The effects of shop opening hours deregulation: Evidence from Italy

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Abstract

We estimate the effects of shop opening hours deregulation on employment and number of firms in the retail sector. To identify the effects of interest, we exploit the staggered implementation of a reform that allowed Italian municipalities to adopt fully flexible opening hours in the late 1990s. Our findings indicate that the possibility of opening shops 24/7 increased employment in the retail sector by about 2% and raised the number of shops in the affected municipalities by about 1.6%. The effects were concentrated amongst workers employed in larger plants which were better able to exploit the flexibility introduced by the reform. An analysis of individual-level evidence suggests that the deregulation also produced a recompostion of employment towards employees against self-employed.

JEL Classification: J21, K20, L51, L81

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1 Introduction

The deregulation of shop opening hours has been a controversial topic in the policy debate for several years, as it involves social, political, economic, and even religious considerations. Despite the existence of a clear trend towards the liberalization of Sunday and public holiday openings in both the US and the EU regulatory frameworks, the time and extent of the deregulation still vary across countries, states, regions.[1] The supporters of regulatory interventions underline both the importance of the respect of the same day of rest for all workers and the risks that small retailers could suffer an unfair competition coming from large players, which are generally better able to cover longer work shifts. On the other hand, the advocates of liberalization stress that longer shopping hours have a positive impact not only on consumers' welfare, but also on employment, productivity and, ultimately, economic growth.

The liberalization of shopping hours has economic implications that go beyond the issue of granting workers the right to a weekly rest. First, the short-run effect on employment may be null or positive depending on the degree to which shops respond by opening longer hours or not; moreover, there may be an increase in the number of workers employed or just an increase in the number of weekly hours worked depending on the capability of firms to redistribute the working loads. In the longer run, instead, there may be more complex general equilibrium effects on the market structure whose final effect on employment and economic growth would be ex-ante ambiguous. On the one hand, larger and, on average, more competitive shops are likely to benefit more than the small players - e.g., if longer shopping hours facilitate price comparison (Clemenz, 1990) or if Sunday openings lower travel costs to shop locations (De Meza, 1984) - on the other hand, the fragmented demand, in a more competitive environment, may promote shop specialization and sustain small retailers.

[1] For a comprehensive review of regulatory changes in the US, see Burda and Weil (2004), see Maher (1995) for the UK case and Dijkgraaf and Gradus (2007) for the Netherlands. The debate originated in the US as back as in the seventeenth century with the Blue Laws - i.e., the laws designed to restrict or ban some or all Sunday activities for religious reasons, particularly to promote the observance of a day of worship or rest - and was revived in the mid-nineteenth century thanks to several Supreme Court appeals which, in most cases, upheld the legitimacy of bans. In Europe the debate has been much less heated until recent years, when a wave of deregulation involved - with much cross-country heterogeneity - northern countries like Denmark, UK and the Netherlands as well as Germany, Italy and Spain.

In this paper, we tackle the question empirically and estimate the effects of granting shops full flexibility in opening hours on the level and composition of employment and on the number of shops and their size distribution. To identify the effect of interest, we collected a novel dataset on the regulatory framework applicable to each Italian municipality in the period 2007-2016 and exploited the variation provided by the staggered implementation of a deregulation enacted from 1998 onwards at the municipal level. Our analysis relies on administrative data on the number of workers and plants located in each Italian municipality by sector of activity and plant size.

Our estimates show that, in a context of general contraction of the sector and of the Italian economy as a whole, deregulating the shopping hours helped lowering the decrease in both the number of workers and establishments by about 2%. In line with some theoretical predictions, the effect is mainly attributable to the positive impact on large retailers, who led the recovery. We complement the analysis with a series of robustness checks in order to address the main concerns on the identification strategy: we show that the results are robust when we take into account the possibility of geographical spillovers, the potential selection of deregulated municipalities and the different timing of the liberalization. In addition, we complement our analysis with some individual level evidence using the Italian Labor Force Survey (LFS). This allows us to control for workers specific characteristics and to grasp a more detailed picture of the employment relationships.

This paper relates to the relatively scant, and mostly empirical, literature on the regulation of retail activities. Due to data limitations, modeling issues and institutional features, most of the existing contributions focus on the liberalization of Sunday openings, and are coherent in estimating a positive impact on sectoral employment, with mixed results on other outcome measures like price levels and total sales.[2] Using US data, Goos (2004) exploits the

[2]The literature on the effects of regulation, indeed, has also focused on dimensions other than employment and market structure. For example, the long run effects of Sunday openings on price levels are ex-ante ambiguous: on the one hand, one could expect prices to fall due to increased competition and lower search costs (Clemenz, 1990; De Meza, 1984), on the other hand, the endogenous choice of opening hours on an extended choice set might lead to "specialization" and higher prices (Inderst and Irmen, 2005). However, the empirical contributions have provided mixed evidence, with Tanguay et al. (1995) finding increased prices in large stores, but decreased in small shops, while Burda and Weil (2004) and Senftleben-König (2014) could not find any significant effect in either the US and Germany. Similar to the price effect, there is no theoretical argument to assess how the deregulation affects total sales, given that consumers could substitute

variation of Blue Laws across U.S. states and over time and finds that these have a negative impact on the employment level. Exploiting a similar setting, Burda and Weil (2004) support the results by showing that Blue Laws led to losses in both part- and full-time retail workers. Skuterud (2005) estimates a positive effect of deregulation on total employment between 5 and 12% using Canadian data covering a relatively long period. As for the European countries, Bossler and Oberfichtner (2017) and Senftleben-König (2014) studied the deregulation in Germany, finding mixed evidence - no effect and mildly positive effect on part-time workers, respectively. From a methodological perspective, the most related contribution to ours is Paul (2015), who also exploits the variation in the deregulation of opening hours which took place in Germany in 2006-2007[3], and estimates the effects on both aggregate and individual-level outcomes finding that the reform increased the overall sector employment rate, and the individual employment probability by 2.5%, with marked differences across workers' subgroups and firm types.

We add to the existing literature in several ways. First, thanks to the very peculiar nature of the treatment in the Italian regulatory setting - i.e., confined within municipal boundaries - we are able to identify the average treatment effect at a very fine level, controlling for any potential confounding factor, policy-related distortion and regional peculiarity through several layers of fixed effects. Moreover, we manage to identify geographical spillovers so as to account for possible bias due to the sorting of employers, workers and consumers across municipalities with different regulatory frameworks. Second, our data allow us to consistently estimate the long-run effects of the deregulation on local market structures by looking at the number and size distribution of active plants. Third, the use of worker-level survey data allows us to detail the employment effects to an unprecedented level. Finally, we are the first to study the Italian case, which has unique features in the European context, i.e., a very small average size of the shops and a low level of productivity.

purchases during the week with Sunday purchases (*neutral* effect) or redirect expenditure from other sectors to the retail sector (*positive* effect). The empirical literature could not provide a definitive evidence, with Pilat (1997) and Goos (2004) estimating a sizable positive effect on total turnover in Sweden and the US, respectively, whereas Senftleben-König (2014) estimated a zero effect in Germany.

[3]More specifically, the jurisdiction on shop opening hours' regulation was transferred from the federal government to the state governments, whose interventions led to a progressive liberalization between November, 2006 and July, 2007. Paul (2015) uses the variation in deregulation across time and states to inform a difference-in-differences identification strategy.

The remainder of the paper is structured as follows: in section 2 we provide a description of the institutional background in Italy; Section 3 is devoted to the description of the dataset and the discussion of the main variables of interest; in Section 4 we discuss our identification strategy; in Section 5 we show our main results and in Section 6 we discuss several robustness checks that we run; in Section 7 we introduce the individual level analysis; and Section 8 concludes.

2 Institutional Background

In the OECD countries, retail trade is regulated under several dimensions. Restrictions generally apply to the localization of stores, the licenses needed to start a business, the periods of sales promotions and maximum discounts applicable, and shop opening hours. With respect to the latter, regulations may either specify the opening and closing hours and the maximum number of hours a shop can remain open, or restrict Sunday and public holidays shop openings.

The legislation on shop opening hours significantly varies across countries, even if different liberalization measures have been adopted in most of the OECD countries in recent years. According to the OECD Product Market Regulation indicator, in 1998 shop opening hours were completely liberalized in 8 countries (out of 26); this number raised to 16 (out of 34) in 2013. In any case, no legislation provides for a complete ban of Sunday or public holidays opening. Exceptions generally regard touristic areas or a limited number of Sunday or public holidays per year. In some jurisdictions, restrictions do not apply to small shops. In some cases, rules are fixed at the regional or local level: for example, in Germany and Spain the restrictions significantly vary across areas, and are less constraining in the capital cities. In addition to this, even in the countries where some limitation has been maintained, restrictions were loosened in the last years. For example, in 2015 the French Parliament passed a law ("loi Macron") to increase the number of Sunday openings allowed from 4 to 12.

