

The Performance of Credit Extension Programs for Small Firms in the Context of Populist Policies: The Case of Iran, 2005-2013

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Motivation

- How to create more jobs ... quickly!
- Large firms tend to be capital intensive and need great entrepreneurial and management skills: Too costly, too slow?
- Small- and medium-sized enterprises (SMEs) tend to be more labor intensive and are less demanding in terms of entrepreneurship and management.
 - They also happen to be more credit constrained.
- Eureka! Offer SMEs ...
 - ... easier credit, training, business support services, wage subsidies, and formalization opportunities.

The Literature on Access to Finance and Job Creation

- Recent reviews
 - Grimm & Paffhausen (*Labour Economics* 2015)
 - Kersten, Harms, Liket, & Maas (*World Development* 2017)
- Positive effect, but often rather weak!
- Significant effect on capital investment, but not on productivity.
 - Investment frequently appears to take the form of increased inventories.
- No study of cause of variation in outcomes
 - Importance of policy design, implementation, and context

Study Design Matters For The Impacts Found

- Randomized controlled trials (RCTs)
 - Best if feasible
 - Costly method, has not been applied to SMEs
 - Problem of scalability and macroeconomic consequences
- Propensity score matching (PSM)
 - Selection bias due to unobserved factors
- Natural experiment studies (NES)
 - Good when they exist and there is data!

Why Is the Case Credit Extension Policy in Iran Interesting?

- The characteristics of the credit extension policy highlight many caveats of such programs and the role of their contexts.
 - Employment in small manufacturing firms in Iran declined considerably soon after the implementation of the credit extension policy.
- The Plan can be treated as a natural experiment that allows one to address the simultaneity issues commonly faced in evaluating the impact of credit policies.

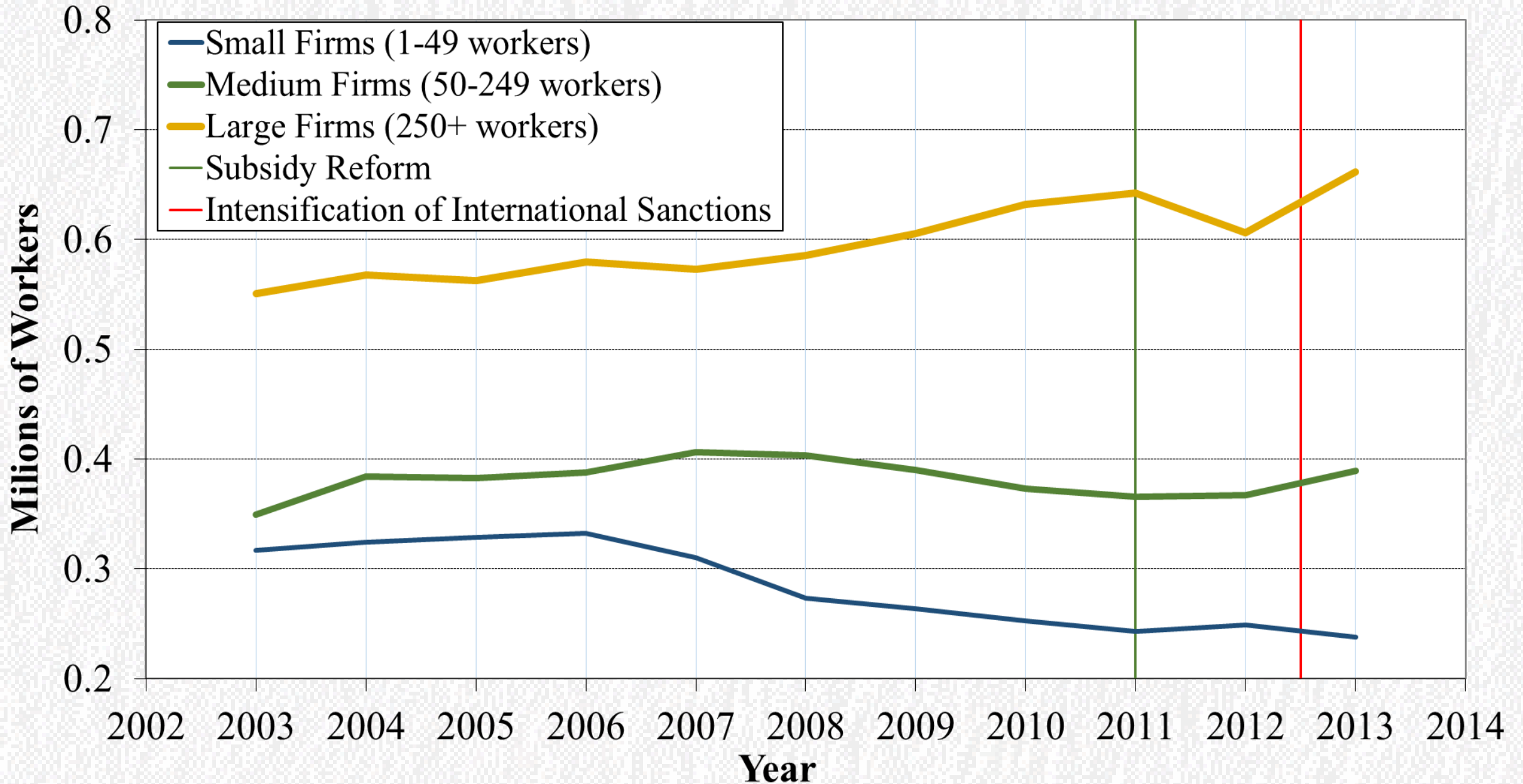
What Do We Do in This Paper?

