Enterprise Development and Microfinance, 32:4, 235–248
<http://dx.doi.org/10.3362/1755-1986.20-00017>

Microfinance and business regulations in emerging markets

Nicholas A. Lash and Bala Batavia

Abstract: *The rapid expansion of microfinance has been uneven across emerging market countries. Our study examines whether the regulatory and legal environment for small and medium enterprises (SMEs) associated with microfinance institution (MFI) lending in informal markets may be part of the explanation. Our study of 51 emerging market countries for the period 2007–2015 used two measures of MFI lending: 1) the market penetration index (PI) which reflects MFI outreach and 2) gross loan portfolio per capita (GLP) which gauges the volume of MFI lending. Based on our search, this is the first study to incorporate both measures of MFI lending. We find that excessive regulation and weak legal institutions are associated with less MFI lending both in terms of outreach (PI) and loan volume (GLP). Hence, the international differences in MFI expansion may be partially attributable to business-unfriendly regulations and legal structures.*

Keywords: microfinance institutions, microenterprises, government regulation, emerging markets, small and medium entrepreneurs

Introduction

Small and medium enterprises (SMEs) make an important contribution to innovation that Schumpeter (1934) and others asserted was the major force behind economic growth and development. As Beaugrand (2004: 12) put it, 'poor countries should embrace a dynamic approach to economic growth. Development is foremost a process of transformation, or evolution.' He asserts that innovation in poor countries is most likely to evolve from individual and homegrown small businesses.

Aside from inspiring innovation, small business plays a critical role in providing employment. Ayyagari et al. (2014) found that small firms create most new jobs and have the highest employment growth in developing countries. In the emerging market countries, SMEs account for much of the private sector and half of total employment (Ayyagari et al., 2007). According to the World Bank (2011), SMEs are major sources of competition, growth, and employment, especially in emerging markets where up to 80 per cent of economic activity takes place in the informal sector. De Soto (1989) found that in Peru 48 per cent of the economically active population, 60 per cent of all work hours, and 38.9 per cent of GDP emanated from the informal sector. Similarly, Gerxhani (2004) cited evidence of very large informal markets in Latin America, Asia, and Africa. Yet, the World Bank (WB)

Nicholas A. Lash (nlash@luc.edu), Loyola University Chicago;
Bala Batavia (BBATAVIA@depaul.edu), DePaul University, Chicago

(2011) reported that firms in the informal sector have less credit accessibility which, according to de Soto (2000) and Paulson and Townsend (2004), limited small firm creation and expansion. These firms typically require small loans (usually ranging from US$50 to $1,000 in emerging markets). Unable to secure funding elsewhere, they rely heavily on family and friends for two-thirds of their funding (Paulson and Townsend, 2004). Mainstream lending institutions, such as commercial banks, traditionally have avoided small loans to small enterprises due to their high costs and risk.

To help fill this funding gap, the microfinance movement, which was popularized by the Grameen Bank in 1983, and the remarkable100 per cent repayment rate for Grameen's first microloans, accelerated the subsequent global growth of microfinance. 'If the growth of microfinance has demonstrated nothing else, large numbers of low-income borrowers can be served while achieving a remarkably high level of repayment. Billions of dollars in loans to over two hundred million borrowers are outstanding and … only 2–3% of those are delinquent in recent years' (Cull et al., 2014: 2). The rapid growth of the microfinance institution (MFI) sector reflects the existence of the large role played by bottom-up, informal finance in developing countries (Waller and Woodworth, 2001). The potential contribution of MFIs is especially important for poverty reduction in lower-income economies such as in emerging market countries. Despite this rapid growth of microfinance, its development in the last couple of decades has been concentrated in a few large institutions and has been much more extensive in some countries than others (Honohan, 2004; Vanroose, 2008).