In Italy, the retail trade regulation dates back to the first half of the XX century. Until

the end of the 1990s Sunday openings were generally prohibited and opening hours strictly limited, exceptions, yet, could be decided by the regional governments, thus returning a scattered regulatory picture over the national territory.

In 1998, then, a comprehensive reform of the sector was passed (the "Bersani Decree") with the aim of loosening some of the restrictions and boost competition. More specifically, the reform established a general regulation, that restricted both the number of Sunday openings (8 per year) and the daily opening hours (a maximum of 13 hours within the 7AM-10PM period) for all shops. Yet, two main exceptions were introduced: (i) shops could open every day in December in all municipalities; (ii) all the restrictions were removed in the municipalities which most relied on tourism. The regional governments were entrusted with the power to identify such municipalities (henceforth "touristic municipalities") and to apply limitations on the periods of the year or the areas of the municipality that were subject to the deregulated regime (i.e., periods or areas most subject to touristic flows).[4] In the following years, the regional administrations autonomously adopted the criteria to recognize municipalities the touristic status - thus exempting them from any restriction on shop opening hours - and made lists of such municipalities, which were updated over time.

In December 2011, eventually, all these rules were repealed: the Law Decree 201/2011 ("Salva Italia") completely liberalized days and hours of shopping all over the country thus overcoming the distinction between touristic and non touristic municipalities.

3 Data and Descriptives

In order to analyze the impact of shop opening hours deregulation we first had to reconstruct the regulatory framework that applied to each Italian municipality over the period of interest. To do this we collected the relevant regional legislation and examined the administrative acts adopted by all regional governments between 1998 and 2011 so as to identify the municipalities that were granted the status of "touristic area" at some point in time. The

[4] In all cases the regional regulations could not impose limits more rigid than the national-level benchmark discipline.

regional legislation is published on the institutional websites of the regional governments. This is also the case for some of the administrative acts under consideration; for the others, we required the regional administrations to disclose them upon request. We also checked whether, according to the regional law, the qualification of a municipality as touristic allowed shops to open 365 days a year or whether some restrictions were imposed at the regional level.[5] Thus, we built a dataset of all touristic municipalities, containing the regional law enactment date and the potential spatial or time limits. We could not gather information on three regions: Liguria, Toscana and Umbria, which we are forced to exclude from the analysis.[6]

The dataset comprises two subsets of municipalities: i) the *fully deregulated* i.e., those located in regions where regional laws did not provide any restriction to Sunday and holiday openings, and ii) the *partially deregulated* i.e., those subject to some time or spatial restriction. In Figure 1 we plot the fraction of fully and partially deregulated municipalities by year. The figure highlights the process of gradual deregulation to which Italian municipalities were subject until the complete deregulation passed at the end of 2011.[7]

[Figure 1]

In Figure 2, then, we show the maps of Piedmont and Lazio - two of the biggest regions in Italy - in 2010, right before the enactment of the full deregulation: dark blue areas correspond to touristic municipal areas, whereas light blue marks the partially deregulated municipalities, finally, grayish areas are relative to non touristic municipalities (i.e., restricted). The difference between the two plots reflects the distinct legal approaches followed by the regional authorities: while in Piedmont we do not record regional-level limitations to liberalization, in Lazio there were limitations in place at the central level, therefore the fully deregulated status represented an exception to the general rule.

[5]There were several regions with limitations in terms of time - e.g., stores were allowed to open up to a maximum number of Sundays during the year - or space (typically, vast municipalities were deregulated in their central neighborhoods only).

[6]In these regions the "touristic" status was autonomously decided by the municipalities themselves with local administrative acts.

[7]In Table A.1, moreover, we report the number of municipalities which transited from the "non-touristic" to the touristic status, per year and region, and the relative share on the total number of regional municipalities in parentheses.

[Figure 2]

We merged our municipality-year dataset on the regulatory framework with the Asia database.[8] This is an administrative dataset containing information on the total number of workers and plants by sector of activity at the municipal level. We obtained the data for the period 2007-2016. Our data also contain information on firms size - in particular, the information, both for number of plants and for number of workers, is split into large (≥ 3 workers) and small firms (< 3 workers). The final dataset that we obtain is a balanced yearly panel featuring the touristic status, the number of workers in the retail sector, the number of retail stores (*plants*), plus some demographic variables taken from the latest available Census, in 2011.

In Figure 3 we plot the variation in the number of retail workers and establishments between 2007 and 2016. Alongside the country-level measures, we further plot the figures for large and small firms. Not surprisingly, due to the financial crisis of 2008 and the sovereign debt crisis of 2011, we document a general decreasing trend, which translates in a 5% loss in terms of number of workers and in a loss of about 10% in terms of total plants in 2016 with respect to 2007. The effect, however, is composite, and reflects the deep changes which characterized the market structure of the retail sector. While large firms show a discontinuous pattern, with an expansion until 2009/2010, followed by a retraction until 2014, and a renewed growth until 2016, small firms alternated harsh declines to periods of relative stagnation, in both dimensions. As a result, over the period of analysis the market share of large firms has increased at the expense of small and individual firms, and in most cases they have taken the lead in driving the recovery.

[Figure 3]

In Figure 4 we provide some descriptive evidence on geographical differences, separately considering northern, central and southern regions. For large and small firms we report the number of workers and plants per inhabitant, at the beginning (2007) and at the end (2016)

[8] Asia (*Registro Statistico delle Imprese Attive*), Istat.

of the sample period. First, the figures reveal a significant and persistent difference in the levels of employment between the South and the rest of the country: the rate of employment in the retail sector is about 23% lower in the South relative to the North; on the other hand, the overall number of plants is quite similar but its composition differs significantly, with the larger units being highly underrepresented in the South. Secondly, as for the dynamics, we observe that all macroregions recorded sizeable drops in the number of plants over the period, mostly affecting the small firms. In line with the employment data, we document a modest increase in the relative number of large establishments in the South, unlike the - also modest - decrease which characterized central and northern regions. The left panel highlights how southern regions show a different pattern with respect to the central and northern areas: while the latter both had a higher employment rate in 2007 and experienced a decrease, fully driven by a drop in small firms' share, the retail sector in the South remained stable, with increases in the number of large plants - whose share amounted to more than 50% in 2017.

[Figure 4]

4 Empirical Strategy

The variation in the touristic status, the time and spatial limits, and the national-level deregulation introduced with the 2011 reform provide exogenous variation in the regulatory framework at the municipal level that we exploit for identification in a (dynamic) difference-in-differences setting (Autor, 2003). In particular, we are able to quantify the effects of extended opening hours and Sunday opening on measures related to employment on the one hand (e.g., number of workers in the retail sector), and on the market structure on the other (i.e., total number of plants and size distribution) in the main analysis.

The existence of a subset of municipalities with limited or no prior restrictions on opening hours (the touristic municipalities) allows us to cluster our sample in three groups: first, all municipalities fully deregulated, hence not affected by the liberalization - the *control group*; second, all non-touristic municipalities, whose restrictions were totally repealed by

the deregulation - the *treatment group*; third, all the touristic municipalities which were partially deregulated, and whose regulatory status was only partially affected by the new opening hours - the *partial control group*.

In table 1 we present descriptive statistics for the three groups at the beginning of the period analyzed (2007). The figures suggest that the three groups of municipalities are rather different. Those in the control group i.e., the ones that most on tourism the most, are small but relatively rich: they display the lowest levels of economic activity in the retail sector (both in terms of total workers and plants and for small and large units separately), the smallest population and surface, but the highest average income and the lowest unemployment rate. Municipalities in the partial control group, instead, are on average those with the highest number of workers and plants in the retail sector, the largest population and surface and the highest level of human capital (which we proxy by the share of graduates). This group, indeed, encompasses all the largest cities in Italy, including Rome, Milan and Naples, where the deregulation applied to the shops in the city center only.

[Table 1]

In order to identify the effect of the deregulation of opening hours, we employ a model which is flexible enough to exploit the variation in time provided by the treatment at the municipal level on the one hand, and to correctly sort out the cross-sectional (i.e., municipal) differences on the other. The resulting estimating equation reads:

$$Y_{it} = \alpha + \beta \; Liberalization_{it} + \mu_i + \tau_t \left[+ \psi_{r,t} \right] + \varepsilon_{it} \tag{1}$$

where $Y_{it} = [(log)workers_{it}, (log)plants_{it}]$, $Liberalization_{it}$ is an indicator function for municipality i in year t being (fully) deregulated, τ_t and μ_i are year and municipality fixed effects, respectively, whereas $\psi_{r,t}$ are region-year fixed effects to control for potential regional trends. The parameter of interest - β - captures the differential changes in Y_{it} due to the deregulation, i.e., the average treatment effect on the treated. Standard errors are clustered at the municipal level, that defines inclusion into the treatment or control group.

