Personal Income Distribution and Progressive Taxation in a Neo-Kaleckian Model: Insights from the Italian Case

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Abstract

This paper develops a stylized short-run neo-Kaleckian model incorporating personal income inequality and income taxes based on You and Dutt (1996). The main goal is to investigate how changes in income taxes and personal income distribution affect output growth. The theoretical discussion of the stylized model is then empirically assessed, using data for Italy retrieved from the Survey of Household Income and Wealth published by the Bank of Italy. The empirical analysis confirms both the heterogeneity of the propensities to consume of Italian households and the dominance of absolute income effects in the Italian consumer behavior that assures the negative trade-off between inequality and aggregate demand. More specifically, it is shown that, overall, Italians are still income constrained, not allowing for a compensation of the demand-depressing effects of raising inequality via debt and wealth-based consumption. Likewise, it is argued that decreasing personal income inequality via progressive income tax reforms would have positive effects on aggregate demand, utilization, and growth.

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1. Introduction

Topics related to income distribution and growth have emerged both in the media and in academia since the Great Recession. From then on, several important events shaped the path of the political and economic debate. Even mainstream strands in economics brought topics related to financial instability, inequality, taxation, and stagnation back to the center of discussions, albeit lacking realism in their methodology and consistency on the theoretical ground. In this sense, the publication of Piketty`s *Capital in the XXI Century* played a major role in drawing attention to the drastic rise in personal income inequality, contributing to the availability of data and encouraging research and debate in the field.

Considering the heterodox strands, more specifically the post-Keynesian research agenda, we can argue that the topic of distribution and growth is no novelty, being inclusively one of its commonalities among different strands (Lavoie 2014, p.36). Increasing discrepancies within wages and the rising inequality (particularly in Western developed countries) pushed for the incorporation of personal income distribution in Kaleckian models. Among the main revisions incorporated in these models, it is possible to highlight the distinction between industrial capitalists and rentiers, the separation between supervised and non-supervised work, the incorporation of wage differentials as well as relative income effects and expenditure cascades on aggregate consumption, and wealth and debt-based consumption. Despite these amendments, the explicit inclusion of interpersonal inequality with heterogeneous propensities to consume has yet not been discussed within a post or neo-Kaleckian macro model framework. In addition, the connection between the personal dimension of inequality and taxation has also not been made yet.

In line with this gap in the post-Keynesian literature, the first goal of this paper is to develop a stylized neo-Kaleckian model incorporating personal income inequality and income taxes. Accordingly, it seeks to investigate how changes in income taxes and personal income distribution affect output growth in the stylized model. In accordance with the Keynesian tradition that derives from *The General Theory*, the first assumption is that lower-income groups have a higher propensity to consume, thus, improving distribution and enlarging the disposable income at the bottom would lead to higher aggregate consumption with a dominance of the absolute income

effect. Following the 'Pure Keynesian Process' (Lavoie 2010), according to which firms would adjust output and hence capacity utilization towards consumption demand in each period, higher demand would then boost capacity utilization, and hence growth.

Since it is assumed that the result of the model depends on the behavior of the propensities to consume by quintiles as well as on the dominance of absolute income effects after redistribution, the second research goal of this work is to investigate the relationship between rising interpersonal income inequality and aggregate consumption. Following Japelli and Pistaferri (2014), with some methodological and theoretical divergences, it is assumed that Italian households have a heterogeneous propensity to consume, higher at the bottom and lower at the top. Secondly, it is presumed that financial institutions and norms prevented the dominance of relative income effects (verified in the Anglo-Saxon world as argued by Barba and Pivetti 2009). Likewise, in accordance with the literature on macro growth regimes (Dodig et al. 2015, Gabbi et al. 2014), which classifies Italy as domestic demand-led, it is assumed that the demand-depressing effects imposed by increasing inequality did not significantly shift private households' financial balances, suggesting a dominance of absolute income effects.

Section 2 presents a brief literature review of post-Keynesian growth models, shortly discussing the incorporation of personal income inequality and reviewing the integration of taxation in these models. Section 3 proposes an extension of the neo-Kaleckian model developed by You and Dutt (1996) which includes both personal income inequality as well as income taxation. Section 4 empirically assesses inequality, consumption patterns, as well as debt and wealth-based consumption in Italy. Finally, section 5 assesses the results of the stylized model in light of the country case study of Italy presented in section 4, summarizing the main findings and drawing some policy implications.

2. Kaleckian growth models, personal income inequality, and taxation

2.1 Personal income inequality

The most important feature of the neo-Kaleckian models, pioneered by Rowthorn (1981) and Dutt (1984, 1987), is that within a private closed economy, aggregate demand, capital accumulation, and growth are wage-led. In this regard, a redistribution towards wages would have

a positive impact on capacity utilization, capital accumulation, and (assuming away saving out of wages) also on the rate of profit. The second generation of Kaleckian models, proposed by Bhaduri and Marglin (1990) and Kurz (1990), advocated for the incorporation of the profit-share in the investment equation, giving rise to the distinction between wage or profit-led demand and growth regimes[1].

The labor-capital conflict of the 1970s shaped the political economy and inspired the research agenda of post-Keynesian economics, motivating the rise of both neo and post-Kaleckian models, which (until recently) were centered on functional income distribution (Palley 2016). However, these models were not restricted to the dichotomies between wages and profits and capitalists and workers. Trends related to the dominance of finance starting in the late 1970s, such as increasing discrepancies within wages, rising inequality (particularly in the Western developed countries), and, more recently, the extreme rise in top income and wealth shares (Piketty and Saez 2003; 2007), have pushed for the incorporation of several amendments into Kaleckian models.

One example is the inclusion of a distinction between industrial and financial capitalists. A pioneering attempt was done by Dutt (1989, 1992), adopting a three classes model framework with workers, that receive wages, capitalists, that receive profits, and rentiers, that receive interest income. Lavoie (1995) also proposed the incorporation of monetary variables into a Minsky-Steindl model with real interest rates as an exogenous distributive variable. More recently, Hein (2006, 2007) constructed an augmented version of Lavoie's 'Minsky–Steindl' model, which explicitly introduces the effects of debt and debt payments as well as interest rate variations both on short and long-run equilibria. Argitis and Bozani (2008) also developed a three-income class model. Their model emphasizes the role played by the rentier class on changes in income distribution and on the economic process and explicitly presents the impacts of monetary factors on distribution, employment, output, and growth. The impact of the rentier class has also been empirically assessed using econometric estimations by Onaran et al. (2011), making a distinction between rentier profit and non-rentier profit shares in the US (1962-2007), and by Hein and Schoder (2011), estimating the propensity to save out of the rentier and wage income for the US and Germany (1960-2007).

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[1] A similar result had been reached by Blecker (1989) extending the canonical neo-Kaleckian model by an external sector.

Another example is the incorporation of different types of workers (i.e. supervised and non-supervised). A distinction between overhead labor and variable labor already appears in Rowthorn (1981) and later is followed up by Lavoie (1995, 1996). More recent models have done so by including a class of managers that affect the behavior of the firm and its growth path (see Lavoie 2009; Dutt 2012; Palley 2015; Tavani and Vasudevan 2014). Palley (2014), for instance, includes the management class combining managers and capitalists in one single group, leading to a two-class model in which the top-income group receives both wage and capital income. More recently, Dutt (2016) developed a model with the type of dual distinction used by Palley (2014) also including financiers (following the literature on financialization) and placing them on the top-income group.

Other revisions of the Kaleckian growth models integrate the phenomenon of increasing wage dispersion. Carvalho and Rezai (2016) derive the aggregate savings function using a Pareto distribution of wages as a measure of wage inequality, which exhibits a strictly positive relation with savings out of wages. They argue that "[l]owering wage income inequality always increases aggregate demand due to the paradox of thrift" (*ibid.* p.501). However, Prante (2018) points out that this relation might not always hold. A good example where the strictly positive relation between wage dispersion and savings does not hold could be illustrated by the empirical puzzle arising in the Anglo-Saxon world, where top income shares have increased the most (Atkinson et al. 2011) especially due to a significant and rising wage dispersion that was accompanied by increasing consumption and decreasing savings.

Finally, considering this empirical puzzle that was closely related to the turmoil of 2007, several further attempts have been made to explain this counter-intuitive trend of rising inequality and increasing consumption. In this regard, some works have been devoted to the incorporation of wealth and debt-based consumption that compensates for the lack of demand arising from the increasing inequality in the US American case (Cynamon and Fazzari 2008 and 2013; Zezza 2008; Barba and Pivetti 2009; Palley 2012, chap. 3; and Van Treeck and Sturn 2012 and 2013). The concept of interdependent social norms of Veblen (1899) and Duesenberry (1959)

was also revived and incorporated[2] (see Belabed et al. 2013; Detzer 2016; Kapeller and Schütz 2014; Kapeller and Schütz 2015; Setterfield and Kim 2016; Zezza 2008).

