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Globalization, financial development and earning inequality: evidence from Italian local labor markets

Antonio Martuscelli

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Maurizio Franzini

Globalization, financial development and earning inequality: evidence from Italian local labor markets*

Antonio Martuscelli

(LUMSA University)

Globalization, financial development and earning inequality: evidence from Italian local labor markets*

Antonio Martuscelli †

September 23, 2020

Abstract

Concerns about rising inequality and its economic, social and political consequences have been gaining traction in public discourse. However, despite a substantial body of research, the factors behind the rising inequality are still widely debated. This paper analyzes the impact of Chinese import penetration and financial development on wage distribution using Italian administrative data on the universe of private, non-agricultural sector employees between 1991 and 2016. The findings show no support for the hypothesis that increased competition from Chinese imports and financial development have contributed to increased inequality in Italy. However, while financial development has had no impact on wages, import penetration has had a negative effect on wages at different points of the distribution, leaving overall inequality substantially unaffected.

Keywords: Inequality, globalization, trade, financial development.

JEL Codes: F16, G20, J31

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†LUMSA University; a.martuscelli@lumsa.it

Globalizzazione, sviluppo finanziario e diseguaglianza salariale: evidenza dai sistemi locali del lavoro Italiani*

Antonio Martuscelli †

September 23, 2020

Abstract

Le preoccupazioni per la crescente disuguaglianza e le sue conseguenze economiche, sociali e politiche stanno guadagnando terreno nel discorso pubblico. Tuttavia, nonostante un corpus sostanziale di ricerche, i fattori alla base della crescente disuguaglianza sono ancora ampiamente dibattuti. Questo documento analizza l'impatto della penetrazione delle importazioni cinesi e dello sviluppo finanziario sulla distribuzione dei salari utilizzando i dati amministrativi italiani sull'universo dei dipendenti del settore privato e non agricolo tra il 1991 e il 2016. I risultati non supportano l'ipotesi che l'aumento della concorrenza delle importazioni cinesi e lo sviluppo finanziario hanno contribuito ad aumentare le disuguaglianze in Italia. Tuttavia, mentre lo sviluppo finanziario non ha avuto alcun impatto sui salari, la penetrazione delle importazioni ha avuto un effetto negativo sui salari in diversi punti della distribuzione, lasciando sostanzialmente inalterata la disuguaglianza complessiva.

Parole chiave: Diseguaglianza, globalizzazione, commercio, sviluppo finanziario
JEL Codes: F16, G20, J31

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†LUMSA Università; a.martuscelli@lumsa.it

1 Introduction

The growth in income and wealth disparities that has accompanied the development of many advanced and emerging economies around the world has been one of the most prominent economic phenomena of the last three decades. Rising inequality has gained particular attention in public discourse, raising widespread concerns about the economic, social and political consequences it might generate (Piketty, 2015). However, despite a substantial body of research, the factors behind the increasing inequality are still widely debated (Nolan et al., 2019).

Various arguments have been put forward to explain rising inequality, such as skill-biased technological developments, changes in institutional settings, globalization, financial development, and, more recently, automation. This study investigates links between globalization, financial development and wage inequality. Increased competition from Chinese products and the growth of the financial sector are among factors often cited as responsible for rising inequality. However, prominence in public discourse is not always coupled with supporting evidence, which is often inconclusive.

This study leverages a unique, employer-employee matched dataset covering the universe of private, non-agricultural sector employees, in Italy, from 1991 to 2016, in order to reconstruct the evolution of Italian wage inequality over the last three decades, and to identify the impact of import penetration and financial development on wage inequality by analyzing differences in local labor market exposure to trade and financial shocks.

Like many other developed countries, Italy has experienced a general increase in wage inequality over the last three decades. Indeed, the Gini coefficient has increased from 0.28 to 0.34 from the early nineties up until 2016[1]. In detail, wage inequality measured via the Gini coefficient increased rather sharply during the nineties and early 2000s, before flattening out until the Great Recession, and then rising again thereafter. This evolution is corroborated by studies that have documented similar trends in Italian wage dispersion (Devicienti et al., 2019) and have looked for plausible explanations.

1. Such an increase is comparable to the wage dispersion increase experienced by other western countries, such as the United Kingdom, the United States and Spain. See the World Bank's World Development Indicators report for income and Gini coefficients for the various countries.

Wage inequality has increased despite the elevated degree of rigidity in the wage determination process of the Italian labor market. Indeed, the wage setting mechanism is centralized at the national and sector level, and wages and other contractual conditions are established through national collective bargaining contracts (called Contratto Collettivo Nazionale di Lavoro, or CCNL, in Italian), that is agreements signed periodically between unions and employers' organizations that are binding for all employers and all workers in a given sector. District and corporate-level agreements can only complement national sector agreements in order to top up wages and offer bonuses or other benefits in relation to specific productivity or production targets. In spite of such rigidities, the Italian labor market exhibits wide geographical disparities in wages, with a pronounced variation across local labor markets that this study analyzes in order to identify causal effects.

This study focuses, in particular, on the inequality impact of financial development and globalization in the form of increased import penetration from China. The impact of globalization on developed countries' economies continues to be the subject of heated debate among economists, politicians and the general public. Several beneficial effects deriving from imports from China and other emerging economies have been documented, including the reduction in consumer price (Amiti et al., 2017; Carluccio et al., 2018) and faster technological progress (Bloom et al., 2016). However, public opinion has often pointed the finger at China's development as a major trading partner for declining manufacturing employment, worsening labor market conditions and steeply increasing wage inequality. Chinese import penetration in the Italian market has, indeed, risen substantially over the last few decades, with total imports increasing by a factor of 15 from 1991 to 2016 and geographical areas specializing in the production of products also imported from China mostly concentrated in certain parts of North-East and Central Italy.

The second factor whose effect on wage inequality is analyzed in this paper is financial development, which, in Italy, correlates closely with banking sector development, since the Italian financial system has been traditionally dominated by the banking sector and stock market capitalization is lower than other developed countries. This study, therefore, analyzes geographical differences in banking development as an exogenous variation in financial development. Indeed, the banking sector has an extremely heterogeneous presence among Italian provinces, which can be traced back to the banking regulation imposed in 1936 and prevailing until the end of the nineties, with long-lasting effects on the spatial development of the Italian financial system.

This paper shows that, in the Italian case, both Chinese import penetration and financial development, in fact, have only weakly affected the increase in wage inequality, since while import penetration had a negative impact on wages in the local labor markets more exposed to Chinese competition, this impact concerned the entire wage distribution. On the other hand, financial development appears not to have had an impact on the general wage distribution. However, taking into account heterogeneous effects on large as opposed to small firms shows that financial development has raised wages for high-paid jobs within larger firms and low-paid jobs within smaller firms. This effect is coherent with differing capital-skill complementarities among firms of different sizes. Finally, the interaction of both import competition from China and financial development with the 2008-2011 financial crisis indicates that, during the crisis, wages in local markets more exposed to Chinese competition and more financially developed suffered relatively more. These results seem to suggest: a) that the effect of import competition may also involve a deterioration in firms' financial conditions; and b) that the beneficial effects of financial development in good times are counterbalanced by a more severe contraction in bad times. The paper also indicates relations with the economics literature (Section 2), describes the empirical strategy (Section 3) and the data (Section 4) used, and, finally, discusses the overall results (Section 5).

2 Related literature

This paper relates to the literature on the distributional impact of trade. Trade theory has long recognized the important distributional effects that international trade can have among wielders of capital and labor and workers pertaining to different sectors and categories of firms. The Heckscher-Ohlin model with its Stolper-Samuelson (Stolper and Samuelson, 1941) compendium predicts increasing inequality following trade liberalization in developed countries, due to an expected rise in the demand for skilled labor. However, empirical evidence has shown little support for the trade-induced, cross-sector labor reallocation flows implied by the Stolper-Samuelson theoretical framework (Goldberg and Pavcnik, 2007). One possible explanation is that trade influences wage distributions through intra-sector effects more than through the inter-sector effects predicted by the Stolper-Samuelson theorem.

