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Département d'Économie Appliquée de l'ULB
Solvay Brussels School of Economics and Management

Heterogeneous Effects of Credit Constraints on SMEs' Employment: Evidence from the European sovereign debt crisis.

Cornille, Rycx & Tojerow (2019) / *Journal of Financial Stability 41, 1-13*

Overview >>

A growing literature has been examining how firms react to credit constraints by adjusting for this financial burden through a reduction in labor costs. Evidence on the topic shows heterogeneous employment effects depend on a firm's characteristics and the market where the firm is active. This paper aims to extend the existing limited evidence by investigating whether employment decisions of Belgian SMEs were affected by different types of credit constraints during the European sovereign debt crisis. We exploit detailed Belgian matched bank-firm data and use the variability in banks' financial health following the 2008 crisis as an exogenous determinant of firms' access to credit. The results corroborate the hypothesis that credit-constrained SMEs reduced their labor force in the aftermath of the 2008 crisis. Whereas employment effects were quite similar across different types of loan applications, the effects significantly diverged with regards to market demand and competition. SMEs facing negative demand shocks and fierce competition exhibited a higher tendency to reduce their labor force. In addition, this paper identifies the main strategy taken by SMEs to reduce labor costs. Although most firms adjusted via the extensive margin, the results indicate that SMEs were more likely to adjust via the intensive margin due to the temporary layoff scheme introduced by the Belgian government. This finding supports the hypothesis that short-term compensation programmes contribute to employee retention during recessions.

Key contributions

- In Belgium, credit-constrained SMEs facing a **negative demand shock** and/or **fierce competition** significantly reduced their **labor** input.
- The results suggest that SMEs **were more likely to adjust via the intensive margin** due to the **temporary layoff schemes** introduced by the Belgian Government.

The impact of credit constraints on the extensive[a] and intensive[b] margins,marginal effects from probit and bivariate probit [c] regressions

	Extensive margin[a]		Intensive margin[b]	
	Probit	Bivariate probit	Probit	Bivariate probit
Quantitative credit constraint [d]	**0.090*****	**0.403*****	**0.052*****	**0.292*****
	0.005)	(0.003)	(0.004)	(0.015)
Covariates [e]:	YES	YES	YES	YES
Pseudo R-squared	0.12		0.13	
Wald test χ^2, p-value [f]		0.00		0.00
Number of observations	855	522	842	522

Introduction

The financial health of SMEs is crucial to ensure a balanced economy. In this context, the literature has found that workforce reduction among SMEs facing credit shortages is significantly high. However, little evidence is found as to whether firms adjust through the extensive margin (i.e. by reducing their labour input) or the intensive margin (i.e. by reducing the volume of work). In addition, Fabiani et al. (2015) among others, illustrate the vast heterogeneity of firms' reactions to credit shocks depending on their internal characteristics and the features of the markets in which they operate. This paper builds on the existing literature by focusing on the interesting case of Belgium. Belgium was heavily affected by the crisis, experiencing a considerable decrease in employment and the bailout of three major banks. The country chose to implement a temporary layoff allowance scheme to preserve jobs in the long term. In this context, the 2008 crisis serves as a perfect scenario to test for the hypothesis on firm behavior when facing credit constraints.

Empirical Methodology

The empirical analysis is based on a Belgian firm-level survey conducted by the National Bank of Belgium (NBB) in summer 2014 and which was undertaken within the Wage Dynamics Network. It includes questions on firms' perceptions on changes in the economic environment resulting from the sovereign debt crisis and their reactions to these changes.

The empirical investigation involves two steps. First, we test the employment consequences of credit constraints with a linear probability model (LPM). This strategy is limited due to endogeneity concerns and more precisely, due to reverse causality: firms might reduce their labour input because they face a credit constraint, whereas it is also possible that firms do not have the required funding because they have financial difficulties which led them to lay off workers in the first place. To deal with potential endogeneity, we rely on a two-stage least-squares (2SLS) model. As instrumental variable (i.e. a factor correlated with credit constraints but uncorrelated with firms' changes in employment), we use the % change in the number of loans made by firm *i*'s main bank to all borrowers other than firm *i* before and after the 2008 crisis. This instrument, similar to the one used by Chodorow-Reich (2014), reflects the financial health of the firm's main bank.

