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# Size-Dependent Industrial Policies and Firm Performance: The Case of Iran's Credit Extension Policy for Small Firms, 2005-2013

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**Draft**

# Size-Dependent Industrial Policies and Firm Performance: The Case of Iran's Credit Extension Policy for Small Firms, 2005-2013

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Abstract

This paper examines the direct effects of a size-dependent credit extension policy on small manufacturing firms (with 10-49 workers) in Iran. This policy was launched in November 2005 with the primary aim of quickly boosting employment opportunities. The policy was vigorously pursued in 2006 and 2007 and was phased out thereafter. We employ a large panel dataset of Iran's manufacturing plants over the period 2003-2013 to study the impact of this policy on the firms' level of employment, capital stock, and total factor productivity (TFP). We take advantage of the threshold effect of the policy's focus on firms with less than 50 workers to identify its effects on small firms, comparing firms with 45-49 workers and those with 50-54 workers while controlling for industry, year, and a number of other effects. We find that the policy had induced increased capital formation among small firms in 2006-2008, but it had little detectable impact on employment and TFP.

**Keywords:** Credit Policy, Small Manufacturing Firms, Size-Dependent Industrial Policy, Iran, Employment, Capital Stock, TFP

## 1. Introduction

It has been well documented that small firms often face serious credit constraints that limit their investment and production options (Beck and Demirguc-Kunt, 2006; Banerjee and Duflo, 2014). Policymakers in many countries have taken this stylized fact as implying that getting banks to extend credit to small firms on easier terms could be an effective means of expanding employment and output. However, such an assessment is not necessarily warranted because the effects of easy credit on small firms depends on the way and the circumstances under which the policy is implemented. If banks are pressured to lower the standards for assessing and monitoring the projects for which they lend, risks could go up and the banking system may end up in a default crisis, with counterproductive consequences for employment and output. Prospects of such a crisis may prompt the recipients of easy credit as well as others to divert their resources toward capital flight and other hedging activities rather using them for employment and production. Even when the borrowed funds are invested in the firms, they may simply lead to substitution capital for labor and end up with minimal or potentially negative employment effects. These possibilities suggest that alleviating the credit constraints facing small firms may not be an easy task, and policies that aim to achieve this goal may need to be designed and implemented with a great deal of care. Furthermore, the adopted policies for this purpose should be examined as the process unfolds in order to detect any unforeseen problem that may emerge in the implementation process. Such assessments can also enrich the knowledge and insights about the ways in which economic and institutional settings and policy characteristics shape the effectiveness of credit policies.

In this paper, we examine a major policy of credit extension to small firms that was implemented in Iran during 2005-2013.[1] The case of Iran is interesting for at least two reasons. First, the characteristics of the credit extension policy adopted in 2005, known as the Plan to Expand Quick-Returns Small Firms (PEQRSF)[2], highlight many caveats of such programs and the role of their contexts. Second, 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. PEQRSF, which was introduced shortly after the surprise election of Mahmud Ahmadinejad as Iran's president in 2005, made it significantly easier for firms to obtain credit for expansion projects if they had had less than 50 workers in the previous year. This threshold effect offers an opportunity to compare the performances of firms just below and just above it in order to estimate the impact of the policy on firms that became eligible to receive credit.

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[1] All Gregorian years in this paper refer to the Iranian years with which they have 9 months of overlap. That is, Gregorian year *t* represents Iranian year *t* – 621, which starts on March 20 or 21 of Gregorian year *t* and ends on March 19 or 20 of Gregorian year *t* +1.

[2] In Persian: Tarhe Gostareshe Bongahhaye Kuchake Zudbazdeh (طرح گسترش بنگاه های زود بازده). A summary of the plan is available on the website of the Parliament Research Center of Iran: http://rc.majlis.ir/fa/law/show/127481.

A number of past studies have tried to assess the impact of PEQRSF on the performance of the beneficiary firms (e.g., Modarresi-Alem, 2011; Hosseinzadeh and Nosrati, 2014), but have essentially focused on the number of jobs associated with the expansion projects of small firms that had received credit through the Plan. This approach on simultaneity issues misses out on the effects of the policy on pre-existing activities of the borrowers and on firms that did not receive loans. In this paper, we attempt to address these shortcomings. Our analysis is based on a large annual panel dataset of Iran's manufacturing plants with 10 or more workers—Survey of Manufacturing Firms (SMF), produced by the Statistical Center of Iran (SCI). The dataset does have some limitations for our purposes, but it offers a wealth of information on manufacturing firms that can be used, under reasonable assumptions, to address many of its shortcomings. In particular, SMF does not include any data on loans taken by firms. So, we focus on the direct and indirect differential effects of the opportunity to be able to borrow under the Plan's terms.

Our analysis shows that PEQRSF has had positive effects on capital accumulation among small firms during 2006-2008, though that effect gradually eroded over time. However, these effects do not contradict the reports in the Iranian media that, based on Central Bank of Iran's estimations, almost 38% of the financial resources offered through PEQRSF were diverted to uses unrelated to the purposes of the policy.[3] Indeed, our other results are in line with the Central Bank's finding that many of the proposed projects were fictitious or did not result in the promised employment increases. Our estimates show that the employment effects of PEQRSF were mostly negligible and very short-term. This is in contrast with a number of existing studies of PEQRSF that find positive effects on the recipient firms' performance based on the employment figures directly associated with the proposed projects. However, those studies do not seem to take into account substitution and simultaneity or longer-term effects under the program loans. Finally, we find no direct total factor productivity (TFP) effect that can be attributed to the credit extension plan. The results suggest that although part of the credit provided through PEQRSF may have been diverted away from the borrowing firms, it did contribute to capital formation among small firms. But, the additional capital stock may have had negative TFP effects and may have largely substituted for labor rather than creating employment. Moreover, according to the Central Bank, the default rates among PEQRSF borrows appear to have been high, adversely affecting the banking system, which has had dire consequences for the entire economy. We relate the reasons for these outcomes to the haphazard design and implementation of the Plan and to its economic and institutional context.

The rest of the paper is organized as follows. Section 2 reviews the related literature. Section 3 provides a description of PEQRSF and its context. Section 4 discusses the data. Section 5 presents the empirical model, and section 6 presents and discusses the results. Section 7 concludes.

[3] http://hamshahrionline.ir/details/194922

## 2. Literature Review

Many studies in the literature of economics discuss how small and medium enterprises are financially constrained Some empirical studies show that small firms have a major role in the employment rate of countries while their ability to contribute to economic growth is usually hindered by economic obstacles such as limited access to finance. Financial and institutional developments, especially in developing countries, may mitigate the growth constraints experienced by small firms. (Beck and Demirguc-Kunt, 2006; Banerjee and Duflo, 2014). These firms may be more exposed to a fundamental market failure case of credit rationing problem explained by Stiglitz and Weiss (1981). This market imperfection may justify government intervention to provide low-interest and easy to access loans to small firms. However, many economists may have conservative views regarding any size-dependent government regulation to support small enterprises.

