



**2012 Survey of Mozambican Manufacturing Firms**  
***Inquérito as Indústrias Manufactureiras 2012***  
***(IIM 2012)***



Descriptive Report

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The intent of the discussion paper series is to stimulate and exchange ideas on issues pertinent to the economic and social development of Mozambique. A multiplicity of views exists on how to best foment economic and social development. The discussion paper series aims to reflect this diversity.

**As a result, the ideas presented in the discussion papers are those of the authors. The content of the papers do not necessarily reflect the views of the Ministry of Planning and Development or any other institution within the government of Mozambique.**

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## **Preface**

This report presents results from a survey of Mozambican manufacturing firms in 2012 (Inquérito às Indústrias Manufactureiras 2012 or simply IIM 2012). The survey was planned and carried out by the Confederation of Business Associations (CTA) together with the National Directorate of Studies and Policy Analysis (DNEAP) at the Ministry of Planning and Development (MPD) and the Development Economics Research Group (DERG) at the Department of Economics at University of Copenhagen, realized with financial support from the Danish International Development Agency (DANIDA).

The survey follows up on previous surveys conducted by DNEAP (2006) and the World Bank (ICA, 2009) and tracks 216 firms from these surveys. In addition, 545 not previously surveyed firms were interviewed. The geographical coverage is 10 cities (Maputo, Matola, Beira, Nampula, Nacala, Chimoio, Tete, Moatize, Xai-Xai and Chokwé) in 7 provinces in Mozambique that together hold some 60 pct. of the population of Mozambican manufacturing companies.

The sampling strategy and questionnaire were prepared by DNEAP and DERG in collaboration with CTA. The interviews were conducted by a team of enumerators led by CTA in May-August 2012, with DNEAP and DERG in an assisting role. Data entry was done by the staff at Mozambique's National Institute of Statistics (INE) and subsequent validation and data analysis was done by DERG.

The survey is designed as collaborative research with the objective of collecting and analyzing data for the Mozambican SME manufacturing sector, with more respondents and a wider geographical coverage than in previous surveys. Particular topics of interest are enterprise dynamics as well as issues regarding the business environment, access to finance, investments, enterprise formality, employment conditions and trade.

The present report provides an overview of the key insights from the IIM 2012 database, comparing when appropriate to the DNEAP (2006) and World Bank (ICA, 2009) surveys. It should be noted, however, that the present report by no means pretends to offer an exhaustive account of the data collected – the reader is encouraged to check out the questionnaire (available on-line). Rather, we hope that this report can serve as inspiration for further in-depth studies of issues on private sector development in Mozambique.

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## Abbreviations and Acronyms

BAÚ	One Stop Shop (Balcão Único)
CEMPRE	INE Census of Enterprises
CAE	Economic Activity Code (Código de Actividade Económica)
CREL	Legal Entities Registrar (Conservatória do Registo das Entidades Legais)
CTA	Confederation of Mozambican Business Associations
DANIDA	Danish International Development Agency
DERG	Development Economics Research Group (at UoC)
DNEAP	National Directorate of Studies and Policy Analysis (at MPD) (Direcção Nacional de Estudos e Análises de Política)
DNEAP06	Shorthand for firm survey done by DNEAP in 2006
DPIC	Provincial Directorate for Industry and Commerce (Direcção Provincial de Indústria e Comércio)
EDM	Mozambique's Electricity Company (Electricidade de Moçambique)
Frelimo	Mozambique's Liberation Front (governing party) (Frente de Libertação de Moçambique)
GoM	Government of Mozambique
ICA	Investment Climate Assessment
ICA09	Shorthand for firm survey done by the World Bank in 2007-2008
IIM 2012	Inquérito às Indústrias Manufactureiras 2012 (this survey)
IMF	International Monetary Fund
INE	National Institute of Statistics (Instituto Nacional de Estatística)
IOF	Household survey conducted in 2008/09 (Inquérito aos Orçamentos Familiares)
IPEX	Mozambican Export Promotion Institute (Instituto de Promoção de Exportações)
ISIC	International Standard Industrial Classification
MIC	Ministry of Industry and Commerce in Mozambique
MPD	Ministry of Planning and Development in Mozambique
NUIT	Individual Tax Payer Number
OLS	Ordinary Least Squares
R&D	Research and Development
RPED	Regional Programme on Enterprise Development
SADC	Southern African Development Community
SEZ	Special Economic Zone
SMEs	Small and Medium Enterprises
UoC	University of Copenhagen
ZEEN	Nacala Special Economic Zone (Zona Económica Especial de Nacala)

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Finally, while advice has been received from many colleagues and friends, the research team takes full responsibility for any remaining errors and shortcomings in interpretation. All the usual caveats apply.

## 1. Introduction

Since the end of the war in 1992, Mozambique has enjoyed strong and sustained economic growth, averaging around 7 pct. per year (see e.g. KPMG, 2011). After the low hanging fruits from postwar reconstruction were reaped, this growth has to some extent been driven by overseas development assistance and the so-called megaprojects (large, capital-intensive, foreign-owned operations) and has not been accompanied by a widespread structural transformation (Jones and Tarp, 2012; Page, 2012). After the war, peace and stability initially succeeded in bringing down poverty, but the poverty reduction record has been less impressive in the new millennium. According to the Third National Poverty Assessment (DNEAP, 2010), poverty dropped quite substantially between 1996 and 2002, but has since stagnated at around 55 pct. of the population.

Mozambique thus faces three very important challenges: (i) to diversify its economy, (ii) to begin the process of structural transformation and (iii) to achieve broad based gains in living standards. Along with agriculture, industry (including manufacturing) plays a central role in meeting these three challenges. This is recognized by the Mozambican government in the Industrial Policy and Strategy (Government of Mozambique; GoM, 2007b), The Poverty Reduction Action Plan for 2011-2014 (GoM, 2011) and the Economic and Social Plan (GoM, 2010).

There is a clear role for the manufacturing sector in the Mozambican economy, but how is the sector performing? Manufacturing output soared from 2000 till 2006, but this was almost entirely due to the Mozal aluminum smelter, one of the megaprojects that employs around 1,200 workers and accounts for some 75 pct. of manufacturing output as well as almost 50 pct. of total exports.<sup>1</sup> Twenty years after the war, the manufacturing sector still only employs 2.8 pct. of the labor force (Jones and Tarp, 2012), it has introduced very few new products in the last half century (Castel-Branco, 2010) and has been (excluding Mozal) growing at much lower rates than the rest of the economy for the past decade (KPMG, 2011).

Earlier studies of the Mozambican manufacturing sector suggest that the Mozambican manufacturing sector has been experiencing a weakening of technological capacity and skills base (Warren-Rodriguez, 2010) and that the growth in productivity that has been achieved is primarily attributable to higher capacity utilization (Bila and Rand, 2011). In addition, Krause and Kaufmann (2011) in their investigation of industrial policy in Mozambique highlight the substantial need to improve the design and implementation of industrial policies.

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<sup>1</sup> See e.g. The Mozambican Export Promotion Institute (IPEX), cited by AllAfrica.com on August 12<sup>th</sup>, 2012. Another way of seeing this is that Mozal generates slightly more than four times as much revenue as the next 20 biggest manufacturers combined (KPMG, 2011).

The discoveries of vast amounts of coal in Tete and gas off the coast in Cabo Delgado will transform Mozambique's economy fundamentally in the coming decades. Depending on policy measures taken, they will also pose challenges in terms of some potential Dutch Disease problems, possibly undermining the competitiveness of the manufacturing sector. With these issues lurking in the horizon, it is more important than ever to understand the dynamics and the challenges faced by Mozambican manufacturers. Fortunately, this is exactly what the current document sets out to do.

This report describes the manufacturing sector in Mozambique using a new dataset on 761 micro, small and medium sized enterprises (SMEs) operating in the manufacturing sector. The enterprises are located in the biggest cities in seven provinces (Maputo City, Maputo Province, Gaza, Sofala, Manica, Tete and Nampula) and comprise both formal and informal enterprises. Of the interviewed firms, 216 are repeat entries that were also interviewed in two former surveys (the DNEAP Mozambican Enterprise Survey of 2006 and/or the ICA data from 2009).

The survey has two main goals: to follow as many firms from earlier surveys as possible in order to get a feeling of survival rates and to obtain a sample of the current population of manufacturing SMEs in Mozambique that is as representative as possible.

By its nature, a survey is backward-looking. The IIM 2012 does not include companies that started operations after 2009. This could be important, as there are some very recent developments in the Mozambican manufacturing landscape, which we are not able to cover. A prime example of this is the Nacala special economic zone (the ZEEN) that opened for investments in 2009.

The report has a serial as well as a parallel structure. The parallel structure consists of three important dimensions that serve to guide the description and analysis in the coming chapters. The idea is that firms that differ along these dimensions may face very different problems and have very different characteristics.

Firstly, size matters. Larger companies are more powerful in negotiations, they are more robust to shocks and they have more financial muscle, enabling them to undertake investments more easily. On the other hand, smaller firms are nimbler and can be more flexible. The size dimension is divided into three size categories using the standard World Bank definition; micro (1-9 employees), small (10-49) and medium (50-299), counting only full-time permanent employees.

Secondly, Mozambique is a huge and very diverse country. The business climate and access to markets varies widely from inland towns such as Tete and Chimoio to the more urbanized, more well-connected coastal hubs of Beira and Maputo. The geography dimension is divided by location of company

headquarters (10 in total): Maputo, Matola, Beira, Nampula, Nacala, Chimoio, Tete, Moatize, Xai-Xai and Chokwé.

Thirdly, the informal sector is receiving a lot of attention these days, both academically (see e.g. Byiers, 2009), but also politically.<sup>2</sup> Being informal might make some things more difficult (such as getting credit and deal with public institutions) but other things easier (e.g. lower taxes and staying “under the radar” of officials and regulation authorities). The formality dimension is measured by having a (enterprise) NUIT (unique tax payer identification number).

Alongside these three main dimensions, tables will from time to time be split on foreign ownership (defined as the owner being of foreign nationality and/or more than 50 pct. of the company being owned by foreigners) and industrial sector (using the ISIC revision 3 2-digit industrial classification).

Apart from this parallel structure, the report is guided by a serial or thematic structure, which proceeds as follows. Chapters 1-3 *set the stage* by providing, apart from this introduction, a description of the data, the sampling strategy and the implementation (Chapter 2) and an analysis of firm growth, firm dynamics and a ranking of perceived constraints (Chapter 3). Afterwards, the data is analyzed with respect to two key areas of firm *performance* – Chapter 4 describes the employment and education situation while Chapter 5 is about productivity.

Chapters 6-8 zoom in on three key areas of interest: Chapter 6 considers owner characteristics; Chapter 7 analyzes trade, sales structure and competition; and Chapter 8 investigates issues related to social networks. Chapters 9-10 engage in a discussion about two of the most important *constraints* faced by Mozambican manufacturing firms. Chapter 9 analyzes access to finance while Chapter 10 investigates informality, bureaucracy and corruption.

The report finishes with some concluding remarks and policy recommendations in Chapter 11.

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<sup>2</sup> See e.g. AIM, March 13<sup>th</sup>, 2012 or O País, March 8<sup>th</sup>, 2012.

## **2. Data description, sampling and implementation**

The purpose of this chapter is to provide a detailed description of the data and the information collection process. The chapter begins with a description of the sampling strategy and the questionnaire in Section 2.1. In Section 2.2, the implementation and validation of the survey is described. Section 2.3 provides some basic data description, presenting how the firms in the sample are distributed in terms of size, location and sectors etc.

### **2.1. Sampling strategy and questionnaire**

The IIM 2012 survey has two dimensions: a cross sectional dimension (covering 761 firms interviewed in 2012), and a panel dimension (covering 216 firms interviewed in both 2006 and 2012). This reflects the two main goals of the survey, namely to follow as many firms from earlier surveys as possible and to obtain a sample of the current population of manufacturing SMEs in Mozambique that was as representative as possible.

The sampling strategy was originally meant to be based on the 2002 census of firms (the CEMPRE; INE, 2011), which had reportedly been updated regularly since then. However, during the pilot survey in Maputo (April 2012), some 75 pct. of the approached firms mentioned in the census were not localizable, meaning that the census was not suited to identify specific companies.

The alternative strategy was to see if the authorities that register companies in Mozambique could provide a list of Mozambican manufacturing enterprises. Registration of manufacturing companies in Mozambique is in principle governed by decree 39/2003 of 26<sup>th</sup> of November, 2003 (GoM, 2003). Decree 39/2003 classifies industrial establishments in 4 classes (micro, small, medium and large companies). Registration of medium (125-249 employees) and large (250+ employees) is the responsibility of the Ministry of Trade and Commerce (MIC), registration of small enterprises (25-124 employees) is the responsibility of the provincial governors (in reality the DPICs; the provincial directorates for industry and commerce), while the micro enterprises (less than 25 employees) are usually registered by the municipalities.<sup>3</sup>

The DPICs must maintain a database of industrial establishments in the province and must update MIC every three months. MIC, in turn, is responsible for maintaining the nationwide database. However, to our knowledge there is presently no coherent reporting mechanism between the provinces and MIC, so there is no updated database at the national level. Furthermore, the DPICs use a range of different formats,

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<sup>3</sup> For some sectors (in particular food, where concerns about food safety play a role), registration of micro companies is also done by the DPICs. Note also that the Mozambican size category classification differs markedly from the standard World Bank classification, especially with regard to micro firms.

registering different information across provinces, which make comparison and aggregation difficult. While efforts were made to secure provincial databases for all provinces in order to compile them into a national database, they had not resulted in the production of a reliable nationwide list by the time this report was drafted. Since the information is available at the provincial level, aggregating the provincial lists into a continuously updated national database at MIC appears to be a relatively low-hanging fruit that would greatly improve the overview over the Mozambican manufacturing sector.

Eventually it was judged that the CEMPRE could still provide a useful guide to the overall *structure* of the population of manufacturing firms, i.e. the number and type of firms by location. Due to cost considerations, the sample was limited to the provinces with the largest concentration of manufacturing firms, and, within these provinces, the sample was limited to the districts with the largest concentration of manufacturing firms. This had the side effect of creating a sample of only urban manufacturing firms. The CEMPRE lists 3,289 manufacturing firms in Mozambique<sup>4</sup>, distributed across provinces as is evident from Table 2.1.

**Table 2.1: Population of manufacturing enterprises in Mozambique by province**

	Number of firms	Pct. of total population	Included in Sample Frame
Niassa	142	4.3	Excluded
Cabo Delgado	117	3.6	Excluded
Nampula	237	7.2	Yes
Zambézia	105	3.2	Excluded
Tete	133	4.0	Yes
Manica	328	10.0	Yes
Sofala	628	19.1	Yes
Inhambane	147	4.5	Excluded
Gaza	222	6.7	Yes
Maputo P	313	9.5	Yes
Maputo C	917	27.9	Yes
<b>Total</b>	<b>3,289</b>	<b>100.0</b>	<b>2,778 (84.5 pct.)</b>

**Source:** Own calculations using CEMPRE-data.

Seven of the 11 provinces were selected, containing some 85 pct. of the total number of manufacturing firms (the recent development in Tete was the main reason for keeping this province in the sample frame). The selection of districts within these provinces aimed at including at least 50 pct. of the manufacturing firms in each province. Eventually, the cities/districts apparent from Table 2.2 were included in the sample.

<sup>4</sup> This is in the same ball park as the 2,697 manufacturing enterprises mentioned in the 2009 Firm Statistics (Estatísticas das Empresas 2009; INE, 2012).

In total, they comprise more than 60 pct. of the manufacturing enterprises in Mozambique.<sup>5</sup> This confirms that manufacturing companies in Mozambique are highly concentrated within a small number of localities.

**Table 2.2: Cities to be included in the sample frame and number of firms in each city**

Province	City 1	City/District 2	Firms in selected districts	Pct. of total pop.
Nampula	Nampula	Nacala	139	4.2
	Tete	Moatize	82	2.5
Manica	Chimoio	Gondola	189	5.7
Sofala	Beira	Dondo	365	11.1
Gaza	Xai-Xai	Chokwé	132	4.0
Maputo P	Matola		227	6.9
Maputo C	Maputo		910	27.7
Total			2,044	62.1

**Note:** “total pop.” In the last column refers to the total population of manufacturing firms in Mozambique according to the CEMPRE (3,289 firms).

**Source:** Own calculations using CEMPRE-data.

Table 2.3 illustrates how the firms in the CEMPRE are distributed across size categories. More than three quarters of the manufacturing firms in Mozambique are micro and less than 1 pct. are large.

**Table 2.3: Population of manufacturing firms by size**

	Number	Pct.
Micro	2,512	77.4
Small	537	16.5
Medium	167	5.1
Large	29	0.9
Total	3,245	100.0

**Note:** Size categories using standard World Bank definition, labeling firms with less than 10 employees as micro, firms with 10-49 employees as small and firms with 50-299 employees as medium. Some observations did not have information about firm size, resulting in 44 missing observations.

**Source:** Own calculations using CEMPRE-data.

Following Cochran (1977) and Levy and Lemeshow (1999) a sampling strategy was devised based on stratification by location. The sufficient sample size for the smallest group (Tete with a population of manufacturing enterprises of 133)  $n$  is determined for a combination of levels of precision, confidence, and variability according to (2.1).

<sup>5</sup> From here on, Gondola is treated as part of Chimoio and Dondo is treated as part of Beira.

(2.1)

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

where  $N$  is the population size.  $n_0$  can be expressed as follows:

(2.2)

$$n_0 = \frac{z^2 p(1 - p)}{d^2}$$

where  $p$  is the estimated proportion of an attribute that is present in the population,  $d$  is the precision level and  $z$  is the t-value corresponding to the selected confidence interval. To create a stratified random sample and therefore estimate the sample size, we assume maximum variability ( $p=0.5$ ), a 90 pct. confidence level and  $\pm 11.8$  pct. precision. This results in a required sample size of 36 enterprises for Tete. Using proportional sampling we were able to calculate the number of enterprises needed in each region.

Since the reason for including Tete in the sampling frame was the expectation that the amount of manufacturing firms there has grown more than the country average, it was decided to sample another 24 firms in Tete. Nacala was also oversampled (adding 16 firms) to get more enterprises from the special economic zone (Zona Económica Especial de Nacala or ZEEN) around the port of Nacala. The resulting sample sizes for each province are reported in Table 2.4.

In addition, the sample only includes privately owned manufacturing enterprises that started operating prior to 2009.<sup>6</sup> Manufacturing firms are defined as firms with no less than 50 pct. of their sales in the manufacturing sectors of the International Standard Industrial Classification (ISIC) rev. 3 (ISIC category 15-37).

**Table 2.4: Sampling strategy: Number of enterprises to be sampled by province**

	Firms to be sampled	Share in pct.
Nampula (Nampula, Nacala)	64+16	8.5
Tete (Tete, Moatize)	36+24	4.8
Manica (Chimoio)	89	11.9
Sofala (Beira)	169	22.5
Gaza (Xai-Xai, Chokwé)	60	8.0
Maputo P (Matola)	85	11.3
Maputo C	247	32.9
Total	790	100.0

Source: Own calculations using CEMPRE-data.

<sup>6</sup> A privately owned firm is defined as a firm with a state share of ownership not higher than 50 pct.

As mentioned, the purpose of the survey was not only to get a snapshot of Mozambican industry anno 2012 but also to follow the development of companies interviewed in earlier surveys to get a panel dimension of the data.

In 2002 a survey of 193 Mozambican manufacturing firms was conducted under the auspices of the World Bank's Investment Climate Assessment (ICA, 2003). Tracking the firms in the 2002-survey, another survey was done by DNEAP, DERG and CTA in 2006 (DNEAP, 2006), resulting in completed interviews with 158 firms, 137 of which were also interviewed in 2002.

The most recent Investment Climate Assessment (ICA, 2009) also included a survey of 599 Mozambican firms from various sectors (358 from the manufacturing sector), but no attempt was made to link these firms to the first ICA (2003).

The present survey attempts to establish a panel dimension of both the 2006 DNEAP survey (DNEAP06 from now on) and the 2009 ICA survey (ICA09 from now on); thus all companies from the two surveys (including 27 companies appearing in both) were approached for interviews for this survey. DNEAP06 and ICA09 are both taken to refer to 2006.<sup>7</sup>

Some of the firms in the previous surveys were not manufacturing firms (this goes especially for ICA 2009, where 241 firms were not manufacturing), some were duplicates, and some had poor reporting on critical questions – all these were excluded.

This gave a starting point of 446 firms to be approached for this survey. The companies were contacted by phone if possible or else visited by enumerators to confirm their status (not localizable, closed down, not in operation for entire reference period, changed sector, still in operation) and the ones still in operation were attempted interviewed. Out of these, 98 were confirmed closed for at least some of the period covered in this survey (2009-2011) and 52 could not be located.<sup>8</sup> This gives a rough exit rate estimate of 21 pct. (94 out 447) over a six year period, which translates into an annual survival rate of around 96 pct. This is a very high survival rate compared to international standards. This brings the number of firms attempted interviewed down to 296 as can be seen from Table 2.5. Of these 296 companies, 52 (or 18 pct.) were not

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<sup>7</sup> In fact, DNEAP06 was conducted in February 2006, and refers primarily to 2005 while ICA09 was conducted in 2007-2008 and refers to 2006. Here we pretend that both the ICA09 and the DNEAP06 data refer to the year 2006, even if DNEAP06 strictly speaking is referring to 2005.

<sup>8</sup> Most of the not localizable firms were from the ICA (2009)

interviewed (mostly because of a reluctance to participate in the survey) and 28 (or 9 pct.) had changed sector, mostly to construction, trade, repair or other service activities.<sup>9</sup>

**Table 2.5: Status and tracking of firms from DNEAP06 and ICA09**

	DNEAP06	ICA09	Overlap	Total
Original	159	599		758
Survey Fatigue	6	17		22
Not manufacturing	11	241		252
Duplicates	1	9		10
Overlap	27	27	27	27
Approached for survey	114	305	27	446
Confirmed closed	26	66	2	94
Did not operate	0	3	1	4
Not localized	4	48	0	52
In operation	84	188	24	296
Changed sector	14	14	0	28
Not interviewed	16	33	3	52
Interviewed	54	141	21	216

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

To identify the new firms to be interviewed, a snowballing method was used. Since reliable information about presence and location of specific manufacturing companies was not available, we relied on the local knowledge of the companies we interviewed. After each interview, the respondent was asked if he/she knew of any other nearby manufacturing companies. In provinces where there were surviving firms, these served as starting points for the snowball sampling approach. As a supplement, the CEMPRE was used to identify broad “areas of industrial activity” and pick a random company here to start the snowball. Some of the firms were identified by the enumerators using other local information. In provinces where there were no previously interviewed firms, these areas were used as starting points. The snowballing method implies that the firms in the sample were not drawn independently of each other.

Table 2.6 shows the distribution of interviewed firms across the ten cities (after removing a total of 70 companies from the sample – see validation section).<sup>10</sup> Comparing Tables 2.6 and 2.4, the number of firms

<sup>9</sup> Since the registration of firm sector was arguably more thorough in 2012 (see Section 2.3 on validation), some of the 28 companies might never have been manufacturing. Also, 16 of the non-manufacturing companies were interviewed but not included in the final dataset.

obtained does not differ too much from the sampling strategy outlined in Table 2.4 – there is a slight undersampling of firms in Matola, Beira and Nampula.

**Table 2.6: Distribution of firms by city and firm type**

Sampling by province	Survivors (est.)	New Firms	Total
Maputo Cidade	142	126	268
Matola	17	52	69
Beira	18	125	143
Nampula (Nampula Province)	29	19	48
Nacala (Nampula Province)	3	20	23
Chimoio	7	78	85
Tete (Tete Province)	0	36	36
Moatize (Tete Province)	0	16	16
Xai-Xai (Gaza Province)	0	44	44
Chokwé (Gaza Province)	0	29	29
<b>Total</b>	<b>216</b>	<b>545</b>	<b>761</b>

**Note:** Location based on reported location of company headquarters rather than location of interview.

**Source:** Own calculations using IIM 2012.

The questionnaire used is based on the one used in the 2006 DNEAP survey to ease comparability. However, especially the sections on social networks and business environment were extended and a new section on informality was added. The questionnaire contains a total of 156 questions divided into 12 sections as shown in Table 2.7.

As the 2012-survey is based on the DNEAP06-questionnaire, comparing these two is straightforward. On the other hand, the ICA09-survey was done using a standard World Bank Investment Climate Assessment questionnaire, so comparability cannot always be taken for granted. A comment will be made whenever the panel dimension suffers from questionnaire inconsistencies.

<sup>10</sup> The location of the firm refers to the firm's headquarters although a small number of interviews took place at another location.

**Table 2.7: Questionnaire structure**

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A	General information about the firm
B	Employment
C	General Manager and owner characteristics
D	Investment and R&D
E	Exports and Imports
F	Fees, taxes and informal costs
G	Competition
H	Access to Finance
I	Networks, disputes and reputation
J	Business associations
K	Informal enterprises
L	Economic situation & general business environment

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## **2.2. Implementation and validation**

Overall the implementation was done by CTA and enumerators hired by CTA with DNEAP and DERG providing advice and feedback. The validation was carried out by DERG with assistance from CTA.

Some 30 enumerators were trained (most had considerable prior enumerator experience) and a pilot survey of 42 enterprises was launched in April 2012. Discussions with the enumerators during the training session and after the pilot yielded much valuable insight on how to make the questionnaire and the sampling strategy more workable in the field.

The questionnaires were filled-out in face-to-face interviews, almost invariably on the premises of the respective enterprise. The interviews took place during the period May-August 2012. In the provinces outside Maputo, the process was led by supervisors (selected enumerators) leading teams of up to 5 enumerators, while in Maputo and Matola, the interviews were coordinated from CTA's offices in Maputo.

During and following the interview process, DERG staff visited a selection of companies (85 in total) in six of the seven provinces. The purpose of the visits was to validate data quality as well as to understand the situation of the enterprises in a more qualitative way. These 85 semi-structured interviews serve as qualitative field work and will be used to supplement the IIM 2012 data.

Due to problems with registering the company sector and a high percentage of companies not providing accounting information, follow-up telephone interviews with the whole sample were conducted in August and September 2012 to clarify firm sector and obtain the most crucial accounting information, such as

revenue and cost figures.<sup>11</sup> Where possible, the accounting numbers were also validated using the yearly KPMG report “Top 100 Companies in Mozambique” (KPMG; 2010, 2011) that contains financial information about the companies.<sup>12</sup>

The information obtained from the calls and field visits was used to remove observations that were not manufacturing companies. This resulted in the removal of 44 observations from the data set.<sup>13</sup> Another 10 observations were removed because of discrepancies between information in the filled-out questionnaire and information obtained during the validation process. Eleven observations were removed because the businesses started operations after 2009. Finally, as the survey targets micro, small and medium enterprises, one observation of a large company with 1,500 workers was excluded from the analysis and 4 observations were removed that reported having no full-time workers. All in all, the validation resulted in the removal of 70 observations, resulting in a dataset of 761 observations (216 panel observations).

The phone calls also allowed for a much better sector classification (the sector questions) as well as the calculation of productivity measures for many additional enterprises (the accounting questions). The accounting information was reviewed firm by firm and grossly incoherent data were classified as missing. After this exercise, the dataset contained revenue numbers for some 330 firms and more detailed financial information for around 180 firms. All monetary values have been transformed into 2011-meticais using the national consumer price index (IPC) from INE.

### **2.3. Data description**

A number of characteristics are commonly associated with firm dynamics, in particular size, location, ownership form, sector and formality. In order to illustrate the basic structure of the sample, Tables 2.8 to 2.14 show different tabulations of key firm characteristics.

Table 2.8 lists the mean and median number of workers, the mean age and the number of observations for various groups of firms. More than two thirds of the firms are micro, 23 pct. are small and 9 pct. are medium. The median size of micro firms is four employees, while it is 18 for small firms and 86 for medium firms. It is easily seen that there is a strong positive correlation between size and both formality and owner nationality – the median formal firm has twice as many employees as the median informal firm while the median foreign owned company employs some seven times the number of workers employed by the

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<sup>11</sup> The response rate of these calls was not 100 pct.; 653 firms (79 pct. of 831 firms) answered the sector questions and 436 (52 pct.) answered the accounting questions. The telephone calls were conducted by the CTA team.

<sup>12</sup> 14 of the companies in the sample figure in KPMG reports.

<sup>13</sup> They include eight mechanics, eight construction companies, four salt extraction companies, six retailers and three funeral agencies.

median Mozambican owned firm. There is also a tendency for larger, formal and foreign-owned companies to be older, but the difference in mean age is mostly not too great.

**Table 2.8: Mean number of workers, mean firm age and pct. of sample by firm type**

	Mean no. of workers	Median no. of workers	Mean firm age	No. of obs.	Pct. of sample
All	16.7	6	13.8	761	100.0
Micro	4.4	4	12.3	517	67.9
Small	22.0	18	16.3	178	23.4
Medium	99.0	86	18.6	66	8.7
Informal	4.3	3.5	10.6	166	21.8
Formal	20.2	7	14.7	593	77.9
Moz. owned	11.9	5	13.7	676	88.8
For owned	55.0	37	14.3	83	10.9

**Source:** Own calculations using IIM 2012.

Table 2.9 shows that informality in Mozambique is almost exclusively a micro firm phenomenon. Out of 166 informal firms, only seven (or 4 pct.) are small, the rest are micro. Informal firms constitute close to a third of the micro firms.