Formal business regulation and informal MFI lending

The focus of this study is to measure the indirect relationship between formal business regulations and legal institutions on microfinance activity in informal markets. However, before doing so, we find it instructive to briefly review the adverse impact of regulations specific to microfinance. The rapid expansion of MFIs since 1983 has turned increasing attention to appropriate government policy and regulations of MFIs, and there has been an increased call for even more (Cull et al., 2011). Yet, regardless of any benefits, regulations can result in high costs that would be especially burdensome on small MFIs which lack both the scale and necessary staff for compliance. MFIs could react by passing on some of the high regulatory costs by raising loan rates (Ahlin et al., 2011). If authorities were to respond by imposing loan rate ceilings, MFIs have been found to react by increasing loan size, thereby increasing credit to more affluent customers at the expense of low-income borrowers including women (Cull et al., 2009, 2011). Furthermore, regulations sometimes incentivize evasion through bribery (Manzetti and Blake, 1996; Elliot, 1997; Lash and Batavia, 2013; Holcombe and Boudreaux, 2015).

In contrast to regulation of MFIs, our study, focuses on the indirect relationship of business overregulation and weak legal structures in the formal markets on MFI lending in informal markets. The impact is not unambiguous as there are three possible outcomes. First, there could be almost no impact whatsoever due to the

little interaction between the formal and informal markets. The general perception has been that MFIs operate in localized, niche markets separately from economic conditions, regulations, and formal lenders such as banks. Also if microenterprises (MEs) limit their activities primarily to informal markets, they may be unaffected by formal sector conditions. For example, Patel and Srivastava (1996) found that the official and unofficial sectors of the Indian economy operate separately from each other.

Yet, as will be discussed in the section 'Independent variables', several studies have found that macroeconomic factors such as inflation, economic growth, GDP, and corruption are associated with microfinancial activity, thereby implying that informal markets do not operate in isolation. Therefore, formal institutions, such as regulations and legal institutions, might also, akin to macroeconomic conditions, influence informal markets. If so, there are two competing possibilities. On the one hand, business-unfriendly conditions may boost MFI lending as potential borrowers such as MEs escape to the informal sector (de Soto, 2000). On the other hand, such an unfavourable environment may constrain, not only SMEs in formal markets, but also MEs operating in informal markets. Cull et al. (2011) and Ahlin et al. (2011) found evidence of such a relationship. In particular, Cull et al. (2014) find that commercial bank expansion leads MFIs to increase their outreach to poorer MEs, particularly women. Business-friendly formal institutions may be a prerequisite for MEs which could incentivize the development of new investment projects requiring credit from MFIs. Of these three possibilities, this study investigates the following hypothesis: excessive regulation of formal businesses along with weak legal institutions represents an environment that suppresses business activity in both formal and informal markets.

It should be noted that there exists an important question as to whether the WB's definition of SMEs includes MEs because each country has its own definition. An Independent Evaluation Group report (2019) found that the WB often conflates the two, and a number of WB microfinance studies have used SME data to represent MEs. Given this uncertainty, we find it prudent to assume that MEs, which are overwhelmingly women-owned, sole proprietorships often engaged in petty trading, are distinct from formal SMEs and their regulatory and legal environments.

Method

Data

Our study used cross-section, annual data for 51 countries for the period 2007–2016 resulting in a sample size of 290 data points. The data for the two dependent variables, market penetration index (PI) and gross loan portfolio per capita (GLP), are from MIX Market. Our sample of emerging market countries was narrowed significantly due to missing data. In addition, for our time period, we encountered many, especially lower-income countries that had missing data required for our testing. After removing countries with insufficient data, we ended up with 51 countries for the period 2007 to 2016. Among the deleted were countries with large populations such as Bangladesh, China, Indonesia, and the Philippines. The corruption variable

is derived primarily from Transparency International's Corruption Perceptions Index which measures the level of corruption for various countries. The remaining control variables came from the World Bank.

Dependent variables: PI and GLP

The PI is the number of MFI borrowers per capita, and is a key measure of microfinance performance (Vanroose, 2008; Krauss et al., 2012) However, Krauss et al. (2012) point out that the PI may sometimes overstate MFI lending because some borrowers who borrow from more than one institution would be double-counted. Our second measure, GLP is defined as 'Outstanding principal for all loans, including current, delinquent and restructured loans, but not loans that have been written off' which is divided by population (MIX Market, 2013). The PI's focus on number of borrowers is a measure of MFI outreach whereas GLP calculates gross loans per population. Each of these two measures of MFI lending activity provides a different, yet important, perspective of MFI lending and so we employ both as dependent variables. The correlation between these two variables was 0.77 for the period 2007–2016.

