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INDUSTRY GROWTH, FIRM SIZE AND THE BUSINESS ENVIRONMENT

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INDUSTRY GROWTH, FIRM SIZE AND THE BUSINESS ENVIRONMENT

FINAL

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ABSTRACT

This paper shows that a good business environment boosts the growth of industries that are naturally composed of small firms more than large-firm industries. In particular, we find that small firm dominated industries benefit from less stringent and more business friendly regulations associated with starting and closing a business, licensing requirements, exporting and importing, employment hiring and firing decisions, paying taxes, protecting investors and obtaining credit. We find that the effect of the business environment on small firm dominated industries varies across country income groups. While employment regulations and investor protection regulations matter the most in low income countries, regulations associated with exporting and importing are particularly important for middle income countries while there is no evidence of a disproportionate impact of the business environment on small firm dominated industries in high income countries. Our findings have implications for policy interventions in creating an enabling environment for the growth of micro and small enterprises.

CHAPTER ONE
INTRODUCTION

There has been a great deal of recent interest in the contribution of micro and small enterprises (MEs) to economic growth. A first step in evaluating this contribution has been to correlate the size of the ME sector in countries with their economic growth. However, this approach is static and does not account for the dynamic evolution of industries. For most policy interventions, therefore, the size of the ME sector is of secondary interest. Of greater interest are questions such as whether the business environment supports dynamism among MEs by facilitating creation of new MEs and growth of MEs in order to contribute to economic growth.

In our previous research for this project, one of the key areas of ME research that we identified as lacking was understanding of the industries and countries in which small firms have a niche and play a dynamic role such that a significant proportion of them grow sufficiently big to make an important contribution to the growth of the industry. This paper is an effort in that direction by identifying small firm dominated industries and examining business environment regulations that facilitate or constrain their growth and development. In particular, we examine whether factors that have been identified with firm dynamism, such as entry regulations and protection of property rights, have measurable effect on the growth of small firm dominated industries. We investigate the cross-firm, cross-industry effects of the broad business environment on small firm growth. We examine whether industries that are composed of firms with less than 20 employees, hereafter referred as small firms, for technological reasons grow faster than industries dominated by large firms in economies with well-developed business environments.

We use a sample of 100 countries and 27 industries in the manufacturing sector to examine the growth rates of different industries across countries with different levels of institutional development and doing business environment. Our measures of small firm dominated industries are taken from Beck et al. (2006) who follow the Rajan and Zingales (1998) methodology. Under the assumption that financial markets in the Unites States of America (US) are relatively frictionless, Rajan and Zingales (1998) construct a measure of each industry's technological demand for external finance in the US and assume that this technological demand for external finance should be the same across countries. Similarly Beck et al. (2006) measure an industry's composition of small firms relative to large firms by looking at the share of employment in firms with less than 20 employees in the US. They thus identify each industry's "technological" firm size in a relatively frictionless market such as the US and assume that the technological firm size of each industry should be constant across countries.

We find that industries naturally composed of small firms for technological reasons grow faster than large firm industries in economies with better doing business environments, suggesting that a good business environment boosts the growth of small firm dominated industries more than large-firm dominated industries. When we look at a detailed breakdown of the different business environment characteristics, we find that the less onerous regulations associated with the following characteristics have a large impact on small firm growth: starting and closing a business, dealing with licenses, employee hiring and firing decisions, exporting and importing of goods, paying taxes, protecting investors and obtaining credit. We also find substantial heterogeneity across time periods and country income groups. We find that a good business environment has a disproportionately large impact on the growth of small firm dominated

industries in low income countries and when we look at long term growth rates. Our main results are robust to a number of sensitivity checks including different definitions of small firm dominated industries.

Our results contribute to the policy debate on the importance of small firm growth for overall economic development. The results highlight a channel through which the broader business environment affects aggregate economic growth: by removing growth constraints on small firm dominated industries.

Our paper also contributes to recent literature focusing on the importance of small firms for growth and the obstacles inhibiting small firm growth. In a recent paper, Beck, Demirgüç-Kunt, and Levine (2005) show that while a large proportion of small and medium firms (SMEs) is a characteristic of fast growing economies, there is no causal link between SME intensity and long-run GDP per capita growth. However, as the authors themselves suggest, while their results do not support the interpretation that higher GDP per capita growths are caused by SMEs, they do indicate that a large SME manufacturing sector is a characteristic of successful economies. Furthermore, they use an aggregate index of the overall business environment (that incorporates information on entry and exit barriers, effective property rights protection, and sound contract enforcement) as a control variable in the growth regression without considering the impact of the business environment on the size of the SME sector. However, if larger firms are less affected by imperfections in the business environment, then they may have a comparative advantage in delivering growth and generating employment in poor environments, in which case the size of the SME sector is unlikely to be a true estimate of successful economies.

