1	2	3–4	5–9	10–26	No.	%
Petroleum	4	2	6	8	13	11	44	2
Manufacturing	24	11	23	29	35	40	162	8
Construction	3	2	1	1	4	13	24	1
Distribution	524	151	185	208	156	87	1311	63
Pers. services	146	69	63	70	43	27	419	20
Other services	17	10	16	24	32	27	126	6
Total	718	245	294	340	283	205	2085	100
%	34	12	14	16	14	10	100	

Dependent variables: application, denial and loan rates

The first section of Table IV shows three dependent variables will be estimated. The first dependent variable is whether the small business owner reports having sought/Applied for a bank loan at any time in the history of the business. It is referred to as the Application rate (A). Unfortunately we do not know about those wanting a loan (W).

The second variable is whether the business owner who applied was denied the loan. It is referred to as the Denial rate (D).

The third variable is whether the firm either currently has, or has had in the past, a bank loan. This is defined as LOAN.

Independent variables: discrimination groups and risk indicators

The second half of Table IV identifies three groups of independent variables. The first are the discrimination variables – Gender and Race. The second are other variables included as Risk Measures, and the third are Human Capital Measures other than Gender and Race.

The three groups are separately identified since it is to be expected that most of the human capital measures – including gender and ethnicity – are not independent of most of the Risk Measures. For this reason, in the analysis, the only Risk Measure variables included in the Human Capital equation are Sector and Region.

Discrimination groups

Ethnicity. Trinidad and Tobago comprises an unusual ethnic mixture; the numerically dominant ethnic group within the population as a whole is Afro-Trinidadians but, amongst the business owning population, there are more Indo Trinidadians. There are also significant numbers of businesses owned by those of Chinese extraction and “mixed race” individuals. The number of Whites and Europeans is small. The prime ethnic groups considered here are: Afro, Indo, Mixed and other-race Trinidadians. Given the work of Bates (1990), Blanchflower et al. (1998) and Raturi and Swamy (1999) it is to be expected that financing difficulties would be greater for Afro-Trinidadians.

Gender. There may be differences in the financing of male and female owned businesses, particularly if bankers were, in some sense, prejudiced against females. However, the work of Kalleberg and Leicht (1991) in the U.S. suggests that there are no statistically significant differences in performance between male- and female-owned businesses. Read (1998), in her study of the financing of male and female owned businesses in the U.K., also finds no significant differences between males and females in the amount, number of sources, and type of finance used both at start up and post start up. We therefore include the gender variable but do not sign it *a priori*.

Risk indicators

Sector. Small business survival rates vary between sectors [Gimeno et al. (1997) for the U.S., Bruderl et al. (1992) for Germany, Storey and Wyncarczyk (1996) for the U.K.] so it is reasonable to expect banks to take account of this in the provision of loans.

Region. Small business survival rates also vary spatially [Storey and Wyncarczyk (1996) for the U.K., Blanchflower et al. (1998) for the U.S.], even when account is taken of sector composition. Banks may therefore be more likely to favour/disfavour loan applications from firms in some geographical areas.

Legal form. It is assumed banks view lending to private corporations as less risky than lending to individuals. Although the evidence is that Limited Companies have higher failure rates, they also have higher growth rates (Harhoff et al., 1998) and, in the event of failure, the bank generally has its assets secured on the personal collateral of the owner. In the case of micro enterprises the bank is also likely to take, as a positive signal, that the business has corporate status.² Such a business is required by law to produce accounts, which the bank views as “good discipline”. These factors serve to offset the disadvantage from the banks’ perspective of the owner not being personally liable for debt. Finally we hypothesise that the bank will favour partnerships over sole proprietorships because “two heads are better than one” – that is, the second owner is likely to bring a different, and additional, skill set to the business (Cressy, 1996).

Firm size. Larger firms are significantly more likely to survive than small (Dunne and Hughes, 1994). Evidence from the Caribbean demonstrates that, in Jamaica, micro enterprises with employees are significantly more likely to have bank loans, than those without employees (Honig, 1998).

Prior performance. In principle it is to be expected that better performance is associated with lower Denial rates. However this association may be difficult to interpret if bank loans enhance future performance. In addition, selecting a suitable

measure of small firm performance is also problematic. Estimating, with accuracy, small firm performance is difficult at all times partly because of the variety of different objectives of those running a small business. In principle, small firms and their bank might be expected to focus on profitability but this is very difficult to measure, particularly in micro firms, so it has limited value as a concept.³ For these reasons the subjective measure of whether owners felt the business to have been successful was used, together with whether or not sales rose.

Age of firm. Here it is hypothesised that the young firm is less likely to have applied for, or received, a bank loan than a longer established business. Partly this reflects time duration in business, but it also reflects the consistent empirical finding that young firms are significantly less likely to survive, with the peak failure rate being after about 18 months of life (Cressy, 1996; Daly, 1991). Banks therefore will favour lending to established, rather than new, businesses.

Exporter. Those enterprises selling, or planning to sell, abroad may be more likely to seek bank funding to cover the additional costs. For its part the bank may also view exporting positively since it reflects wider market demand for the product/service (McDougall and Oviatt, 1997).

Premises. For micro enterprises in particular, the nature of the premises occupied constitutes a powerful signal about the credibility of the enterprise and, as McPherson (1995) shows for Southern Africa, is a powerful influence upon firm survival. His work for Swaziland and Malawi, shows mobile enterprises are more likely to close than those run from home. Furthermore, those entrepreneurs who own their own premises are likely to be favoured by the bank since this constitutes collateral for loans. The banks attitude to businesses in rented premises is however likely to be mixed. On the one hand they may be more “credible”, but premises are a clear cost to the business without the benefit of collateral.