Independent variables: ease of doing business indicators (DB)

The independent variables that are the focus of our study are nine ease of doing business indicators (DB) computed by the World Bank (WB) in its annual series of *Doing Business*. Believing that overregulation and weak legal institutions have significantly hampered the growth and development of SMEs, the WB analyses the impact of government laws and regulations on the establishment, management, and termination of SMEs operating in formal markets. On the basis of the indicators, the WB ranks countries by the ease of doing business for local entrepreneurs who, complying with regulations, open and operate SMEs. The rankings are a simple average of nine indicators such as starting a business and getting credit (see Table 1). In 2020, the number of indicators had grown to 12. Although the indicators focus on overregulation, they also provide measures of the strength of legal institutions which deal with laws as shown in Table 1. Each indicator is itself a simple average of several components that include metrics such as number of procedures and costs of regulation. The WB found that more complex procedures did not produce any better results than the simple averages. Table 1 provides a description of the nine DB indicators and their components. While a number of the indicators such as obtaining construction contracts and protecting investors may have little direct link with MEs, our study uses them as a gauge of the overall business environment, which, similar to macroeconomic conditions, may indirectly affect informal markets.

We faced several constraints in gathering data for the DB indicators. Because the WB's *Doing Business* annual (DB) series started in 2003, we could not incorporate earlier data. For example, we used nine indicators and did not include a tenth, getting electricity, because its series did not start until 2006. In addition, there were missing data for a number of countries, especially lower-income ones.

Table 1 *Doing Business: 2015*, DB indicators and their components

Indicator	*Indicator components*
Regulatory indicators	
Starting a business	Procedures, time, cost, and paid-in minimum capital to open a new business
Dealing with construction permits	Procedures time and cost
Registering property	Procedures, time, and cost, public and private coverage
Paying taxes	Payments, time, cost, and tax rate
Trading across borders	Documents, time, and cost to export and import
Legal indicators	
Getting credit	Strength of legal rights index, depth of credit information index
Protecting investors	Extent of disclosure index, extent of director liability index, ease of shareholder suits index, and investor protection index
Enforcing contracts	Procedures, time, and cost
Resolving insolvency	Time, cost, recovery rate in bankruptcy

Source: Annual Reports: World Bank (2011)

DB: the five regulation indicators

- *Starting a business*. Especially important for small enterprise borrowers is the ability to fund a startup, but starting a business is very risky and regulations and red tape can significantly increase the costs. However economies with reasonable regulation have greater business density and higher entry rates (World Bank, 2011).
- *Dealing with construction permits*. Kenny (2007) asserts that appropriate regulations based on transparency and subject to enforcement are more effective than voluminous but poorly enforced regulation. Unfortunately, however, the WB (2010: 31) reports that excessively complicated rules raise costs and increase corruption and result in well over half of construction projects in developing countries lacking permits.
- *Registering property*. Private property rights are vital to lending and so are a vital source of economic growth and development (de Soto, 2000). For example, bank loans normally require a proper title for property to serve as collateral. Yet, property markets will not operate efficiently if the prospective borrower is without title, formal property transfer is overly costly or complicated, or if courts are inefficient. These constraints can drive business underground (de Soto, 2000). Thus, it is essential that the government establish an efficient and objective judicial system that reaches decisions in a timely manner. Crabb (2008), however, did not find that property rights affected MFIs.
- *Paying taxes*. Among the major restraints that SMEs face are high tax rates, and the problem is exacerbated by the complexity and time required to make tax

payments (World Bank, 2011: 54). The World Bank (2011: 44) estimates that, globally, on average a standard SME spends three working days a month to comply with tax regulations. Although high taxes in formal markets could channel more business activity to MFIs in informal markets, Fisman and Svennson (2007) found that, instead, heavy tax burdens reduce MFI lending.

- *Trading across borders*. With increased globalization, it has become increasingly necessary for all firms, including SMEs, to be able to engage in international markets. However, excessive paperwork, red tape, prolonged custom procedures, and inadequate infrastructure can limit SME participation in international markets. Yet, Crabb (2008) found that freer trade had a negative relationship with MFIs.