In the main analysis, we restrict the estimation sample to the treatment and real control groups, leaving the analysis of the partial control group as a robustness check (Section 6). The space and time limitations that applied to the partial control units make such municipalities unsuitable for both being part of the treatment and of the control groups. Indeed, the deregulation of 2011 represented an actual treatment for them, but its "intensity" changed according to the initial limitations in terms of time.[9] At the same time, the very fact that all partially deregulated municipalities have been subject to an (unidentifiable) treatment effect after 2011, prevents them from being part of the control group. The repeal of the spatial limitations, on the other hand, might have had within-municipality effects (e.g., demand recomposition, spillovers) which we are unable to control for, given the aggregation level of the data.

5 Results

In Table 2 we present our baseline results. In columns (1)-(2) we report the estimates of the effect on the number of workers, in columns (3)-(5) those on the number of plants in each municipality. As both outcomes are expressed in logarithmic scale, the estimated coefficients are to be interpreted as semi-elasticities. In columns (1) and (3) we only include municipality fixed effects and year fixed effects, the resulting estimated effect of liberalization in the newly liberalized municipalities is a 3.4% increase in the number of individuals working in the wholesale and retail sector, and a 2.1% increase in the number of shops. The magnitude of these effects is lower, respectively 2.1% and 1.6%, but still significantly different from zero, when we impose a more demanding specification including region-year specific fixed effects to account for local idiosyncratic shocks.

[Table 2]

[9] For example, in a municipality with a maximum of 32 Sunday openings allowed, the deregulation would have had an "intensity" of 52 - 32 = 20, with 40 initial Sunday openings it would have amounted to 12, and so on.

Our baseline results are to be interpreted as the effect of moving from a regime of strictly regulated opening hours to a regime of fully flexible hours 24/7. In Table 3, instead, we include the partially deregulated units amongst the control municipalities, so as to estimate the effect of being granted fully flexible opening schedules versus being subject to some restrictions. As expected, the estimated coefficients are smaller in magnitude: in our preferred, most restrictive, specification the effects of being fully liberalized amount to 1.5% extra employment and to 0.7% extra plants in the wholesale and retail sector. These effects are slightly larger and more significant in the simpler, less demanding, specification.

[Table 3]

In the context of a progressive sectoral recomposition in favor of the larger units, i.e., a declining trend for the small shops and a growing presence of large department stores, it is interesting to understand whether the liberalization of the opening hours differently affected the two types of plants. Our data contain a distinction between plants with three or more workers (henceforth "large") and plants with less than three workers (henceforth "small"). In Table 4, we repeat our baseline exercise for the two types of units. The results are not neat: the increase, both in terms of workers and plants, is larger in the case of large plants, but shrinks and loses statistical significance in the more restrictive specification. To better qualify such results, in section 6.3 we extend our results so as to account for possible geographical spillovers, which are more likely to occur in the case of large stores than in the case of small shops, the underlying idea being that customers may be more willing to move to a different municipality to shop in a large department store than to shop in a small unit. If this is the case, the effect on large units may be underestimated once we control for small geographical areas shocks such as region-year fixed effects.

[Table 4]

Finally, we consider several possible heterogeneities in the effects of opening hours flexibility. First we separately estimate the effects in the North and Center and in the South. We are forced to consider the Center together with the North because our data for the Center

are largely incomplete and, moreover, most regions opted for partial liberalizations so that their municipalities would not be included in our baseline specification. Our results reveal that the effect on employment was qualitatively very similar in the two areas but that the increase in the number of plants was concentrated in the North. This evidence seems to suggest that the size of the plants increased more sensibly in the South, whereas in the North this was also accompanied by an increase in the number of shops. Second, we estimate the effects along the distribution of the size of the municipalities. The results reported in Table 6 show that the effect was mainly concentrated in smaller municipalities.

[Tables 5 and 6]

6 Robustness Checks

6.1 Specification checks

Our first battery of robustness checks is aimed at strengthening the empirical analysis to show that the results obtained do not depend on the specification chosen. In Table 7 we first present (columns 1 and 5) the results of an exercise in which we restrict our treatment group to only those municipalities that were liberalized in 2011. These amount to about 75% of the full treatment group. With this selection we can estimate a classical difference in differences model of the following type:

$$Y_{it} = \alpha + \beta \ (Treated_{it} \times Post\ 2011_{it}) + \mu_i + \tau_t + \psi_{rt} + \varepsilon_{it} \tag{2}$$

The coefficients we estimate are very similar to those obtained in the baseline exercise in Table 2, although borderline significant from a statistical point of view. The liberalization of 2011 raised employment in the sector by 2.1% and produced an increase of the same magnitude in the number of plants.

The second robustness check that we perform directly addresses the possible structural

differences between the municipalities in the treatment group and those in the control group. To this purpose we estimate a propensity score model to construct a suitable control group. Our predictive variables are the municipality's population size, the share of graduates amongst residents and the local unemployment rate, all measured in 2011. The resulting estimates, reported in columns (2) and (6) largely confirm our baseline results with a magnitude of the effects slightly larger than in the baseline.

An additional test of robustness follows the approach introduced by Goodman-Bacon (2018). This method addresses the concern that the treatment effect estimates may be biased when units are treated at different points in time, as in our context. In this case, indeed, the parameter of interest should be a weighted average of all possible two-group/two-period Difference-in-differences estimators in the data, provided that the pre-trend assumption holds for each estimation subgroup. Goodman-Bacon (2018) proposes an estimator that properly accounts for such weighting thus returning an unbiased estimate of the Average Treatment Effect on the Treated.[10] In columns (3) and (7) we present the estimates obtained with the Goodman-Bacon estimator. The coefficients we obtain with this methodology are very similar to the baseline results in terms of magnitude and significantly different from zero in statistical terms.

In columns (4) and (8), finally, we add a battery of fixed effects at the treatment group-year level. This allows us to absorb any possible diverging trends between treated (non-touristic) and control (touristic) municipalities.

[Table 7]

6.2 Evidence on pre-trends

The next supporting evidence that we provide is an event study type of analysis (Autor, 2003). In Table 8 we run the regression of the outcome variables of interest on a sequence of interaction terms between a treatment group dummy and the time distance from treatment.

[10]Note, however, that the first test we performed, the simple Difference in differences estimation at the 2012 cutoff, already partially addressed this issue.

The baseline (excluded) year is $t-1$, i.e., the last year of observation before the specific municipality was liberalized. We present the results for both specifications used in Table 2. The results show that the estimated treatment effects are null *before* the liberalization and become positive as soon as the municipality is liberalized (time t). The specification with only year and municipality fixed effects returns some negative significant coefficients before the treatment, thus signaling that there may be some concerns in terms of diverging trends, yet, the more demanding specification with region-year fixed effects reassures us that any pre-existing difference between the two groups of municipalities is correctly accounted for in our baseline model. Note that the low level of statistical significance for $t > t+4$ is due to the fact that the number of treated units shrinks a lot as we increase the time from the treatment[11] (Duflo et al., 2008).

[Table 8]

In the spirit of Autor (2003), Figures 5 and 6, provide graphical evidence further supporting the absence of pretends that may bias the results. It turns out that, differently from the simple specification with only year and municipality fixed effects, the one with region-year fixed effects allows us to confidently exclude the presence of pre-trends, the estimated treatment effects in the years *before* the liberalization being not statistically different from zero and constantly below the ones estimated in the years *after* the liberalization. Following Dobkin et al. (2018), in the graphs we also plot the counterfactual trend, i.e., the one that would have been observed in the absence of the deregulation. This is a simple linear trend imputed on the basis of the coefficients estimated before the treatment. This exercise confirms that the treatment effects estimated after the treatment are all significantly different from the imputed counterfactual trend.

[Figures 5 and 6]

[11] Only the municipalities that were deregulated *before* 2011 would be observable five or more years later in our sample. Symmetrically, only the municipalities deregulated in 2013 (those in Veneto and Trentino Alto-Adige, Table A.1) can be observed at $t-5$.