**Table 2.9: Number of enterprises by formality and size**

Formality Status	Micro	Small	Medium	Total
Informal	159	7		166
Formal	356	171	66	593
Total	515	178	66	759

**Note:** Blank spaces indicate that no firms fall in the category. Two missing observations.

**Source:** Own calculations using IIM 2012.

Table 2.10 shows how firms of different sizes are distributed by different types of ownership forms. The overwhelming majority of micro firms are sole proprietorships and about half of the small firms are sole proprietorships while the other half constitutes partnerships. Most of the limited liability companies are of medium size, and medium companies are most likely to be partnerships.

**Table 2.10: Number of enterprises by legal status and size**

Legal Status	Micro	Small	Medium	Total
Sole proprietorship	488	99	15	602
Partnership	26	74	40	140
Limited liability company	1	2	9	12
Subsidiary of Mozambican firm			2	2
Other	2	3		5
<b>Total</b>	<b>517</b>	<b>178</b>	<b>66</b>	<b>761</b>

**Note:** Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012.

Table 2.11 shows how firms of different size are distributed by cities. A disproportionate share of the medium-sized firms is located in Maputo and Matola, while Moatize has no medium-sized firms. Nampula and Nacala also have a relatively high proportion of medium-sized firms. There is a general tendency for smaller cities to have relatively more micro companies.

**Table 2.11: Number of enterprises by location and size**

	Micro	Small	Medium	Total
Maputo	161	78	29	268
Matola	33	25	11	69
Beira	108	31	4	143
Nampula	33	8	7	48
Nacala	17	2	4	23
Chimoio	69	10	6	85
Tete	24	11	1	36
Moatize	13	3		16
Xai-Xai	36	5	3	44
Chokwé	23	5	1	29
<b>Total</b>	<b>517</b>	<b>178</b>	<b>66</b>	<b>761</b>

**Note:** Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012.

Table 2.12 shows the tabulation of size category and 2-digit sector. Food, fabricated metal products and furniture are by far the largest sectors, constituting 15-22 pct. of the sample each. Together with apparel, wood and non-metallic mineral products, these sectors account for more than 90 pct. of the total number of surveyed enterprises, confirming that the Mozambican manufacturing firms are highly concentrated in a few sectors (see e.g. Castel-Branco, 2010).

**Table 2.12: Number of enterprises by sector and size**

Sector	Micro	Small	Medium	Total
Food and beverages	50	48	29	127
Tobacco			1	1
Textiles	3	3	3	9
Apparel	75	8	1	84
Leather and Footwear	6	2	1	9
Wood	71	21	4	96
Paper		1	1	2
Publishing and printing	8	7	2	17
Chemicals		3	3	6
Rubber and Plastic		3	1	4
Non-metallic mineral products	45	15	4	64
Fabricated metal products	125	33	5	163
Machinery	3	1	1	5
Electrical equipment	2	2	1	5
Instruments	1			1
Motor vehicles etc.	1	1		2
Other transport equipment		1		1
Furniture, jewelry & manufacturing nec.	127	29	9	165
<b>Total</b>	<b>517</b>	<b>178</b>	<b>66</b>	<b>761</b>

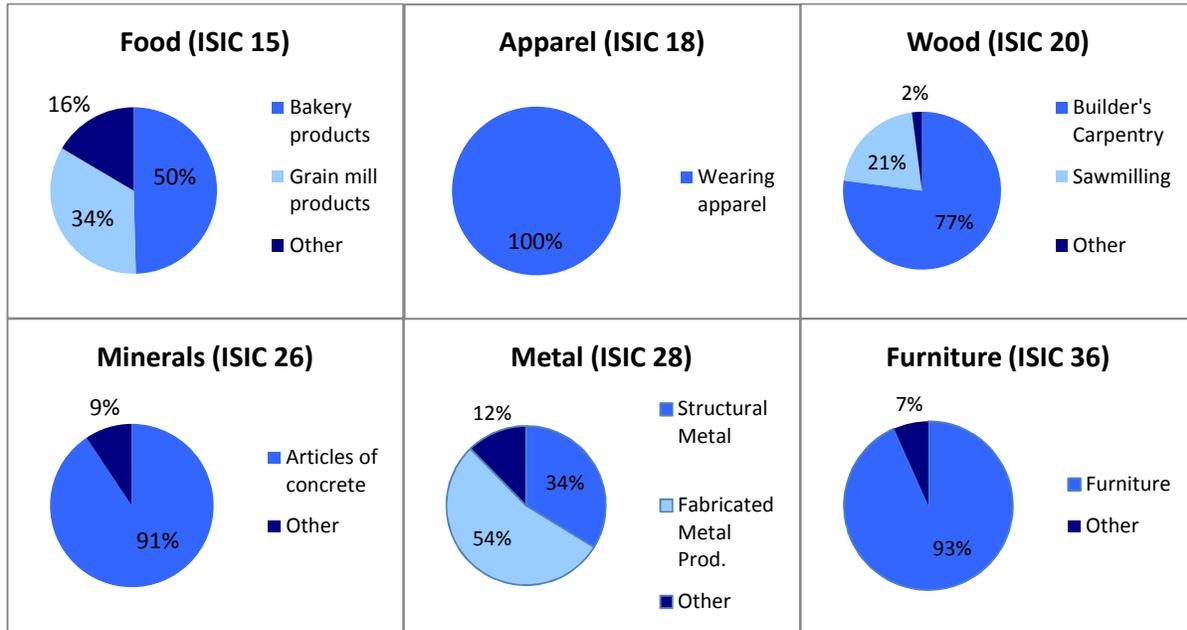
**Note:** Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012.

Some 44 pct. of the medium-sized companies are in the food sector while the food sector as a whole only constitutes 17 pct. of the whole sample. On the other hand, the apparel, wood, metal and furniture sectors each hold a very large share of micro companies, and together they hold more than 75 pct. of the micro companies in the sample.

The concentration on a few sectors also holds on a more disaggregate level. In Figure 2.1 we consider the distribution on 4-digit sectors within the six most populous 2-digit sectors. We see that the food sector is predominantly constituted by bakeries and grain mills, the wood sector by producers of builder's carpentry and sawmills, the non-metallic minerals sector by producers of concrete products, the metal sector by structural metal and fabricated metal products and the furniture and residual category almost exclusively by furniture.

**Figure 2.1: Number of firms in most important subsectors by 2-digit ISIC sectors, pct.**



**Note:** Number of observations: 699 (127 in food sector; 84 in apparel sector; 96 in wood sector; 64 in non-metallic minerals sector; 163 in metal sector and 165 in furniture sector).

**Source:** Own calculations using IIM 2012.

In sum, 92 pct. of the firms in the sample is concentrated in just six 2-digit sectors (food, apparel, wood, non-metallic mineral products, fabricated metal products and furniture etc.) and within these sectors, 92 pct. (84 of the sample as a whole) fall into just nine 4-digit sectors (grain mill products, bakery products, wearing apparel, builder’s carpentry, sawmilling, articles of concrete, structural metal products, fabricated metal products and furniture).<sup>14</sup>

Since some of the sectors hold very few companies, some sector codes will be merged to make subsequent tables more manageable. We include the tobacco firm in a group with the food firms, include footwear in the apparel group and include paper in the wood group. Finally, we merge the chemical and rubber and plastic groups into one a broader “chemicals” sector and machinery, electrical equipment, instruments, motor vehicles and other transport equipment into a broad “machinery” sector. The distribution of firm size categories on this new sector measure is shown in Table 2.13 for good measure.

<sup>14</sup> In the CEMPRE, these six 2-digit sectors constitute some 91 pct. of the 3,289 listed firms and of these, the mentioned nine 4-digit sectors constitute some 86 pct. of the firms.

**Table 2.13: Number of firms by simplified sector and size**

	Micro	Small	Medium	Total
Food, Bev, Tobacco	50	48	30	128
Textiles	3	3	3	9
Apparel and Footwear	81	10	2	93
Wood and Paper	71	22	5	98
Publishing and printing	8	7	2	17
Chemicals, Rubber, Plastic		6	4	10
Non-metallic minerals	45	15	4	64
Fabricated Metal Products	125	33	5	163
Machinery etc.	7	5	2	14
Furniture & manufacturing nec	127	29	9	165
<b>Total</b>	<b>517</b>	<b>178</b>	<b>66</b>	<b>761</b>

**Note:** Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012.

Table 2.14 tabulates the firms by province and sector. Firms in the six largest sectors (food, apparel, wood, non-metallic mineral products, fabricated metal products and furniture) are represented in all provinces. On the other hand, the more advanced industries (textiles; publishing; chemicals, rubber and plastic; and machinery) remain concentrated in the larger cities, particularly Maputo and Beira.

**Table 2.14: Number of firms by sector and location**

Sector	Maputo C	Maputo P	Beira	Nampula	Nacala	Chimoio	Tete*	Gaza*	Total
Food, Bev, Tobacco	33	14	19	14	8	26	9	5	128
Textiles	6		1		2				9
Apparel and Footwear	42	4	12	6	2	4	9	14	93
Wood and Paper	26	10	26	13	4	10	2	7	98
Publishing and printing	5		12						17
Chemicals, Rubber, Plastic	6	2	2						10
Non-metallic minerals	24	13	10	2	3	4	1	7	64
Fabricated Metal Prod.	63	17	24	6	2	20	18	13	163
Machinery etc.	9	3	1	1					14
Furniture & mfg. nec.	54	6	36	6	2	21	13	27	165
<b>Total</b>	<b>268</b>	<b>69</b>	<b>143</b>	<b>48</b>	<b>23</b>	<b>85</b>	<b>52</b>	<b>73</b>	<b>761</b>

**Note:** \* The category Tete covers Tete province (Tete and Moatize) and the category Gaza covers Gaza province (Xai-Xai and Chokwé). Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012.

Finally it is worth noting that the panel and cross section dimensions differ quite substantially in terms of the composition of firms of different sizes. In Table 2.15 we compare the firm size distribution of the cross section, the panel and the population (the CEMPRE). We see that small and medium-sized firms are rather overrepresented in the panel and somewhat less overrepresented in the 2012 cross section.

**Table 2.15: Composition of firms by size in panel, cross section and population, pct.**

	Micro	Small	Medium	Large	Number of firms
2012 Panel	48.6	32.9	19.5	-	216
2012 Cross Section	67.9	23.4	8.7	-	761
CEMPRE Population	77.4	16.5	5.1	0.9	3,245

**Note:** Total number of firms in CEMPRE is lower here, since 44 observations do not have information on firm size.

**Source:** Own calculations using IIM 2012, DNEAP (2006), ICA (2009) and CEMPRE data.

The differences in survey compositions are investigated a little further in Table 2.16 that shows mean and median firm sizes for different size categories for the DNEAP06, the ICA09 and the present IIM2012 surveys.

**Table 2.16: Mean and median number of workers by firm size category for three surveys**

	DNEAP06 (2005)			ICA09 (2006)			IIM2012 (2011)		
	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median	Obs.
All	49.7	30	141	24.2	10	305	16.7	6	761
Micro	5.5	5	33	5.9	5	150	4.4	4	517
Small	26.6	26	64	22.2	20	121	22.0	18	178
Medium	97.4	83	42	98.0	80	32	99.0	86	66
Large	516.5	517	2	343.5	344	2			

**Note:** Numbers in parentheses indicate which year the data refers to. Blank spaces indicate that no firms fall in the category.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Mean and median firm sizes within size categories are not too different between the surveys; with the exception of the micro firms being slightly smaller in IIM2012 (the older surveys contain very few firms with less than 5 employees). However, the distribution of firms on size categories varies a lot, reflecting that the two older surveys in general were more focused on larger firms. This means that the ICA09 and DNEAP06 surveys have higher mean and median firm sizes than the IIM2012.

The point is that larger companies are oversampled in the DNEAP06 and ICA09 surveys. In addition, the geographical focus was much narrower in the old samples with a distinct oversampling of firms in Maputo

City. Firms in Maputo City constitute 66 pct. of the survivors from the previous surveys, but according to the CEMPRE, only some 28 pct. the population of manufacturing firms are located in Maputo. While the present survey does not claim to be representative in a strict sense, representativeness is improved in comparison with the older surveys, both with regard to firm size and geography, which was one of the main aims of the IIM2012.

Since we have no access to reliable population data, we cannot conclude decisively about the representativeness of the sample, and we have made no attempt to correct for sample bias. For the same reasons we do not use weights in the following. With this caveat, the IIM 2012 dataset is a major improvement in relation to earlier firm surveys in Mozambique, and is thought to give a reasonable picture of SMEs in the Mozambican urban manufacturing sector.

### 3. Firm dynamics and constraints

The development and evolution of the private sector are driven by firm dynamics, which is the topic of this chapter. At the most basic level, firm dynamics has two fundamental components; the growth and decline of existing firms and the entry of new firms and exit of old firms. Related to the issue of firm dynamics are various constraints to operation and growth faced by firms.

The chapter begins by analyzing firm employment growth in Section 3.1 using the panel dimension of the data. In Section 3.2, the question of firm exit is analyzed. Section 3.3 presents and discusses rankings of perceived constraints by different firm characteristics.

#### 3.1. Firm growth

Table 3.1 documents the mean and median number of full-time permanent employees in 2006 and 2011 using the balanced panel, i.e. following the same firms over time. There has been an overall tendency for the median number of workers to fall slightly from 2006 to 2011, which goes for all categories except foreign-owned firms. On the other hand, the mean has increased for micro and small firms but decreased for medium firms; the mean for the sample as a whole is almost unchanged at 28 workers. The median foreign-owned company was a little larger in 2011 than in 2006.

**Table 3.1: Mean and median number of workers by size category and year**

	2006			2011		
	Mean	Median	No. of obs.	Mean	Median	No. of obs.
All	28.4	12	216	28.0	10	216
Micro	5.7	5	90	5.8	4	90
Small	23.8	21	92	25.2	17	92
Medium	100.7	91	34	94.2	86	34
Informal <sup>15</sup>	11.8	6	29	12.5	5	29
Formal	30.9	15	187	30.3	12	187
Moz owned	21.4	9	172	19.0	7	172
For. Owned	55.5	43	44	63.1	47	44

**Note:** Following the same firms over time, i.e. firms in 2011 are sorted by status in 2006.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

<sup>15</sup> The formality dimension is measured by having a NUIT in DNEAP06 and IIM12 and by being “registered” in ICA09.

The modest changes in the mean number of workers over categories of firms do not imply that individual firms did not experience more dramatic changes. Table 3.2 tracks the transition of firms from one size category to another. Micro firms were very likely to stay micro, but some 7 pct. became small and another 2 pct. became medium. The majority of small companies stayed small, but 25 pct. became micro and 12 pct. became medium. Most medium-size companies also remained medium, but 21 pct. became small. On net, the table shows a transition from the small category in both directions – 15 more companies in the balanced panel were micro in 2011 and seven more had become medium sized.

**Table 3.2: Firm size category transition matrix, 2006-2011**

Size category in 2006	Size category in 2011			Total
	Micro	Small	Medium	
Micro	82	6	2	90
(pct.)	(91.1)	(6.7)	(2.2)	(100)
Small	23	58	11	92
(pct.)	(25.0)	(63.0)	(12.0)	(100)
Medium	0	7	27	34
(pct.)	(0.0)	(20.6)	(79.4)	(100)
Total	105	71	40	216
(pct.)	(48.6)	(32.9)	(18.5)	(100)

**Note:** Numbers in parentheses indicate percentages.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Table 3.3 shows various measures of employment growth by size category, ownership type, formality status and province. The mean employment growth (after removal of outliers) is minus 5 pct.<sup>16</sup> and the median employment growth is minus 19 pct. over the period. The total number of employees in the firms in the balanced panel remained almost constant over the period – it was 6,128 in 2006 and 6,038 in 2011, corresponding to a drop of 1.5 pct. This suggests that some companies have been growing very rapidly (one company grew by 900 pct.) while most companies have laid-off workers during the period considered.

Median growth was negative for all firm sizes and independently of being formal in 2006 or not. Foreign-owned enterprises have in general experienced more employment growth than Mozambican firms irrespective of the measure chosen.

<sup>16</sup> There is a difference in growth rate between the surveys in 2006. Firms in the DNEAP (2006) survey on average have a positive growth rate while firms in the ICA (2009) survey on average have a negative growth rate.

Geographically, the development in Maputo and Matola has been especially adverse from an employment perspective, with both the mean and the median growth being negative. In Nacala and Chimoio, firms seem to have been growing, but the number of observations is too small to conclude decisively.

**Table 3.3: Employment growth 2006-2011 by firm size, formality, ownership and location, pct.**

	Avg. growth	Avg. growth, no outliers*	Median growth	Growth, group as a whole	No. of obs.
All	1.3	-5.1	-18.6	-1.5	216
Micro	0.2	-17.5	-33.3	0.6	90
Small	3.9	6.1	-13.8	5.8	92
Medium	-2.9	-2.9	-5.4	-6.4	34
Informal	-18.2	-18.2	-40.0	6.5	29
Formal	4.3	-3.1	-14.8	-1.9	187
Moz. Owned	-4.0	-12.7	-21.1	-11.6	172
For. Owned	21.9	24.6	3.2	13.8	44
Maputo	-4.5	-14.8	-20.0	-3.1	146
Matola	-7.8	-7.8	-23.6	-22.8	13
Beira	8.2	14.5	-7.7	7.9	18
Nampula	8.1	8.1	-14.3	12.8	28
Nacala	32.2	32.2	7.6	-19.1	4
Chimoio	75.1	75.1	6.6	32.0	7

**Note:** The column "Growth, group as a whole" indicates the growth of employment of all the firms in the category. \*In the column with no outliers, the 1<sup>st</sup> and 100<sup>th</sup> percentiles are excluded.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Table 3.4 shows employment growth summary statistics by sector. Sectors differ substantially with respect to employment growth with the metal, machinery, furniture (and other manufacturing) and textiles/apparel sectors having especially low (and mostly negative) growth rates. On the other hand, wood and paper; publishing and printing; and chemicals seem to have done better than average and the food and non-metallic minerals sectors have experienced substantial growth.

A tentative interpretation of this could be that sectors that are not subject to considerable competition from imports have done well (such as bakeries and grain mills) while sectors with tougher competition from imports (such as apparel, metals and machinery) have been forced to downscale their operations and/or produce more efficiently using less labor intensive methods.

**Table 3.4: Employment growth 2006-2012 by sector, pct.**

	Avg. growth*	Median growth	Growth, group as a whole	No. of obs.
All	-5.1	-18.6	-1.5	216
Food, Bev, Tobacco	23.6	11.4	1.2	41
Textiles	-9.9	-9.9	-9.9	1
Apparel and Footwear	-16.5	-20.0	-14.3	34
Wood and Paper	32.0	-3.3	6.7	18
Publishing and printing	-10.5	1.3	8.6	3
Chemicals, Rubber, Plastic	27.8	-17.0	4.5	10
Non-metallic minerals	6.3	12.0	24.0	9
Fabricated Metal Products	-18.2	-27.5	4.4	57
Machinery etc.	-26.1	-34.3	-7.4	4
Furniture & manufacturing nec	-31.5	-40.0	-37.2	39

**Note:** \*In the calculation of average growth rates, the 1<sup>st</sup> and 100<sup>th</sup> percentiles are excluded.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Moving from tabulations to multivariate analysis, Table 3.5 presents the results of a basic OLS regression on employment growth. In the first specification the regression is run with the full sample and in the second specification outliers are excluded.<sup>17</sup>

According to table 3.5 only few of the standard determinants of employment growth are found to be statistically significant. However, the sign of the coefficient estimate imply that smaller and older firms have experienced higher rates of employment growth (not significant). Moreover, formal firms and firms led by managers with a higher educational level grow faster (not significant). Contrary to the findings based on the DNEAP (2006) survey, a positive and statistically significant relationship is found between foreign ownership and employment growth: foreign ownership on average increase employment growth by 33-35 pct. points. This is in line with Ramachandran and Shah (1999) that also find that minority (or non-indigenous) entrepreneurs grow significantly faster than indigenous African firms.

Having another legal setup than sole proprietorship is negatively correlated with growth, and while the effect is mostly insignificant, limited liability companies have a significantly lower growth rate in the specification without outliers. With respect to regions, firms in Beira, Nampula and Nacala seem to have higher growth rates than firms from Maputo but again the effect is rarely well-determined. As mentioned earlier, firms in the food sector are growing faster; in the specification without outliers, the food sector had a significantly higher growth rate estimate than the textiles, apparel, metal and furniture sectors.

<sup>17</sup> The 1<sup>st</sup> and 100<sup>th</sup> percentiles were removed.

**Table 3.5: Employment growth determinants 2006-2011, OLS regression**

	(1) Full Sample	(2) No Outliers
Log(firm size)	-0.085 (0.87)	-0.014 (0.18)
Log(firm age)	0.002 (0.02)	0.068 (1.39)
Formal	0.137 (0.71)	0.018 (0.12)
University education	0.278 (1.64)	0.211 (1.34)
Foreign owner	0.327** (2.07)	0.349** (2.44)
Partnership	-0.138 (0.86)	-0.177 (1.17)
Limited liability	-0.256 (1.63)	-0.255* (1.79)
Matola	-0.060 (0.34)	-0.017 (0.09)
Beira	0.178 (0.75)	0.323 (1.57)
Nampula	0.106 (0.56)	0.213* (1.67)
Nacala	0.803 (1.45)	0.843 (1.57)
Chimoio	-0.058 (0.35)	-0.010 (0.08)
R <sup>2</sup>	0.08	0.24
Sector dummies	Yes	Yes
Number of obs.	202	199

**Note:** Ordinary least squares (OLS) - dependent variable: Employment growth 2006-2011. Heteroscedasticity consistent t-statistics in parentheses. \*, \*\* and \*\*\* indicate significance at the 10 pct., 5 pct. and 1 pct. level, respectively. Base: Informal, Less than university education, Mozambican-owned, Sole Proprietorship, Maputo, Food and Tobacco Sector (ISIC 15 and 16).

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

The conclusion from this section is that average manufacturing firm employment growth was slightly negative in the period 2006-2011 while median employment growth was strongly negative. Size and formality did not have a significant effect on growth, but foreign-owned firms as well as firms in the food and non-metallic minerals sectors experienced higher-than-average growth rates.

### **3.2. Firm exit**

As mentioned previously, the entry and exit of firms play an important role in firm dynamics by allowing productive start-ups to enter the market and inefficient firms to exit the market.

First, we must define what we mean by exit. We count firms in operation as surviving, even if they 1) changed sectors, 2) did not operate at all times during 2009-2011, or 3) did not want to participate in the survey. The 52 firms that were not localizable are labeled as closed under exit definition 1 and are excluded from the analysis under exit definition 2 (see also Table 2.5).

Table 3.6 shows exit probabilities by firm size, firm age, formality, owner nationality and location. Some 24 pct. of the original firms are confirmed to have closed down and as much as 33 pct. have closed down if we also count the unconfirmed (not localizable) exits. This amounts to an annual exit rate of 4.4-6.4 pct. This figure is somewhat lower than the rate found for the 2002-2006 panel, as reported in DNEAP (2006), where the exit rate was around 8 pct. per annum. Moreover, it is substantially lower than the 9-10 pct. average annual exit rate cited by Liedholm and Mead (1999) over a range of developing countries.

**Table 3.6: Firm exits and annual exit rates 2006-2011, pct.**

	Exit def. 1		Exit def. 2		No. of obs.*
	Total	Annual	Total	Annual	
All	32.7	6.4	23.9	4.4	446
Micro	37.2	7.5	25.8	4.9	183
Small	30.8	6.0	23.8	4.4	185
Medium	23.0	4.3	16.2	2.9	74
Large	100.0	100.0	100.0	100.0	4
2-4 years	44.8	9.4	28.9	5.5	58
4-9 years	41.8	8.6	31.2	6.0	110
10-15 years	30.1	5.8	18.8	3.4	93
16-24 years	27.8	5.3	23.5	4.4	72
25+ years	23.9	4.5	20.5	3.7	92
Moz. Owned	34.1	6.7	24.5	4.6	355
For. Owned	27.5	5.2	21.4	3.9	91
Sole Proprietorship	36.9	7.4	27.5	5.2	271
Partnership	27.2	5.2	18.8	3.4	125
Limited Liability	22.4	4.1	15.6	2.8	49
Maputo	33.4	6.6	26.3	5.0	308
Matola	40.0	8.2	16.0	2.9	35
Beira	27.5	5.2	23.7	4.4	40
Nampula	33.3	6.5	17.9	3.2	48
Nacala	14.3	2.5	0.0	0.0	7
Chimoio	12.5	2.2	12.5	2.2	8

**Note:** The 54 firms “not localized” are labeled as closed under exit definition 1 and excluded from the analysis under exit definition 2. One observation of “other” legal ownership form was removed. \* No. of observations indicates number of observations for the definition 1 columns.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Micro and small firms have a lower annual survival rate than medium firms – this result is the opposite of the 2002-2006 panel, but consistent with the literature on firm dynamics (see e.g. Jovanovic, 1982). It could be due to larger companies being run more efficiently or it being easier to liquidate the (human and physical) capital of a smaller business when it becomes unprofitable. Formal companies have a higher survival rate than informal companies, but the difference is not large. Foreign-owned companies have a lower survival rate than Mozambican-owned companies and partnerships and limited liability companies have a higher survival rate than sole proprietorships. Firms in Maputo have a slightly lower survival rate than the sample as a whole whereas firms in Nacala and Chimoio seem to have a very high survival rate – but the number of observations is low here, so we cannot conclude decisively.

Table 3.7 shows total and annual exit rates for different sectors. Firms in the wood and paper; chemicals; and non-metallic minerals sectors have very high survival rates while firms in the food and especially textiles and apparel sectors have low survival rates. Firms in the metal sector also have high survival rates, which is interesting since they were previously shown to also have decreased their labor force (Table 3.5).

**Table 3.7: Firm exit and survival rates by sector, pct.**

	Exit def. 1		Exit def. 2		No. of obs.*
	Total	Annual	Total	Annual	
All	32.7	6.4	23.9	4.4	446
Food, Bev, Tobacco	39.1	7.9	26.4	5.0	110
Textiles	50.0	10.9	33.3	6.5	4
Apparel and Footwear	41.8	8.6	31.3	6.1	79
Wood and Paper	18.8	3.4	16.1	2.9	32
Publishing and printing	25.0	4.7	25.0	4.7	4
Chemicals, Rubber, Plastic	20.8	3.8	13.6	2.4	24
Non-metallic minerals	16.7	3.0	16.7	3.0	12
Fabricated Metal Products	27.1	5.1	17.6	3.2	96
Machinery etc.	29.4	5.6	29.4	5.6	17
Furniture & manufacturing nec	33.8	6.6	27.4	5.2	68

**Note:** The 54 firms “not localized” are labeled as closed under exit definition 1 and excluded from the analysis under exit definition 2. One observation of “other” legal ownership form was removed. \* No. of observations indicates number of observations for the definition 1 columns.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Table 3.8 shows an analysis of exit probability conditioned on firm characteristics (a probit model). Firm size, formality and foreign ownership all have no significant effect on exit probability. Older firms are slightly less likely to exit in the second specification, in line with the literature on firm dynamics (see e.g. Bigsten and Söderbom, 2006). Firms run by managers with a university degree have a higher exit rate than

other firms. Both partnerships and limited liability companies have a significantly lower exit probability than sole proprietorships. Other provinces seem to have somewhat lower exit probabilities than Maputo (especially Nacala, which is excluded because there are no confirmed exits), but the differences are mostly small and insignificant.

**Table 3.8: Exit determinants, probit**

	Exit def. 1	Exit def. 2
Log(firm size)	-0.043 (1.30)	0.008 (0.25)
Log(firm age)	-0.072** (2.48)	-0.041 (1.48)
Formal	-0.002 (0.03)	-0.048 (0.64)
University education	0.179** (2.45)	0.087 (1.23)
Foreign owner	-0.052 (0.76)	-0.022 (0.35)
Partnership	-0.057 (0.94)	-0.080 (1.36)
Limited liability	-0.111 (1.36)	-0.117 (1.63)
Matola	0.060 (0.60)	-0.083 (0.98)
Beira	-0.033 (0.39)	-0.011 (0.14)
Nampula	0.003 (0.04)	-0.054 (0.75)
Chimoio	-0.081 (0.38)	-0.041 (0.21)
Sector dummies	Yes	Yes
Pseudo R <sup>2</sup>	0.07	0.05
Number of obs.	413	364

**Note:** Probit - dependent variable: exit. Marginal Effects. Heteroscedasticity consistent t-statistics in parentheses. \*, \*\* and \*\*\* indicate significance at the 10 pct., 5 pct. and 1 pct. level, respectively. Base: Informal, Less than university education, Mozambican-owned, Sole Proprietorship, Maputo, Food and Tobacco Sector (ISIC 15 and 16)

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

As the very low pseudo R<sup>2</sup>-values suggest, we are not able to explain firm exit very well when conditioning on observable characteristics. The only significant results (using exit definition 1) were that older firms tend to have lower exit rates and firms with university-educated managers seem to have higher exit rates, but generally we conclude that traditional exit determinants have low explanatory power in the Mozambican case.

### **3.3. Constraints to growth**

The firms in our sample were asked whether or not a list of constraints constituted obstacles for the firms, and if so, to gauge the severity of the constraint by giving it a value from 0 to 4, where 0 = no obstacle, 1 = slight obstacle, 2 = moderate obstacle, 3 = major obstacle, and 4 = serious obstacle.