Some studies provide evidence on how a size-dependent regulation has created distortions in firm size distributions and misallocation of labor force. The labor misallocation induced by size-dependent policies is also claimed to have negative impacts on the aggregate level of total factor productivity (e.g. Guner et al., 2008; Hsieh and Klenow, 2009; Gourio and Roys, 2014; Garicano et al., 2016).

## 3. Characteristics and Context of PEQRSF

In November 2005, a few months after the inauguration of Mahmud Ahmadinejad' first presidential term, the Iranian cabinet of ministers passed a set of regulations to support and expand small enterprises in the country. The Plan's initial targets included the increase in the level of employment, the increase in the level of non-oil exports and encouraging economic entrepreneurship activities by removing credit constraints against small firms. Consequently, the banking system with the support of the government provided cheap and easy loans to extension projects proposed by any small enterprises.[4]

The Plan was considered an ambitious economic policy at the time. However, critics were suspicious of its success and claims of creating one million jobs per year as a result of implementing it. Main concerns include the deviation of provided financial resources from manufacturing and productive to non-productive sectors of the economy. Moreover, small firms' possible failing to repay their loans would greatly hurt the banking system, and the government failure to support banks would deteriorate the situation, all leading to a crisis in the banking sector or inflationary monetary policies by a heavily indebted government. Later reports on Iranian media claimed that based on Central Bank of Iran's estimations,

[4] A summary of the plan is available in Persian at Iranian Parliament Research Center: http://rc.majlis.ir/fa/law/show/127481

almost 38% of the provided financial resources were deviated. Many of the proposed firms' projects were factitious or did not result in the promised goals of the employment increase.[5]

With regards to the time and extension of this credit expansion, In the following two years after the start of PEQRSF, that is roughly 2006 and 2007, 292,817 and 267,341 projects by small firms were qualified to receive credits from the banking system. In next years, we observe a drastic decrease in the number of approved proposals. A decrease by more than 80% happened in the year 2008 with 23698 projects and even larger decreases in years 2009 and 2010 with almost 6475 and 8349 approved projects. The timing and the extension of the discussed intervention indicate that the main years of PEQRSF implementation was 2006, 2007 and 2008. Even in those three years, only a portion of those approved projects actually received funding, and roughly 60 percent of the proposed employment target were achieved.[6]

## 4. Data

We employ the recently available comprehensive dataset of Iranian Manufacturing Enterprises provided by Statistical Center of Iran. This dataset is an unbalanced panel of firms with 10 employees and more over the approximate period of 2003-2013. The data is based on census of data on all firms during 2003-2005, a mix of complete census for large firms (sized 50 and above), and a census of small firms (10-49 employees) in 13 least populated provinces combined with large samples of small firms in 17 more populous provinces. The combined census-sample of small firms covers almost 75% of all small firms in each year. The data kept track of firms that fell below 10 workers for a period of the data time span. The raw data includes 167,401 yearly observations of 34,646 firms over the period of 2003-2013. Finally, once we account for missing or zero values of labor, the stock of capital and firms' annual value added, 26,009 firms with 148,974 observations will remain.

The dataset contains the nominal annual values of production outcome, value added, the stock of capital, investment, intermediate inputs and the total number of labor forces in each firm along with many other firm-level variables representing other features of each enterprise namely starting year, ownership status, skilled and unskilled labors, wages, depreciation costs and other expenditures. We adjusted all nominal values utilizing annual industry specific PPI (base year of 2011) provided by Statistical Center of Iran (SCI). In our model's s specification, all variables are the log transformation of the respective deflated variables.

[5] http://hamshahrionline.ir/details/194922
[6] The same

The data also includes industry indicators of ISIC codes for each firm. We used 2-digits ISIC codes (2 digits ISICs 15 to 37) to estimate the time variant productivity levels for each firm within the respective industry. In addition, in the final estimate of the impact of the policy on each factor we include industry dummies using the mentioned ISIC 2-digit levels.

One problem would arise when using capital stock variable from the data set. The data on the capital stock were not available for years before 2005 and after 2011. Moreover, using this capital stock variable in the total factor productivity estimates of Wooldridge control function approach, results in estimates of value-added elasticities with respect to capital that are too small. Here we followed an alternative way of deflating and estimating the capital stock variables. Therefore, at first different categories of capital stock and investment (machinery, building, etc.) are deflated with their respective PPI indices. Then, employing the deflated real investment data and the perpetual inventory method series of each firm-specific capital category were constructed for the dataset's missing years. Finally, the aggregate capital stock for each firm in each year has been calculated using the sum of the deflated category-specific capitals. This alternative approach leads to more sensible value-added elasticities of capital when we estimate the production function.

## 5. Methodology

The main purpose of the Iranian plan to encourage and extend small enterprises of 2005 was to create jobs. Therefore, in this paper we present a model that causally captures the impact of the policy on the variations in the number of employees at firm level. In addition, we try to investigate if such a policy has any significant impact on the level of firms' capital and productivity. Thus, we need to estimate production functions of each industry based on the available data.

There are different methods of production function estimation leading to TFP estimates in the literature. Namely, fixed effect approach, IV approach and control function methods. The popular two steps control function methods of Olley-Pakes (OP), Levinsohn-Petrin (LP), Ackenberg-Caves-Frazer (ACF) and the single step Wooldridge method are known to economic researchers. As we needed the time variant firms' level productivities, the fixed effects approach is not of the main interest of this paper. In addition, although fixed effects approach addresses the issue of endogeneity, there are number of reasons that make control function approaches to be more advantageous methods (see Ackenberg, Caves & Frazer 2015).

Olley and Pakes (1996) introduced the first control function approach to overcome the problems of OLS estimates. They mentioned the selection problem generated by the relation of the unobserved productivity variable and the decision to exit and the simultaneity problem that is because of the relationship between the productivity and the input demand. They suggested a two steps approach using the investment

levels as the proxy variable of the productivity level. Levinsohn and Petrin (2003) alternatively suggested the use of intermediate input levels as a proxy variable for productivity. Ackenberg, Caves and Frazer (2015) argue that both approaches may suffer from the functional dependence problem. Therefore, coefficients in the first stage of the estimation will be collinear. In their alternative approach labor and the intermediate input/ investment are both a function of productivity.