- A natural-experiment study of the impact credit facilitation for SMEs (1-49 employees) in Iran during 2005-2011 under Ahmadinejad administration.
- **The Plan to Expand Quick>Returns Small Firms (PEQRSF):** Lower credit constraints for small firms that propose to create 2-5 jobs quickly.
 - ✓ An unexpected plan that was approved in November 2005, took off in 2006, and was phased out after 2008.
 - ✓ Aim: To create one million jobs per year by encouraging entrepreneurial activity among SMEs.

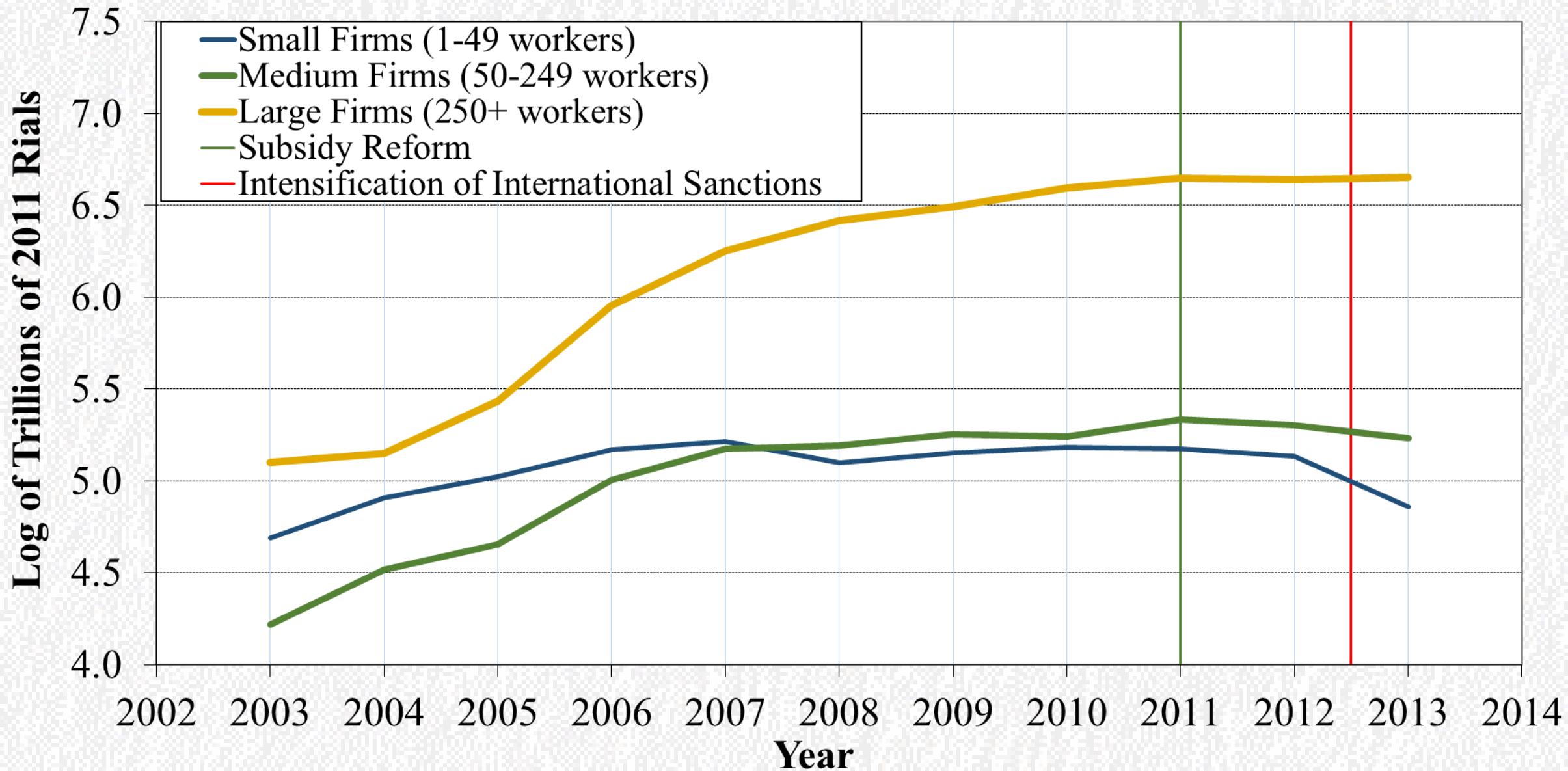
Report on the Performance of PEQRSF: Ministry of Labor and Social Welfare