Results from this subjective exercise should be interpreted with caution, however, since they reflect how the manager *perceives* the situation of his company. One should also keep in mind that this indicator cannot necessarily be thought of as an accurate measure of “what is wrong” with the business environment in Mozambique. Imagine for example that high-tech or advanced industrial companies do not locate in Mozambique because of a poorly skilled labor force. Since these companies do not form part of the current population of firms, it is not possible to interview them even if they constitute an important part of the *potential* population of firms – a phenomenon also known as sample selection. With this caveat, subjective constraints evaluation can still provide some guidance as to how the current population of firms views the business environment.

Table 3.9 presents how perceptions of constraints have developed over time using the IFC (2003), DNEAP (2006) and IIM 2012 data.<sup>18</sup> An unbalanced panel is used, meaning that the same companies are not followed over time. Several remarks are in order.<sup>19</sup>

First, there seems to be a general tendency for constraints to loosen from 2003 to 2006 and again from 2006 to 2012. This should imply that firms generally feel less constrained. Four constraints have seen a big drop in the percentage of firms finding them major or severe constraints; 1) Paradoxically, while firms feel substantially less constrained by *access to finance* than in 2006, it still tops the list over constraints – Chapter 9 treats credit constraints in more detail, 2) *Macroeconomic instability* have become less constraining, 3) Firms felt a lot less constrained by *labor regulations* in 2012 which is likely to be an effect of the new labor law introduced in 2007<sup>20</sup> – in Chapter 4, employment issues are examined in detail, and 4) the number of firms constrained by electricity is substantially lower compared to 2006, consistent with the steady reductions in power outages, especially in the south of the country (see e.g. EDM, 2010).

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<sup>18</sup> Unfortunately, the data on constraints in the ICA (2009) have severe methodological problems, so they will not be used here.

<sup>19</sup> Note that there is no qualitative difference from the overview based on premature data provided in Rand and Schou (2012)

<sup>20</sup> See GoM (2007a) and ICA (2009).

**Table 3.9: Share of firms perceiving factors as constraints 2003-2012, unbalanced panel, pct. of firms**

	2003	2006	2012
Access to foreign credit	<b>73.3</b>	38.7	<b>54.6</b>
Access to domestic credit	<b>75.1</b>	<b>60.5</b>	<b>53.8</b>
Cost of financing (e.g. interest rates)	<b>83.6</b>	<b>72.5</b>	<b>52.6</b>
Access to land	26.7	15.9	<b>51.9</b>
General corruption	<b>64.4</b>	45.0	<b>47.2</b>
Crime, theft and disorder	54.4	33.1	45.8
Customs and trade regulation administration	49.4	37.8	42.5
Macroecon. instability (infl., exch. rate)	63.0	<b>62.5</b>	42.1
Economic policy uncertainty	57.8	43.3	41.3
Anti-competitive practices (e.g. monopoly)	60.4	31.0	40.0
Tax rates	54.9	<b>51.1</b>	33.2
Transportation	27.3	26.9	31.8
Tax administration	47.3	36.2	31.6
Business licensing and registration	28.3	10.7	31.1
Skills and education of workers	33.9	33.8	29.2
Labor regulations	37.9	<b>47.5</b>	29.0
Electricity	<b>64.7</b>	45.0	22.2
Telecommunications	20.9	15.1	9.6

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. Unbalanced panel, i.e. not following the same firms over time. 192 observations in 2003, 141 observations in 2006 and 761 observations in 2012.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and IFC (2003) data.

On the other hand, *general corruption* has become more of a constraint since 2006, now constituting one of the most severe constraints – we will look more into bribes and corruption in Chapter 10.<sup>21</sup> And *access to land* has skyrocketed as a constraint, with more than half of the firms in 2012 feeling very constrained by it. This result is driven by firms in Maputo, Matola and Beira, while the issue is far less pressing in smaller cities. This is probably due to a combination of rapid urbanization, inadequate urban infrastructure and land speculation.

Finally, note that only very few firms perceive skills and education of workers as a constraint, which is somewhat surprising given the low level of education of the Mozambican labor force. We will return to this issue in Section 4.3.

<sup>21</sup> As described in Chapter 10, there are some inherent difficulties in directly measuring corruption and bribe levels. This means that using indirect measures such as perceived constraints might be the best available strategy in the case of corruption.

In Table 3.10 perceived constraints are tabulated only for the firms present in both DNEAP06 and IIM12 (balanced panel; 76 firms). They broadly confirm the tendencies found in the unbalanced panel. However, they also point to constraints related to international trade as being pressing. The balanced panel from DNEAP06 is very biased towards Maputo and the concern about *illegal imports* could reflect competition from the informal border traders, the so-called mukheristas.

**Table 3.10: Share of firms perceiving factors as constraints 2006-2012, balanced panel, pct. of firms**

	2006	2012
Competition from illegal imports/contraband	<b>54.8</b>	<b>56.8</b>
Cost of financing (e.g. interest rates)	<b>66.2</b>	<b>47.5</b>
Access to land	13.9	<b>46.2</b>
General corruption	44.4	<b>45.2</b>
Customs and trade regulation administration	36.8	<b>44.7</b>
Corruption related to customs	30.5	43.2
Access to foreign credit	35.5	42.9
Access to business support services	30.4	39.4
Anti-competitive practices (e.g. monopoly)	26.4	39.0
Access to domestic credit	<b>58.0</b>	38.7
Transportation	25.0	38.7
Access to market information	22.5	36.6
Opening up to international markets	17.9	36.5
Corruption related to inspections	34.7	34.9
Skills and education of workers	30.7	34.8
Macroecon. instability (infl., exch. rate)	<b>61.6</b>	33.8
Crime, theft and disorder	30.7	33.8
Electricity	36.0	33.3
Economic policy uncertainty	40.3	32.8
Tax rates	<b>51.4</b>	28.4
Corruption related to taxes	26.4	27.9
Labor regulations	44.0	23.3
Business licensing and registration	7.8	23.0
Tax administration	32.4	20.0
Telecommunications	9.5	17.8
No. of obs.	75	75

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. Balanced panel, i.e. following the same firms over time.

**Source:** Own calculations using IIM 2012 and DNEAP (2006).

That *customs administration* and *corruption related to customs* are seen as serious constraints is clearly an issue for Mozambique’s present and prospective exporters, and as Mozambique serves as a transport hub

for goods from South Africa, Zimbabwe, Zambia and Malawi, having difficult and/or corruption-prone customs procedures is not ideal. We further investigate issues related to trade in Chapter 7.

One way of examining the importance of the constraints mentioned here is to compare the constraints perceptions in 2006 of firms that close down to the firms that were re-interviewed in 2012. We do this in Table 3.11. While the firms that closed down were essentially constrained by the same issues as the surviving firms, they felt *more* constrained by the same factors, especially credit, than the firms that were interviewed in 2012.

There are two possible interpretations of this finding. One is that less productive and less well managed enterprises find it more difficult to get credit because they do not offer profitable investment opportunities. These firms will be more likely to shut down, as they are unproductive. Another interpretation is that the firms close down *because* they are very credit constrained, i.e. that they needed credit to continue their businesses and have exited, because they failed to obtain it. We will look more into the connection between perceived and actual credit constraints in Chapter 9.

**Table 3.11: Share of firms constrained in 2006 by exit status in 2012, pct.**

	Confirmed closed	Interviewed in 2012
Cost of financing (e.g. interest rates)	<b>89.3</b>	<b>66.2</b>
Macroecon. instability (infl., exch. rate)	<b>70.4</b>	<b>61.6</b>
Access to domestic credit	<b>84.6</b>	<b>58.0</b>
Competition from illegal imports/contraband	<b>68.2</b>	<b>54.8</b>
Tax rates	46.4	<b>51.4</b>
General corruption	47.8	44.4
Labor regulations	42.9	44.0
Economic policy uncertainty	59.3	40.3
Customs and trade regulation administration	36.0	36.8
Electricity	42.9	36.0
Access to foreign credit	<b>63.2</b>	35.5
No. of obs.	28	75

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. Balanced panel.

**Source:** Own calculations using IIM 2012 and DNEAP (2006).

Table 3.12 presents how perceived constraints vary by firm size, using the IIM2012 cross sectional data.<sup>22</sup> Small and especially micro enterprises are very constrained by credit and access to land. It is a common

<sup>22</sup> Seeing that many possible constraints do not seem to be great obstacles to many firms, we reduce the number of constraints shown in the tables from now on.

result that smaller firms have less access to financial markets, something we will look more into in Chapter 9. One of the reasons smaller firms have less access to credit may be that they do not have much collateral, making it more risky to lend them money. Small and medium firms feel very constrained by corruption, perhaps because they might need more public utilities, forcing them to deal with the authorities more often. In addition, medium-sized firms feel very constrained by issues related to international trade (customs and trade regulation, macroeconomic instability and corruption related to customs). This is likely to be an effect of medium firms importing and exporting more than micro and small firms, an issue that will be examined more in depth in Chapter 7.

**Table 3.12: Perceived constraints by firm size, pct. of firms constrained**

	All	Micro	Small	Medium
Access to foreign credit	<b>54.6</b>	<b>59.0</b>	<b>49.5</b>	40.8
Access to domestic credit	<b>53.8</b>	<b>58.9</b>	46.3	35.1
Cost of financing (e.g. interest rates)	<b>52.6</b>	<b>52.5</b>	<b>52.2</b>	<b>54.4</b>
Access to land	<b>51.9</b>	<b>54.2</b>	<b>47.5</b>	44.1
Opening up to international markets	<b>47.3</b>	<b>49.8</b>	40.6	47.1
General corruption	47.2	44.4	<b>52.3</b>	<b>55.9</b>
Competition from illegal imports/contraband	46.2	45.2	46.2	<b>52.4</b>
Access to business support services	46.2	46.9	46.8	39.1
Crime, theft and disorder	45.8	45.7	44.4	50.8
Customs and trade regulation administration	42.5	38.5	43.9	<b>56.0</b>
Macroecon. instability (infl., exch. rate)	42.1	39.2	<b>47.1</b>	48.3
Corruption related to customs	42.1	37.3	46.7	<b>57.7</b>
Number of observations	761	517	178	66

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. Balanced panel.

**Source:** Own calculations using IIM 2012.

Perceived constraints by formality and owner nationality are listed in Table 3.13. Like other micro firms, informal firms are more likely to feel constrained by (lack of) access to credit than formal firms (recall that almost all of the informal firms are micro firms). Informal firms also perceive opening up to international markets as more constraining than do formal firms, perhaps because they fear to be unable to compete with cheap Chinese or South African imports.

Foreign-owned firms in general feel less constrained than Mozambican firms, especially with regards to credit. This might be explained by their bigger size and their larger network of contacts abroad – see Chapter 8 for a more detailed discussion about the importance of firms’ social networks. The main

exception is customs and trade regulation and administration that are perceived as more constraining by foreign-owned businesses. This is likely to be because foreign-owned companies trade more with the rest of the world.

**Table 3.13: Perceived constraints by formality and owner nationality, pct. of firms constrained**

	All	Informal	Formal	Moz. Owned	For. Owned
Access to foreign credit	<b>54.5</b>	<b>54.3</b>	<b>54.4</b>	<b>56.2</b>	45.5
Access to domestic credit	<b>53.7</b>	<b>63.7</b>	<b>50.9</b>	<b>55.5</b>	40.3
Cost of financing (e.g. interest rates)	<b>52.6</b>	<b>60.2</b>	<b>50.5</b>	<b>51.8</b>	<b>58.5</b>
Access to land	<b>51.8</b>	<b>60.1</b>	<b>49.4</b>	<b>52.2</b>	<b>47.9</b>
Opening up to international markets	<b>47.2</b>	<b>54.4</b>	45.5	<b>47.3</b>	<b>46.6</b>
General corruption	47.0	40.3	<b>48.9</b>	46.8	<b>50.0</b>
Access to business support services	46.1	46.3	46.0	46.4	45.3
Competition from illegal imports/contraband	46.1	49.3	45.5	46.3	43.9
Crime, theft and disorder	45.7	42.6	46.6	46.5	39.8
Customs and trade regulation administration	42.7	27.3	45.9	40.5	<b>54.2</b>
Number of observations	758	166	593	676	84

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. Balanced panel. Three missing observations.

**Source:** Own calculations using IIM 2012.

In Table 3.14, perceived constraints are listed by region. Access to credit tops the list of most severe perceived constraints for the country as a whole, but interestingly, access to credit is less constraining in the capital region. This could be due to a more advanced credit market, more suppliers of credit and denser social networks. On the other hand, a very large percentage of firms in the least industrially developed regions (especially Tete and Gaza provinces) feel constrained by (lack of) access to credit.

Access to land seems to be much more of a problem in the densely populated provinces (e.g. Maputo, Beira and Nampula) and not at all a problem in the least populated provinces like Tete and Gaza. This makes sense as land is a finite resource likely to be in higher demand in bigger cities.

In the border town of Chimoio, issues related to international trade (customs administration and corruption related to customs) are perceived as the two biggest problems – companies in Chimoio are very close to Zimbabwe and naturally engage in business with firms across the border. This reinforces the result from Table 3.12 that the more interaction firms have with customs, the more they feel constrained by factors related to customs.

Overall, telecom and electricity continue not to be perceived as constraints, but electricity in Beira could be an exception. That electricity is not perceived as very constraining for most firms should not be taken to indicate that the electricity supply is unproblematic in Mozambique. Indeed, a medium-sized factory in Nacala engaged in electricity-intensive production reported that it lost some 10 pct. of sales because of power cuts. Once again, if power cuts are frequent, electricity-intensive companies may choose not to operate in Mozambique, making it impossible to capture their constraint perceptions.

**Table 3.14: Constraints faced by region, pct. of firms constrained**

Constraint	Maputo C	Maputo P	Beira	Nampula	Nacala	Chimoio	Tete*	Gaza*
Access to foreign credit	47.7	22.9	<b>52.6</b>	23.5	<b>75.0</b>	<b>75.5</b>	<b>79.3</b>	<b>88.9</b>
Access to domestic credit	47.8	30.9	<b>53.3</b>	<b>50.0</b>	72.7	64.6	<b>68.2</b>	<b>65.7</b>
Cost of financing (e.g. interest rates)	<b>53.0</b>	<b>41.2</b>	43.1	25.6	<b>81.0</b>	<b>76.7</b>	50.0	<b>63.4</b>
Access to land	<b>58.3</b>	40.6	<b>48.2</b>	<b>33.3</b>	71.4	65.1	46.9	42.5
Opening up to international markets	38.6	37.5	38.7	4.2	0.0	<b>75.0</b>	<b>76.9</b>	<b>85.7</b>
General corruption	<b>50.5</b>	<b>50.0</b>	34.5	19.1	57.1	51.2	<b>68.8</b>	52.8
Competition from illegal imports/contraband	<b>56.0</b>	28.1	23.3	15.4	<b>83.3</b>	68.9	52.2	<b>69.0</b>
Access to business support services	46.7	36.4	35.0	23.3	66.7	62.2	<b>73.9</b>	47.1
Crime, theft and disorder	45.8	<b>43.1</b>	<b>49.6</b>	<b>30.4</b>	<b>75.0</b>	43.9	57.1	37.5
Customs and trade regulation administration	39.7	35.7	26.6	<b>37.5</b>	60.0	<b>79.5</b>	63.6	33.3
Corruption related to customs	<b>48.0</b>	<b>42.1</b>	12.8	11.1	62.5	<b>81.0</b>	50.0	39.6
Anti-competitive practices (e.g. monopoly)	47.0	30.8	27.6	<b>28.1</b>	<b>77.8</b>	40.0	57.1	32.9
Corruption related to inspections	42.8	<b>43.9</b>	26.7	12.8	22.7	33.7	52.3	52.2
Electricity	29.6	22.4	<b>43.4</b>	10.6	9.1	2.4	5.8	0.0
Number of observations	268	69	143	48	23	85	52	73

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year. \* The category Tete covers Tete province (Tete and Moatize) and the category Gaza covers Gaza province (Xai-Xai and Chokwé).

**Source:** Own calculations using IIM 2012.

Finally, Table 3.15 presents perceived constraints by sector. Concerns about credit still top the list – not so much for chemicals, non-metallic minerals and machinery though. Lack of market information seems to be constraining the chemicals and machinery sectors quite severely, possibly because these markets are not very well developed in Mozambique, making it difficult for the firms to understand demand for their products. Opening up to international markets appears to be constraining especially the apparel, machinery and furniture sectors, presumably because these sectors face tough competition from South African and Asian imports.

**Table 3.15: Constraints faced by sector, pct. of firms constrained**

	Food	Textiles	Apparel	Wood	Printing	Chemicals	Minerals	Metal	Machinery	Furniture
Access to foreign credit	<b>53.2</b>	<b>60.0</b>	<b>68.3</b>	<b>43.9</b>	<b>45.5</b>	62.5	38.7	<b>58.5</b>	37.5	<b>60.0</b>
Access to domestic credit	52.8	37.5	55.8	<b>55.0</b>	23.1	55.6	40.4	<b>59.0</b>	20.0	<b>58.9</b>
Cost of financing (e.g. interest rates)	<b>55.0</b>	<b>75.0</b>	<b>62.3</b>	<b>57.7</b>	<b>42.9</b>	66.7	<b>44.2</b>	<b>55.5</b>	33.3	42.7
Access to land	49.1	28.6	<b>56.3</b>	<b>53.3</b>	<b>57.1</b>	66.7	<b>50.8</b>	48.7	<b>54.5</b>	<b>53.5</b>
Opening up to international markets	50.0	16.7	<b>61.2</b>	39.6	25.0	44.4	42.9	43.0	<b>50.0</b>	<b>52.3</b>
General corruption	<b>57.0</b>	25.0	48.1	36.1	18.8	60.0	<b>45.5</b>	<b>54.2</b>	40.0	43.5
Competition from illegal imports/contraband	44.3	50.0	52.6	41.5	28.6	<b>80.0</b>	<b>46.4</b>	47.1	40.0	47.1
Access to business support services	47.2	<b>75.0</b>	<b>56.6</b>	34.5	35.3	33.3	<b>46.4</b>	49.0	<b>58.3</b>	43.0
Crime, theft and disorder	47.5	44.4	46.0	<b>43.5</b>	<b>56.3</b>	40.0	41.8	42.7	45.5	<b>49.7</b>
Customs and trade regulation administration	<b>55.8</b>	<b>62.5</b>	47.2	24.4	25.0	<b>75.0</b>	17.9	42.3	27.3	44.6
Macroecon. instability (infl., exch. rate)	46.3	<b>85.7</b>	40.3	42.7	25.0	50.0	37.7	<b>49.2</b>	10.0	35.2
Corruption related to customs	<b>58.2</b>	57.1	51.0	26.0	8.3	60.0	34.5	41.9	<b>62.5</b>	33.0
Economic policy uncertainty	43.1	37.5	45.9	29.2	<b>42.9</b>	57.1	26.0	48.1	30.0	43.3
Access to market information	41.6	37.5	40.0	34.1	11.8	<b>70.0</b>	43.1	43.5	<b>53.8</b>	42.4
Anti-competitive practices (e.g. monopoly)	45.8	22.2	43.1	41.7	21.4	<b>77.8</b>	35.3	40.7	36.4	34.6
Transportation	33.1	25.0	19.6	33.7	29.4	<b>70.0</b>	33.9	36.6	28.6	29.6
Number of observations	128	9	93	98	17	10	64	163	14	165

**Note:** Factors problematic for the operation and growth of businesses (pct. having responded “major obstacle” or “serious obstacle”). Bold numbers indicate that the constraint ranked in the top five in the given year.

**Source:** Own calculations using IIM 2012.

## **4. Employment and education**

With the recent focus on “good jobs” from the World Bank – in particular the 2013 World Development Report – employment issues have once again become central in the development debate. Manufacturing sector jobs are often considered “good jobs”; Section 4.1 analyzes issues related to workers and working conditions.<sup>23</sup>

Creating enough formal sector jobs to keep up with the number of new entrants in the labor market is one of the most pressing challenges for Mozambique (see e.g. Jones and Tarp, 2012). It is therefore of great interest to investigate the patterns of hiring and firing for Mozambican manufacturing firms in order to understand job creation in the sector. This is done in Section 4.2.

Finally, the quality of the workforce is a determining factor in the performance of firms. Education and skills are the topics of Section 4.3.

### **4.1. Workers and working conditions**

First, an overview of the employment structure of the firms in the sample is provided. Table 4.1 lists the average share of different kinds of workers by firm type. The firms in the sample are generally characterized by having a very large proportion of permanent full-time employees. They do not employ many women (the average female share is slightly less than 9 pct. of the total workforce) and they have almost no unpaid employees. The extremely low fraction of unpaid workers could suggest that even when hiring family members, Mozambican business owners do not think of this as “unpaid” work. The almost identical shares of permanent and full-time workers suggest that either part time/casual work is not very prevalent in Mozambique or that the understanding of Mozambican business owners of “full-time workers” is rather inclusive.

Micro firms employ relatively more temporary and unpaid workers and fewer women than do small and medium-sized firms. They also have a lower proportion of full-time workers. This suggests that as firms grow larger, they are able (or need) to hire workers on a more permanent basis. Informal firms are more likely than any other group to hire temporary workers, and they also have the lowest proportion of women and expats. On the other hand, women constitute 13 pct. of the labor force of foreign-owned companies and expats constitute almost 8 pct.

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<sup>23</sup> For a further discussion of the notion of “good jobs” see the World Bank (2013).

**Table 4.1: Share of different kinds of workers by firm type, pct.**

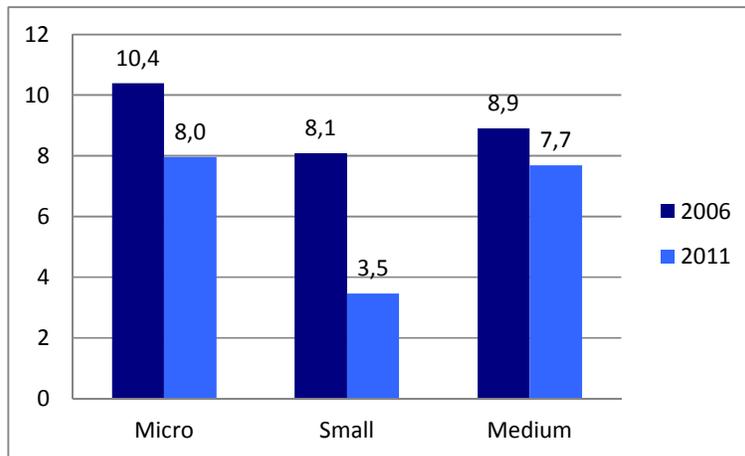
	All	Micro	Small	Medium	Informal	Formal	Moz. owned	For. owned
Permanent workers	92.1	89.8	97.6	95.0	89.1	92.9	91.7	95.2
Full-time workers	91.7	89.4	97.2	95.0	88.9	92.5	91.3	95.2
Temporary workers	8.3	10.8	2.5	5.0	11.6	7.5	8.7	5.5
Unpaid workers	1.0	1.3	0.6	0.0	1.5	0.9	1.0	1.1
Women	8.5	6.7	12.6	12.0	4.4	9.7	8.0	12.5
Expatriates*	1.6	1.2	2.1	2.4	0.3	1.9	0.6	7.6
Number of observations	736	501	174	61	160	574	655	79

**Note:** 25 missing observations for all variables \*except Expatriates, where there are 267 missing observations.

**Source:** Own calculations using IIM 2012.

Figure 4.1 shows the share of temporary workers in firms' labor force over time. There is a tendency for firms to use less temporary workers across size categories, with temporary workers constituting 6.0 pct. on average in 2011 as opposed to 9.2 pct. in 2006 (using the panel data). DNEAP (2006) argues that more frequent use of temporary contracts in 2006, especially for larger firms, were due to cumbersome labor regulations. Attending to this problem, Mozambique passed a new labor law in 2007 that among other provisions drastically cut the cost of laying-off permanent workers (see GoM, 2007a). The law in effect makes it less risky to hire new permanent employees, which could explain why firms feel less need to hire temporary workers.

**Figure 4.1: Share of temporary workers in labor force by firm size, 2006-2011, pct.**



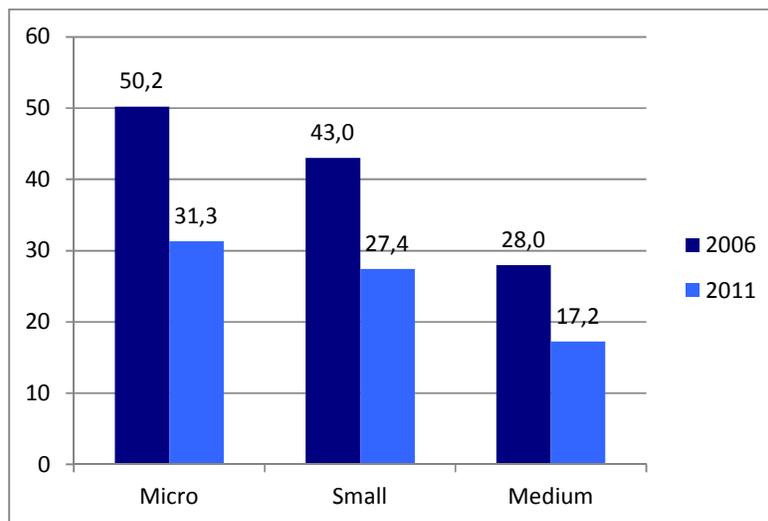
**Note:** Balanced panel, i.e. following the same firms over time. Number of observations: 211 (5 missing).

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

The decreasing use of temporary workers since 2006 would then be an indication that the revised labor law works as intended in this respect. This is consistent with the fact that only about half as many companies consider labor regulation a major constraint now compared to 2006 (Table 3.9 and 3.10).

We now turn to the topic of wages, beginning with a discussion about the minimum wage. The minimum wage is a powerful concept in Mozambique and DNEAP (2006) found that the annual tripartite negotiations about the minimum wage have implications for wage setting in large parts of the (formal) labor market. However, since 2006, the share of workers receiving the minimum wage has decreased substantially for firms of all sizes, as illustrated in Figure 4.2. In 2006, on average 44 pct. of the workers were paid the minimum wage – in 2011 this number had decreased to 27 pct.

**Figure 4.2: Share of workers receiving the minimum wage by firm size, 2006-2011, pct.**



**Note:** Balanced panel, i.e. following the same firms over time. Number of observations: 209 (7 missing).

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

A reason for this drop could be that many firms find it increasingly difficult to pay the minimum wage. The (nominal) minimum wage increased by 115 pct. from 2006 to 2011 while the price level only increased by 60 pct. in the same period.<sup>24</sup> This amounts to a steep increase in real wages, which may be difficult for firms to tackle, especially in the face of stagnant labor productivity, as described in Chapter 5.

<sup>24</sup> Portal do Governo de Moçambique, May 24<sup>th</sup>, 2007; Club of Mozambique, April 28<sup>th</sup>, 2011 and the consumer price index (IPC).

Table 4.2 examines the wage setting process in more detail. The first part of Table 4.2 lists the percentage of workers in each group of firms that receives the minimum wage. Roughly a quarter of the labor force receives the minimum wage, slightly less in the informal sector. The second part of Table 4.2 shows that the most important criterion for wage setting is “based on the minimum wage”, especially for small and medium-sized firms. Informal firms are less likely to use the minimum wage as the primary criterion for setting wages.

For micro firms and informal firms, “individual negotiation with each worker” and the “paying capacity of the enterprise” are very important criteria. This could suggest that some micro and informal firms cannot always afford to pay their employees the minimum wage but that the wage is dependent on the firm’s revenue. On the other hand, for medium firms, the decrease in the share of workers receiving the minimum wage (see Figure 4.2) seems to reflect that a lot of companies are using some function of the minimum wage rather than the minimum wage itself (thus paying *more* than the minimum wage).<sup>25</sup> Furthermore, notice that wages in agriculture or other businesses do not figure as very important criteria. This could suggest that the competition on the demand side in the labor market is not very fierce.

**Table 4.2: Share of workers receiving min. wage and most important wage setting criterion, pct.**

	All	Micro	Small	Medium	Informal	Formal
Percentage of workers receiving minimum wage*	24.2	23.2	26.5	25.4	18.1	25.8
Most important wage setting criterion						
Wage rates in other local non-state enterprises	4.0	3.3	3.9	9.1	3.7	4.0
Wage rates in local state enterprises	2.1	1.9	2.2	3.0	0.0	2.7
Based on the minimum wage	32.5	23.5	48.3	60.6	13.4	37.8
Net average incomes in farming	0.7	0.8	0.6	0.0	0.6	0.7
Wage rate for employment in agriculture in busy season	0.3	0.4	0.0	0.0	0.6	0.2
Individual negotiation with each worker	18.8	24.1	9.0	4.5	22.0	18.0
Collective negotiation	3.7	4.7	2.2	0.0	5.5	3.0
Paying capacity of the enterprise	22.0	24.9	19.7	6.1	34.8	18.5
Qualifications and/or experience of the worker	11.5	10.7	11.8	16.7	13.4	11.0
Other	4.5	5.8	2.2	0.0	6.1	4.0
No. of obs.	759	515	178	66	164	593

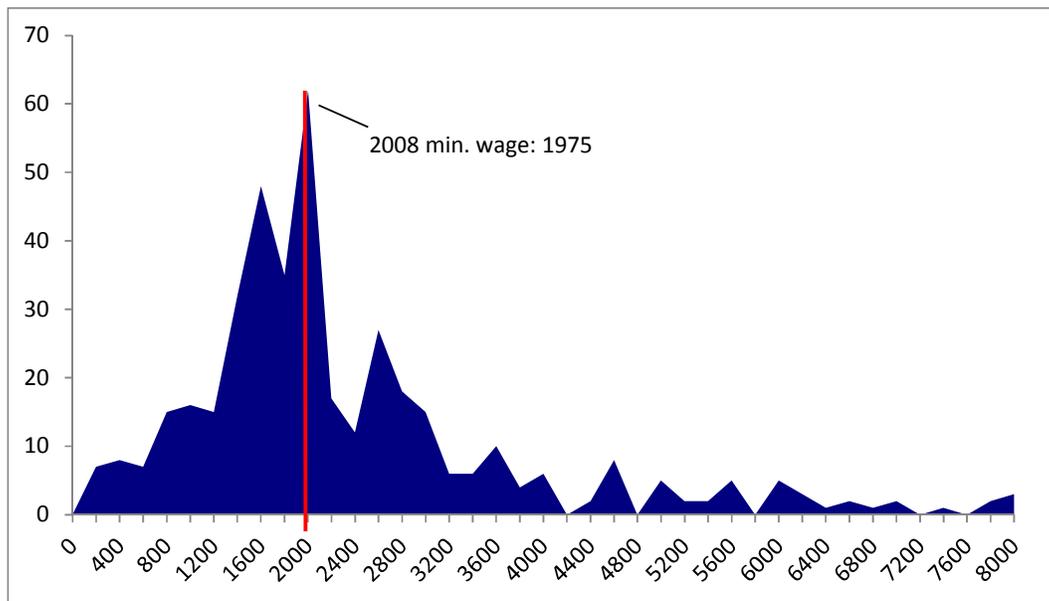
**Note:** 2 missing observations. \* 31 missing observations for the percentage of the labor force receiving the minimum wage.