6.3 Spatial spillovers

A further concern that may arise is that there may be displacement effects induced by the differences in regulation across neighboring municipalities. These may affect our results in two ways. First, it may be that sellers choose to locate their shops in municipalities in which they are allowed more flexible opening hours. This would bias downward our estimates to the extent that the local demand for shopping market would be met by sellers located in the nearby municipalities. Hhence, when the treated municipality was finally liberalized, there would be no significant increase in the supply of retail services. Second, it may be that, even if sellers do not adjust their location choices, buyers do adjust their choices by traveling to the nearby municipalities to go shopping. In this case the effect that we estimate may be upward biased to the extent that, once the shops are allowed to open flexibly in the municipality of residence, individuals will *switch* suppliers opting for the local ones. This would shift down employment in the control municipalities and translate it into the treated ones. It is eventually of utmost importance to understand whether the estimated coefficients result from a geographical shift of the retail activities or whether they represent an effective boost of the sector.

To shed light on this question we aggregate our data at the Local Labor Market (LLM) level. These are self-contained labor markets where most of the people live and work[12] and therefore are the most suited geographical units to examine labor market effects (e.g., employment, consumption) of local shocks such as the liberalization of shop opening hours in a given municipality so as to account for possible spatial spillovers. For each LLM we compute the share of population that lives in deregulated municipalities by year ($Q_{LLM,t}$). The resulting estimation model is the following:

$$Y_{LLM,t} = \alpha + \beta\ Q_{LLM,t} + \mu_{LLM} + \tau_t + \psi_{rt} + \varepsilon_{LLM,t} \tag{3}$$

Moreover, we are able to identify a subset of Local Labor Markets in which either all the

[12]Each LLM contains about 13 municipalities on average, with significant variability depending on the accessibility of the area.

municipalities were deregulated in the same year or all the municipalities were deregulated before 2005 (i.e, were touristic municipalities). This distinction allows us to run the same regression as in our baseline model at the LLM level.

$$Y_{LLM,t} = \alpha + \beta \; Liberalization_{LLM,t} + \mu_{LLM} + \tau_t + \psi_{rt} + \varepsilon_{LLM,t} \tag{4}$$

The results of these two exercises are reported respectively in Panel A and Panel B of Table 9. We find that when all municipalities in a Local Labor Market are liberalized employment in the retail sector increases by 3.1%. This effect is even larger in our cleanest identification strategy, where we compare fully treated LLMs with untreated ones. On the other hand, this exercise returns a null effect on the total number of shops in the area, thus suggesting that shops increased their scale of activity. Indeed, there is a sensibly larger effect on the number of workers employed in large plants and an increase in the number of shops with three or more workers. The effect on small shops is instead negligible both in terms of employment and of number of shops.[13]

[Table 9]

6.4 Sectoral spillovers

We then consider the possibility that the deregulation of shop opening hours may induce spillover effects on other sectors. To explore this channel we estimate our baseline model substituting the dependent variables with the number of workers and plants in sectors other than wholesale and retail trade. This exercise is at the same time a robustness check, to the extent that we should not find any effect on the sectors that were not affected by the deregulation and a test for possible spillover effects. Indeed, there may be sectors that were indirectly affected by the growth of the retail sector, either positively, if they produce goods or services that are complement to the retails activity, or negatively, if workers and

[13]This results may also capture a recomposition effect to the extent that small plants increase thier size and become large plants.

entrepreneurs are induced to flee from a given sector to the retail one. In Figure 7 we plot the estimated coefficients for the other sectors of economic activity.

[Figure 7]

Our results show that the deregulation of shop opening hours generally generated no effect on employment in other sectors. Interestingly, yet, we find that employment increased significantly in hotels and restaurants, thus suggesting that these activities benefited from the fact that more shops were open at night or on Sundays. If we consider the effects on the number of plants, instead, we find evidence of a significant increase in the number of banks and other financial sector's branches. This may be due to a general increase in the volume of economic activity.

As a final exercise, in Table 10 we estimate the effect of shop opening hours deregulation on overall employment and number of plants. We present results for three specifications: our baseline model with estimates at the municipality level (Equation (1)) and our two models estimated at the Local Labor Market level (Equations (3) and (4)). While we find no significant effect at the municipal level, when we aggregate at the LLM level we find a positive and significant increase in the level of overall employment in the economy.

[Table 10]

7 Individual-level evidence

In this section we complement our main analysis with some evidence at the individual level which will allow us to better qualify the type of employment relationships created and the type of workers involved. To this purpose, we use the data from the Italian Labor Force Survey (LFS) which contains quarterly individual and household level information on education, employment history and demographic characteristics. We merge the LFS with an augmented version of our dataset on deregulation in which we recorded the exact quarter

when each municipality was granted full flexibility in shops' opening hours. We then exploit information on each household's municipality of residence to match the two datasets.[14]

Our individual-level specification partially differs from the baseline specification (Equation (1)) because the LFS does not survey households in all municipalities in all years. Each year, indeed, there are only about 1200 municipalities in the sample and, moreover, they change from one quarter to the other. This structure of the data does not allow us to run regressions with municipality fixed effects, hence we will resort to a specification with province fixed effects.

$$Y_{imq} = \alpha + \beta \; Liberalization_{mq} + \mu_p + \tau_q + \psi_{rq} + \varepsilon_{imq} \tag{5}$$

Our main outcome of interest is an indicator variable for whether individual i, residing in municipality m in quarter q is employed in the retail sector or not, the latter option including both non employment and employment in other sectors. Secondly we will restrict our analysis to employed individuals only and estimate a model of workers' relocation, i.e. whether the reform induced a change in the sectoral composition of employment in the affected municipalities. The results are reported in Table 11, columns (1) to (4).

[Table 11]

Results are consistent with those of the main specification on the aggregate Asia data: the deregulation of shop opening hours induced an increase in the probability of being employed of about 0.3 percentage points. As the share of individuals who are employed in the retail sector is about 5%, the marginal effect will be around 6%, qualitatively similar (slightly larger) to the one reported in Table 2. This result is robust to the inclusion of individual control variables and region-year fixed effects as in Equation (1).[15] In column (4), we also show that the policy induced a significant relocation of workers towards the retail sector:

[14]Note that we do not have information on the municipality where individuals work. This may bias our results to the extent that we may misclassify individuals into the treatment and control groups. On the other hand, the municipality of residence is less subject than that of work to endogeneity concerns.

[15]We also run a specification similar to that of Equation (3), i.e., with the share of deregulation in the LLM as explanatory variable, with LLM and quarter fixed effects. This returns an increase of 0.27 percentage points, significant at 10% level.

conditional on being employed, the probability of holding a job in this sector rose by 1.2 percentage points.

The results discussed in Section 5 suggested a recomposition of the sector towards larger plants. This should correspond, at a micro level, to an increased probability of being employee instead of self-employed in the sector. Indeed, in column (5) we estimate such probability and find that, conditional on working in the retail sector, the deregulation lowered the probability of being self-employed by about 4.5 percentage points. In line with this result, we also find that the probability of working in a shop of larger size (more than 10 employees) and that of working in a shop that belongs to a chain (multiplant) increased too.

Finally, some analysis on the heterogeneity of the effects depending on the workers' characteristics shows that the increase in the probability of employment was larger for men, for foreigners, for people in the age class 25-44 and for people holding a secondary education degree (Table 12).

[Table 12]

8 Conclusions

In this paper we estimate the causal effects of shop opening hours deregulation in Italy, considering on both the number of workers and the market structure (i.e., the number and size distribution of plants) of the retail sector in Italy. We exploit the staggered implementation of the reform to retrieve an unbiased estimate of the causal parameters of interest. In line with the previous contributions, we find a positive effect of the liberalization on both outcomes, with an increase of about 2% in the number of workers and a similar effect on the number of establishments. Our results further reveal that larger firms - and their employees - are gaining relatively more than small retailers, i.e., we find a recomposition effect of the deregulated sector in favour of larger players. This result is confirmed through individual level estimates that document an increased porbability of working in the retail secotr as employees rather than self-employed. When considering the possible effects of reallocation

of workers and plants across municipalities subject to different regimes within the same Local Labor Market, we find a slightly larger effect both on employment and on number of plants. Finally, we find that the deregulation of shop opening hours further had a positive effect on the activity of some complementary services, such as restaurants and financial services and, overall, on total employment in the affected areas.

To better understand what is the external validity of our exercise, it is important to quantify the treatment that is generating the estimated effects. Our results should thus be read as the effects of passing from a regime in which shops could remain open 316 days a year, to one in which they could stay open any day of the year.[16] Any policy intervention should be measured on such scale.