In this paper, we used Wooldridge control function method to derive estimates of the productivity. We followed the model and utilize the Stata module -prodest- provided by Mollisi and Rovigatti (2017) to generate are production function estimates. We consider a Cobb-Douglas functional form for each firm i in industry j at time t:

$$Y_{ijt} = \alpha_j + L_{ijt}\beta_{lj} + K_{ijt}\beta_{kj} + P_{ijt} + \varepsilon_{ijt} \qquad (1)$$

All these variables are in log form and defined at the firm level as follows. $Y_{ijt}$ represents the real value added, $L_{ijt}$ is total employment, $K_{ijt}$ is real capital stock, and $P_{ijt}$ is a measure of the firm's unobservable productivity relative to an industry-level productivity factor, $\alpha_j$. The parameters $\beta_{lj}$ and $\beta_{kj}$ are the elasticities of output with respect to labor and capital, respectively, and $\varepsilon_{ijt}$ is a random output shock. The TFP of firm $i$ at time $t$ is $\alpha_j + P_{ijt}$, which is identified to be estimated via a control function approach along with $\beta_{lj}$ and $\beta_{kj}$.

Equation (1) has been estimated with Wooldridge method for each ISIC 2-digits industry in Iran's manufacturing sector. The estimates of $\beta_{lj}$ and $\beta_{kj}$ is presented in Table 2. Compared to fixed effect and LP method that are used in other papers on production function estimates of Iranian firms, Wooldridge method yields a range of estimates for $\beta_{lj}$ and $\beta_{kj}$ that is closer to those estimates for other countries. Also, the sum of these elasticity coefficients is not statistically different from 1 in most industries. You can find more information regarding this TFP estimates and also on aggregate trends of TFP, employment, labor productivity in Esfahani and Yousefi (2018).

Tracking patterns of the change in TFP, employment or the firm's capital stocks during years of 2003-2013 may return a valuable big picture of the aggregate trends of these factors of production in Iranian manufacturing sector. However, a causal inference necessitates a more detailed comparison among firms when we want to estimate the impact of a specific policy. Therefore, we exploit a discontinuity framework based on policy's requirement that credit rules be eased for firms with less than 50 workers in the year prior to loan application. To investigate the policy's impact on different factors of production, we compared two sets of different firms; those sized between 45 and 49 with those sized 50-54. It should be mentioned that we do not know which firms received PEQRSF loans. Thus, these categories are proxies for treated firms

(those small firms that received some form of PEQRSF loan) and similar (in terms of size) control firms that did not enjoy the hasty government induced credit injection.

Based on estimates of firm-level capital stock and total factor productivities, we utilize a dynamic panel estimation model to investigate the causal impact of the mentioned policy on production factors while comparing these two size-based categories of firms. Following the Arellano and Bond (1991), a number of dynamic panel estimators were introduced to consider problematic panels such as the case of large N and small T. Using this notion, we followed xtabond2 Stata command package to estimate our panel equations. Xtabond2 implements a system of two equations known as system GMM by transforming all regressors using difference GMM and allows for exploiting instruments for both the level equation and the first differences equation (See Roodman (2006)).

In this subset of the data, firms that were between 45 and 50 in year 2005, 2006 and 2007 are considered to be qualified firms that were exposed to the Iranian plan to encourage and extend small enterprises in years 2006, 2007 and 2008, which are the main years of the implementation of the program.

In our empirical model using xtabond2 module, we estimate different equations with changes in labor, capital, and the level of productivity as dependent variables while the explanatory variables incorporate current levels, lagged levels, difference and lagged difference of labor, capital and productivity in addition to year dummies, industry indicator, a dummy for being smaller than 50 in the previous year of observation and the interaction indicators that determine if the firm was small (has less than 50) in one year, two years and three years before the time of observation. These indicators help us to disentangle the time effects and the general impact of being small from the impact of the policy in the respective years.

## 6. Results

As discussed above we used system GMM dynamic panel estimators. In all of our estimates, we utilize a panel data with small number of years T and large number of firms N. Therefore, a fixed effect panel estimates by demeaning process generates a constructed correlation between regressors and error terms (Nickell 1981). In addition, as each dependent variable in our estimates likely depends on its own lagged value and regressors such as labor, capital and productivity are not exogenous to our models, we need instruments such as some lagged values of each variable to overcome the endogeneity problem. This demands a model with many instruments, and as a result, we need to follow a GMM setup using instruments in our estimates.

In our estimates, dependent variables as a form of difference in each production factor are functions of their past realization while other current and past levels of other factors of production may be controlled in equations.

Results based on the system GMM estimator using xtabond2 are presented in Tables 3 and 4. In Table 3 Column 1, the dependent variable is the difference in the level of firms' labor. On the right side of the equation, regressors include, current levels, differences and lagged differences of firms' capital stock and productivity. Also, we include lagged difference and level values of firms' labor. All difference and level variables are in log forms. We also add year, and industry (ISIC-2 digits notion) dummies to our model in addition to an indicator that gets 1 if the firm number of employments is less than 50 in the year of observation. Then we add a set of indicators presenting the size status of each firm in each year. For instance, in table 3, s50_06_2007 is an indicator that gets 1 if the year of observation is 2007 and the observed firm had less than 50 employees in year 2006. We run all estimates by limiting our observations to those firms with the size in the previous year of observation fall between 45 and 54. In this context, we expect firms that were small in years 2005, 2006 and 2007 have experienced a relative increase (compared to slightly larger firms) in the level of labor, capital stock and productivity in few years following PEQRSF's implementation.

In Table 3, Column 1 we used the fourth lagged of all level regressors, fourth lagged of difference regressors (except for year and industry dummies) and third and fourth lagged of small indicator as GMM-style instruments for first difference equation while year and industry dummies were assigned as IV-style instruments for the level equation. Our results show that in general being small in policy implementation years do not significantly explain the difference in the level of firms' employees. However, if a firm was small in year 2007, it increased that firm's change in the level of employment in the following year. Arellano-Bond test for autocorrelation in difference equation does not show significant AR (2) pattern. In addition, the Hansen test of over identification restrictions does not reject the validity of the instruments.

In Table 3 Column 2, the dependent variable is the difference in the level of firms' capital stock. On the right side of the equation, regressors include lagged values of levels and differences in the capital stock and productivity. Here also we control for size, year, industry and year-size interaction indicators as used in column 1. Here, we utilized first lagged of all level regressors and second lagged of difference regressors (except for year and industry dummies) as GMM-style instruments for first difference equation while once again year and industry dummies were assigned as IV-style instruments for the level equation. In column 3 we followed same logic but this time we dropped lagged difference in productivity from the right-hand side. In column 4, we add lagged value of the level and difference in labor to the set of regressors in column. In both column 3 and 4 we followed the same logic regarding the assignment of instrument variables. Results show that small firms that were small in the previous year of the policy implementation years of 2006 2007 and 2008 observed an increase in the rate of change in capital stock in policy years (12 to 24 percent based on different specifications). For all estimates regarding capital stocks both Sargan and Hansen

tests of overidentification do not reject the validity of instruments, and also there is no significant evidence regarding AR(2) autocorrelation patterns in difference equations.