Other papers focus exclusively on the obstacles facing small firm growth. Beck, Demirgüç-Kunt and Maksimovic (2006) find that SMEs not only face greater financial, legal and corruption obstacles compared to large firms, but also stand to benefit the most from improvements in financial development and a reduction in corruption. However, in a cross-country study of very large firms, Beck, Demirgüç-Kunt, and Maksimovic (2005) find no evidence of association between poor business environments and the size of the largest firms in a country. Such an association would be expected if the largest firms had a comparative advantage[1]. Ayyagari, Demirgüç-Kunt, and Maksimovic (2005) find that although firms report many obstacles to growth, not all the obstacles are equally constraining. They investigate a kitchen-sink of obstacles to find that obstacles related to finance, crime and political instability directly affect the growth rate of firms. Robustness tests further show that the finance is the most important of the three obstacles. All these papers use cross-country, firm-level data and rely on survey responses of the obstacles that firms face. In contrast, we use a different methodology that is focused on firm dynamism and investigate how industries that are naturally composed of small firms grow faster than large firms in countries with better institutional environments.

[1] It is also possible that such a comparative advantage does exist, but that firms in poor business environments are unable to realize their optimal size.

CHAPTER TWO
THE DATA

2.1. DATA ON INDUSTRIES

2.1.1. SMALL FIRM SHARE MEASURES

Census data on small firm share in each industry in each country is very hard to obtain and is not available in many cases. Hence we use an industry's technological firm size constructed by Beck et al. (2006) who argue that there are technological reasons for differences in small firm domination of industries and that these differences are likely to persist across countries[2]. They rely on the assumption that the US has relatively few market imperfections and policy distortions and hence use the US as a benchmark country to construct **Small Firm Share$_k$** as industry *k*'s share of employment in firms with less than 20 employees in the US. The data are obtained from the 1992 Census[3].

Using the US as a benchmark country has gained wide acceptance in the empirical literature following Rajan and Zingales (1998) who used the external finance dependence of US industries as a measure of an industry's technological need for external financing. The methodology does not require that the US markets are perfect but rather that market imperfections in the US do not distort the ranking of industries in terms of the technological share of small firms within each industry.

The US serves as a natural benchmark for developing a ranking of technological firm size in each industry for several reasons: recent studies (e.g. La Porta et al, 1999) have argued that the US has well developed institutions, good property rights and investor rights protection, and a superior contracting environment. Demirgüç-Kunt and Levine (2001) show that the United States has one of the most developed financial systems in the world. The United States has a very business friendly environment - it ranks third according to the World Bank's Business Environment Index. The country is comparatively open to international trade and has a huge internal market. In addition, as pointed out by several labor market studies, the United States attracts both high and low human capital workers from the rest of the world and has fewer policy distortions than even the European markets.

Finally, to serve as a reasonable benchmark, the United States does not need to have a perfect environment. It simply requires that the policy distortions and market imperfections in the United States do not distort the ranking of industries in terms of the technological share of small firms within each industry.

[2] Thus, for example, steel is made efficiently in large plants, whereas many wood products, which rely on individual craftsmanship can be efficiently manufactured in relatively small workshops.
[3] The U.S. Census did not start collecting firm size data at the firm level until 1992. Hence the Small Firm Share data is from the 1992 Census.

Beck et al. (2006) also construct Small Firm Share *k* using alternate cut offs of 10, 20, and 100 employees[4]. Table 1 from Beck et al. (2006) presents the small firm shares using the various cut-offs across the 28 manufacturing industries. We use 20 employees as our benchmark measure since the 5 and 10 employee cutoffs are not available for all industries and the 100 employee cutoff may be too large for some industries, especially in the low income countries. Small Firm Share of less than 20 employees has a mean of 6.82 %, but varies widely from <1% tobacco, petroleum refineries and manufacturing of pulp, paper and paperboard to 21.37% in wood manufacturing.

2.1.2 INDUSTRY GROWTH RATES

We obtain annual data on value added at the three-digit International Standard Industrial Classification (ISIC) code level for each country from the Industrial Statistics (INDSTAT) Database compiled by the United Nations Industrial Development Organization (UNIDO). We use UNIDO INDSTAT-3 which provides time series data on 29 3-digit ISIC industries in the manufacturing sector. To obtain real value added, the raw data is deflated using the GDP deflator obtained from the World Bank's World Development Indicators.

Growth$_{i,k}$ is the average annual growth rate of real value added of industry *k* in country *i*. The growth rates are computed over the period 1963-2003, where the beginning year is restricted to be 1963 or later and the ending year is 2003 or earlier. We restrict the sample to growth rates calculated over at least a 10 year period. Thus we have cross-country, cross-industry data on industrial growth rates. In robustness tests, we also look at alternate time periods, 1980-2003 and 1990-2003.