Models with heterogeneous firms (Melitz, 2003) have suggested that increasing wage inequality within sectors may be due either to changing workforce composition between firms, or labor market

imperfections. One line of research assumes competitive labor markets in which all workers with the same characteristics are paid the same wage, but wages vary across firms as a result of a changing workforce composition (Yeaple, 2005; Verhoogen, 2008; Bustos, 2011; Burstein and Vogel, 2017 and Monte, 2011). The other line of research calls on labor market frictions to show that similar workers can be paid differently according to the type of firm they work for. Search and matching frictions (Davidson et al., 2008; Coşar et al., 2016; Helpman et al., 2010) as well as efficiency and fair wages may also be potential sources of wage variation within sectors, as the extent to which salaries induce worker effort, or are perceived to be fair, can vary across firms (Egger and Kreickemeier, 2009; Amiti and Davis, 2011 and Davis and Harrigan, 2011). Other analyses have focused on the distributional effects of firms' offshoring strategies (Hummels et al., 2014; Feenstra and Hanson, 1997; Grossman and Rossi-Hansberg, 2008) and induced technological change (Bloom et al., 2016).

Over the last few years, studies have given increasing attention to the effect of trade on local labor markets. Autor et al. (2013) investigated the effects of import competition with China on the United States local labor market, finding that commuting zones more closely associated with China experienced a decline in manufacturing employment, had higher unemployment and lower labor force participation. In a similar vein, Topalova (2010) analyzed variation in the sector composition of production across Indian districts to estimate the impacts of liberalization on consumption and poverty, finding that rural districts with more exposed production sectors experienced slower declines in poverty and lower consumption growth. Chiquiar (2008), Hakobyan and McLaren (2016) and Dix-Carneiro and Kovak (2017) examined the relationship between trade liberalization and regional labor market outcomes in Mexico, the United States and Brazil, respectively. Dauth et al. (2014) analyzed the effect of the rising influence of China and Eastern Europe on German local labor markets, finding only a moderate effect on manufacturing employment that was more than compensated by the positive effect of export expansion.

These studies implicitly question some of the underlying hypotheses of international trade models, in particular those considering workers as homogeneous and fully mobile across space and sectors. Many studies have, indeed, shown that labor market mobility is inadequate (Blanchard et al., 1992) and that labor markets tend to be segmented at a sector and geographical level, with the consequence that markets more exposed to trade shocks might feel longer-lasting effects on occupational levels and earnings. While previous studies have focused mainly on employment and average wage

effects [2], this study complements the literature by analyzing the distributional effects of increased Chinese competition and by focusing on the effects across the entire wage distribution.

This paper also relates to the literature on the effect of financial development on inequality. Financial development refers to the ability of banks and other financial intermediaries to operate efficiently, being able to screen and monitor potential borrowers and provide access to external funding to individuals and firms. Financial development should, in principle, make capital allocation more efficient and reduce borrowing constraints with the ultimate effect of boosting access to finance, investments and economic growth. There is indeed evidence that financial development does have a positive relationship with economic growth (Levine, 2005). However, the effects of financial development on labor market outcomes in general, and on wage growth and wage inequality more specifically, are not unambiguously determined by economic theory and who benefits the most from the effects of financial development remains an important issue (Demirgüç-Kunt and Levine, 2009).

Various aspects of financial development in relation to firms and households have been analyzed in the literature, many with important implications for inequality, such as giving workers and firms previously excluded from the financial sector the opportunity to invest in human or physical capital accumulation and thus increasing the likelihood of finding more remunerative occupations. Galor and Zeira (1993) developed a model where imperfect credit markets were seen to limit low-wealth households' ability to invest in education and get access to better paid jobs. Recent empirical evidence seems to support some of the mentioned effects. For instance, Sun and Yannelis (2016), Reilly (2019a) and Reilly (2019b) showed that episodes of banking deregulation led to improved college enrolment and better educational outcomes in several U.S. states, while Tewari (2014) found that branch deregulation expanded mortgage supply to lower-income, young and black households, highlighting the potential positive distributive outcome of financial development.

Financial development may also favor the ability of people from lower-income backgrounds to create new firms and become entrepreneurs. Banerjee and Newman (1993) suggested that capital market imperfections limit the amounts that people can borrow and that people from lower-income backgrounds are cut-off from self-employment occupations that may require higher levels of investment,

2. An exception is Malgouyres (2017), who looked at distributional effects of Chinese competition in France.

meaning that poorer people are constrained to work as employees for wealthier entrepreneurs. In this framework, financial development acts on inequality by increasing the likelihood that lower-income individuals can invest in their own firms, becoming self-employed and obtaining higher wages. Empirical evidence for the United States has, indeed, suggested beneficial effects on entrepreneurship and firm creation. Black and Strahan (2002) showed that U.S. banking reforms fostering competition and consolidation in the banking sector helped entrepreneurship, with new business creation increasing significantly after deregulation, consolidation and a decline in the importance of smaller banks. Kerr and Nanda (2009) confirmed these findings with higher firm entry rates, but also found that firm mortality increased following financial reforms, with a substantial increase in firm churning.

On the other hand, improvements in the formal financial sector may benefit the well-off more. Financial development may, indeed, operate along the intensive margin, multiplying the financial opportunities available to households and firms with already privileged access to the financial sector. Petersen and Rajan (1995) developed a model in which higher bank competition and financial development may actually penalize new and small businesses by making the building of long-term relationships with banks less likely. In their model, banks with market power can afford to initiate lending relationships at subsidized rates because they expect to make up for these subsidies in the future as the relationship goes on. Thus, a less developed banking system, with fewer banks operating, may increase the incentive for banks to invest in collecting private information and making loans based on relationship ties. The role of information was confirmed by Bonaccorsi di Patti and Dell'Ariccia (2004) showing, with Italian data, that, in the presence of asymmetric information, firms obtain credit more easily from concentrated financial markets. Entrant and smaller firms that tend to be by nature more opaque might then benefit relatively less from more advanced and competitive financial systems.

This study closely relates to studies looking at the effect of financial development on labor demand and wage distribution. Financial development that reduces the cost of capital can, on the one hand, stimulate firms? substitution of capital for labor, and, on the other hand, reduce overall costs and increase production. However, the net effect on employment and wages is not easy to determine a priori. Two studies have shown no statistically significant effects of financial development on average wage level. Indeed, Bertrand et al. (2007)) showed that French banking reforms successful in raising banks' efficiency and ability to screen and monitor borrowers had a positive impact

on employment in sectors more reliant on bank loans, but had no measurable impact on wages. Somewhat similarly, Pagano and Pica (2012) found no effects of financial development on wages in external finance dependent sectors in a cross-country study including both OECD and non-OECD countries.

The effects of financial development on wage inequality crucially depend on whether demand for lower paid workers is relatively more affected or not. Beck et al. (2010) suggested that the removal of banking restrictions in the United States tightened the income distribution by raising incomes in the lower half of the distribution more than those in the upper half. This effect is consistent with financial development increasing the demand for low-income workers. Larrain (2015) indicated, instead, that financial market liberalization has widened the wage gap between skilled and unskilled workers, contributing to higher wage inequality in many developed countries. In this framework, financial development that improves financial system efficiency and alleviates firms' borrowing constraints generates an increase in capital demand. If production is characterized by capital-skill complementarity, then the demand for skilled labor should also increase relatively more than that for unskilled labor, thus resulting in higher wage inequality [3].

Furthermore, financial development can generate indirect and general equilibrium effects on employment and wages that can alter the wage distribution. Indeed, financial development can make the allocation of resources more efficient and stimulate both economic growth and overall labor demand. However, the extensive macro empirical literature on the relationship between financial development and income inequality has provided us with mixed findings. Several cross-country studies suggest a positive relationship between financial development and inequality (Jauch and Watzka (2016); Denk and Cournède (2015); De Haan and Sturm (2017)) while others suggest an inverse negative relationship (Beck et al. (2007); and Naceur and Zhang (2016)) or a non-linear relationship (Brei et al. (2018)).

In summary, the theoretical and empirical literature indicate that globalization and financial development can both have important distributional effects. However, the direction and extension of the effects are unclear a priori and empirical evidence is important to ascertain the links between

3. Tanndal and Waldenström (2018) also provided evidence that financial development tends to increase inequality by raising incomes at the top of the distribution in the United Kingdom and Japan. However, they highlight a different channel by which increasing wages in the financial sector drive the result.

inequality, globalization and financial development. The rest of this study is, therefore, devoted to the empirical analysis of the effect of globalization and financial development on wage inequality in Italy.

3 Empirical strategy

The impact of trade exposure and financial development on wage inequality can be estimated using the following specification:

$$Ineq_{rt} = \alpha_r + \lambda_t + \beta X_{rt} + C_r^{'}\gamma + \epsilon_{rt} \qquad (1)$$

where $Ineq_{rt}$ is an indicator of wage inequality for the local labour market (hereinafter LLM) r at time t, and X_{rt} is one of the two explanatory variable we are considering for LLM r, the import penetration and the financial development indexes respectively. The aim is to obtain an estimate of the coefficient β which reflects the causal effect of import penetration and financial development on wage inequality and wages at different points of the wage distribution. The vector $C_r^{'}$ contains a set of LLM-level controls and potentially confounding factors. The controls include LLM labor force and demographic composition that might independently affect employment and earnings, namely the unemployment rate, the female employment rate, the share of employment in manufacture, the share of foreign born population and the share of population with college degree. α_r and λt are a set of LLM and year fixed effects. ϵ_{rt} is an i.i.d. error term.