From a policy perspective, our results provide support to the idea that a less regulated business environment boosts growth. Yet, there may be second order effects on the quality of the employment relationships that should be further analyzed in order to get a full picture of the effects of deregulation. Moreover, consumers' welfare is at stake, being of utmost importance to understand whether and how this was affected by the market structure re-composition documented in this paper. This last question is beyond the scope of the paper and left to future research.

[16] In the pre-deregulation regime shops could stay open 316 days, i.e., 365 minus 52 Sundays, minus 12 public holidays, plus 8 Sundays or public holidays allowed, plus 7 other Sundays or public holidays allowed in December. In the post-deregulation regime shops could potentially stay open 365 days a year.

9 Tables

Table 1: Descriptive statistics, by treatment group.

	(1)	(2)	(3)	(4)	(5)
				T-Tests	
	Treated (Not touristic)	Control (Touristic)	Partial Control (Touristic w restr)	Δ_{RC-T} (2) - (1)	Δ_{PC-T} (3) - (1)
(log) workers	4.471	3.505	4.682	-0.966***	0.211***
	(1.648)	(1.553)	(1.809)	(0.0718)	(0.0474)
≥ 3 employees	4.012	3.242	4.191	-0.771***	0.179***
	(1.686)	(1.537)	(1.847)	(0.0826)	(0.0521)
< 3 employees	3.871	3.000	4.091	-0.870***	0.220***
	(1.396)	(1.299)	(1.592)	(0.0602)	(0.0413)
(log) plants	3.802	2.902	4.012	-0.900***	0.210***
	(1.422)	(1.324)	(1.614)	(0.0613)	(0.0419)
≥ 3 employees	2.261	1.610	2.483	-0.651***	0.222***
	(1.426)	(1.303)	(1.622)	(0.0700)	(0.0453)
< 3 employees	3.633	2.738	3.835	-0.895***	0.202***
	(1.379)	(1.271)	(1.579)	(0.0589)	(0.0409)
(log) income tax per capita	9.125	9.366	9.161	0.241***	0.0361***
	(1.297)	(1.128)	(1.452)	(0.0527)	(0.0379)
(log) population	7.907	6.989	8.038	-0.918***	0.131***
	(1.212)	(1.078)	(1.388)	(0.0502)	(0.0359)
(log) surface	2.955	2.815	3.376	-0.140***	0.421***
	(0.998)	(0.829)	(0.953)	(0.0390)	(0.0261)
Share of graduates (6+ age)	0.0723	0.0706	0.0787	-0.00174	0.00636***
	(0.0264)	(0.0249)	(0.0297)	(0.00115)	(0.000773)
Unemployment rate	0.112	0.0617	0.102	-0.0505***	-0.0105***
	(0.0695)	(0.0238)	(0.0573)	(0.00150)	(0.00167)
Observations	4,113	537	2,060		

Notes: Descriptive statistics on ASIA and ISTAT data, per type of municipality: not touristic (column 1), fully deregulated (column 2) and partially deregulated (column 3). Data on plants, workers, and income taxes refer to 2007, while data on population, surface, share of graduates and unemployment rate source from the latest available census, in 2011. In columns 4 and 5 we report the results of t-tests on the difference of the means between the control and treatment municipalities, and the partial control and treatment groups, respectively.

Table 2: Baseline results.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
Liberalization	0.0343***	0.0237***	0.0211***	0.0181***
	(0.0062)	(0.0090)	(0.0049)	(0.0070)
Observations	46,500	46,500	46,500	46,500
R^2	0.990	0.990	0.992	0.992
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3: Results including partially liberalized units.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
Liberalization	0.0228***	0.0146***	0.0113***	0.0069*
	(0.0043)	(0.0051)	(0.0033)	(0.0039)
Observations	67,100	67,100	67,100	67,100
R^2	0.991	0.991	0.993	0.993
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. The control group includes municipalities belonging to the partial control. Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Heterogeneous effects: plant size.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
	Small Plants			
Liberalization	0.0216***	0.0211**	0.0179***	0.0151**
	(0.0058)	(0.0082)	(0.0055)	(0.0076)
Observations	46,450	46,450	46,450	46,450
R^2	0.987	0.987	0.989	0.989
	Large Plants			
Liberalization	0.0360***	0.0195	0.0250***	0.0191
	(0.0105)	(0.0161)	(0.0084)	(0.0123)
Observations	38,889	38,889	38,889	38,889
R^2	0.974	0.974	0.975	0.975
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. Small plants (above panel) have less than three workers, large plants (below panel) feature three or more. Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Heterogeneous effects: geographical area.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
	Centre-North			
Liberalization	0.0324***	0.0262**	0.0235***	0.0290***
	(0.0079)	(0.0132)	(0.0063)	(0.0104)
Observations	31,500	31,500	31,500	31,500
R^2	0.989	0.989	0.991	0.991
	South			
Liberalization	0.0310***	0.0198**	0.0142**	0.0007
	(0.0082)	(0.0100)	(0.0061)	(0.0070)
Observations	15,000	15,000	15,000	15,000
R^2	0.992	0.992	0.994	0.994
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. Above panel restricts the sample to northern and central regions, the panel below reports results for southern regions and islands. Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Heterogeneous effects: municipal size.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
	Population $< 5{,}000$			
Liberalization	0.0356***	0.0282**	0.0210***	0.0277***
	(0.0082)	(0.0117)	(0.0067)	(0.0092)
Observations	33,380	33,380	33,380	33,380
R^2	0.978	0.978	0.981	0.981
	Population $\geq 5{,}000$			
Liberalization	0.0239***	0.0158*	0.0164***	0.0034
	(0.0053)	(0.0095)	(0.0029)	(0.0051)
Observations	13,120	13,110	13,120	13,110
R^2	0.990	0.991	0.996	0.996
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. Above panel restricts the sample to municipalities whose population was below the 5,000 units threshold in 2011, the panel below reports results municipalities above the threshold. Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Robustness checks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(log) workers				(log) plants			
Liberalization	0.0213	0.0244**	0.0343***	0.0207**	0.0213	0.0187**	0.0211***	0.0161**
	(0.0168)	(0.0122)	(0.00619)	(0.00919)	(0.0129)	(0.00914)	(0.00494)	(0.00760)
Observations	36,300	38,050	46,500	46,500	36,300	38,050	46,500	46,500
R^2	0.989	0.990	0.990	0.990	0.991	0.992	0.992	0.992
2012 Only	✓				✓			
Propensity Score Weights		✓				✓		
Goodman-Bacon			✓				✓	
Treatment-Year FE				✓				✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: In column (1) we report the results of a 2 × 2 difference-in-differences keeping in the treatment group only the municipalities which received the treatment in 2012, with the enactment of the *Salva Italia*; in column (2) we run a propensity score weight version of the baseline model; in column (3) we report the results obtained with the methodology by Goodman-Bacon (2018) - with bootstrapped standard errors - and column (4) adds Treatment-Year fixed effects, aimed at capturing possible differential pre-trends in treated units. All models are estimated with municipal and year fixed effects; robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Parallel trend test. Event study estimates.

	(1)	(2)	(3)	(4)
	(log) workers		(log) plants	
Treated ×:				
$t-5$	-0.0200**	-0.0108	-0.0222***	-0.0014
	(0.0099)	(0.0187)	(0.0071)	(0.0151)
$t-4$	-0.0110**	-0.0005	-0.0030	-0.0025
	(0.0052)	(0.0103)	(0.0039)	(0.0076)
$t-3$	-0.0074	-0.0092	-0.0044	-0.0028
	(0.0050)	(0.0087)	(0.0035)	(0.0065)
$t-2$	0.0016	-0.0102	0.0014	-0.0080
	(0.0043)	(0.0067)	(0.0032)	(0.0049)
t	0.0093*	0.0219***	0.0049	0.0108*
	(0.0052)	(0.0078)	(0.0039)	(0.0058)
$t+1$	0.0274***	0.0273***	0.0179***	0.0178**
	(0.0059)	(0.0095)	(0.0044)	(0.0070)
$t+2$	0.0330***	0.0247**	0.0237***	0.0215***
	(0.0071)	(0.0102)	(0.0054)	(0.0078)
$t+3$	0.0401***	0.0294***	0.0233***	0.0208**
	(0.0080)	(0.0113)	(0.0060)	(0.0087)
$t+4$	0.0327***	0.0212*	0.0158**	0.0139
	(0.0095)	(0.0129)	(0.0072)	(0.0097)
$t+5$	0.0389***	0.0186	0.0176**	0.0103
	(0.0107)	(0.0136)	(0.0080)	(0.0103)
$t+6$	0.0224	0.0114	0.0166	0.0202
	(0.0237)	(0.0249)	(0.0219)	(0.0231)
$t+7$	0.0478*	0.0449	0.0258	0.0332
	(0.0281)	(0.0293)	(0.0263)	(0.0271)
$t+8$	0.0309	0.0285	0.0332	0.0398
	(0.0363)	(0.0374)	(0.0300)	(0.0309)
$t+9$	0.0203	0.0196	0.0202	0.0237
	(0.0457)	(0.0467)	(0.0347)	(0.0357)
Observations	46,500	46,500	46,500	46,500
R^2	0.990	0.990	0.992	0.992
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Region-Year FE		✓		✓

Notes: Event study estimates - à la Autor (2003) - on the number of workers (in logarithm, columns 1-2) and plants (3-4) in the retail sector . Odd columns feature municipal and year fixed effects, in even columns we add Region-Year fixed effects to capture regional trends. The coefficients are yearly distances from the treatment date (t). Robust standard errors clustered at the municipal level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness checks. Geographical Spillover.