In Table 4 Column 1, the dependent variable is the difference in the level of firms' productivity. On the right side of the equation, regressors include lagged values of levels and differences in the productivity. We control for firm's size, year, industry and year-size interaction indicators as before. Second lagged of right hand side productivity variables and first lagged variable of size indicator has been used as GMM-style instruments for the first difference equation. Year and industry dummies were IV-style instruments for the level equation. In column 2 and 3, we add lagged levels of capital stock and labor as control variables. We also add second lagged of capital and labor as GMM-style instruments respectively. The resulting estimates satisfy significant autocorrelation and overidentification tests. However, we could not observe any statistically significant impact from the policy on small firms in the years of implementation.

We run the same AB models in Tables 2 and 3 for firms sized between 40 and 49 (50 and 59). This time we compare firms below 45 (55) with those that were sized above 45 (55) during the years of PEQRSF implementation. Results are presented in appendix Tables A.1 (A.3) and A.2 (A.4). These placebo tests show no considerable impact neither on the change in the level of labor and capital stock nor in the firm level total factor productivity. In other words, the 50-employees cutoff in Table 2 indicate a meaningful variation in at least the stock level of capital during the years 2006-2008 while 45 and 55 cutoffs do not demonstrate any notable pattern difference in capital, labor or productivity between smaller firms and the relatively larger comparison group.

## 7. Conclusion

In this research, we analyzed the impact of Iranian credit expansion policies in years 2006-2008 to support small firms. We exploit a panel of all Iranian manufacturing firms from 2003 to 2013 and utilized a system GMM dynamic panel estimator. Our results show that the mentioned policy has a positive significant but short-term impact on firms' change in the level of capital stock. However, the impact on the change in the firms' level employment was weak and there was almost no impact on firms' estimated total factor productivities. These results show regardless of the trend in levels of the factors of production in 2000's in Iran, the mentioned specific policy has not led to a significant change in the manufacturing sector employment levels as it was initially promised. Most of this newly available credit led to a short run increase in the level of capital if not totally deviated. This is the first paper that attempts to address the causal impact of such policy in Iran provided by detailed available information on firm level factors of production values.

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Table 1. Summary Outcome of the Plan to Expand Quick-Returns Small Firms (PEQRSF)

| Year | Employment in Completed Projects | Completed Projects | Actual Credit Provided to Loan Applicants | Anticipated Employment in Funded Projects | Total Credit Extended to Funded Projects | Projects Funded by Banks | Projects Approved by Banks | Anticipated Employment in Proposed Projects | Proposed Projects |
|---|---|---|---|---|---|---|---|---|---|
| | Persons | Number | Billion Rials | Persons | Billion Rials | Number | Number | Persons | Number |
| 2005 | 10,440 | 5,791 | 1,917 | 61,304 | 3,251 | 15,195 | 17,687 | 173,444 | 37,396 |
| 2006 | 224,028 | 189,843 | 68,569 | 756,062 | 92,497 | 292,817 | 385,957 | 2,206,266 | 761,665 |
| 2007 | 303,512 | 214,450 | 98,247 | 699,769 | 110,248 | 267,641 | 264,169 | 1,130,990 | 304,266 |
| 2008 | 78,410 | 20,785 | 32,075 | 103,747 | 25,754 | 23,698 | 17,966 | 127,387 | 18,161 |
| 2009 | 31,929 | 3,786 | 17,523 | 51,716 | 14,037 | 6,475 | 7,290 | 105,186 | 22,093 |
| 2010 | 14,168 | 1,637 | 15,766 | 65,727 | 14,546 | 8,349 | 10,014 | 214,584 | 28,105 |
| 2011 (through August 3) | 211 | 56 | 2,959 | 15,018 | 3,045 | 1,456 | 2,184 | 59,844 | 6,762 |
| Total | 662,698 | 436,348 | 237,055 | 1,753,343 | 263,378 | 615,631 | 705,267 | 4,017,701 | 1,178,448 |

Source: Modarresi-Alem (2011).

Table 2: Results of Production Function Estimates by Wooldridge Method

| Wooldridge Method of Production Function Estimation: The Dependent variable: Firm Level Log of Price Adjusted Value added | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Industry | ISIC15 Food Product | ISIC16 Tobaco Products | ISIC17 Textiles | ISIC18 Wearing Apparel | ISIC19 Tanning and Dressing of Leather | ISIC20 Wood and of Products of Wood | ISIC21 Paper and Paper Products | ISIC22 Publishing, Printing | ISIC23 Coke, Refined Petroleum | ISIC24 Chemical Products | ISIC25 Rubber and Plastics Products | ISIC26 Other Non-Metallic Mineral Products |
| Labor | 0.732*** | 0.422*** | 0.612*** | 0.641*** | 0.593*** | 0.691*** | 0.634*** | 0.754*** | 0.653*** | 0.683*** | 0.622*** | 0.694*** |
| | (0.007) | (0.049) | (0.01) | (0.028) | (0.024) | (0.027) | (0.023) | (0.032) | (0.045) | (0.014) | (0.012) | (0.007) |
| Capital | 0.328*** | 0.118*** | 0.211*** | 0.511*** | 0.492*** | 0.263** | 0.278*** | 0.256*** | 0.659*** | 0.274*** | 0.310*** | 0.297*** |
| | (0.025) | (0.041) | (0.039) | (0.122) | (0.133) | (0.117) | (0.047) | (0.087) | (0.109) | (0.0356) | (0.039) | (0.024) |
| Obs. | 27009 | 22 | 12,596 | 1,864 | 2,147 | 1,603 | 3,226 | 2,443 | 1,270 | 9,355 | 8,752 | 30,585 |
| Number of Firms | 4,602 | 5 | 2,385 | 414 | 490 | 306 | 571 | 460 | 227 | 1,544 | 1,786 | 5,832 |
| | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | (23) | |
| Industry | ISIC27 Basic Metals | ISIC28 Fabricated Metal Products | ISIC29 Machinery and Equipment | ISIC30 Computing Machinery | ISIC31 Electrical Machinery | ISIC32 Communication Equipment | ISIC33 Medical, Precision and Optical | ISIC34 Motor Vehicles and Trailers | ISIC35 Other Transport Equipment | ISIC36 Furniture | ISIC37 Recycling | |
| Labor | 0.745*** | 0.721*** | 0.723*** | 0.791*** | 0.635*** | 0.724*** | 0.702*** | 0.787*** | 0.750*** | 0.675*** | 0.641*** | |
| | (0.015) | (0.011) | (0.011) | (0.08) | (0.017) | (0.048) | (0.028) | (0.017) | (0.027) | (0.019) | (0.102) | |
| Capital | 0.354*** | 0.356*** | 0.209*** | 0.418** | 0.210*** | 0.257** | 0.288*** | 0.111*** | 0.235** | 0.297*** | 0.194 | |
| | (0.042) | (0.040) | (0.033) | (0.192) | (0.045) | (0.128) | (0.074) | (0.041) | (0.103) | (0.065) | (1.310) | |
| Obs. | 6,114 | 11,517 | 10,635 | 376 | 4,910 | 785 | 1,631 | 6,752 | 1,623 | 4,277 | 130 | |
| Number of Firms | 1,143 | 2,184 | 1,738 | 65 | 782 | 126 | 238 | 1,173 | 327 | 863 | 46 | |

Notes: This table presents estimated coefficients for labor and capital derived from the Wooldridge Method of the Production Function Estimates in each industry (2digits ISIC). See Esfahani and Yousefi (2018) for more information regarding these production function estimates.