Capital equipment. The bank will favour lending to enterprises which own their capital equipment since this can be the basis for collateral for further

TABLE IV
Variable definition

Group	Variable name	Definition	Sign	References
Dependent Variables	A	= 1 if Applying for a bank loan; 0 otherwise		
	D	= 1 = Denial of loan; 0 otherwise		
	LOAN	= 1 if currently have, or have ever had, Bank Loan; 0 otherwise		
Independent Variables				
Risk Measures				
Sector	PET	= 1 if enterprise is in petroleum sector; 0 otherwise		Gimeno, Folta, Cooper and Woo (1997)
	MF	= 1 if enterprise is in manufacturing sector; 0 otherwise		
	CON	= 1 if enterprise is in construction sector; 0 otherwise		
	PERSERV	= 1 if enterprise is in personal services; 0 otherwise		
	DIST	= 1 if enterprise is in distribution sector; 0 otherwise		
	OTHS	= 1 if enterprise is in other services; 0 otherwise		
Region	NORTH-EAST	= 1 if business is in North East region; 0 otherwise	?	Stearns, Carter, Reynolds and Williams (1995)
	CARONI	= 1 if business is in Caroni; 0 otherwise	?	
	SOUTH	= 1 if business is in South; 0 otherwise	?	
	TOBAGO	= 1 if business is in Tobago; 0 otherwise	?	
	NORTH-WEST	= 1 if business is in North West region; 0 otherwise	?	
Legal Status	LTDCO	= 1 if enterprise is limited company; 0 otherwise	+	Harhoff et al. (1998)
	SOLEPRO	= 1 if enterprise is sole proprietorship; 0 otherwise	-	
	PARTNERS	= 1 if enterprise is a partnership; 0 otherwise	+	
Firm Size	EMP	= Total number of employees (< 26)	+	Dunne and Hughes (1994)
	LOGEMP	= Log (EMP)	+	
	EMPSQ	= (EMP) ²	?	
Performance	SALES_UP	= 1 if sales rose in last 6 months; 0 otherwise	+	Honig (1998)
	SALES_DN	= 1 if sales fell in last 6 months; 0 otherwise	-	
	SALES_ST	= 1 if sales were static in last 6 months; 0 otherwise	-	
	PERF	= -1 if sales fell; 0 if sales static; +1 if sales rose in last 6 months	+	
	SUCCESS	= 1 if respondent felt enterprise was success in last year; 0 otherwise	+	
	NOTSUC	= 1 if respondent felt enterprise was not successful in last year; 0 otherwise	-	
Age of Firm	FIRMAGE	= Number of years the enterprise has been trading	+	Cressy (1996)
	SQFMAGE	= (Number of years the enterprise has been trading) ²	?	
Exporter	EXPORT	= 1 if enterprise currently exports; 0 otherwise	+	McDougall and Oviatt (1997)
	POTEXP	= 1 if enterprise is considering exporting; 0 otherwise	+	
	EXPALL	= 1 if enterprise is either exporting or considering exporting; 0 otherwise	+	

Premises	PREM_RENT PREM_OWN PREM_HOME	= 1 if premises are rented or leased; 0 otherwise = 1 if enterprise owns its premises; 0 otherwise = 1 if enterprise trades from home; 0 otherwise	?	McPherson (1995)
Capital Equipment	OWN_QIP LEAS_QIP RENT_QIP BORR_QIP	= 1 if 100% of capital equipment is owned; 0 otherwise = 1 if any capital equipment is leased; 0 otherwise = 1 if any capital equipment is rented; 0 otherwise = 1 if any capital equipment is borrowed; 0 otherwise	+	
Record Keeping	REC_AGEN REC_HAND REC_COMP	= 1 if business records are kept by specialist agency; 0 otherwise = 1 if business records are kept by owner by hand; 0 otherwise = 1 if business records are kept by owner by computer; 0 otherwise	+	Nayak and Greenfield (1994)
Location	GOODLOC	= 1 if owner feels the business is in a good location; 0 otherwise	+	Westhead and Birley (1994)
Human Capital Measures				
Prior Employment	LARGE SMALL MEDIUM PUBLIC UNEMPLOYED EMPLOYED	= 1 if previous employment in large firm; 0 otherwise = 1 if previously employed in small firm; 0 otherwise = 1 if previously employed in a medium firm; 0 otherwise = 1 if previous employment in public sector; 0 otherwise = 1 if previously unemployed; 0 otherwise = 1 if in employment prior to business start; 0 if in self employment, unemployed or from school	+	Van Praag and Van Ophem (1995)
Ethnic	AFRICAN INDIAN MIXED OTHRACE	= 1 if African descent; 0 all other races = 1 if Indian descent; 0 all other races = 1 if mixed race; 0 all other races = 1 if other races; 0 all non other races	+	Taylor (1999)
Education	PRIMARY SECONDARY GRADTEC	= 1 if highest education is primary; 0 otherwise = 1 if highest is secondary; 0 otherwise = 1 if graduate or technically qualified; 0 otherwise	-	Bates (1991) Raturi and Swamy (1999)
Gender	MALE	= 1 if male; 0 if female	+	Gimeno, Folta, Cooper and Woo (1997)
Age of Owner	AGE SQAGE	= Age of owner in year groups: 1=<25, 2=25-44, 3=45-59, 4=60+ = (Age group of owner) ²	?	Kalleberg and Leicht (1991) Cressy (1996)
Years at Work	WORKYEAR SQWKYR	= number of years owner has been in business = (WORKYEAR) ²	+	
Other Income	OTHINC	= 1 if individual has a source of income other than this business; 0 otherwise	?	Gimeno, Folta, Cooper and Woo (1997)

loans. Conversely, enterprises relying on borrowed equipment will be less likely to apply, and less favourably viewed by the bank, than other types of enterprise.

Record keeping. The bank will view enterprises with good record keeping systems as of lower risk (Nayak and Greenfield, 1994). Indeed, the necessity of formulating a business plan for the loan serves to exclude many micro enterprises where key financial information is either not written down or inadequately kept. Hence the bank will favour enterprises where financial records are kept by an external specialist agency or are held on computer. Other forms of record keeping – most notably by the owner in hand-written form – are likely to be viewed as inadequate by the bank.

Location. Given that 63% of businesses are in the Distribution sector, specific location is likely to be a strong influence on performance. The GOODLOC variable reflects the entrepreneurs' perception that their business has a good location with that, in turn, being likely to be reflected in better performance. In this context location will combine overall location – such as being in a rural/urban area – as well as the specific location "spot" occupied by the business. Evidence from developed countries clearly demonstrates that location influences the survival and growth of small enterprises (Stearns et al., 1995; Westhead and Birley, 1994).