DB: the four legal institutions indicators

- *Getting credit*. In a survey, business managers from 108 economies stated that their number one restriction was a lack of credit access and less than one-third of the world's credit bureaus covered MFIs (World Bank, 2011). If governments facilitate making more credit information available, such as through credit information registries that share information, there will be less risk, improved credit access, and a more efficient allocation of funding.
- *Enforcing contracts*. For SMEs to expand operations beyond acquaintances and into new markets, it's essential that contracts be enforced effectively and transparently. Fortunately, there has been movement among a number of countries to improve the process through special commercial courts and employment of new technology. The basic foundation of enforcing contracts is a high-quality, honest, and independent judiciary.
- *Resolving insolvency*. For otherwise viable enterprises that are struggling temporarily due to poor decisions and/or economic downturns, it's often best to keep such firms afloat. What's necessary is an effective bankruptcy system that is able to distinguish between the potentially viable and the hopeless.
- *Protecting investors*. This DB indicator is relevant for the larger and public-owned SMEs and not directly relevant to MFIs. It refers to requiring disclosure and information access for minority investors thereby facilitating their monitoring of their companies. The provision of this information facilitates raising capital in financial markets.

Macroeconomic control variables

Based on previous research, we used six macroeconomic control variables.

- *GDP per capita*: Honohan (2004) found that higher per capita income was associated with lower microcredit penetration. He found that a combination of a low-income market combined with good institutions helped the microfinance industry to grow. In contrast, Vanroose (2008) found that, contrary to her expectations, microfinance had greater outreach in regions with high per capita income. She suggests that possibly a certain minimum level of income is necessary for MFI outreach.

- *Growth of GDP per capita*. Ahlin et al. (2011) found that economic growth improves MFI performance but also leads to larger loan size that could mean proportionally less credit to smaller borrowers. Hermes and Meesters (2011) found that growth improves MFIs performance by reducing inefficiency.
- *Inflation*. Numerous studies, such as by Ahlin et al. (2011), Goldfajn and Rigobon (2000), Rhyne (2001), Cull et al. (2011), and Vanroose and D'Espallier (2009), found inflation to retard financial and MFI development. In contrast, Hartarska and Nadolnyak (2007: 1217) found that 'MFIs seem to have developed sufficient safeguards and perform successfully in highly inflationary environments'. Ahlin et al. (2011) drew a similar conclusion finding that MFIs could pass the inflation on to customers in the form of higher interest rates. Unlike all of the above, Vanroose (2008) did not find inflation to have any statistically significant impact.
- *Government spending*. Government spending on infrastructure could increase MFI access to rural MEs. Also, Hubka and Zaidi (2005) cite positive effects from government support of microfinance such as Thailand's Bank for Agriculture and Agriculture Cooperatives. In addition, government spending has funded MFIs, such as in Bangladesh. Conversely, Crabb (2008) evidence of government spending crowding out private markets that could include the informal sector.
- *Financial development*. Financial sector development is measured by the provision of financial resources by financial institutions to the private sector as a percentage of GDP. As Hermes and Meesters (2011) point out, a developed financial system characterized by a healthy banking sector could improve MFI performance both by spurring greater efficiency and by providing successful templates for MFIs to copy. Moreover, MFIs would have greater access to financial services. Furthermore, Ahlin et al. (2011) found that financial development leads to lower MFI default and operating costs. On the other hand, Vanroose and D'Espallier (2009) found evidence suggesting a less-developed financial system provides greater opportunities for MFIs to fill funding gaps for SMEs.
- *Corruption*. Fisman and Svennson (2007) found that corruption can slow SME growth and consequently MFI activity. Ahlin et al. (2011: 115) found that corruption hinders MFI establishment and growth. Yet, corruption could instead encourage businesses to seek out MFIs in more informal markets. Also, businesses could benefit from corruption if it reduced regulatory costs. Nonetheless, neither Crabb (2008) nor Hermes and Meesters (2011) found corruption to significantly affect MFI performance in one direction or another.

Procedure

Our procedure was to regress PI on the DB indicators and macroeconomic variables, eliminate those variables insignificant at the 5 per cent confidence level, and then again regress the PI on the remaining statistically significant independent variables. A potential problem is that multicollinearity can arise if highly interrelated predictors are examined together in a regression model. Multicollinearity has several

potentially undesirable consequences: parameter estimates that fluctuate dramatically with negligible changes in the sample, parameter estimates with signs that are theoretically wrong, theoretically important variables with insignificant coefficients, and the inability to determine the relative importance of collinear variables. We used the variance inflation factor (VIF) to determine the degree of multicollinearity among independent variables as suggested by Greene (2016).