The dependent variable is an index of wage inequality at the LLM level. The log of the Gini coefficient has been used here to explore the distributional effects over the period 1991-2016. Moreover, differential effects are analyzed across the entire wage distribution by looking at the log of the 10th, 20th, 50th, 80th and 90th wage percentiles. The study's focus is on two main explanatory variables, the import penetration index and the financial development index. The import exposure or import penetration variable is measured as:

$$IP_{rt} = \sum_j \frac{L_{rjt}}{L_j t} \frac{M_{jt}}{L_r t}$$

where L_{rjt} is employment in LLM r and industry j, L_{jt} is total employment in industry j, L_{rt} total employment in LLM r, M_{jt} are imports from China in industry j.

In trying to disentangle the causal effect of trade shocks on labor markets, we need to address the potential endogeneity issue that arises because unobservable characteristics of the local labor market are likely to be correlated with trade shocks. In particular, unobservable demand shocks are likely to be correlated to changes in import exposure, biasing upwards the estimates of the effect of Chinese imports on earnings, as both earnings and imports may be positively correlated to unobserved domestic demand shocks. A solution to address this problem is to identify a country whose surge in imports is mainly determined by internal reasons such as increased domestic productivity and the removal of restrictions to international trade. Once this country has been identified, and China is a ideal candidate, it is possible to isolate the part of the import surge that comes from the supply shock from the one that might come from internal demand shocks. This can be done by using the import flows going into other countries as an instrument.

Autor et al. (2013) provided an instrument for the growth in U.S. imports from China with Chinese import growth in other developed countries. The underlying assumption was that the surge in Chinese imports is caused by Chinese internal supply shocks and by the removal of global impediments to Chinese trade (i.e market reforms and WTO membership). The validity of this approach rests on the fact that demand shocks of the other countries whose imports are adopted as an instrument are uncorrelated with domestic demand shocks and that imports are not driven by productivity shocks common to developed countries. If domestic productivity or technology shocks drive imports from third countries, and are common to high-income countries, then IV will fail to correct for the possible bias. This would be the case if poor productivity growth in one domestic sector causes a decrease in sales both domestically and abroad, or if technology shocks common to developed countries adversely affect their labor intensive industries. It cannot be ruled out completely that adverse supply conditions in developed countries influence imports, but there is compelling evidence that the surge in Chinese exports is mainly driven by internal factors and that it is imports driving technological change rather than the opposite (Bloom et al., 2016).

This study employs an instrumental variable approach to address endogeneity concerns using the sector composition of Chinese import flows in a set of developed countries, namely the United States, Australia, Japan, Canada and New Zealand, as an instrument for Italian imports from China. The instrument is thus expressed as:

$$IP^{oth}_{r,t-1} = \sum_j \frac{L_{rj,t-1}}{L_{j,t-1}} \frac{M^{oth}_{jt}}{L_{r,t-1}}$$

where L_{rjt} is employment in LLM r in industry j, L_{jt} is total employment in industry j, L_{rt} total employment in LLM r, M^{oth}_{jt} are other countries imports from China in industry j. The instrument uses lagged employment levels $(t-1)$ in place of contemporaneous employment levels by industry and LLM in order to avoid a simultaneity bias as contemporaneous employment is affected by anticipated China trade.

Financial development, the other variable that is the focus of this study, is measured by bank branch density, i.e. the number of bank branches per thousand inhabitants. The reason behind the use of this proxy for local financial development is that geographical proximity has been demonstrated to be an important factor in determining credit availability particularly for small and medium sized firms, as evidenced by Agarwal and Hauswald (2010) and Degryse and Ongena (2005) among others. This measure of financial development is common in the literature (Degryse and Ongena, 2005; Fafchamps and Schündeln, 2013; D'Onofrio et al., 2019; Berton et al., 2018) as a proxy for the banking sector's capacity to establish relationships with potential creditors (Petersen and Rajan, 1994), and obtain location-specific, soft information to better screen and monitor them and reduce the costs of financial intermediation. The measure is particularly suitable for the Italian context with its prevalence of small and medium sized firms, for which collecting soft information is more important than for contexts characterized by larger firms. Moreover, in relation to the structure of the firms, the banking sector's presence is much more important as source of funding than that of other financial segments such as venture capital and the stock market. Finally, this variable is relatively easy to obtain to a fine geographical degree, and as a time series going back in time, allowing us to fully exploit the panel dimension of the wage data.

Estimates of the effect of financial development on income distribution may also suffer from endogeneity issues. In particular, banking structure can be influenced by the income distribution of local labor markets, giving rise to a reverse causality issue. Furthermore, unobserved local labor market characteristics may be correlated with both wage inequality and financial development, thus biasing the estimates. To address such endogeneity concerns in the financial development regression, an instrumental variable approach has been adopted to address the restrictions imposed by the Italian banking reform of 1936 on different types of banking institutions in relation to the

opening of new branch [4]. Importantly, Guiso et al. (2004)) highlighted the fact that the local banking structure created was totally uncorrelated to the local economic structure of the time, and that this reform crystallized local credit markets up until the end of the 1990s, when the banking market was finally liberalized. This study leverages the fact that the regulation in place from 1936 until the end of the nineties had persistent effects even after its removal, and thus the 1936 banking structure correlates with current local financial development. Therefore, instrument used in this study is the number of bank branches per 1000 inhabitants as in 1936 [5].

The above approach looks at the overall level of wage inequality without accounting for differences in individual characteristics. A slightly different research question concerns the effect of globalization and financial development on residual wage inequality, which is defined as the inequality in earnings for workers with the same characteristics, such as gender, education and experience. Residual wage inequality measures the premium on unobserved skills after accounting for observed skill gaps.

To measure the effect on residual wage inequality, this study adopts the region IV quantile approach developed by Chetverikov et al. (2016). The econometric model involves a two stage procedure, the first of which consists of quantile regressions for each LLM separately of the log of weekly earnings for individuals on their characteristics as follows:

$$ln(w_{irt}) = \alpha_{rt} + X_{irt}\lambda_{rt} + e_{irt}$$

where the dependent variable is the natural logarithm of weekly wage for worker i, in LLM r, in year t, while α_{rt} represents the LLM fixed effects and X is a set of worker characteristics, including age, age squared and gender. The above equation has thus been estimated for each quantile-LLM-year separately. To reduce the computational burden, the quantile regressions were estimated for five years only: 1991, 2001, 2007, 2011, and 2016. The LLM effects α_{rt} are the LLM average log wages for each quantile depurated by the variation due to observable worker characteristics. The second step then involves the estimation of the regression between the LLM effects estimated in

4. The 1936 Banking Law imposed limits on opening new branches in areas different from where they were already operating in 1936. The law also distinguished between national, local, savings and cooperative banks, each of which had different geographic limits set for their area of operation.

5. See also Capasso and Jappelli (2013) and D'Onofrio et al. (2019) for the use of a similar IV strategy.

the first step and the explanatory variables X_{rt}.

$$\alpha_{rt} = \psi + \beta X_{rt} + \gamma C_r + \eta_r \qquad (2)$$

where β estimates the causal effect of the dependent variable residual wages for different quantiles of the wage distribution.

4 Data

The data used in this study are administrative data from the Italian National Institute for Social Security (hereinafter INPS) on the universe of private, non-agricultural sector labor contracts over the period from 1991 to 2016. This extremely comprehensive dataset is used to derive information on wages at the local municipal level, and on employment by sector, in order to reconstruct the wage distribution and compute inequality measures at the local labor market level, consisting of groups of municipalities with strong commuting ties [6], as grouped, in 2011, by the Italian National Institute of Statistics (hereinafter ISTAT) into 611 local labor markets.

