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The effect of credit guarantees on credit availability and delinquency rates ☆

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ABSTRACT

We use new data to examine whether credit guarantees affect economic incentives and whether they affect the credit available to small- and medium-size enterprises (SMEs). We find that firms that have both guaranteed and non-guaranteed loans are 1.67% more likely to miss payments on their guaranteed loans, but are not more likely to default on these loans. These findings suggest that guarantees affect firms' incentives to repay loans but not their long-term performance. We also find that firms selected into the guarantee programs are 1.17% more likely to default on their loans compared with similar firms that borrow without guarantees. Since we find evidence that long-term performance is not affected by guarantees, the higher default rates among firms selected into the guarantee programs must be the consequence of adverse selection. We also find that credit guarantees increase the aggregated amount of credit; in particular, one additional dollar of guarantees increases the total credit for SMEs by US$ 0.65.
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1. Introduction

A consistent finding in empirical economics is that small- and medium-sized enterprises (SMEs) experience stronger and more costly financial impediments in investing than large firms (Evans and Jovanovic, 1989; Beck et al., 2005, 2007). Substantial effort has been exerted by governments and multilateral organizations to reduce these obstacles.[1] However, the success of interventions to increase SME access to financing has been mixed at best (Jaramillo-Vallejo et al., 1993), and governmental interventions in particular have not been cost effective (Khwaja and Mian, 2005; Zia, 2008). In light of this evidence, many governments have adopted a more passive role and have delegated the administration of interventions to private institutions with more experience in the credit markets.

A prominent example of this tendency is the partial credit guarantee (PCG), under which the government offers funds to guarantee the repayment of loans issued to SMEs but private institutions can freely choose which borrowers receive guaranteed loans.[2] Lately, PCGs have become one of the most widely used strategies to improve SMEs' access to credit. Green (2003) reports

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[1] For example, the Inter-American Development Bank estimates that their interventions to reduce financial market deficiencies in Latin America and the Caribbean between 1990 and 2004 account for US$ 22 billion.

[2] In some regions guarantee funds are also provided by non-governmental institutions. In practice PCGs work like credit insurance. In the text we will use the terms insurance and guarantees indistinctly.

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that almost one hundred countries have some form of PCGs, and in the U.S. alone, PCGs support US$ 62.5 billion in loans to SMEs. The size of PCGs varies largely across other countries. For example, in Chile, PCGs represent 1% of the gross domestic product (GDP), whereas they represent 9% of the GDP in Korea (Beck et al., 2010). Despite the popularity of this type of intervention, there is still an intense debate among scholars and practitioners about its potential effects on economic incentives.[3]

Advocates argue that PCGs reduce collateral requirements, increasing the access to financing of some low-asset SMEs that have credit constraints despite having profitable investment opportunities. Furthermore, they argue that accessing the credit market helps these borrowers to build a credit score that might let them borrow without guarantees in the future. Detractors claim that profitable firms can afford competitive interest rates, and blame PCG for reducing market discipline, facilitating access to credit to low-quality firms and creating moral hazard and adverse selection problems (Kuniyoshi and Tsuruta, 2014; Gropp et al., 2013). There are other criticisms of PCGs that point out the high cost structure of credit guarantee programs; however, in this paper we center the analysis on the economic distortions associated with PCGs.[4]

Detractors base their views on the proliferation of risky loans made to poorly performing firms selected for guarantee programs in Europe, Asia, Africa and Latin America. Extreme cases have been reported in Nigeria, Malaysia and Indonesia, where the default rates on guaranteed loans are 12%, 34% and 50%, respectively (Gudger, 1998). While these rates are certainly above the average default rate on non-guaranteed loans, they do not necessarily prove guarantees are associated with economic distortions. Even if guarantees were proven to be the cause of increased default, it would be necessary to understand the mechanisms of these economic distortions and how these economic distortions affect repayment in order to re-design these interventions. To date, there are no studies that address these issues, largely because of data limitations. The main contribution of our paper is to shed light on this mostly unexplored dimension of credit guarantees.