**Source:** Own calculations using IIM 2012.

<sup>25</sup> Anecdotal evidence suggests that as long as employers are paying slightly more than the minimum wage, they would not (in 2012) say that they are paying minimum wages – whereas in ICA08, many companies report that 100 % of the workers receive the legal minimum wage.

One thing is the paying capacity of the firms; another is what level of wages is required to entice people to work. Figure 4.3 illustrates this issue by considering the distribution of wages relative to the minimum wage. This is done using data from a national household survey conducted in 2008/09 (the Inquérito ao Orçamento Familiar or IOF of 2008/09).<sup>26</sup> For the 441 observations of workers in the manufacturing sector with monthly wage information, the median wage is 1,978 meticaís a month – very close to the minimum wage of 1,975 meticaís a month.<sup>27</sup> This shows that in 2008, almost 50 pct. of the workers were willing to sell their labor for less than the minimum wage.

**Figure 4.3: Histogram of monthly wages of workers in the manufacturing sector 2008/09, frequencies**



**Note:** Contains only observations in the private sector with information about monthly wages: 410 observations (31 observations above 8,000 meticaís a month not showed in figure). 2008-meticaís on the X-axis and frequencies on the Y-axis.

**Source:** Own calculations using IOF 2008/09.

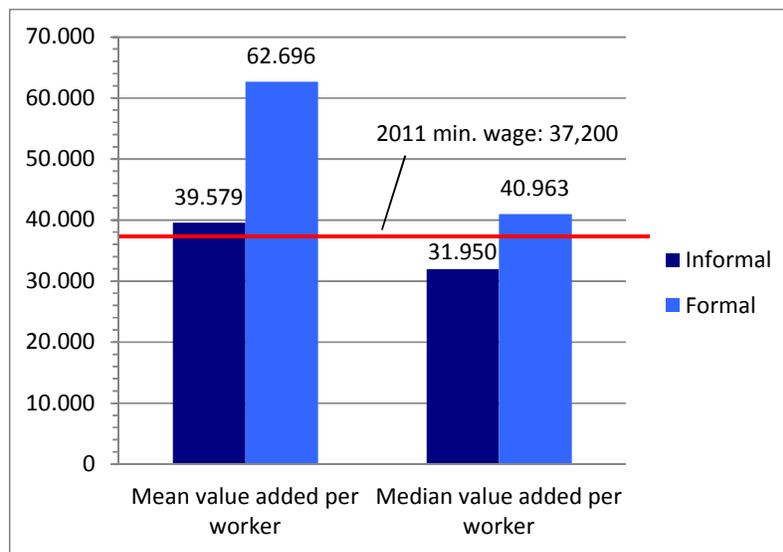
This means that a lot of employment is taking place below the minimum wage. This has two potentially serious implications: 1) If formal firms are more likely to be punished for not paying the minimum wage, the high minimum wage creates a barrier to formality, and 2) Formal firms are possibly creating fewer jobs than they could, because they cannot offer employment at less than the minimum wage, even if many workers would accept this.

<sup>26</sup> See Jones and Tarp, 2012 for a description of the data. The authors behind this report are thankful to Sam Jones and Finn Tarp for making their data available.

<sup>27</sup> See Hanlon (2011) for an overview of minimum wages in Mozambique.

The issue of formality, productivity and the minimum wage is investigated directly in Figure 4.4 that considers the minimum wage in relation to value added per worker for formal and informal micro firms. The minimum wage in the manufacturing sector (3,100 meticaís per month in 2011) is higher than the median value added per employee in the (micro) informal sector. This suggests that for the majority of the informal firms, productivity is so low that the value of what they produce is less than the minimum wage. Also, while the median value added for formal micro firms is higher than the minimum wage, it is not much higher, suggesting that at least some formal micro firms have a value added per worker below the minimum wage. This confirms the suspicion that the minimum wage is above the labor productivity for a large part of the Mozambican labor force.

**Figure 4.4: Value added per worker by formality, mean and median, 2011-meticaís, micro firms only**



**Note:** Only firms with less than 10 workers. Number of observations: 145 (43 informal, 102 formal).

**Source:** Own calculations using IIM 2012.

Moving from wages to benefits, Table 4.3 lists the share of workers receiving selected benefits. More than 70 pct. of Mozambican manufacturing firms provide their employees sick leave with pay – for medium sized companies, this figure is almost 80 pct. More than half also give their employees an annual paid leave, but this is even more skewed, being the case for almost 80 pct. of the medium firms, but only 39 pct. of the micro firms and less than 30 pct. of the informal firms. Employers in Mozambique are not very likely to provide maternity leave (paid or unpaid), but this should be seen in the context where women only

constitute 9 pct. of the manufacturing labor force, cf. Table 4.1. In general, the picture is that larger, formal enterprises are more likely to provide any benefit for their employees.

**Table 4.3: Share of workers receiving benefits by firm type, pct.**

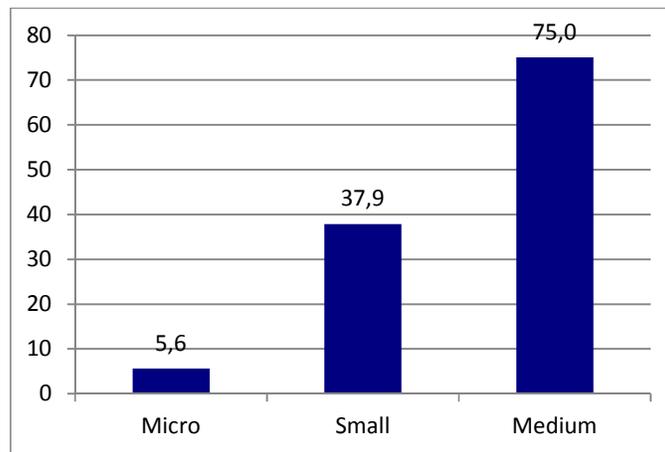
	All	Micro	Small	Medium	Informal	Formal	Moz. owned	For. owned
Sick leave with pay	70.1	67.3	75.2	78.4	70.5	70.3	69.6	73.8
Paid maternity leave	9.7	5.0	19.3	20.8	3.2	11.6	8.3	20.8
Unpaid maternity leave	1.1	0.6	0.9	5.7	0.6	1.2	1.1	1.4
Annual paid leave*	50.1	39.2	72.2	77.5	26.3	57.5	47.8	73.1
Other	5.7	2.9	10.4	14.9	1.9	6.7	5.0	9.4
No. of obs.	734	500	171	63	161	571	651	81

**Note:** 27 missing observations. \*207 missing observations regarding *annual paid leave*.

**Source:** Own calculations using IIM 2012.

Among other things, this could reflect the relationship between firm size and degree of unionization as illustrated in Figure 4.5. Larger firms on average are much more likely to have a unionized labor force – 75 pct. of the medium-sized companies in the sample have a unionized labor force as opposed to only 6 pct. of the micro firms.

**Figure 4.5: Share of firms with unionized labor force, pct.**



**Note:** Number of observations: 758 (3 missing).

**Source:** Own calculations using IIM 2012.

It would appear that all in all, larger (and formal) companies are more likely to provide any given benefit, perhaps as a result of them being unionized to a far greater extent. Larger firms also pay higher wages (Table 4.2) and provide more stable employment (lower proportion of temporary workers, Table 4.1). This

seems to suggest that larger firms are more likely to provide “better jobs”, a notion also hinted at in Page and Söderbom (2012).

#### **4.2. Hiring and firing**

In Table 3.3 the employment growth of the firms in the panel from 2006 to 2011 was analyzed. The average growth rate was found to be minus 5 pct. while the median growth rate was minus 19 pct. for the sample as a whole. In this section, growth for the firms in the cross section is examined, using recall data for the years 2009 and 2011.

Table 4.4 shows four measures of employment growth 2009-2011 for various firm types. The average growth rate was 26 pct. and 21 pct. after adjusting for outliers. Summing the number of workers of all the companies in the cross section, the total labor force was 11,400 (full-time permanent<sup>28</sup>) workers in 2009 and 12,615 in 2011, corresponding to an increase of 11 pct. The median growth was zero, however, so the increase is carried by relatively few companies.

It is not straightforward to reconcile the very low growth rates in the panel data (2006-2011) with the more promising growth rates in the cross section (2009-2011) presented here. The cross section covers a larger number of firms and is more representative, but relies on recall data, which has some inherent problems.<sup>29</sup> The approach taken here is to present results from the panel as well as the cross section and look for results that are robust for both periods.

There is a clear tendency for smaller companies to grow faster than larger companies, with micro firms on average adding 32 pct. to their labor force during the two years and medium-sized firms on average only increasing their labor force by 3 pct. This contrasts with the finding in Chapter 3 that micro firms on average experienced a larger drop in their labor force.

Surprisingly, informal firms have been growing somewhat faster than formal firms, which is the opposite of what was found using the panel. Foreign-owned companies have been adding 68 pct. to their labor force on average (this figure decreases to 26 pct. after correcting for outliers, however), with more than half of the foreign-owned firms hiring on net (median growth of 3.2 pct.). Foreign-owned firms also expanded their labor force from 2006-2012 in the panel.

Considering the growth corrected for outliers, firms in Matola, Beira and especially Moatize have been growing faster than the national average – the very high growth for firms in Moatize is likely to be an effect

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<sup>28</sup> Using total number of workers instead of full-time permanent makes no substantial difference.

<sup>29</sup> For a discussion about the use of recall survey data, see de Nicola and Giné (2012).

of the coal boom in the area. On the other hand, labor force growth in Maputo and Nacala has been somewhat slower than the national average. In the panel (Table 3.3), firms in Beira also had higher growth rates than the national average, but so did firms in Nacala. Firms in Maputo and Matola also experienced growth rates lower than average in the panel.

**Table 4.4: Employment growth 2009-2011 by firm type, pct.**

	Avg. growth	Avg. growth, no outliers*	Median growth	Growth, group as a whole	No. of obs.
All	26.0	20.9	0.0	10.6	753
Micro	31.6	24.4	0.0	21.3	524
Small	16.5	15.4	0.0	17.1	173
Medium	2.8	4.6	0.0	2.3	56
Informal	26.8	27.4	0.0	18.3	164
Formal	25.7	18.9	0.0	10.2	587
Moz Owned	20.7	20.2	0.0	8.0	668
For. Owned	68.2	26.0	3.2	15.1	83
Maputo	17.2	18.5	0.0	8.3	262
Matola	69.5	24.3	0.0	22.1	68
Beira	22.7	24.9	0.0	10.6	143
Nampula	9.7	9.7	0.0	25.5	47
Nacala	17.5	17.5	0.0	-6.3	23
Chimoio	32.2	19.1	0.0	6.8	85
Tete	22.5	22.5	0.0	2.8	36
Moatize	52.2	59.9	50.0	32.3	16
Xai-Xai	22.5	22.5	0.0	4.1	44
Chokwé	28.7	15.5	0.0	11.5	29

**Note:** Column "Growth, group as a whole" indicates the growth of employment of all the firms in the category. \*In the column with no outliers, the 1<sup>st</sup> and 100<sup>th</sup> percentiles are excluded. Size categories in 2009 used. Eight missing observations.

**Source:** Own calculations using IIM 2012.

Comparing the analyses of growth 2006-2011 using the panel data and growth 2009-2011 using the cross-section data, it is hard to conclude anything decisive about the correlation between initial firm size and growth and formality and growth. Foreign-owned firms come out with higher average growth rates in both periods. Firms in Maputo generally experienced lower growth rates in both periods while firms in Beira experienced higher growth rates.

In Table 4.5, employment growth for the different sectors is investigated. As in the previous chapter, the food and non-metallic minerals sectors have been growing faster than the average of the sample as whole, and the apparel, chemicals, metal, machinery and furniture sectors have been growing more modestly. The

wood sector (especially sawmilling) and the printing sector have been growing fast too and while the average growth rate in the textile industry is very high, the sector as a whole is reducing employment. This indicates that small textile companies have been growing fast while larger ones have shrunk, leading to an decrease in employment for the sector as a whole.

**Table 4.5: Employment growth 2009-2011 by sector, pct.**

	Avg. growth*	Median growth	Growth, group as a whole	No. of obs.
All	20.9	0.0	10.6	753
Food, Bev, Tobacco	15.9	0.0	14.8	126
Textiles	48.5	0.0	-8.9	9
Apparel and Footwear	13.6	0.0	8.3	93
Wood and Paper	29.0	0.0	20.6	98
Publishing and printing	33.0	20.0	13.8	17
Chemicals, Rubber, Plastic	9.6	4.8	5.8	10
Non-metallic minerals	19.1	0.0	31.6	61
Fabricated Metal Products	20.0	0.0	4.6	163
Machinery etc.	13.2	0.0	3.2	14
Furniture and manufacturing nec	24.3	0.0	2.9	162

**Note:** 8 missing observations. \*In the calculation of average growth rates, the 1<sup>st</sup> and 100<sup>th</sup> percentiles are excluded.

**Source:** Own calculations using IIM 2012.

**Table 4.6: Use of hiring methods by firm type, pct. of firms using the method.**

	All	Micro	Small	Medium	Informal	Formal	Moz. Owned	For. Owned
Newspapers, Ads	4.3	0.2	8.5	25.0	0.6	5.3	2.7	17.1
Labor Exchange	3.2	1.6	4.5	12.5	2.4	3.4	2.3	9.8
Recommended by friends, relatives, workers	44.5	43.1	47.7	46.9	43.3	44.7	43.6	52.4
Recommended by authorities	8.4	8.3	7.4	12.5	6.1	9.1	8.1	9.8
Through personal contacts	56.8	57.7	60.2	40.6	57.9	56.4	58.4	45.1
Unsolicited CVs	19.8	14.0	31.3	34.4	7.3	23.3	18.1	34.1
Thru employment services centers	4.6	1.8	8.0	17.2	0.6	5.7	3.3	14.6
Others	30.2	31.2	28.4	26.6	31.7	29.8	30.9	24.4
No. of obs.	746	506	176	64	164	580	663	82

**Note:** 15 missing observations.

**Source:** Own calculations using IIM 2012.

Considering the procedures used to hire new workers in Table 4.6, it becomes clear that informal ways of contracting new employees – recommendations by friends, relatives, other workers and personal contacts – are by far the most commonly used. However, in addition to this, larger firms (and foreign-owned firms) also use more formal means, with medium firms also using newspapers, ads and employment centers to a much larger degree than smaller firms. They also get more unsolicited CVs, perhaps because they are considered to provide “good jobs”, as mentioned before.

### **4.3. Education and skills**

Under Portuguese colonial rule, most indigenous Mozambicans were kept away from attending school, resulting in very low education levels and extremely low literacy rates. Since independence, Frelimo has placed priority on education of the Mozambican people, but the low starting point at independence and the long war has meant that progress has been slow. As Jones and Tarp (2012) show, education levels are nowadays slowly improving, but the level remains very low. This section investigates the issue of skills and education for Mozambican manufacturing firms.

Table 4.7 shows the percentage of workers with different education levels for various groups of firms. Interestingly, firms are quite similar across size, formality and owner nationality when it comes to the educational level of their labor force. However, workers in formal firms are more likely to have high school or university education than workers in informal firms, and the employees of foreign-owned companies are also more likely to have higher education, but it is not clear that firm size matters a lot for the education level of its employees. Micro firms are not very likely to employ people with university degrees though.

**Table 4.7: Education level of workers by firm type, pct. of workers**

	All	Micro	Small	Medium	Informal	Formal	Moz. Owned	For. Owned
University degree	1.5	0.8	3.2	2.7	0.2	1.8	1.2	3.4
High school, non-vocational	10.3	9.6	12.6	10.2	8.8	10.7	9.9	13.5
High school, vocational	2.7	2.5	3.2	3.1	3.0	2.6	2.7	2.6
Secondary, non-vocational	17.7	18.5	14.8	18.3	17.8	17.7	17.8	16.7
Secondary, vocational	4.5	4.1	5.6	5.2	3.3	4.9	4.5	5.1
Primary education	34.6	36.6	30.5	28.1	39.3	33.2	35.2	29.9
Incomplete primary education	23.1	22.7	24.6	22.2	24.0	22.8	23.6	18.9
No education	5.5	5.1	5.5	8.8	3.7	5.9	4.9	10.5
No. of obs.	719	505	155	59	164	553	642	75

**Note:** 42 missing observations.

**Source:** Own calculations using IIM 2012.

After the overview of the education level of the workers, Table 4.8 reports the extent to which the skill level of workers poses any problems for the firms. This is done by asking if the firm has a sufficiently skilled workforce, given the type of production the firm is engaged in (percentage saying “no”). Table 4.8 also lists the percentage of firms that conducted some kind of worker training in 2011.

**Table 4.8: Share of firms perceiving workers’ skills as insufficient and share providing training, pct.**

	Workers are not sufficiently skilled*	Firm provides training	No. of obs.
All	23.4	8.2	758
Micro	27.8	4.9	515
Small	12.4	13.0	177
Medium	18.2	21.2	66
Informal	33.3	4.2	165
Formal	20.6	9.3	591
Moz. Owned	24.5	7.6	673
For. Owned	14.5	13.3	83
Maputo	27.3	10.9	267
Matola	11.6	5.8	69
Beira	19.6	10.5	143
Nampula	18.8	0.0	48
Nacala	30.4	0.0	23
Chimoio	20.0	8.2	85
Tete	13.9	5.6	36
Moatize	26.7	6.7	15
Xai-Xai	32.6	9.3	43
Chokwé	41.4	0.0	29

**Note:** \* Percentage answering No to the question: “Do you have a sufficiently skilled workforce given the type of production you are engaged in and the technology you employ?”. Three missing observations.

**Source:** Own calculations using IIM 2012.

As Table 4.8 shows, around 23 pct. of the firms did not think their workforce was sufficiently skilled and around 8 pct. conducted training activities in 2011. While 28 pct. of the micro firms did not think they had a sufficiently skilled workforce, this was only the case for 18 pct. of the medium firms and 12 pct. of the small firms. Informal firms are much more likely to not have a sufficiently skilled workforce and the opposite is the case for the foreign-owned companies. Interestingly, problems with an insufficiently skilled workforce seem to be most severe in Maputo and Nacala and in some of the least industrialized cities (Moatize, Xai-Xai, Chokwé). In Maputo this probably reflects an intense competition for skilled workers, while it presumably reflects thin labor markets in the other cities. The problems with an insufficiently skilled

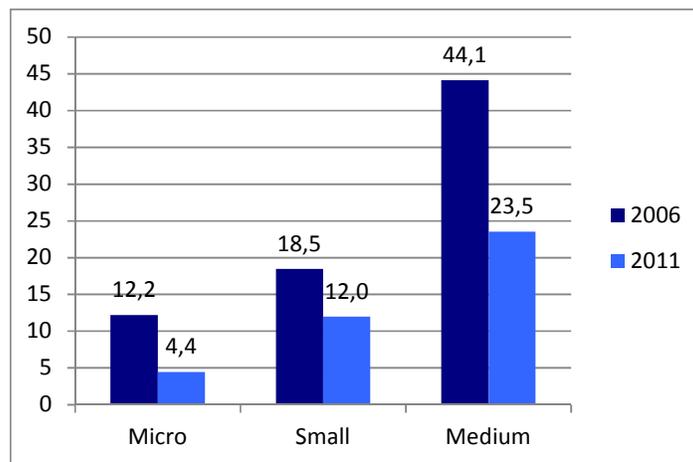
workforce experienced by informal and micro enterprises are likely to be closely connected to low productivity and hence ability to pay higher wages.

Unsurprisingly, larger firms are more likely to provide on-the-job training, as are formal and foreign-owned firms. Geographically, firms in Maputo are the most likely to provide training (11 pct. of the firms) whereas in some cities (Nampula, Nacala and Chokwé), no firms provided training in 2011.

From Table 4.8 it appears that larger firms are less likely to say that their workers are insufficiently skilled. Recall also the result from Chapter 3 that the skills and education of workers are not perceived as a major constraint for firms. Since larger firms typically engage in more advanced production, how does this correspond to the generally low level of skills in the Mozambican labor force?

A possible interpretation is that the skills level of the workers is a fundamental factor that profoundly influences the *discrete decision* of starting a business. If highly skilled workers are not available, some industries will simply not establish themselves in Mozambique. This implies that a general upgrade of the skills and education levels of Mozambican workers could induce firms to start more advanced production. The small share of companies perceiving workers as insufficiently skilled should hence not be treated as an argument that there is no need to upgrade the education and skills of the Mozambican labor force.

**Figure 4.6: Proportion of firms providing training by firm size, 2006-2011, pct.**



**Note:** Balanced panel, i.e. following the same firms over time. Number of observations: 216.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

The number of companies that provided training in 2011 seems low, and taking a look at the panel dimension in Figure 4.6 confirms this suspicion. Across size categories, firms are only about half as likely as they were in 2006 to have provided training in the last year. A possible explanation for this could be that firms need to use less training as they mature, and that following the same firms over time would give a picture of less and less training taking place. More research is needed to identify whether this is a problem for Mozambique and if so, what the causes and possible remedies are.

## 5. Productivity and investments

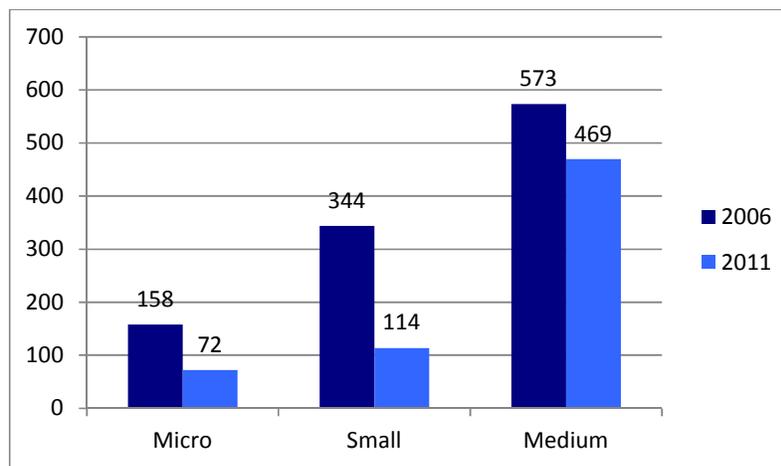
As mentioned in the introduction, concerns have often been raised about the productivity of the Mozambican manufacturing sector. DNEAP (2006) showed that productivity increased from 2002 to 2006, but suggested that the increase was mostly due to increased capacity utilization. In the same vein, Warren-Rodriguez (2010) documents increasing technological obsolescence among Mozambican manufacturers. Using household surveys, Jones and Tarp (2012) show that manufacturing as a whole adds more value per hour worked than services (by a factor of 1.65) and especially agriculture (by a factor of 11) but that productivity has been more or less stagnant since 2005. Finally, ICA (2009) shows that manufacturing productivity in Mozambique lags behind regional rivals as Zambia and Malawi.

The first section of this chapter treats developments in labor productivity and differences in labor productivity between firms. One of the most important ways of increasing productivity is through investments, which are the topic of Section 5.2. Since the survey generally suffers from a lot of missing observations in the finance variables, results in this chapter should be interpreted with caution.

### 5.1. Labor productivity

To analyze the evolution of the labor productivity of Mozambican manufacturing firms, Figure 5.1 illustrates median revenue per worker by firm size in 2006 and 2011.

**Figure 5.1: Median revenue per worker in 2006 and 2011 by firm size, thousand 2011-meticais**



**Note:** Unbalanced panel, i.e. not following the same companies over time. Using a balanced panel instead does not make a qualitative difference. Outliers (values below 2<sup>nd</sup> percentile and above 98<sup>th</sup> percentile) were excluded. Number of observations in 2006: 365 (77 missing); in 2011: 319 (442 missing). Four firms with more than 299 workers excluded in 2006.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Median revenue per employee appears to have decreased for all three size categories and this does not change if a balanced panel (where the same firms are followed over time) is considered instead. The small number of observations makes it difficult to conclude decisively, but the results indicate a general decline in labor productivity among Mozambican manufacturing firms.

At the very least, the numbers do not suggest a general increase in labor productivity for Mozambican manufacturing firms, in line with the findings in Bila and Rand (2011). In light of the 7-8 pct. annual growth in the Mozambican economy as a whole, this suggests that SME manufacturing is lagging much behind the growth in the rest of the economy. This is consistent with the finding in KPMG's Top 100 Companies Report (KPMG, 2011) that Mozambican manufacturing GDP has been growing at very meager rates since Mozal reached its current production levels around 2004, being outperformed by virtually all other sectors in the Mozambican economy. This is in contrast to the result in DNEAP (2006) where Mozambican manufacturing firms on average were found to experience a significant increase in labor productivity. An analysis of productivity growth was also conducted for 2010-2011 using recall data from the IIM 2012. This also indicated at best stagnation in productivity (revenue and value added per worker) and is not reported here.

Given this rather pessimistic account of the productivity growth in the manufacturing sector, it is perhaps of some concern that the minimum wage in the manufacturing sector keeps increasing at a rate grossly outpacing inflation. It grew 24 pct. from 2010 to 2011<sup>30</sup> and 16 pct. from 2011 to 2012<sup>31</sup> where inflation was 10 pct. and around 7 pct. respectively (IMF, 2012).

## **5.2. Investments**

In order to understand firm dynamics and growth, it is important to figure out the determinants of investments, since they play a key role in upgrading and expanding the production apparatus of companies. Since firms often may need to make larger investments than can be made using own resources and retained earnings, access to finance plays an important role in the investment strategies of firms, a topic covered by Chapter 9.

Table 5.1 presents the share of firms that made investments in 2009-2011 as well as the proportion of investment financing from various sources. The results support conclusions in DNEAP (2006) and Rand (2008) by showing that larger firms are more likely to make investments and to make this investment using external credit sources. Table 5.1 also shows that own resources are the most important source of investment financing by far. Even medium sized companies use own resources for nearly 70 pct. of the total

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<sup>30</sup> Club of Mozambique, 28<sup>th</sup> of April, 2011.

<sup>31</sup> O País, 18<sup>th</sup> of April, 2012.

financing need and micro companies rely on it for more than 90 pct. of investment financing. The fact that micro and informal firms only get around 2 pct. of their investment financing from “other sources” also counters the view that informal loans and credit are an important source of finance for informal and micro firm investments.

There is also a great deal of variation in the use of financial instruments across regions. Maputo, Matola, Beira and Nacala seem to be better connected to financial markets, with greater use of bank loans as well as other sources of finance. In Moatize, Xai-Xai and Chokwé, virtually all investments are financed by own resources.

**Table 5.1: Share of firms that made investments during the last three years, pct.**

	Made investments	Investment financing, pct. of investing firms			Obs.
		Own resources	Bank loan	Other sources	
All	48.0	88.5	8.2	3.3	758
Micro	44.1	92.8	5.1	2.1	515
Small	50.6	87.9	6.3	5.9	178
Medium	72.3	69.3	27.0	3.7	65
Informal	35.8	94.3	3.4	2.2	165
Formal	51.6	87.4	9.1	3.5	591
Maputo	53.2	86.2	9.0	4.9	267
Matola	57.4	85.8	10.9	3.3	68
Beira	36.6	86.2	8.3	5.6	142
Nampula	33.3	93.8	6.3	0.0	48
Nacala	56.5	86.2	13.8	0.0	23
Chimoio	57.6	90.3	8.7	1.0	85
Tete	58.3	92.1	7.9	0.0	36
Moatize	31.3	100.0	0.0	0.0	16
Xai-Xai	36.4	98.1	0.0	1.9	44
Chokwé	37.9	100.0	0.0	0.0	29

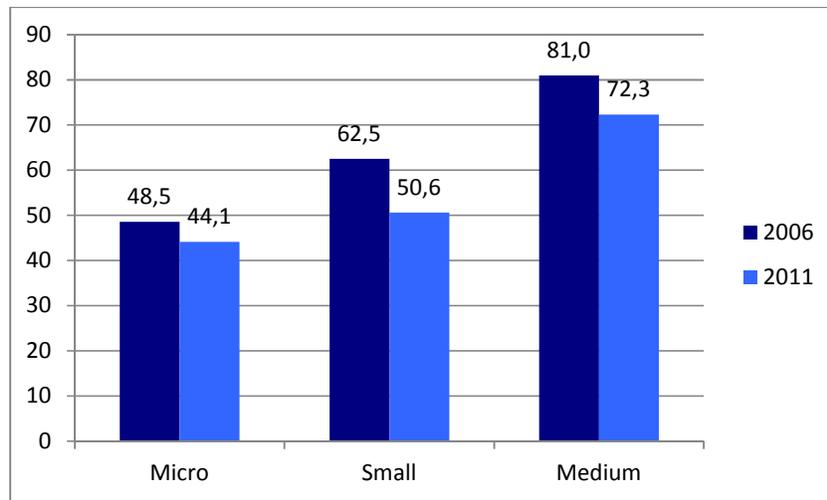
**Note:** “Other sources” includes: 1) capital from friends and relatives, 2) contributions by employees, 3) loan against interest from private person, 4) advance payment for sales, 5) leasing and 6) other. Number of observations refers to the first column. Three missing observations.