Data on wages from the INPS database are based on administrative declarations to the social security institute, containing information for each contract on the annual wage, the number of weeks worked and the main characteristics of the employee and the firm. To obtain the weekly wage measure at an individual level took some intermediate steps in processing the raw administrative data. First, the sample was restricted to jobs with strictly positive earnings and days worked. For workers working in more than one LLM in a given year, the LLM considered was the one where the worker earned the most. All job contracts maintained by individual workers were then summed up in order to compute the gross weekly wage at both the individual and LLM level, and the top and bottom 0.1% of the observations were trimmed to reduce the influence of extreme values. The baseline measure of inequality was the Gini coefficient of the gross weekly wage combined with the

6. The local labor markets (LLM) are places where populations reside and work, and where people have the majority of their social and economic relationships, defined as an aggregation of two or more municipalities with the maximum level of interaction between municipalities belonging to the same LLM. For the methodological details, see https://www.istat.it/it/informazioni-territoriali-e-cartografiche/sistemi-locali-del-lavoro.

analysis of the impact on wages at different percentiles of the wage distribution to obtain a picture of the distributional effects of Chinese import penetration and financial development.

Figure 1 shows the Gini coefficient of weekly wages for the overall and male-only wage distribution, and Figure 2 shows the evolution of different percentiles of the wage distribution for the period 1991-2016. The figure shows that wages towards the bottom of the wage distribution have been flat since 1991, while wages at the top have increased, leading to a higher wage dispersion. Figure 3 shows the map of the spatial variation of the Gini coefficient in 1991 and 2016.

To construct the import penetration index for local labor markets requires data on the employment structure by sector, which can be drawn from the industrial sector identifier of each firm in the INPS dataset. The dataset includes complete data according to the statistical classification of economic activities in the European Community NACE Revision 1 (Ateco 1991) for each sector and each firm from 1991 onwards, so the analysis was restricted to the interval 1991-2016, obtaining employment data for 351 different 3-digit NACE sectors.

Trade data was taken from the United Nations International Trade Statistics Database, UN Comtrade, according to Standard International Trade Classification (SITC) Revision 3 at the 5-digit disaggregation level. The SITC3 classification was matched to the industrial activity classification used in the INPS dataset and the NACE Revision 1 classification using the standard correlation tables developed by World Bank World Integrated Trade Statistics (WITS). All import values were deflated to express them in 2007 dollars at constant prices. Employment and trade data then allowed the computation of the import exposure index for each local labor market from 1991 to 2016. Import exposure was taken to refer to the manufacturing sector only, excluding agriculture for which no employment data was available and the service sector for which no trade data was available. Thus, exposure was taken to mean exposure to manufacturing imports from China. Figure 4 shows the map of IP spatial variation in 1991 and 2016, with the more exposed local markets concentrated in the northern and central part of the country having traditionally more industrial vocations.

Bank branch density, defined as the number of branches per 1000 habitants, was used as the indicator of financial development. This is a standard measure used in the literature, as it represents a good proxy for the ability of banks to reduce informational asymmetries and improve loan monitoring and screening. Moreover, the banking sector in Italy accounts for the almost totality of firms'

financial debt, with a relatively low incidence of bonds and low capitalization of the stock market compared with other developed countries (Guiso, 2003; Accornero et al., 2018). In other words, Italy is predominantly a bank-based system as opposed to a market-based system, with banks playing the main role in lending to the private economy (Demirgüç-Kunt and Huizinga, 2000). The financial development data was taken from the Bank of Italy register of bank branches, GIAVA, which has listed bank branches in Italian municipalities since 1936, allowing the construction of the above mentioned instrument, namely the number of bank branches per 1000 inhabitants in 1936. Figure 5 thus illustrates the variation in financial development among local markets, showing, once again, both a cross-sectional and time variation.

In order to check for potentially confounding factors that might influence the local labor market data structure, we must consider their demographic characteristics. Demographic data was thus taken from the ISTAT population census at the municipality level in 1991, 2001 and 2011, comprising data on municipality population, female employment, the foreign born population and the share of college graduates, interpolated between the census years, assuming a constant yearly growth rate. For the LLM unemployment rate and population, ISTAT data from 2006 to 2016, coming from the labor market survey, was also used. Tables 1 to 3 show summary statistics of all the variables used in the analysis. In the import penetration estimations, the local labor market fixed effects are accounted for in order to check for all time-invariant, unobservable factors that might influence wages and labor markets. Conversely, for the financial development estimations, the LLM fixed effects cannot be used since the instrument is time-invariant, so province-level fixed effects were considered instead. Provinces are, indeed, the smallest administrative level up from municipalities, with provinces containing on average around six LLMs. Finally, all regression observations are weighted by LLM population shares and clustered standard errors are computed at the local labor market level to account for serial correlations across the LLMs.

5 Results

Table 4 presents the estimates of the relationship between Chinese import penetration and wage inequality measures. The estimation follows the specification in (1), and employs the instrumental variable approach described in the previous sections. The last column of Table 4 reports the first-stage estimates, showing that the instrument for the import penetration index is positively

associated with the IP and that the coefficients are precisely determined. The relevance of the instrument is further confirmed by the value of the Kleibergen-Paap F-statistic of 171, well above conventional critical values. Throughout the specification, local labor market fixed effects are considered to account for all local labor market, time-invariant, unobservable characteristics. The results show that an increase in LLM import exposure has a negative and statistically significant effect on the LLM Gini coefficient, implying that a 1% change in the import penetration index will cause a 0.05% reduction in the Gini coefficient. Given that the import penetration index had an average annual growth rate of 8.5% over the 1991-2016 period, the coefficient implies a reduction in the Gini coefficient of 0.42%.

In order to better understand the effect of import penetration on the wage distribution, if we look at the effect at different percentiles of the wage distribution, we see that LLM exposure to import penetration from China has a negative effect on wages across the entire wage distribution. The coefficients are generally negative, implying that local labor markets more exposed to Chinese import competition experience downward wage pressures. The negative effect is stronger and statistically different from zero from the second quantile, median wage and the upper part of the distribution, the 80th and 90th percentile. It is not significant though towards the very bottom of the distribution. At the median wage, the effect implies a 0.04% reduction in wages for a 1% increase in the import penetration index. At an average annual growth rate of 8.5% of the import penetration index over the 1991-2016 period, the coefficient implies a lower growth rate of wages of 0.34% per year. The cumulative effect is a non-negligible 8.5% reduction over the 25 years.

Though a priori low-skilled and low-wage workers were expected to be most affected by competition from low-income countries' imports, this is, in fact, not reflected entirely in the wage effects reported in Table 4. However, if low wage workers are those most likely to lose their jobs due to foreign competition, then compositional effects might limit the impact on surviving jobs' wages. One possible interpretation of these results is that the downward rigidity of wages in the Italian labor market, caused by the centralized collective bargaining system mentioned above, is binding only at the bottom of the wage distribution. Devicienti et al. (2007) have, indeed, suggested that downward rigidities lead firms to substitute employment adjustments for wage adjustments for affected workers. This suggests that the adverse effects of higher import penetration on wages are more pronounced in the upper part of the wage distribution, while employment effects tend to prevail at the bottom. This seems to be corroborated by recent evidence on the effect of Chinese

import penetration on employment levels across Italian local labor markets Citino and Linarello (2019).

The effect results in a negative contribution of Chinese import penetration to wage inequality, as reflected in the negative and statistically significant coefficient for the regression of the Gini coefficient. Thus, import penetration is seen to have a contraction effect on the wage distribution. This effect is, therefore, not at odds with common perceptions that Chinese competition has had adverse effects on low-paid workers. However, it shows that the effects concern wages across the entire distribution, while implying the destruction of jobs at the bottom.

One way to shed more light on the interaction between import competition and employment regulations is by considering their influence on employment protection in firms of varying sizes. For example, according to Italian legislation, firms with less than 15 workers are allowed to fire workers more easily than firms above the threshold of 15 employee [7]. Thus, we should see a smaller effect on wages for firms with less than 15 employees and more freedom to reduce employment, while firms with 15 or more employees and stricter employment regulation, meaning less freedom to fire workers, should be associated with stronger wage effects. Tables 5 and 6 show the results for the distributional impact for workers pertaining to firms with 15 or more employees, and to firms with less than 15 employees. The results confirm that wage effects have been more pronounced in firms subject to stricter labor regulation, while, for smaller firms, wage effects are almost entirely absent, and likely offset by adjustment on the employment margin.

With the data at hand, it is possible to test the interaction of import penetration with the effect of the banking crisis, likely to be stronger for firms in local markets more exposed to foreign competition. The mechanism might involve a reduction in profitability inducing an increase in leverage and a deterioration of firms' financial conditions following higher import competition. This hypothesis can be tested by adding an interaction term between the import penetration index and a banking crisis dummy[8]. The resulting negative and statistically significant coefficients on the

7. In particular, for firms with 15 or more employees, a reinstatement clause is applied in the case of unfair dismissals. The legislation has been partially reformed with the introduction of the Jobs Act in 2015 regarding new labor contracts.