Table 3: AB Dynamic Panel Estimates: The Policy Impact on Changes in Labor and Capital

| Dependet Variable | D.Ln Labor | D.Ln Capital | D.Ln Capital | D.Ln Capital |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| L. Ln Labor | -1.1952*** | | | 0.0033 |
| | (0.1347) | | | -0.0396 |
| L.Ln Capital | | -0.0611*** | -0.0738*** | -0.0702*** |
| | | (0.0175) | (0.0177) | (0.0166) |
| L.Productivity | | 0.0419* | 0.0337* | 0.0364** |
| | | (0.0216) | (0.0204) | (0.0185) |
| Ln Capital | 0.0334 | | | |
| | (0.0313) | | | |
| Productivity | 0.1014*** | | | |
| | (0.0392) | | | |
| L.D Labor | -0.3210*** | | | 0.0059 |
| | (0.0953) | | | (0.0321) |
| D. Ln Capital | 0.2759** | | | |
| | (0.1312) | | | |
| D.Productivity | -0.0822** | | | |
| | (0.0368) | | | |
| L.D Capital | 0.0869 | 0.1266* | 0.0970 | 0.1399*** |
| | (0.1632) | (0.0609) | (0.0606) | (0.0521) |
| L.D Productivity | -0.0758** | -0.0054 | | -0.0077 |
| | (0.0348) | (0.0088) | | (0.0085) |
| L.Smaller than 50 | -0.2372*** | -0.0853 | -0.0693 | -0.0824 |
| | (0.0850) | (0.0698) | (0.0687) | (0.0649) |
| s50_05_2006 | -0.5462 | **0.1361*** | **0.1286*** | **0.1250*** |
| | (2.927) | (0.0793) | (0.0774) | (0.0749) |
| s50_05_2007 | -0.3937 | -0.0508 | -0.0492 | -0.0490 |
| | (0.3169) | (0.0310) | (0.0318) | (0.0357) |
| s50_05_2008 | -0.4024 | -0.0300 | -0.0317 | -0.0307 |
| | (0.3752) | (0.0253) | (0.0248) | (0.0244) |
| s50_06_2007 | 0.4520 | **0.225**** | **0.2006*** | **0.2085**** |
| | (0.4509) | (0.1049) | (0.1030) | (0.0953) |
| s50_06_2008 | 0.1925 | -0.0358 | -0.0319 | -0.0320 |
| | (0.4251) | (0.0325) | (0.0343) | (0.0349) |
| s50_06_2009 | -0.0220 | -0.0159 | **-0.0213*** | -0.0185 |
| | (0.0895) | (0.0126) | (0.0128) | (0.0129) |
| s50_07_2008 | **0.6787**** | **0.2493**** | **0.2163**** | **0.2181**** |
| | (0.28) | (0.1023) | (0.1074) | (0.0887) |
| s50_07_2009 | 0.0533 | 0.0265 | **0.0414*** | 0.0292 |
| | (0.1717) | (0.0222) | (0.0237) | (0.0262) |
| s50_07_2010 | -0.1494 | 0.0111 | 0.0107 | 0.0103 |
| | (0.102) | (0.0133) | (0.0136) | (0.0136) |
| s50_08_2009 | 0.1710 | 0.0756 | 0.0258 | 0.0645 |
| | (0.1844) | (0.0826) | (0.0869) | (0.0730) |
| s50_08_2010 | 0.1568 | 0.0222 | 0.0142 | 0.0236 |
| | (0.1373) | (0.0246) | (0.0271) | (0.0274) |
| s50_08_2011 | -0.1179 | 0.0411 | 0.0402 | 0.0351 |
| | (0.0756) | (0.0265) | (0.0268) | (0.0245) |
| s50_09_2010 | 0.2534 | 0.0340 | 0.0239 | 0.0213 |
| | (0.1635) | (0.0827) | (0.0848) | (0.0699) |
| s50_09_2011 | 0.2077* | -0.0012 | -0.0019 | -0.0219 |
| | (0.1125) | (0.0387) | (0.0350) | (0.0445) |
| s50_09_2012 | -0.1247* | -0.0132 | -0.0114 | -0.0147 |
| | (0.0758) | (0.017) | (0.0171) | (0.0171) |
| s50_10_2011 | 0.0350 | 0.0690 | 0.0419 | 0.1177 |
| | (0.165) | (0.1022) | (0.1043) | (0.0897) |
| s50_10_2012 | 0.3141** | 0.0012 | 0.0156 | -0.0076 |
| | (0.1328) | (0.0293) | (0.0331) | (0.0346) |
| s50_10_2013 | -0.0034 | 0.0208 | 0.0158 | 0.0172 |
| | (0.0715) | (0.0204) | (0.0203) | (0.0206) |
| Year Indicator | Yes | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes | Yes |
| Observations | 5802 | 5896 | 5949 | 5896 |
| Number of id | 2980 | 3027 | 3048 | 3027 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: AB Dynamic Panel Estimates: The Policy Impact on the Change in Productivity