**Source:** Own calculations using IIM 2012.

Figure 5.2 presents the share of firms having made investments in 2006 and 2011. Across size categories, Mozambican manufacturing firms are less likely to have made investments in 2011 than in 2006.<sup>32</sup> For the sample as a whole, 67 pct. had made investments in 2006 while only 56 pct. had made investments in 2011.

On the other hand, the proportion of investment financed by other sources than own resources have gone up in the same period. Small firms use “other sources” less, but both micro and medium firms have increased their use of external financing. This could reflect fewer investments being made or a better access to external financing. For the sample as a whole<sup>33</sup>, external financing accounted for 16.7 pct. of the total financing in 2006 and 21.3 pct. in 2011.

**Figure 5.2: Share of firms having made investments during last three years, 2006-2011, pct.**



**Note:** Unbalanced panel, i.e. not following the same companies over time. Using a balanced panel instead does not make a qualitative difference. Number of observations in 2006: 139; in 2011: 758 (3 missing). Two firms with more than 299 workers excluded.

**Source:** Own calculations using IIM 2012 and DNEAP (2006).

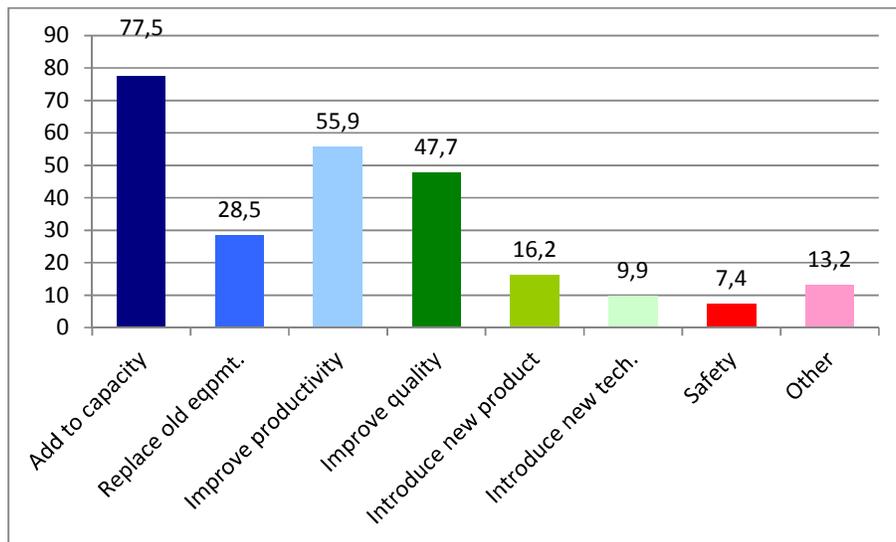
Two thirds of the investments in equipment were reported as being new, 26 pct. as being used and 7 pct. as being a mixture of new and used. 19 pct. were imported directly, 70 pct. made abroad but bought locally and 11 pct. was made locally; a substantial increase from what was found in the last survey (DNEAP, 2006). The firms that buy locally constructed machinery and equipment are concentrated in the wood, furniture and non-metallic minerals sectors, so the Mozambican produced equipment is in essence basic wood-working and brick-making devices.

<sup>32</sup> Unfortunately, we cannot do this exercise for the entire panel. The question in DNEAP06 and IIM12 refers to investments during *the last three years* whereas the question in ICA08 refers to investments during *the last year*. Hence we can only use the DNEAP06 panel dimension here.

<sup>33</sup> Still using only the DNEAP06 panel.

Figure 5.3 lists the share of firms that indicated a given purpose for their investments. *Adding to capacity* is the most commonly stated investment objective, mentioned by almost 80 pct. of the firms that did invest; *replace old equipment* is also a common purpose, mentioned by 29 pct. *Improving quality* and *improving productivity* are each mentioned as the purpose for about 50 pct. of the investments. Only 16 pct. of investments go to introducing new products and only 10 pct. to introducing new technologies. The figure suggests that the investments of Mozambican manufacturing firms are geared towards improving and scaling up existing production rather than introducing new products and technologies.

**Figure 5.3: Purpose of investment, pct. of investing firms**



**Note:** The percentages do not sum to 100 as some firms have indicated more than one purpose. Number of observations: 365 (only firms that made investments are included).

**Source:** Own calculations using IIM 2012.

One of the findings in DNEAP (2006) was that Mozambican manufacturing firms in general had somewhat old machinery with more than half of the machinery stock being more than 10 years old. Furthermore, age of machinery seemed to be decreasing in firm size, so that medium and large firms had slightly younger equipment and micro firms had very old equipment. Interestingly, we find a very different pattern in the IIM12-data as can be seen from Table 5.2.

Only some 25 pct. of the total machine park is older than 10 years, and micro companies in general have newer equipment than larger firms. When considering the panel, however, we do find that the firms in the panel have a much higher mean age of machinery than the sample as a whole, which suggest a more modest “renewal” of the machine park. Anecdotal evidence suggests that the “renewal” could be due to an

increased presence of cost-competitive Asian (especially Indian and Chinese) machinery entering Mozambican production lines in these years.

**Table 5.2: Age of main machinery by firm type, pct. of firms**

	Age of main machinery				No. of obs.
	0-5 years	5-10 years	10-20 years	More than 20 years	
All	45.2	28.1	15.3	11.5	751
Micro	47.7	28.5	14.0	9.9	512
Small	41.3	28.5	16.6	13.7	173
Medium	36.8	23.7	21.8	17.7	66
Informal	50.5	30.4	11.9	7.6	164
Formal	43.9	27.2	16.3	12.6	585

**Note:** Eight missing observations.

**Source:** Own calculations using IIM 2012.

## 6. Owner/manager characteristics

The gender, ethnicity, education and political connections of firm owners may profoundly affect not only the range of options open to the firm but also its performance. In this chapter we consider some characteristics of the owners and managers of the sampled enterprises.

Table 6.1 lists the share of firms with female owners and owners of various ethnicities. Around 9 pct. of the sample firms have a female owner, considerably more than the 3.4 pct. found in DNEAP (2006). Smaller companies are more likely than both micro and medium-sized companies to have a female owner and only around 5 pct. of the foreign-owned businesses have a female owner.

**Table 6.1: Gender and ethnicity of owner by firm type, pct. of firms**

	All	Micro	Small	Medium	Informal	Formal	Moz. owned	For. owned
Female	9.0	8.0	12.0	8.2	7.4	9.3	9.5	4.9
African	87.5	97.3	73.7	45.9	99.4	84.2	95.0	26.8
European	6.6	1.4	16.0	23.0	0.6	8.2	2.0	43.9
Indian	3.4	1.0	6.9	13.1	0.0	4.3	2.0	14.6
Other Asian	2.0	0.2	3.4	13.1	0.0	2.6	0.8	12.2
Other	0.5	0.2	0.0	4.9	0.0	0.7	0.3	2.4
No. of obs.	746	510	175	61	162	582	664	82

**Note:** Fifteen missing observations.

**Source:** Own calculations using IIM 2012.

Around 7 pct. of the sampled firms have an owner of European ethnicity, 3 pct. have an owner of Indian ethnicity and 2 pct. have an owner of “other Asian” ethnicity. Larger enterprises are more likely to have an owner of non-African ethnicity; less than half of the business owners of medium sized companies are of African ethnicity. Informal businesses are almost exclusively owned by people of African ethnicity. Unsurprisingly, the vast majority of foreign-owned firms have an owner of non-African ethnicity. Entrepreneurs of other ethnicities (who can be both foreigners and minorities) are more likely to manager larger businesses, presumably because these represent more profitable business opportunities.

Table 6.2 considers the education levels of the managers<sup>34</sup>, which is often considered a rough proxy for manager ability. Larger companies are much more likely to be managed by a person with university education – more than half of the medium-sized businesses have managers with university education. In the same vein, formal and foreign-owned companies are on average managed by much better educated managers than informal and Mozambican-owned companies. Comparing the numbers to the results from

<sup>34</sup> Or owners, if the general manager was not the respondent.

the last DNEAP survey (DNEAP06), education levels are slightly up for the managers of micro, small and medium-sized companies.

**Table 6.2: Highest completed education of manager by firm type, pct. of firms**

	All	Micro	Small	Medium	Informal	Formal	Moz. owned	For. owned
University degree	15.7	5.7	31.3	54.1	1.9	19.2	11.6	48.7
High school	27.7	23.6	36.7	36.1	19.7	30.0	26.7	36.8
Secondary	21.7	27.1	12.0	4.9	28.7	19.9	23.3	7.9
Primary	18.1	23.6	7.8	1.6	27.4	15.6	19.9	3.9
Less than primary	16.8	20.0	12.0	3.3	22.3	15.3	18.5	2.6
No. of obs.	722	495	166	61	157	563	644	76

**Note:** In 96 cases where education of the general manager was unavailable, owner education is used instead. In 39 cases, neither was available, resulting in 39 missing observations.

**Source:** Own calculations using IIM 2012.

Another proxy for manager ability is education and experience from abroad, which is treated in Table 6.3. Around 9 pct. of the managers in the sample have education from abroad and about 11 pct. have management experience from abroad. Some 40 pct. of the managers with education from abroad have university level education and another 40 pct. have high school level education. Unsurprisingly, it is especially among the larger and the foreign-owned companies that a higher proportion of managers have experience from abroad. More than a third of medium-sized firms have managers with experience from abroad and almost half have managers with education from abroad – this means that a large share of medium-sized companies have some kind of ties to other countries.

**Table 6.3: Share of firms with managers with education and experience from abroad, pct.**

	Education from abroad	Experience from abroad	No. of obs.
All	8.9	10.3	574
Micro	3.9	7.4	435
Small	18.5	14.8	108
Medium	45.2	35.5	31
Informal	1.5	5.9	135
Formal	11.2	11.6	438
Moz. owned	2.8	6.6	529
For. owned	81.8	52.3	44

**Note:** Number of observations is low (187 missing observations) because this information is only available when the manager was the person answering the questionnaire.

**Source:** Own calculations using IIM 2012.

After 20 years of peacetime Frelimo rule in Mozambique, the political and economic elites in Mozambique are to a large extent intertwined. This is illustrated by the fact several high-ranking Frelimo-members have substantial involvement in businesses in Mozambique.<sup>35</sup> A large number of business owners are members of Frelimo, as can be seen from Table 6.4. Politics is often a sensitive issue, so businesses may be reluctant to state an affiliation to another party – we note that a substantial share of the respondents have not answered the questions about political affiliation.

Interestingly, membership is more frequent for owners of smaller businesses, with almost 40 pct. of micro firm owners being Frelimo members as opposed to only 15 pct. of owners of medium firms. An interpretation of this could be that being a member of Frelimo gives the firm access to a powerful network, which could be useful in an economy where markets are not always functioning well and that smaller firms need this to a larger extent than larger firms, which might have access to other networks.

**Table 6.4: Owner’s political affiliation by firm type, pct. of firms**

	Frelimo	Other Pol. Parties	No answer	No. of obs.
All	32.9	0.9	16.4	761
Micro	38.7	0.8	13.0	517
Small	22.5	1.7	22.5	178
Medium	15.2	0.0	27.3	66
Informal	36.1	1.8	12.0	166
Formal	31.7	0.7	17.7	593
Moz. owned	36.4	1.0	15.8	676
For. owned	4.8	0.0	19.3	83

**Note:** “Other pol. parties” refers to Renamo and Other. “No answer” applies to situations where the respondent did not answer the question “Is the owner/majority shareholder member of a political party” or the question “If yes, which party”.

**Source:** Own calculations using IIM 2012.

As mentioned, manager characteristics may have implications for firm performance. This is investigated in Table 6.5 that presents employment growth figures for firms with different owner/manager characteristics for the period 2009-2011 (using the cross section) as well as 2006-2011 (using the panel data). The fact that employment growth was higher in 2009-2011 than 2006-2011 was discussed in Chapter 4, so here the focus will be on the differences between groups.

<sup>35</sup> See e.g. Hanlon (2009) and A Verdade, October 4<sup>th</sup>, 2012.

**Table 6.5: Employment growth 2006-2011 and 2009-2011 by owner characteristics, pct.**

	2009-2011 (Cross Section)				2006-2011 (Panel)			
	Mean	Median	Group	No. of obs.	Mean	Median	Group	No. of obs.
All	20.9	0.0	10.8	741	-5.1	-18.6	-2.1	212
Female	22.1	0.0	5.3	67	-15.8	-15.4	-11.3	29
Male	20.9	0.0	11.8	672	-3.6	-20.0	-0.8	180
African Ethnicity	19.6	0.0	8.0	638	-15.8	-33.3	-21.2	146
Other Ethnicity	32.1	4.2	17.3	90	20.0	3.3	10.4	62
University	11.4	0.0	4.8	109	10.2	-2.0	3.0	49
High School	24.1	0.0	17.2	197	14.9	-12.1	3.7	34
Secondary School	24.1	0.0	10.4	154	-8.1	-19.1	-8.9	70
Primary School	14.0	0.0	7.6	128	-24.4	-33.3	-29.5	55
Less than primary school	24.4	0.0	11.8	115	-45.8	-40.0	-36.4	4
No edu. from abroad	22.0	0.0	12.2	519				
Education from abroad	23.6	0.0	17.2	57				
No exp. from abroad	20.5	0.0	8.1	521				
Experience from abroad	38.8	20.0	24.5	59				
Not a Frelimo member	23.0	0.0	18.3	377				
Frelimo member	19.1	0.0	5.1	244				

**Note:** Outliers excluded: 1<sup>st</sup> and 100<sup>th</sup> percentiles of growth rate distribution removed. Categorization in the panel was done on basis of status in 2006. It was not possible to construct measures of education and experience from abroad and Frelimo membership using the panel data. Missing observations in cross section: 2 for owner gender, 14 for owner ethnicity, 39 for manager education, 170 for manager education abroad, 166 for manager experience abroad, and 125 for Frelimo membership. Missing observations in panel: 3 for owner gender, 5 for owner ethnicity.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

While there is not much difference between the growth rates of firms with male and female owners in the cross section, firms with male owners experienced higher growth rates in the panel. Firms with owners of non-indigenous ethnicity grew at much higher rates in both periods, consistent with e.g. Ramachandran and Shah (1999) or Bigsten and Söderbom (2006). The reason for this could be that owners of non-indigenous ethnicity are more likely to have education and management experience from abroad and have more contacts in other countries (see Chapter 8) – we see that education and experience from abroad are also associated with higher employment growth rates in the cross section.

Manager education does not seem to have any systematic effect on employment growth in the cross-section, but in the panel there is a clear indication that firms with better educated managers grow at higher rates. Finally, businesses run by Frelimo members appear to grow at slightly *lower* rates than businesses headed by non-members. This indicates that while Frelimo membership might be helpful – especially for smaller businesses – it is not a panacea to the firms' problems.

The finding that non-indigenous ethnicity, education (in the panel) and education and experience from abroad are associated with higher growth rates suggests that manager characteristics have an effect on employment growth. And if better managers can make companies grow faster and perform better, measures should be taken to improve the quality of managers. Improving manager education in Mozambique may be a fruitful route to take, a policy also recommended by Söderbom and Page (2012).

## 7. Trade, inputs and sales structure

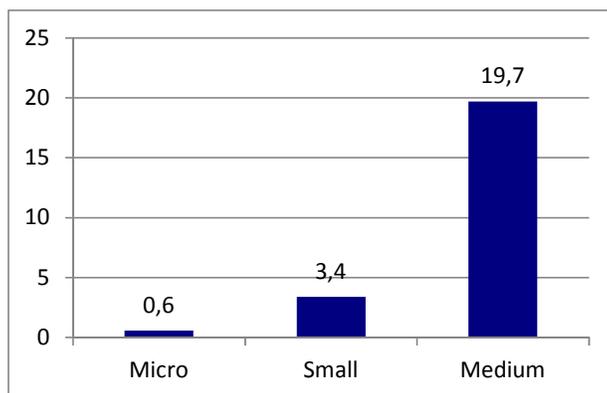
Mozambican exports are dominated by megaprojects – aluminum, gas and bulk electricity constitute two-thirds of total exports, and megaproject exports are only likely to increase when export of the Tete coal and Cabo Delgado gas begins in earnest.<sup>36</sup> This does not mean that other exports are irrelevant though. On the contrary – exporting might give firms access to better technology and lead to productivity increases (learning by exporting). Crucially, given the small size and poor geographic integration of Mozambique’s domestic market, exporting also permits companies to exploit economies of scale and comparative advantages.

In Section 7.1, some characteristics of manufacturing exporters in Mozambique are presented. Section 7.2 analyzes the sales structure of the companies in the sample with regard to regions, customer groups and pricing strategies. In Section 7.3, the role of inputs and imports is examined.

### 7.1. Export and exporters

Out of the sample of 761 companies, only 22 (or 3 pct.) are exporters. As can be seen from Figure 7.1, larger firms are much more likely to export – almost a fifth of the medium-sized manufacturing companies export while less than 1 pct. of the micro firms do. No informal companies report to be exporting.

**Figure 7.1: Share of exporters by firm size, pct.**



**Note:** Number of observations: 761. Three micro companies, six small companies and 13 medium-sized companies were exporters.

**Source:** Own calculations using IIM 2012.

Table 7.1 displays a transition matrix for exporting in 2006 and 2012. There is some fluctuation in the exporting status of companies: nine out of 13 companies that exported in 2006 did not do so in 2012 (69

<sup>36</sup> The Mozambican Export Promotion Institute (IPEX), cited by AllAfrica.com on August 12<sup>th</sup>, 2012

pct.). When asked why they did not export in 2012, 5 out of the 9 answered that it was not “part of the firm’s strategy” to export. On the other hand, 6 companies are exporting now, that did not export in 2006. This suggests that Mozambican manufacturing exporters – at least in our sample – are not necessarily “born globals” (firms established with the purpose of exporting, see Rennie, 1993), but rather that companies can drop in and out of exporting. This is contrary to the results from previous surveys (Cruz et al., 2013), where exporting manufacturing firms tended to be born globals. There is a slight tendency for the companies that stopped exporting to have fewer employees now than in 2006 and for the companies that started exporting to have more employees, but the number of observations is so small that nothing decisive can be concluded.

**Table 7.1: Exporting transition matrix, 2006-2011**

	Did not export in 2012	Exported in 2012	
Did not export in 2006	197	6	203
(pct.)	(97.0)	(3.0)	(100)
Exported in 2006	9	4	13
(pct.)	(69.2)	(30.8)	(100)
Total	206	10	216
(pct.)	(95.4)	(4.6)	(100)

**Note:** Numbers in parentheses indicate percentages.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Some characteristics of the exporters are shown in Table 7.2. On average, the exporters export 43 pct. of total sales directly and 8 pct. indirectly.

**Table 7.2: Exporter characteristics**

	Pct. of sales
Direct exports	43.4
Indirect exports	7.5
	Pct. of exporting firms
Received orders for exports	63.6
Firm has experienced tech. transfer from buyer	27.3
Firm has certificates of origin	68.2
No. of obs.	22

**Note:** The first part of the table lists the average share of sales that is exported for the exporters. Number of observations: 22.

**Source:** Own calculations using IIM 2012.

Seven firms (or 32 pct. of the exporters) exported 90 pct. or more of their production. Almost two thirds of the exporters received specifications, designs or materials for export production, 27 pct. received a technology transfer from an export buyer, and 68 pct. of the exporters had certificates of origin. A third of the exporters say that China is the most important destination for exports while roughly a quarter say South Africa. The rest say other neighboring African countries, one say India and only one say a European country (the UK). Moreover, the destinations of Mozambican manufacturing exports buy different products. As Table 7.3 suggests, there appears to be a pattern in that wood processers export to Asia while food and fabricated metal products are exported to neighboring African countries.

It is a common result in the literature that exporters are more productive than non-exporters (see e.g. Bigsten et al., 2004). This finding is often decomposed into two different effects: i) More efficient firms self-select into exporting and ii) Firms become more efficient by exporting (the “learning by exporting” effect). The exporters in this sample have a much higher revenue per worker than non-exporters and also experienced higher growth in revenue per worker, but the result is based on so few observations that it is hard to conclude decisively.

**Table 7.3: Export sector by main destination of exports, number of firms**

Sector	Destination of Exports					Total
	SA	Africa	Asia	Europe	Indirect exports	
Food and beverages	2	1	1	0	1	5
Textiles	0	0	0	1	2	3
Wood	0	0	4	0	1	5
Fabricated metal products	2	2	0	0	1	5
Other	0	1	1	0	2	4
Total	4	4	6	1	7	22

**Note:** Seven companies primarily exported indirectly, and could thus not name the main destination of exports.

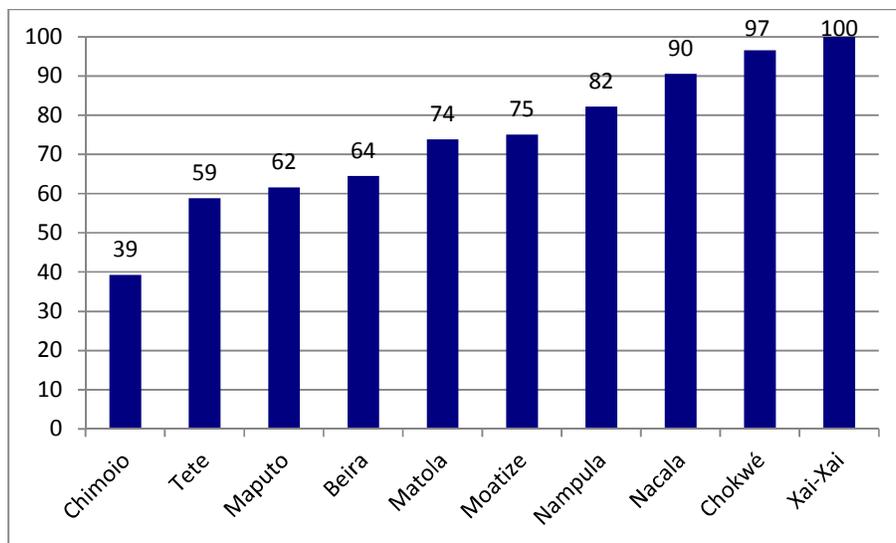
**Source:** Own calculations using IIM 2012.

When it comes to employment growth, the exporters in our sample do not differ much from the non-exporters; in the period 2009-2011, medium-sized non-exporters had a mean growth rate of 6 pct. while medium-sized exporters had a mean growth rate of 0 pct. This picture does not change qualitatively if we consider the period 2006-2011 instead.

How come so few Mozambican manufacturing firms export, given the positive effects it can have on exporters? First of all, exporting may simply not be part of the firm strategy. If the firm is oriented towards the local market, especially if its products are not suited for long haul transport (e.g. perishable bread and

heavy bricks), exporting might simply be off the table from the outset. For 67 pct. of the companies in the sample, not exporting is a deliberate strategy. Interestingly, this percentage does not differ much for different-sized companies. However, it does vary quite significantly across cities, as can be seen from Figure 7.2. In Nacala, Xai-Xai and Chokwé, practically all the non-exporters do not consider exporting as part of the firm strategy, indicating that the unexploited exporting potential among existing producers is limited. In the other cities, including the four largest (Maputo, Matola, Beira and Nampula), there is a substantial untapped export potential (non-exporters state that the reason they are not exporting is something else than it not being part of the firm’s strategy).

**Figure 7.2: Share of firms saying that exporting is not part of firm strategy, pct. of non-exporters**



**Note:** Only showing firms that do not presently export. Number of observations: 734 (five missing).

**Source:** Own calculations using IIM 2012.

To find out what characterizes companies that would like to export but are constrained from doing so, Table 7.4 considers the firms that do not state that exporting is not part of the firm strategy, listing the reasons provided by these firms for not exporting.

Lack of knowledge of potential markets ranks as the most serious constraint for most of the groups, suggesting that there exists a substantial information deficit for potential Mozambican exporters. Judging by the number of firms stating this as the reason for not exporting, this problem seems to have been aggravating relatively since the 2006 survey (DNEAP, 2006). This could be a role for the Mozambican Export Promotion Institute (IPEX). Unsurprisingly, micro firms and informal firms rank concerns about high product

standards as an important constraint, suggesting that many of the companies in these groups are not likely exporters in the near future. Medium-sized and foreign-owned firms are somewhat concerned about costs of setting up distribution channels, which could reflect high transport costs. High tariff and non-tariff barriers also constitute a significant constraint for medium sized firms, which could signal concerns about competitiveness.

**Table 7.4: Reason for not exporting by firm type, pct.**

	All	Micro	Small	Medium	Informal	Formal
Lack of knowledge of potential markets	40.0	41.2	39.6	30.0	22.7	43.8
Cost of getting an export license	15.5	16.9	12.5	10.0	22.7	13.9
Cost of setting up distribution channels	11.0	10.7	8.3	20.0	13.6	10.4
High product standard requirements	20.0	23.7	10.4	10.0	38.6	15.9
Need to learn bureaucratic procedures	6.9	6.8	10.4	0.0	13.6	5.5
High levels of risk	6.5	5.6	12.5	0.0	11.4	5.5
Tariff barriers in the destination country	3.3	1.7	4.2	15.0	0.0	4.0
Restrictive rules of origin	2.9	0.6	12.5	0.0	2.3	3.0
Other non-tariff barriers in destination country	2.4	1.1	4.2	10.0	2.3	2.5
Lack of capacity	14.7	14.1	14.6	20.0	20.5	13.4
Lack of demand / Other	8.2	7.9	8.3	10.0	2.3	9.5
No. of obs.	245	177	48	20	44	201

**Note:** Percentages do not necessarily sum to 100 because some respondents have provided more than one answer. Only non-exporters that did not explicitly say that exporting “is not part of firm strategy” are included.

**Source:** Own calculations using IIM 2012.

## **7.2. Sales structure**

In order to get an idea about the markets for the products of Mozambican manufacturing firms, this section examines the sales structure of the companies in the sample.

Table 7.5 shows the regional distribution of sales for different firm sizes. In general, Mozambican manufacturers have a very strong local focus with 79 pct. of sales going to the same locality and 89 pct. to the same district as the company is located in. This tendency is even more marked for micro firms, which cater overwhelmingly to the local market, with 95 pct. of sales in the same district. The local focus is less strong for larger companies, with medium-sized companies on average having 35 pct. of sales outside of their own district. However, medium-sized companies still have more than 50 pct. of sales in their own locality; so there remains a strong local focus for Mozambican manufacturers across company size.

Since exporting is correlated with higher productivity, it was tested whether more sales outside own locality was correlated with higher productivity, but this was found not to be the case. It was also tested whether the reason given for not exporting was different for firms with sales in non-neighboring provinces but this was also not found to be the case.

**Table 7.5: Regional distribution of sales by firm size, pct. of total sales**

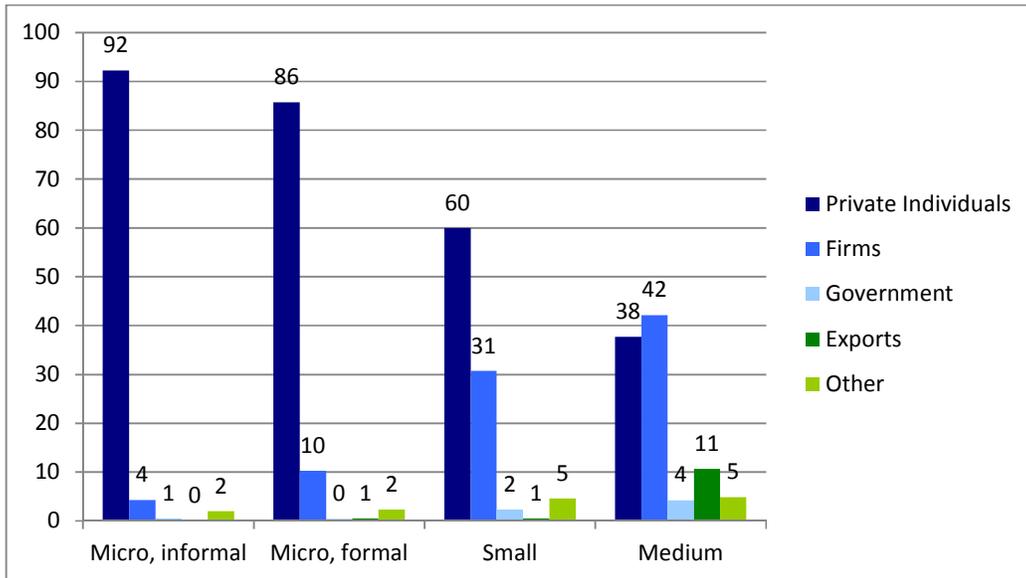
Pct. of sales	All	Micro	Small	Medium
Same locality/Adm. post	79.3	85.5	72.0	50.5
Other locality, same district	10.2	9.2	11.8	13.5
Other district within province	4.9	3.4	7.5	10.0
Neighboring province	2.7	1.2	4.6	9.8
Non-neighboring province	1.7	0.4	3.3	7.7
Export	1.2	0.4	0.9	8.5
No. of obs.	753	513	175	65

**Note:** Eight missing observations.

**Source:** Own calculations using IIM 2012.

Figure 7.3 presents share of sales by customer group and firm size. For the sample as a whole there is a strong focus on private individuals with 77 pct. of sales going to this group on average.