8. This can be done by according to the definition of the banking crisis developed in Laeven and Valencia (2013) and indicated in the World Bank's Global Financial Development Database. According to these sources, "A banking crisis is defined as systemic if two conditions are met: 1) Significant signs of financial distress in the banking system

interaction term show that more exposed local markets experienced a greater reduction in wages during the banking crisis. Such effects corroborate the idea that trade policy changes may have an effect on firms' profits and leverage[9].

Table 8 illustrates the results for the estimation of the relationship between financial development and wage inequality. Once instrumented, financial development has no statistically significant impact on wage inequality. Thus, more financially developed local labor markets do not appear to experience an increased dispersion of the wage distribution. Table 8 also shows the effect at different points of the wage distribution, in order to disentangle the above effect. Contrary to import penetration, financial development had no statistically significant effect on wages across the entire distribution. This implies that financial development did not significantly contribute to overall wage growth in Italy in the period considered. This result is in line with other studies showing the effects of financial development on added value and employment, but not on wages and productivity, particularly in countries with more advanced financial systems (Pagano and Pica (2012)).

One possible explanation for the lack of statistically significant effects of financial development on wages may be heterogeneity in the effects for firms of different sizes. Moreover, the effect on wages at different points across the wage distribution may vary according to capital-skills complementarity, as suggested by Larrain (2015). Measures of firms' capital intensity and capital-skill complementarities are not available in the INPS database, though we can use size as an imperfect proxy. We can test whether financial development had a differential impact among larger firms, assuming they have 50 or more employees, by computing the same inequality index and wages quantiles for the universe of medium and large sized firms' workers.

The effect of financial development on wages in larger firms is actually positive and statistically significant towards the upper part of the distribution (see Table 9). It is likely that the impact of

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(as indicated by significant bank runs, losses in the banking system, and/or bank liquidations); 2) Significant banking policy intervention measures in response to significant losses in the banking system. The first year that both criteria are met is considered as the year when the crisis starts to become systemic. The end of the crisis is defined as the year before both real GDP growth and real credit growth are positive for at least two consecutive years". Such criteria classify the years from 2008 to 2011 (both inclusive) as years of banking crisis for Italy.

9. Baggs and Brander (2006) found a link between firms' lower profits and higher leverage following higher import competition. Barrot et al. (2018), instead, showed import penetration leading to higher debt among households.

capital-skill complementarities intensifies the wage effects for higher wages among larger and more capital intensive firms, thus bringing in an increase in wage inequality. Table 10 shows the effect on small firms, with less than 50 workers, which, contrarily to large firms, appear to experience a positive effect on wages at the bottom half of the distribution, leading to a reduction in wage inequality, though the effect on the 10th percentile and on the Gini coefficient is not statistically significant.

As with import penetration, this studied investigated the interaction between financial development and the 2008-2011 banking crisis. Financial development may also have a dark side during periods of banking crisis, exacerbating adverse effects on more financially dependent firms and markets. Local labor markets more dependent on financial markets may, in fact, benefit in good times, but also suffer more in bad times. If this effect is in place, we should find adverse effects on wages during a banking crisis for more financially developed local labor markets. This hypothesis is tested in Table 11 by adding an interaction term between financial development and a banking crisis dummy according to the original specification. The empirical evidence does, indeed, suggest a negative effect of financial development on wages during the banking crisis. The effect is statistically significant and tends to be stronger toward the upper part of the wage distribution. The result points toward a contraction of the wage distribution in more financially developed labor markets.

An interesting question concerns whether trade openness and financial development influence returns to observable worker characteristics, i.e. the observable skill premium, or returns to unobservable characteristics, i.e. the residual wage. Different trade theories suggest different implications for returns to skills versus the residual wage effect. Standard trade models tend to imply that openness should affect the skill premium through reduced demand for low-skilled workers due to competing imports from low-income countries coupled with increased demand for high-skilled jobs in exporting firms. Heterogeneous firm theories, however, suggest that openness could have an impact on residual wage inequality. Trade models augmented with labor market search and matching frictions, fair wage models and efficiency wage models all imply that workers with similar characteristics may receive different wages following increased trade openness leading to a higher dispersion in residual wages.

In order to investigate the effects on residual wages, the quantile regression approach described in the previous section was adopted, consisting of running quantile regressions for each separate LLM, in order to estimate the wage for each quantile/LLM combination as a function of observable worker

and job characteristics. The returns to observable worker characteristics can then be filtered out of individuals' wages to obtain the residual wage. The average residual wage for each quantile/LLM thus becomes our measure of residual wage. This specification allows an exploration of how import penetration and financial development have influenced residual wages at different quantiles using equation 2 above.

Table 12 shows the results for the effect of import penetration on wage percentiles. The effect on wage inequality, which was quite precisely estimated when looking at overall wages, is not so well established when looking at residual wage inequality only. This last result seems to suggest that import penetration has had an impact more through changing returns to observable workers characteristics at different levels of the wage distribution than on residual wage inequality. Finally, Table 13 shows the results of the regressions of residual wages and financial development. The results confirm the lack of any statistically significant effect on wages of financial development, even when looking at residual wages only.

6 Conclusions

The increasing inequality that has accompanied the development of many advanced and emerging economies around the world has gained particular attention in public discourse, and has raised widespread concerns about economic, social and political consequences. This study investigates the links between globalization, financial development and wage inequality, leveraging a unique, employer-employee matched dataset comprising the universe of Italian, private, non-agricultural sector employees over the period from 1991 to 2016.

The study finds that Chinese import competition had a negative effect on wages and that these effects are more pronounced towards the upper part of the wage distribution. These results can be explained with the fact that employment effects likely prevailed in the bottom part instead. The result is a contraction effect on the wage distribution. Financial development appeared to have no impact on wages when considering the entire wage distribution, but had a heterogeneous effect in small, medium and large sized firms. Financial development tended to raise wages in the lower half of the wage distribution for workers employed in small firms, while it tending to raise wages in the upper part of the distribution for medium and large firms. Differences in capital-

skills complementarities among firms of different sizes have likely driven this result. Finally, the study shows that financial development can have opposite effects on wages during banking crises, confirming hypotheses about the dark side of financial development during turbulent times.

The findings highlight the negative effects of Chinese import penetration in local labor markets that are more exposed in terms of lower wages, but do not confirm an effect on wage inequality, as wages in the upper part of the distribution are also negatively affected by Chinese competition. Indeed, this study suggests that the wage effect prevails among higher-paid workers, while previous studies have shown that employment effect has prevailed among low-wage workers. The combination of the two effects, employment at the bottom and wages at the top, offers additional evidence on possible reasons for the declining consensus around trade openness and globalization in western countries, particularly for more exposed local communities.

This study also offers an interesting insight into the distributional effects of financial development, showing that they depend strongly on firms' characteristics. Financial development that only involves larger firms, where capital-skills complementarities are higher, might exacerbate wage inequality, while guaranteeing small firms access to financial markets may also favor low wage workers and limit wage inequality. Finally, this study suggests that the benefits of financial development in terms of output, employment and wage growth must be considered together with its drawbacks, namely higher instability in times of crisis deriving from higher financial development.

Table 1: Wage Inequality-Means

year	Gini	p10	p20	p50	p80	p90	std
1991	0.27	130.02	173.50	237.04	330.48	417.85	167.81
1992	0.28	136.73	182.61	248.40	347.92	446.85	184.52
1993	0.28	140.76	188.73	257.74	361.02	462.12	190.27
1994	0.28	140.21	191.40	264.19	372.04	476.52	199.08
1995	0.28	143.68	198.37	272.71	386.96	503.48	203.61
1996	0.28	148.14	207.33	283.96	405.33	522.50	209.82
1997	0.29	150.71	212.35	295.12	422.42	545.88	221.83
1998	0.29	154.69	216.46	305.46	442.81	571.81	235.25
1999	0.29	154.71	216.28	310.23	446.46	575.04	232.94
2000	0.30	154.92	216.02	312.08	457.08	591.02	240.80
2001	0.30	159.35	221.96	319.29	467.60	606.85	251.13
2002	0.30	161.00	224.02	323.36	474.50	617.71	259.40
2003	0.30	165.71	226.44	329.19	481.12	627.21	260.91
2004	0.30	167.62	228.38	339.88	494.88	643.08	267.12
2005	0.31	164.73	226.25	342.69	503.46	657.37	268.91
2006	0.31	168.23	235.59	353.77	519.38	676.60	278.91
2007	0.31	162.30	228.43	356.33	525.37	683.46	285.45
2008	0.32	166.33	234.80	371.20	550.48	722.96	305.65
2009	0.32	165.06	234.06	375.21	553.81	729.51	306.41
2010	0.33	162.17	232.93	383.87	567.10	743.85	315.72
2011	0.33	160.00	232.50	392.83	577.60	755.65	322.51
2012	0.34	154.89	227.70	395.00	585.29	767.46	328.21
2013	0.34	158.64	230.54	401.71	595.94	780.73	334.02
2014	0.34	159.62	229.69	404.17	601.37	788.00	338.14
2015	0.34	162.35	230.50	406.17	605.91	793.48	339.96
2016	0.34	165.45	231.69	408.06	608.83	798.61	342.88

Notes: Column 1 reports the overall Gini coefficient. Columns 2 to 6 report the 10th to 90th percentile of the wage distribution. Column 7 reports the wage standard deviation.