The interconnectedness of functional and personal dimensions of inequality has also been modeled by Dafermos and Papatheodorou (2015) using a stock-flow consistent approach. The authors argue that not only the two aspects of inequality are linked but they both interact with the macroeconomic dynamics through two main stages. First, the factor income shares influence not only consumption due to the different propensities to consume out of each income factor but also investment (through the profitability and utilization rate channels). In turn, the interpersonal distribution also impacts consumption expenditures, since factor income is distributed to households with different propensities to consume, as it has been highlighted by some of the amendments revised previously. In this regard, it is possible to argue that splitting income into factors would end up ignoring the dispersion within these factors. Second, the authors point out that economic activity itself affects the bargaining power of workers and the ability of firms to set prices, impacting, in turn, the primary distribution of income and thus the overall interpersonal distribution of income.

In this sense, it is possible to argue that despite these amendments that circumscribe part of the dispersion within factor income, the explicit inclusion of interpersonal inequality with the help of more income groups with heterogeneous propensities to consume could be more efficient to target this issue. Accordingly, section 3 includes personal inequality as the key distribution feature through heterogeneous propensities to consume out of each income stratum (quintile) in the model, which has not yet been done in Kaleckian macro models. Functional income distribution is incorporated via an indirect effect discussed in general terms and empirically assessed in section 4.1, focusing on the Italian case.

2.2 Taxation

While the theory on fiscal policy has been more related to the Keynesian tradition, the theory on taxation is based on the works of Kalecki, mainly inspired by his 1937 article (Laramie and Mair 2000). Hence, the main feature of the heterodox theory on taxation is the distinction between

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[2] The incorporation of the concept of 'expenditure cascades' is modeled by Frank et al. (2014). For a case study on Germany and the US tracking the relation between inequality and demand and the possible presence of relative income effects and expenditure cascades see Prante (2018).

taxes on labor and on capital and their implications for the determination of output. Several post-Keynesian authors have extended the Kaleckian theory of taxation taking into account the possibility that a shift in taxation may imply a regime shift from wage to profit-led (Blecker 2002; Laramie 1991; Laramie and Mair 1996).

More recently, Obst et al. (2017) evaluated the effects of progressive tax reforms on growth in a post-Kaleckian model in which a more progressive tax system is characterized by "taxes on capital increasing while those on labour decreasing" (*ibid.*, p.11). The authors estimate the effects of government expenditure and taxes (including taxes on labor, capital, and consumption as well as government expenditure) on income distribution and demand. They apply a multi-country model with a Europe-wide multiplier which incorporates the government sector within an open economy context showing that "a redistributive policy of a 1% point fall in ITR on labour income and a simultaneous 1% point increase in ITR on capital income leads to an increase in EU15 GDP of 1.43%" (*ibid.*, p.32). In addition, they estimate the impact of a combined policy mix (wage policy, public spending, and progressive taxation), finding even stronger GDP growth effects for the EU15.

Summarizing, all the amendments done within post-Keynesian models include a distinction between taxes on labor and on capital. The existing literature lacks a model including personal income inequality and income taxation impacting the different income strata which allows to analyze the recent trends, namely the fundamental increase in wage dispersion and the significant rise in overall income inequality. In this sense, the heterodox agenda lags somewhat behind the mainstream, which has been pushed by the publication of Piketty's *Capital in the XXI Century* and his extensive work on taxation, in particularly *Pour une révolution fiscale*[3] co-authored by Camille Landais and Emmanuel Saez.

From a political and strategic spectrum, we can argue that the sole argument against taxing capital over labor might be that it would require not only unrealistic political will but also power on behalf of central governments, which have been gradually losing space since the 1980s. Therefore, despite being desirable and appropriate in terms of growth, focusing only on taxing capital might be a hard task to begin with, as already admitted by Kalecki (1937) himself. As brilliantly argued by Robinson (1936), this type of policy would be a significant step in remedying

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[3] In the book, Landais et.al (2011) argue that there is a significant space for the increase in the progressivity of the French income tax system.

the defects of capitalism, however, "any government which had both the power and the will to remedy the major defects of the capitalist system would have the will and the power to abolish it altogether" (*ibid.*, p. 693). In this sense, policies that first strengthen labor, such as increasing their bargaining power and progressive general income taxes, could be more strategical than solely increasing taxes on capital.

Consequently, we propose to focus on income taxes and personal income inequality, also seeking to fulfill the present gap in the post-Keynesian literature. The next section is dedicated to the incorporation of both interpersonal income inequality as well as income taxation in a neo-Kaleckian model framework and the implications of income distribution and taxation for output and growth.

3. A stylized neo-Kaleckian model with personal income inequality and income taxes

Following the short-run model presented by You and Dutt (1996) it is assumed that the capital stock and government expenditures are exogenously given and that the equilibrium in the goods market is due to variations in the capacity utilization rate (u) via changes in the output level (Y), since the capital stock (K) is given in the short run and depreciation is assumed away. Let us consider a closed economy where there is no labor supply constraint and firms operate below full capacity.

Following the Keynesian tradition, the aggregate consumption function can be formalized as follows:

$$C = \left(\sum_i c_i (1 - t_i) y_i \right) Y \, , i = 1, \dots, 5 \tag{1}$$

where c_i is the propensity to consume out of disposable income of each income quintile. The income share of each quintile is represented by y_i, t_i is the income tax rate that impacts the respective quintile, and Y represents the total output.

We adopt the neo-Kaleckian investment equation without profit-share. This simplification can be justified by the empirical studies that find almost in totality that domestic demand is wage-led.

According to the recent study by Onaran and Galanis (2012), Italy can be qualified as wage-led for both domestic and total demand.

Accordingly, investment is determined by animal spirits α_o and the level of capacity utilization ($u = Y/K$), which reflects the reaction of investment to changes in demand.

$$I = (\alpha_0 + \alpha_1 u)K \tag{2}$$

Real government expenditure (G) is constant and represented as a portion (γ) of the capital stock (K).

$$G = \bar{G} = \gamma K \tag{3}$$

The goods market equilibrium in the short run with a government sector in a closed economy is given by:

$$Y = C + I + G \tag{4}$$

Plugging (1), (2), and (3) into equation (4) we have:

$$Y = \left(\sum_i c_i(1 - t_i)y_i \right) Y + (\alpha_0 + \alpha_1 u)K + \gamma K \tag{5}$$

Normalizing equation (5) by K and solving it for u, we obtain the short-run equilibrium rate of capacity utilization:

$$u^* = \frac{\alpha_0 + \gamma}{1 - \sum_i c_i(1 - t_i)y_i - \alpha_1} \tag{6}$$

Since the rate of capital accumulation in the short run ($g = I/K$) is determined by the rate of capacity utilization, we obtain for its short-run equilibrium:

$$g^* = \alpha_0 + \alpha_1 u^* \tag{7}$$

The analysis of the stability condition of the model is a bit more complex than in the canonical neo-Kaleckian model without taxes but can be formalized as the following:

$$\sum_i (1 - c_i)(1 - t_i)y_i > \alpha_1 \tag{8}$$

For the adjustment process to be stable, the savings rate of after-tax income has to be more responsive to shifts in capacity utilization than investment.

Finally, the shifts in the short-run equilibrium can be analyzed through the comparative statics of equation (6) with respect to changes in exogenous variables.

$$\frac{\partial u^*}{\partial \gamma} = \frac{\partial u^*}{\partial \alpha_0} = \frac{1}{1 - \sum_i c_i(1 - t_i)y_i - \alpha_1} > 0 \tag{9}$$

If the stability condition is assumed, an increase in animal spirits (α_0) and/or in government expenditure (γ) would imply an increase in the equilibrium rate of capacity utilization (u), hence of capital accumulation and growth.

$$\frac{\partial u^*}{\partial t_i} = -\frac{(\alpha_0 + \gamma)\sum_i c_i y_i}{(1 - \sum_i c_i(1 - t_i)y_i - \alpha_1)^2} < 0 \tag{10}$$

In turn, the signal of the partial derivative of u with respect to t_i is always negative, as shown in equation (10) above. Accordingly, we can argue that increasing the tax rate of all income quintiles has an overall negative effect on utilization and, subsequently, on the rate of capital accumulation.