2.2. COUNTRY DOING BUSINESS INDICATORS

We obtain country-level indicators of the business environment from the World Bank's Doing Business database. The Doing Business indicators provide a measure of the regulatory costs of doing business across 175 countries. These indicators help us analyze specific regulations that enhance or constrain the growth of small firm dominated industries. We conduct the analyses in two steps. First, we use an aggregate index of the overall business environment in the country and, second, we look at specific regulations and practices. The aggregate index we use is the **Business Environment Index** which ranks economies on the simple average of country percentile rankings on each of the following 10 topics:

1. **Starting a Business** identifies the bureaucratic and legal hurdles an entrepreneur must overcome to incorporate and register a new firm;
2. **Dealing with Licenses** tracks the procedures, time, and costs to build a warehouse, including obtaining necessary licenses and permits, completing required notifications and inspections, and obtaining utility connections;
3. **Employing Workers** measures the flexibility of labor regulations including hiring and firing decisions;
4. **Registering Property** examines the steps, time, and cost involved in registering property, assuming a standardized case of an entrepreneur who wants to purchase land and a building in the largest business city—already registered and free of title dispute;

[4] Beck et al. (2006) also report a 500 employees cut-off which we don't use in our regressions since we are most interested in developing countries where small firms are most likely to have much less than 500 employees.

5. **Getting Credit** examines credit information registries and the effectiveness of collateral and bankruptcy laws in facilitating lending;
6. **Protecting Investors** measures the strength of minority shareholder protections against misuse of corporate assets by directors for their personal gain;
7. **Paying Taxes** addresses the taxes and mandatory contributions that a medium-size company must pay or withhold in a given year, as well as measures of administrative burden in paying taxes;
8. **Trading Across Borders** looks at the procedural requirements for exporting and importing a standardized cargo of goods;
9. **Enforcing Contracts** looks at the efficiency of contract enforcement by following the evolution of a sale of goods dispute and tracking the time, cost, and number of procedures involved from the moment the plaintiff files the lawsuit until actual payment;
10. **Closing a Business** identifies weaknesses in existing bankruptcy law and the main procedural and administrative bottlenecks in the bankruptcy process.

The Business Environment index is a country ranking such that the first rank is for the best business environment. Thus, a higher number of the Business Environment index implies a poorer business environment. Similar ordering holds when we look at the ten rankings of the different aspects of the business environment. Figure 1 shows the average Business Environment Index ranking across different country income groups. The average ranking is much higher in the high income countries (average rank=25) compared to the low income countries (average rank = 125). When we look at the ten indicators of the business environment, again we find that the quality of the business environment is much higher in the high income countries compared to the low income countries across all aspects of the business environment.

CHAPTER THREE
METHODOLOGY

We use the Rajan and Zingales (1998) methodology to examine whether industries that are naturally composed of small firms grow faster than large-firm industries in countries with better developed business environments. In particular, we estimate the following regression model:

$$Growth_{i,k} = \alpha Industry\ Share_k + \beta(Small\ Firm\ Share_k \times Bu\sin ess\ Environment_i) + \sum_i Country_i + \sum_k Industry_k + \varepsilon_{i.k} \quad (1)$$

where Growth*i*,k is the average annual growth rate of value added, in industry *k* and country *i* over the period 1963-2003. $Country_i$ and $Industry_k$ are country and industry dummies to correct for country and industry specific characteristics that might determine industry growth patterns. $Industry\ Share_{i,k}$ is the share of industry *k* in manufacturing in country *i* in the beginning period. The Industry Share helps control for an industry-specific convergence effect whereby industries with a large initial share might grow more slowly. The initial industry share may also help to control for other variations between countries such as the initial comparative advantage among certain industries that can be attributed to factors other than the business environment. $Small\ Firm\ Share_k$ is the benchmark share of small firms in industry *k*, which in our baseline specification equals the share of employment in firms with less than 20 employees in the United States in 1992. $Business\ Environment_i$ is an indicator of the business environment in the country in our baseline specification. In subsequent specifications, we replace the Business Environment index with specific indicators related to the 10 different aspects of doing business described in Table 3.

We include only the interaction effect between the small firm share in an industry with business environment and not the main effects since we also have country and industry dummies in the specification. We exclude the United States (the benchmark country) from the regressions. Since we have an unbalanced panel, we restrict our analysis to growth rates computed over at least 10 year intervals. To limit the influence of outliers, we also restrict our analysis to growth rates, which are computed as log changes, to the range (-1,+1).