Year	Proposed Projects	Projects Funded by Banks	Anticipated Employment in Funded Projects	Completed Projects	Employment in Completed Projects
2005	37,396	15,195	61,303	5,791	10,440
2006	761,265	292,817	756,062	189,843	224,028
2007	304,266	267,341	699,769	214,450	303,512
2008	18,161	23,698	103,747	20,785	78,410
2009	22,093	6,475	51,716	3,786	31,929
2010	28,105	8,349	65,727	1,637	14,168
2011	6,762	1,415	15,018	56	211
Total	1,178,448	615,631	1,753,343	436,348	662,698

Employment in Iran's Manufacturing by Firm Size



Iran by Firm Size



What Do We Do in This Paper?

- We examine the responses of manufacturing firms with 45-49 workers, which were eligible to apply for PEQRSF loans, with those of almost similar firms with 50-54 workers, which were not eligible.
- An unbalanced panel of 2,994 unique firms (5,830 observations) after first differencing and taking account of lags.
- We use the real capital stocks and total factor productivity (TFP) measures estimated by Esfahani and Yousefi (2018).

What Do We Do in This Paper?

- We find short-term gains in capital accumulation, with non-trivial, but diminishing effects on employment and production.
- A sizable part of the credit seems to have been channeled to land acquisition, with adverse consequences for employment and production.
- The compounding effects of haphazard policy implementation and the unstable and inflationary macroeconomic environment may help explain the poor outcome.

What Do We Do in This Paper?

- Method:
- Diff-in-Diff: Comparing the performance changes of two firm groups
 - ✓ Treatment group: Firms of size 45-49 in years 2005-2010
 - ✓ Control group: Firms of size 50-54 in 2005-2010.
- Dynamic panel estimator for short panels: Using Stata module **xtabond2** developed by Roodman (2006) based on Arellano and Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998).
- Instruments were chosen to ensure the model satisfies diagnostic tests for autocorrelation, overidentification, and exogeneity of instruments.
- Use of “collapse” option to limit instrument proliferation.
- Sensitivity analysis (different cutoff size thresholds)

What Do We Do in This Paper?

- General Specification: For indicator f in firm i , industry j , year t :

$$d(F_{fij t}) = \sum_q \beta_{fq} F_{qij t-1} + \sum_q \gamma_{fq} d(F_{qij t-1}) \\ + \sigma_f S_{ij t-1} + \sum_n \alpha_{ft,t-n} y_t S_{ij t-n} + \tau_{ft} + \theta_{fj} + \varepsilon_{fij t}$$

- Indicators (f): Logs of labor, production, TFP, and capital (buildings, land, machinery)
- τ_{ft} : Year fixed effect
- θ_{fj} : Industry fixed effect
- σ_f : Effect of firm i in industry j having 45-49 workers in previous year.
- $\alpha_{ft,t-n}$: Effect in year t of being small in year $t - n$, $n = 1,2,3$
- y_t : Dummy for year t