Human capital measures

The remaining variables are measures of the human capital of the owner of the business. In principle, it is to be expected that human capital is positively related to borrower quality and, hence, to the banks willingness to lend.

Prior employment. Here it is assumed that the unemployed and those without any form of work experience – primarily because they had recently left school – are deemed by the bank to have little relevant human capital. They will be viewed as inferior, both to those with experience of work and to those quitting a job to start a business. In practice, whilst there is evidence that unemployment can trigger entry into self-employment

(Blanchflower and Oswald, 1998), the picture is much more mixed on the performance of the (former) unemployed once in business. Van Praag and van Ophem (1995) show founders of businesses who were unemployed were more likely to exit, whereas both Storey and Wyncarczyk (1996) and Cressy (1996) find these elements insignificant. Taylor (1999) finds those quitting a job are likely to survive longer in self-employment. We assume such individuals are likely to be viewed by the bank as lower risk. We also assume the bank will favour individuals whose prior employment was in large or medium sized firms, rather than small or micro firms. This is on the grounds that they were likely to have been better paid, and so these variables could be viewed as a proxy for access to capital.

Education. Those with higher educational qualifications may be viewed as lower risk than those with only elementary school experience because the performance of their enterprises is expected to be superior. [Gimeno et al. (1997) find support for this in the U.S., but Taylor (1999) finds this insignificant for the U.K.] More likely is that Application rates will be lower amongst less educated entrepreneurs who may be "intimidated" by the need to complete ranges of forms when they have only limited writing skills.

Age of owner. Cressy (1996), in his study of start up firms in the U.K., shows the age of the entrepreneur is a key influence upon new firm survival. He finds individuals aged around fifty when starting the business are up to three times more likely to survive for four years than individuals in their teen and early twenties. Young people are therefore significantly more likely to be viewed as risky by the bank. This is supported by Gimeno et al. (1997) in the U.S. who find that, whilst older founders are not likely to perform better than younger founders, they are less likely to quit, presumably because of a lack of employment options. This makes older entrepreneurs more attractive for bank lending.

Years at work. We assume the bank will view as lower risk a business where the owner has demonstrated a commitment – and durability – by working in that business for many years.

Other income: Access to sources of income, other than from the business, sends mixed signals of risk to the bank. On the one hand an additional source of income may give the bank confidence to lend on the grounds that, if the business fails, the owner may still be able to repay the loan from the “other” income source. Alternatively, the access to another source of income – possibly a pension – might signal a lack of the type of wholehearted commitment that a venture requires. Gimeno et al. (1997) identify precisely this conflict by showing that business owners with an “outside job” have businesses which “under-perform”, yet are less likely to exit.

5. Results

(i) Application and denial rates for bank loans: some general findings

Figure 1 provides some simple results for the sample as a whole on Application and Denial rates. The left-hand side of the figure presents data for all responding firms. This is available for 1,896 out of the 2,104 respondents. The right hand side presents data only for those where human capital data on the owner is available. This group excludes partnerships and limited companies and so their average size, in terms of employment, is considerably smaller than for all businesses taken together. A total of 1,319 cases are included.

For the sample as a whole, Figure 1 shows Application Rates for the overall sample are 38%, but only 30%, for sole proprietorships. Denial

Rates are 16% overall, so overall Loan Rates are 32%.

A second important finding is that, whilst Application rates clearly vary according to legal form, Denial Rates are almost invariant between the two groups. 16% of all firms in business at the time of the Survey and who reported having sought a bank loan were denied. The comparable figure was 17% for sole owners only.

The two sides of Figure 1 imply that Application rates are strongly influenced by firm size since sole proprietors are smaller either than partnerships or limited companies. This is confirmed in Figure 2 which shows that, whilst only 18% of enterprises without employees sought a loan, 82% of those with 20 or more employees did so. This proportion rises virtually monotonically with size.

Figure 2 also shows that Denial Rates broadly decrease with size but, once a threshold of 3/4 employees is achieved, size is less important

(ii) Loan rates, application rates and denial rates: By gender and ethnicity

Table V shows how Loan, Application and Denial Rates vary by gender and Ethnicity. Row 3 of the table shows statistically significant differences in Loan Rates between males and females, with males being 10% higher than for females. However these reflect differences in Application Rates, gender differences in Denial Rates not differing significantly.

The result is almost reversed for Ethnicity. Here Loan Rates for Africans are non-significantly

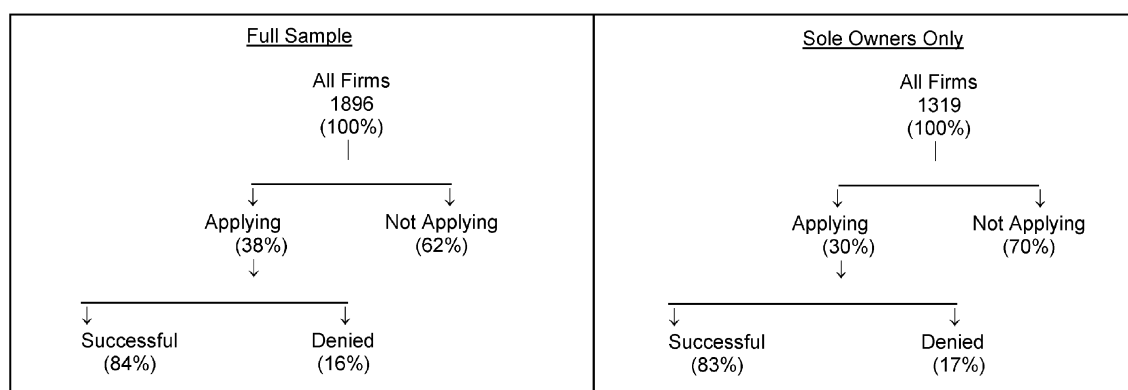


Figure 1. Application and Denial rates for bank loans.

Employment Size	Application Rate	Denial Rate
—		
0	18	27
1	26	27
2	43	16
3	46	10
4	56	16
5-6	65	8
7-10	60	9
11-19	72	18
20+	82	12

Figure 2. Application and Denial rates by firm size.

below those for Indians – although both groups are below those for Mixed and Other Races. However there are no significant differences in Application rates amongst Africans, Indians and those of *Mixed race*. Instead there is a statistically significant difference in Denial Rates, with those for Africans being virtually twice as high as for Indians.