Solving the partial derivatives of u with respect to each of the income tax rates that impact each quintile separately, we obtain that the size of the negative (or positive in case of reduction of the tax rate) impact is ultimately determined by the expression $c_i y_i$, as shown in (11), (12), (13), (14), and (15) below. In other words, the impact of a shift in the tax rate that affects each quintile in terms of utilization and capital accumulation is stronger, the bigger the product of the propensity to consume and the income share of this quintile.

$$\frac{\partial u^*}{\partial t_1} = -\frac{(\alpha_0 + \gamma)(c_1 y_1)}{(1 - \sum_i c_i (1 - t_i) y_i - \alpha_1)^2} < 0 \tag{11}$$

$$\frac{\partial u^*}{\partial t_2} = -\frac{(\alpha_0 + \gamma)(c_2 y_2)}{(1 - \sum_i c_i (1 - t_i) y_i - \alpha_1)^2} < 0 \tag{12}$$

$$\frac{\partial u^*}{\partial t_3} = -\frac{(\alpha_0 + \gamma)(c_3 y_3)}{(1 - \sum_i c_i (1 - t_i) y_i - \alpha_1)^2} < 0 \tag{13}$$

$$\frac{\partial u^*}{\partial t_4} = -\frac{(\alpha_0 + \gamma)(c_4 y_4)}{(1 - \sum_i c_i (1 - t_i) y_i - \alpha_1)^2} < 0 \tag{14}$$

$$\frac{\partial u^*}{\partial t_5} = -\frac{(\alpha_0 + \gamma)(c_5 y_5)}{(1 - \sum_i c_i (1 - t_i) y_i - \alpha_1)^2} < 0 \tag{15}$$

Assuming that $c_1 > c_2 > c_3 > c_4 > c_5$ and that these propensities to consume of each quintile do not shift with shifts in income distribution, there would be a dominance of absolute income effects. A redistribution policy through progressive tax reforms[4] would then have an overall positive impact and increase consumption at the aggregate level, which would lead to an increase in output through capacity utilization and a subsequent increase in the rate of capital accumulation (which is a function of the rate of utilization), as illustrated in Figure 1. The impact of a such a tax reform can be easily estimated by calculating the separate effects on each of the quintiles as shown in expressions (11), (12), (13), (14), and (15) and by summing up the partial effects on utilization coming from tax shifts. Since we assume here that the propensities to consume are a decreasing function of the income level, it is clear that even with a significantly higher income share at the top, the negative impact of increasing the tax rate at the top could be overcompensated by a decrease in the tax rates in the lower quintiles. Moreover, due to the increase in the aggregate propensity to consume, the size of the multiplier would increase,

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[4]A progressive income tax reform can be done in different ways: i. increasing tax rates on higher-income earners; ii. decreasing tax rates on low-income earners; iii. adding more tranches; or iv. introducing a higher threshold for tax breaks at the bottom of the distribution.

Figure 1: The effects of progressive tax reforms on inequality, utilization, and growth
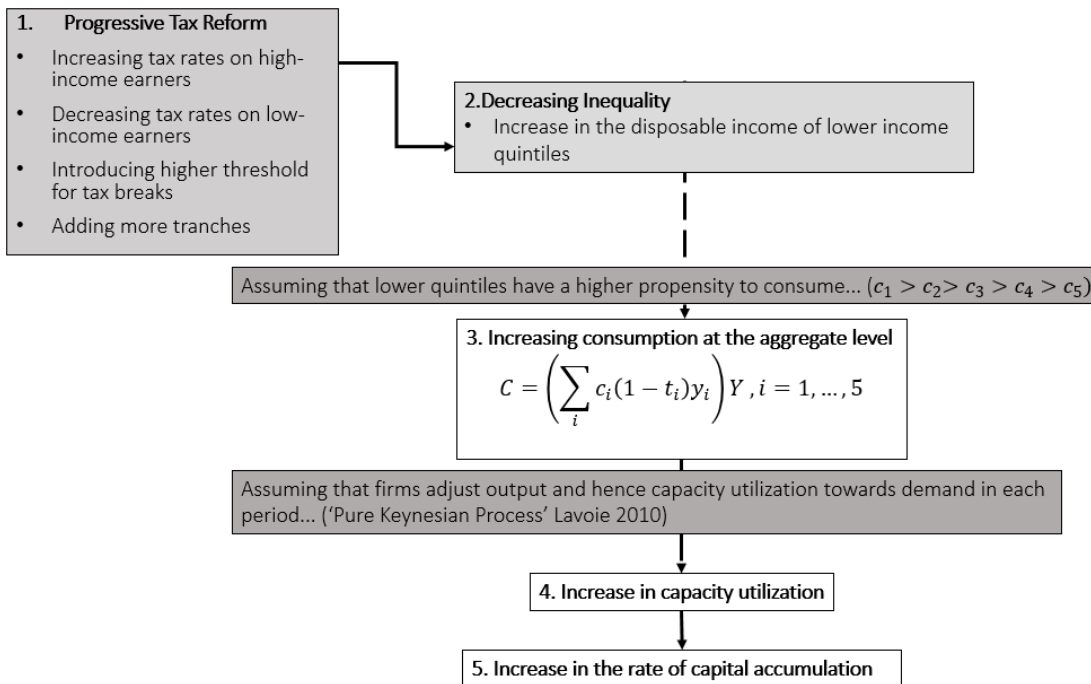
Source: Author`s elaboration

Therefore, the result of the model after both tax reforms affecting income distribution as well as shifts in income distribution coming from other sources becomes an empirical issue. Ultimately, the adjustment of output and hence capacity utilization towards demand in each period depends on the type of relation between shifts in the disposable income of each income stratum (overall inequality) and aggregate consumption[5].

Hitherto, only interpersonal income inequality has entered the model through the income shares of each income quintile. However, the distribution of income between wages and profits has also an indirect effect, rooted in the relation between functional and personal income inequality. In this sense, it is possible to argue that the classical division incorporated by Kalecki and in Kaleckian models still plays an important role.

Following the literature (see Daudey and García-Peñalosa 2007; Checchi and García-Peñalosa 2010; and Schlenker and Schmid 2013), we assume that any rise in the profit share, increase in wage inequality, and decentralization of labor market institutions would lead to an increase in the

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[5] The specific case of Italy concerning inequality and consumption patterns developed in the country are assessed in section 4.

overall personal income inequality, reducing consumption, the aggregate propensity to consume, aggregate demand, the level of capacity utilization, and the accumulation rate. The country-specific case of Italy and the linkages between functional and interpersonal income distribution in the country are discussed in section 4.1.

4. Inequality and consumption patterns in Italy

This section discusses inequality and consumption patterns in Italy[6] to evaluate the behavior of the propensities to consume by quintiles as well as to verify the linkages between the two dimensions of inequality in the country. Section 4.1 discusses the trends of functional and personal income inequality in Italy. Section 4.2 presents a brief overview drawing some conclusions concerning the shifts in aggregate demand, inequality, and consumer behavior for the years of 1989 and 2014 according to the Italian SHIW. Finally, section 4.3 analyzes some stylized facts on household consumption and financial behavior, taking into consideration the trends in household debt and wealth.

## 4.1 Functional and personal income inequality trends in Italy

While in the US the adjusted wage-share decreased around 5.8 percentage points between 1980 and 2017, accompanied by a strong wage concentration at the top culminating in extreme increases in top income shares, in Italy the 5.75 percentage point fall in the adjusted wage share[7], as illustrated in Figure 2, did not imply a comparable rise in top income shares. Other European countries (Germany, France, and Spain) presented a stronger decrease in the adjusted wage share, but the level of the wage share in Italy still remains the lowest among the selected European counterparts and the US.

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[6] The choice for the empirical analysis of Italy is justified both by its dissonance in terms of post-crisis recovery as well as by the free availability of the Italian Survey on Household Income and Wealth (SHIW henceforth), which is the only European survey containing data on wealth, consumption, income, and demographic characteristics for every wave. The survey provides information for heads of households, which are defined as a group of individuals related by blood, marriage, or adoption and that share the same dwelling.

[7] For a more in-depth overview of the decline in the wage share in Italy see Stirati (2011). For an overview of the channels which contributed to slow growth and real wages stagnation in Italy see Levrero and Stirati (2005), according to which the redistribution of profits from manufacturing to the service sector (through relative prices mechanisms) contributed to the stagnation of real wages.

