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How did the governance institutions of labour market affect the Italian productivity and economic growth during 1990s and 2000s.
An explanation of the labour productivity slowdown

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How did the governance institutions of labour market affect the Italian productivity and economic growth during 1990s and 2000s. An explanation of the labour productivity slowdown

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In the last decades a decrease in labour productivity and a wage compression have been registered in Italy as well as in many other European countries. The aim of this paper is to analyze the relations between this productivity slowdown and the governance institutions of labour market. The hypothesis of a negative relation between wage compression and productivity growth is backed by different theoretical positions. The paper tries to understand the reasons of the productivity slowdown after 1993, through a model of structural equations and simulations of different economic scenarios of the Italian economy.

INTRODUCTION

The aim of the paper is to verify, through a model of structural equations, the hypothesis, supported by Italian and foreign scholars, of a negative effect of the recent reforms of labor market on the labor productivity. The structural reforms reduced protection and rigidity of labor market by the introduction of deregulation, wage compression and flexibility of labor relations from the 1990s to 2000s. This view of a negative effect sustains that the squeezes on wages and the flexibilisation of labor market entailed a negative effect on the aggregate demand through the private consumption component, a reduction of the incentive to invest in labor saving production processes, in innovation, new machinery and technologies by the firms. Moreover it is assumed that labour reforms produced a low firm-based accumulation of the important incremental innovative knowledge embedded in human resources. The lack of trust and of long-term relations on the job reduces, in fact, the incentive and the possibility of this kind of knowledge accumulation, involving at the same time negative externalities. In this frame, also companies investment in labor skill upgrading is weak. Starting from Keynesian and Schumepeterian assumptions, the paper develops a methodology based on a model of structural equations and simulations comparing different economic scenarios with an hypothetical one. The paper is organized as following: in the next section the theoretical hypothesis that supports this work is presented. Then a focus about the structural reforms of labour market and industrial relations in Italy are introduced as well as the statistical description of the wages, labour productivity and investment trend in the last 45 years. In the following section the methodology

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used to build a structural model of the Italian economy is presented taking into account the salient changes since the 1970s as well as the results of simulations. The last section describes the conclusions of the work.

THEORETICAL FRAMEWORK

A neoclassical argument sustains that labor market rigidities such as minimum wages, generous social benefits, insider power and the wage cartel of trade unions prevent downward wage flexibility. Their removal would increase allocative efficiency and reduce unemployment. This mainstream assumption asserts that labor market protection prevents the reallocation of human and financial resources to companies that have better results. This thesis (Scarpetta, Tressel, 2004) sustains that in presence of high cost of hiring and dismissing labor forces, then in presence of high adjustment cost, companies with good innovation results are not able to benefit sufficiently of a return from their investments and this influences their future strategies that move away from virtuous behaviors. The effect would be a low rate of economic growth and the survival of laggard companies. The scholars sustaining these theses generally takes into account and criticized also the regulation of the product markets, always within the resources efficient allocation view; in so doing they overlook the fact that the absence of any control on profit margins may negatively affect the country competitiveness at global level (Ichino, Riphahn, 2005; Baker,Glyn, Howell, Schimitt,2005; Scarpetta, Tressel, 2004). The alternative hypothesis, of a negative relation between flexibility of labor market and economic growth is backed by a Keynesian and a Schumpeterian argument. The Keynesian argument states a negative aggregated demand effect on GDP growth, where workers' consumption is a strong component. The Schumpeterian argument states the presence of complementarities between labor market institutions and innovation models through induced innovation and creative destruction: thanks to labor market rigidity on wage bargaining, strong trade unions can enforce a more rapid adoption of productivity enhancing equipment. The Schumpeterian argument is stronger in countries with an industrial specialization in sectors characterized by knowledge incremental accumulation. From the point of view of Sylos Labini (Tronti, 2009) it is important to take into consideration two different effects: Smith effect and Ricardo effect. The first one (Smith effect) is given by the capability of market dimension to support the economic division and specialization of labour: processes that establish the primary form of innovation. This approach to innovation identifies the economic fundamental mechanism that allows increasing returns to scale and anticipates subsequent theorizations and empirical confirmations of Verdoorn (Verdoorn, 1993) and Kaldor (Kaldor 1966, 1970). A flexibilization of labour relation, including easier hiring and firing, produces a workers' behavior more oriented to general knowledge for keeping an easier move between jobs and at the same time a low firms' investments in skill upgrading.