All regressions are estimated using ordinary least squares with robust standard errors. Our main coefficient of interest is the interaction term of Small Firm Share and the Business Environment Index, **β**. Since the business environment index is reverse coded wherein a country with a better environment receives a lower score, a negative and significant **β** suggests that a good business environment has a disproportionately positive effect on small-firm industries relative to large-firm industries implying that good business environments ease growth constraints on small firms. On the other hand, a positive and significant **β** would suggest that large firms benefit mostly from good business environments. An insignificant coefficient would suggest that there are no cross-industry, distributional consequences of good business environments.

CHAPTER FOUR
RESULTS

Table 2 results suggest that industries with technologically larger shares of small firms grow faster than large firm dominated industries in economies with better-developed business environments. In the full sample, we find that the interaction of Small Firm Share and Business Environment to be negative and significant at the 5% level. We also find substantial variation across country income groups. A good business environment eases the growth constraints faced by small firms mostly in low income countries. The interaction terms are not significant when we look at middle and high income group countries. Overall our results suggest that the quality of the business environment matters most in poor countries where presumably small firms face the hardest constraints. In all specifications, the coefficient on Industry Share enters negatively suggesting that industries with larger initial shares grow more slowly. We get very similar results if we were to remove transition economies from the sample.

In Table 3, we look at individual component rankings of the overall Business Environment index. The ten sub-rankings include rankings for Starting a Business, Dealing with Licenses, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Paying taxes, Trading across Borders, Enforcing Contracts and Closing a Business. As with the overall index, a high ranking (closer to 1) implies that the regulatory environment is conducive to doing business. Column 1 presents the full sample results where we find that except for Enforcing Contracts and Registering Property, all other aspects of the Business Environment have a significant impact on the growth of industries dominated by small firm shares. In particular, we find that small firm dominated industries grow faster than large firm dominated industries in countries where it is easy to start a business, obtain necessary licenses and permits, to export and import goods, and in countries with flexible labor regulations, low administrative burden in paying taxes, good credit information registries and effective collateral and bankruptcy laws that facilitate lending and good minority shareholder protections. When we look at different country income groups, we find that good minority shareholder protection and the ease of labor regulations has the most significant impact in easing the constraints of small firms in low income countries. In middle income countries, regulations related to export and import of goods are particularly important in easing the constraints on small firms. None of the interactions are significant when we look at the high income countries.

4.1 ROBUSTNESS

In Table 4 we present regressions using alternative definitions of Small Firm Share. We use three different cut-offs to define a small firm: 5, 10, and 100 employees respectively. The different cut-off points are highly correlated - the highest correlation coefficient is 0.9911 and is between the 5 and 10 employees cutoffs and the lowest correlation is 0.8738 and is between the 5 and 100 employees cutoff points.

We find that in the full sample specification, alternate definitions of small firm do not change the result. When we define small firms as those with 5 employees or less, we find that in the overall sample, the interaction of Small Firm Share and Business Environment is negative and significant suggesting that a better business environment disproportionately helps the growth of small firm industries compared to large firm industries. While the interaction term is negative in both low

and middle income countries it is not statistically significant. When we use the 10 employees definition of small firms, we find a similar result that a good business environment helps in the growth of small firm dominated industries and mainly so in low income countries where the interaction of Small Firm Share and the Business Environment Index is negative and significant, albeit at the 10% level. The results are stronger when we use a larger firm size cutoff of 100 employees. In unreported regressions, we find that in low income countries, investor protection regulations are most important for the growth of small firm dominated industries, regardless of the definition of Small Firm Share. We find no evidence that a good business environment has a disproportionate impact on the growth of small firm industries in either middle or high income countries using alternate definitions of Small Firm Share.

In Table 5, we examine the robustness of our results to different time periods. When we use growth rate in value added over the period 1980-2003, our results are confirmed. A good business environment has a disproportionate impact on the growth of small firm dominated industries and this is mainly in the low and middle income countries. We find no evidence of the business environment exerting a disproportionate impact on the growth of small firm industries in high income countries. When we look at growth rates over 1990-2003, we have only 157 observations in the low income sample. Hence we report results combining low and middle income countries as one category and high income countries as a separate category. We have weaker evidence that a good business environment has a disproportionately large impact on the growth of small firm industries. In the full sample and the sample with low and middle income countries, the interaction of Small Firm Share and the Business Environment Index is still negative but not significant.

CHAPTER FIVE
CONCLUSION

This study examines the link between small enterprises and the Business Environment by using detailed industry-level data on the share of employment generated by small firms.

