The Impact of the Minimum Wage on the Destruction and Creation of Products *

Roberto Alvarez
University of Chile

Lucas Navarro
Alberto Hurtado University

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Abstract

We study the impact of changes in the legal minimum wage on the creation and destruction of products at the firm level. This can be relevant way to increase firm productivity and to explain why increase in minimum wage have minor effects on employment. Our identification strategy exploits as a quasi-experiment a large and 3-year predetermined increase in minimum wages during 1998-2000 in Chile and the differences in products exposure to these changes. Our main results indicate that increases in minimum wages raise the destruction of products that are more unskilled labor–intensive and that firms introduce products that are more intensive in skilled workers. The impact is relevant. An annual nominal increase of about 10% in the minimum wage as occurred in this period increases the probability of dropping unskilled labor products in 1.4% and reduce the probability of creating unskilled labor products in 1.1%. Our results are robust to sample selection issues, to control for confounding factors and to use alternative definitions of exposure.

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1. Introduction

There is an abundant and controversial literature about the impact of legal minimum wages on labor markets, in particular several works have been done evaluating the effects on wages, employment, young workers labor outcomes, and on poverty and inequality. Recent literature review indicates that changes in minimum wages are associated with minor reductions in employment (Belman and Wolfson, 2014; Neumark, et al. 2014). In some cases, this effect has been found to be positive (Card and Krueger, 1995; Machin and Manning, 1996). The main explanation for these findings is that in monopsonistic markets, a rise in minimum wage reduces market power and firms expand employment (Schmitt, 2013)[1].

Surprisingly, there is not much evidence on the impact of the minimum wage using firm-level data. In some recent papers, Mayneris et al. (2014) study how changes in minimum wages affect firm's productivity and survival in China, and Draca et al. (2011) look at the impact of the minimum wage on wages and profitability for U.K. firms. The study of firm level responses to changes in labor costs would contribute to a better understanding on the mechanisms behind the aggregate relationship between the minimum wage and employment. Microeconomic studies can also help to illustrate

[1] See De Fraja (1999) for a model where this result is not due to monopsony.

the heterogeneous impact of labor market policies and would eventually be useful for complementary policies.

In the case of the minimum wage, it has been argued that low effects on employment - and also on survival and profitability – may be due to that firms may adjust to these change through different mechanisms (Schmitt, 2013; Hirsch et al. 2015). One of them is increasing their productivity when they face this negative shock[2]. There are several sources of productivity growth: investment in new technologies, probably more capital-intensive, doing a better and more careful selection of workers (Autor et al., 2007), or changing the product mix by concentrating their resources in the more productive products (Bernard et al., 2010).

In this paper, based on recent microeconomic literature on multi-product firms, we analyze how changes in the minimum wage is associated with changes in the mix of product, i.e., the introduction of new products and the drooping of some of them as a potential mechanism for avoiding the negative effects of the increase in labor costs. In these theoretical models, firms endogenously sort across products and variations in the product mix may have important positive effects on firm and aggregate productivity (Bernard et al. 2010). The creation and destruction of products

[2] Other alternative, in less competitive industries, is that firms raise prices and trespass to consumers the increase in labor costs Aaronson (2001); Wadsworth (2010)

may occur as a result of policy changes, such as trade liberalization (Bernard, et al. 2011) or the exposure to competitive pressures (Mayer, et al. 2011). In both cases, and similar to what we expect in the case of a negative shock as the increase in the minimum wage, firms react by increasing production of their most productive, and hence higher-profits goods, that would allow them to survive in the new environment.

We contribute then to two strands of the literature. First, in terms of impact evaluation of labor market policies, we provide novel firm-level evidence on the impact of minimum wages in a new dimension. Second, regarding the literature of multi-product firms, we analyze an under-studied determinant of products creation and destruction. Most of the previous literature has focused on the effects of trade liberalization (Nocke and Yeaple, 2014; Goldberg et al., 2010; Mayer et al., 2014) and it shows, with the exception of Qiu and Zhou (2013), that changes in the product mix may have large and positive effects on productivity.

We take advantage of the large increase of the minimum wage in Chile taking place between 1998 and 2000, when the Minister of Finance implemented a predetermined increase over three years. This was in contrast to previous periods when minimum wage increases were planned on a yearly level. This change is important for our identification strategy because average annual increases may be affected by economic conditions, such as the evolution of TFP and other macroeconomic variables. As shown in Figure 1, the real increase in minimum wage was, on average, 7.3% in those three years (approximately 10% in nominal terms), well above the increase in preceding and succeeding years. During the beginning of the 1990s, the minimum wage increased, on average, 4.2% per year and 2.5% per year during 2001-2005[3].