Moreover, Sylos Labini (Sylos Labini, 2004; Lucidi, Kleinknecht, 2009) argues that there are two possible kinds of innovation:(i) the big innovations lead by scientists that are exogenous because developed in the research centres; (ii) the "small innovations" by workers and entrepreneurs which are technological and organizational innovations, endogenous because originated directly from a learning by doing process. The big innovations are less frequent and often requires a relevant adjustment of productive systems and the modality of consumption. The small innovations are often more important than the external ones for the economic growth, they are more frequent and require only small ongoing adjustment in the productive systems as well as in consumption. The role of

small innovations in the innovation growth finds confirmation in the modern business theory (Roberts, 2004), which acknowledges that any productive process, in addition to the product to which it is finalized, generates jointly, in its concrete operation, a complex information and knowledge about its own functionality. This know-how represents a jointly economic resource that it is useful only for whom is directly engaged in the same productive process. This aspect took on strategic relevance for the innovation and business competitiveness, especially with a high level of education of workforce. The developed productive system more than the traditional productive system offers, to whom wants to take advantage from it, the possibility to use the small innovation to generate a continuous improvement of process and product. The second driving force for productivity growth ("Ricardo effect") is the increase in labor costs, both machinery and product costs, as an endogenous factor driving the entrepreneurs' introduction of new machinery, technologies and organization forms. The productivity of labour grows as a consequence of direct saving of labour, that is defined by an increase of the relative price of labour, i.e. from an increase of wages relative to the machine price. In the same direction works the third relevant variable: the absolute cost of labour, that is the difference between the growth of labour cost for unit of product and the prices of the same products. This variable influences more quickly than the first one the decisions of the entrepreneurs to innovate. The cost of labour per product unit in nominal terms (ULC: unit labour cost) is given by the ratio between the cost of labour for labour unit and the productivity of labour: $ULC : cl/\pi$. The variation of absolute cost of labour is given by the difference between the *ULC* and the prices of product. If the growth of *ULC* is lower than that the prices, the absolute labour cost decreases and the firms have more profit margins. If, instead, the *ULC* increases more than the prices, the absolute cost of labour increases and the entrepreneurs will try to safeguard their profits by decreasing the employment or reorganizing the production. When the *ULC* decreases it means that the real wage increases less than labor productivity. The growth of productivity allows to the same firm to safeguard the invariance of labour cost for product unit and so the profit share. Obviously, if the cost of labour is low, this requirement is missed. If the growth rate of wage follows the growth rate of productivity, the cost of labour remains stable.

Recently, some scholars took into consideration these assumptions such as the works of Vergeer and Kleinknecht (Kleinknecht, Vergeer, 2014) and Lucidi and Kleichknet (Lucidi, Kleincknecht, 2009). In the first paper the scholars argue, analyzing 19 OECD countries through a panel data, that wage flexibility increases the companies' chance of survival in the short run, but in a long run the decline of the average quality of the entrepreneurship and a loss of innovative dynamism takes place. In Italy for Lucidi and Kleichknet (2011) the slowdown productivity is a structural problem that concerns the deregulation of labour market and the compression of wages. If in the first moment the deregulation guarantees a good level of employment and a stability of labour productivity, in the long run produces the slowdown of productivity: see Howell, 1997; Baker, 2005; Avdagic, 2013; Boeri,Garibaldi, 2007; Kleinekcht, Lucidi 2011.

STRUCTURAL REFORMS OF LABOUR MARKET AND INDUSTRIAL RELATIONS IN ITALY

The agreement of '93.

The Italian governments after 1973 faces an increase of inflation because of the oil crisis, such as the other western countries. In Italy this process was amplified by the ongoing