	(1)	(2)	(3)	(4)	(5)	(6)
	(log) workers			(log) plants		
	All	Small	Large	All	Small	Large
Panel A: aggregate at LLM level.						
Liberalization	0.0307***	0.0120*	0.0530***	0.00873	0.00199	0.0541***
	(0.00945)	(0.00668)	(0.0180)	(0.00562)	(0.00626)	(0.0141)
Observations	5,130	5,130	5,115	5,130	5,130	5,115
R^2	0.999	0.999	0.995	0.999	0.999	0.996
Year FE	✓	✓	✓	✓	✓	✓
LLM FE	✓	✓	✓	✓	✓	✓
Panel B: aggregate at LLM level and compare fully treated vs. fully control.						
Liberalization	0.0369***	0.0150	0.0607***	0.00822	0.00114	0.0540***
	(0.0115)	(0.00929)	(0.0209)	(0.00756)	(0.00863)	(0.0169)
Observations	2,440	2,440	2,425	2,440	2,440	2,425
R^2	0.998	0.998	0.993	0.999	0.998	0.994
Year FE	✓	✓	✓	✓	✓	✓
LLM FE	✓	✓	✓	✓	✓	✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1 to 3) and plants (4 to 6) in the retail sector at the local labor market (LLM) level. *Liberalization* $\in [0, 1]$ is the average value of the treatment indicator variable at municipal level, weighted by the municipal population in 2011. In columns 1 and 4 the dependent variable is the sum across all LLM municipalities relative to all firms, in columns 2 and 4 to small firms only (≤ 3 employees), in columns 3 and 6 to large ones (> 3). Finally, panel a) reports the estimates on the full sample, whereas in panel b) we restrict the analysis to the fully treated (i.e., $Liberalization == 1) and fully control (\text{Liberalization} == 0$). All models include LLM and year fixed effects; robust standard errors clustered at the LLM level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Effects on total employment and number of plants

	(1)	(2)	(3)	(4)	(5)	(6)
	(log) workers			(log) plants		
Liberalization	-0.0019	0.0182**	0.0176*	-0.0059	0.00603	0.00842
	(0.0058)	(0.0076)	(0.0095)	(0.0040)	(0.0068)	(0.0088)
Observations	417,285	51,028	24,157	418,388	51,058	24,177
R^2	0.845	0.930	0.914	0.892	0.940	0.928
Municipality FE	✓			✓		
Region-Year FE	✓			✓		
Year FE		✓	✓		✓	✓
LLM FE		✓	✓		✓	✓
Sector-Year FE	✓	✓	✓	✓	✓	✓

Notes: Difference-in-differences estimates on the number of workers (in logarithm, columns 1 to 3) and plants (4 to 6) in all sectors of the economy. In columns 1 and 4 an observation is a municipal/sector couple, whereas the other specifications are at the LLM/sector level. In all specifications we add Sector-Year fixed effects, to capture potential sectoral trends. Robust standard errors clustered at the municipality (1 and 4) or at the LLM level, and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Individual-level estimates (LFS).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Employment in retail				Self-employed	Plants > 10	Multiplant
Liberalization	0.0032***	0.0027***	0.0028***	0.0125***	-0.0449***	0.0123	0.0335***
	(0.0009)	(0.0009)	(0.0009)	(0.0037)	(0.0062)	(0.0081)	(0.0081)
Female		-0.0184***	0.0033***	0.0093***	-0.1392***	-0.0573***	0.0434***
		(0.0007)	(0.0006)	(0.0018)	(0.0030)	(0.0038)	(0.0038)
Age		0.0044***	0.0025***	-0.0096***	0.0146***	0.0204***	0.0074***
		(0.0001)	(0.0000)	(0.0004)	(0.0005)	(0.0008)	(0.0008)
Age^2		-0.0001***	-0.0000***	0.0001***	0.0000	-0.0003***	-0.0002***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Secondary Education		0.0265***	0.0146***	-0.0110***	0.0059*	0.0032	0.0131***
		(0.0010)	(0.0008)	(0.0021)	(0.0035)	(0.0045)	(0.0045)
Tertiary Education		-0.0167***	-0.0109***	-0.0957***	-0.0018	-0.0683***	-0.0574***
		(0.0010)	(0.0007)	(0.0031)	(0.0058)	(0.0068)	(0.0070)
Observations	3,209,031	3,209,031	3,209,031	1,094,894	94,003	66,078	65,575
R^2	0.002	0.036	0.019	0.014	0.227	0.077	0.082
Province FE	✓	✓	✓	✓	✓	✓	✓
Year-Quarter FE	✓	✓	✓	✓	✓	✓	✓
Region-Year FE			✓	✓	✓	✓	✓
Conditional on employment				✓	✓	✓	✓
Conditional on employment in retail					✓	✓	✓

Notes: Difference-in-differences estimates on LFS data. In columns 1 to 4 the dependent variable is an indicator variable for workers in the retail sector, and models feature increasing controls (2) and Region-Year fixed effects (3). In column 4 we restrict the sample to employed individuals. In columns 5 to 7 we condition for retail sector employees, and investigate the recomposition effects towards the self-employee status (5), workers in large plants (6) or multiplant firms (7). All specifications include province and quarter (i.e., wave) fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

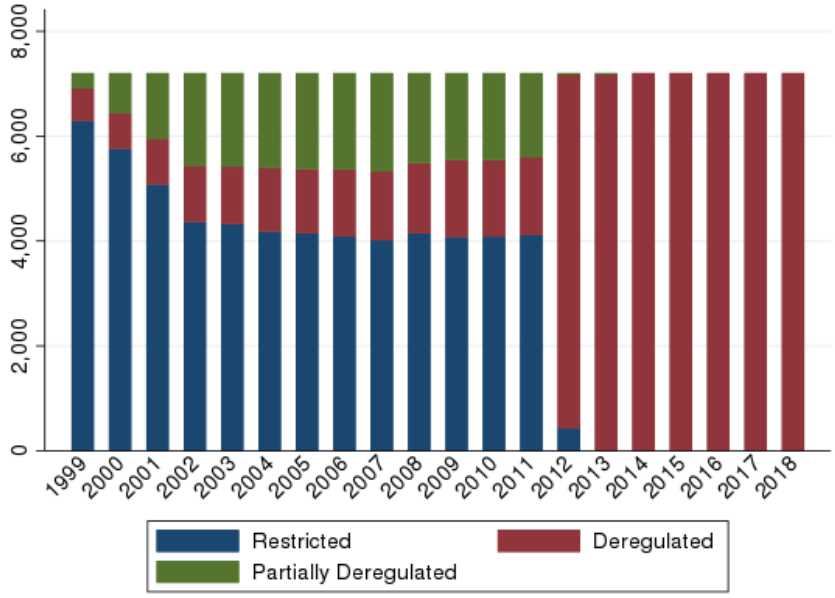
Table 12: Individual-level estimates (LFS). Heterogeneous effects.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Employment in retail									
	Males	Females	Italians	Foreigners	15-24	25-44	45-64	Less than sec.	Secondary	Tertiary
Liberalization	0.0048**	0.0023**	0.0033***	0.0061	-0.0006	0.0090***	0.0071***	0.0034**	0.0088***	-0.0003
	(0.0019)	(0.0010)	(0.0011)	(0.0050)	(0.0010)	(0.0029)	(0.0020)	(0.0014)	(0.0027)	(0.0011)
Female			-0.0169***	-0.0418***	-0.0027***	-0.0272***	-0.0391***	-0.0267***	-0.0204***	-0.0100***
			(0.0007)	(0.0026)	(0.0005)	(0.0018)	(0.0013)	(0.0011)	(0.0015)	(0.0006)
Age	0.0059***	0.0032***	0.0044***	0.0036***				0.0041***	0.0075***	0.0041***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)				(0.0001)	(0.0002)	(0.0001)
Age^2	-0.0001***	-0.0000***	-0.0001***	-0.0000***				-0.0000***	-0.0001***	-0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)				(0.0000)	(0.0000)	(0.0000)
Secondary education	0.0183***	0.0345***	0.0279***	0.0002	0.0364***	0.0245***	0.0201***			
	(0.0013)	(0.0014)	(0.0011)	(0.0032)	(0.0015)	(0.0020)	(0.0016)			
tertiary education	-0.0225***	-0.0091***	-0.0179***	-0.0062**	-0.0227***	-0.0403***	-0.0204***			
	(0.0014)	(0.0010)	(0.0011)	(0.0024)	(0.0008)	(0.0024)	(0.0020)			
Observations	1532986	1676045	3030118	178913	756975	776400	893324	1312661	674804	1221566
R^2	0.038	0.033	0.038	0.043	0.028	0.010	0.012	0.033	0.018	0.036
Province FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year-Quarter FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Region-year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Difference-in-differences estimates on LFS data. With each model we investigate the employment probability for different subsets of individuals, including/excluding controls accordingly: males (1) and females (2); Italian citizens (3) or not (4); young (5), young adults (6) and adults (7); individuals with at most the primary education (8), secondary (9) and tertiary or more (10). All specifications include province, quarter (i.e., wave) and Region-Year fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