Our identification strategy exploits as a quasi-experiment this large increase in minimum wages and the differences in products exposure to these changes. We consider as exposed products to those that are more intensive in unskilled labor (production or blue-collar workers) and these unskilled-intensive products would be the more affected by the increase in minimum wage. As we do not observe product-specific input intensities, we take advantage of the information for single-product firms and we use them as a proxy for unskilled labor–intensity of products produced by multi-product firms. The underlying assumption of this procedure is that for each produced product, multi-product firms use the same technology of single-product firms. In different frameworks, Ma, et al. (2014) and De Loecker, et al. (2016) use the same assumption.

[3] See Alvarez and Fuentes (2011) and Velásquez (2009) for a discussion on this issue and how the increase in minimum wage was well above the labor productivity growth.

Our main results indicate that an increase in minimum wages effectively increase the destruction of products that are more unskilled labor–intensive and that firms introduce products that are more intensive in skilled workers. The impact is relevant. An increase of about 10% as that occurred between 1998 and 2000 increase the probability of dropping unskilled labor products in 1.4% and reduce the probability of adding unskilled labor products in 1.1%. Our results are robust several robustness checks such as, sample selection issues, controlling for confounding factors and to alternative definitions of exposure. We also show evidence that our findings are hard to be explained by difference in previous trends for exposed and non-exposed firms.

The paper is structured as follows. In the second section, we present the data. In the third section, we discuss the methodology. In the fourth section, we present our basic results and the robustness checks. The fifth section concludes.

2. Data

We use data from the national annual manufacturing survey (Encuesta Nacional Industrial Anual, ENIA), managed by the official Chilean statistics agency (INE). The unit of observation is a plant with ten or more employees and there are on average more than 4,000 plants per year in the sample.

The ENIA, in addition to information on plant characteristics, provides the data about plants' products. The latter information is contained in "Formulario Número 3" of the survey (Form 3, from now on, F3) and allows us to identify the specific goods that the plants produce[4]. The information on plant products is available up to 2003 but there was a change in products classification in 2001. Even though there are harmonization tables for the two product classifications, the prevalence of product mix changes that would result for 2001 seems too high to be reliable. For this reason, we consider plants that introduced product mix changes only during the period 1996-2000.

Products are defined according to local classifications denoted by CUP (Unique Products Classification). The product information is more disaggregated than a seven-digit Second Revision International Standard Industry Classification (ISIC). Hereafter, we will refer to the more disaggregated definition of a product as "product" or "ENIA product." It is possible to assign the products to different seven-digit and more aggregate

[4] It should be noted that more than 95% of the firms produced in a single plant in 1996, the only year with firm and plant level information available. For this reason, we will use the terms firm and plant interchangeably.

ISIC categories. We will refer to two-digit ISIC categories as "sectors" and four-digit ISIC categories as "industries." There are 10 sectors, 91 industries, 257 five-digit ISIC categories, 587 six-digit ISIC categories and 2112 ENIA products in the pooled 1996-2000 sample. In Table 1, we present information on the number of plants and products per year under alternative product aggregations for the sample used in this study. The total number of firms decreased significantly over the years, by much more than the total number of products, which remained approximately constant considering the two extreme years in our sample. Consequently, the average number of products per firm decreased from 2.6 to 2.1 between 1996 and 2000.

The data on plants' products by year allows us to identify the creation and destruction of a product over time. Thus, our definition of product creation (adding) considers the case of firms producing a product in year t, which was not produced in t-1. Similarly, product destruction (dropping) refers to a product that was produced in t-1 but not in t. In Table 2, we present information on the percentage of products added and dropped between two consecutive years in relation to the total number or plant-products observations in each year. On average, 21% add 15% of the plant-products in the sample were dropped and added every year, respectively. Approximately half of the products drop rate and two thirds of the entry rate come from the exit and entry of firms to the sample, correspondingly. Interestingly, the add and drop rates reach their lowest and greatest levels, respectively, in 1998, one year after the new three-year minimum wage policy was announced. In Table 3, we show the incidence and relevance of product mix changes across sectors. The figures show that the incidence of product mix changes is higher in the Wood and Metallic sectors and lower in Food and Beverages.