devaluation of the Lira. For this reason governments had to repair the Italian economy through structural reforms on inflation and wages. The reforms in these years bring the following changes: liberalization of national industry and services, the abolition of the automatic wage indexation (scala mobile) that tied the wages to the inflation level and a new era of bargaining between trade unions and governments. In 1984, on the proposal of an economist of Cisl, Ezio Tarantelli, the social actors, without the Cgil trade union participation, sign the so called S.Valentine agreement. In his proposal, Tarantelli suggests to index the wages to the "expected" inflation in order to maintain the wages' power of purchase at the same time reducing inflation. The agreement of S.Valentine gave a start to the discussion which brought to the final abolition of the scala mobile in the 1990s. At the beginning of the 1990s decade, European countries signed the Maastricht agreement which provided the guidelines to achieve access to the monetary union. In order to respect these guidelines many countries started a new political bargaining. In Italy, this has meant signing the Amato Protocol (July 31, 1992) by which the scala mobile was definitely eliminated and (July 23, 1993) the Ciampi Protocol which provided new industrial relations. The 1993 agreement is defined by many scholars and politicians as the Constitution of Italian industrial relations (Giugni, 2010). According to Baccaro (Baccaro, 2007) indeed, after the oil crisis different countries chose the solution of a social conciliation: one of the main reasons was that when governments chose to cut the public spending, they asked the support of social actors. The coalition between trade unions and governments lead to the important labor structural reforms that in the long period have not proved to be efficient. The neocorporativist scholars (Crouch, Pizzorno, 1978; Pizzorno, 1980) judged with enthusiasm the period between the end of 1970s and the end of 1990s because of the dialogue between actors and the social conciliation.

The '93 agreement provided a relevant change in labor industrial relations linked to the wage level definition through the two levels bargaining institutions: at national and at company level. The national collective bargaining each two years aimed at preserving the purchasing power of real wages through the adjustment to a target inflation rate, by the end of automatic wage indexation. The second level of local bargaining each four years was a safeguard mechanism for adjusting wage purchasing power to the productivity increase at firm level. The '93 protocol should have worked according to idea of Ezio Tarantelli and the productivity function of Sylos Labini, based on the Smith effect and the Ricardo effect.The proposal of Tarantelli was based on four main points (Tronti, 2010): the stability of prices, the moderation of wage policy, the redistribution of the profit on incomes and the law of Bowley, i.e a balance of power between wages and profits.The realization of these four points, and in particular of the last two ones, would have required the application of the two levels of the bargaining institutions, but the company level was not realized until 2009. Without the application of the decentralized bargaining of the '93 agreement, the functional income distribution within the economic system became unbalanced.

The reforms of labour market after 1993

The flexibility on the Italian labour market was introduced by the reforms at the end of 1990s and the beginning of 2000s. In 1997, the progressive deregulation of the labour market begins through the liberalization of employment and the prevision of the private employment agencies (Treu law). With the 1997 Treu Law, temporary employment was born together with the interposition of manpower through these certified agencies. The

Biagi reform of 2003, finally, introduced in Italy some atypical forms of labour contract. These new forms of labour are called atypical, for distinguishing them from the typical one, i.e. the dependent and permanent employment.

DESCRIPTIVE STATISTICS

This section presents some statistical descriptive trends of the main variables: wages and profits share, labour productivity and investments in Italy during the last 45 years. Figure 1 shows that after 1980 there is an opposite trend between the wages share and the profit share on GDP; the peak of their distance is reached in 2000. From 1990 the productivity of labour grew more than the real wage share until 2000 (Fig 2); from there onward the labour productivity started to decrease. In 1990s real wages remained stable, the