Figure 2: Adjusted Wage Share as a percentage of GDP at current factor cost in Italy, Germany, France, Spain, and the US (1980-2017)
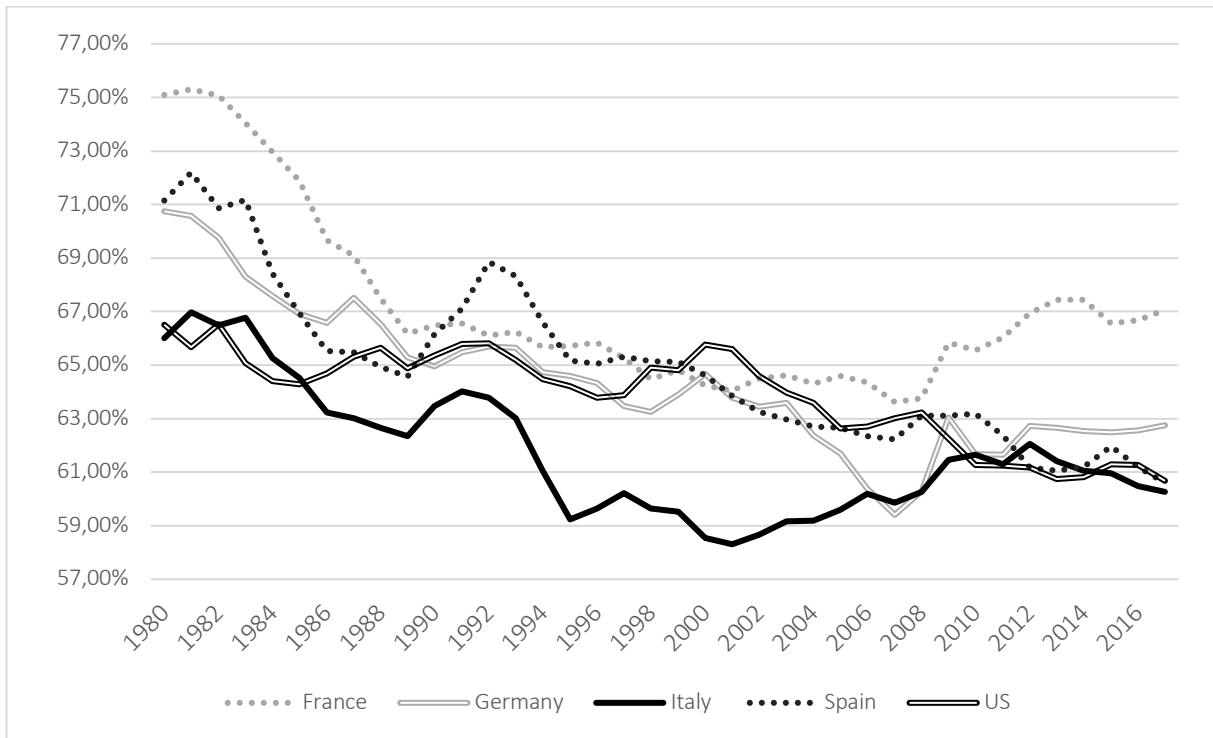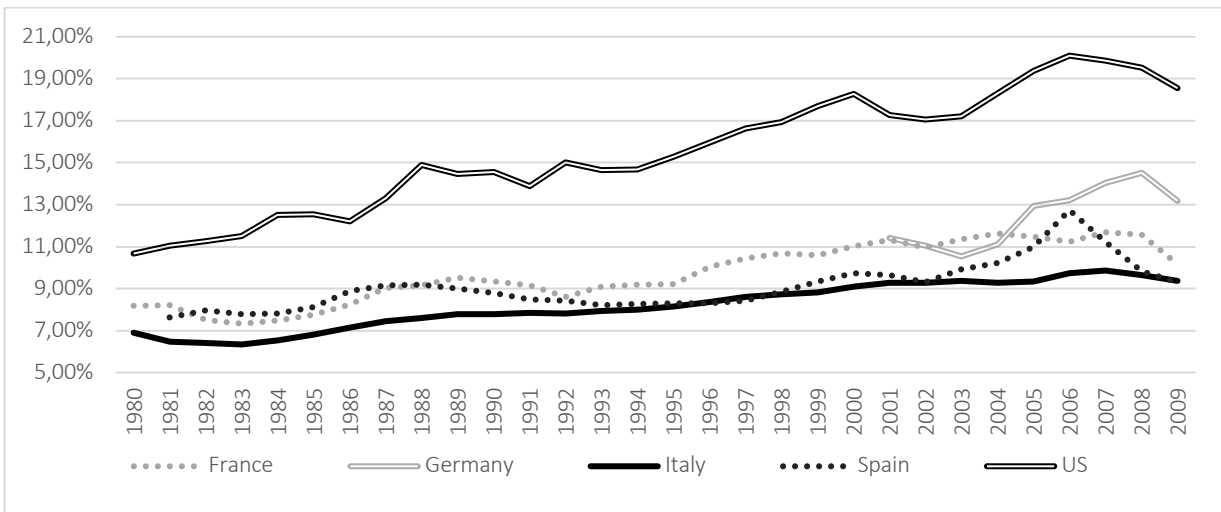

Source: Author's representation, AMECO (2018)

As illustrated in Figure 3, in Italy the top 1% increased its income share by around 2.5 percentage points between 1980 and 2009, whereas in the US the magnitude was of almost 8 percentage points. For the top 10% (Figure 4) the discrepancy was a bit less significant, with the Americans augmenting their share by about 10 percentage points, whereas the Italians experienced an increase of 6.70 percentage points. In comparison to other European countries, in 2009 Italy was the least unequal (together with Spain). However, the results for the top 10% are a bit worse, with Italy only lagging behind Germany.
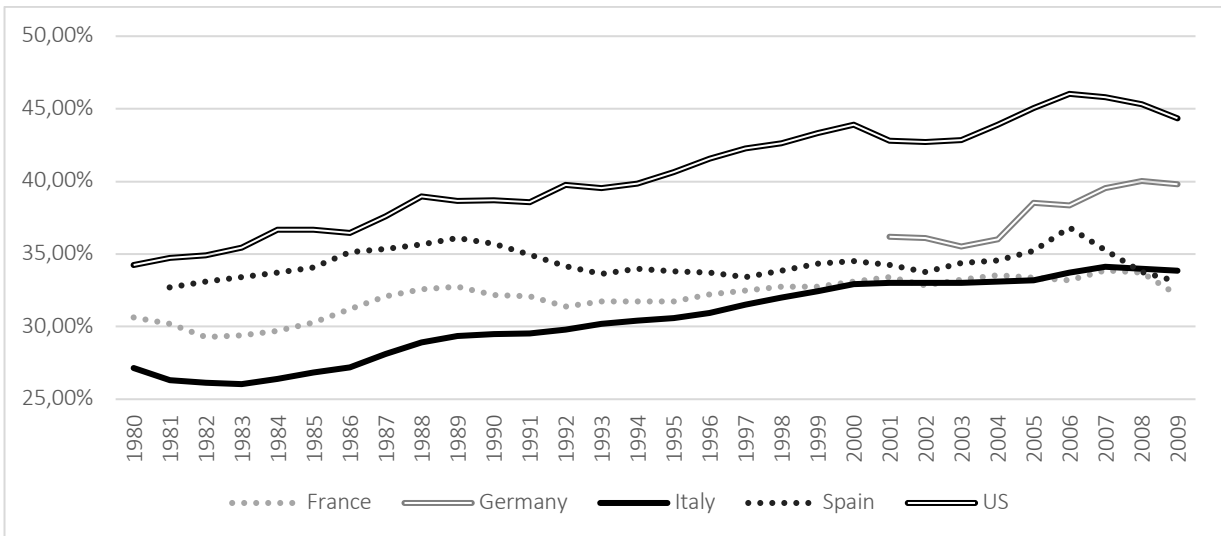
Figure 3: Top 1% income share in Italy, Germany, France, Spain, and the US (1980-2009)

Figure 4: Top 10% income share in Italy, Germany, France, Spain, and the US (1980-2009)

This discrepancy between the US American patterns and the Italian one might have its roots in the peculiar evolution of the distribution of earnings in Italy. Observing the density histograms (Figures 5, 6, 7, and 8) of the different income types ordered by income quintiles from the Italian SHIW, one interesting feature in the period from 1989 to 2014 is the very strong increase in inequality within income from self-employment and individual businesses, a less pronounced increase in the inequality within income from wages, a counter-intuitive increase in inequality

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within income from pensions and other transfers, and a reduction in inequality within capital income[8]. We can split our analysis into three periods: i. (1989-2002, Figures 5 and 6) from the first survey until the adoption of the Euro, including the political and economic crisis of 1991-1993; ii. (2002-2008, Figures 6 and 7) from the adoption of the Euro until the financial crisis; and iii. (2008-2014, Figures 7 and 8) after the crisis of 2008.