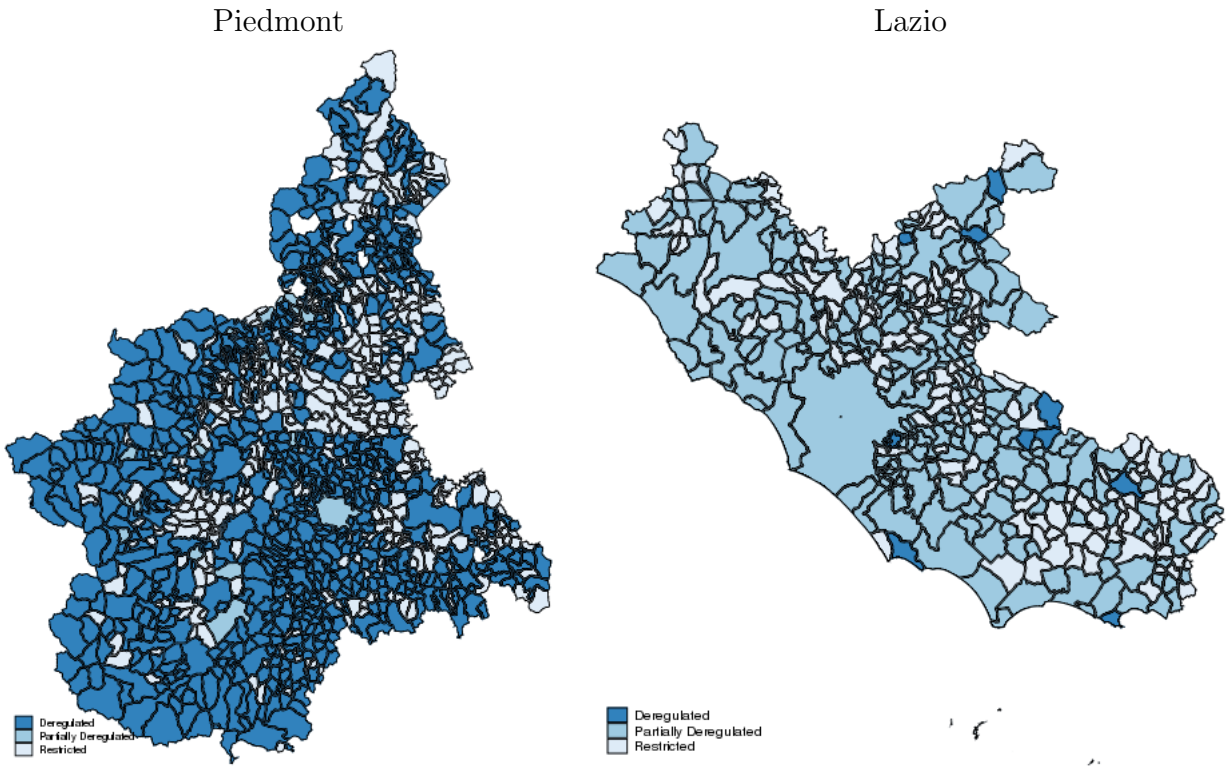
10 Figures

Figure 1: Deregulated municipalities, by year.



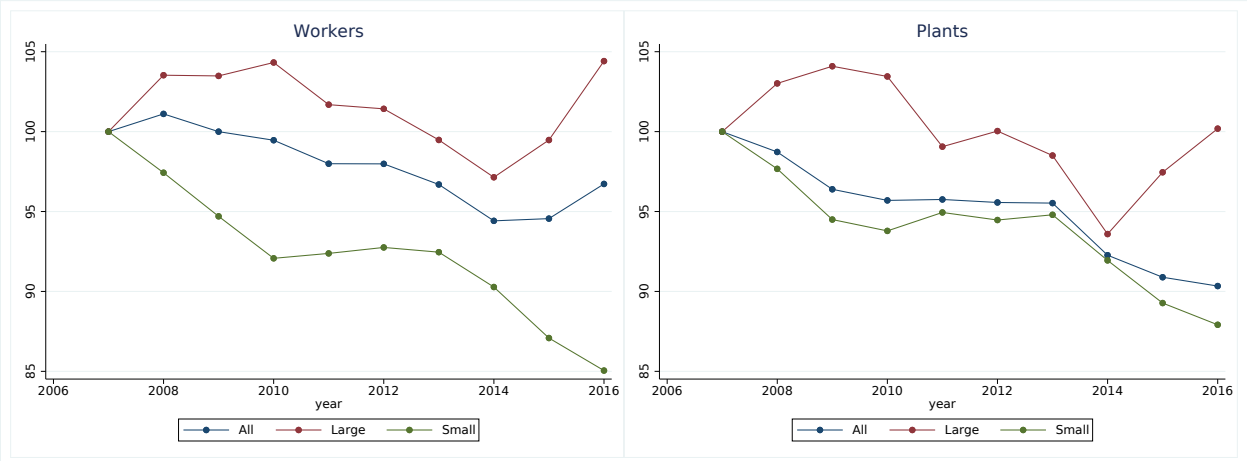
Notes: Frequency of municipalities by year and type: restricted (not touristic), partially deregulated (touristic with restrictions) and fully deregulated (touristic).

Figure 2: Piedmont and Lazio in 2010: touristic and partially touristic municipalities



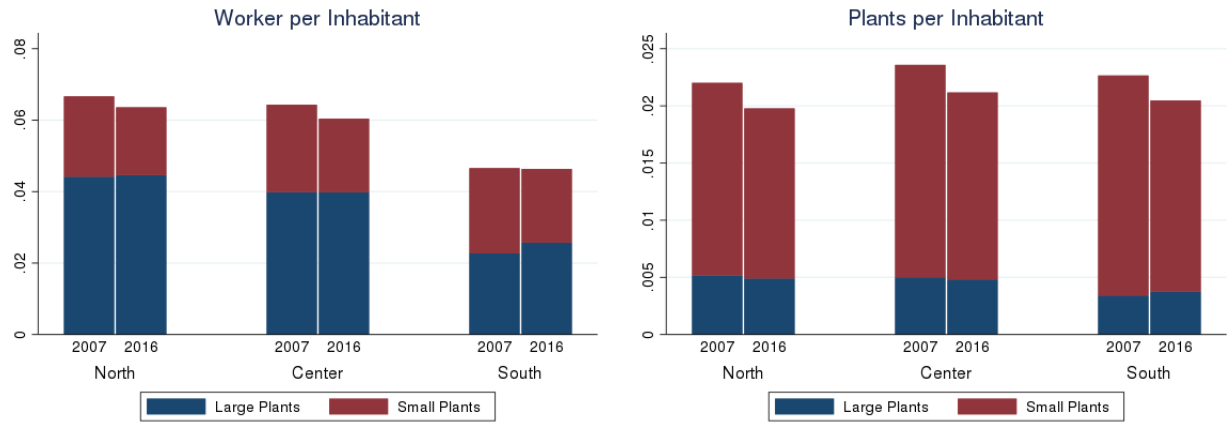
Notes: Restricted (not touristic), partially deregulated (touristic with restrictions) and fully deregulated (touristic) municipalities in Piedmont and Lazio regions in 2010, before the introduction of the *Salva Italia*.

Figure 3: Variation of retail employment and plants.