The major results from our analyses are:

- A good business environment boosts the growth of industries that are naturally composed of small firms more than large-firm industries.
- While business regulations may affect the private sector as a whole, they seem to weigh most heavily on small firms, who in the absence of capacity and scale to deal with compliance are constrained in their growth by regulations.
- In particular, small firm dominated industries benefit from less stringent and more business friendly regulations associated with starting and closing a business, licensing requirements, exporting and importing, employment hiring and firing decisions, paying taxes, protecting investors and obtaining credit.
- In low income countries, small firm dominated industries can particularly benefit from better investor protection and less onerous employment protection measures.

  Our results are robust to alternate measures of the technological firm size of industries.

The results imply that factors which have been identified with industry dynamism, such as regulations associated with business formation and access to credit, have a significant role in determining the growth of small firm dominated industries. An important benefit of a good business environment is that it boosts growth by relieving constraints on the growth of small firms. The study has significant policy implications regarding the role governments and other aid institutions can play in creating and implementing an enabling environment.

CHAPTER SIX
THE NEXT STEPS

Early evaluations of small enterprises take a static, 'snapshot' approach relating the size of the small enterprise sector to economic performance. As discussed earlier, this approach understates the role of small firms because it does not recognize that the micro and small firms are the seedbed for business development and that large successful corporations start off as micro and small firms. To take an extreme example, if one had attempted to gauge the importance of SMEs in the automobile industry in the US in the 1950s using a static approach, one would have concluded that large firms like General Motors were the principal wealth creators. However, this static approach neglects the fact that at its inception the automobile industry consisted of several hundred small enterprises and that the eventual winners emerged from a process of dynamic selection over time. A correct evaluation of micro and small firms has to take into account that most large firms begin life as micro and small firms, and that a dynamic micro and small firm sector contributes to long-term growth by being an incubator for successful large organizations.

In this paper we addressed some of the factors that affect industry dynamism over time. However, because of data limitations, our unit of analysis is the industry. Thus, we use regression analysis to compare small firm dominated and large firm dominated industries, based on a US benchmark. In future, research could focus on the following for more understanding of the contribution of small and medium enterprises to economic growth. The analysis could be extended in two directions.

First, we suggest benchmarking across several countries since the industry structure in the US may depend on country specific factors, such as, for example, the large size of the domestic market. Therefore, using only US as benchmark might misclassify some industries in some countries, reducing the power of our tests.

Second, because this paper used the industry as the unit of analysis, it could not examine within industries to directly gauge their level of dynamism. For policy interventions, we need to know how the growth rates of large and small firms, and young and old firms, in an industry evolves over time and how these growth rates are affected by a country's business environment.

Therefore, in the next stage, we suggest that researchers use a within-industry data to construct **Indices of Industry Dynamism** for all industries in a set of benchmark countries. These indices will allow us to benchmark industries according to the turnover of firms and the share of output produced by the age of the firm. In more dynamic industries we would expect formerly small firms to produce a large share of the output in relatively few years compared to less dynamic industries where we would not expect the share of output to grow as fast with age, at least initially. Thus, we will be able to determine whether growth in each industry comes from the expansion of long-established large firms or from recent, smaller entrants. The index could be used to examine comparative performance of industries across countries, and determine how institutions affect industries with different dynamism scores. This analysis will allow us to comment on which features of the business environment promote the growth of dynamic industries.

While the present study gives us some indication of the critical business environment features such as investor protection and employment regulations for industry growth, these features may be less or even more important when we look at growth and turnover of dynamic versus non-dynamic industries. Future studies could explore the entire gamut of institutions and business environment factors ranging from natural endowments, property rights protection, legal institutions and financial markets to doing business regulations such as labor market regulations and regulations associated with starting or stopping a business. Furthermore, the analysis could include both developed and developing countries and allow different features of the environment to matter in different country income groups.

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FIGURE 1: AVERAGE BUSINESS ENVIRONMENT RANKINGS ACROSS COUNTRY INCOME GROUPS