Also, in analysing the results, it's important to note that the DB ranking assigns the lowest numerical values to those indicators where doing business is easiest. Therefore, if doing business conditions are easiest (lowest numerical values), and lending is robust such that PI and GLP would have the highest numerical values, then the regression coefficients of the DB indicators would be negative.

Results

PI results

It should be noted that these results investigate the direct relationship, if any, between MFIs and the regulatory and legal environment for formal businesses as represented by SMEs. The relationship between MFI lending and these environments, as discussed previously, would be indirect. As mentioned previously, an Independent Evaluation Group (2019) report noted that the WB often conflates SMEs and MEs.

In our first test, we regressed the MFI outreach variable (PI) on the nine DB indicators and seven macroeconomic variables. We employed the following regression model:

$$\mathrm{PI}_{tj} = \alpha + \beta_E E_{tj} + \beta_M M_{tj} + e_{tj} \quad (1)$$

where PI is the MFI outreach measure, E is a set of DB indicators, M is a set of macroeconomic variables and where t refers to time period and i refers to country. The model was respecified by eliminating the variables with the highest VIF values until all variables with a VIF above 2.5 were deleted. The results are presented in Table 2. The results of the PI regression were an R^2 of .21, and nine independent variables were significant at the 5 per cent level of which six were DB indicators and three were macroeconomic variables.

Five of the DB indicators had negative signs that are directly associated with more favourable business environments for SMEs and, indirectly, more MFIs lending in countries that have lower taxes, and where it would be easier to get construction permits, engage in international trade, and resolve insolvency. However, in contrast, two DB indicators had positive signs and so suggest that MFI lending would be greatest where it is difficult to start a business, get credit, or resolve insolvency. These results imply an indirect relationship between MFI lending and the formal regulatory and legal environment. In addition, three of four statistically significant macroeconomic variables were found to have a relationship between high PI and high GDP per capita along with low inflation and corruption.

Table 2 Regression of PI on DB indicators **(in bold)** and macroeconomic variables

Indicators	*Coefficients*	*Standard error*	t *value*	*Revised VIF*
Starting Business	.0008849	.0003853	2.30**	1.72
Paying taxes	–.0013411	.0003801	–3.53***	1.66
Construction permits	–.0007331	.0003734	–1.96**	1.34
International trade	–.0009483	.0003841	–2.47***	1.79
Protecting investors	–.0007549	.000401	–1.88*	1.82
Getting credit	.0012493	.0003463	3.61***	1.50
Resolving insolvency	–.0015565	.0004296	–3.62***	1.21
Financial development	.0059431	.0008626	6.89 ***	1.84
GDP per capita	–.0000153	.0000053	–2.87***	2.10
Inflation	–.0031331	.0016979	–1.85*	1.09
Corruption	–.0049321	.0019791	–2.49**	1.94
Constant	.5827535	.1257667	4.63***	

Notes: $N = 424$, $R^2 = 0.210$, adjusted $R^2 = 0.189$

*, **, and ***: significance at the 10%, 5%, and 1% levels, respectively

GLP results

In the second test, we used the regression model identical to the one above, but substituted the GLP for PI as the dependent variable.

$$\mathrm{GLP}_{tj} = \alpha + \beta_E E_{tj} + \beta_M M_{tj} + e_{tj} \quad (2)$$

Again E is a set of DB indicators, M is a set of macroeconomic variables, and t refers to time period and i refers to country.

The results are in Table 3. The R^2 was .17 and there were eight statistically significant variables at the 10 per cent level. Of these, four were DB indicators and three, other than starting a business, had negative signs: registering property, construction permits, and protecting investors, which are associated with the view that business-inhospitable environments have an adverse, indirect effect on MFI lending. Among the macroeconomic variables, higher loan volume would be associated with greater financial development and less inflation, government spending, and corruption.