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Productivity Factor	0.200***	0.870***	-1.020***
	(0.073)	(0.164)	(0.134)
LD.Ln Productivity Factor			-0.169***
			(0.053)
D.Ln Productivity Factor	0.098*	0.796***	
	(0.054)	(0.096)	
L.Ln Production		-0.830***	
		(0.137)	
LD.Ln Production		-0.048	
		(0.061)	
L.Ln Labor	-1.761***		-0.423
	(0.144)		(0.567)
LD.Ln Labor	-0.038		0.152
	(0.131)		(0.451)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Capital - Machinery	0.135**	0.259**	-0.205
	(0.058)	(0.107)	(0.197)
LD.Ln Capital - Machinery	-0.035	-0.042	0.039
	(0.022)	(0.030)	(0.082)
L.Ln Capital – Building	-0.041	-0.079	0.092
	(0.044)	(0.142)	(0.242)
LD.Ln Capital – Building	0.162**	0.086	-0.110
	(0.082)	(0.117)	(0.290)
L.Ln Capital - Land	-0.109**	-0.160*	-0.003
	(0.052)	(0.097)	(0.159)
LD.Ln Capital - Land	-0.152**	-0.105	-0.217
	(0.073)	(0.105)	(0.512)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	5,830	5,830	5,802
Number of Firms	2,994	2,994	2,979

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Real Output Price		1.233***	1.266
		(0.384)	(1.851)
D.Ln Real Output Price		0.937*	-1.828
		(0.503)	(1.595)
L.Ln Real Product Wage	-0.648**		
	(0.284)		
D.Ln Real Product Wage	-0.049		
	(0.378)		

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
Number of GMM Instruments (Collapsed)			
Lagged S50 Firm Dummies	19	19	19
Other Instruments	15	12	4
Number of Year and Industry Dummy IVs	32	32	32
Arellano-Bond test for AR(1) in 1st Diffs	0.045	0.007	0.235
Arellano-Bond test for AR(2) in 1st Diffs	0.432	0.368	0.010
Sargan test of overidentification Restrictions	1.000	0.112	0.537
Hansen test of overidentification Restrictions	0.389	0.283	0.472
Difference-in-Hansen tests of exogeneity of instrument subsets:			
<i>GMM instruments for levels</i>			
Hansen test excluding group	0.386	0.301	0.360
Difference (null H = exogenous)	0.437	0.365	0.579
<i>IVs</i>			
Hansen test excluding group	0.556	0.332	0.152
Difference (null H = exogenous)	0.214	0.321	0.755

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Smaller than 50 (S50 Firm Dummy)	-0.181	0.807***	0.117
	(0.129)	(0.199)	(0.328)
2006 Dummy for S50 Firms in 2005	-0.338	0.025	0.573
	(0.351)	(0.424)	(1.754)
2007 Dummy for S50 Firms in 2005	0.180	-0.223*	0.169
	(0.431)	(0.130)	(0.879)
2008 Dummy for S50 Firms in 2005	-0.014	-0.061	-0.231
	(0.162)	(0.098)	(0.431)
2007 Dummy for S50 Firms in 2006	-0.074	-0.408	-0.401
	(0.554)	(0.360)	(1.152)
2008 Dummy for S50 Firms in 2006	-0.099	-0.418***	0.612
	(0.339)	(0.130)	(0.858)
2009 Dummy for S50 Firms in 2006	-0.082	-0.104	0.229
	(0.104)	(0.070)	(0.187)
2008 Dummy for S50 Firms in 2007	-0.020	-0.103	-0.940
	(0.242)	(0.393)	(0.815)
2009 Dummy for S50 Firms in 2007	0.067	-0.203	-0.591
	(0.298)	(0.177)	(0.599)
2010 Dummy for S50 Firms in 2007	-0.130	0.051	0.246
	(0.093)	(0.079)	(0.238)

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
2009 Dummy for S50 Firms in 2008	-0.068	-0.165	-0.748
	(0.284)	(0.496)	(0.871)
2010 Dummy for S50 Firms in 2008	0.069	0.026	-0.768
	(0.232)	(0.173)	(0.607)
2011 Dummy for S50 Firms in 2008	0.013	0.030	0.037
	(0.077)	(0.094)	(0.204)
2010 Dummy for S50 Firms in 2009	0.082	-0.810**	-0.237
	(0.246)	(0.385)	(0.646)
2011 Dummy for S50 Firms in 2009	0.034	-0.358**	-0.314
	(0.167)	(0.159)	(0.507)
2012 Dummy for S50 Firms in 2009	-0.051	-0.054	-0.269
	(0.070)	(0.084)	(0.221)
2011 Dummy for S50 Firms in 2010	-0.341	0.001	-0.098
	(0.262)	(0.432)	(0.754)
2012 Dummy for S50 Firms in 2010	-0.052	-0.235**	-0.058
	(0.178)	(0.118)	(0.606)
2013 Dummy for S50 Firms in 2010	-0.066	-0.182*	-0.232
	(0.073)	(0.097)	(0.221)