(iii) *Application and denial rates: Multivariate analysis*

The remainder of this section will seek to explain Application and Denial Rates in Tables VI and VII respectively, with the simple correlation coefficients between these and the independent variables being shown as Appendix 2. This Appendix also shows correlation coefficients with Loan Rates.

Table VI seeks to explain Application Rates and Table VII explains Denial Rates. They are structured similarly. In the first column they show the maximum likelihood coefficients estimated in a Probit model, together with their standard errors and significance.⁴ In the second column the

marginal values are reported – defined as a change in the probability for an infinitesimal change in each independent continuous variable. For dummy variables it constitutes the discrete change in probability.

Columns one and two use data on all cases. As noted earlier, data on the human capital of the owner is available only for sole owners and so these variables are not included in the coefficients in columns one and two.

Columns three and four are in the same format as one and two, except they report coefficients for sole proprietors only (where human capital data are available), but also include as controls, Sector and Region. Clearly only Columns three and four can directly test for the presence of discrimination since it is only in these equations that Race and Gender variables are included.

However, for example, the significance of Ethnicity may influence Firm Size and so it could be that Africans are denied loans, not because they are Africans, but because they have smaller firms. To address this issue the full model, excluding Legal Status, is estimated in Columns five and

TABLE V
Application and Denial rates; By gender and ethnicity

	Male	Female	Sig.	African	Indian	Sig.	Mixed	Other
Application rate %	32	22	$t = 3.755$	30	28	$t = 0.8386$	30	40
Denial rate %	17	20	$t = 0.614$	29	15	$t = 2.929$	7	0
Loan rate %	28	18	$t = 2.745$	21	24	$t = 0.7766$	28	40

TABLE VI
Maximum likelihood estimates of Application Rates (A): Probit

Variable Group	Variable Name	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx
Sector	PET	0.121 (0.379)	0.047			-0.195 (0.400)	-0.060
	MF	0.106 (0.509)	0.041	0.029 (0.130)	0.009	-0.051 (0.162)	-0.017
	CON	0.944 (2.277)**	0.359			1.016 (1.267)	0.386
	PERSERV	0.060 (0.320)	0.023	-0.341 (-1.846)*	-0.108 -0.002	-0.179 (0.621)	-0.057
	DIST	0.248 (1.411)	0.093	-0.007 (0.041)		0.146 (0.523)	0.048
Region	NORTH-EAST	-0.019 (-0.145)	-0.007	-0.216 (-1.605)	-0.069	0.023 (0.120)	0.007
	CARONI	-0.415 (-3.343)***	-0.151	-0.662 (-4.707)***	-0.195	-0.458 (2.739)**	-0.140
	SOUTH	-0.496 (-4.594)***	-0.184	-0.749 (-6.091)***	-0.237	-0.645 (4.505)***	-0.209**
	TOBAGO	0.711 (2.834)***	0.278	1.045 (2.935)***	0.397	0.999 (2.577)**	0.399
Legal Status	LTDCO	0.435 (3.270)***	0.170				
	PARTNERS	0.369 (3.157)**	0.145				
Firm Size	EMP	0.171 (7.273)***	0.065			0.217 (5.858)***	0.072
	EMPSQ	-0.007 (-5.753)***	-0.003			-0.013 (4.927)***	-0.004
Performance	SALES_UP	0.241 (1.408)	0.093			0.198 (0.893)	0.068
	PERF	-0.103 (-1.160)	-0.039			-0.170 (1.447)	-0.056
Firm Age	FIRIMAGE	0.028 (3.671)***	0.011			0.011 (0.462)	0.004
	SQFMAGE	-0.000 (-1.961)**	-0.000			0.000 (0.514)	0.000
Exporter	EXPORT	0.071 (0.312)	0.027			1.401 (2.658)**	0.056
	POTEXP	0.958 (3.814)***	0.364			1.238 (3.186)***	
Premises	PREM_RENT	-0.094 (-0.759)	-0.036			-0.137 (0.904)	-0.044
	PREM_OWN	-0.232 (-2.004)**	-0.088			-0.368 (2.742)**	-0.121
Capital Equipment	OWN_QIP	0.188 (1.341)	0.069			0.214 (1.215)	0.066
	LEAS_QIP	0.284 (1.136)	0.111			0.159 (0.534)	0.055
Record Keeping	REC_AGEN	0.427 (3.982)***	0.167			0.615 (3.934)***	0.225
	REC_COMP	0.336 (2.208)**	0.131			0.459 (1.733)*	0.167
Location	GOODLOC	0.226 (2.108)**	0.084			0.308 (2.312)**	0.095

TABLE VI (Continued)

Variable Group	Variable Name	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx
Human Capital							
Prior Employment	LARGE			0.074 (0.495)	0.028	0.014 (0.079)	0.005
	SMALL			0.089 (0.614)	0.032	−0.022 (0.134)	−0.008
	MEDIUM			0.142 (0.908)	0.051	0.129 (0.698)	0.044
	UNEMPLOYED			−0.181 (−1.001)	−0.062	−0.037 (0.169)	−0.012
	EMPLOYED			0.126 (0.6434)	0.034	0.277 (1.174)	0.088
Ethnic	AFRICAN			0.049 (0.374)	0.017	0.170 (1.057)	0.057
	INDIAN			0.067 (0.584)	0.020	0.045 (0.312)	0.015
Education	GRADTEC			0.285 (2.481)**	0.099	−0.260 (1.723)*	−0.081
	SECONDRY			0.178 (1.853)**	0.060	0.007 (0.059)	0.002
Gender	MALE			0.192 (1.986)**	0.064	−0.045 (0.370)	−0.015
Age of Business Owner	AGE			0.219 (3.371)***	0.045	−0.252 (3.229)***	−0.083
Years at Work	WORKYEAR			0.053 (4.491)***	0.017	0.027 (0.955)	0.009
	SQWKYR			−0.000 (−2.826)**	−0.000	−0.000 (1.262)	−0.000
Other Income	OTHINC			0.148 (1.306)	0.055	0.307 (2.322)**	0.107
	CONST	−1.360 (−5.034)***		−0.298 (−0.920)		−0.873 (1.814)*	
		$n = 1452$ $\text{Chi}^2_{(26)} = 418.4$ Pseudo $R^2 = 0.2148$	$n = 1222$ $\text{Chi}^2_{(21)} = 160.62$ Pseudo $R^2 = 0.109$		$n = 968$ $\text{Chi}^2_{(38)} = 234.12$ Pseudo $R^2 = 0.198$		

Sig.: *** = 0.01; ** = 0.05; * = 0.10.

six.⁵ The Ethnic and Gender coefficient is therefore estimated taking full account of Risk characteristics.