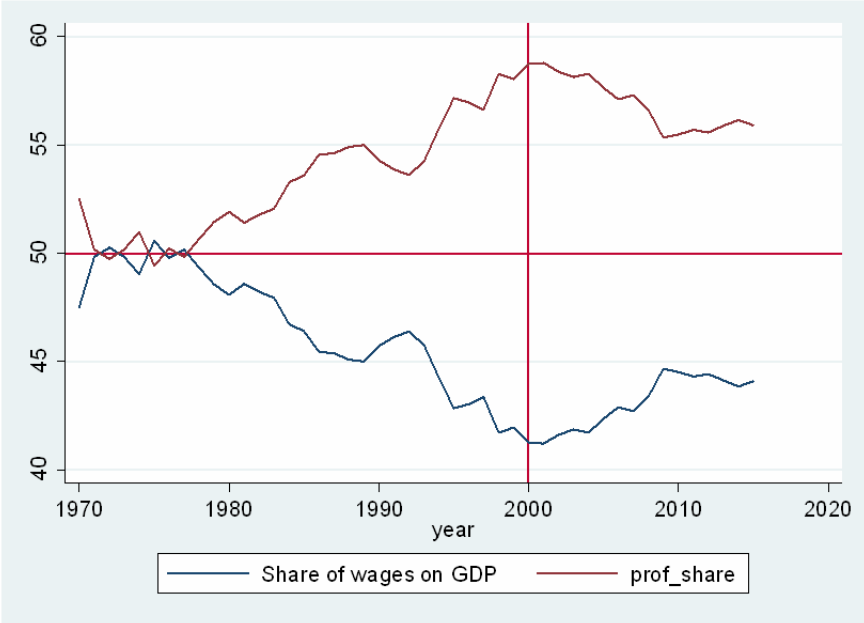

Figure 1: *Share wages vs share of profit in Italy (1970-2013)*

labor productivity increased but at a decreasing rate, and without investments in machinery, which remained steady. In 2000's real wages increased (due to the price disinflation and other mechanisms), labor productivity was steady, real investment in machinery were steady too. The wage share recovered due to the productivity stagnation.

The wage moderation introduced by the '93 Protocol seemed to work in the first period, but companies did not use this contingency to increase their investments. Fig 3 shows that the general investments, including building and stocks, increased, but the investments in machinery represented only a minimum component of them. The machinery investment grew after 1993, but at a low rate: maybe the quality of these investments were low. Italy was not able to compete with a high level of technological innovation. The increase in labour productivity in Italy was probably based more on the organization of work, than on technological innovation. After the 1993, although the reforms gave the possibility to entrepreneurs of investing in new technologies, given the system of moderate wages, the entrepreneurs preferred to employ more people than to modernize their equipment. The Ricardo effect (Hayek 1942; Sylos Labini 1984) was not deliberately applied, instead the rise in employment and the grow of worked hours were fauvored. This

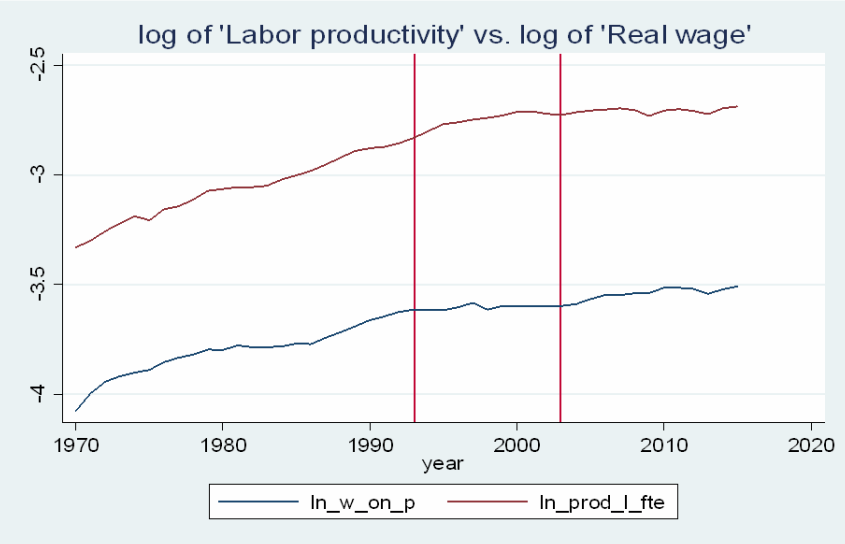

Figure 2: *Log of real wage vs log of labor productivity in Italy (1970-2013)*

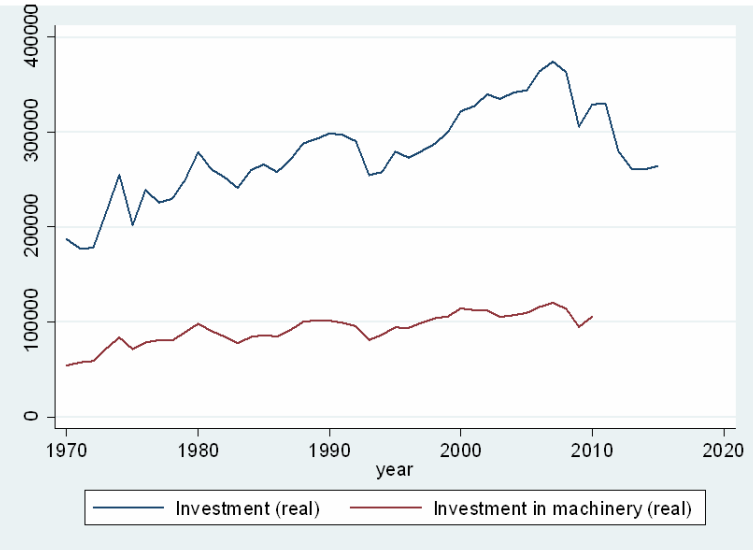

Figure 3: *Italy real total and machinery investment(1970-2013)*

process was possible also thanks to the later reforms introducing labour flexibilisation.