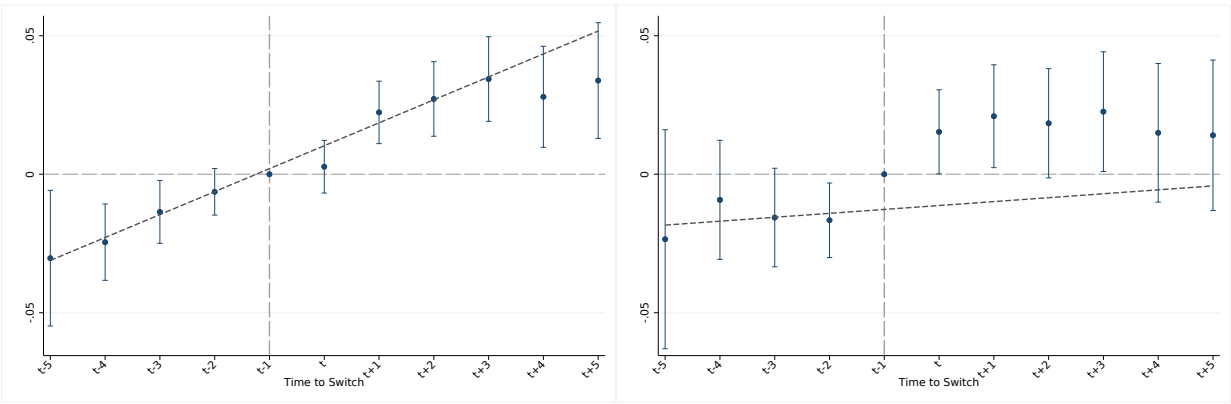
Notes: The plot reports the dynamics of the number of workers (left panel) and the number of plants (right panel) in the retail sector 2007-2016, with 2007 as base year (i.e., $Y_{2007} = 100$). Both panels report the total value - the blue line - those relative to small firms - ≤ 3 employees, green line - and to large firms - > 3 employees, red line.

Figure 4: Macroregional Dynamics



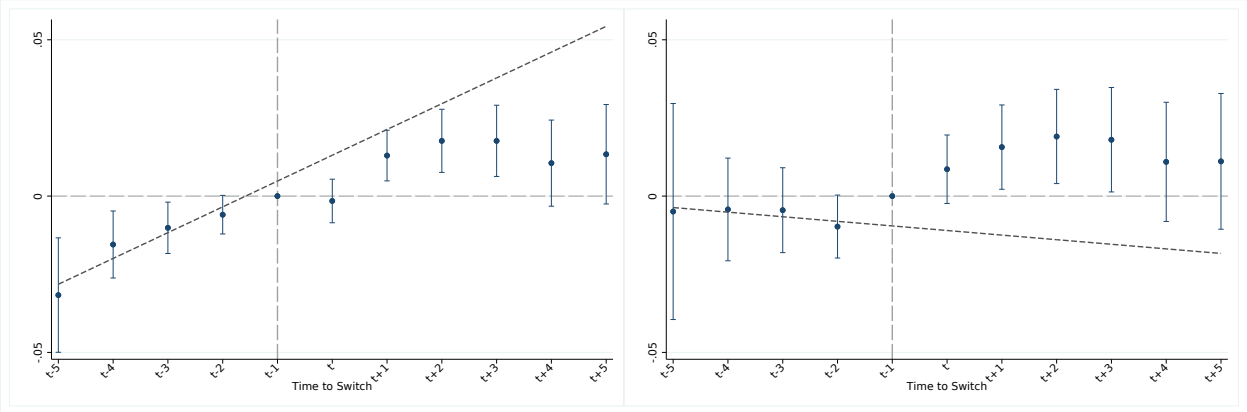
Notes: Number of workers in the retail sector per inhabitant (left panel) and number of plants in the retail sector per inhabitant (right panel) in 2007 and 2016, per macro-region in Italy. Bars reported the stacked values for small - ≤ 3 employees, maroon bars - and large firms - > 3 employees, blue bars.

Figure 5: Pre-trends with linear fit, workers.



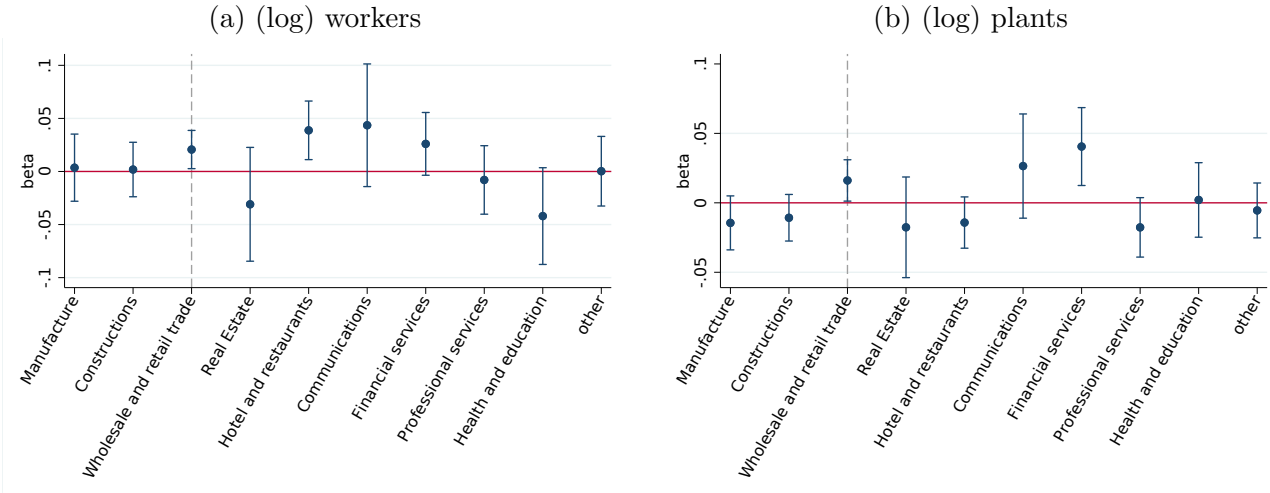
Notes: dots are the point estimates of the event study estimation of (log) workers on indicator variables for time to treatment, while blue bars indicate their confidence intervals. The upward sloping, dashed back line is the linear fit of the estimates in the pre-treatment years, projected on the post-treatment period.

Figure 6: Pre-trends with linear fit, plants.



Notes: dots represent the point estimates of the event study estimation of (log) plants on indicator variables for time to treatment, while blue bars indicate their confidence intervals. The upward sloping, dashed back line is the linear fit of the estimates in the pre-treatment years, projected on the post-treatment period.

Figure 7: Sectoral spillovers



Notes: dots represent point estimates of *Liberalization* as in model (1), sector by sector, while blue bars indicate their confidence intervals. The dotted vertical line indicates the retail sector

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Appendix

Table A.1: Number of municipalities being deregulated by year of deregulation and region.

	before 2006	2006	2007	2008	2009	2010	2011	2012	2013
Abruzzo	302		31					50	
	(1.00)		(0.10)					(0.17)	
Val d'Aosta	56							17	
	(0.77)							(0.23)	
Basilicata	21				6			104	
	(0.16)				(0.05)			(0.79)	
Calabria	139						3	259	
	(0.35)						(0.01)	(0.64)	
Campania	265	1		3	2	3	1	284	
	(0.48)	(0.00)		(0.01)	(0.00)	(0.01)	(0.00)	(0.52)	
Emilia-Romagna	180							134	
	(0.56)							(0.42)	
Friuli-Venezia-Giulia	209	27			128				
	(1.00)	(0.13)			(0.61)				
Lazio	222							156	
	(0.59)							(0.41)	
Lombardia	337	5		38	2			1327	
	(0.23)	(0.00)		(0.03)	(0.00)			(0.89)	
Marche	184								
	(0.82)								
Molise	5							136	
	(0.04)							(1.00)	
Piemonte	698	12	28	6	1	2	2	431	
	(0.60)	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.37)	
Puglia	28	7						229	
	(0.11)	(0.03)						(0.89)	
Sardegna	63							157	
	(0.29)							(0.71)	
Sicilia	176		15	8	4	23	6	185	
	(0.45)		(0.04)	(0.02)	(0.01)	(0.06)	(0.02)	(0.47)	
Trentino-Alto Adige	141							29	107
	(0.52)							(0.11)	(0.40)
Veneto	93	6	2	1	1		1	2	314
	(0.23)	(0.01)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.76)
Total	3,119	58	76	56	144	28	13	3,500	421

Notes: Number of municipalities transiting from not touristic to touristic, by region and year. In parentheses we report the relative share on the total number of municipalities.