(a) Application rates

Table VI shows the maximum likelihood coefficients estimated from a Probit model of Application rates. In the first column all the significant variables, with one exception, have the expected signs. The legal form variables show partnerships (PARTNERS) and limited companies (LTDCO) are more likely to have applied for loans. Both the

size (EMP) and Age of business (FIRMAGE) positively influence the Application rate, with the squared term being negative. Whilst there is no clear relationship between firms currently exporting (EXPORT) and those applying for bank loans, the POTEXP variable is significantly positive – suggesting that those firms seriously considering exporting are more likely to apply. Three other variables, as hypothesised, are positively related to the likelihood of applying. Two of these relate to the keeping of records implying that, where these are held by a specialist agency

TABLE VII
Denial Rate (D): Maximum likelihood estimates: Probit

Variable Group	Variable Name	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx
Sector	MF	0.376 (1.034)	0.088	0.608 (1.030)	0.164	0.361 (0.461)	0.058
	CON	0.395 (0.711)	0.096				
	PERSERV	0.640 (1.946)*	0.159	0.901 (1.621)	0.247	0.744 (0.997)	0.130
	DIST	0.230 (0.755)	0.044	0.498 (0.942)	0.096	0.369 (0.512)	0.045
Region	NORTH-EAST	0.781 (3.559)***	0.202	1.065 (3.734)***	0.290	1.509 (3.276)***	0.370
	CARONI	0.740 (3.167)***	0.189	0.769 (2.457)**	0.206	1.481 (3.13)**	0.333
	SOUTH	0.152 (0.691)	0.031	0.033 (0.109)	0.007	0.487 (1.125)	0.070
	TOBAGO	0.437 (1.198)	0.108	0.241 (0.519)	0.057	1.047 (1.693)*	0.246
Legal Status	LTDCO	0.252 (1.179)	0.054				
	PARTNERS	0.261 (1.283)**	0.058				
Firm Size	EMP	-0.101 (-2.269)**	-0.020			-0.157 (1.735)*	-0.020
	EMPSQ	0.004 (1.911)*	0.001			0.005 (0.859)	0.006
Performance	SALES_UP	0.069 (0.210)	0.014			-1.058 (1.859)*	-0.088
	PERF	0.040 (0.227)	0.008			0.379 (1.254)	0.049
Firm Age	FIRMAGE	-0.004 (-0.340)	-0.001			-0.268 (2.232)**	-0.034
	SQFMAGE	0.000 (0.163)	0.000			0.003 (2.251)**	0.003
Exporter	EXPORT	0.116 (0.361)	0.024			0.049 (0.050)	0.007
	POTEXP	0.567 (2.156)**	0.146			0.659 (1.310)	0.127
Premises	PREM_RENT	-0.254 (-1.122)	-0.049			0.030 (0.092)	0.004
	PREM_OWN	-0.291 (-1.302)	-0.057			-0.385 (1.127)	-0.048
Capital Equipment	OWN_QIP	-0.251 (-0.939)	-0.056			-0.406 (0.841)	-0.066
	LEAS_QIP	0.501 (1.411)	0.129			-0.655 (0.726)	-0.053
Record Keeping	REC_AGEN	-0.206 (-1.097)	-0.038			-0.172 (0.450)	-0.020
	REC_COMP	0.205 (0.978)	0.044			0.213 (0.452)	0.032
Location	GOODLOC	-0.456 (-2.199)**	-0.110			-0.651 (1.884)*	-0.119

TABLE VII (Continued)

Variable Group	Variable Name	Coeff.	Marg dF/dx	Coeff.	Marg dF/dx (E)	Coeff.	Marg dF/dx
Human Capital							
Prior Employment	LARGE			0.233 (0.695)	0.052	0.287 (0.646)	0.042
	SMALL			0.272 (0.835)	0.061	0.200 (0.443)	0.027
	MEDIUM			0.080 (0.226)	0.017	0.205 (0.442)	0.029
	UNEMPLOYED			-0.299 (-0.802)	-0.055	-0.814 (1.742)*	-0.069
	EMPLOYED			-0.516 (-1.248)	0.127	-1.189 (2.178)**	-0.242
Ethnic	AFRICAN			1.147 (3.593)***	0.312	1.301 (2.812)**	0.257
	INDIAN			0.394 (1.357)	0.081	0.220 (0.509)	0.028
Education	GRADTEC			-0.442 (-1.672)*	-0.081	-0.038 (0.095)	-0.005
	SECONDRY			-0.087 (-0.416)	-0.018	-0.068 (0.243)	-0.009
Gender	MALE			0.005 (0.027)	0.001	-0.295 (0.982)	-0.034
Age of Business Owner	AGE			-0.436 (-0.536)	-0.092	-0.472 (0.481)	-0.062
	SQAGE			0.076 (0.525)	0.016	0.070 (0.400)	0.009
Years at Work	WORKYEAR			-0.037 (-1.483)	-0.008	0.233 (1.853)*	0.030
	SQWKYR			0.001 (1.357)	0.000	-0.002 (1.246)	-0.000
Other Income	OTHINC			-0.052 (-0.202)	-0.011	-0.180 (0.515)	-0.021
	CONST	0.711 (1.410)		1.252 (0.964)		0.747 (0.443)	
		$n = 573$ $\text{Chi}^2_{(25)} = 64.87$ Pseudo $R^2 = 0.1337$			$n = 361$ $\text{Chi}^2_{(22)} = 64.89$ Pseudo $R^2 = 0.1906$		
						$n = 291$ $\text{Chi}^2_{(38)} = 95.28$ Pseudo $R^2 = 0.3527$	

Sig.: *** = 0.01; ** = 0.05; * = 0.10.