METHODOLOGY

The research question of the paper is the following: What would have been the effect of different wage setting, such as a wage increase, on firms investment and on labour productivity? To answer to this research question a model of structural equations was built, to represent the countrys economic system, including the wage share of GDP and some governance institutions of labor market, such as the index of unionization and the presence of a minimum wage. With this model the working paper wants to verify the link between the wages, productivity of labour and growth. It takes into consideration a period of 45 years to study the direct and indirect effects of the different unions policy; the reference year is 1994. This year is significant due to the 1993 protocol and the consequences of the introduction of a wage moderation policy. The model includes 8 equations: investments,

profit, productivity, labour share, innovation, consumption, import and GDP deflator.

EQUATIONS [2]

Equation 1. Investment

$$I_t = \alpha_I + \beta_I i + \Upsilon_I I_{t-1} + \lambda \Pi_{t-1} + \Phi_I (\frac{W}{L})_{t-1} \ + p_t$$

Equation 2. Profit

$$\Pi_t = \alpha_\Pi + \beta_\alpha PR_{t-1} + \gamma_\Pi$$

Equation 3. Productivity

$$Pr_t = \frac{Y_t}{L_t} = \alpha_P R + \beta_P RI_t + \mu_{PR} I_t K + \gamma_P RK_{t-1}$$
$$+\Phi_P RY_{t-1} + \lambda_{PR} Pat + \sigma_{PR} \frac{W_t}{L_t} + \tau_{PR} Union + \omega_{PR} \frac{w_t}{p_t}$$

Equation 4 Labor share

$$\frac{W_t}{Y_t} = W_t* = \alpha_W * + \beta_W * \Phi_{t-1} + \mu_w * PR + \upsilon_W * p_t + \Phi_W * \frac{w_t}{p_t}$$

Equation 5 Innovation

$$PAT_T = \alpha_{Pat} + _{Pat} \Pi_{t-1} + \Upsilon_{Pat} IMM_{t-1} + \lambda_{Pat} \frac{RD_t}{GDP_T}$$

Equation 6. Consumption

$$C_t = \alpha_C + \beta_C Yt - 1 + \Upsilon_C \frac{W}{Y}$$

Equation 7. Import

$$M_t = \alpha_M + \beta_M Y_t$$

Equation 8.GDP deflator

$$pt = \alpha_p + \beta_p Y_{t-1} + \lambda_p i_{t-1}$$

Important components of the structural model are: the share of investments on GDP, the RD expenditure, the intangible investments and the numbers of patents as proxies of innovation. Other important components are the cost of labour, profits and the income functional distribution. The database is built using historical data from ISTAT and Bank of Italy sources and the research carried out by Visser, who developed the ICTWSS database[3](Visser, 2015).

[2]Y = Gdp real price, W = w/L, L = number of employees, I = investment real price, I/K = investment share of stock capital, K =net capital stock in total economy (million euros, costant 2010 prices), π = profit, i = real interest real price, W/L = unitary cost of labour, p = GDP deflator IT base 2010, PR = labor (FTE) productivity = Y/L, PAT = numer of patents, Union=Rate of unionization=members/total employees, w/p = wage real price, W/Y=functional distribution of labour share, W/Y = w/p:Y/L, IMM = intangible investments real price, RD/GDP = RD expenditure share of GDP)

[3]Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 51 Countries between 1960 and 2014 (Visser, 2015)

After having checked that the structural equations fit very well with real data, some simulation exercises are introduced to study what would have happened in case some variables, and specifically some market labor indicators, would have assumed different values. Two scenarios are compared: a business as usual one and a scenario including a "shock" to a variable representing a differently oriented unions policy in the reform period under observation, i.e. an increase in real wages in 1994. Indeed, given the description of the action of the reform it is possible to produce a variation about an indicative reform' variable or some effects produced by the reforms.