3. Methodology

We are mainly interested in analyzing how variations in minimum wage affects product switching. To do that, we estimate the following equations:

$$P\left(Entry_{pft} = 1\right) = \alpha_{pf} + \alpha_{jt} + \delta_1 (MW)_{t-1} * (Exp)_{p0} + X\beta_{ft} + \varepsilon_{pft}$$

$$P\left(Exit_{pft} = 1\right) = \alpha_{pf} + \alpha_{jt} + \delta_2 (MW)_{t-1} * (Exp)_{p0} + X\beta_{ft} + \varepsilon_{pft}$$

Where α_{pf} is a set of firm-product fixed effects, αjt is a set of industry-year fixed effects for capturing shocks that are common to products belonging to the same industry j, MW is the minimum wage (in logs), Exp is our measure of exposure, and X is a vector of firms characteristics, including the measure of exposure.

Following Bernard et al (2006), who analyze the exposure of manufacturing plants in the U.S. to the imports competition from low-wage countries, our measure of exposure is given by:

$$Exp = \ log\ [Blue - collar\ wage\ bill\ /\ White - collar\ wage\ bill]$$

This measure captures both differences in wages and unskilled workers intensity at the firm-level. Given that for multi-product firms, we only observe the wage-bill ratio at the firm-level and not at the product level, as desired, we use the product information for this ratio for single-product firms. Under the assumption that unskilled intensity for a determined product is similar between single-product and multi-product firms[5], we can define our measure of exposure as the average for single-product firms that produce the same product that multi-product firms.

Consider a firm producing two products, denoted by 1 and 2. The wage-bill ratio of the firm (ω_f), will be the weighted average of the wage-bill of the workers utilized in the production of both goods. This is:

$$\omega_f = \alpha_1\omega_1 + \alpha_2\omega_2$$

When $\alpha_1 \rightarrow 1$, then $\omega \rightarrow \omega_1$.

Then if the multi-product firm produces product p, then we use the average of the exposure variable across all of single-product firms that

[5] Ma et al. (2014) use a similar assumption for unobserved capital intensity of new exporters in China. De Loecker et al. (2016) rely on the same assumption to estimate product-level production functions.

produce p in the first period of our sample, just the year before the large increases in the minimum wage. In the case that other single-product firms did not produce some products, we use the information for single-product firms producing those products defined at higher levels of aggregation, i.e. at the 6-digit and 5-digit ISIC levels. Overall, we are able to identify the product exposure variable for more than 93% of the observations in our sample.

We expect that an increase in the minimum wage reduces the probability of product entry ($\delta_1<0$) and that increases the probability of product exit ($\delta_2>0$). As given for the interaction with exposure, the effect will be higher for unskilled-intensive products. In fact, the marginal change of an increase in the minimum wage will be given by:

$$Marginal\ Change\ = \frac{\partial P(entry\ or\ exit)}{\partial Log(Wmin)} = \delta * \omega$$

The model is estimated using a linear probability model, and not a Probit or Logit, because the linear model allows to introduce fixed-effects to control for unobserved heterogeneity. In some of our regressions, we also introduce categorical variables according to the distribution of ω. In particular, we use a dummy for products with unskilled intensity in the superior third of the distribution. Also, we check the robustness of our results to changes in how exposure is measured and by doing some placebo tests.

4. Results

Table 4 presents our basic results for product destruction and creation. We present results using the continuous measure of exposure as defined in the previous section with and without control variables. We also use a discrete measure of exposure Q3EXP, which is a dummy equal to 1 if the product is in the upper tercile of the distribution of the exposure variable and 0 otherwise. Our findings for product destruction suggest that an increase in minimum wage raise the probability of dropping products, and the impact is higher for more unskilled labor-intensive products. In the case of product creation the parameter for the interaction between minimum wage and exposure is negative and significant, indicating that an increase in labor costs reduce the probability of introducing a product that is more intensive in unskilled labor. In term of the control variables, its introduction does not affect the sign and significance of our interest variables and are significant. These results show that larger and more productive firms are less likely to both drop and introduce new products.

The quantitative impact is relevant, but not dramatic. Evaluating the results with the dummy for exposure, an increase of 10% in nominal minimum wage, raises the product destruction of unskilled labor-intensive products in about 1.4 percentage points, compared with a sample average of 21%. In the case of product creation the impact is similar – about 1.1 percentage points – and the sample average is 15%.

We undertake several robustness checks of our results. First, we only run the model for surviving firms because product destruction and creation can be driven by exit and entry of the firms. The results, presented in Table 5, are very similar to those of Table 4 and indicate that a 10% increase in minimum wage raise in 0.8 percentage points the probability of dropping unskilled labor-intensive products and a 1.1 percentage points decrease in the probability of adding unskilled labor-intensive products. This, compared with the average 10% and 9% product drop and add rates among survivors in the data, suggests the existence of relatively larger effects of the minimum wage among survivors than in the whole sample.