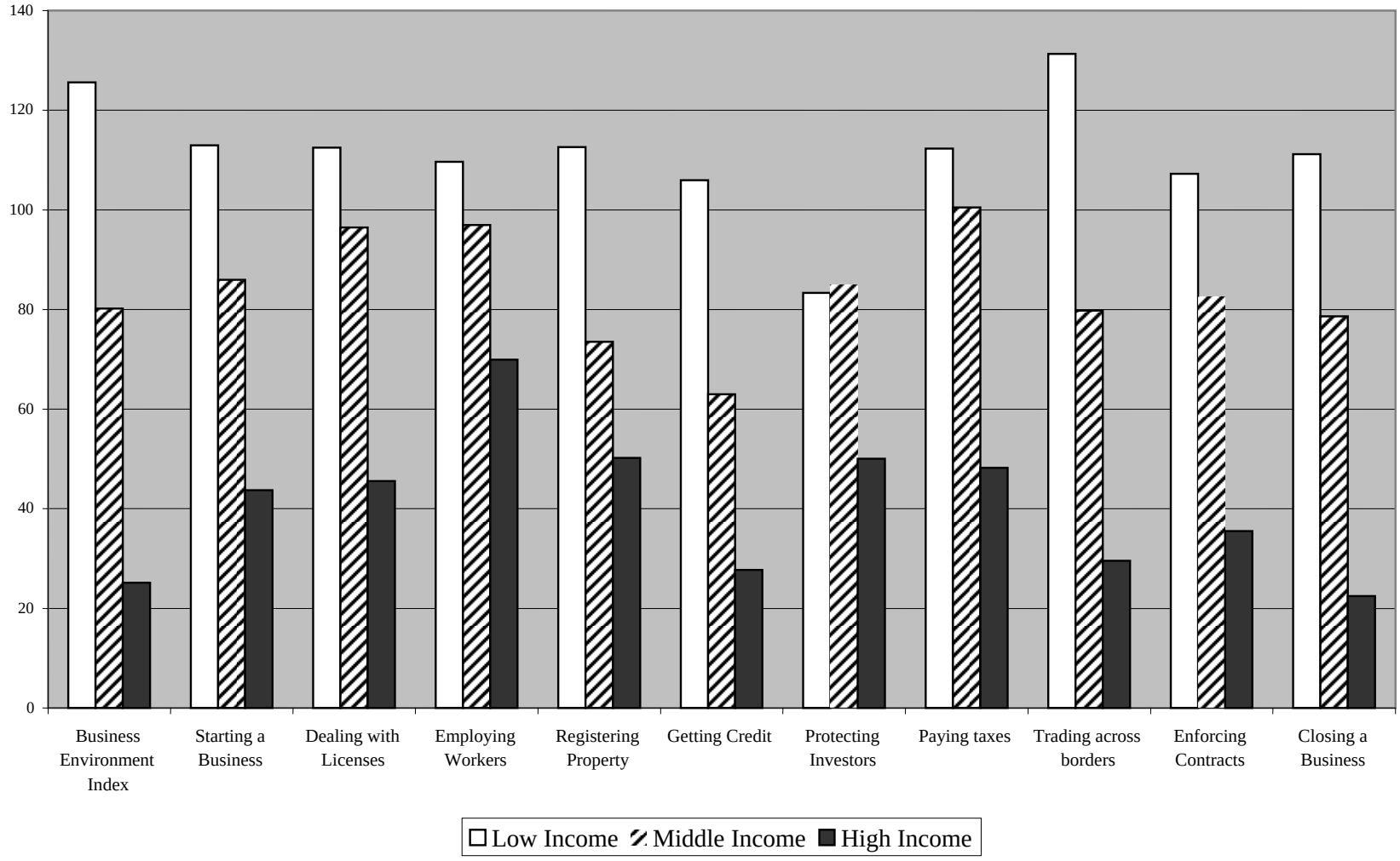

TABLE 1: FIRM SIZE DISTRIBUTION IN THE UNITED STATES IN 1992 FROM BECK ET AL. (2006)

This table shows employment shares by firm size in the United States by ISIC Revision 2 industries. S5, S10, S20, S100 and S500 are the industry's share of employment by firms with less than 5, 10, 20, and 100 employees and is calculated using data from the U.S. Census on all U.S. firms for the year 1992. Employment shares are expressed in percentages of total number of employees.

ISIC Code	Industry Sector	S5	S10	S20	S100
311	Food products	0.56	1.68	3.82	13.77
313	Beverages	0.6	1.76	4.04	14.75
314	Tobacco	0.09	0.2	0.3	1.49
321	Textiles	0.4	1.17	2.81	13.43
322	Apparel	1.3	3.6	8.18	31.74
323	Leather	1.94	4.78	10.45	36.89
324	Footwear	0.31	0.81	1.61	7.4
331	Wood products	4.2	11.2	21.37	47.31
332	Furniture	1.57	4.19	9.09	28.74
341	Paper products			3.03	16.16
342	Printing and publishing	3.64	9.16	16.32	35.8
351	Industrial chemicals	0.29	0.89	1.75	6.51
352	Other chemical products	0.87	2.68	5.8	17.67
353	Refineries	0.05	0.18	0.36	1.9
354	Petroleum and coal	1.26	3.93	9.26	29.8
355	Rubber products	0.38	1.21	3.15	13.23
356	Plastic products	0.69	2.24	6.09	27.19
361	Pottery	2.3	4.91	8.8	26.52
362	Glass and products	1.15	2.82	5.05	13.92
369	Non-metal products	1.87	5.88	14.17	40.78
371	Iron and steel	0.2	0.59	1.62	8.05
372	Non-ferrous metal	0.5	1.78	4.76	18.65
381	Metal products	1.28	4.07	9.98	33.87
382	Machinery	2.15	6.37	13.68	34.6
383	Electrical machinery	0.5	1.48	3.44	14.18
384	Transport equipment	0.18	0.54	1.21	4.2
385	Professional equipment	0.68	1.87	4.01	12.88
390	Other manufacturing	3.54	8.72	16.95	43.48