(REC_AGEN), or where they are held on computer (REC_COMP), this positively influences application. Given the dominance, amongst the Surveyed firms, of those in Distribution and personal services it is also not surprising that the GOODLOC variable is significant.

Finally, three of the regional variables are highly significant indicating that firms in the south of Trinidad, and those in the CARONI region, are

much less likely to apply. However those in TOBAGO are more likely to apply than in the “standard” region of the NORTH-WEST.

The only variable with a significant, but unexpected sign is PREM_OWN implying that businesses owning their own premises are less likely to apply to the bank for funding. Earlier we hypothesised the reverse, on the grounds that such businesses would believe the bank is more likely

to grant them a loan because of access to collateral. One possible explanation for this unexpected finding may be that in many cases bank loans are for the purchase of property, which is less relevant to those who already own their premises. Unfortunately we cannot test this since we do not know the purpose to which the loan was put.

The second column shows the effect of a marginal change in a given covariate on the probability of applying for a loan. Several of the variables have major impacts given that, overall, the application rate is 35%. For example the probability of applying is, at the margin, 17% higher amongst limited companies, in comparison with otherwise similar sole traders. Even partnerships add 14% to the application rates. However the highest marginal impact is for POTEXP, implying that those micro enterprises considering, but not yet, exporting were likely to raise the application rate by 36%, compared with otherwise similar micro enterprises.

The second two columns of Table VI seek to explain Application rates in terms of only human capital variables- together with sectoral and regional dummies. Since the human capital variables apply only to sole proprietorships, variations in legal form are excluded. Explaining variations in Application rates using only human capital values (plus sector and regional dummies) is much less satisfactory than using Risk characteristics, in terms of Pseudo R^2 . In fact it is the three regional dummies that undertake most of the “work” in this equation.

The key human capital influences are that the significantly positive sign on MALE implies females are less likely to apply. It also shows that those with educational experience above the minimum (GRADTEC, SECONDRY) are more significantly more likely to apply. Not surprisingly, we also observe that years of working in the business (WORKYEAR) is positively associated with higher Application rates.

The Age of the Business Owner (AGE) variable, however, has an unexpectedly negative sign in the Application equation, implying it is younger, rather than older, business owners that are more likely to apply. The introduction of SQAGE, however, leads to both variables being insignificant, so the AGE variable alone is retained in this equation.

When magnitudes are considered in the fourth column it is also apparent that the Human Capital variables explain little of the variation in Application rate. For example, even the GRADTEC variable raises application rates by less than 10%, and the MALE variable raises them by only about 6%.

It is also appropriate to comment on the insignificant variables. The first is the absence of any prior employment experience variables, although when the UNEMPLOYED variable, is included on its own it has a significantly negative sign. The non-significant Ethnic variables imply little difference between the ethnic groups in terms of Application rates.

The final two columns of the Table show the “full” equations. These examine whether, for sole proprietorships, the same Human Capital variables influence Application when all Risk and Human Capital “controls” are included. There are some interesting changes. The Education variables are less powerful compared with Columns 3 and 4, but the OTHINC variable now has a significantly positive sign. AGE continues to have a significant negative sign.

However, for the purposes of this paper, the key result is that, when all other factors are taken into account, neither the Ethnic nor the Gender variable influence Application rates.

(b) Denial rates

This section follows the same format as the above section. The first two equations explain bank borrowing Denial rates in terms of Sector, Regional and Risk Indicator variables; the second two explain Denial rates in terms of Human Capital, Sector and Region variables. The final two columns show the “combined” model.

The first two columns of Table VII provide only a weak explanation of Denial. The two Risk indicator variables shown to be significant are firm size (EMP) and GOODLOC. Both are in line with our *a priori* hypotheses in Table IV. Even so, it will be recalled from Figure 2 that employment size was only a clear influence on Denial rates up until 3/4 employees. It is also interesting that the same two Region variables – NORTH-EAST and CARONI – both appear significantly in the Application and the Denial equation, suggesting real geographical differences even on a single

small island. The TOBAGO influence is not present.

However the surprising variable is POTEXP. This has a significant positive sign implying that small and micro enterprises considering, but not currently, exporting are more likely to be denied in their loan applications. The surprise is because Table VI showed such firms were more likely to apply. Furthermore this variable has a strong marginal impact, implying that a potential exporter's chances of obtaining a loan are virtually 15% below those of an otherwise comparable non-exporter. Our best explanation for this finding is that such businesses, because they are considering exporting for the first time, are deemed particularly risky by the lender. These fears may be based on a heightened risk of over-trading.

The strong Regional findings are repeated in columns 3 and 4 of Table VII. They show the human capital, Sector and Regional factors influencing Denial. Recalling that such data can only be analysed for sole proprietorships, the Table shows the continuing powerful role of the NORTH-EAST and CARONI variables.

Our prime interest, however, is in the human capital variables. The table shows that, even taking account of Region and Sector, businesses owned by those of African descent (AFRICAN) are much more likely to be denied credit – having made an application- than applicants from Mixed race. The AFRICAN coefficient is strongly positive, implying that such businesses are less likely to be successful in applications for loans. This clearly contrasts with our earlier finding that businesses owned by those of African descent were no less (and no more) likely to apply for loans than other ethnic groups. It is also the reverse of the result obtained by Raturi and Swamy (1999). The findings of the impact of Gender on Denial rates are broadly the same as in Table VI, with the MALE variable being not significant.

Both these results contrast with Application and Denial Rates for Businesses owned by those with the highest academic qualifications (GRADTEC). This variable is positive in Table VI but negative in the second group of columns in Table VII, implying that those with high educational qualifications are both more likely to apply and less likely to be denied in their application for bank loans. As in the Application equation, the prior

employment experience variables do not appear to influence Denial rates.

It is interesting that in Table VI it was the Risk indicator variables which were most powerful in explaining application rates whereas the human capital influences were weak. The reverse is the case in the third and fourth columns of Table VII on Denial rates. Here the human capital influences are comparatively strong, but the Risk Indicator variables weak.