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Ln Productivity Factor	0.271**	0.236	0.019
	(0.115)	(0.157)	(0.039)
LD.Ln Productivity Factor	0.261**	0.192*	0.007
	(0.109)	(0.112)	(0.047)
L.Ln Capital - Machinery	-0.119**	0.362**	0.049
	(0.052)	(0.156)	(0.053)
LD.Ln Capital - Machinery	0.013	0.098*	0.009
	(0.011)	(0.050)	(0.009)
L.Ln Capital - Building	0.026	-0.562***	0.014
	(0.017)	(0.179)	(0.017)
LD.Ln Capital - Building	0.003	-0.185	-0.020*
	(0.008)	(0.191)	(0.011)
L.Ln Capital - Land	-0.098	0.011	-0.234**
	(0.064)	(0.098)	(0.118)
LD.Ln Capital - Land	-0.015	0.208	0.100
	(0.042)	(0.179)	(0.090)

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Ln Labor	-0.168	0.141	0.165
	(0.314)	(0.302)	(0.210)
LD.Ln Labor	0.021	-0.022	-0.098
	(0.233)	(0.220)	(0.068)
L.Ln Real Output Price	0.801**	-0.093	0.023
	(0.344)	(0.549)	(0.126)
D.Ln Real Output Price	1.407*	0.363	-0.257
	(0.722)	(0.580)	(0.184)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	5,830	5,830	5,830
Number of Firms	2,994	2,994	2,994

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
Number of GMM Instruments (Collapsed)			
Lagged S50 Firm Dummies	19	19	19
Other instruments	10	12	13
Number of Year and Industry Dummy IVs	32	32	32
Arellano-Bond test for AR(1) in 1st Diffs	0.006	0.767	0.159
Arellano-Bond test for AR(2) in 1st Diffs	0.429	0.961	0.727
Sargan test of overidentification Restrictions	1.000	1.000	0.000
Hansen test of overidentification Restrictions	1.000	1.000	1.000
Difference-in-Hansen tests of exogeneity of instrument subsets:			
<i>GMM instruments for levels</i>			
Hansen test excluding group	1.000	0.999	1.000
Difference (null H = exogenous)	0.707	0.955	0.988
<i>IVs</i>			
Hansen test excluding group	1.000	0.999	1.000
Difference (null H = exogenous)	0.894	0.926	0.998

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Smaller than 50 (S50 Firm Dummy)	-0.155	0.262	-0.300
	(0.305)	(0.254)	(0.189)
2006 Dummy for S50 Firms in 2005	0.764*	0.902*	0.701**
	(0.424)	(0.506)	(0.326)
2007 Dummy for S50 Firms in 2005	-0.141	-0.063	-0.056
	(0.156)	(0.288)	(0.073)
2008 Dummy for S50 Firms in 2005	-0.035	0.008	-0.018
	(0.061)	(0.122)	(0.037)
2007 Dummy for S50 Firms in 2006	0.336	-0.187	0.483**
	(0.501)	(0.846)	(0.223)
2008 Dummy for S50 Firms in 2006	-0.102	-0.191	-0.014
	(0.114)	(0.186)	(0.055)
2009 Dummy for S50 Firms in 2006	-0.085**	-0.082	-0.029
	(0.043)	(0.075)	(0.030)
2008 Dummy for S50 Firms in 2007	0.348	0.061	0.346
	(0.413)	(0.529)	(0.226)
2009 Dummy for S50 Firms in 2007	0.093	-0.093	0.010
	(0.130)	(0.277)	(0.083)
2010 Dummy for S50 Firms in 2007	0.031	0.069	0.012
	(0.045)	(0.115)	(0.039)