The first period has shown a clear increase in inequality within self-employment and individual businesses' income, a certain increase in the inequality within labor income, and more equal distribution of income from transfers and pensions (that was more concentrated in the first quintile in 1989). In the second period, there has not been a significant difference, only a small increase in the inequality within capital income and within income from pensions and other transfers. In the third and last period, it is possible to observe a small increase in inequality within pensions and other transfers and within labor income as well as a small decrease in inequality within self-employment and individual businesses. Accordingly, the period that appears to have had the greatest impact on the change in the distribution of income between the different income categories was the first one (1989-2002).
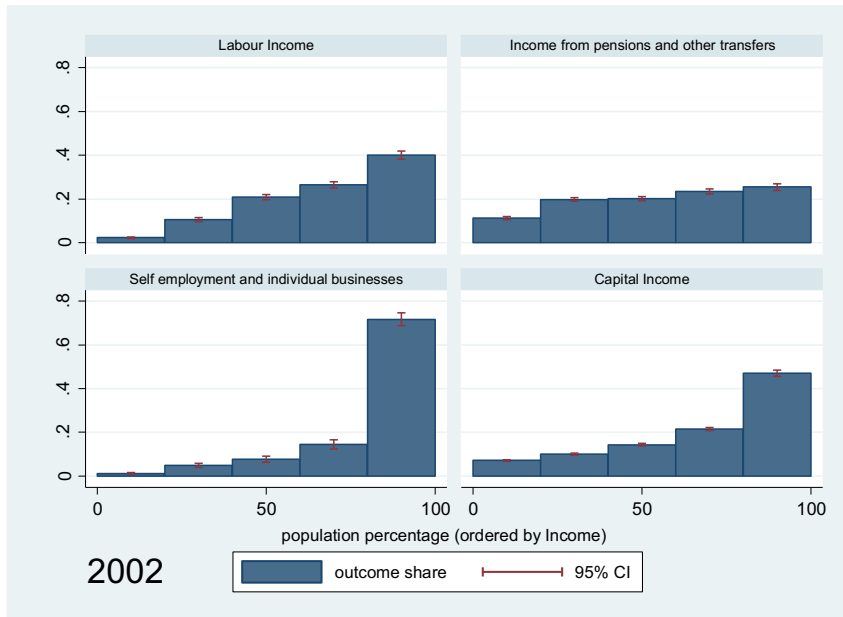
Figure 5: Density histograms: by income types ordered by income quintile in Italy (1989)
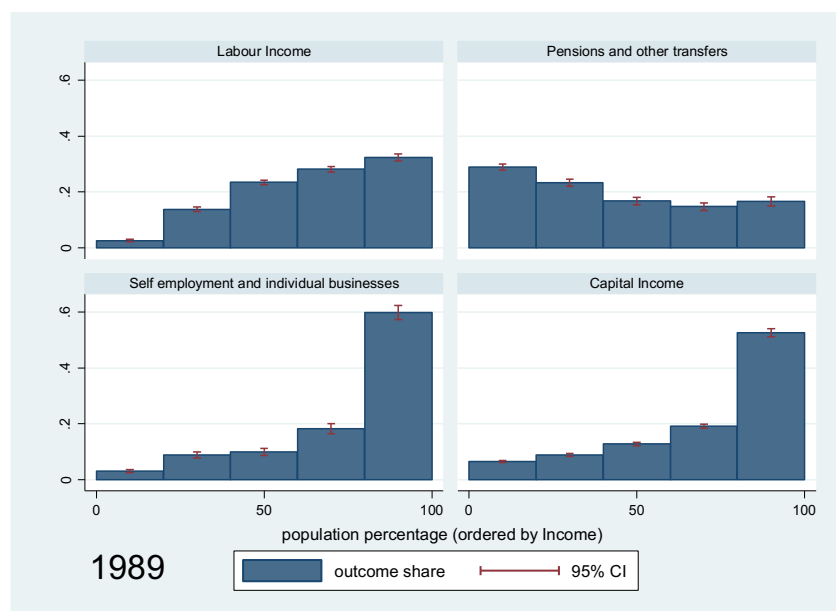
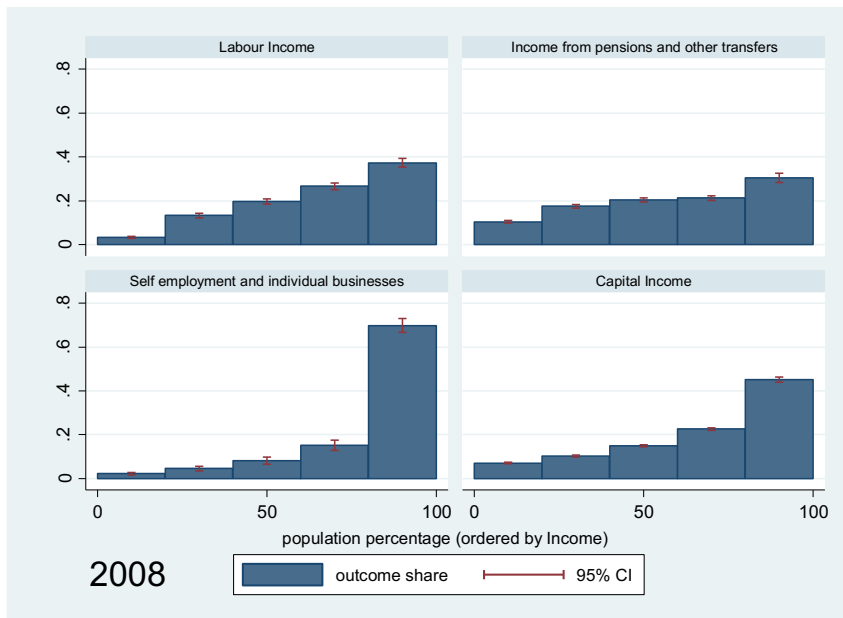Source: Author`s calculation, SHIW - Bank of Italy (2018)

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[8] Capital income can be decomposed into actual rents and income from financial assets, interest income, and imputed rents.

Figure 6: Density histograms: by income types ordered by income quintile in Italy (2002)
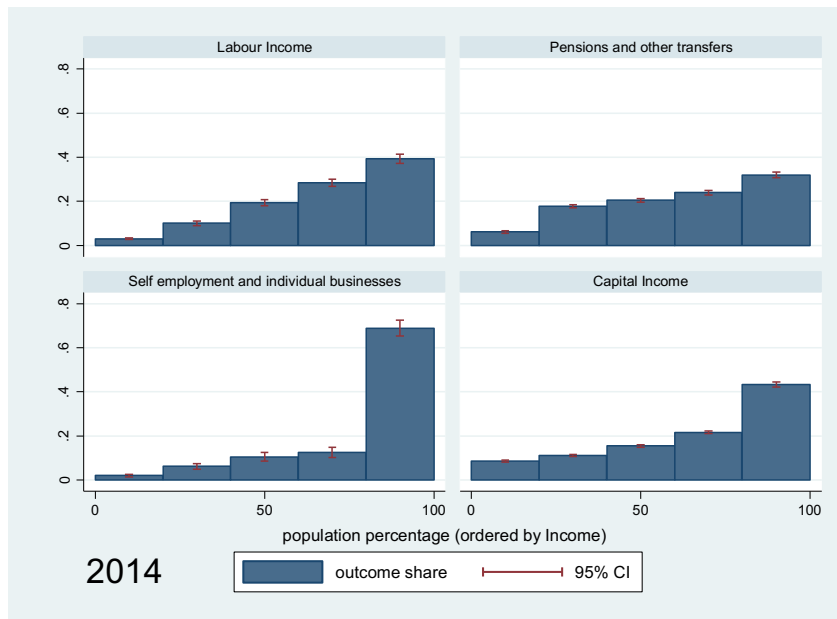

Source: Author`s calculation, SHIW - Bank of Italy (2018)

Figure 7: Density histograms: by income types ordered by income quintile in Italy (2008)

Source: Author`s calculation, SHIW - Bank of Italy (2018)

Figure 8: Density histograms: by income types ordered by income quintile in Italy (2014)
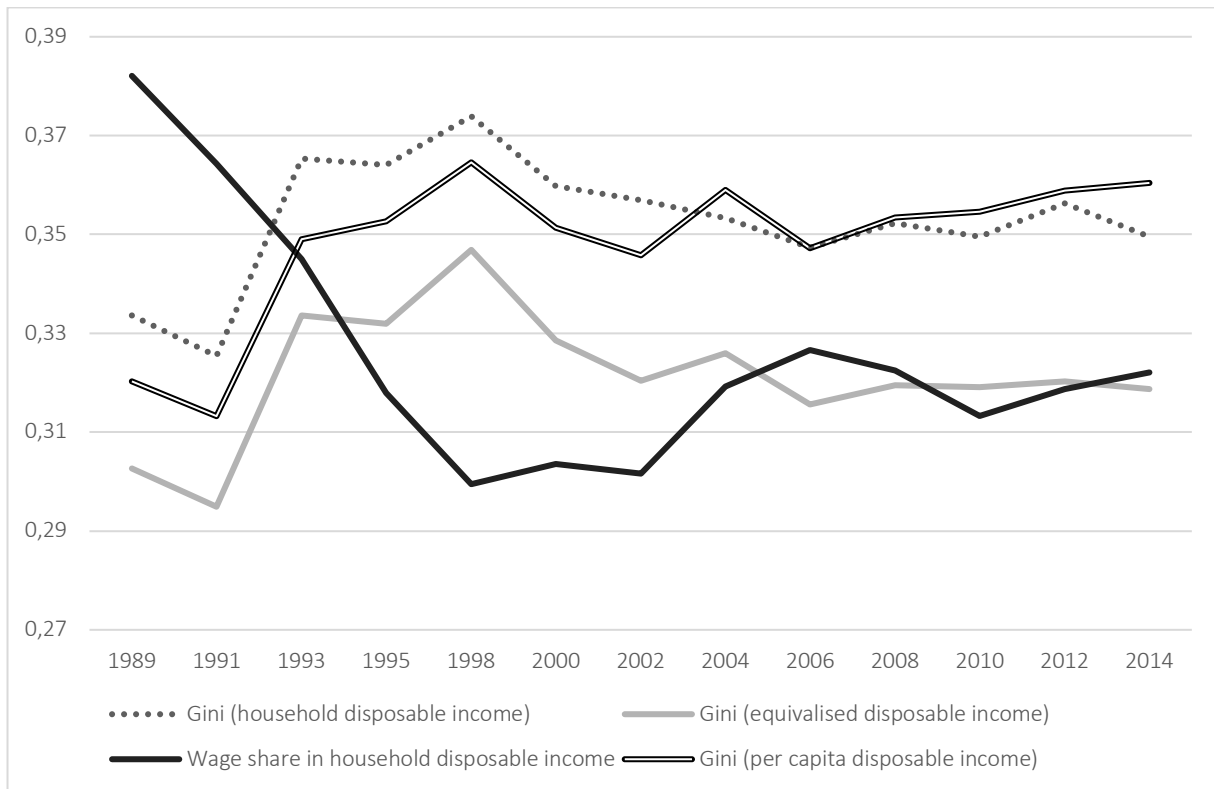