ANALYSIS AND MAIN RESULTS

The simulations applied concerned the wages, investments and labour productivity, taken 1994 as the reference year, being the year after the reform we focus on in our study. One hypothesis is that an increment of wages would have produced a growth in labour productivity (Ricardo effect) coeteris paribus. The first simulation shows the effect of a 10% of increment in real wages in 1994 on labour productivity and on income labour share. As Figure 4 shows in the first years after 1994, there is an increment in labour productivity but after few years it decreases below the "business as usual" scenario. Figure 5 shows the effect of a 10% increase in investment in consecutive three years (1994, 1995 and 1996) on labour productivity and on income labour share. The results are that in the short run there is a growth of labour productivity, but after 5 years there isn't any result persistence and it came back to the "business as usual" scenario. At last, the Simulation 6 shows the effect on investment of a 10% increase in real wages in 1994 and in labour productivity in 1993. The result is that there isn't a significant effect on investment: after 5 years the investments remains below the usual scenario. The hypothesis of a positive and persistent effect of a policy of salary higher than in the business as usual scenario, controlled through simulations, is not proven for Italy. The increase of wages doesn't represent an incentive for the firms to innovate, as a Ricardo effect would have lead to expect. But even the moderate salary policy after '93 didn't represent an incentive to sustain investment and growth, as the mainstream literature would claim. The strategy of the firms was to maintain a low risky, traditional and old fashioned style of management. This behaviour of the Italian firms represents the central structural problem of our economy and it was an important constraint during the economic crisis of 2008.

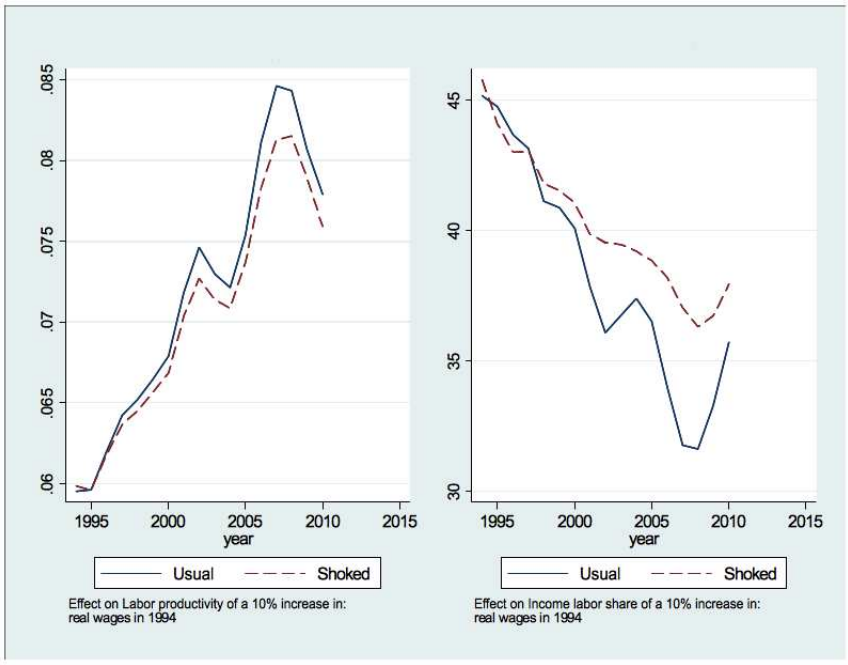

Figure 4: *Effect of 10% increase in real wages in 1994 on labor productivity and on income labor share in Italy*