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
2009 Dummy for S50 Firms in 2008	0.142	0.488	0.463
	(0.397)	(0.604)	(0.293)
2010 Dummy for S50 Firms in 2008	0.075	0.097	0.078
	(0.119)	(0.248)	(0.092)
2011 Dummy for S50 Firms in 2008	0.083	0.019	0.071
	(0.075)	(0.093)	(0.052)
2010 Dummy for S50 Firms in 2009	-0.048	-0.382	0.226
	(0.470)	(0.668)	(0.202)
2011 Dummy for S50 Firms in 2009	-0.091	0.111	-0.085
	(0.157)	(0.184)	(0.127)
2012 Dummy for S50 Firms in 2009	0.104	0.046	-0.005
	(0.070)	(0.092)	(0.052)
2011 Dummy for S50 Firms in 2010	0.232	-0.293	0.461
	(0.447)	(0.469)	(0.301)
2012 Dummy for S50 Firms in 2010	-0.076	-0.117	0.127
	(0.207)	(0.178)	(0.090)
2013 Dummy for S50 Firms in 2010	0.149	-0.020	0.026
	(0.172)	(0.153)	(0.118)

Results: Probability of Exit

Dependent Variable	Exit
L.Ln Capital	-0.0146** (0.0068)
L.Ln Productivity	-0.0333*** (0.0072)
LD. Ln Capital	0.0272 (0.0268)
LD. Ln Productivity	-0.0022 (0.0044)
L.Smaller than 50	0.0544 (0.0747)

Results: Probability of Exit

Dependent Variable	Exit
s50_05_2006	-0.0727 (0.0761)
s50_05_2007	0.0374* (0.021)
s50_05_2008	-0.0011 (0.003)
s50_06_2007	-0.1605* (0.0849)
s50_06_2008	-0.006 (0.0049)
s50_06_2009	-0.0016 (0.0034)
s50_07_2008	-0.0511 (0.0767)
s50_07_2009	-0.0036 (0.0061)
s50_07_2010	0.0005 (0.0031)
s50_08_2009	-0.0426 (0.0735)

Sensitivity Analysis

- Dropping firms with 49 or 50 workers
 - Dealing with the possibility that the number of workers in the dataset is not the same as the one used by the credit program.
 - Testing the sensitivity to changes in the sample:
 - ✓ Sample size reduction by 25 percent.
- Other sensitivity exercises
 - Comparing firms with 40-44 workers and those with 45-49 workers, or firms with 50-54 workers and those with 55-59 workers:
 - ✓ No systematic difference for being smaller in years 2005-2007

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Productivity Factor	0.166**	0.805***	-0.986***
	(0.068)	(0.152)	(0.135)
LD.Ln Productivity Factor			-0.155***
			(0.059)
D.Ln Productivity Factor	0.069	0.731***	
	(0.047)	(0.093)	
L.Ln Production		-0.864***	
		(0.136)	
LD.Ln Production		-0.026	
		(0.056)	
L.Ln Labor	-1.642***		-0.602
	(0.115)		(0.600)
LD.Ln Labor	-0.064		0.446
	(0.101)		(0.469)

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Capital - Machinery	0.131**	0.225**	-0.038
	(0.061)	(0.104)	(0.244)
LD.Ln Capital - Machinery	-0.010	-0.000	-0.011
	(0.014)	(0.040)	(0.078)
L.Ln Capital – Building	-0.074	-0.025	0.037
	(0.045)	(0.092)	(0.214)
LD.Ln Capital – Building	0.055	-0.213	-0.178
	(0.055)	(0.195)	(0.281)
L.Ln Capital - Land	-0.103**	-0.051	-0.050
	(0.046)	(0.091)	(0.154)
LD.Ln Capital - Land	-0.076	0.175	0.424
	(0.048)	(0.172)	(0.534)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	4,364	4,364	4,343
Number of Firms	2,494	2,494	2,482

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Ln Real Output Price		0.788*	1.632
		(0.430)	(2.003)
D.Ln Real Output Price		0.627	-2.969
		(0.515)	(1.811)
L.Ln Real Product Wage	-0.464*		
	(0.272)		
D.Ln Real Product Wage	0.140		
	(0.367)		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
Number of GMM Instruments (Collapsed)			
Lagged S50 Firm Dummies	19	19	19
Other Instruments	15	12	4
Number of Year and Industry Dummy IVs	32	32	32
Arellano-Bond test for AR(1) in 1st Diffs	0.068	0.106	0.083
Arellano-Bond test for AR(2) in 1st Diffs	0.911	0.680	0.193
Sargan test of overidentification Restrictions	0.379	1.000	0.999
Hansen test of overidentification Restrictions	0.812	0.277	0.746
Difference-in-Hansen tests of exogeneity of instrument subsets:			
<i>GMM instruments for levels</i>			
Hansen test excluding group	0.704	0.581	0.913
Difference (null H = exogenous)	0.763	0.103	0.201
<i>IVs</i>			
Hansen test excluding group	0.887	0.462	0.550
Difference (null H = exogenous)	0.393	0.178	0.884