As a final contribution, this paper includes a series of complementary tests to better understand the heterogeneous effects of credit constraints on the reduction of a firm's labour force. We investigate whether different types of credit (and their conditions) affect these decisions. We also introduce further evidence on how demand shocks and competition can affect employment adjustments. Finally, to identify SMEs' strategies after an economic shock, we distinguish between the adjustment of labour at the extensive and intensive margins.

Results

The impact of credit constraints on labour input reduction[a], according to changes in demand for firms' products and/or services, marginal effects from probit and bivariate probit [b] regressions

	Δ demand < 0 [c]		Δ demand $\geq$ 0 [d]	
	Probit	Bivariate probit	Probit	Bivariate probit
Quantitative credit constraint [e]	**0.222***** (0.007)	**0.461***** (0.005)	–0.050 (0.058)	–0.170 (0.266)
Covariates [f]:	YES	YES	YES	YES
Pseudo R-squared	0.08		0.07	
Wald test χ^2, p-value [g]		0.00		0.66
Number of observations	434	278	421	263

"**Credit constraints** are only statistically significant among firms that experience a **negative demand shock**. These firms are **46% more** likely to **decrease** their **labour input.**"

The regression analysis clearly shows that credit matters: SMEs borrowing from banks that were financially unhealthy before the crisis were 40% more likely to be affected by a credit constraint and therefore, were 51% more likely to decrease their labour input. This outcome was robust across all types of loan applications. In addition, employment consequences differed significantly depending on the environment in which SMEs were operating (see boxes and quotes). Moreover, we identify the strategies undertaken by SMEs facing credit constraints. SMEs mainly reduced their workforce at the extensive margin; however, we see that certain SMEs did adjust at the intensive margin. This outcome suggests that temporary layoff schemes in Belgium might have played an important role in mitigating the employment effects of the crisis.

"**Credit-constrained firms** were *ceteris paribus* **36% more likely to reduce their labour input** than firms that were not credit-constrained **when facing very severe competition**. Credit constraints are found to have a non-significant effect on firms in more weakly competitive markets"

The impact of credit constraints on labour input reduction[a], according to the degree of competition on firm's main product/service market, marginal effects from probit and bivariate probit [b] regressions

	Stronger competition[c]		Weaker competition[d]	
	Probit	Bivariate probit	Probit	Bivariate probit
Quantitative credit constraint [e]	**0.090***** (0.007)	**0.364***** (0.024)	0.115 (0.008)	−0.184 (0.831)
Covariates [f]:	YES	YES	YES	YES
Pseudo R-squared	0.07		0.24	
Wald test χ^2, p-value [g]		0.00		0.00
Number of observations	449	266	406	275

Policy implications

The results of this empirical paper provide further evidence on the reaction of SMEs to negative economic shocks. These shocks are not exclusive to financial crises but can also be a response to a turmoil caused by i.e. a medical crisis. In the case of Belgium, several policies on temporary layoff allowances were implemented for firms to adjust via the intensive margin. Whereas our results show that firms still adapt primarily at the extensive margin, our findings suggest that temporary layoff schemes have played a significant role in mitigating the employment effects of the financial crisis in Belgium. Hence, short-term compensation may effectively contribute to saving jobs during recessions.

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Cornille, Rycx & Tojerow (2019) Heterogeneous Effects of Credit Constraints on SMEs' Employment: Evidence from the European Sovereign Debt Crisis. *Journal of Financial Stability* 41*,* 1-13.

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Authors, personal sites:
David Cornille,
François Rycx,
Ilan Tojerow.

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Département d'Economie Appliquée de l'ULB (DULBEA),
Solvay Brussels School of Economics and Management
CP140, Avenue Franklin Roosevelt 50,
1050 Bruxelles (Belgium)

Tel +32.2.650.41.11
https://dulbea.ulb.be
dulbea@ulb.be

DULBEA Département d'économie appliquée de l'ULB