TABLE 2: BUSINESS ENVIRONMENT, SMALL FIRM SHARE AND INDUSTRY GROWTH

The regression model estimated is $Growth_{i,k} = \alpha + \beta Small\ Firm\ Share_k \times Business\ Environment_i + \gamma Industry\ Share_{i,k} + Country\ Dummies + Industry\ Dummies + \varepsilon_{i,k}$. The dependent variable is average growth in real value added over the period 1963-2003 by country and ISIC industry. Industry Share is the industry's initial share in total value added of the country's manufacturing sector. Small Firm Share is the industry's share of employment by firms with less than 20 employees, and is calculated using data from the U.S. Census on all U.S. firms for the year 1992. Business Environment is an aggregate ranking of the business environment in each country. All regressions include country and industry dummies, but these are not reported. Robust standard errors are in parentheses.

	1	2	3	4
	Growth in Real Value Added [1963-2003]			
	Full Sample	Low Income	Middle Income	High Income
Industry Share	-0.011[a]	-0.336[a]	-0.008[a]	-0.119[a]
	[0.004]	[0.086]	[0.002]	[0.042]
Small Firm Share x Business Environment	-0.002[b]	-0.005[c]	-0.002	0.001
	[0.001]	[0.003]	[0.001]	[0.001]
Constant	0.013[a]	0.143[a]	-0.387[a]	0.032[a]
	[0.005]	[0.035]	[0.035]	[0.006]
Observations	2384	591	1026	739
Number of countries	100	30	42	28
R-squared	0.883	0.658	0.936	0.857

[c], [b], and [a] represent significance at 10, 5 and 1% respectively.

TABLE 3: COMPONENTS OF THE BUSINESS ENVIRONMENT

The regression model estimated is $Growth_{i,k} = \alpha + \beta Small\ Firm\ Share_k$ x Component of Business $Environment_i + \gamma Industry\ Share_{i,k}$ + Country Dummies + Industry Dummies + $\varepsilon_{i,k}$. The dependent variable is average growth in real value added over the period 1963-2003 by country and ISIC industry. Industry Share is the industry's initial share in total value added of the country's manufacturing sector. Small Firm Share is the industry's share of employment by firms with less than 20 employees, and is calculated using data from the U.S. Census on all U.S. firms for the year 1992. Component of Business Environment is one of the following rankings for Starting a Business, Dealing with Licenses, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Paying Taxes, Trading across Borders, Enforcing Contracts and Closing a Business. All regressions include country and industry dummies, but these are not reported. Robust standard errors are in parentheses. Each cell represents a regression.

	1	2	3	4
	Growth in Real Value Added [1963-2003]			
	Full Sample	Low Income	Middle Income	High Income
Small Firm Share x Starting a Business	-0.002[b]	-0.002	-0.001	-0.001
	[0.001]	[0.002]	[0.001]	[0.001]
Small Firm Share x Dealing with Licenses	-0.001[b]	0	-0.001	0.001
	[0.001]	[0.002]	[0.001]	[0.001]
Small Firm Share x Employing Workers	-0.001[c]	-0.004[c]	-0.001	0.001
	[0.001]	[0.002]	[0.001]	[0.000]
Small Firm Share x Trading across Borders	-0.001[b]	0.002	-0.004[b]	0.001
	[0.001]	[0.003]	[0.002]	[0.001]
Small Firm Share x Paying Taxes	-0.001[c]	-0.002	-0.001	0.001
	[0.001]	[0.002]	[0.001]	[0.001]
Small Firm Share x Closing a Business	-0.001[b]	-0.001	-0.001	0.001
	[0.001]	[0.002]	[0.001]	[0.002]
Small Firm Share x Enforcing Contracts	-0.001	0	-0.001	0.001
	[0.001]	[0.002]	[0.001]	[0.001]
Small Firm Share x Protecting Investors	-0.008[c]	-0.048[b]	0.003	0.001
	[0.004]	[0.023]	[0.006]	[0.004]
Small Firm Share x Getting Credit	-0.020[a]	-0.046	-0.018	0.003
	[0.008]	[0.028]	[0.012]	[0.008]
Small Firm Share x Registering Property	-0.001	-0.001	0	0
	[0.001]	[0.002]	[0.001]	[0.001]

[c], [b], and [a] represent significance at 10, 5 and 1% respectively.