| Dependet Variable | D.Productivity | D.Productivity | D.Productivity |
|---|---|---|---|
| | (1) | (2) | (3) |
| L.Productivity | -0.6464*** | -0.6604*** | -0.6944*** |
| | (0.1072) | (0.0878) | (0.0806) |
| L.D Productivity | -0.1669** | -0.2087*** | -0.2047*** |
| | (0.0848) | (0.0745) | (0.0674) |
| L.Ln Capital | | -0.1374** | -0.1421** |
| | | (0.0610) | (0.0619) |
| L.Ln Labor | | | -0.1731 |
| | | | (0.1604) |
| L.Smaller than 50 | 0.0467 | 0.0645 | -0.0993 |
| | (0.1881) | (0.1835) | (0.2372) |
| s50_05_2006 | -0.0546 | -0.0824 | -0.0337 |
| | (0.1945) | (0.1905) | (0.1897) |
| s50_05_2007 | 0.0326 | 0.0168 | 0.0506 |
| | (0.0813) | (0.0795) | (0.0819) |
| s50_05_2008 | 0.0652 | 0.0283 | 0.0226 |
| | (0.0610) | (0.0609) | (0.0615) |
| s50_06_2007 | 0.0124 | -0.0591 | -0.0588 |
| | (0.2605) | (0.2549) | (0.2499) |
| s50_06_2008 | 0.0161 | -0.0295 | -0.0266 |
| | (0.1003) | (0.0951) | (0.0921) |
| s50_06_2009 | 0.0303 | -0.0049 | -0.0006 |
| | (0.0597) | (0.0599) | (0.0611) |
| s50_07_2008 | -0.1991 | -0.1203 | -0.0176 |
| | (0.3274) | (0.3061) | (0.3013) |
| s50_07_2009 | -0.0043 | 0.0179 | 0.0483 |
| | (0.1016) | (0.0999) | (0.0992) |
| s50_07_2010 | 0.0366 | 0.0058 | -0.0052 |
| | (0.0704) | (0.07) | (0.0699) |
| s50_08_2009 | -0.2608 | -0.3196 | -0.3028 |
| | (0.3009) | (0.2913) | (0.2797) |
| s50_08_2010 | 0.0185 | -0.0633 | -0.0851 |
| | (0.1361) | (0.1288) | (0.1206) |
| s50_08_2011 | 0.0084 | 0.0033 | 0.0165 |
| | (0.0772) | (0.0758) | (0.0747) |
| s50_09_2010 | -0.0677 | 0.0442 | 0.2140 |
| | (0.3225) | (0.3048) | (0.2871) |
| s50_09_2011 | -0.1171 | -0.1301 | -0.0997 |
| | (0.12) | (0.1132) | (0.1014) |
| s50_09_2012 | -0.1206 | -0.1337* | -0.1313* |
| | (0.0768) | (0.0778) | (0.0782) |
| s50_10_2011 | -0.0180 | -0.0732 | -0.0712 |
| | (0.348) | (0.3233) | (0.292) |
| s50_10_2012 | -0.0293 | -0.0562 | -0.0284 |
| | (0.128) | (0.1223) | (0.1176) |
| s50_10_2013 | 0.1292 | 0.0844 | 0.0890 |
| | (0.0807) | (0.0841) | (0.0846) |
| s50_11_2012 | 0.1393 | 0.1153 | 0.1306 |
| | (0.3054) | (0.2925) | (0.274) |
| s50_11_2013 | -0.1177 | -0.1257 | -0.0865 |
| | (0.0982) | (0.0970) | (0.1034) |
| Year Indicator | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes |
| Observations | 5802 | 5802 | 5802 |
| Number of id | 2980 | 2980 | 2980 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

## Appendix A: Additional Tables

Table A.1: The Policy Impact on Changes in Labor and Capital for Firms Sized 40 to 49

| Dependet Variable | D.Ln Labor | D.Ln Capital | D.Ln Capital | D.Ln Capital |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| L. Ln Labor | -1.3521*** | | | -0.0664* |
| | (0.1074) | | | (0.0352) |
| L.Ln Capital | | -0.1009*** | -0.0975*** | -0.0884*** |
| | | (0.0259) | (0.0257) | (0.0208) |
| L.Productivity | | 0.0311 | 0.0417 | 0.0258 |
| | | (0.0249) | (0.0273) | (0.0199) |
| Ln Capital | 0.0439 | | | |
| | (0.0299) | | | |
| Productivity | 0.0941** | | | |
| | (0.0428) | | | |
| L.D Labor | -0.1815** | | | 0.0140 |
| | (0.0897) | | | (0.0242) |
| D. Ln Capital | 0.0621 | | | |
| | (0.1206) | | | |
| D.Productivity | -0.0638 | | | |
| | (0.0389) | | | |
| L.D Capital | 0.0328 | 0.1576*** | 0.1714*** | 0.1473*** |
| | (0.1058) | (0.0551) | (0.0519) | (0.0447) |
| L.D Productivity | -0.0505* | -0.0171 | | -0.0169 |
| | (0.0291) | (0.0128) | | (0.0123) |
| L.Smaller than 45 | -0.0934 | 0.0254 | 0.0361 | -0.0449 |
| | (0.0918) | (0.07) | (0.0750) | (0.0734) |
| s45_05_2006 | 4.7393 | 0.0077 | -0.0030 | 0.0338 |
| | (4.0368) | (0.0794) | (0.0879) | (0.0789) |
| s45_05_2007 | -0.0385 | 0.0077 | 0.0272 | 0.0061 |
| | (0.7732) | (0.0391) | (0.0395) | (0.0403) |
| s45_05_2008 | -0.0137 | -0.0134 | -0.0158 | -0.0111 |
| | (0.1473) | (0.0191) | (0.0196) | (0.0189) |
| s45_06_2007 | 0.165 | -0.0587 | -0.1095 | -0.0250 |
| | (0.8549) | (0.1168) | (0.1167) | (0.1185) |
| s45_06_2008 | 0.0648 | -0.0278 | -0.0404 | -0.0186 |
| | (0.2268) | (0.0292) | (0.0303) | (0.0308) |
| s45_06_2009 | -0.0134 | -0.0077 | -0.0036 | 0.0080 |
| | (0.0722) | (0.0186) | (0.0189) | (0.0175) |
| s45_07_2008 | -0.0576 | 0.0403 | 0.0675 | 0.0474 |
| | (0.2648) | (0.1055) | (0.1134) | (0.1002) |
| s45_07_2009 | 0.2369 | -0.0158 | -0.0091 | -0.0079 |
| | (0.1746) | (0.0476) | (0.0494) | (0.0432) |
| s45_07_2010 | 0.097 | 0.0028 | 0.0046 | 0.0060 |
| | (0.1204) | (0.017) | (0.0169) | (0.0161) |
| s45_08_2009 | -0.3984 | 0.0341 | 0.0016 | 0.0418 |
| | (0.2329) | (0.1203) | (0.1305) | (0.1072) |
| s45_08_2010 | -0.0154 | -0.0092 | -0.0033 | 0.0173 |
| | (0.1827) | (0.0308) | (0.0294) | (0.0267) |
| s45_08_2011 | 0.0082 | 0.0442 | 0.0357 | 0.0453 |
| | (0.0885) | (0.0327) | (0.027) | (0.0328) |
| s45_09_2010 | -0.2439 | -0.0094 | -0.0180 | -0.0272 |
| | (0.1643) | (0.0925) | (0.0962) | (0.0921) |
| s45_09_2011 | 0.0099 | -0.0051 | -0.0118 | 0.0003 |
| | (0.1344) | (0.0272) | (0.0375) | (0.0263) |
| s45_09_2012 | -0.0885 | 0.0084 | 0.0066 | 0.0118 |
| | (0.0725) | (0.0164) | (0.0167) | (0.0148) |
| s45_10_2011 | -0.2092 | -0.1239 | -0.1010 | -0.1061 |
| | (0.1717) | (0.1094) | (0.1035) | (0.1053) |
| s45_10_2012 | -0.0166 | -0.0117 | -0.0106 | -0.0156 |
| | (0.1262) | (0.0253) | (0.0259) | (0.0233) |
| s45_10_2013 | -0.1334* | -0.0560** | -0.0551** | -0.0481* |
| | (0.0779) | (0.0267) | (0.0268) | (0.0262) |
| Year Indicator | Yes | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes | Yes |
| Observations | 5902 | 6012 | 6079 | 6012 |
| Number of id | 3140 | 3207 | 3238 | 3207 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2: The Policy Impact on the Change in Productivity for Firms Sized 40 to 49