**Figure 7.3: Sales by customer group by firm size, pct. of total sales**



**Note:** “Firms” includes domestic, non-state enterprises, state-owned enterprises and foreign invested companies. “Other” includes tourists and others. Number of observations: 752 (nine missing).

**Source:** Own calculations using IIM 2012.

Micro firms are overwhelmingly focused on private individuals while larger companies have a more diversified customer base. Micro firms do 87 pct. of sales to private individuals, while the figure is only 38 pct. for medium-sized companies. For informal firms, it is above 92 pct. For small companies, sales to other firms constitute a substantial part of total sales, and for medium firms, it is the most important customer group.

Finally, turning to price setting in Table 7.6, a majority of companies have “fixed mark-up over production costs” as their most important price-setting criterion – larger companies to an even greater extent. Using this price setting criterion could indicate that firms have some market power. Micro firms and especially informal micro firms are relatively likely to use “individual negotiation with each customer” as the most important criterion, which could suggest that most production is made to order.

**Table 7.6: Price setting (most important criterion) by firm type, pct. of firms**

	All	Micro, informal	Micro, formal	Small	Medium
A fixed mark-up over production costs	58.6	51.6	58.4	60.1	72.7
Charge similar prices as my competitors	9.5	8.8	11.7	7.3	4.5
Charge somewhat lower prices than my competitors	4.1	3.1	5.3	2.2	4.5
Individual negotiation with each customer	19.6	28.9	19.3	16.3	7.6
Prices are given by government regulations	2.1	0.0	0.3	6.7	4.5
As a function of exchange rate fluctuations	2.9	2.5	1.7	5.1	4.5
Other	3.3	5.0	3.4	2.2	1.5
No. of obs.	761	159	358	178	66

Source: Own calculations using IIM 2012.

### **7.3. Imports, inputs, and price setting**

On average, the firms in the sample import some 10 pct. of their intermediate inputs. Larger companies are much more likely to import than smaller firms. Medium-sized companies import more than 25 pct. of their intermediate good inputs while micro companies import less than 4 pct. of their inputs. Informal companies import almost nothing. Perhaps not surprisingly, there are also hefty variations between sectors. While the furniture and wood sectors have almost no imports (they use Mozambican wood), companies in publishing and printing, machinery and especially chemicals, rubber and plastic are very dependent on imports.

**Table 7.7: Imports as a share of inputs (intermediate goods), pct. of total inputs by value**

	Imports	No. of obs.
All	9.6	715
Micro	3.1	490
Small	22.2	168
Medium	28.6	57
Informal	1.1	157
Formal	12.1	556
Food, Bev, Tobacco	11.3	115
Textiles	35.9	8
Apparel and Footwear	9.8	88
Wood and Paper	4.4	94
Publishing and printing	33.8	17
Chemicals, Rubber, Plastic	77.5	8
Non-metallic minerals	3.1	58
Fabricated Metal Products	11.1	157
Machinery etc.	11.7	12
Furniture & manufacturing nec	4.9	158

**Note:** Considering only intermediate goods inputs. Since not all companies use intermediate inputs, there are 46 missing observations.

**Source:** Own calculations using IIM 2012.

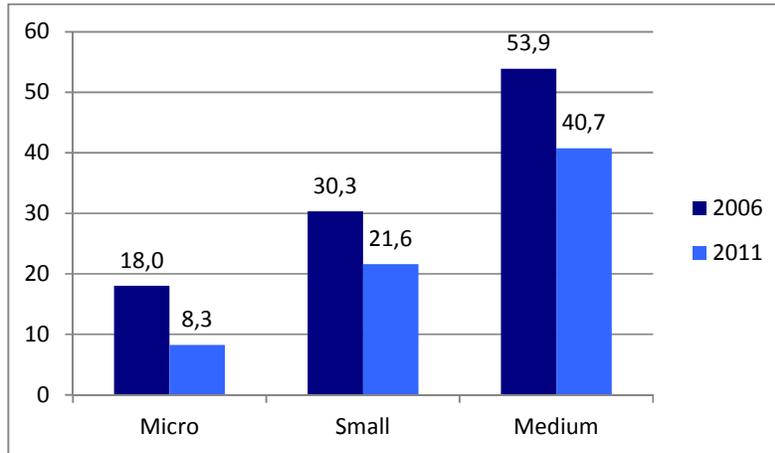
In DNEAP (2006) it was found that firms were very dependent on imported inputs – Figure 7.4 tracks the development in the import share of intermediate inputs since 2006. For the balanced panel as a whole, imports are down from 28 pct. of inputs to 19 pct. of intermediate inputs.<sup>37</sup> The drop in the import share of inputs is sizeable for all three size categories. Micro firms imported 18 pct. of their intermediate inputs in 2006 and only 8 pct. in 2012, reducing the share by more than 50 pct.

This suggests that the dependence upon imports has been reduced substantially since 2006. However, anecdotal evidence suggests that when firms purchase inputs indirectly, they might not necessarily be aware of the country of origin, which means that the result could also reflect increased use of indirect imports. But whether the directly imported inputs have been replaced by indirect imports or Mozambican produced goods, it suggests that domestic inter-firm linkages (commerce and manufacturing) have improved since 2006.

<sup>37</sup>The ICA09-data does not disaggregate inputs into primary goods and intermediates, so the value for all inputs is used. The result does not change qualitatively if primary goods are considered instead in 2011.

If the Mozambican manufacturing sector is less dependent on imports than it was in 2006 this could perhaps explain why macroeconomic instability is perceived as a much less serious constraint (see Chapter 3), since less international trade reduces the vulnerability to e.g. exchange rate fluctuations.

**Figure 7.4: Share of imports by firm size, 2006-2011, pct. of intermediate inputs**



**Note:** Balanced panel, i.e. following the same firms over time. Number of observations: 194 (22 missing).

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Moving from the origin of inputs to their availability, Table 7.8 lists the share of firms saying that inputs are generally not available in the desired quantity and quality. For the firms in the sample, inputs are generally available in the desired quantity and quality 85-90 pct. of the time. Firm size makes no difference for the availability of inputs in the right quality. However, when it comes to quantity, medium-sized firms experience fewer difficulties – perhaps because they buy in bulk or have more stable relations with their suppliers.

There is some variation in input availability across sectors. The printing and publishing, non-metallic mineral products and machinery industries seem to have rather few problems, whereas furniture, wood and paper and especially chemicals have more problems with both input quantity and input quality than the average. It is perhaps somewhat surprising that wood and furniture – the industries dependent on wood, which is a raw material abundantly available in Mozambique – experience so relatively many problems with inputs. It could suggest that there is some upstream problems, i.e. that the logging industry is not working as efficiently as it could or that some administrative barriers are causing these value chain inefficiencies. Anecdotal evidence suggests that a complicated forestry licensing regime, hefty Chinese demand for wood

and many illegal operators could be part of the explanation of this, but more research is needed to say whether there is a need for policy to address these matters.

**Table 7.8: Share of firms saying inputs are generally not available by firm type, pct.**

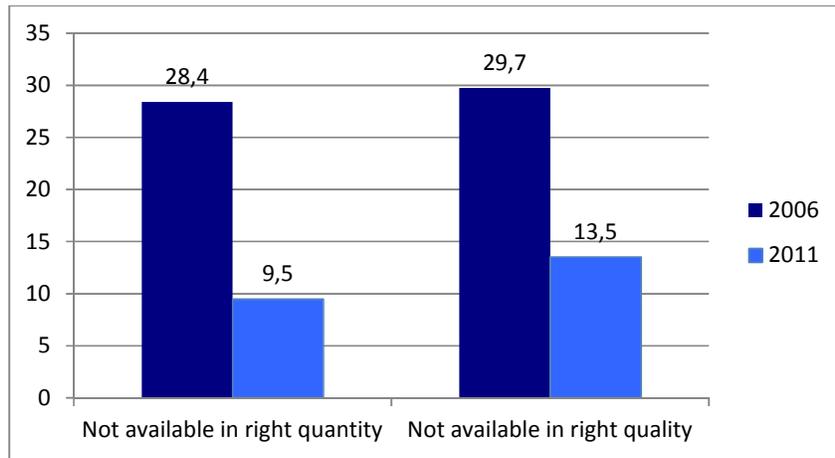
	Inputs generally not available		Obs.
	In the desired quantity	In the desired quality	
All	12.7	13.1	756
Micro	12.9	13.7	512
Small	15.2	11.2	178
Medium	4.5	13.6	66
Informal	12.9	12.3	163
Formal	12.7	13.4	591
Food, Bev, Tobacco	11.0	12.6	127
Textiles	11.1	22.2	9
Apparel and Footwear	9.9	9.9	91
Wood and Paper	16.3	17.3	98
Publishing and printing	5.9	0.0	17
Chemicals, Rubber, Plastic	20.0	20.0	10
Non-metallic minerals	6.3	7.8	64
Fabricated Metal Products	15.4	13.0	162
Machinery etc.	7.1	7.1	14
Furniture & manufacturing nec.	14.0	15.9	164

**Note:** Five missing observations.

**Source:** Own calculations using IIM 2012.

Figure 7.5 tracks the development in input availability over time – the proportion of firms that respond that inputs are not available in the desired quality has been more than halved since 2006 (the picture does not change qualitatively if we look at quantities instead). In line with the findings in Figure 7.4, this suggests that the supply situation has improved quite substantially in Mozambique, which could once again reflect improvements in domestic inter-firm linkages in the period since 2006.

**Figure 7.5: Share of firms saying inputs are generally not available, 2006-2011, pct.**



**Note:** Balanced panel, i.e. following the same firms over time. This indicator could not be constructed in the ICA09 data, so this figure only encompasses the firms in the DNEAP (2006) data. Number of observations: 74 (1 missing).

**Source:** Own calculations using IIM 2012 and DNEAP (2006).

## 8. Social networks

This chapter covers various aspects of firms' social networks including the size of firms' business network, the composition and diversity of relations, and their effect on enterprise growth and innovativeness. The analysis is based primarily on the information provided in the social network part of the IIM 2012 survey while incorporating aspects of firms' innovativeness, and membership in formal business associations. The subsection on membership in business associations is related to a recent field study on association members in Mozambique. This study was undertaken in August 2012 in relation to the validation of the IIM 2012 survey than underpins this report. The main objective of the field study was to achieve a better understanding of the qualitative aspects of firm dynamics with respect to association membership, as well as the perceived benefits associated with business networks.<sup>38</sup>

In contrast to the other chapters of this report, the social network part does not attempt to portray the development between 2006 and 2012, due to incompatibility between the questionnaires regarding this topic.

In this chapter, social network capital is seen as an individual asset that benefits a single firm, where firms derive benefits from knowing others with whom they form networks of interconnected firms (see Granovetter, 1995). Having an extensive social network is a valuable asset that can help entrepreneurs to obtain access to information and new technologies which may lead to profitable business opportunities, as well as access to resources (for example credit). The literature points to the role of social networks in helping entrepreneurs overcome obstacles related to transaction costs (Kranton, 1996; McMillan and Woodruff, 1999), contract enforcement (Fafchamps, 1998), and regulation (Putman, 1993). Moreover, mutual trust, generated through long-term relationships with customers and suppliers, may make it easier for agents to renegotiate contractual obligations, and thereby provide flexibility in dealing with external shocks (Bigsten et al. 2000).

### **8.1 Composition of firms' business network**

Information has been collected on various dimensions of the firms' social network. Table 8.1 shows firms' level of social network capital, measured as the number of people that are important to the firm. In 2011, an entrepreneur had on average 15 business contacts that were potentially important for the business. The number of contacts increases in firm size, and on average informal micro firms have fewer contacts than their formal counterparts. Barr (2000) also finds evidence that firms' connectedness increases in firm size in

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<sup>38</sup> See Bjerger (2013) for further detail on the ethnographic fieldwork.

Ghana, whereas Fafchamps and Minten (2002) observes little or no direct correlation between social network capital and firm size.

Firms were asked to categorize their contacts into eight categories and the second part of Table 8.1 decomposes firms' contacts into these eight groups. Independent of size, enterprises are more likely to have contacts with business people in a different sector than the one they operate in. Comparing Mozambican with non-Mozambican entrepreneurs, the former tend to have smaller networks, which is likely to reflect their smaller size (see Table 2.8). In particular, Mozambican entrepreneurs tend to have fewer linkages with business people in other countries, as we might expect. Not all micro firms have contact with bank officials, politicians and government agencies, whereas small and medium-sized enterprises on average have contact with 1-5 people in each category. Generally, informal micro firms have the lowest number of contacts, independent of contact type.

**Table 8.1: Number of people with whom the firm has regular contact**

	Micro	Small	Medium	Formal	Informal	For. Owned	Moz. Owned	Total
Total number of contacts	8.9	21.0	45.6	16.8	8.2	34.2	12.6	14.9
	<b>505</b>	<b>168</b>	<b>65</b>	<b>575</b>	<b>161</b>	<b>77</b>	<b>660</b>	<b>738</b>
<i>Mean number of contacts:</i>								
Buss. contacts in same sector	3.8	5.5	7.5	4.6	4.2	6.6	4.3	4.6
Buss. contacts in different sector	3.3	6.6	15.7	5.9	2.6	11.8	4.4	5.2
Contacts in firms located abroad	0.3	1.4	6.3	1.3	0.2	5.7	0.5	1.0
Bank officials	0.4	1.7	4.3	1.3	0.2	2.9	0.8	1.1
Government agencies	0.5	2.4	5.5	1.7	0.3	2.7	1.2	1.4
Contacts in politics	0.2	1.2	2.8	0.8	0.1	1.8	0.5	0.6
Contacts in NGOs	0.2	0.9	1.4	0.6	0.3	1.1	0.4	0.5
Contacts in business ass.	0.2	1.2	2.2	0.7	0.2	1.6	0.5	0.6
<i>Diversity of contacts</i>								
Average no. of different contacts	2.2	3.5	4.6	2.9	2.1	4.0	2.6	2.7

**Note:** Missing information on 23 observations in total. In addition, 1 missing observation for legal status and ownership.

**Source:** Own calculations using IIM 2012.

The literature suggests that acquaintances (i.e. weak ties) are more important to firms than friends (i.e. strong ties) as sources of new information and opportunities (see e.g. Granovetter, 1995), and that a diverse group of acquaintances is valuable since these provide differential information and access (Burt, 1992). Hence, the diversity of an entrepreneur's network is likely to be a good indicator of the usefulness of the firm's current stock of social network capital. We therefore construct a 'contact diversity' measure, which is defined as the number of categories, presented in Table 8.1, within which the firm has at least one

contact. E.g., if an entrepreneur reports having contacts in 4 out of the 8 categories it takes a value of 4. The measure of contact diversity shows that larger, formal and foreign owned firms tend to have a more diversified portfolio of contacts, suggesting that entrepreneurs with these characteristics have an advantage over smaller local entrepreneurs.

**Table 8.2: Average number of contacts by location**

	No. of obs.	Contacts in ...							Total	Contract diversity
		same sector	different sector	foreign firms	Banks	government agencies	politics	business ass.		
Maputo	253	6.6	8.2	2.0	1.8	2.6	1.1	1.1	24.1	3.1
Matola	67	3.9	5.4	1.3	1.0	1.6	0.5	1.0	15.2	3.1
Beira	142	3.6	2.9	0.4	0.6	0.5	0.1	0.3	8.6	2.2
Nampula	43	4.1	4.0	1.5	0.7	1.1	0.8	0.8	13.1	2.9
Nacala	23	3.6	4.9	0.3	0.8	0.5	0.2	0.0	10.3	2.2
Chimoio	85	2.6	2.0	0.4	0.3	0.2	0.7	0.3	6.5	1.8
Tete	36	4.1	5.9	0.3	0.9	0.9	0.7	0.1	12.9	3.1
Moatize	16	3.9	6.6	0.0	0.2	0.6	0.1	0.0	11.4	2.4
Xai-Xai	44	3.5	3.7	0.0	1.1	0.9	0.1	0.9	10.6	2.9
Chokwé	29	2.9	1.6	0.0	0.8	0.9	0.1	1.1	7.4	2.9
Average	738	4.6	5.2	1.0	1.1	1.4	0.6	0.5	14.9	2.7

**Note:** Missing information on 23 observations in total.

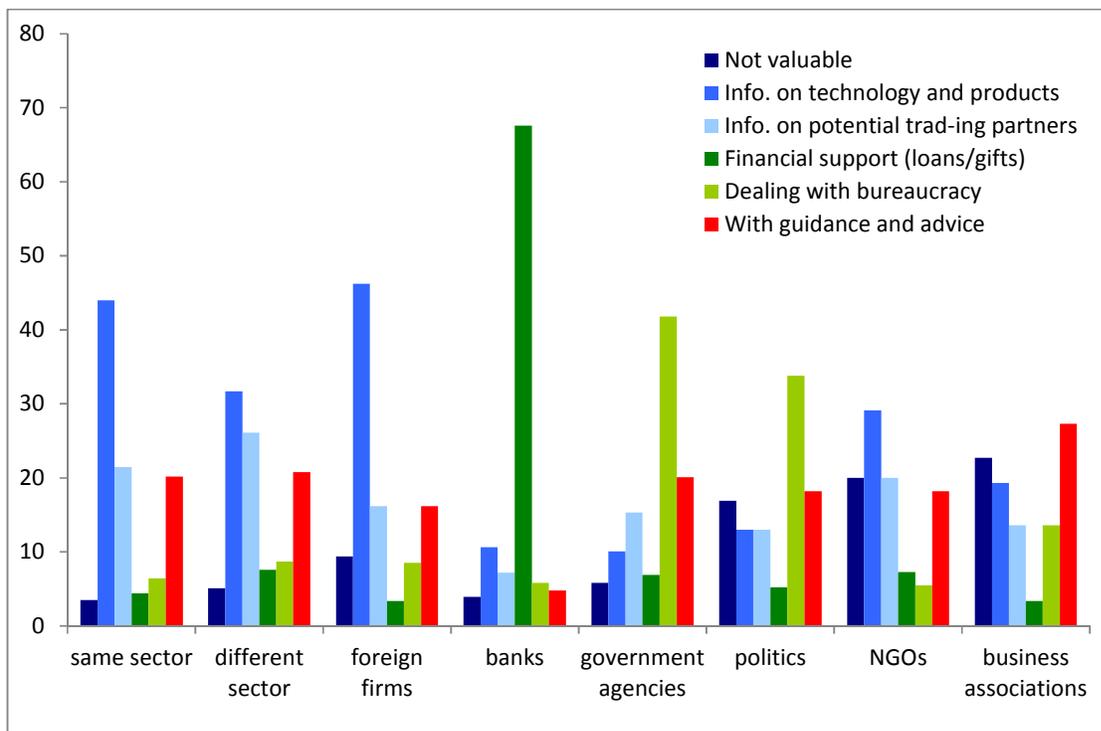
**Source:** Own calculations using IIM 2012.

Table 8.2 shows the average number of business contacts by firm location. Entrepreneurs located in Maputo and Matola both have a larger and more diversified network of contacts, whereas entrepreneurs in Chimoio has the least differentiated pool of linkages. As Maputo is closely connected to South Africa and has a large international community, it is not surprising that entrepreneurs in Maputo have relatively more contacts to entrepreneurs located abroad. While Beira is the second largest city in Mozambique, the entrepreneurs located here tend to have smaller and less diversified business networks. Firms located in Nacala, Tete and Moatize are not likely to have any contacts in formal business associations. This is in line with the finding that only two firms in total are identified to be members of a formal business association in these cities (not reported).

In relation to the different network categories, firms were asked why these contacts are valuable to them. Figure 8.1 breaks down the importance of business contacts by type. Note that the table only includes firms that report having a contact in the specific category. Overall, the differential importance of business connections supports the above argument that entrepreneurs with a more diversified set of connections

have an advantage over firms with a less diversified network. The most important benefit associated with connections to entrepreneurs in the same sector, in different sectors and abroad is information sharing about new technologies and products. Business relations in the same sector and different sectors also help with specialized information on potential prospective trading partners. The least valued part of firms business network, is relations to NGOs and business associations. Around 20 pct. of the firms with contacts in these two groups report that they bring no value to the firm; however, some 27 pct. of the association members report that contacts in business associations help by providing guidance and advice. Not surprisingly, bank officials provide financial support in terms of loans, while public officers and politicians are regarded as valuable when the firm needs to deal with bureaucracy.

**Figure 8.1: Reason for business contacts' value to firms by contact type, pct.**



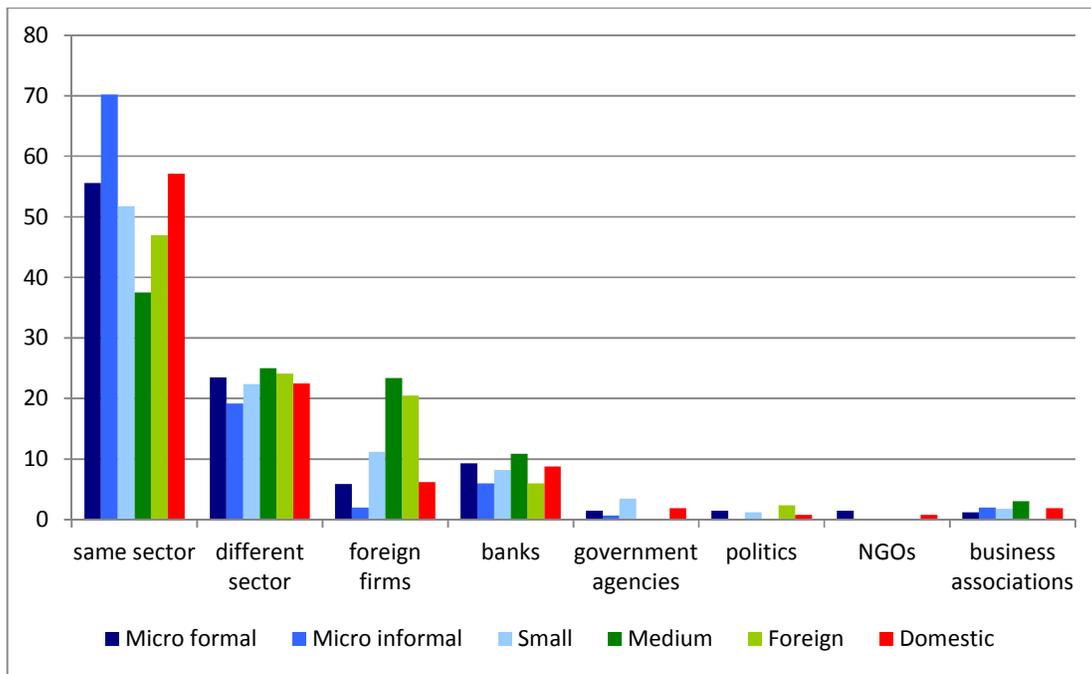
**Note:** Question underlying the figure: “Why are they (i.e. business contacts) so valuable to the firm?” Number of observations: 564.

**Source:** Own calculations using IIM 2012.

Figure 8.2 documents firms' perception of the most important group of contacts by size, legal status and ownership. Across firm types, the majority of firms believe that the most important contacts are business contacts within the same sector, while the second most important is contacts in different sectors (for medium firms' contacts abroad are of similar importance). Informal micro firms operating regard contacts

in the same sector to be even more important compared to their formal counterparts. As larger firms are more likely to have access to formal credit, and engage in exporting and importing it is not surprising that the importance of contacts in foreign companies and banks increase in firm size. Interestingly, very few firms rate contacts in government agencies and politics as the most important. This might suggest that connections to the authorities are not likely to buy these firms much of an advantage over their competitors.

**Figure 8.2: Most important contact by firm type, pct. of firms**



**Note:** Number of observations: 711.

**Source:** Own calculations using IIM 2012.

## **8.2 Membership in business associations**

While the main function of business associations is to provide non-financial services and represent its members' common interests, by lobbying the government to provide public goods, one may also argue that associations help firms shape professional and personal networks because associations offer exposure to new social contacts, and thus business opportunities. General statistics on association membership by firm size and ownership nationality is reported in Table 8.4. All figures in this section are reported on the most important business association.

Table 8.3 shows that almost 13 pct. of the enterprises in the IIM 2012 survey belong to a formal business association. The share of firms that are members of a formal business association increases in firm size, and

thus 56 pct. of the medium sized firms report being members. In addition, Mozambican owned enterprises are more likely to be members of business associations than foreign owned firms. Firms have on average been members for seven and a half year, and some 81 pct. of firms pay membership fee. It is noticeable that micro and domestic enterprises are less likely to pay subscription fees. On average, 78 pct. of the firms state that the association represents the interest of the firm; larger and foreign-owned enterprises tend to be more satisfied with the interest representation by associations compared to micro and Mozambican owned firms. One possible explanation is that business associations better represent the interests of larger enterprises, as these firms have more capacity to formulate and communicate problems and also more power to affect the selection of the association’s focal points.

**Table 8.3: Membership in formal business associations, pct.**

	All	Micro	Small	Medium	Moz. Owned	For.owned	Missing
Member of a business association 2012 (pct. of firms)	12.5	4.4	19.7	56.1	27.4	10.7	
	<b>95</b>	<b>23</b>	<b>35</b>	<b>37</b>	<b>23</b>	<b>72</b>	0
Average age of membership*	7.6	10.1	5.3	8.3	8.0	5.7	14
Pay membership fee**	80.9	70.0	84.8	83.3	76.1	95.5	6
Association represents the interest of the firm**	78.7	70.0	78.8	83.3	76.1	86.4	6
Observations	761	517	178	66	676	84	

**Note:** Percentages. Number of firms that are members of a business association within each category in bold. Missing is the number of observations missing compared to the number of member firms. \* in years, \*\* pct. of members saying yes. One missing observation on ownership.

**Source:** Own calculations using IIM 2012.

Turning to the question of which type of manufacturing enterprises that join a formal business association, Table 8.4 lists the results from a probit model of business association membership determinants. Results should be interpreted with caution and only in terms of correlations. The usual determinants along with measures of network activity are included. Column (1) is used as a baseline estimation and excludes measures of network activity. In terms of network measures, column (2) includes the total number of contacts (log) and contact diversity, where contact diversity is defined as the number of groups in which the firm has at least one contact. Column (3) subdivides the total number of contacts into 6 network groups similar to the ones previously shown in Table 8.1. All sub-measures are included as continuous measures in logarithm.

**Table 8.4: Determinants of membership in business associations, probit**

	(1)	(2)	(3)
Total number of contacts (log)		-0.015 (1.11)	
Contacts in same sector (log)		0.020** (2.43)	0.030*** (3.38)
Contacts in diff. sector (log)			-0.021* (1.87)
Contacts in firms abroad (log)			0.006 (0.57)
Bank officials (log)			-0.028* (1.81)
Public officials (log)			-0.009 (0.70)
Politicians (log)			-0.003 (0.21)
Contact diversity		0.019** (2.07)	0.040*** (3.44)
Log(firm size)	0.056*** (5.04)	0.048*** (4.52)	0.047*** (4.53)
Log(firm age)	0.024** (2.53)	0.025*** (2.81)	0.025*** (2.95)
Formal	0.000 (0.00)	-0.002 (0.07)	0.005 (0.21)
University education	0.016 (0.59)	0.003 (0.11)	-0.004 (0.19)
Foreign ownership (yes=1)	-0.047*** (3.50)	-0.045*** (3.57)	-0.039*** (3.02)
Partnership	0.056 (1.64)	0.039 (1.29)	0.029 (1.06)
Limited liability	0.152 (1.04)	0.106 (0.83)	0.079 (0.67)
Sector dummies	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.32	0.34	0.36
Number of obs.	683	683	683

**Note:** Probit - dependent variable: Membership in business association. Marginal Effects. Heteroscedasticity consistent t-statistics in parentheses. \*, \*\* and \*\*\* indicate significance at the 10 pct., 5 pct. and 1 pct. level, respectively. Base: Informal, Mozambican-owned, Less than university education, Sole Proprietorship, Maputo, Food and Tobacco Sector (ISIC 15 and 16)

**Source:** Own calculations using IIM 2012.

Summarizing the results with respect to firms' social network capital we find that the number of contacts in the same sector is positively associated with membership. This result is likely to be driven by the fact that many Mozambican associations are sector specific. Also, enterprises with a more diversified network have a higher probability of belonging to a business association. Based on these results it is not possible to disentangle whether firms choose to become members in order to expand and diversify their professional

and personal networks or whether firms with a more diversified portfolio self-select into associations. Coefficient estimates also suggest that the number of contacts in different sectors and contacts with bank officials are negatively correlated with membership. This may suggest some level of substitution between membership and linkages to bank officials as a mean to obtain access to credit. The estimation results support the above findings that larger firms and domestic firms are more likely to be members of business associations. In addition, more established (older) enterprises have a higher probability of being a member than their younger counterparts. Finally, the location dummies suggest that firms located in Beira, Nampula and Chimoio are more likely to be members of a business association compared to firms located in Maputo (not reported).