Analysis and comparison of the PI and GLP results

Table 4, which is derived from Tables 2 and 3, shows that except for the enforcing contracts indicator, all eight of the remaining DB indicators, regardless of whether measuring regulation or legal institutions, are linked either to MFI outreach (PI), loan volume (GLP), or both. Tables 2 and 3 show that our model fits PI somewhat better than GLP. The R^2 is slightly higher, .21 vs .17, and the PI model has seven significant indicators, four of which are highly significant at the 1 per cent level.

Table 3 Regression of GLP on DB indicators (in bold) and macroeconomic variables

Indicators	*Coefficients*	*Standard error*	t *value*	*Revised VIF*
Starting business	.0093697	.0042192	2.22**	1.70
Registering property	–.010983	.0033327	–3.30***	1.25
Construction permits	–.0078153	.0040162	–1.95*	1.28
Protecting investors	–.0067401	.0040367	–1.67*	1.53
Financial development	.0453894	.0087437	5.19***	1.57
Inflation	–0.0553968	.0185198	–2.99***	1.09
Government spending	–.0280173	.0104419	–2.68***	1.27
Corruption	–.0750679	.0185616	–4.04***	1.43
Constant	6.651204	1.382852	4.81***	

Notes: $N = 424$, $R^2 = 0.170$, adjusted $R^2 = 0.154$

*, **, and ***: significance at the 10, 5, and 1% levels, respectively

Table 4 Comparison of PI (outreach) and GLP (loan volume): statistically significant DB indicators (in bold) and macroeconomic variables from Tables 2 and 3

Statistically significant for both PI and GLP	Statistically significant for PI only	Statistically significant for GLP only
Starting a business: positive	**Taxes: negative**	**Registering property: negative**
Getting construction permits: negative	**Trade: negative**	Government spending: negative
Protecting investors: negative	**Getting credit: positive**	
Inflation: negative	**Resolving insolvency: negative**	
Financial development: positive	GDP per capita: negative	
Corruption: negative		

In contrast, the GLP model has only three significant indicators of which one is highly significant, and the other two are significant at only the 10 per cent level. While both regression results suggest that lighter regulations and stronger legal institutions are indirectly associated with more MFI lending, the impact is greater on the number of borrowers (PI) rather than on loan volume (GLP). For example, the results may suggest that making it easier to pay taxes, engage in international trade, and resolve insolvencies, may indirectly increase MFI outreach to borrowers, but not loan volume. Though it's difficult to see any direct link, perhaps the same loan volume is disbursed over more borrowers indicating smaller-size loans possibly to more lower-income borrowers. Making it easier to engage in exporting agricultural goods and especially reducing taxes could mean more opportunities for small businesses, though the link with MEs is less obvious. The World Bank (2015) found economies with better insolvency procedures have more credit available for private businesses that presumably could include the largest SMEs (see Table 4).

Conversely, our results found that facilitating property registration may increase loan volume but not outreach. This could be due to businesses operating more openly as de Soto (2000) found that excessive property registration procedures drive businesses underground. However, as outreach is not affected, this would suggest that average loan size is increased. Yet, as Ahlin et al. (2011: 112) point out, it could also reflect that average-sized micro borrowers are able to expand operations to exploit scale economies thereby increasing self-sufficiency and contributing to economic development.

Among the macroeconomic variables, both lending models found that less inflation, better financial development, and less corruption encouraged MFI lending which is consistent with the literature cited previously. Higher GDP economies had fewer borrowers, possibly reflecting a relatively lower need. We found that more government spending was related to lower MFI loan volume which suggests that such crowding out of private credit may trickle down even to microloans. In contrast to earlier studies, we did not find MFI lending to be associated with GDP growth (Ahlin et al., 2011; Hermes and Meesters, 2011).

Major implications of the results

The major inference is that these results reject the hypothesis that the informal microfinance sector is insulated from restrictions in the formal sector. The existence of a connection between the two sectors is further fortified by the results that show that five of the eight macroeconomic measures were also statistically significant.

Also, of significant importance is that six of the eight statistically significant DB indicators had negative signs. The major implication of these results supports our hypothesis that excessive regulation of formal businesses along with weak legal institutions represent an oppressive environment for all businesses including those that do not use formal institutions, but instead operate in informal markets. Hence, these findings reject the alternative hypothesis that such conditions encourage MEs to escape to informal markets to such a degree that MFI lending would actually increase. These results suggest that differences in regulatory and legal institutions among emerging market countries may explain some of the differences in the uneven growth of microfinance.