TABLE 4: ROBUSTNESS CHECK – ALTERNATE SMALL FIRM SHARE DEFINITIONS

The regression model estimated is $Growth_{i,k} = \alpha + \beta Small\ Firm\ Share_k \times Business\ Environment_i + \gamma Industry\ Share_{i,k}$ + Country Dummies + Industry Dummies + $\varepsilon_{i,k}$. The dependent variable is average growth in real value added over the period 1963-2003 by country and ISIC industry. Industry Share is the industry's initial share in total value added of the country's manufacturing sector. Small Firm Share is the industry's share of employment by firms with less than 5 employees in columns 1-4, less than 10 employees in columns 5-8, less than 100 employees in columns 9-12. Business Environment is an aggregate ranking of the business environment in each country. All regressions include country and industry dummies, but these are not reported. Robust standard errors are in parentheses.

Growth in Real Value Added [1963-2003]												
	Full Sample	Low Income	Middle Income	High Income	Full Sample	Low Income	Middle Income	High Income	Full Sample	Low Income	Middle Income	High Income
Industry Share	-0.012[a]	-0.338[a]	-0.009[a]	-0.121[a]	-0.012[a]	-0.338[a]	-0.009[a]	-0.121[a]	-0.011[a]	-0.334[a]	-0.008[a]	-0.117[a]
	[0.004]	[0.086]	[0.002]	[0.044]	[0.004]	[0.087]	[0.002]	[0.044]	[0.004]	[0.086]	[0.002]	[0.042]
Small Firm Share (<5 employees) x Business Environment	-0.008[b]	-0.019	-0.006	0.002								
	[0.004]	[0.012]	[0.006]	[0.005]								
Small Firm Share (<10 employees) x Business Environment					-0.003[b]	-0.007[c]	-0.003	0.001				
					[0.001]	[0.004]	[0.002]	[0.002]				
Small Firm Share (<100 employees) x Business Environment									-0.001[a]	-0.002[b]	-0.001	0.001
									[0.000]	[0.001]	[0.001]	[0.000]
Constant	0.013[a]	0.138[a]	-0.371[a]	0.032[a]	0.013[a]	0.140[a]	-0.370[a]	0.032[a]	0.012[b]	0.158[a]	-0.384[a]	0.032[a]
	[0.005]	[0.034]	[0.039]	[0.007]	[0.005]	[0.034]	[0.040]	[0.007]	[0.005]	[0.037]	[0.036]	[0.006]
Observations	2290	567	985	711	2290	567	985	711	2384	591	1026	739
R-squared	0.88	0.645	0.935	0.852	0.88	0.645	0.935	0.852	0.883	0.659	0.936	0.857

[c], [b], and [a] represent significance at 10, 5 and 1% respectively.

TABLE 5: ROBUSTNESS CHECK – ALTERNATE TIME PERIODS

The regression model estimated is $Growth_{i,k} = \alpha + \beta Small\ Firm\ Share_k \times Business\ Environment_i + \gamma Industry\ Share_{i,k} + Country\ Dummies + Industry\ Dummies + \varepsilon_{i,k}$. The dependent variable is average growth in real value added over the period 1980-2003 in columns 1-4 and over 1990-2003 in columns 5-8. Industry Share is the industry's initial share in total value added of the country's manufacturing sector. Small Firm Share is the industry's share of employment by firms with less than 20 employees, and is calculated using data from the U.S. Census on all U.S. firms for the year 1992. Business Environment is an aggregate ranking of the business environment in each country. All regressions include country and industry dummies, but these are not reported. Robust standard errors are in parentheses.

	1	2	3	4	5	6	7
	Growth in Real Value Added [1980-2003]				Growth in Real Value Added [1990-2003]		
	Full Sample	Low Income	Middle Income	High Income	Full Sample	Low & Middle Income	High Income
Industry Share in 1980	-0.100[b]	-0.197[a]	-0.088	-0.085[c]			
	[0.048]	[0.070]	[0.087]	[0.047]			
Industry Share in 1990					-0.149[a]	-0.272[a]	-0.117
					[0.043]	[0.072]	[0.091]
Small Firm Share x Business Environment	-0.002[b]	-0.008[c]	-0.003[c]	0	-0.000	-0.002	0.003
	[0.001]	[0.004]	[0.001]	[0.001]	[0.001]	[0.003]	[0.002]
Constant	0.034[a]	0.127[a]	0.034	0.030[a]	0.038[a]	0.020	0.025[b]
	[0.009]	[0.027]	[0.046]	[0.008]	[0.008]	[0.026]	[0.012]
Observations	1703	341	655	679	1186	682	504
R-squared	0.85	0.756	0.91	0.806	0.854	0.91	0.546

[c], [b], and [a] represent significance at 10, 5 and 1% respectively.