Table 2: Means and Standard Deviations of LLM variables

year	IP	IPsd	branch_pop	branch_popsd	unempl	unemplsd	emplman	emplmansd
1991	0.196	0.205	0.543	0.339	19.712	12.494	33.289	11.662
1992	0.238	0.228	0.517	0.317	18.868	12.050	33.198	11.547
1993	0.226	0.219	0.529	0.321	18.066	11.635	33.110	11.437
1994	0.253	0.243	0.536	0.307	17.303	11.244	33.025	11.335
1995	0.298	0.276	0.535	0.298	16.578	10.877	32.944	11.238
1996	0.304	0.313	0.548	0.305	15.888	10.531	32.866	11.148
1997	0.327	0.360	0.559	0.310	15.232	10.205	32.790	11.064
1998	0.352	0.390	0.581	0.300	14.607	9.897	32.718	10.987
1999	0.378	0.396	0.589	0.304	14.012	9.607	32.649	10.917
2000	0.431	0.500	0.597	0.308	13.445	9.332	32.583	10.854
2001	0.420	0.434	0.607	0.313	13.031	9.110	32.536	10.794
2002	0.456	0.463	0.607	0.315	11.359	7.524	31.921	10.656
2003	0.614	0.597	0.601	0.301	9.948	6.271	31.320	10.525
2004	0.786	0.757	0.602	0.300	8.755	5.279	30.733	10.400
2005	0.919	0.963	0.608	0.302	7.742	4.497	30.158	10.280
2006	1.106	1.152	0.615	0.306	7.190	4.074	29.597	10.165
2007	1.274	1.295	0.619	0.310	6.693	3.957	29.048	10.055
2008	1.364	1.374	0.625	0.310	7.480	4.264	28.512	9.950
2009	1.099	1.213	0.618	0.309	8.356	4.033	27.988	9.848
2010	1.548	2.184	0.613	0.310	8.895	4.189	27.475	9.750
2011	1.590	2.200	0.610	0.309	8.898	4.069	27.028	9.653
2012	1.194	1.374	0.599	0.310	11.558	5.190	26.536	9.562
2013	1.179	1.388	0.588	0.309	13.261	5.903	26.055	9.473
2014	1.331	1.585	0.576	0.302	14.045	6.320	25.584	9.387
2015	1.228	1.527	0.572	0.309	13.025	6.001	25.124	9.304
2016	1.189	1.477	0.514	0.285	12.975	6.281	24.673	9.223

Notes: Figures are mean over the 611 local labour markets. *IP* is the import penetration index, *branch_pop* is number of bank branches per million of inhabitants, *unempl* is the unemployment rate (%), *emplman* is the employment in the manufacturing sector.

Table 3: Means and Standard Deviations of LLM variables

year	foreign	sd	college	sd
1991	4.817	3.500	22.971	5.637
1992	5.441	3.899	24.128	5.743
1993	6.158	4.371	25.346	5.850
1994	6.983	4.930	26.627	5.958
1995	7.933	5.592	27.975	6.067
1996	9.028	6.378	29.395	6.179
1997	10.292	7.312	30.889	6.294
1998	11.753	8.423	32.462	6.414
1999	13.443	9.745	34.119	6.541
2000	15.401	11.322	35.863	6.676
2001	19.733	15.106	38.203	6.817
2002	21.789	16.407	39.286	6.869
2003	24.072	17.836	40.402	6.923
2004	26.609	19.407	41.551	6.980
2005	29.431	21.137	42.735	7.042
2006	32.570	23.043	43.954	7.110
2007	36.065	25.148	45.211	7.184
2008	39.960	27.475	46.505	7.266
2009	44.302	30.054	47.838	7.357
2010	49.147	32.916	49.212	7.460
2011	57.999	37.771	50.846	7.582
2012	64.485	41.559	52.312	7.720
2013	71.747	45.810	53.823	7.877
2014	79.888	50.600	55.380	8.056
2015	89.022	56.018	56.985	8.260
2016	99.280	62.174	58.639	8.492

Notes: Figures are mean over the 611 local labour markets. *foreign* is the number of foreign-born residents per 1000 inhabitants, *college* is the number of college graduates (%).