Second, we also estimate the model to analyze the effect of the minimum wage on changes in the exported product mix (see Table 6).. Typically, firms export their most productive products, which are less likely to be affected by changes in the minimum wage. Also, the existence of fixed costs of exporting, would suggest more persistence of selling products in international markets. The evidence suggest some support for this idea.

We find that exported products are less sensitive to changes in minimum wage. Not only the parameter is lower compared to the case of the whole sample for the exposure dummy, but also the interaction of the continuous exposure variable and minimum wage turns out to be not significant.

Third, given that this period coincides with the Asian crisis that affected Chile, and more unskilled intensive products may be more affected by the contraction in the economic activity, we introduce an interaction between aggregate GDP growth and our measure of exposure. Table 7 shows the results. Bernard and Okubo (2016) find that recessions are period of increased product creation and destruction in Japan. The negative coefficients for the interaction terms of our exposure variable with the growth of GDP (dGDP) are therefore consistent with their evidence. More interestingly, including this interaction term does not affect our main results related to the effect of variations in the minimum wages. We performed a similar exercise using the interaction of our exposure variable with sectorial GDP growth and the results are basically unchanged.

Fourth, given that firms may change products according to their product scope, we also introduce an interaction of minimum wage with a measure of product scope. We define product scope as the log of 1 plus the coefficient of variation of the firm's 7-digit ISIC codes. The larger this variable the more disperse the production structure of a firm. The intuition is that variations in the last digits of the firms' product code imply lower dispersion in a product scope than variations in the 6 or 5 digit level of their ISIC codes. We would expect that increases in the minimum wage would lead to increased destruction of products away from the scope and reduced creation of those products.

In Table 8 we show our findings in the case of including the interaction between minimum wage and product scope. An alternative explanation for our findings is that labor costs may induce firms to rationalize the product mix and concentrate resources on the products closer to their scope or competence as modelled by Eckel and Neary (2010). We find, as expected, that this interaction is negative for product creation and positive for product destruction, showing evidence of specialization in core competences. More importantly, our results for the interaction between minimum wage and unskilled labor-intensity holds.

We present in Table 9 a placebo test to check that our results are not driven by some spurious relationship between minimum wage and changes in the product mix. To do that, we generate random allocations of products unskilled-intensity for multi-product firms. Our findings indicate that the interaction between minimum wages and these random intensities is not significant. Then, changes in minimum wages seems to be effectively associated with variation in product mix that are dependent on the unskilled workers intensity of the products.

We also estimate our main equations using two additional alternative measures of exposure. In Table 10, we report the results using the Log of Administrative Workers as the exposure variable, under the assumption that these workers are less likely to be affected in the way predicted in our methodology. Our estimates suggest a less clear evidence of an effect of this exposure variable and even a negative effect of the minimum wage on products destruction and a positive effect on products creation.

In Table 11, we consider instead as exposure variable, the “bite” of the minimum wage, defined as the fraction of workers earning up to 1.2 minimum wages in 1996 at 3-digit ISIC level industries, using individual data from the 1996 National Survey of Social-Economic Characterization (CASEN). We use the continuous value of this fraction and we also construct a dummy variable for the upper third of the “bite” distribution. The results are presented in Table 11 for both the total sample (columns 1 to 4) and a sample of surviving firms between two consecutive years (columns 5 to 8). The results are unchanged and confirm the findings that an increase in minimum wage is associated with dropping unskilled-intensive products and adding more skilled-intensive products.

Our finally experiment consists of estimating our model using a more restrictive definition for product mix changes, that is considering only product additions and dropping at the more aggregate 6-digit ISIC level. That is, it could be the case that a firm creates a product at the 7-digit level but not at the 6-digit level, if the created product has the same 6-digit code than the rest of the prevailing products of the firm. Considering too disaggregate definitions of product may also be related to spurious product innovations that the 6-digit product definitions help to mitigate. Table 12 presents our findings using this alternative aggregation for defining products. The results, again, are mostly unchanged.

Finally, we show some evidence regarding the parallel trends assumption between more exposed and less exposed firms. One traditional concern with this differences-in-differences approach is that the impact could reflect uncontrolled previous trend in the interest variable for treated and control group. We do not have enough data on product creation and destruction to look at the period before the change in minimum wage, but we can analyze the behavior of related variables. Consistent with our estimations, we define treated firms are those with unskilled intensity in the superior third of the distribution and as control the rest of the firms. First, we do not see differences in evolution of the average number of skilled and unskilled workers as it would be if for any other reasons both groups of firms were changing products and unskilled-intensity before the change in minimum wage (Figure 2). Also, other variables that may be related to changes in the product mix, such as exporting and technology investment (measured as purchases of foreign licenses), do not show differences in the previous period to changes in the minimum wage (Figure 3)[6].