We now, in the final two columns examine whether combining the Risk indicators with the Human Capital characteristics, changes the significance of the latter variables. Most importantly, given the focus of this paper, we find the AFRICAN variable continues to be positive and significant. It suggests that, even when account is taken of a wide range of risk indicators and other human capital measures, African business owners are more likely to report having been denied access to bank finance. Even more striking is the scale of the effect, with African owners being 26% more likely to report Denial, even after taking all other influences into account.

The other interesting changes between columns 4 and 6 is that the EMPLOYED variable now becomes significantly negative, implying that the individual making the transition to business ownership from being employed is less likely to report being denied a loan. This influence is powerful, reducing Denial rates by 24%. Less powerful, but still just significant, is the negative sign on UNEMPLOYED. This is driven by Denial rates being high for those who had been in business before, and those with no prior job, neither of which were classified as Unemployed.

6. Testing the hypotheses

This section examines the results generated in terms of the Hypotheses H1 to H5. In a univariate framework, the paper shows significant gender variations in Application rates and significant Ethnic differences in Denial rates for bank loans in Trinidad and Tobago, so supporting Hypothesis H1. However the gender variations disappear in a multi-variate framework, whereas the Ethnic differences remain.

So, whilst the univariate finding that 33% of males report having applied for a bank loan,

compared with only 22% of females, might appear to support H2, when account is taken of other Risk and Human Capital characteristics, these differences are no longer significant.

Hypothesis H3 is however supported, as there is no significant difference in Denial rates between males and females. Discrimination against females cannot therefore be identified.

More mixed support for H4 is provided. This hypothesised that African business owners would be more likely to apply, *and* more likely to be rejected, for loans than those from other ethnic groups. The evidence in the paper is clear. Even when account is taken of a wide range of other Risk and Human Capital characteristics, Africans are more likely to be denied loans than others. Simply being African adds about 25% to the probability of reporting being rejected for a loan. However, there is no evidence of higher application rates from Africans. Instead, Application rates from the African group are very similar to Indians and those of Mixed race.

Findings, based on univariate analysis do not constitute evidence of the presence of discrimination, since other measures of risk are not taken into account. Hypothesis H5 is that some of these differences continue even after other risk indicators are included. Our interpretation is that there is a case that Discrimination exists in the loan market against Africans. We find no evidence of Gender discrimination.

7. Conclusion

Several key conclusions emerge from this paper. The first, strongly supporting Raturi and Swamy, is that, in discussing the distribution of bank lending to small businesses, it is important to look beyond recipients and non recipients of loans. The distinction has to be made between Application Rates and Denial Rates. However, unlike them, we are not directly able to measure Rejection since we have no measure of the proportion of businesses actually wanting loans.

Nevertheless, the first key finding of this paper is that, whilst Gender and Ethnicity are not powerful explanations of the distribution of loans, both have potentially important influences on Application and Denial Rates.

The second key univariate finding of the paper,

which supports that found in some other empirical work, is that females are less likely to apply for bank loans than males. This continues to be present when other measures of Human Capital are included in the equation, but disappears when all Risk measures are included. Our judgement is that there is some, but weak, evidence of a reluctance of females to apply for loans. Nevertheless it is interesting that, since the results of this research entered the public domain, banks in Trinidad and Tobago have sought to enhance the flow of information through a major Radio, Television and Press Advertising campaign. They have sought to make businesses aware of the high success rates in applications for funding. Much of this has been focused on female-owned businesses

The third key finding of the paper is the most robust and important. We find that businesses owned by those of African descent are slightly less likely to have/have had a bank loan than those owned by individuals from other ethnic groups. Raturi and Swamy in their study in Zimbabwe found that African owners were more likely to report having been rejected for a loan primarily because they were more likely to have made an Application. We find almost the opposite. We show that application rates from businesses owned by Africans are identical to those owned by most other races. However we find that reported Denial Rates are much higher, even taking account of a wide range of Risk and Human Capital characteristics of the owner. Holding all these factors constant, being African seems to add 25% to reported Denial Rates.

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Appendix 1: Summary Statistics

Group	Variable Name	Obs	Mean	S.d.
Dependent variables	A	1896	0.38	0.48
	D	723	0.16	0.05
	LOAN	2091	0.29	0.45
Sector	PET	2091	0.02	0.14
	MF	2091	0.08	0.27
	CON	2091	0.01	0.11
	PERSERV	2091	0.20	0.40
	DIST	2091	0.63	0.48
	OTHS	2091	0.06	0.24
Region	NORTH-EAST	2091	0.21	0.41
	CARONI	2091	0.21	0.41
	SOUTH	2091	0.36	0.48
	TOBAGO	2091	0.02	0.15
	NORTH-WEST	2091	0.19	0.39
Legal Status	LTDGO	2091	0.13	0.34
	SOLEPRO	2091	0.72	0.45
	PARTNERS	2091	0.12	0.33
Firm Size	EMP	2089	3.31	4.68
	LOGEMP	1371	1.23	0.86
	EMPSQ	2089	32.89	88.4
Performance	SALES_UP	1890	0.20	0.39
	SALES_DN	1890	0.51	0.49
	SALES_ST	1890	0.28	0.44
	PERF	1890	-0.31	0.79
	SUCCESS	1801	0.56	0.50
	NOTSUC	1801	0.44	0.49
Age of Firm	FIRMAGE	1921	13.4	12.11
	SQFMAGE	1921	179.6	684.1
Exporter	EXPORT	2091	0.04	0.19
	POTEXP	2091	0.03	0.17
	EXPALL	2091	0.07	0.25
Premises	PREM_RENT	2084	0.38	0.49
	PREM_OWN	2084	0.48	0.50
	PREM_HOME	2084	0.12	0.32
	NPREMS	2084	1.31	0.77
Capital Equipment	OWN_QIP	1908	0.90	0.41
	LEAS_QIP	1908	0.04	0.16
	RENT_QIP	1908	0.02	0.14
	BORR_QIP	1908	0.01	0.10
Record Keeping	REC_AGEN	2091	0.16	0.36
	REC_HAND	2091	0.76	0.43
	REC_COMP	2091	0.08	0.28
Location	GOODLOC	2008	0.83	0.38