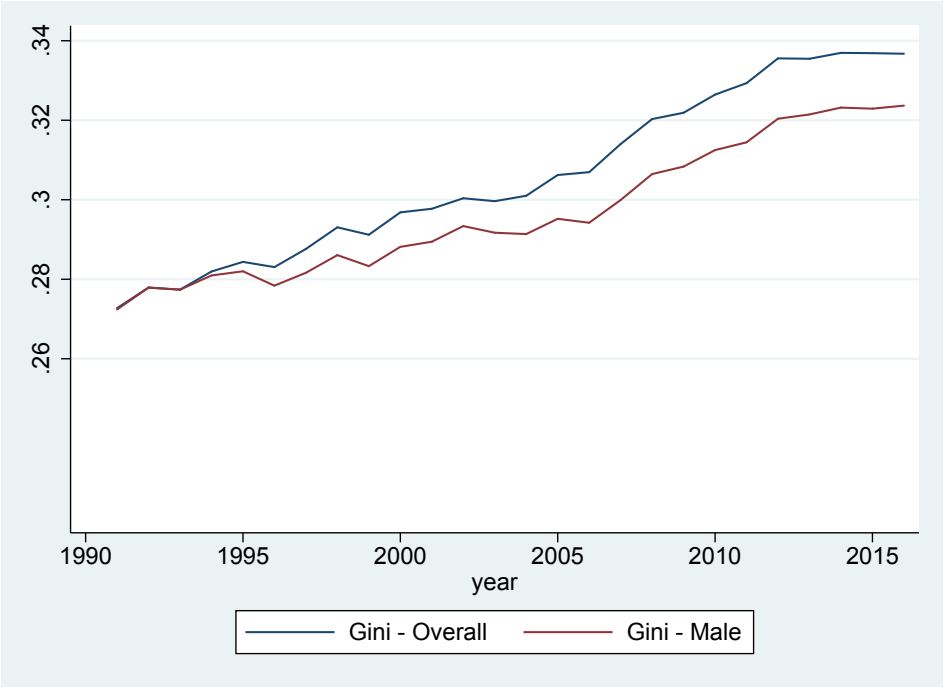

Figure 1: Gini index

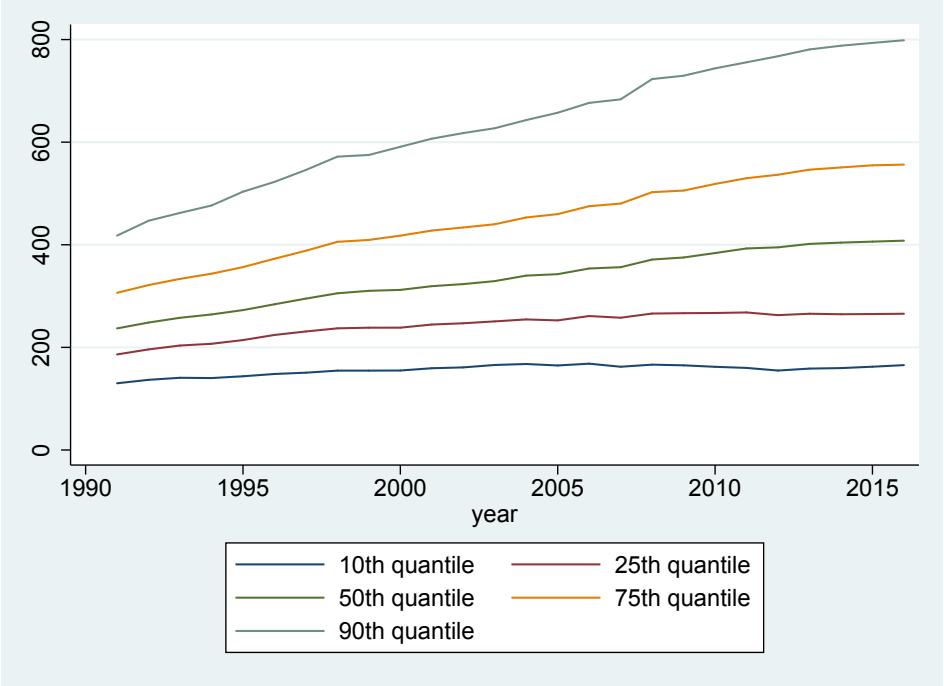

Figure 2: Wage deciles

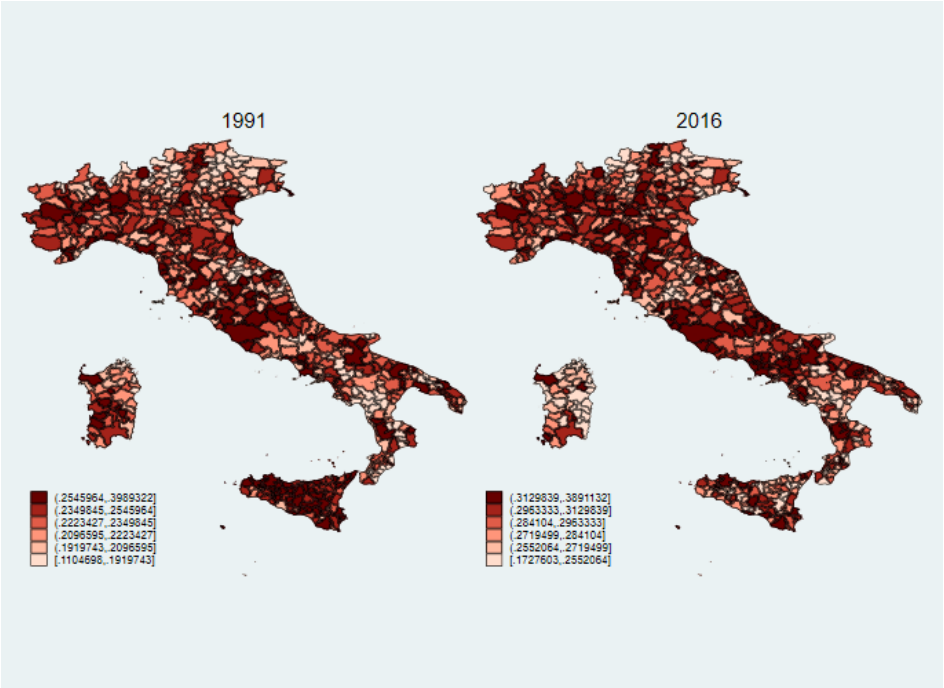

Figure 3: Gini index

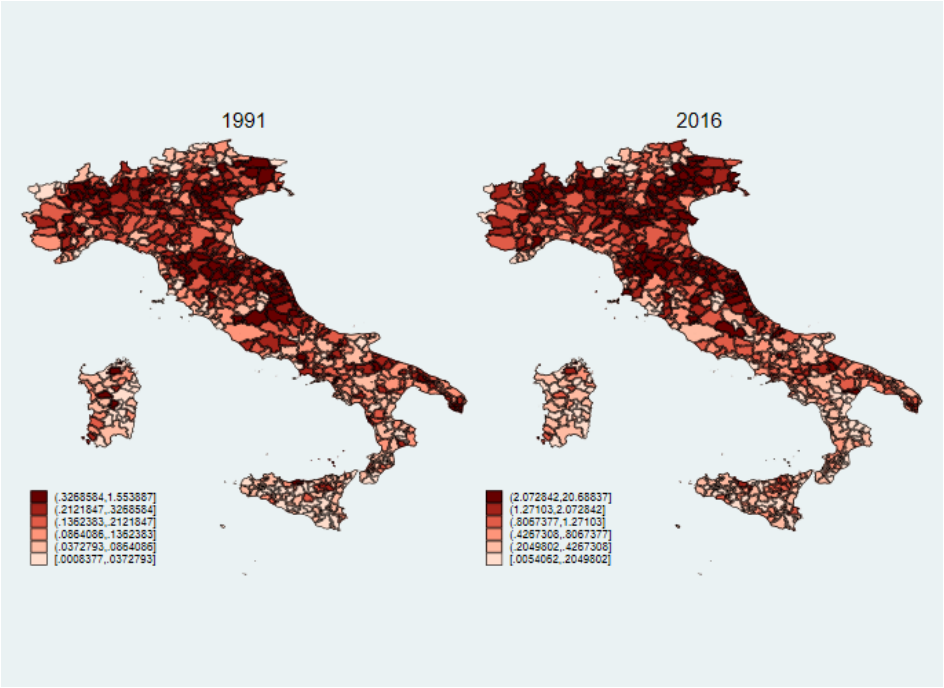

Figure 4: Chinese import penetration index

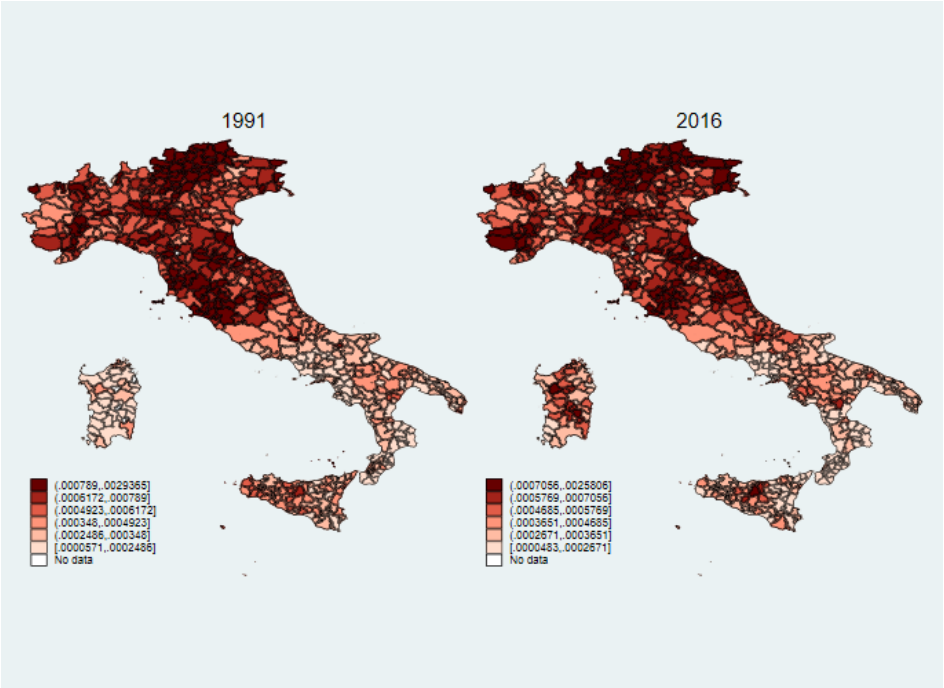

Figure 5: Financial development

Table 4: Chinese import penetration and wage inequality 1991-2016

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnIP
lnIP	-0.0466**	-0.0348	-0.0478***	-0.0382***	-0.0426***	-0.0822***	
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	
emplman	-0.00439***	0.0101***	0.00772***	0.00224	0.00102	-0.000757	0.00345
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00498***	-0.000679	0.000225	0.00232***	0.00392***	0.00490***	0.00270
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000678***	0.00114***	0.00135***	0.000774***	0.000404***	0.000520***	0.000628*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00164	0.00739**	0.00992***	0.00842***	0.00840***	0.00891***	0.00166
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
empl_f	-0.000280	-0.00120	-0.00448***	-0.00372***	-0.00381***	-0.00244	0.00762
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnIP_iv							0.491***
							(0.04)
LLM FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886
K-P F							171.3

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Chinese import penetration and wage inequality 1991-2016 - Firms with 15 or more employees

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnIP
lnIP	-0.0248	-0.0738**	-0.0971***	-0.0494**	-0.0458***	-0.0948***	
	(0.02)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	
emplman	-0.00549***	0.0132***	0.00828**	0.00305	-0.000526	-0.00186	0.00342
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00440***	0.000393	-0.00000224	0.000935	0.00384***	0.00462***	0.00270
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000681***	0.00168***	0.00148***	0.000500***	0.000388***	0.000465***	0.000628*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00253*	0.00773*	0.0105***	0.00898***	0.00882***	0.00899***	0.00167
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
empl_f	-0.00195	-0.00113	-0.00405*	-0.00620***	-0.00446***	-0.00440**	0.00763
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnIP_iv							0.491***
							(0.04)
LLM FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	15808	15808	15808	15808	15808	15808	15808
K-P F							170.5