Summary and conclusions

In investigating the uneven growth of microfinance institutions in emerging market countries, we found that overregulation and weak legal institutions are indirectly associated with limiting MFI loan volume per capita and especially the number of MFI borrowers per capita. In some cases, the impact was on outreach as measured by the number of borrowers, in others on loan volume, and yet in others on both. MFI lending was negatively related to six of eight of the DB indicators of the regulatory and legal environments for SMEs such as obtaining construction permits, registering property, paying taxes, trading internationally,

protecting investors, and resolving insolvency. Hence our results reject the hypothesis that repressive regulations and weak legal institutions on SMEs in the formal markets have no influence on MFI lending. In addition, our results also do not support the hypothesis that such an environment boosts MFI lending. On the contrary, our results provide evidence supporting our hypothesis that the same regulatory and legal environment that discourages formal businesses such as SMEs also reduces microfinance lending in informal markets. Such results may help explain the disparity of MFIs across emerging market countries. In addition, the results for macroeconomic measures imply that MFIs lending in emerging markets flourish where there is the most financial development and the least inflation and corruption. These results are consistent with the numerous studies cited earlier. The policy implications support the World Bank's proposal that regulations should be 'designed to be efficient, accessible to all and simple in their implementation' (World Bank (2011: v). To do so would not only increase economic efficiency but would also indirectly increase MFI lending, thereby supporting the neediest entrepreneurs, in particular women.

References

Ahlin, C., Lin, J. and Mayo, M. (2011) 'Where does microfinance flourish? Microfinance institution performance in macroeconomic context', *Journal of Development Economics* 95(2): 105–20 <https://doi.org/10.1016/j.jdeveco.2010.04.00>.

Ayyagari, M., Beck, T. and Demirguc-Kunt, A. (2007) 'Small- and medium- enterprises across the globe', *Small Business Economics* 29(4): 415–34 <https://doi.org/10.1596/1813-9450-5631>.

Ayyagari, M., Demirguc-Kunt, A. and Maksimovic, V. (2014) 'Who creates jobs in developing countries?' *Small Business Economics* 43(1): 75–99 <https://doi.org/10.1016/j.jdeveco.2010.04.004>.

Beaugrand, P. (2004) 'And Schumpeter Said, "This is how thou shalt grow": The further quest for economic growth in poor countries', *IMF Working Paper*, International Monetary Fund, Washington, DC.

Crabb, P. (2008) 'Economic freedom and the success of microfinance institutions', *Journal of Developmental Entrepreneurship* 13(2): 205–19 <https://dx.doi.org/10.2139/ssrn.927033>.

Cull, R., Demirguc-Kunt, A. and Morduch, J. (2009) 'Microfinance tradeoffs, regulation, competition and financing', *World Bank Research Working Paper 5086*, World Bank, Washington, DC.

Cull, R., Demirguc-Kunt, A. and Morduch, J. (2011) 'Does microfinance regulation curtail profitability and lending?' *World Development* 39(6): 949–65 <https://doi.org/10.1016/j.worlddev.2009.10.016>.

Cull, R., Demirguc-Kunt, A. and Morduch, J. (2014) 'Banks and microbanks', *Journal of Financial Services Research* 46(1): 1–54 <https: //dx.doi: 10.1007/s10693-013-0177-z>.

de Soto, H. (1989) *The Other Path: The Invisible Revolution in the Third World*, Harper and Row, New York.

de Soto, H. (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, Basic Books, New York.

Elliot, K. (1997) 'Corruption as an international policy problem: overview and recommendations', in K. Elliot (ed.), *Corruption and the Global Economy*, pp. 175–233, Institute for International Economics, Washington, DC.

Fisman, R. and Svensson, J. (2007) 'Are corruption and taxation really harmful to growth?' *Journal of Development Economics* 83: 63–75 <https://doi.org/10.1016/j.jdeveco.2005.09.009>.

Gerxhani, K. (2004) 'Informal sector in developed and less developed countries: a literature survey', *Public Choice* 120(3): 267–300 <https://doi.org/10.1023/B:PUCH.0000044287.88147.5e>.