Source: Author`s calculation, SHIW - Bank of Italy (2018)

Besides explaining the peculiarity of the Italian case, these movements also explain why, despite contributing to the rise in overall inequality measured by the Gini index, the shift away from wages did not always materialize in an increase in the Gini index[9] (as illustrated in Figure 9). In spite of the significant increase after the crisis of 1991[10] until 1998, the overall level of inequality measured by the Gini index has clearly varied in the opposite direction from the wage share, but only until 2002. From then on, we either get a variation in the same direction, that is an increase in the wage share is accompanied by an increase in the Gini index, or a slight variation of the Gini concomitant with a stronger decrease of the wage share between 2006-2010.

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[9] As matter of comparison with the movements in the wage share, following Barba (2013), we focus on the Gini calculated with reference to the individual as income unit. Figure 8 also presents two other alternatives that are the Gini of household disposable income and the Gini of equivalized disposable income.

[10] The crisis initiated in 1991 has its roots in structural and institutional changes related to both economic and political factors. Since then, the Italian economy has begun to experience a long period of decline. In the political sphere, it is possible to highlight the shifts that occurred in the occasion of the corruption scandal that condemned a significant number of Italian politicians in the operation '*Mani pulite*' (Clean hands). In the economic sphere, the signature of the Maastricht Treaty in 1992 prevented the possibility of adopting discretionary policies that both boosted the already existing disparities between the member countries and complicated the absorption of shocks, such as the strong devaluation of the Italian Lira. This period was followed by a strong wave of liberalization and flexibilization of the labor market that culminated in rising levels of "income inequality, job precariousness, declining wage share, low wage and low consumption levels and a strong profit soar; along with low education and training, low competitiveness and low labor productivity, low innovation and low R&D" (Tridico 2015, p.166).

Figure 9: Gini indexes and the wage share of Italian households to disposable income (1989-2014)

Source: Author's calculation, SHIW - Bank of Italy (2018)

Barba (2013) attributes this apparent independence of the Gini coefficient from factor income shares (especially after 2002) to two main causes. First, he argues that there is "a poor representation of capital income" (*ibid.*, p. 278) in comparison to other income factors which makes it hard to draw proper conclusions from it. The second cause would be related to a change in the "economic position of wage earners" (*ibid.,* p. 278). This is clear if we analyze the income percentage shares in households' disposable income by quintiles (Table 1), where it is possible to see that wages have moved to the bottom of the income distribution. Notwithstanding, the substitution of well-paid and protected labor force by precarious labor "could not fail to translate into a substantial reduction in the wage share" (*ibid.* p.279).

Table 1: Income shares in households` disposable income by quintiles and income type (1989 and 2014)

	1st Quintile		2nd Quintile		3rd Quintile		4th Quintile		5th Quintile	
	1989	2014	1989	2014	1989	2014	1989	2014	1989	2014
Labor Income	16.80%	25.03%	41.56%	35.93%	46.24%	35.55%	45.65%	31.18%	33.94%	31.36%
Income from pensions and other transfers	58.92%	46.63%	31.52%	33.76%	19.81%	30.74%	12.89%	28.45%	8.75%	18.97%
Income from self-employment and individual businesses	5.08%	4.66%	10.36%	6.86%	13.76%	5.19%	18.17%	8.97%	24.09%	16.20%
Capital Income	19.21%	23.67%	16.56%	23.45%	20.20%	28.53%	23.30%	31.40%	33.23%	33.47%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Share in total disposable income	7.17%	6.35%	12.13%	11.98%	16.80%	16.62%	23.40%	23.77%	40.50%	41.29%

Source: Author`s calculation, SHIW - Bank of Italy (2018)

4.2 Income inequality and the propensity to consume: a micro-data analysis of the Italian SHIWs of 1989 and 2014

In order to make an empirical assessment on how consumption, particularly the average propensity to consume (APC henceforth), is impacted by changes in income distribution and to verify if the APC is homogeneous or not across the income distribution, this section relies on data from the Italian SHIW drawing a comparison between the survey from 1989 and the survey from 2014.

The main inference that can be made is that there was a clear increase in personal income inequality, measured both by the Gini index[11] as well as by the S80/S20 ratio, accompanied by a decrease in the aggregate APC[12] (as illustrated in Table 2).

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[11] The income unit to which the calculation refers to here is the household.
[12] The APC is calculated dividing mean consumption by mean disposable income from each year analyzed.

Table 2: Basic features of the Italian SHIWs of 1989 and 2014

	1989	2014
Sample	13,826.00	14,148.00
Population	14,331,319.00	14,523,181.00
Mean Income	16,807.36	30,570.10
APC	0.76	0.74
Gini	0.33	0.35
S80/S20	5.65	6.50

Source: Author's calculation, SHIW - Bank of Italy (2018)

If we compare the results of 1989 to the last survey of 2014, we can observe that the first three income quintiles lost disposable income shares (Table 3). The first income quintile was the one that presented the most significant change. In 1989 its income share was of the magnitude of 7.17% and in 2014 it accounted for 6.35%, registering a loss of 11.41% in the period. The second quintile, which had a share of 12.13% in 1989, went slightingly down to 11.98%. The third quintile also experienced a mild reduction going from 16.80% to 16.62%. The fourth and fifth quintiles presented a small increase in their income shares going from 23.40% to 23.77% and from 40.50% to 41.29% respectively.

Table 3: Italian households` average propensities to consume and income shares in total disposable income by quintile (1989 and 2014)

	1st Quintile		2nd Quintile		3rd Quintile		4th Quintile		5th Quintile	
	1989	2014	1989	2014	1989	2014	1989	2014	1989	2014
Share	7.17%	6.35%	12.13%	11.98%	16.80%	16.62%	23.40%	23.77%	40.50%	41.29%
Δ		-11.41%		-1.25%		-1.10%		1.56%		1.95%
APC	0.94	1.14	0.87	0.88	0.85	0.80	0.76	0.72	0.66	0.62
Δ		21.37%		1.74%		-6.17%		-5.88%		-6.68%

Source: Author's calculation, SHIW - Bank of Italy (2018)

Summarizing, the quintiles with the highest propensities to consume lost shares, while the two top quintiles with lower propensities to consume gained shares. Doing a simple arithmetic exercise, it is already possible to conclude that, in this case, the increase in top quintiles' shares

with respect to the bottom ones negatively impacted the total APC, proving the dominance of absolute income effects.

In order to better understand the sources of the increase in the total Gini index from the first survey to the last one, it is interesting to make an analysis of the decomposition of this index (Table 4) based on the division of the sample into quintiles. In doing so, we can verify to which extent such an increase was caused by an increase in the inequality within (G_h) and between the groups (G_e) that compose the generalized entropy index as well as how the Gini of each quintile evolved. The idea is to capture how income inequality within and between quintiles and the change of the share of each quintile is related to the changes in the aggregate APC ($\sum y_i * c_i$) as well as in the APC of each income group (c_i).

In this regard, it is possible to point out that both inequalities within and between the groups have contributed to the general rise in inequality, even with a slightly bigger contribution of the former. Another interesting feature is the comparison of the increase in the Gini in the first and third quintiles, together with the decrease in their respective income shares, in relation to what happened to the respective propensities to consume. Whereas in the third quintile the increase in the inequality and decrease in the participation has been translated into a lower propensity to consume (reinforcing the aggregate result), in the first quintile the worsening of the Gini and the reduction of the income share translated into a higher propensity to consume (minimizing the overall decrease in the aggregate APC). Furthermore, a rather constant inequality within the top quintile and its increasing income share translated into lower APC (reinforcing the aggregate result).

Consequently, it is possible to argue that the absolute income hypothesis does not fully explain the Italian results. Despite the confirmation of the existence of a trade-off between inequality (increase in the global Gini index) and APC at the aggregate level, the separate analysis of the different quintiles shows that higher inequality at the bottom quintile resulted in a significantly higher APC, whereas higher inequality within the top quintile resulted in a lower APC of that income group. In other words, the negative trade-off between inequality and APC is inverted in the bottom extreme of the distribution.