In sum, our general evidence seems to be robust and consistent with the idea that lower employment effects at the firm-level due to increasing minimum wage may be explained by firms adjustments in the product mix aimed to increase productivity. In fact, as it is shown in Figure 4, during this period, firms that introduced changes in the product mix outperformed in terms of productivity to those that did not introduce variation in their products.

5. Conclusions

There is a large debate on the effects of minimum wages on employment, but few empirical evidence about how firms respond and adjust to these shocks. We contribute to this literature by studying the

[6] We show the percentage of exporters and firms purchasing licenses in both groups. Similar evidence is found for the exports to sales and licenses to sales ratios.

impact of changes in minimum wage on the product creation and destruction at the firm level. Our identification strategy exploits as a quasi-experiment a large and 3-year predetermined increase in minimum wages during 1998-200 and the differences in products exposure to these changes.

Our main results indicate that an increase in the minimum wages effectively increase the destruction of products that are more unskilled labor – intensive and that firms introduce products that are more intensive in skilled workers. The impact is economically relevant, but not dramatic. In or basic regressions, we find that an annual nominal increase of 10% as that occurred between 1998 and 2000 raises the probability of dropping products of low skill intensity in 1.4% and decrease the probability of adding those sort of products in 11.%. Our results are robust to sample selection issues, controlling for confounding factors and to alternative definitions of exposure.

Then our evidence is consistent with the idea that lower employment effects of higher minimum wage at firm-level may be explained by adjustment mechanisms for increasing productivity. In our case, several previous evidence has shown that changes in the product mix may be an important way to increase productivity, by reallocating resources within the firm. Obviously, there are other adjustment mechanism that may be explored. However, it seems that product creation and destruction is a relevant and robust one.

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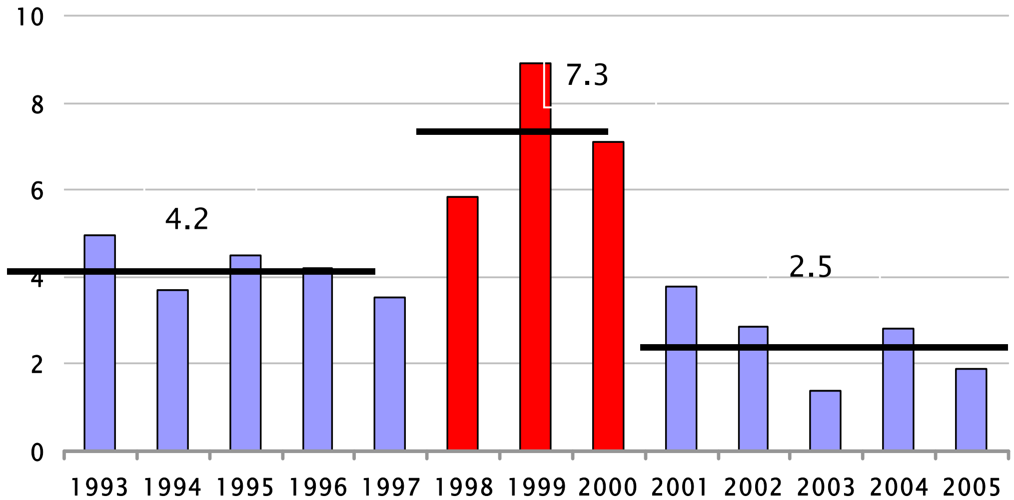
Figure 1

Real Minimum Wage Growth Rate: 1993-2005



Source: Authors Elaboration based on Beyer (2008)