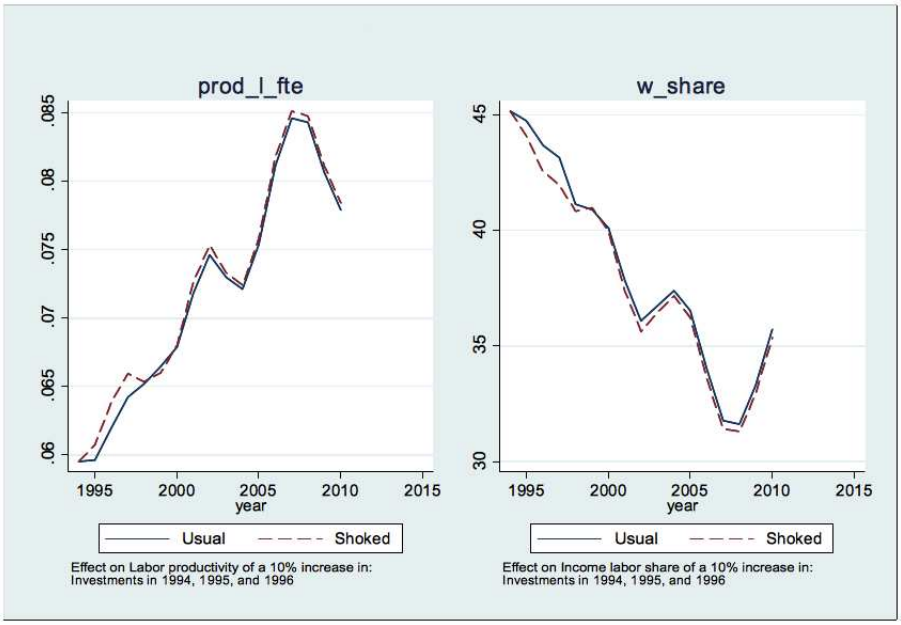

Figure 5: *Effect of 10% increase in investment in 1994, 1995 and 1996 on labor productivity and on income labor share in Italy*

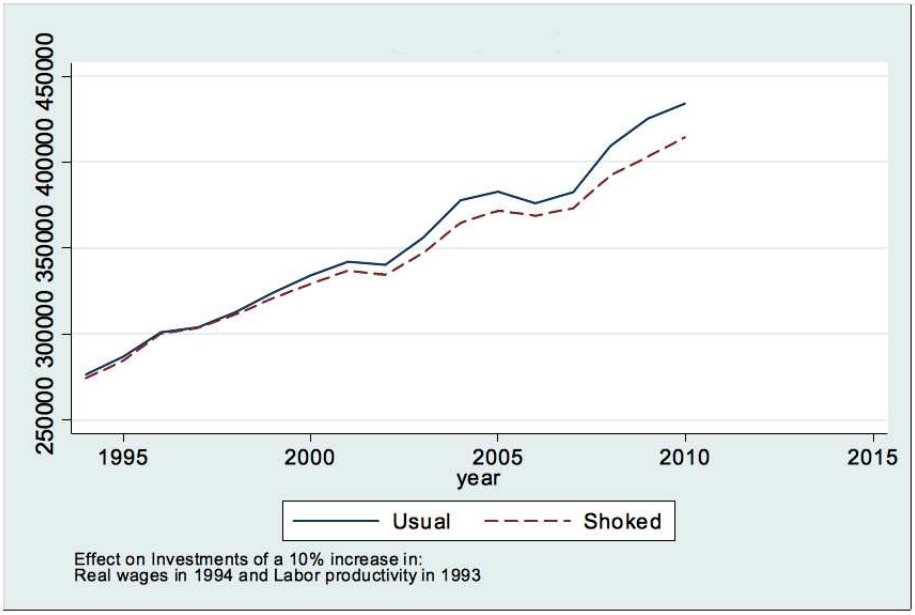

Figure 6: *Effect of 10% increase in real wages 1994 and in labor productivity in 1993 on investment in Italy*

CONCLUSIONS

Observing the dynamics of the Italian economic system it is possible to think that a wage moderation policy is not an incentive to change the strategy of firms. Indeed, despite the movement of resources from labour to capitals thanks to the abolition of scala mobile and the failure of applying the decentralized bargaining, nothing changed. It seems that the structure of Italian industry remained more or less the same since 1990s. It is clear that there is an incompatibility between the effective and the expected results of the simulations, because of the behaviour of the Italian entrepreneurs that doesn't follow the so-called Ricardo effect. In Italy it is very frequent that the reforms are lead by some emergency. There aren't policies looking at a long period but rather policies that resolve the contingent problems, in the studied case the high level of inflation and unemployment. The firms behave as it were possible to grow without innovating the productive process and product. Neither the supporters of the labor market liberalization nor the supporters of a stronger bargaining power and wage-settings institutions would have reason in Italy. In our country the problem does not seems to be an inefficient allocation of resources due to labor market rigidity, as it is argued by the mainstream literature, but that of a risk adverse managerial and entrepreneurial culture and practice, with low investment in human, knowledge and physical capital. The shock represented by the globalization, the technological change and the common currency have only worsened an already critical situation. This is a preliminary study about the effects of the labour market reform and industrial relation agreement on the Italian economy. This study would seem to open up different scenarios for a greater understanding of the dynamics that intertwines governmental, trade union choices and consequences for the country.

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