Goldfajn, I. and Rigobon, R. (2000) 'Hard currency and financial development', *PUC-Rio, Working Paper 438*, Department of Economics, Rio de Janeiro.

Greene, W. (2016) *Econometric Analysis*, Pearson, New York.

Hartarska, V. and Nadolnyak, D. (2007) 'Do regulated microfinance institutions achieve better sustainability and lending? Cross-country evidence', *Applied Economics* 39(10): 1207–22 <https://doi.org/10.1080/00036840500461840>.

Hermes, N. and Meesters, A. (2011) 'The performance of microfinance institutions: do macro conditions matter?' in B. Armendariz and M. Labie (eds), *The Handbook of Microfinance*, pp. 173–202, World Scientific Publishing, Singapore.

Holcombe, R.G. and Boudreaux, C.J. (2015) 'Regulation and corruption', *Public Choice* 164(1): 75–85 <https://doi.org/10.1007/s11127-015-0263-x>.

Honohan, P. (2004) 'Financial sector policy and the poor: selected findings and issues', *World Bank Working Paper 43*, World Bank, Washington, DC <https://doi.org/10.1007/s11127-015-0263-x>.

Hubka, A. and Zaidi, R. (2005) *Impact of Government Regulation on Microfinance*, World Bank, Washington, DC <https://openknowledge.worldbank.org/handle/10986/9133> [accessed 30 June 2021].

Independent Evaluation Group (2019) *World Bank Group Support for Small and Medium Enterprises : A Synthesis of Evaluative Findings*, World Bank, Washington, DC.

Kenny, C. (2007) 'Construction, corruption and developing countries', *World Bank Policy Research Working Paper* 4271 [online], World Bank, Washington, DC <https://openknowledge.worldbank.org/handle/10986/7451> [accessed 30 June 2021].

Krauss, A., Lontzek, L, Meyer, J. and Frommelt, M. (2012) 'Lack of access or crowded market? Towards a better understanding of microfinance market penetration' *CMF Working Paper Series 01-2012*, University of Zurich, Department for Banking and Finance, Zurich, Switzerland <https://doi.org/10.2139/ssrn.2587014>.

Lash, N. and Batavia, B. (2013) 'Government economic intervention and corruption', *The Journal of Developing Areas* 47(12): 1–15.

Manzetti, L. and Blake, C. (1996) 'Market reforms and corruption in Latin America: new means for old ways', *Review of International Political Economy* 3(4): 662–97 <https://doi.org/10.1080/09692299608434376>.

MIX Market (2013) *2012 Asia Regional Snapshot* [online] <https://www.findevgateway.org/sites/default/files/publications/2019/2012%20Asia%20Regional%20Snapshot_0.pdf> [accessed 11 August 2021].

Patel, U. and Srivastava, P. (1996) 'Macroeconomic policy and output comovement: the formal and informal sectors in India', *World Development* 24(12): 915–23 <https://doi.org/10.1016/S0305-750X(96)00078-2>.

Paulson, A. and Townsend, R. (2004) 'Entrepreneurship and financial constraints in Thailand', *Journal of Corporate Finance* 10(2): 229–62.

Rhyne, E. (2001) *Mainstreaming Microfinance: How Lending to the Poor Began, Grew and Came of Age in Bolivia*, Kumarian Press, Hartford, CT.

Schumpeter, J. (1934) *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Harvard University, Cambridge, MA.

Vanroose, A. (2008) 'What macro factors make microfinance institutions reach out?' *Savings and Development* 32(3): 153–74.

Vanroose, A. and D'Espallier, B. (2009) 'Microfinance and financial sector development', *CEB Working Paper Series 09-040*, Universite Libre de Bruxelles, Brussels.

Waller, G. and Woodworth, W. (2001) 'Microcredit as a grass-roots policy for international development', *Policy Studies Journal* 29(2): 267–82 <https://doi.org/10.1111/j.1541-0072.2001.tb02091>.

World Bank (2011) *Doing Business 2012: Doing Business in a More Transparent World* [online], World Bank, Washington, DC <https://doi.org/10.1596/978-0-8213-7960-8>.

World Bank (2015) *Doing Business 2015: Going Beyond Efficiency* [online], World Bank, Washington, DC <https://doi.org/10.1596/978-1-4648-0351-2>.