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
L.Smaller than 50 (S50 Firm Dummy)	-0.252*	0.474**	-0.285
	(0.135)	(0.202)	(0.392)
2006 Dummy for S50 Firms in 2005	-0.113	0.421	-1.403
	(0.266)	(0.590)	(2.130)
2007 Dummy for S50 Firms in 2005	0.565	-0.195	1.217
	(0.436)	(0.245)	(1.256)
2008 Dummy for S50 Firms in 2005	-0.077	-0.047	-0.182
	(0.173)	(0.105)	(0.442)
2007 Dummy for S50 Firms in 2006	-0.435	-0.105	-1.146
	(0.640)	(0.622)	(1.868)
2008 Dummy for S50 Firms in 2006	0.059	-0.356**	0.502
	(0.364)	(0.147)	(0.989)
2009 Dummy for S50 Firms in 2006	-0.039	-0.137**	0.076
	(0.105)	(0.068)	(0.224)
2008 Dummy for S50 Firms in 2007	0.009	-0.023	-0.842
	(0.315)	(0.452)	(1.251)
2009 Dummy for S50 Firms in 2007	-0.021	-0.010	-0.817
	(0.344)	(0.234)	(0.948)
2010 Dummy for S50 Firms in 2007	-0.129	0.008	0.419
	(0.107)	(0.098)	(0.309)

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Labor, Production, and Productivity

Variables	D.Ln Labor	D.Ln Production	D.Ln Productivity
2009 Dummy for S50 Firms in 2008	0.160	-0.394	0.820
	(0.369)	(0.621)	(1.347)
2010 Dummy for S50 Firms in 2008	-0.027	0.002	-0.562
	(0.232)	(0.217)	(0.869)
2011 Dummy for S50 Firms in 2008	-0.048	-0.035	0.071
	(0.074)	(0.094)	(0.226)
2010 Dummy for S50 Firms in 2009	0.261	-0.566	-0.520
	(0.279)	(0.472)	(1.088)
2011 Dummy for S50 Firms in 2009	0.098	-0.220	-0.355
	(0.169)	(0.144)	(0.591)
2012 Dummy for S50 Firms in 2009	0.006	-0.073	-0.301
	(0.064)	(0.079)	(0.211)
2011 Dummy for S50 Firms in 2010	-0.170	0.043	0.281
	(0.279)	(0.402)	(0.796)
2012 Dummy for S50 Firms in 2010	-0.140	-0.091	0.262
	(0.168)	(0.121)	(0.722)
2013 Dummy for S50 Firms in 2010	-0.044	-0.139	-0.234
	(0.079)	(0.102)	(0.293)

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Ln Productivity Factor	0.354**	0.236	-0.004
	(0.166)	(0.157)	(0.038)
LD.Ln Productivity Factor	0.317*	0.192*	-0.042
	(0.191)	(0.112)	(0.039)
L.Ln Capital - Machinery	-0.171**	0.362**	-0.046
	(0.067)	(0.156)	(0.068)
LD.Ln Capital - Machinery	-0.057*	0.098*	0.010
	(0.032)	(0.050)	(0.013)
L.Ln Capital - Building	0.037	-0.562***	0.023
	(0.025)	(0.179)	(0.018)
LD.Ln Capital - Building	-0.000	-0.185	-0.019
	(0.023)	(0.191)	(0.013)
L.Ln Capital - Land	-0.075	0.011	-0.186
	(0.076)	(0.098)	(0.126)
LD.Ln Capital - Land	-0.035	0.208	0.086
	(0.047)	(0.179)	(0.079)

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Ln Labor	0.112	0.141	0.057
	(0.180)	(0.302)	(0.202)
LD.Ln Labor	0.011	-0.022	-0.110
	(0.143)	(0.220)	(0.076)
L.Ln Real Output Price	0.675*	-0.093	0.050
	(0.399)	(0.549)	(0.131)
D.Ln Real Output Price	1.023*	0.363	-0.266
	(0.547)	(0.580)	(0.214)
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	4,364	4,364	4,343
Number of Firms	2,494	2,494	2,482