We study the operations of the PCG program in Chile between 2003 and 2006. What makes these PCGs special is that enterprises can borrow from multiple sources and can maintain insured and uninsured obligations with each of them. Moreover, we observe the repayment behavior for each of these obligations separately. These features allow us to study the effects of PCGs at the firm level by including in our specification a rich set of fixed effects that control for bank and borrower characteristics. Furthermore, we can control for time-varying characteristics of the relationship between the borrower and the bank. This is a major contribution to the empirical banking literature that has mainly focused on time invariant borrower–bank fixed effects. Our main analysis thus tests whether the same firm borrowing from the same bank shows a different repayment behavior on its insured loans compared with its repayment behavior on uninsured loans; in the paper, we refer to this approach as the "within bank-borrower" estimation. This specification requires information at the loan level, which we only have for credit outstanding and amount delinquent, but which we don't have for the amount in default.[5] Therefore, the analysis of default relies on a "within borrower" specification for which we include borrower-time fixed effects but exclude bank–borrower-time fixed effects.

We find the delinquency rates of obligations with credit guarantees to be 1.02% higher over the first twelve months and 1.67% higher over the first twenty-four months than those similar uninsured obligations.[6] While delinquency rates are higher when guarantees are present, outright default is not affected by them, suggesting that guarantees deteriorate the borrowers' incentives to repay loans but not necessarily their managerial effort and their long-term performance.[7] We also find interesting heterogeneous treatment effects; the repayment behavior of firms with relatively high assets is not affected by the presence of insurance, which is consistent with the finding in Berger et al. (2011b) in that collateral has an important role in disciplining borrowers after loans are issued.

To understand how firms are selected into the guarantee programs, we next estimate a specification without firm fixed effects. This approach measures differences between firms selected into the guarantee programs and firms borrowing without guarantees; in the paper, we refer to this approach as the "between firms" estimation. A caveat of the between estimation is that findings can be explained by differences in firms' characteristics (adverse selection) or by changes in firms' behavior associated with the use of guarantees (moral hazard). However, by comparing the between estimation with the within estimation, we are able to disentangle these two alternative explanations.

We find that firms selected into the guarantee programs are 1.44% more likely to become delinquent on their loan payments within 36 months compared with firms borrowing without guarantees. Furthermore, firms selected into the guarantee programs are also 1.17% more likely to enter into default within 36 months compared with firms borrowing without guarantees. Since we know from the within estimation that guarantees don't affect firms' long-term performance, the higher default rates among firms selected into the guarantee programs must be the consequence of adverse selection. We also find interesting heterogeneous treatment effects; among firms with high assets, the presence of guarantees is not associated with higher default rates. We think that the risk of losing assets deters high-asset firms from pursuing low-quality projects, even when they have access to guarantees. In contrast, low-asset firms, which have "nothing to lose," are willing to pursue low-quality projects and try to get lucky. These inefficiencies can reduce the GDP by 0.04% and destroy 0.1% of jobs each year.

Another interesting feature of the PCGs in Chile is that guarantees are allocated through an auction with sealed bids. Therefore, the amount of guarantees allocated to a bank depends not only on its demand for the guarantees, but also on the bids of other participants in the auction. This feature generates nonlinear variation in the amount of guarantees allocated to each financial institution. In the paper, this nonlinear variation is used to identify the effect of PCGs on the aggregate lending to SMEs. While similar approaches have been used by other researchers to test the effect of other types of government interventions, we are the first to use nonlinear variation to study the effect of partial credit guarantee programs.[8] We find that PCGs are effective in increasing the aggregated amount of credit available to SMEs. In particular, an increase of one dollar in the guarantees available to a bank is

[3] For a description of theoretical implications of PCGs, see Innes (1991), Chaney and Thakor (1985), and Gale (1990); and for a description of the most important discussions among practitioners, see Gudger (1998) and Mhlanga et al. (2013).

[4] In many countries PCG administration costs outweigh by several times the fees charged to obtain guarantees. This problem is particularly relevant in some European countries where PCG administration costs are close to 15% of the guaranteed funds, and fees range between 2% and 3% of the guaranteed funds (Bannock, 2005).

[5] We observe credit outstanding and amount delinquent (defined as amount in arrears between 61 and 90 days) separately for each loan that borrower i maintains with bank b; however, we only observe the consolidated amount in default (defined as amount in arrears of more than 90 days) that borrower i maintains with bank b.

[6] These are the point estimates in the within bank–borrower specification, but similar results are obtained in the within borrower specification.

[7] An implicit assumption in our interpretation of this result is that, to some extent, projects are bank specific; i.e., it is costly or not possible for borrower i to pay bank b_1 with the revenues of a project financed by bank b_2. We are also assuming that poor long-term performance on the loan is caused by poor long-term performance on the project.

[8] For example, Paravisini (2008) uses nonlinear variation to study the effect of a direct subsidy to small businesses lending in Argentina.

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