A wholly separate reason for joining business associations was revealed during the qualitative interviews: some enterprises choose to become members of a business association to get access to government subsidies. For example, in response to massive protests and demonstrations over bread price increases, the government introduced a subsidy on wheat flour to compensate bakeries in September 2010. The subsidy was payable through the bakery association AMOPAO, and was only available to registered members. This meant that the subsidy structure gave a clear incentive for bakeries to join AMOPAO, creating grossly higher membership rates for bakeries (43 pct. in the IIM2012 data) than for other companies (10 pct.) even though membership of AMOPAO is not free (it costs around 1,000 meticais a month).

The main function of business associations is to provide non-financial services and represent the common interests of their members (Doner and Schneider, 2000). Table 8.5 shows firms' perception of whether associations bring benefits and of what kind. Some 81 pct. of members believe that association membership brings benefits to the firm, and this number tends to increase in firm size. Not surprisingly, satisfaction with the association increases in firm size, perhaps because associations are likely to provide more useful non-financial services to larger firms due to their higher internal capacity and bargaining power towards the association (see also explanations under Table 8.3). According to Table 8.5 the most important benefit is that the association functions as a forum for firms to interact. In particular, the qualitative interviews suggested that association facilitates information sharing about prospective clients and suppliers, as well as information on new technologies and management practices. Returning to Table 8.5, the second and third most important benefits are lobbying government and enforcement of norms and quality standards.

**Table 8.5: Type of benefits that membership bring by firm size, pct. of firms**

	All	Micro	Small	Medium
Does the business association bring benefit to the firm?	80.5	70.0	75.0	91.4
Observations	70	14	24	32
<i>Type of benefit the association bring:</i>				
Lobbying the government	48.3	30.0	46.9	60.0
Organizing commercial and technical fairs	33.3	25.0	28.1	42.9
Lobbying banks to facilitate access to credit	20.7	20.0	18.8	22.9
Access to key inputs	31.0	20.0	31.3	37.1
Providing commercial and technical information	41.4	30.0	40.6	48.6
Enforcing norms and quality standards	48.3	40.0	50.0	51.4
Resolving business disputes	36.8	35.0	40.6	34.3
Providing a 'moral guarantee' to foreign partners	21.8	10.0	18.8	31.4
Forum to interact with other firms	54.0	30.0	56.3	65.7
Place to identify trading partners	32.2	15.0	28.1	45.7
Other	4.6	5.0	3.1	5.7

**Note:** Only information on 57 firm observations out of 80.

**Source:** Own calculations using IIM 2012

Table 8.6 reports different dimensions of co-members interaction. Firstly, some 42 pct. of the firms prefer to do business with other co-members. Secondly, almost 57 pct. state that they trust co-members more, and thirdly, some 76 pct. on average believe that it is easier to resolve disputes with co-members than with non-members. For all these questions, the number increases in firm size. Hence, there is a general tendency that member firms are more reluctant to engage with other firms if they are not association members.

**Table 8.6: Business with other co-members, pct. of firms**

	All	Micro	Small	Medium	Missing
Do you prefer to do business with other co-members?	42.4	33.3	38.7	50.0	<b>11</b>
Do you trust co-members more?	56.5	47.4	54.8	62.9	<b>11</b>
Is it easier to resolve disputes with co-members?	76.2	68.4	71.0	85.3	<b>12</b>
Do you talk to other members about new technologies and business practices?	64.0	55.0	57.6	75.0	<b>6</b>
<i>If yes, what do you talk about?</i>					
New innovations	52.6	27.3	47.4	66.7	
About suppliers	61.4	36.4	52.6	77.8	
About customers	63.2	54.5	47.4	77.8	
Access to bank credit	36.8	27.3	21.1	51.9	
Informal credit opportunities	14.0	9.1	5.3	22.2	
New government legislation	59.6	18.2	57.9	77.8	
Access to resources (input)	61.4	45.5	52.6	74.1	

**Note:** No. of observations in bold. Missing is the number of observations missing compared to the number of membership firms.

**Source:** Own calculations using IIM 2012

Table 8.6 also specifies the topics normally discussed between association members. Membership firms tend to discuss suppliers, customers and new government legislations, where the last is more prevalent among small and medium sized enterprises. For micro firms, the second most important topic to discuss with other co-members is how to get access to resources in terms of input.

Table 8.7 lists the reported reasons for non-membership by firm size and ownership nationality. Independently of the size and ownership, more than 50 pct. are not members of a business association because no relevant association exists. Another important reason for non-membership is the perception that existing associations do not bring any tangible benefits. More interestingly, between 8 and 25 pct. of the firms are not members due to lack of personal connection to other association members and association authorities, respectively. This is unfortunate if business associations are to play an increasing role in the future development of the business environment in Mozambique.

**Table 8.7: Reasons for non-membership**

	Micro	Small	Medium	Moz. Owned	For. Owned	All
No relevant association	63.1	63.6	54.2	63.6	55.4	62.9
No tangible benefits from existing ass.	14.2	15.2	16.7	14.5	14.3	14.5
Membership fee too high	4.2	3.0	4.2	4.1	1.8	3.9
Membership only to specific firms	2.3	2.3	0.0	2.2	1.8	2.2
Lack of personal connections to other members	11.5	14.4	8.3	11.2	14.3	11.5
Lack of personal connections to ass. authorities	11.7	14.4	29.2	11.7	25.0	12.9

**Note:** Number of observations: 637 (24 missing).

**Source:** Own calculations using IIM 2012.

### **8.3 The role of relationships on firm growth and innovativeness**

In this section we consider how contacts and social networks affect firms. More specifically, we investigate whether well-connected manufacturing SMEs in Mozambique perform better compared to less well-connected firms.<sup>39</sup>

Table 8.9 presents OLS estimates of firms' social network capital on firm growth, correcting for firm and owner characteristics, location, legal ownership structure and sector. Firm growth is measured in terms of full-time employees and real revenue from 2010 to 2011. In column (1) and (2), social network capital is measured as the total number of contacts, contract diversity and association membership. Association

<sup>39</sup>It should be noted that the results of an analysis of social networks on firm performance might be biased if entrepreneurial networks is not merely an input but rather a by-product of the production process. If this is the case the network variable is endogenous and using it as an explanatory variable in a production function generates simultaneity bias.

membership is included since formal associations may be an effective place to establish relations to new suppliers and clients, particularly given the reluctance of owners to change such relations once established. In column (3) and (4), the total number of contacts is sub-divided into six groups similar to Table 8.5. According to theory, we expect a positive and significant correlation between the total number of contacts and firm growth. Similar, firms with a more diversified network are expected to be better informed than their counterparts and thus are likely to experience higher growth rates.

Summarizing the results we find the following. Firstly, the coefficient estimate on the total number of contacts is negative but not statistically significant. This result is in contrast to the results found by Fafchamps and Minten (2002). They find a positive and significant relationship between the number of traders know in Madagascar and total sales.<sup>40</sup>

Secondly, firm size defined as the number of full-time employees is statistically significant and negatively related to employment growth. Thirdly, older firms tend to have lower employment growth compared to their younger counterparts. These results are in accordance with the signs of the coefficient estimates in Table 3.5 (but not found to be statistically significant). Fourthly, real revenue growth per worker is positively associated with firm size. Finally, limited liability companies experience lower real revenue growth per worker compared to sole proprietorships.

One of the main findings in Figure 8.1 was that business contacts provide firms with valuable information on new technologies and products. This is in line with the underlying assumption in the literature on within-country diffusion, namely that actors learn from each other about new technology and innovations (Fafchamps and Söderbom, 2011). Based on the previous findings, the underlying idea in the subsequent analysis is that business owners receive advice on technology upgrading and institutional innovations from their network partners, and hence the size and diversity of a firm's business network is positively correlated with innovativeness.

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<sup>40</sup> This is also in contrast with the empirical results found by Barr (2000). She examines social capital in terms of entrepreneurial networks to determine Ghanaian manufacturing enterprise performance.

**Table 8.8: Employment growth determinants 2009-2011 (network variables), OLS regression**

	(1)	(2)	(3)	(4)
	Employment growth	Revenue growth per employee	Employment growth	Revenue growth per employee
Total number of contacts (log)	0.000 (0.00)	-0.042 (0.96)		
Contact diversity	0.014 (1.12)	0.006 (0.22)	0.001 (0.07)	0.027 (1.01)
Association member	0.038 (0.82)	0.037 (0.43)	0.038 (0.83)	0.027 (0.31)
Contacts in same sector (log)			0.001 (0.03)	-0.010 (0.28)
Contacts in diff. sector (log)			0.002 (0.12)	-0.018 (0.47)
Contacts in firms abroad (log)			0.025 (1.14)	-0.021 (0.57)
Bank officials (log)			-0.013 (0.56)	-0.027 (0.62)
Public officials (log)			0.030 (1.20)	-0.041 (0.91)
Politicians (log)			0.023 (0.84)	-0.074* (1.66)
Log(firm size)	-0.053*** (2.86)	0.100* (1.94)	-0.054*** (2.86)	0.104* (1.94)
Log(firm age)	-0.054*** (3.49)	-0.005 (0.17)	-0.054*** (3.50)	-0.004 (0.15)
Formal	0.005 (0.14)	0.045 (0.59)	0.003 (0.10)	0.051 (0.66)
University education	-0.039 (1.05)	-0.069 (0.90)	-0.043 (1.13)	-0.054 (0.67)
Foreign owner	0.075 (1.53)	-0.108 (0.84)	0.072 (1.38)	-0.120 (0.87)
Partnership	0.013 (0.36)	-0.004 (0.03)	0.001 (0.03)	0.015 (0.13)
Limited liability	0.110 (1.04)	-0.400*** (3.03)	0.100 (0.92)	-0.401*** (2.96)
Sector dummies	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes
R-squared	0.07	0.09	0.07	0.10
Observations	674	288	674	288

**Note:** OLS. Growth from 2010 to 2011. Heteroscedasticity consistent t-statistics in parentheses. \*, \*\* and \*\*\* indicate significance at the 10 pct., 5 pct. and 1 pct. level, respectively. Base: Informal, Mozambican-owned, Less than university education, Sole Proprietorship, Maputo, Food and Tobacco Sector (ISIC 15 and 16)

**Source:** Own calculations using IIM 2012.

**Table 8.9: Firm innovativeness determinants, probit**

	(1)	(2)
Total number of contacts (log)	0.009 (0.26)	
Contact diversity	0.065*** (3.05)	0.115*** (4.48)
Member of business association	0.088 (1.15)	0.075 (0.97)
Contacts in same sector (log)		-0.041 (1.27)
Contacts in diff. sector (log)		0.006 (0.19)
Contacts in firms abroad (log)		-0.006 (0.14)
Bank officials (log)		-0.084* (1.73)
Public officials (log)		0.009 (0.21)
Politicians (log)		-0.117** (2.42)
Log(firm size)	0.092*** (3.04)	0.096*** (3.15)
Log(firm age)	0.028 (1.18)	0.033 (1.37)
Formal	0.020 (0.38)	0.023 (0.42)
University education	0.053 (0.76)	0.059 (0.84)
Foreign owner	-0.111 (1.39)	-0.096 (1.13)
Partnership	-0.205*** (3.00)	-0.211*** (3.11)
Limited liability	-0.298*** (2.73)	-0.292** (2.37)
Sector dummies	Yes	Yes
Location dummies	Yes	Yes
Pseudo R <sup>2</sup>	0.13	0.14
Number of obs.	683	683

**Note:** Probit - Dependent variable equal to one if firm introduced a new product or improved existing products, and otherwise zero. Heteroscedasticity consistent t-statistics in parentheses. \*, \*\* and \*\*\* indicate significance at the 10 pct., 5 pct. and 1 pct. level, respectively. Base: Informal, Mozambican-owned, Less than university education, Sole Proprietorship, Maputo, Food and Tobacco Sector (ISIC 15 and 16).

**Source:** Own calculations using IIM 2012.

Table 8.9 presents results from a probit regression of firms' social network capital on innovativeness correcting for the usual firm and owner characteristics, including location, legal ownership structure and sector. The dependent variable for firms' innovative level takes the value equal to 1 if the firm has introduced a new product and/or improved existing products, and zero otherwise. Column (1) includes the total number of contacts, a proxy for contact diversity and a membership dummy, whereas column (2) decomposes the total number of contacts into the aforementioned network groups.

Summarizing the results we find the following. First, as expected, contact diversity has a positive and significant effect on firms' probability to innovate. Looking at column (2), firms with more contacts to bank officials and politicians are less likely to introduce a new product and/or improve existing ones. Second, firm size is positively associated with innovativeness, suggesting that larger firms are more likely to innovate compared to their smaller counterparts. Third, partnerships and limited liability companies are significantly less likely to innovate than sole proprietorships.

## 9. Credit and access to finance

Following up on Section 5.2 about investments, this chapter seeks to describe and analyze the credit situation for Mozambican manufacturing firms. Since firms often may need to make larger investments than can be made using own resources and retained earnings, access to finance plays an important role in the investment strategies of firms.

Another reason for studying access to finance is that it ranks consistently as the main (perceived) constraint for Mozambican manufacturing firms (DNEAP, 2006; ICA, 2009), which was also found in Chapter 3 in the ranking of constraints faced by the firms.

Section 9.1 presents some descriptive statistics on access to finance and credit and Section 9.2 checks the perceived credit constraint from Chapter 3 against a more formal analysis of credit demand and credit constraints, following Byiers et al. (2010).

### **9.1. Access to finance**

To get an overview of access to finance among Mozambican manufacturing firms, consider Table 9.1, which lists the prevalence of several financial instruments for different groups of firms. Three of the instruments are related to access to credit (having access to an *overdraft* facility, having a *bank loan* and having a *non-bank loan*), two are related to accounting (having a *formal account* and having the accounts *audited* externally) and two are related to trade credit (*selling on credit* and *buying on credit*).

Only about 14 pct. of the firms in the sample have a bank loan, while 4 pct. have a non-bank loan and 9 pct. have an overdraft facility. This is comparable to the 13 pct. having bank loans in the 2009 ICA (ICA, 2009). Contrary to Bigsten et al. (2003) but in accordance with Byiers et al. (2010) the data does not suggest that overdrafts are used to a larger extent than loans.

All measures for financial market access show a marked tendency to vary with firm size and formality, with larger and formal firms being much better connected to financial markets. The only exception is non-bank loans, which tend to be more used by micro firms, but even among micro firms, no more than 4 pct. have a non-bank loan. A third of the firms in the sample buy on credit and 18 pct. sell on credit – for medium-sized firms, both figures are above 50 pct. – which suggest that trade credit is an important part of working capital financing for Mozambican manufacturers.

Firms in Maputo and especially Matola make more use of financial instruments than the national average. On the other hand, firms in distant provinces have less access to financial markets. Especially Gaza province

(Xai-Xai and Chokwé) is disconnected – less than 10 pct. have overdraft facilities, no one has formal bank loans and less than 10 pct. have audited accounts. Interestingly, firms in Gaza seem to be making up for this by using trade credit to a larger extent than the national average.

**Table 9.1: Use of financial instruments by firm type, pct.**

	Overdraft	Bank loan	Non-bank loan	Formal Account	Audit	Sells on credit	Buys on credit	No. of obs.
All	9.3	14.3	3.6	35.5	17.1	34.2	18.2	729
Micro	4.4	11.2	4.0	16.0	5.4	27.8	10.8	500
Small	11.4	15.0	2.4	71.3	38.9	41.9	28.1	167
Medium	43.5	37.1	3.2	96.8	53.2	64.5	51.6	62
Informal	4.3	6.1	3.7	6.1	0.6	31.9	8.6	163
Formal	10.8	16.7	3.5	44.1	22.0	34.6	21.1	564
Maputo	13.8	14.6	5.4	43.5	18.5	40.4	26.2	260
Matola	16.9	23.1	3.1	55.4	29.2	44.6	27.7	65
Beira	5.9	14.1	3.7	31.1	16.3	29.6	8.9	135
Nampula	9.3	18.6	0.0	44.2	20.9	20.9	11.6	43
Nacala	9.5	4.8	0.0	28.6	9.5	28.6	9.5	21
Chimoio	1.2	11.0	3.7	24.4	17.1	20.7	4.9	82
Tete	2.9	14.3	2.9	22.9	14.3	28.6	11.4	35
Moatize	0.0	0.0	6.3	6.3	6.3	25.0	0.0	16
Xai-Xai	4.7	11.6	0.0	23.3	9.3	48.8	30.2	43
Chokwé	10.3	13.8	0.0	13.8	3.4	27.6	24.1	29

**Note:** 32 missing observations.

**Source:** Own calculations using IIM 2012.

Seeing that only 14 pct. of the sample has a bank loan and only 9 pct. an overdraft facility, it is apparent that most manufacturing firms still have limited access to formal credit markets. Given that informal credit markets do not appear to be widespread (only 4 pct. have a non-bank loan), it makes it even more important to understand credit constraints for Mozambican manufacturing companies, which is the topic of the next section.

Considering the development in access to financial markets from 2006-2011 in Table 9.4, there appears to be a modest increase in the use of financial instruments. All categories of firms except small firms had increased their use of overdraft facilities and all categories of firms except informal firms had increased their use of bank loans. On the other hand, all categories except medium firms were less likely to use external auditing in 2012. The increase in the use of financial instruments is not confined to the capital area – firms in Beira and Nampula are also using both overdraft facilities and bank loans to a larger extent in 2012 than in 2006. This is consistent with the expansion in geographic coverage of banks in Mozambique

during the last five years<sup>41</sup>. Overall, access to financial markets seems to be slowly improving albeit from a very low base.

**Table 9.2: Use of financial instruments 2006-2011 by firm type, pct.**

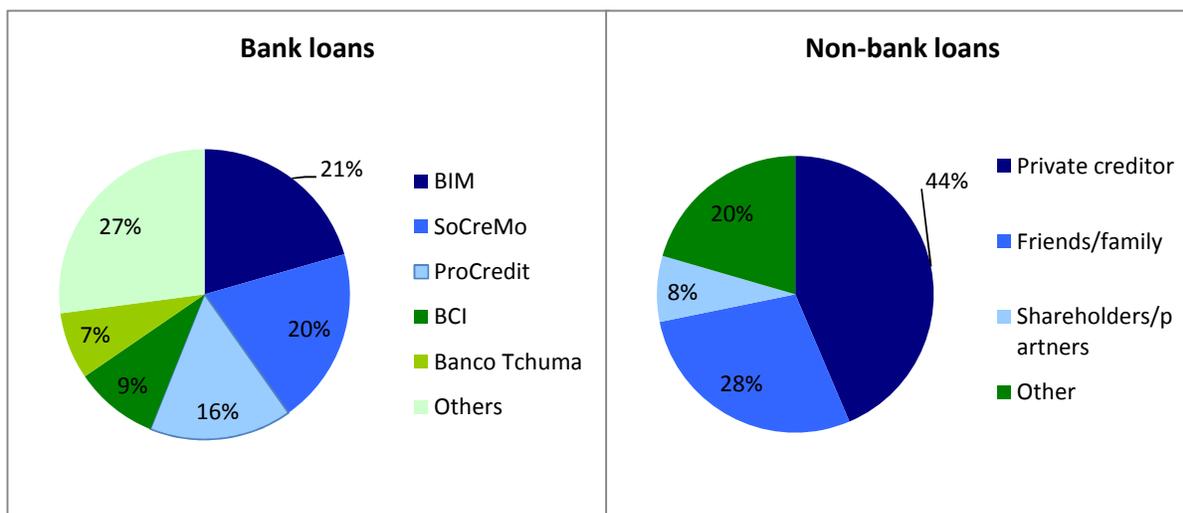
	2006			2012			No. of obs.
	Overdraft	Bank loan	Audit	Overdraft	Bank loan	Audit	
All	15.0	12.8	32.2	17.8	17.8	28.3	180
Micro	2.7	9.6	19.2	4.1	11.0	9.6	73
Small	17.3	9.3	38.7	21.3	20.0	38.7	75
Medium	37.5	28.1	46.9	40.6	28.1	46.9	32
Informal	7.7	7.7	30.8	7.7	19.2	7.7	26
Formal	16.2	13.6	32.5	19.5	17.5	31.8	154
Moz. Owned	12.6	9.8	31.5	12.6	14.7	22.4	143
For. Owned	24.3	24.3	35.1	37.8	29.7	51.4	37

**Note:** Balanced panel, i.e. following the same firms over time. Size categories in 2006 used. No. of missing observations: 36.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Concern has been raised about the concentration of loans on very few banks. In panel A of Figure 9.1 the sources of the bank loans are reported, while the sources of the non-bank loans are reported in panel B.

**Figure 9.1: Source of loan by loan type, pct.**



**Note:** No. of observations: bank: 107; non-bank: 39.

**Source:** Own calculations using IIM 2012.

<sup>41</sup> See e.g. sapo.mz, May 26<sup>th</sup>, 2012.

Three large Mozambican banks (BIM, SoCreMo and ProCredit) each hold around 20 pct. of the bank loans in the sample. BCI and Banco Tchuma together hold another 16 pct. and the remaining 27 pct. are held by various other banks. At least on the surface, it looks as if there are at least some different sources of bank loans for Mozambican manufacturing SMEs. The non-bank loans come predominantly from private creditors (44 pct. of the loans) and friends and family (28 pct. of the loans).

That the number of banks has increased since the first Investment Climate Assessment survey (RPED, 1999) could suggest that there is increasing competition on the credit supply side in Mozambique, which should be good for firms.<sup>42</sup> On the other hand, while the Central Bank of Mozambique has cut interest rates from 15 to 10.5 pct. during 2012, there has hardly been a dent in the interest rate of commercial banks (Mozambique News Reports & Clippings, November 7<sup>th</sup>, 2012). This could signal that competition among banks could be improved.

Table 9.3 compares bank loans to non-bank loans. The mean and medium amounts of a bank loan are both three times greater than for non-bank loans. But bank loans also seem to come at a substantially higher interest rate, the median rate being 10 percentage points higher per year, probably because banks can make use of less tacit knowledge about the loan applicant.

**Table 9.3: Loan characteristics by loan type**

	Bank loan	Non-bank loan
Mean loan amount	2,862,183	942,767
Median loan amount	100,000	30,000
Mean interest rate p.a.	18.3	13.4
Median interest rate p.a.	15.0	5.0
No. of obs.	92	24

**Note:** Loan amounts in meticaís, interest rates in pct. Loan amounts above 50 times annual revenue not included in calculation of mean loan amount. Interest rates above 200 pct. p.a. not included in calculation of mean interest rate.

**Source:** Own calculations using IIM 2012.

<sup>42</sup> KPMG (2011) documents that the Mozambican financial sector has grown more than twice as fast as the economy as a whole from 2002 to 2011.

## 9.2. Demand for external finance and credit constraints

This section looks deeper into credit demand and credit as a constraint. First a measure of credit demand and two measures of being credit constrained are developed. Then the characteristics of firms having credit demand and being credit-constrained are investigated. Finally the constructed measures of being credit constrained are compared to the subjective evaluation of credit constraints, as described in Chapter 3.

A firm is defined as having credit demand in all cases where the firm did not state that it “did not need a loan”. Credit constraints are slightly less straightforward to define. First, the simplest indicator possible is used: Under definition 1, a firm is credit constrained if it has applied for a loan but the application has been turned down<sup>43</sup> and it does not have a non-bank-loan.

Under definition 2 of credit constraint, a firm is constrained if it 1) applied for and has been denied credit and does not have a non-bank loan (same as definition 1) or 2) did not apply for credit due to the reasons “application procedure are too cumbersome”, “collateral requirements are too stringent” and “corruption in the allocation of bank credit”. In this case the firm would like credit, but does not find it worthwhile to apply for credit.

Table 9.4 provides an overview of the share of firms that have credit demand, have applied for credit and are constrained under definition 1 and 2. It shows that 62 pct. of the firms in the sample have credit demand<sup>44</sup> and 22 pct. applied for a loan.

**Table 9.4: Share of credit constrained firms and share of firms with credit demand, pct.**

	Full Sample		Micro only		Small and Medium	
	All	C. demand	All	C. demand	All	C. demand
Applied for credit	21.9	34.7	21.1	32.0	23.6	41.5
Constrained def. 1	5.4	8.7	7.4	11.3	1.3	2.3
Constrained def. 2	23.4	37.6	28.1	42.9	13.7	24.6
Have credit demand	62.3	100.0	65.4	100.0	55.8	100.0
No of obs.	721	449	488	319	233	130

**Note:** 40 missing observations (37 observations have bad coding about reason for not having a loan).

**Source:** Own calculations using IIM 2012.

<sup>43</sup> We do not include observations where the application was turned down for the reasons “incompleteness of application” and “perceived lack of feasibility of project” as being credit constrained, as these firms are likely not to have sustainable business or investment plans and thus are constrained by something more than credit.

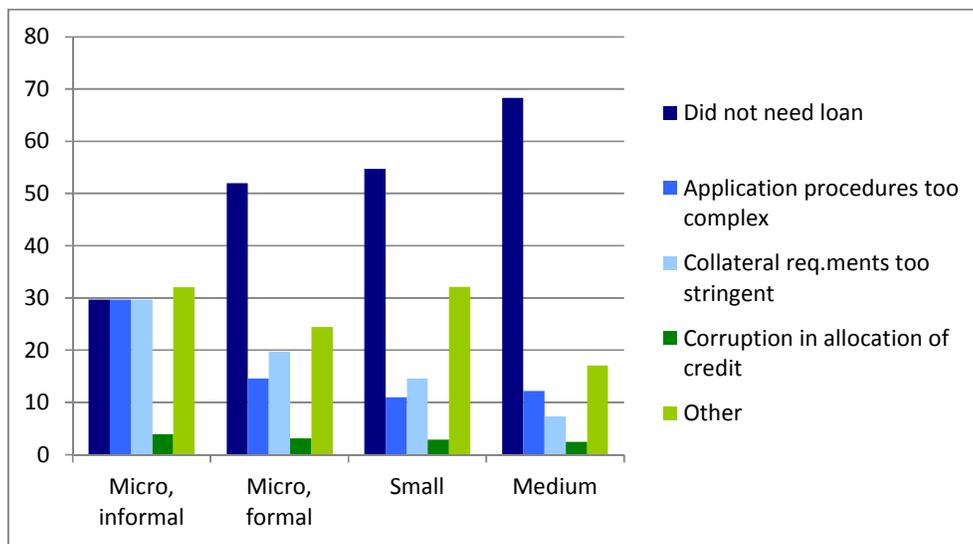
<sup>44</sup> According to Hansen and Rand (2012), this is a very low figure compared to the average SSA manufacturing firm credit demand, but it is in accordance with their results for Mozambique.

5 pct. of the full sample is credit constrained according to definition 1 (9 pct. of those with credit demand). This figure depends to a large degree on firm size— larger firms are much less likely to be credit constrained; under definition 1 a grand total of 3 non-micro firms are credit constrained. The estimate of 5 pct. of the sample being credit constrained (def. 1) is very similar to the 5 pct. found by Byiers et al. (2010) using a comparable definition.

Using the second definition of credit constraint instead, the proportion of firms that are credit constrained jumps from 5 to 23 pct. of the full sample, indicating that a lot of firms do not apply for credit because they think they are unlikely to get it. 43 pct. of micro firms with credit demand and 24 pct. of non-micro firms with credit demand are constrained according to definition 2.

A full list of the reasons why companies chose not to apply can be found in Figure 9.2.<sup>45</sup> The larger the company, the more likely it is to not need a loan: While the typical reason why medium firms do not apply is that they do not need the loan, smaller companies refrain from applying because they think they will not get the loan, often because they are less able to cope with application procedures and collateral requirements. In DNEAP (2006) only 22 pct. of the firms without a loan said they did not need one – this figure is 42 pct. for the sample as a whole in 2012.

**Figure 9.2: Reason for not applying for credit by firm type, pct.**



**Note:** Number of observations: 560.

**Source:** Own calculations using IIM 2012.

<sup>45</sup> For purposes of this analysis, the six respondents having given the reason for not applying for a loan as “against my religion” will be treated as not needing a loan.

High interest rates often figure as a very common reason for not applying for loans in similar studies (see e.g. ICA, 2009 where almost 50 pct. of the firms said so). Seeing that high interest rates for commercial bank loans have been a hot topic in Mozambique (See, e.g. Mozambique News Reports & Clippings, November 7<sup>th</sup>, 2012), it is likely that a significant portion of the people answering “other” and “did not need loan” are doing so, because they perceive interest rates to be too high. Note also that “cost of financing” ranked very high as a perceived constraint in Chapter 3.

Some of the firms that do apply get their applications turned down – Table 9.5 lists the reasons why. Lack of collateral is the dominant reason for the application being turned down with more than 50 pct. stating this as the reason. In around 10 pct. of the cases, the reason is incompleteness of application or perceived lack of feasibility of project. Poor credit history also figures as an important reason for informal firms (38.5 pct.), but this is only the case in 6 pct. of the cases for formal enterprises.

**Table 9.5: Reasons for rejection of loan application**

	All	Informal	Formal
Lack of collateral	63.3	53.8	66.7
Incompleteness of application	8.2	7.7	8.3
Lack of feasibility	12.2	7.7	13.9
Poor credit history	14.3	38.5	5.6
Other	18.4	15.4	19.4
No. of obs.	49	13	36

**Note:** Only 3 non-micro firms had their loan applications turned down. Some firms have cited more than one reason why application was turned down, so the different possibilities do not necessarily sum to 100 pct.