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Chinese import penetration and wage inequality 1991-2016 - Firms with less than 15 employees

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnIP
lnIP	-0.0334**	0.0514**	-0.0102	0.00271	-0.00316	-0.00255	
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	
emplman	-0.00177	-0.000744	0.00494***	-0.00146	-0.000235	-0.000833	0.00345
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00314***	-0.00398***	0.000197	-0.00130***	0.00145***	0.00248***	0.00270
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000454***	0.000349**	0.000618***	0.00118***	0.000316***	0.000323***	0.000628*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	-0.00478**	0.00394	0.00835***	0.00708***	0.00345***	0.00310***	0.00166
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
empl_f	0.00285**	0.00142	-0.00465***	-0.00595***	-0.00273***	-0.00146**	0.00762
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnIP_iv							0.491***
							(0.04)
LLM FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886
K-P F							171.3

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Chinese import penetration and wage inequality 1991-2016 - Banking crisis interaction

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnIP	(8) IPcrisis
lnIP	-0.0457**	-0.0344	-0.0477***	-0.0270*	-0.0418***	-0.0456***		
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)		
IPcrisis	-0.00959**	-0.00452	-0.00193	-0.00481**	-0.00829***	-0.00671**		
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)		
emplman	-0.00455***	0.0100***	0.00769***	0.00326*	0.000880	-0.000867	0.00310	0.000519
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00522***	-0.000564	0.000274	0.000143	0.00413***	0.00507***	0.00307	0.00811***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000684***	0.00113***	0.00135***	0.000868***	0.000399***	0.000516***	0.000626*	-0.000452***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00155	0.00735**	0.00990***	0.00808***	0.00832***	0.00884***	0.00145	0.000775
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
empl_f	-0.000428	-0.00127	-0.00451***	-0.00529***	-0.00394***	-0.00255*	0.00750	-0.00929***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnIP_iv							0.492***	-0.00661
							(0.04)	(0.01)
IPcrisis_iv							-0.0169	0.815***
							(0.02)	(0.02)
LLM FE	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886	15886
K-P F								86.30

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Financial development and wage inequality 1991-2016

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnbranch_pop
lnbranch_pop	0.0359	0.00520	0.0494	0.000345	-0.0896	-0.000269	
	(0.08)	(0.08)	(0.07)	(0.06)	(0.08)	(0.11)	
emplman	-0.00228***	0.00803***	0.00835***	0.00446***	0.00244***	0.00295***	-0.00299**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00523***	-0.00135	0.000000936	-0.000148	0.00315***	0.00507***	-0.00403**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000883***	0.00131***	0.00152***	0.000923***	0.000444***	0.000456***	-0.000178
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00851***	0.00723***	0.00946***	0.00984***	0.0131***	0.0167***	0.00204
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
empl_f	-0.000187	0.00389**	0.00188	-0.000601	0.000937	0.00131	0.00759***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnbranch_pop36							0.123***
							(0.03)
Province FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886
K-P F							20.31

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Financial development and wage inequality 1991-2016 - Medium and large firms (> 50 employees)

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnbranch_pop
lnbranch_pop	0.565***	-0.229	0.0333	0.254*	0.363**	0.452**	
	(0.19)	(0.20)	(0.17)	(0.14)	(0.16)	(0.19)	
emplman	-0.000986	0.0137***	0.0126***	0.00692***	0.00492***	0.00531***	-0.00283*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00506**	0.000815	0.000682	0.00161	0.00477***	0.00619***	-0.00367**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000999***	0.00236***	0.00153***	0.000527***	0.000309	0.000325	-0.000193
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.0120***	0.00533**	0.0111***	0.0135***	0.0165***	0.0186***	0.00225
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
empl_f	-0.00303	0.00227	-0.000504	-0.00346	-0.00432	-0.00374	0.00848***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnbranch_pop36							0.127***
							(0.03)
Province FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	14979	14979	14979	14979	14979	14979	14979
K-P F							20.32

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Financial development and wage inequality 1991-2016 - Small firms (< 50 employees)

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnbranch_pop
lnbranch_pop	-0.0854	0.0839	0.135**	0.0900**	0.000695	-0.0119	
	(0.06)	(0.09)	(0.06)	(0.04)	(0.03)	(0.05)	
emplman	-0.00175***	0.00300**	0.00528***	0.00275***	0.00187***	0.00185***	-0.00299**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00231**	-0.0123***	0.000855	0.000404	0.00196***	0.00285***	-0.00403**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000736***	-0.000101	0.000989***	0.00115***	0.000409***	0.000470***	-0.000178
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00420***	-0.000358	0.00557***	0.00557***	0.00578***	0.00738***	0.00204
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
empl_f	0.00121	0.00598**	0.000595	-0.00224**	0.000428	0.00170	0.00759***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnbranch_pop36							0.123***
							(0.03)
Province FE	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886
K-P F							20.31

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Financial development and wage inequality 1991-2016 - Banking crisis interaction

	(1) lngini	(2) lnp10	(3) lnp20	(4) lnp50	(5) lnp80	(6) lnp90	(7) lnbranch_pop	(8) branchcrisis
lnbranch_pop	0.0409	0.00518	0.0482	0.00326	-0.0863	0.00396		
	(0.08)	(0.08)	(0.07)	(0.06)	(0.08)	(0.11)		
branchcrisis	-0.0427***	0.000206	0.00992	-0.0246***	-0.0286***	-0.0357***		
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)		
emplman	-0.00224***	0.00803***	0.00834***	0.00449***	0.00247***	0.00299***	-0.00299**	0.000886**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	0.00601***	-0.00135	-0.000181	0.000304	0.00367***	0.00573***	-0.00420**	0.00920***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.000888***	0.00131***	0.00152***	0.000920***	0.000440***	0.000451**	-0.000179	-0.000218**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00855***	0.00723***	0.00945***	0.00987***	0.0131***	0.0167***	0.00205	0.00184***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
empl_f	0.000102	0.00389**	0.00181	-0.000435	0.00113	0.00155	0.00752***	0.00423***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnbranch_pop36							0.121***	-0.0555***
							(0.03)	(0.01)
branchcrisis_iv36							0.00868	0.446***
							(0.01)	(0.04)
Province FE	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes
N	15886	15886	15886	15886	15886	15886	15886	15886
K-P F								10.18

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Chinese import competition and residual wage inequality 1991-2016

	(1) w10	(2) w20	(3) w50	(4) w80	(5) w90	(6) lnIP
lnIP	0.0925	-0.0223	0.0326	-0.00581	-0.0829	
	(0.10)	(0.07)	(0.05)	(0.04)	(0.07)	
emplman	0.00348	0.00966*	0.00901***	0.0115***	0.0150**	0.00123
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
unempl	-0.0349***	-0.0142***	-0.0130***	-0.0112***	-0.00782***	0.00462
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.00168**	0.000187	0.00242***	0.00146***	0.000427	0.000707**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	0.00135	-0.000254	0.0119***	0.00533	0.00643	-0.00115
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)
empl_f	0.0164*	0.00192	-0.00122	-0.0144***	-0.0235***	0.0116**
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
lnIP_iv						0.517***
						(0.04)
LLM FE	yes	yes	yes	yes	yes	
Year FE	yes	yes	yes	yes	yes	
N	3055	3055	3055	3055	3055	3055
K-P F						168.7

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Financial development and residual wage inequality 1991-2016

	(1) w10	(2) w20	(3) w50	(4) w80	(5) w90	(6) lnbranch_pop
lnbranch_pop	-0.321	-0.205	0.106	0.0444	-0.184	
	(0.24)	(0.18)	(0.13)	(0.12)	(0.14)	
emplman	-0.00453	0.00314	0.00637***	0.00315**	0.00157	-0.00270*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
unempl	-0.0288***	-0.0139***	-0.00851***	-0.00912***	-0.00919***	-0.00346**
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
foreign	-0.00133**	0.000480	0.00259***	0.00143***	0.000384	-0.000735***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
college	-0.0109***	-0.00183	-0.000697	-0.00409***	-0.00379*	0.00187
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
empl_f	0.000284	-0.00114	-0.00631*	-0.0102***	-0.0134***	0.00746***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
lnbranch_pop36						0.119***
						(0.03)
Province FE	yes	yes	yes	yes	yes	
Year FE	yes	yes	yes	yes	yes	
N	3055	3055	3055	3055	3055	3055
K-P F						18.75

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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