Figure 2

Previous Trends in Skilled and Unskilled Workers

Figure 3

Previous Trends in Exporting and Licenses

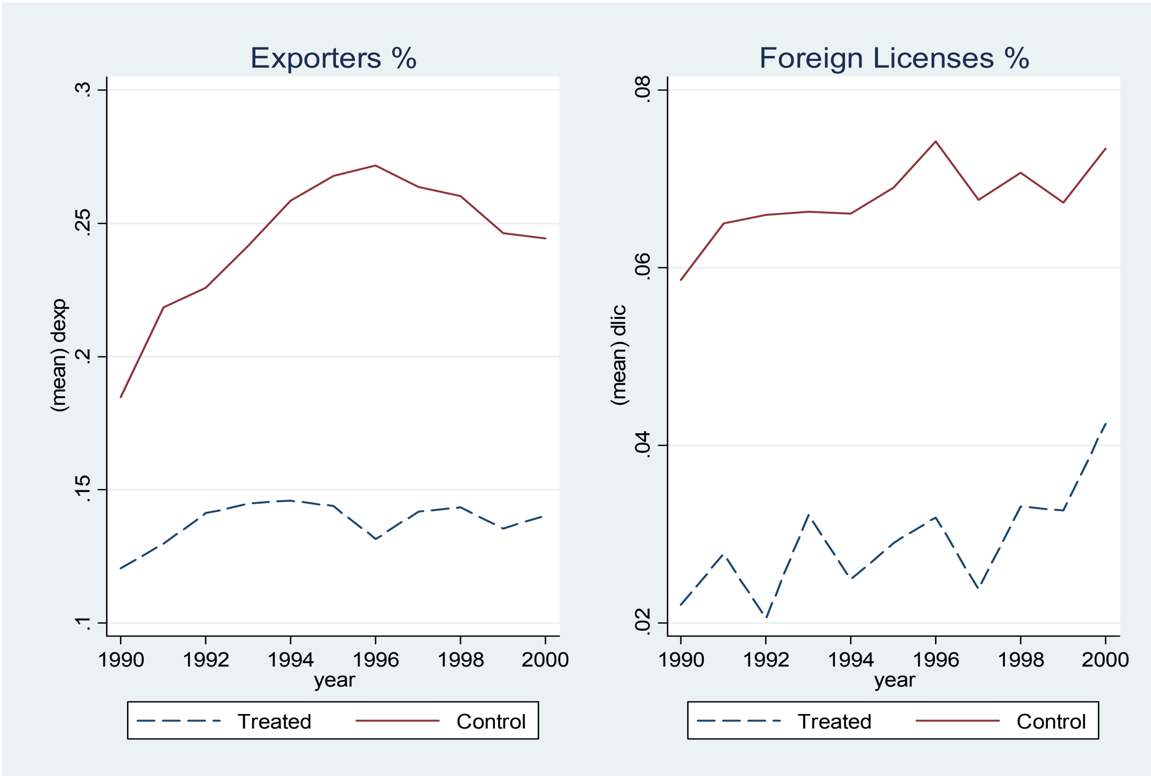


Figure 4

Productivity Evolution and Product Creation and Destruction

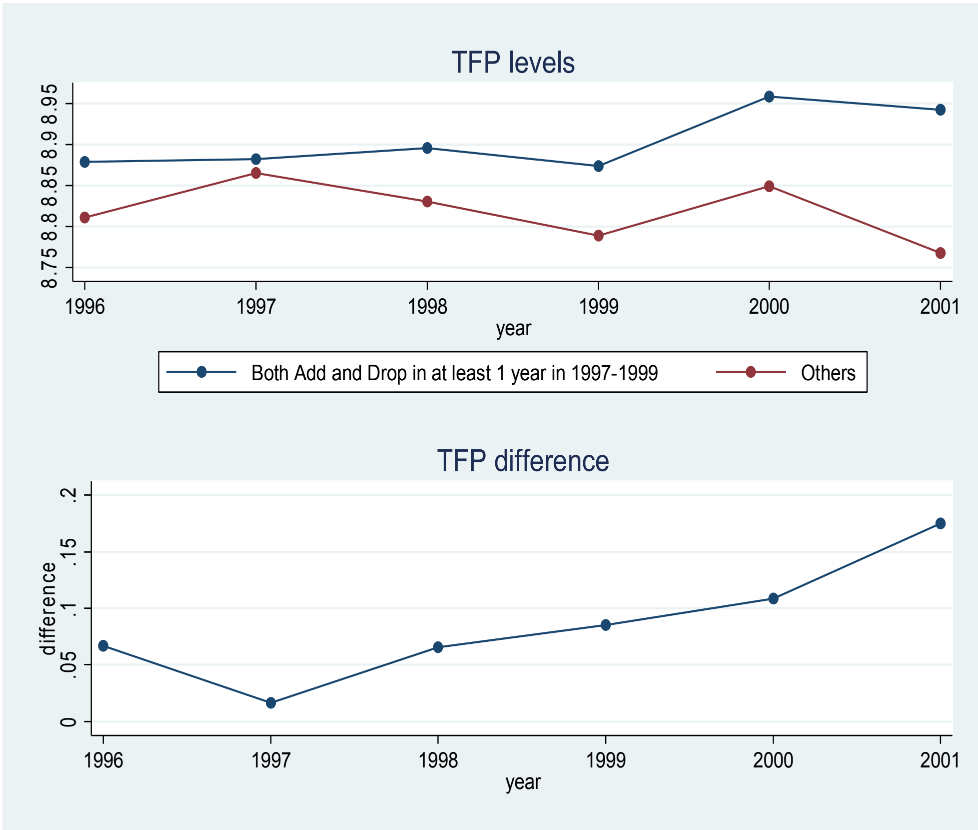


Table 1
Data Description: Plants and Products

Year	Plants	Products	Products per Plant	ISIC 6 digits	ISIC 5 digits
1996	4541	1742	2.61	546	246
1997	4310	1697	2.54	555	248
1998	3939	1656	2.38	542	247
1999	3659	1641	2.23	543	244
2000	3611	1741	2.07	553	245

Table 2
Average Product Destruction and Creation Rates by Year

Year	Drop	Add	Drop	Add
	Total Sample		Survivors(t,t+1)	
1996	0.18	.	0.09	.
1997	0.20	0.16	0.08	0.10
1998	0.26	0.11	0.13	0.06
1999	0.21	0.17	0.10	0.11
2000	.	0.17	.	0.10
Average	0.21	0.15	0.10	0.09

Table 3
Average Product Destruction and Creation Rates by Sector

Sector	Drop	Add	Drop	Add
	Total Sample		Survivors (t,t+1)	
Food and Beverage	0.16	0.12	0.05	0.06
Textile	0.22	0.13	0.08	0.08
Wood	0.29	0.22	0.15	0.16
Pulp and Paper	0.20	0.16	0.10	0.08
Chemicals	0.20	0.15	0.12	0.10
Non-metallic	0.22	0.15	0.07	0.07
Metallic	0.22	0.27	0.16	0.21
Machinery	0.22	0.16	0.12	0.10
Other Industries	0.19	0.14	0.08	0.08
Average	0.21	0.15	0.10	0.09

Table 4
Basic Model

	(1) Drop	(2) Add	(3) Drop	(4) Add	(5) Drop	(6) Add	(7) Drop	(8) Add
Q3EXP	-0.876***	0.846***			-0.813***	0.853***		
	[0.120]	[0.028]			[0.120]	[0.028]		
Q3EXPxMW	0.136***	-0.111***			0.130***	-0.111***		
	[0.013]	[0.003]			[0.013]	[0.003]		