| Dependet Variable | D.Productivity | D.Productivity | D.Productivity |
|---|---|---|---|
| | (1) | (2) | (3) |
| L.Productivity | -0.4847*** | -0.5183*** | -0.5804*** |
| | (0.0921) | (0.0801) | (0.0804) |
| L.D Productivity | -0.0869 | -0.1711** | -0.1734*** |
| | (0.0880) | (0.0707) | (0.0643) |
| L.Ln Capital | | -0.1546* | -0.1588** |
| | | (0.0808) | (0.0756) |
| L.Ln Labor | | | 0.0175 |
| | | | (0.1483) |
| L.Smaller than 45 | 0.0336 | 0.0370 | 0.0078 |
| | (0.1835) | (0.1798) | (0.2319) |
| s45_05_2006 | -0.0762 | -0.1443 | -0.0909 |
| | (0.1937) | (0.1967) | (0.1986) |
| s45_05_2007 | 0.2180** | 0.1508 | 0.1375 |
| | (0.1004) | (0.0926) | (0.0945) |
| s45_05_2008 | -0.0738 | -0.1169* | -0.1215* |
| | (0.0662) | (0.0671) | (0.0681) |
| s45_06_2007 | -0.4892 | -0.3803 | -0.3088 |
| | (0.292) | (0.2776) | (0.2708) |
| s45_06_2008 | -0.1057 | -0.1552 | -0.1951* |
| | (0.1162) | (0.1062) | (0.1064) |
| s45_06_2009 | 0.0571 | 0.0179 | -0.0296 |
| | (0.0847) | (0.0854) | (0.0811) |
| s45_07_2008 | 0.0839 | 0.1686 | 0.3164 |
| | (0.3547) | (0.3326) | (0.3149) |
| s45_07_2009 | 0.1641 | 0.2149 | 0.0965 |
| | (0.1579) | (0.1504) | (0.1355) |
| s45_07_2010 | 0.1134 | 0.0993 | 0.0844 |
| | (0.071) | (0.0687) | (0.0675) |
| s45_08_2009 | -0.6253 | -0.7466* | -0.4099 |
| | (0.4378) | (0.4139) | (0.3792) |
| s45_08_2010 | 0.1458 | 0.0563 | 0.0037 |
| | (0.1501) | (0.1361) | (0.128) |
| s45_08_2011 | -0.0303 | -0.0675 | -0.0615 |
| | (0.0787) | (0.076) | (0.0763) |
| s45_09_2010 | -0.4474 | -0.3414 | -0.1877 |
| | (0.3474) | (0.3207) | (0.2979) |
| s45_09_2011 | -0.0569 | -0.1019 | -0.1239 |
| | (0.1159) | (0.1012) | (0.0953) |
| s45_09_2012 | -0.0567 | -0.0578 | -0.0797 |
| | (0.0867) | (0.0857) | (0.0854) |
| s45_10_2011 | -0.1635 | -0.0232 | 0.0526 |
| | (0.3854) | (0.3264) | (0.3175) |
| s45_10_2012 | -0.1126 | -0.0777 | -0.1462 |
| | (0.1276) | (0.1166) | (0.1253) |
| s45_10_2013 | 0.0166 | -0.0130 | -0.0120 |
| | (0.0817) | (0.0825) | (0.0825) |
| s45_11_2012 | 0.2682 | 0.0743 | 0.2519 |
| | (0.3264) | (0.3058) | (0.3083) |
| s45_11_2013 | -0.0382 | -0.0415 | -0.0378 |
| | (0.1003) | (0.0975) | (0.1038) |
| Year Indicator | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes |
| Observations | 5902 | 5902 | 5902 |
| Number of id | 3140 | 3140 | 3140 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.3: The Policy Impact on Changes in Labor and Capital for Firms Sized 50 to 59