Table 4: Gini decomposition by households` income quintile in Italy (1989 and 2014)

		y_i	c_i	$y_i * c_i$	Gini by quintile	G_h	G_e	Generalized Entropy index	Gini
1989									
	1	0.072	0.942	0.068	0.153				
	2	0.121	0.868	0.105	0.059				
	3	0.168	0.848	0.142	0.053	0.071	0.167	0.238	0.334
	4	0.234	0.760	0.178	0.058				
	5	0.405	0.661	0.268	0.170				
Σ				0.761					
2014									
	1	0.063	1.143	0.073	0.223				
	2	0.120	0.883	0.106	0.059				
	3	0.166	0.796	0.132	0.055	0.086	0.182	0.268	0.350
	4	0.238	0.715	0.170	0.061				
	5	0.413	0.617	0.255	0.171				
Σ				0.735					

Source: Author's calculation, SHIW - Bank of Italy (2018)

Accordingly, it seems that the absolute income effects of a higher overall level of inequality have been partially compensated by relative income effects at the bottom. In other words, the APC has indeed decreased, mirroring the increase in the overall inequality level. Nevertheless, this negative trade-off could have been even bigger without the relative income effects at the bottom. Figure 10 illustrates exactly this movement of the consumption expenditure functions with respect to the actual income of each of the quintiles (C_1 and C_5 highlighted) as well as their respective shifts (dashed line) and the total effect ($C_{T,1989}$ and $C_{T,2014}$).

Figure 10: Italian Households' consumption spending and the effect of worsening income distribution (1989-2014)
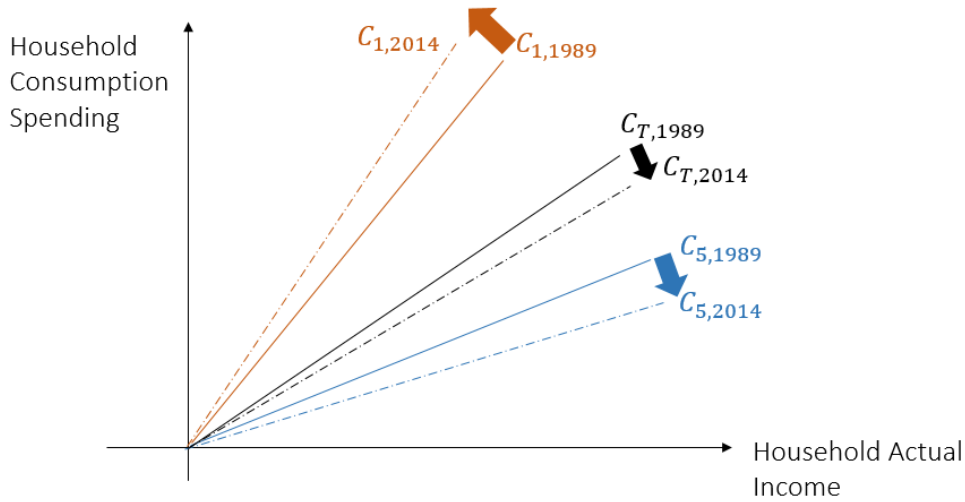
Source: Author's elaboration, based on Palley (2010)

4.3 Stylized Facts on household consumption and financial behavior in Italy

Italian households have experienced an increase in income inequality that was concentrated on the extremes of the distribution accompanied by a decrease in the APC at the aggregate level, which means there was a dominance of absolute income effects. However, this reduction of the propensity to consume has been partially compensated by relative income effects. The question that remains is how relative income effects could partially (but not fully) compensate for the demand depressing effects of rising inequality on aggregate consumption. As argued by Brown (2004), the answer depends on how constrained consumption decisions are by households' income. In this sense, credit, debt, and wealth might play an important role.

The relation between rising debt and the compensation for increasing inequality has been extensively discussed in the literature for the US American case. Barba and Pivetti (2009) have argued that rising income inequality has been the main source of the rise in debt levels, explaining the puzzle of declining wages coexisting with increasing consumption demand. Cynamon and Fazzari (2013) have also associated inequality, worsening relative income, and changing consumption and financial norms with the rise in debt levels in the US. Carr and Jayadev (2015) provide evidence from panel data also for the US that the rising indebtedness of households is related to high levels of inequality as well as relative income effects.

For the Italian case, despite the marginal existence of relative income effects, the dominance of overall demand-depressing effects of rising inequality already indicates that rising indebtedness does not play the same role as in the US American case. Analyzing the level of household debt to the net disposable income ratio (Figure 11), there is a clear upward trend from the end of the 1990s until 2016. Nevertheless, while Spain and France reached levels comparable to the US, Italy maintains lower debt levels even compared to Germany, despite the strong acceleration in the 2000s. An interesting feature is that, even after the 2007-9 crisis, the ratio of debt to disposable income has kept increasing in Italy, although at a slower pace.

Figure 11: Household debt to net disposable income ratio in Italy, Germany, France, Spain, and the US (1995-2016)
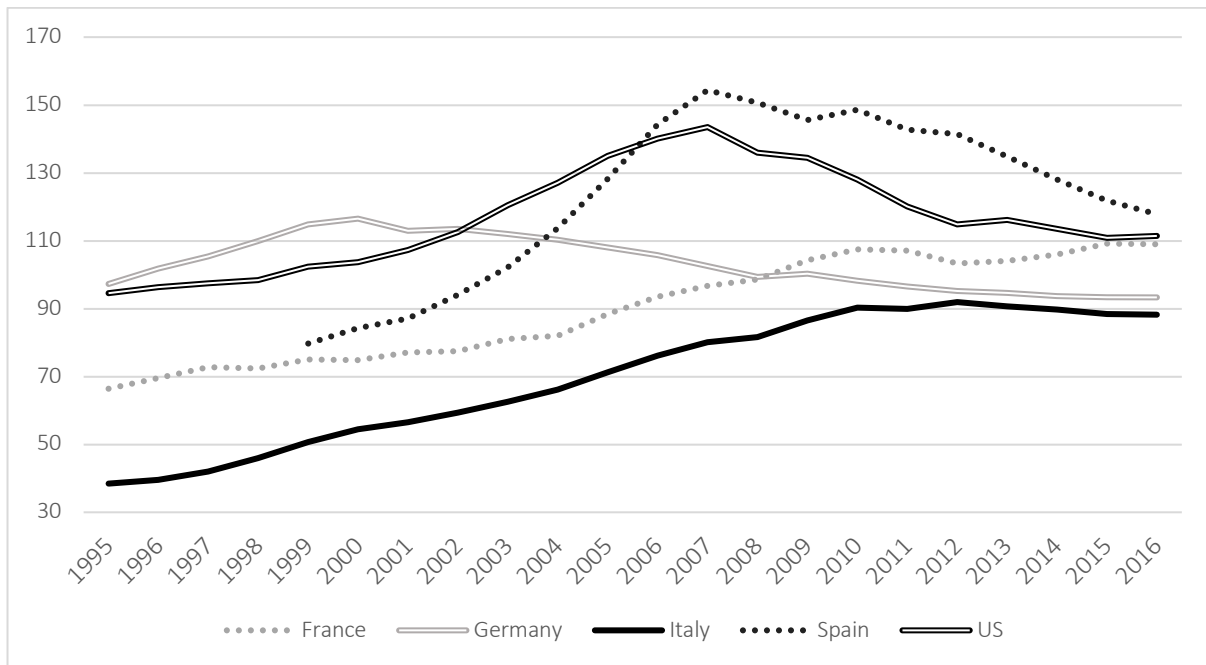
Source: Author's representation, OECD (2018a)

A similar picture arises for the total household debt to GDP ratio (as illustrated in Figure 12, representing the outstanding amount of credit at the end of the reference quarter as percentages of nominal GDP). Regardless of the significant rise, Italian households still lag behind in comparison to other European countries and to the US.