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
Number of GMM Instruments (Collapsed)			
Lagged S50 Firm Dummies	19	19	19
Other instruments	10	12	13
Number of Year and Industry Dummy IVs	32	32	32
Arellano-Bond test for AR(1) in 1st Diffs	0.756	0.943	0.001
Arellano-Bond test for AR(2) in 1st Diffs	0.576	0.988	0.942
Sargan test of overidentification Restrictions	0.998	1.000	0.000
Hansen test of overidentification Restrictions	0.999	1.000	1.000
Difference-in-Hansen tests of exogeneity of instrument subsets:			
<i>GMM instruments for levels</i>			
Hansen test excluding group	0.998	1.000	1.000
Difference (null H = exogenous)	0.891	0.821	1.000
<i>IVs</i>			
Hansen test excluding group	0.999	1.000	1.000
Difference (null H = exogenous)	0.743	0.900	1.000

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
L.Smaller than 50 (S50 Firm Dummy)	-0.176	0.262	-0.499**
	(0.235)	(0.254)	(0.247)
2006 Dummy for S50 Firms in 2005	0.563*	0.902*	0.795**
	(0.340)	(0.506)	(0.396)
2007 Dummy for S50 Firms in 2005	-0.157	-0.063	-0.123
	(0.232)	(0.288)	(0.134)
2008 Dummy for S50 Firms in 2005	-0.018	0.008	0.041
	(0.074)	(0.122)	(0.042)
2007 Dummy for S50 Firms in 2006	0.860	-0.187	0.954**
	(0.543)	(0.846)	(0.467)
2008 Dummy for S50 Firms in 2006	-0.032	-0.191	0.058
	(0.104)	(0.186)	(0.082)
2009 Dummy for S50 Firms in 2006	-0.078*	-0.082	-0.030
	(0.045)	(0.075)	(0.032)
2008 Dummy for S50 Firms in 2007	0.346	0.061	0.397
	(0.350)	(0.529)	(0.328)
2009 Dummy for S50 Firms in 2007	0.170	-0.093	0.091
	(0.139)	(0.277)	(0.104)
2010 Dummy for S50 Firms in 2007	0.027	0.069	0.026
	(0.070)	(0.115)	(0.050)

Sensitivity Analysis: Dropping Firms with 49 and 50 Workers

Regression Results: Capital - Machinery, Building, Land

Variables	D.Ln Capital - Machinery	D.Ln Capital - Building	D.Ln Capital - Land
2009 Dummy for S50 Firms in 2008	0.034	0.488	0.455
	(0.363)	(0.604)	(0.319)
2010 Dummy for S50 Firms in 2008	0.021	0.097	0.191
	(0.150)	(0.248)	(0.119)
2011 Dummy for S50 Firms in 2008	-0.016	0.019	0.049
	(0.082)	(0.093)	(0.053)
2010 Dummy for S50 Firms in 2009	0.080	-0.382	0.191
	(0.371)	(0.668)	(0.227)
2011 Dummy for S50 Firms in 2009	-0.050	0.111	-0.047
	(0.112)	(0.184)	(0.141)
2012 Dummy for S50 Firms in 2009	0.125	0.046	-0.001
	(0.080)	(0.092)	(0.055)
2011 Dummy for S50 Firms in 2010	0.371	-0.293	0.572
	(0.403)	(0.469)	(0.425)
2012 Dummy for S50 Firms in 2010	-0.065	-0.117	0.169
	(0.131)	(0.178)	(0.111)
2013 Dummy for S50 Firms in 2010	0.210	-0.020	0.045
	(0.176)	(0.153)	(0.145)

What Do We Find?

- Compared to the control group, treated firms experienced
 - No change in TFP and no direct positive impact on employment and output
 - Significant reduction in probability of exit only in 2008.
 - Capital (machinery, building, and land) growth in 2006 and land acquisition in 2007.
 - Positive effects on employment and production in the following years through capital accumulation ...,
 - ✓ But quickly vanishing effect due to mean reversion of capital stock.
 - Significant investment in land, with negative effects on performance!

What Do We Find?

- No sign of persistent impact on investment in the years following eligibility.
- It seems that the much of the credit has been used to buy unproductive land, especially in the second full year of the program.
- Poor design of the policy and poor policymaking environment seems to have distorted incentives.