| Dependet Variable | D.Ln Labor | D.Ln Capital | D.Ln Capital | D.Ln Capital |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| L. Ln Labor | -1.4414*** | | | 0.0208 |
| | (0.1149) | | | (0.0309) |
| L.Ln Capital | | -0.0310* | -0.0415** | -0.0429** |
| | | (0.0171) | (0.0184) | (0.0182) |
| L.Productivity | | 0.0585*** | 0.0591*** | 0.0613*** |
| | | (0.0201) | (0.0214) | (0.0157) |
| Ln Capital | 0.1005*** | | | |
| | (0.0334) | | | |
| Productivity | 0.1486*** | | | |
| | (0.0444) | | | |
| L.D Labor | -0.1566 | | | 0.0035 |
| | (0.1016) | | | (0.0287) |
| D. Ln Capital | 0.2172* | | | |
| | (0.1255) | | | |
| D.Productivity | -0.0804* | | | |
| | (0.0412) | | | |
| L.D Capital | 0.2054 | 0.1218* | 0.0739 | 0.1101* |
| | 0.1288 | (0.0680) | (0.0744) | (0.0587) |
| L.D Productivity | -0.0461 | -0.0022 | | -0.0072753 |
| | 0.0357 | (0.0076) | | 0.0071 |
| L.Smaller than 55 | -0.1958*** | 0.0337 | 0.0369 | (0.0340) |
| | (0.0688) | (0.0880) | (0.0882) | (0.0769) |
| s55_05_2006 | -1.2414 | 0.0288 | 0.0398 | 0.0317 |
| | (3.1418) | (0.0999) | (0.0986) | (0.0962) |
| s55_05_2007 | 0.8667 | -0.0237 | -0.0207 | -0.0209 |
| | (0.9074) | (0.0307) | (0.0301) | (0.0345) |
| s55_05_2008 | -0.2731 | 0.0154 | 0.0136 | 0.0114 |
| | (0.2482) | (0.0212) | (0.0217) | (0.0207) |
| s55_06_2007 | -1.9811 | 0.0503 | 0.0300 | 0.0379 |
| | (1.6864) | (0.1099) | (0.1134) | (0.1026) |
| s55_06_2008 | 0.1380 | -0.0034 | 0.0048 | -0.0044 |
| | (0.4096) | (0.03) | (0.0326) | (0.0319) |
| s55_06_2009 | -0.0520 | -0.0169 | -0.0157 | -0.0187 |
| | (0.0841) | (0.013) | (0.0137) | (0.0136) |
| s55_07_2008 | 0.3756 | -0.0752 | -0.0963 | -0.0701 |
| | (0.373) | (0.1194) | (0.126) | (0.1108) |
| s55_07_2009 | 0.3391 | 0.0422* | 0.0408 | 0.0289 |
| | (0.2496) | (0.0248) | (0.0262) | (0.0262) |
| s55_07_2010 | 0.0681 | 0.0143 | 0.0104 | 0.0135 |
| | (0.0606) | (0.0141) | (0.0138) | (0.0144) |
| s55_08_2009 | -0.4895* | -0.0653 | -0.0724 | -0.0275 |
| | (0.2731) | (0.1086) | (0.1111) | (0.0972) |
| s55_08_2010 | -0.1032 | -0.0188 | -0.0269 | -0.0275 |
| | (0.1255) | (0.0247) | (0.0287) | (0.0281) |
| s55_08_2011 | -0.0955 | 0.02486* | 0.0298** | 0.0191 |
| | (0.0698) | (0.0149) | (0.0146) | (0.0144) |
| s55_09_2010 | 0.1115 | 0.0322 | 0.0440 | 0.0542 |
| | (0.1396) | (0.1017) | (0.1074) | (0.0945) |
| s55_09_2011 | 0.1146 | 0.0307 | 0.0361 | 0.0057 |
| | (0.1121) | (0.0211) | (0.0234) | (0.0231) |
| s55_09_2012 | -0.1093* | -0.0227 | -0.0233 | -0.0239 |
| | (0.0586) | (0.021) | (0.0215) | (0.0206) |
| s55_10_2011 | -0.0850 | -0.0896 | -0.1062 | -0.0217 |
| | (0.1211) | (0.0981) | (0.1014) | (0.0915) |
| s55_10_2012 | 0.0732 | -0.0290 | -0.0318 | -0.0396 |
| | (0.0952) | (0.0314) | (0.0316) | (0.0319) |
| s55_10_2013 | -0.0398 | 0.0022 | -0.0003 | -0.0007 |
| | (0.0622) | (0.0245) | (0.0247) | (0.0242) |
| Year Indicator | Yes | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes | Yes |
| Observations | 5287 | 5353 | 5388 | 5353 |
| Number of id | 2707 | 2748 | 2762 | 2748 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.4: The Policy Impact on the Change in Productivity for Firms Sized 50 to 59

| Dependet Variable | D.Productivity | D.Productivity | D.Productivity |
|---|---|---|---|
| | (1) | (2) | (3) |
| L.Productivity | -0.7040*** | -0.7209*** | -0.7335*** |
| | (0.1221) | (0.0872) | (0.0772) |
| L.D Productivity | -0.3003*** | -0.3095*** | -0.2405*** |
| | (0.0893) | (0.0692) | (0.0615) |
| L.Ln Capital | | -0.1329* | -0.1315* |
| | | (0.0700) | (0.0683) |
| L.Ln Labor | | | -0.0827 |
| | | | (0.1186) |
| L.Smaller than 55 | -0.2637 | -0.1657 | -0.2553 |
| | (0.2909) | (0.2735) | (0.2504) |
| s55_05_2006 | 0.4715 | 0.3412 | 0.3424 |
| | (0.3306) | (0.3135) | (0.2829) |
| s55_05_2007 | 0.0377 | 0.0523 | 0.0419 |
| | (0.0993) | (0.0968) | (0.0979) |
| s55_05_2008 | 0.0637 | 0.0296 | 0.0363 |
| | (0.0723) | (0.0702) | (0.069) |
| s55_06_2007 | 0.4197 | 0.1546 | 0.2440 |
| | (0.3847) | (0.3679) | (0.349) |
| s55_06_2008 | 0.1011 | 0.0556 | 0.0716 |
| | (0.1121) | (0.1047) | (0.1009) |
| s55_06_2009 | 0.0539 | 0.0253 | 0.0239 |
| | (0.0653) | (0.0654) | (0.0643) |
| s55_07_2008 | -0.1137 | -0.0991 | -0.1088 |
| | (0.4224) | (0.3907) | (0.3624) |
| s55_07_2009 | -0.2197 | -0.1772 | -0.1710 |
| | (0.1409) | (0.1288) | (0.118) |
| s55_07_2010 | -0.0501 | -0.0715 | -0.0651 |
| | (0.0627) | (0.0614) | (0.0599) |
| s55_08_2009 | 0.4874 | 0.2524 | 0.3048 |
| | (0.4455) | (0.4047) | (0.3546) |
| s55_08_2010 | -0.1330 | -0.1372 | -0.1177 |
| | (0.1260) | (0.114) | (0.1047) |
| s55_08_2011 | -0.0444 | -0.0384 | -0.0412 |
| | (0.0691) | (0.0673) | (0.0654) |
| s55_09_2010 | 0.5948 | 0.4673 | 0.4804 |
| | (0.3878) | (0.3508) | (0.3152) |
| s55_09_2011 | -0.0624 | -0.0412 | -0.0120 |
| | (0.135) | (0.1296) | (0.1222) |
| s55_09_2012 | -0.0082 | -0.0105 | -0.0086 |
| | (0.0714) | (0.0714) | (0.0693) |
| s55_10_2011 | 0.6031 | 0.4212 | 0.4275 |
| | (0.4201) | (0.4106) | (0.3696) |
| s55_10_2012 | -0.1817 | -0.1780 | -0.1543 |
| | (0.1338) | (0.1246) | (0.1145) |
| s55_10_2013 | 0.1234 | 0.0855 | 0.0858 |
| | (0.0865) | (0.0885) | (0.0872) |
| s55_11_2012 | 0.7305* | 0.5968* | 0.6045* |
| | (0.384) | (0.3421) | (0.3343) |
| s55_11_2013 | -0.0174 | -0.0461 | -0.0313 |
| | (0.1171) | (0.1144) | (0.1076) |
| Year Indicator | Yes | Yes | Yes |
| Industry ISIC2 Indicator | Yes | Yes | Yes |
| Observations | 5282 | 5282 | 5282 |
| Number of id | 2707 | 2707 | 2707 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1