Appendix 1 (Continued)

Group	Variable Name	Obs	Mean	S.d.
Human Capital				
Prior Employment	LARGE	1372	0.181	0.386
	SMALL	1372	0.243	0.429
	MEDIUM	1372	0.152	0.359
	PUBLIC	1372	0.116	0.320
	UNEMPLOYED	1372	0.234	0.423
	EMPLOYED	1372	0.692	0.461
Ethnic	AFRICAN	1405	0.243	0.429
	INDIAN	1495	0.588	0.492
	MIXED	1405	0.122	0.328
	OTHRACE	1405	0.046	0.210
Education	PRIMARY	1382	0.410	0.492
	SECONDARY	1382	0.394	0.489
	GRADTEC	1382	0.197	0.398
Gender	MALE	1380	0.693	0.461
Age of Owner	AGE	1393	2.727	0.804
	SQAGE	1393	8.083	4.546
Years at Work	WORKYEAR	1355	11.516	9.546
	SQWKYR	1355	224.3	414.1
Other Income	OTHINC	1408	0.157	0.363

Appendix 2: Correlation coefficients

Group	Variable Name	A	D	LOAN
Sector	PET	0.037	-0.044	0.024
	MF	0.059	0.008	0.043*
	CON	0.072**	-0.015	0.066**
	PERSERV	-0.090***	-0.073*	-0.092***
	DIST	-0.012	-0.019	0.007
	OTHS	0.072**	-0.015	0.066**
Region	NORTH-EAST	0.086***	0.180***	0.017
	CARONI	-0.111***	0.086**	-0.117***
	SOUTH	-0.144***	-0.128***	-0.066**
	TOBAGO	0.103***	0.003	0.087**
	NORTH-WEST	0.169***	-0.119***	0.153***
Legal Status	LTDCO	0.269***	-0.025	0.215***
	SOLEPRO	-0.279***	0.013	-0.212***
	PARTNERS	0.098***	0.004	0.070**
Firm Size	EMP	0.346***	-0.087**	0.274***
	LOGEMP	0.303***	-0.080*	0.239***
	EMPSQ	0.247***	-0.046	0.189***

Appendix 2 (Continued)

Group	Variable Name	A	D	LOAN
Performance	SALES_UP	0.117***	0.005	0.081***
	SALES_DN	−0.045*	0.010	−0.031
	SALES_ST	−0.053**	−0.016	−0.037
	NPERF	0.088***	−0.003	0.061***
	SUCCESS	0.044*	−0.042	0.032
	NOTSUC	−0.044*	0.042	−0.032
Firm Age	FIRMAGE	0.169***	−0.081**	0.162***
	SQFMAGE	0.120***	−0.053	0.115***
Exporter	EXPORT	0.152***	0.003	0.104***
	POTEXP	0.128***	0.077*	0.080***
	EXPALL	0.201***	0.058	0.133***
Premises	PREM_RENT	0.101***	−0.010	0.061***
	PREM_OWN	−0.052**	−0.096**	−0.006
	PREM_HOME	−0.054**	0.119***	−0.059***
	NPREMS	0.002	−0.141***	0.035
Capital Equipment	OWN_QIP	0.030	−0.073*	0.039*
	LEAS_QIP	0.051**	0.075*	0.013
	RENT_QIP	0.063**	0.033	0.029
	BORR_QIP	−0.015	0.044	−0.031
Record Keeping	REC_AGEN	0.200***	−0.084	0.180***
	REC_HAND	−0.056**	0.049	−0.052**
	REC_COMP	0.207***	−0.005	0.158***
Location	GOODLOC	0.122***	−0.116**	0.124***
Human Capital				
Prior Employment	LARGE	0.099***	0.013	0.083**
	SMALL	0.010	0.062	−0.007
	MEDIUM	0.050	−0.073	0.064**
	PUBLIC	0.029	−0.074	0.046*
	UNEMPLOYED	−0.161***	0.019	−0.145***
	EMPLOYED	0.150	−0.052	0.144***
Ethnic	AFRICAN	0.012	0.186***	−0.039
	INDIAN	−0.041	−0.056	−0.021
	MIXED	0.004	−0.072	0.023
	OTHRACE	0.066**	−0.122**	0.096***
Education	PRIMARY	−0.119***	0.092**	−0.128***
	SECONDRY	0.046*	−0.006	0.039
	GRADTEC	0.092***	−0.107**	0.112***
Gender	MALE	0.103***	−0.031	0.098***
Age of Business Owner	AGE	−0.002	−0.102	0.024
	SQAGE	−0.008	−0.096	0.017
Years at Work	WORKYEAR	0.097***	−0.041	0.096***
	SQWKYR	0.054*	−0.011	0.051*
Other Income	OTHINC	0.033	−0.067	0.047*

Notes: * sig at 10% level; ** sig at 5% level; *** sig at 1% level.

Notes

¹ The sample frame is derived from the Trinidad and Tobago Central Statistical Office Register of Business Establishments. This register is considered to be the most exhaustive and current list available on establishments on the two islands. A total of 3,847 establishment addresses were selected from the Register and personal – face-to-face – visits made to each enterprise. A total of 1,586 businesses were either untraceable or refused to participate and 2,261 interviews were undertaken. After checking, 157 were rejected mainly on the grounds of not being independent businesses or being too large (> 26 employees). The fieldwork was supervised by a Survey Supervisor, 5 other supervisors and 29 enumerators and, including one weeks training, took three months to complete.

² It is certainly the case that businesses themselves view a key advantage of corporate status as “credibility”. Freedman and Godwin (1994) in their U.K. survey of small enterprises found the second most powerful reason for small enterprises choosing limited company status – after limited liability – was the prestige/credibility this provided.

³ Honig (1998) in his study of micro enterprises in Jamaica argues that it is possible to obtain accurate estimates of entrepreneurial income, but only through face to face interviewing with a single individual (himself) able to accurately assess the validity of the replies. This reduces the feasible sample size considerably.

⁴ Standard errors are computed using Hubers method, STATA, Release 6.

⁵ The more complex relationship that Africans are denied loans, so their firms are unable to grow and hence are smaller, and so are denied loans is recognised but not addressed.

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