**Source:** Own calculations using IIM 2012.

An overview of how different firms score on the credit demand and credit constraint definitions can be found in Table 9.6. Larger firms are slightly less likely to demand credit, but are more likely to apply for a loan and substantially less likely to be constrained under both definitions. Informal firms are more likely to need credit and more than a third of the informal firms were constrained under definition 2. Foreign-owned companies seem to need less credit and only some 10 pct. are constrained under definition 2.

Firms in the capital area and Gaza province are less likely to be credit constrained, while firms in especially Nampula and Tete provinces seem to more be constrained by access to credit.

**Table 9.6: Share of firms with credit demand and share credit constrained, pct.**

	Credit Demand	Applied for Credit	Constrained def. 1	Constrained def. 2	No. of obs.
All	62.3	21.9	5.4	23.4	721
Micro	65.4	21.1	7.4	28.1	488
Small	55.6	18.3	1.8	14.2	169
Medium	56.3	37.5	0.0	12.5	64
Informal	74.4	14.4	6.3	36.3	160
Formal	58.8	24.1	5.2	19.8	561
Moz. owned	63.5	21.1	5.9	25.0	641
For. owned	51.9	27.8	1.3	11.4	79
Maputo	58.1	20.8	5.0	21.9	260
Matola	60.9	27.5	2.9	11.6	69
Beira	72.3	19.9	2.8	27.0	141
Nampula	67.4	39.1	13.0	28.3	46
Nacala	78.6	14.3	7.1	71.4	14
Chimoio	55.3	18.8	8.2	27.1	85
Tete	61.5	34.6	11.5	26.9	26
Moatize	28.6	0.0	0.0	28.6	7
Xai-Xai	59.1	18.2	6.8	18.2	44
Chokwe	72.4	13.8	0.0	10.3	29

**Note:** 40 missing observations.

**Source:** Own calculations using IIM 2012.

Taking a historical perspective on this in Table 9.7, it appears that the proportion of companies being credit constrained under definition 2 has decreased slightly since 2006. While micro firms are much less likely to be credit constrained now, the opposite is true for medium firms. In general, firms in the Maputo area have become less credit constrained while firms in other provinces have become more credit constrained.

**Table 9.7: Share of firms that are credit constrained, 2006-2011, pct.**

	2006		2012		No. of obs.
	Constrained def. 1	Constrained def. 2	Constrained def. 1	Constrained def. 2	
All	3.9	22.2	3.4	19.3	207
Micro	8.2	35.3	5.9	30.6	85
Small	1.1	15.7	2.2	11.2	89
Medium	0.0	6.1	0.0	12.1	33
Maputo & Matola	7.1	28.6	7.1	21.4	28
Other provinces	3.4	21.2	2.8	19.0	179

**Note:** Balanced panel, i.e. following the same firms over time. Size categories in 2006 used. No. of missing observations: 9.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

The above results support the widely held belief that some Mozambican manufacturers are credit constrained and that especially many of the micro firms demanding credit are credit constrained, primarily because they cannot satisfy the collateral and application requirements.

Since one of the reasons for investigating access to finance was that this consistently ranks as a very important constraint for Mozambican businesses, we now compare our constructed measure of being credit constrained with the subjective evaluation treated in Chapter 3. If there is a reasonable overlap between the two, the subjective constraints evaluation provides valuable guidance as to the constraints actually faced by firms. If not, we might have to reevaluate our understanding of what constitutes the most important constraints.

A simple tabulation of the two measures is provided in Table 9.8.<sup>46</sup> First of all, the number of firms saying that they perceive access to domestic credit as at least a major obstacle (311) greatly exceeds the number of firms that are credit constrained under definition 2 (144). In addition, while the firms perceiving access to domestic credit as a “serious obstacle” (31 pct.) are more likely to actually be credit constrained than those perceiving it as, say, a “moderate obstacle” (19 pct.), the difference is not too great.

**Table 9.8: Perceived credit constraint by actual credit constraint, pct.**

Access to domestic credit viewed as a constraint	Constrained, def. 2		No. of obs.
	No	Yes	
No obstacle	85.0	15.0	107
Slight obstacle	81.8	18.2	66
Moderate obstacle	81.1	18.9	111
Major obstacle	72.7	27.3	139
Serious obstacle	66.9	33.1	172
Total	75.8	24.2	595

**Note:** Respondents were asked whether Access to Domestic Credit was “problematic for the operation and growth of your business”. No. of missing observations: 166.

**Source:** Own calculations using IIM 2012.

There is some correlation between perceiving credit as a constraint and actually being credit constrained; a finding in line Byiers et al. (2010).

It thus seems that the subjective constraints evaluation – at least when it comes to credit – is prone to yield premature conclusions and that policy recommendations should be based on a more in-depth analysis.

<sup>46</sup> Conditioning on size makes no substantial difference, nor does using “access to foreign credit” instead.

From a policy perspective, what we are really interested in is whether there are productive investments not being made because of credit market imperfections. During the field visits, when we asked small firm owners what the biggest problem facing the firm was, they would often say “falta de fundos” or “lack of money”. This very honest answer could reflect two things: either the company is unproductive and does not generate enough income or the company needs money to invest in new machinery etc. to improve productivity. These could be connected, but both would be solved by more money (i.e. credit). The point is that a question about whether “access to credit” is a constraint is likely to yield an answer in the positive for a lot of firms and hence that the signal from this question is rather noisy.

This being said, access to bank loans and overdraft facilities remains very limited even for African standards, and for the majority of the Mozambican manufacturing firms sampled here, obtaining external credit is not easy.

## 10. Informality and bribes

This chapter aims at describing the nature and effects of informality and bribes for the present sample of Mozambican manufacturing firms.

Informality concerns whether or not a company is registered (and pays taxes) and is part of the “formal” economy. Being registered potentially carries both drawbacks and advantages. Securing deals with larger companies, attracting skilled labor and cooperating with the authorities might be more difficult for informal businesses. On the other hand, being informal might reduce the operating costs for the enterprise. The first section of this chapter describes issues related to informality.

When businesses are regulated by the authorities, it gives government officials opportunities for extracting illegal rents, i.e. bribes, especially if accountability is limited. The second section of this chapter describes the nature of the bribes paid by Mozambican firms.

### **10.1. Informality**

How to measure informality is a topic that has sparked much debate, as informality can refer to many different, interlinked phenomena. Ostrom et al. (2006) make the case that the most fruitful approach is to reserve the label “informal” for activities that are not registered by the government, an approach also followed here.

The informal sector is receiving renewed attention in Mozambique these days. On one hand it is mentioned as a “locus of job creation” (see e.g. Jones and Tarp, 2012) in recognition of the fact that the vast majority of the Mozambican labor force does not have formal employment. On the other hand, Mozambican authorities are ambiguous towards the informal sector, sometimes embracing it, and sometimes dismissing it.<sup>47</sup> In any case it is important to understand the dynamics of the informal sector. Normally, the informal sector is associated with informal trade and petty commerce, but it is also present in the manufacturing sector, which is the topic of this section.

Since all observations in the ICA09 data and almost all the observations in the DNEAP06 data are formal firms, providing a panel dimension on this issue is not very informative. Instead the focus is on the IIM 2012 cross section.

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<sup>47</sup> David Simango, the mayor of Maputo, launched a campaign against the city’s informal traders in February 2012, giving them “48 hours to leave the streets” – after a storm of protests, he was forced to withdraw, saying that he only meant for the informal traders not to obstruct the streets (O País, March 8<sup>th</sup>, 2012).

To operate formally, a Mozambican firm in principle needs to

- Obtain certification of unique name at the Conservatória do Registo das Entidades Legais (Legal Entities Registrar; CREL).
- Register for taxes and obtain NUIT (taxpayer number) from Repartição das Finanças (finance department).
- Apply for a simplified operational license from the municipality at the Balcão Único (One stop shop, BAÚ).

In addition to this come procedures to register employees (at the provincial employment center and in the social security system) and to declare the commencing of operations to various institutions.<sup>48</sup>

But one thing is theory; another is what actually happens in practice. In the present dataset there is information about registration at CREL and possession of NUIT.<sup>49</sup> Apart from conscious decisions to formalize or not, some business owners may simply not know what is required to register or even how exactly their own business is registered. This image is reinforced by the fact that a substantial fraction of the firms report to have a NUIT but not to be registered at the CREL whereas hardly any firms without NUITs are registered at the CREL, as can be seen from Table 10.1 (in theory, registering at the CREL should happen prior to obtaining a NUIT). This leads us to choose NUIT status as the preferred measure of formality. Recall from Chapter 2 that the vast majority of firms that are informal under this definition are of micro dimension (159 out of 166 firms).

**Table 10.1: Registration at CREL by possession of NUIT, number of firms**

	No NUIT	NUIT	Total
Not Registered	139	173	312
Registered at CREL	25	414	439
Total	164	587	751

**Note:** Eight missing observations for CREL (Legal Entities Registrar) registration, two missing observations for NUIT (taxpayer number) possession.

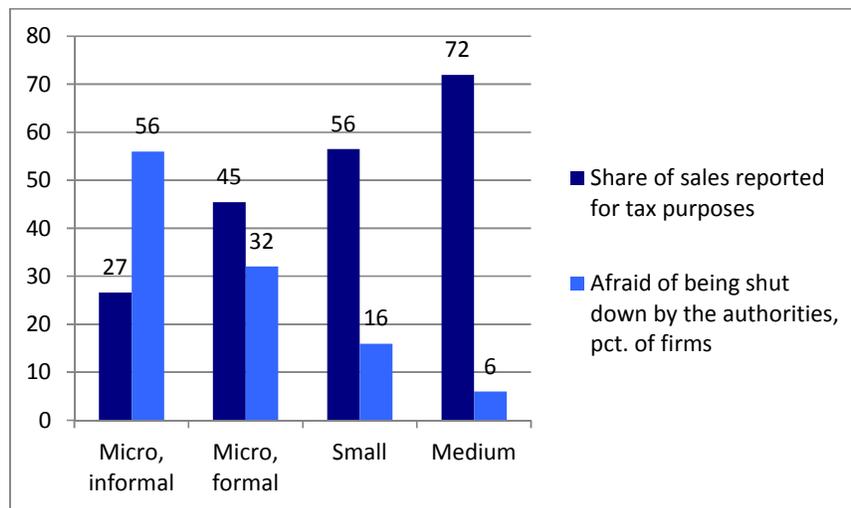
**Source:** Own calculations using IIM 2012.

<sup>48</sup> A more detailed description can be found in the World Bank's Doing Business report for Mozambique (World Bank, 2012).

<sup>49</sup> There is also information about registration at other institutions (Ministry of Industry and Commerce, National Institute for Social Security, Ministry of Labor), but unfortunately, this information is only available for companies who said they were registered at the CREL, due to a glitch in the questionnaire.

Figure 10.1 shows two different aspects of informality, namely the share of sales reported for tax purposes and the share of firms being “afraid of being shut down by the authorities”. Mozambican companies seem to not report a substantial amount of sales across all categories – on average, the firms in the sample report 48 pct. of sales for tax purposes. The share of firms being afraid to be shut down by the authorities is also rather large at 35 pct. of the sample as a whole. Judging from Figure 10.1, the two measures are strongly inversely correlated and to be closely correlated with size; larger companies on average report a higher share of sales for tax purposes and a less likely to be afraid of being shut down by the authorities. More than 50 pct. of the informal micro firms are afraid of being shut down by the authorities, which is the case for only 6 pct. of the medium-sized firms. And while medium-sized firms on average report 72 pct. of their sales for tax purposes, this figure is less than 30 pct. for informal businesses.<sup>50</sup> This could be because it is easier to hide output with a smaller scale of production.

**Figure 10.1: Share of sales reported for tax purposes by firm size, pct.**



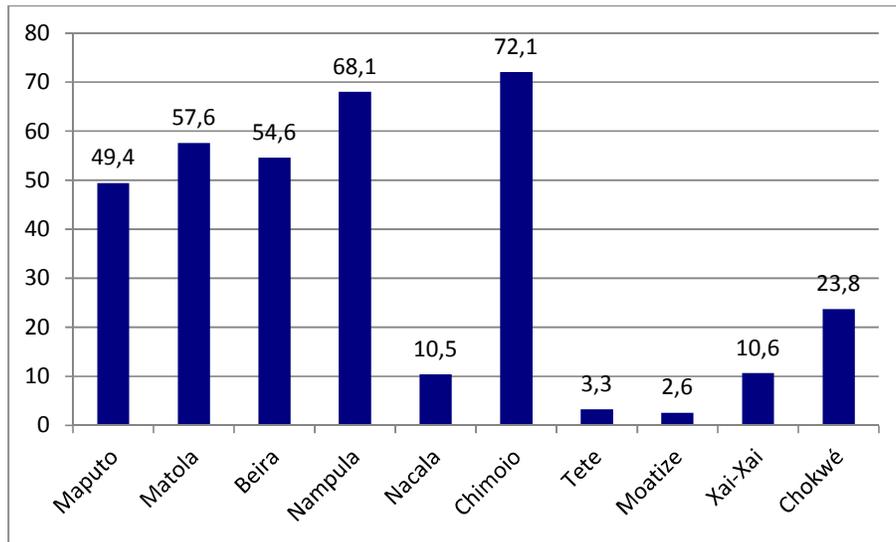
**Note:** Number of observations: 456 (205 missing).

**Source:** Own calculations using IIM 2012.

The proportion of sales reported for tax purposes also vary widely across cities, as seen in Figure 10.2. In Nampula and Chimoio, it is around 70 pct.; in Maputo, Matola and Beira it is around half; in Chokwé it is about 20 pct. and in the remaining four cities it is 10 pct. or less. This could suggest that taxes are not being collected with the same efficiency in all cities and that there is a large scope for improvement, especially in the Northern provinces.

<sup>50</sup> It is possible to pay taxes without having a company NUIT by using a personal NUIT.

**Figure 10.2: Proportion of sales reported for tax purposes by location, pct.**



**Note:** Number of observations: 457 (204 missing).

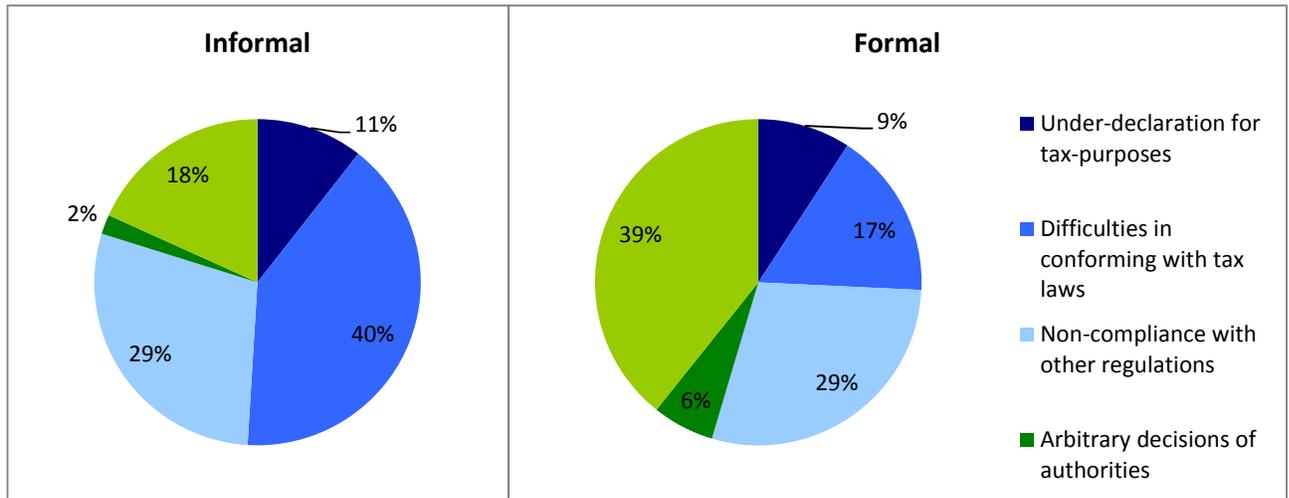
**Source:** Own calculations using IIM 2012.

While around 50 pct. of the sample in DNEAP (2006) considered tax rates an important constraint, this is only the case for some 30 pct. of the 2012 sample. This coincides with the firms in the current sample not reporting a very substantial percentage of their sales.

As mentioned, a consequence of operating informally could be a fear that the business would be shut down by the authorities because of a lack of compliance with official regulations. Such a fear is not unfounded in Mozambique, given the authorities' talk about (and execution of) crackdowns on the informal sector.<sup>51</sup> In Figure 10.4 we take a look at why firms are afraid to be shut down, split on formality status. We see that a quarter of formal businesses and about half of the informal businesses answer "under-declaration for tax purposes" or "difficulties in conforming with tax laws". Around a third mentions "non-compliance with other regulations" in both cases. This seems to suggest that a lot of businesses are not operating entirely by the rules. Interestingly, "arbitrary decisions of authorities" does not figure as a very common reason in either case, suggesting that businesses are mostly not shut down without a reason.

<sup>51</sup> See e.g. AIM, March 13<sup>th</sup>, 2012 or O País, March 8<sup>th</sup>, 2012.

**Figure 10.3: Reason for being afraid to be shut down by the authorities by formality**



**Note:** Only firms that are afraid to be shut down included. Number of observations: 267 (104 informal and 163 formal).

**Source:** Own calculations using IIM 2012.

## **10.2. Bribes**

In the questionnaire, there are two questions related to bribes. One is direct: “in the period 2009-2011, did you have to make informal payments to a public official to “get things moving”?”. Another is indirect: “What would you estimate a typical firm in your line of business and of similar size typically pays each year in informal payments to public officials with respect to issues relating to customs, taxes, licensing, regulations etc.?”. Firms might be reluctant to answer questions about bribes because they are not too proud of paying bribes or because they think saying so might create problems for them. But when the question is about “a typical firm of similar size in your line of business”, things are very different. On the direct question, only 5 pct. of the sample say they paid bribes (758 observations) while on the indirect question, 54 pct. say that “a typical firm of similar size in your line of business” pays a nonzero amount in informal payments (386 observations). We take the indirect question to provide the most reliable measure of bribe payments and use it from here onwards. This indicator has a very large number of missing observations, but these are likely to reflect respondents not knowing, since the question does not refer to the firm itself, which means that the missing observations are less of a problem.

In Table 10.2 we take a look at how bribe incidence varies for different types of companies and also at how large a percentage of sales, firms pay in bribes.<sup>52</sup> As mentioned, 54 pct. of the sample pays bribes and on

<sup>52</sup> In the calculations in this section, bribes are capped at 25 pct. of sales.

average, these firms pay 10 pct. of sales in bribes – a marked increase from the 5.7 pct. found in DNEAP (2006). Small firms are less likely to pay bribes than micro and medium firms and also to pay less when bribe payments are made. Informal firms are much more likely to bribe and also pay a substantially higher fraction of their sales in bribes. Bribe payments also vary between regions. In Nampula, Chimoio and Tete, firms are very likely to pay bribes (92 pct. of the firms in Chimoio pay bribes) but pay less when they bribe, whereas the opposite is true for Beira and Nacala. Bribes seem to be both very frequent and very large in Xai-Xai and Chokwé and rare and small in Matola and Moatize.

**Table 10.2: Bribe incidence, pct. of firms and bribe value, avg. pct. of sales by firm type**

	Pay bribes	Bribes as pct. of sales	Obs.
All	53.6	9.9	386
Micro	55.9	10.4	247
Small	48.5	8.3	101
Medium	52.6	9.8	38
Informal	68.8	12.0	80
Formal	49.7	9.2	304
Maputo	64.0	11.5	125
Matola	45.0	7.8	40
Beira	36.3	13.3	102
Nampula	60.7	7.3	28
Nacala	8.3	20.0	12
Chimoio	91.7	1.8	24
Tete	65.0	4.5	20
Moatize	0.0	-	12
Xai-Xai	76.9	13.8	13
Chokwé	90.0	12.2	10

**Note:** Value of bribe capped at 25 pct. of sales. Missing observations: 375.

**Source:** Own calculations using IIM 2012.

Table 10.3 displays a transition matrix for bribe payments in 2006 and 2012. We take a historical perspective on the issue in Table 10.3. In general, relatively more firms are paying bribes than were in 2006 – while 31 pct. of the firms were paying bribes in 2006, 56 pct. are paying bribes now. Firms that paid and firms that did not pay bribes in 2006 are almost equally likely to pay bribes in 2012. The firms that pay bribes also seem to pay slightly more in bribes in 2012 where the mean bribe for the firms in the balanced

panel paying bribes was 10.6 pct. of sales. The mean bribe in 2006 for the firms in the balanced panel was slightly lower at 8.6 pct. of sales.<sup>53</sup>

**Table 10.3: Bribe payments transition matrix, 2006-2012**

	Did not pay bribes in 2012	Paid bribes 2012	Total
Did not pay bribes in 2006	28	35	63
(pct.)	(44.4)	(55.6)	(100)
Paid bribes in 2006	9	20	29
(pct.)	(31.0)	(69.0)	(100)
Total	37	55	92
(pct.)	(40.2)	(59.8)	(100)

**Note:** Balanced panel, i.e. following the same firms over time. Numbers in parentheses indicate percentages. No. of missing observations: 118.

**Source:** Own calculations using IIM 2012, DNEAP (2006) and ICA (2009).

Seeing that informal firms 1) are more likely to pay bribes, 2) pay a larger proportion of sales when they pay bribes, 3) pay less taxes as a share of sales than formal firms and 4) are afraid to be shut down, primarily because they have “difficulties complying with tax regulations”, it looks as if the “bribes to hide” (Svensson, 2003) hypothesis could have some relevance for Mozambican manufacturing firms.

Moreover, it is of some concern that the bribes involved are so big. Ten pct. of revenue on average amounts to a very serious cost to businesses and more research is needed to investigate how bribes and corruption constrain companies and what they do to cope with the corruption.

Once again, since one of the motivations for looking into issues regarding corruption and bribes was that many firms perceive corruption as a constraint, we compare this subjective evaluation with the measure of bribes used in this chapter in Table 10.4.

<sup>53</sup> Clarke (2012) estimates the indirect cost of bribes as a share of sales for manufacturing firms in a range of African countries. His estimate for Mozambique is 0.5 pct. of sales, which is substantially below the results found here.

**Table 10.4: Perceived corruption constraint by actual corruption constraint**

General corruption viewed as a constraint	Firm pays bribes		Total
	No	Yes	
No	61	100	161
(pct.)	(37.9)	(62.1)	(100.0)
Yes	69	85	154
(pct.)	(44.8)	(55.2)	(100.0)
Total	130	185	315
(pct.)	(41.3)	(58.7)	(100.0)

**Note:** Numbers in parentheses indicate percentages. No. of missing observations: 446.

**Source:** Own calculations using IIM 2012.

It turns out that companies that perceive general corruption to be a constraint are actually *less* likely to pay bribes and hence that there is not much correlation between paying bribes and feeling constrained by corruption.

## 11. Final comments and policy issues

This report documents the findings from a manufacturing enterprise survey conducted in 2012 in Mozambique, the IIM 2012. The survey contains a cross-sectional dimension encompassing 761 firms in seven provinces and a panel data dimension following 216 firms from the DNEAP (2006) and ICA (2009) surveys. The resulting dataset constitutes a significant improvement over earlier manufacturing enterprise surveys in terms of representativeness, both with regard to geography and firm size. The survey permits 1) descriptive analysis of Mozambican manufacturing enterprises on a large number of indicators, 2) an up-to-date analysis of recent developments in the business environment from the point of view of the enterprise sector, 3) comparisons with previously found results, and 4) an analysis of basic associations between firm characteristics and firm dynamics, specifically growth and exit.

A number of interesting statistics and policy-relevant recommendations emerge from the first 10 chapters of the report. Highlights are presented below:

- The lack of a reliable national enterprise database makes it difficult for analysts and policy-makers to get a clear overview over the number of firms in different sectors and provinces. Without this, it can be hard to target and evaluate specific industrial policies. Since registration is already taking place at a provincial level, efforts should be made to harmonize and aggregate the provincial databases into a coherent national database, for example at the Ministry of Industry and Commerce. Given the size distribution of Mozambican manufacturing firms, it may also be advisable to redefine the current size classification system to make the “micro”-category (currently 1-24 employees) smaller.
- The vast majority of Mozambican manufacturing companies are very small (less than 10 employees), produce relatively homogenous products using basic technology and sell mostly to private individuals in the same locality as the firm. Especially outside the major cities, the manufacturing sector is not very diversified. Arguably, small-scale craftsman-type firms can hardly be the only drivers of industrialization. It is critically important to ensure good conditions for small businesses, but Mozambique must also attract medium sized productive enterprises. The special economic zone in Nacala is a promising initiative in this respect.
- In a similar vein, larger enterprises were shown to be more likely to provide “good jobs” in the sense that they come with better pay, more benefits and more permanent employment. Since we found no systematic effects on job creation from initial firm size, it seems that a unilateral focus on small businesses in industrial policy is not justified.

- Manager characteristics were shown to be important for firm employment growth; non-indigenous ethnicity, manager experience from abroad and education (including education from abroad) are all positively correlated with employment growth. If better managers can make companies grow faster and perform better, measures should be taken to improve the quality of managers. Improving manager education in Mozambique may be a fruitful route to take.
- Seeing that exporters perform better on a range of indicators – especially productivity growth, it is of some concern that only 3 pct. of firms in the sample are exporters. Two remarks are in order. Firstly, customs regulation and corruption related to customs are perceived as more constraining by firms that conduct more international trade (e.g. firms in Maputo or medium firms). This means that there are serious constraints related to dealing with customs, which should be ameliorated to facilitate exports. Secondly, many non-exporters state “lack of knowledge of potential markets” as the main reason why they do not export – this indicates that export promotion efforts should be stepped up, perhaps through the Institute for Export Promotion, IPEX.
- Firm productivity does not seem to have improved since 2006 and according to some measures, it has been declining. In light of the 7-8 pct. annual growth in the Mozambican economy as a whole, this suggests that productivity in manufacturing SMEs is lagging seriously behind the aggregate growth of the economy. The share of firms making investments has dropped from 67 pct. of firms in 2006 to 56 pct. in 2012. Furthermore, the share of firms providing training for their workers has declined since 2006. More research is needed to understand the evolution of productivity among Mozambican manufacturing enterprises, since productivity gains in manufacturing should be a major policy goal in order to insure broad based development.
- The minimum wage continues to play a central role in wage-setting in Mozambique. Firms on average pay the minimum wage to some 25 pct. of their workers, but in addition to this, many wages are set as some function of the minimum wage, meaning that the minimum wage has implications for large parts of the (formal) labor market. However, relatively fewer workers receive the minimum wage now than in 2006. It was suggested that it may be increasingly difficult for especially micro and informal firms to pay their workers the minimum wage as it keeps increasing at a rate grossly outpacing inflation (The minimum wage increased by 115 pct. from 2006 to 2011 while the price level increased by 60 pct. in the same period). It was shown that the minimum wage is above the median value added per worker for informal micro firms. Given the importance of the minimum wage in Mozambique, policy-makers should be mindful not to let the minimum wage increase too much in the face of stagnant productivity.

- Access to credit and cost of financing continue to top the list over most severe perceived constraints even as firms on average feels less constrained by this factor than in 2006. Access to financial markets has improved modestly since 2006, but 23 pct. of the sample continues to be credit constrained and the majority of firms still finance investment by own resources. Micro firms are more likely to be credit constrained than larger firms, mostly because they are less able to satisfy requirements with regard to collateral and application procedures. Overall, credit remains an important constraint, but the subjective evaluation likely overstates the real extent of credit constraints faced by the manufacturing sector.
- Corruption is perceived as a relatively more serious constraint than in 2006, now constituting one of the most severe constraints. Fifty-four pct. of the firms in the sample pay bribes and the mean bribe is as much as 10 pct. of sales. Informal firms are more likely to pay bribes than formal firms, indicating some relevance of the “bribes to hide”-hypothesis.
- While the proportion of sales reported for tax purposes has gone up for most types of companies, the figure varies a lot over cities, indicating that taxes are not being collected with the same degree of efficiency cross country. In some cities – notably Nacala, Tete, Moatize, Xai-Xai and Chokwé, there is a substantial room for improvement in tax collection.
- Temporary employment, while being a big issue in 2006 is down to 8 pct. of a firm’s employees on average, and is most prevalent in smaller and informal firms. This is most likely an effect of the new labor law from 2007 that drastically cut the costs involved in laying off permanent workers. This interpretation is supported by the fact that firms perceive *labor regulations* as much less constraining than in 2006.
- Import dependency used to be very high among Mozambican manufacturers as a result of weak domestic inter-firm linkages. Since 2006, the share of imports of total inputs has decreased substantially (from 28 pct. to 19 pct. of inputs) and input availability has improved, both in terms of quality and quantity. Well-connected markets are a prerequisite for spillover-effects of e.g. natural resource extraction, so Mozambique must continue to improve inter-firm linkages and regional market connectivity.
- Access to land has skyrocketed as a constraint, with more than half of the firms in 2012 feeling very constrained by it. The result is driven by firms in Maputo, Matola and Beira; the issue is far less pressing in smaller cities. The likely cause is a combination of rapid urbanization, inadequate urban infrastructure and land speculation. As the stress on land in and near Mozambique’s cities is only

likely to intensify, prudent land management and urban planning is a must to coordinate the various relevant interests (e.g. housing, industry, public space).

In conclusion, in this report we have aimed at bringing out what can be learned from descriptive analysis of the new enterprise survey (IIM 2012). We have chosen to highlight topics which we expect are especially interesting for policy makers. Naturally, many of the issues addressed merit further in-depth analysis. We hope that this report can serve as an anchor and will inspire further studies on private sector development in Mozambique.

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