50-99					-0.095***	-0.015***	-0.096***	-0.014***
					[0.017]	[0.004]	[0.017]	[0.004]
100-199					-0.175***	-0.026***	-0.174***	-0.024***
					[0.027]	[0.005]	[0.027]	[0.006]
200+					-0.209***	-0.041***	-0.203***	-0.041***
					[0.036]	[0.008]	[0.036]	[0.009]
Y/L					-0.062***	-0.003*	-0.064***	-0.000
					[0.008]	[0.001]	[0.008]	[0.002]
EXP			-0.158**	0.330***			-0.150**	0.331***
			[0.063]	[0.031]			[0.064]	[0.031]
EXP x MW			0.025***	-0.040***			0.023***	-0.041***
			[0.008]	[0.004]			[0.008]	[0.004]
Observations	35,875	31,204	35,875	31,204	35,875	31,204	35,875	31,204
R-squared	0.562	0.577	0.558	0.516	0.567	0.578	0.563	0.517

Exp is the log of the unskill/skill wage bill ratio at the product level using product level data from single product firms. Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 5
Surviving Plants

	(1)	(2)	(3)	(4)
	Drop	Add	Drop	Add
Q3EXP	-0.539***	0.834***		
	[0.089]	[0.030]		
Q3EXP x MW	0.076***	-0.109***		
	[0.010]	[0.003]		
EXP			-0.058	0.332***
			[0.045]	[0.032]
EXP x MW			0.010*	-0.041***
			[0.005]	[0.004]
Observations	31,570	28,099	31,570	28,099
R-squared	0.647	0.568	0.645	0.509

Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 6

Product Drop and Add in International Markets

	(1)	(2)	(3)	(4)
	Drop X	Add X	Drop X	Add X
Q3EXP	-0.107	0.178***		
	[0.072]	[0.044]		
Q3EXP x MW	0.017**	-0.020***		
	[0.008]	[0.004]		
EXP			0.002	0.021
			[0.048]	[0.036]
EXP x MW			-0.001	-0.003
			[0.006]	[0.004]
Observations	35,875	31,204	35,875	31,204
R-squared	0.425	0.411	0.425	0.410

Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 7
Interactions with Aggregate GDP Growth

	(1) Drop	(2) Add	(3) Drop	(4) Add
Q3EXP	-0.864***	0.847***		
	[0.120]	[0.028]		
Q3EXP x MW	0.137***	-0.110***		
	[0.013]	[0.003]		
Q3EXP x dGDP	-0.005**	-0.001***		
	[0.002]	[0.000]		
EXP			-0.144**	0.335***
			[0.063]	[0.031]
EXP x MW			0.024***	-0.041***
			[0.008]	[0.004]
EXP x dGDP			-0.002	-0.001***
			[0.001]	[0.000]
Observations	35,875	31,204	35,875	31,204
R-squared	0.562	0.577	0.558	0.516

Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 8
Interactions with Product Scope

	(1) Drop	(2) Add	(3) Drop	(4) Add
Q3EXP	-0.916***	0.882***		
	[0.133]	[0.032]		
Scope	-9.823***	6.729***	-7.287**	4.811***
	[3.162]	[1.080]	[3.172]	[1.225]
Q3EXP x MW	0.143***	-0.117***		
	[0.015]	[0.003]		
Scope x MW	1.131***	-0.799***	0.810**	-0.561***
	[0.387]	[0.132]	[0.389]	[0.149]
EXP			-0.162**	0.357***
			[0.073]	[0.035]
EXP x MW			0.027***	-0.044***
			[0.009]	[0.004]
Observations	29,031	25,002	29,031	25,002
R-squared	0.573	0.591	0.569	0.525

Scope is the log of 1 plus the Coefficient of Variation of the Product Codes at the Plant Level. Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 9

Assigning EXP values randomly across products

	(1) Drop	(2) Add	(3) Drop	(4) Add
Q3EXP	0.013	-0.028		
	[0.196]	[0.081]		
Q3EXP x MW	-0.002	0.003		
	[0.024]	[0.010]		
EXP			-0.126	0.003
			[0.103]	[0.038]
EXP x MW			0.016	-0.000
			[0.013]	[0.005]
Observations	35,801	31,178	35,801	31,178
R-squared	0.580	0.509	0.580	0.509

Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 10

Exposure Variable Defined as Log Administrative Employees

	(1)	(2)	(3)	(4)
	Drop	Add	Drop	Add
Q3AD	0.272**	-0.679***		
	[0.132]	[0.050]		
Q3AD x MW	-0.055***	0.080***		
	[0.015]	[0.006]		
AD			0.028	-0.350***
			[0.083]	[0.038]
AD x MW			-0.013	0.042***
			[0.010]	[0.005]
Observations	36,674	31,939	36,674	31,939
R-squared	0.558	0.525	0.557	0.510

AD is the log of the number of administrative employees at the product level using product level data from single product firms. Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 11
Exposure Variable Defined as Bite of minimum wage from CASEN 1996

	(1) Drop	(2) Add	(3) Drop	(4) Add	(5) Drop	(6) Add	(7) Drop	(8) Add
Q3Bite	-1.733***	0.454***			-0.808***	0.452***		
	[0.122]	[0.053]			[0.079]	[0.056]		
Q3Bite x MW	0.209***	-0.055***			0.099***	-0.055***		
	[0.014]	[0.006]			[0.009]	[0.007]		
Bite			-3.089***	0.768***			-1.447***	0.782***
			[0.192]	[0.076]			[0.136]	[0.080]
Bite x MW			0.381***	-0.091***			0.180***	-0.093***
			[0.023]	[0.009]			[0.016]	[0.010]
Observations	39,163	34,193	39,163	34,193	34,552	30,871	34,552	30,871
R-squared	0.564	0.497	0.565	0.498	0.646	0.491	0.646	0.491

Bite is the fraction of workers earning up to 1.2 minimum wages at the ISIC2-3digit level in logs. Total sample (columns 1-4), Survivors (columns 5-8). Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 12
Product Destruction and Creation Defined at the 6-digit ISIC Level

	(1)	(2)	(3)	(4)
	Drop	Add	Drop	Add
Q3EXP	-1.109***	0.266***		
	[0.205]	[0.062]		
Q3EXP x MW	0.155***	-0.038***		
	[0.025]	[0.007]		
EXP			0.045	0.114***
			[0.060]	[0.020]
EXP x MW			-0.002	-0.012***
			[0.007]	[0.002]
Observations	27,591	24,288	27,591	24,288
R-squared	0.560	0.471	0.558	0.471

Robust standard errors clustered at the plant-product level in brackets. All regressions include plant-product and industry-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1