Figure 12: Household debt to GDP ratio in Italy, Germany, France, Spain, and the US (1980-2016)
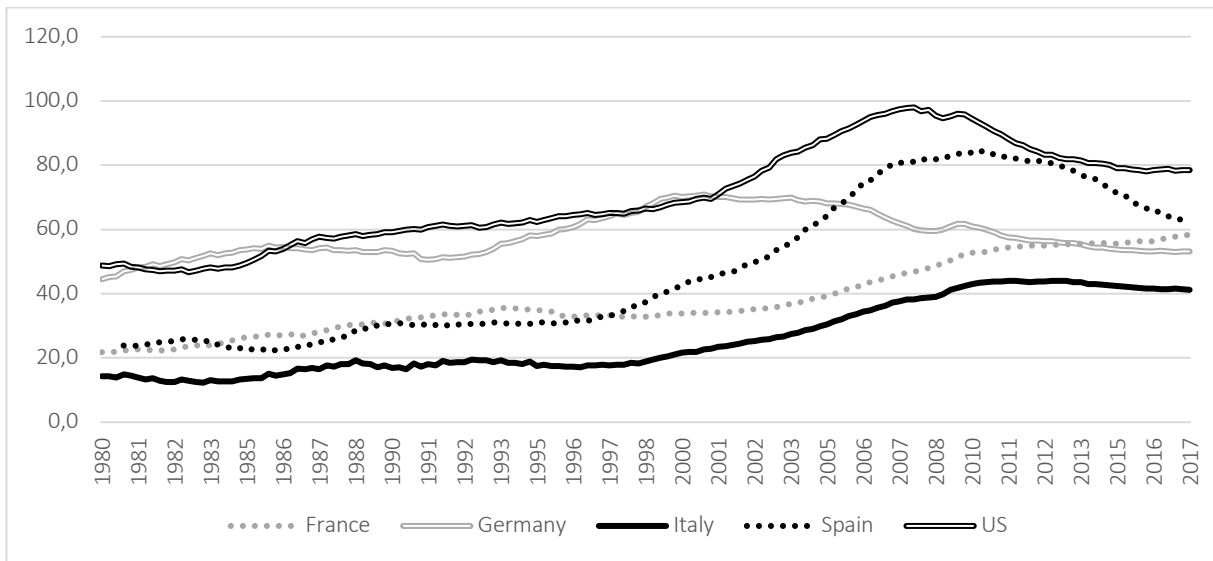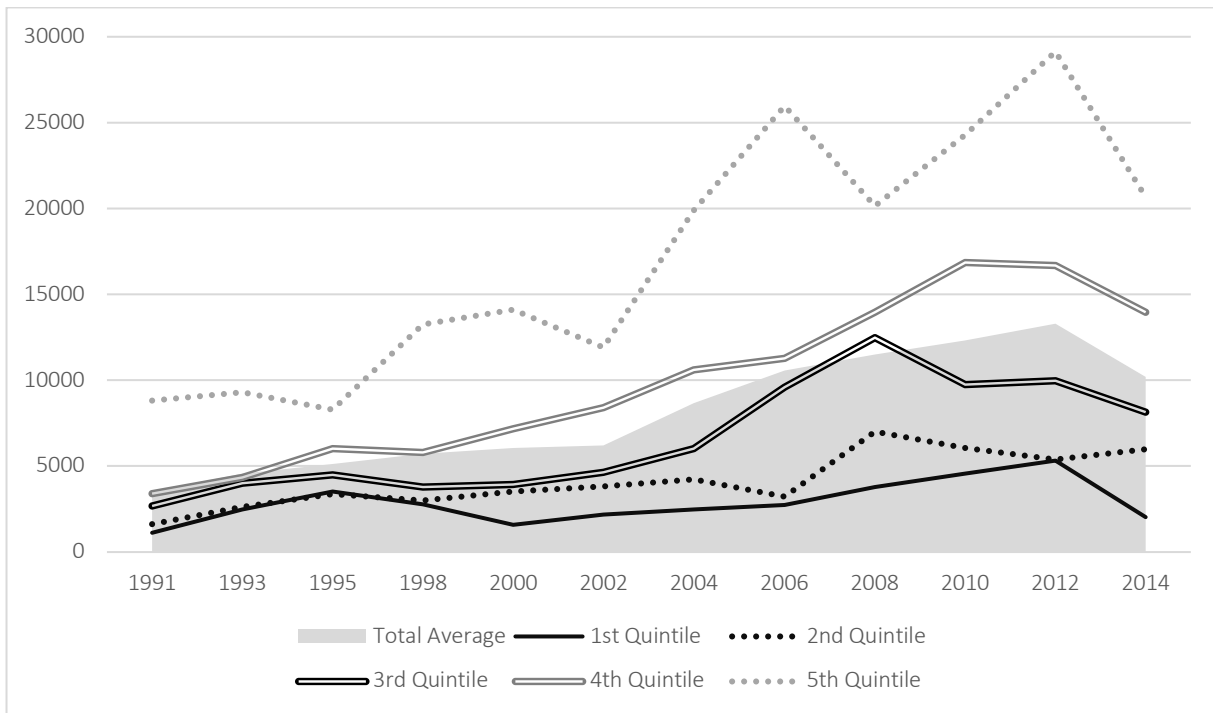

Source: Author's representation, BIS (2018)

At the micro-level, analyzing the data from the Italian SHIW, it is possible to observe the indebtedness by quintile. It is clear that the increasing average of financial liabilities has materialized in all the five quintiles (Figure 13), which have reached a higher average liability level in 2014 compared to the starting point (1991[13]). However, it is evident that the upper quintiles are the ones that pull up the average, also meaning that the ones holding more income and wealth also hold the highest amounts of financial liabilities.

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[13] The analysis of the financial liability is constrained to start in 1991 due the availability of data from the historical files published by the Bank of Italy.

Figure 13: Italian Households' Average Financial Liability by quintiles in euros (1991-2014)
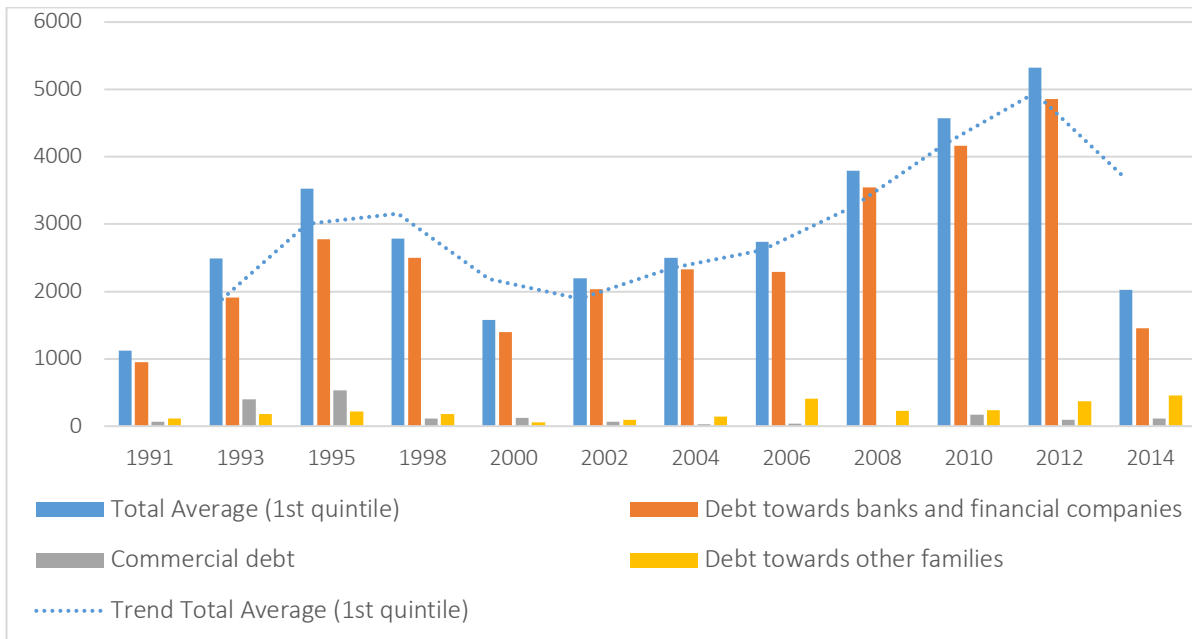

Source: Author's representation, SHIW - Bank of Italy (2018)

Analyzing Figures 14, 15, 16, 17, and 18 it is possible to see the decomposition and the exact period when the growth of financial liabilities accelerated the most in each of the quintiles (ordered by disposable income)[14]. Figure 14 shows that the increase in average liabilities in the first quintile was concentrated in the period between 2000-2012. The interesting feature is that this accelerating trend did not stop after the crisis but rather kept its pace until 2012, which can be related to the need of maintaining a certain basic living standard in face of decreasing income levels. Another peculiar characteristic of the profile of average liability related to the first quintile is the importance of commercial debt and debt towards other families, which, despite being very small, is the highest among all the other income strata. The second quintile (Figure 15) presented the peak of acceleration between 2006-2010. The third quintile (Figure 16) had the biggest increase in average liability between 2002-2008, clearly decreasing after the crisis. The fourth quintile (Figure 17) had a rather stable accelerating path between 1991-2012. Finally, the fifth quintile (Figure 18) presented two periods of acceleration between 2002-2006, possibly related to the euphoria after the adoption of the Euro, and between 2010-2012.

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[14] The trend line is a moving average trend referent to the total average of financial liability of each quintile.

Figure 14: Italian Households' (1st quintile) Average Financial Liability by type in euros (1991-2014)

Source: Author's representation, SHIW - Bank of Italy (2018)

Figure 15: Italian Households' (2nd quintile) Average Financial Liability by type in euros (1991-2014)
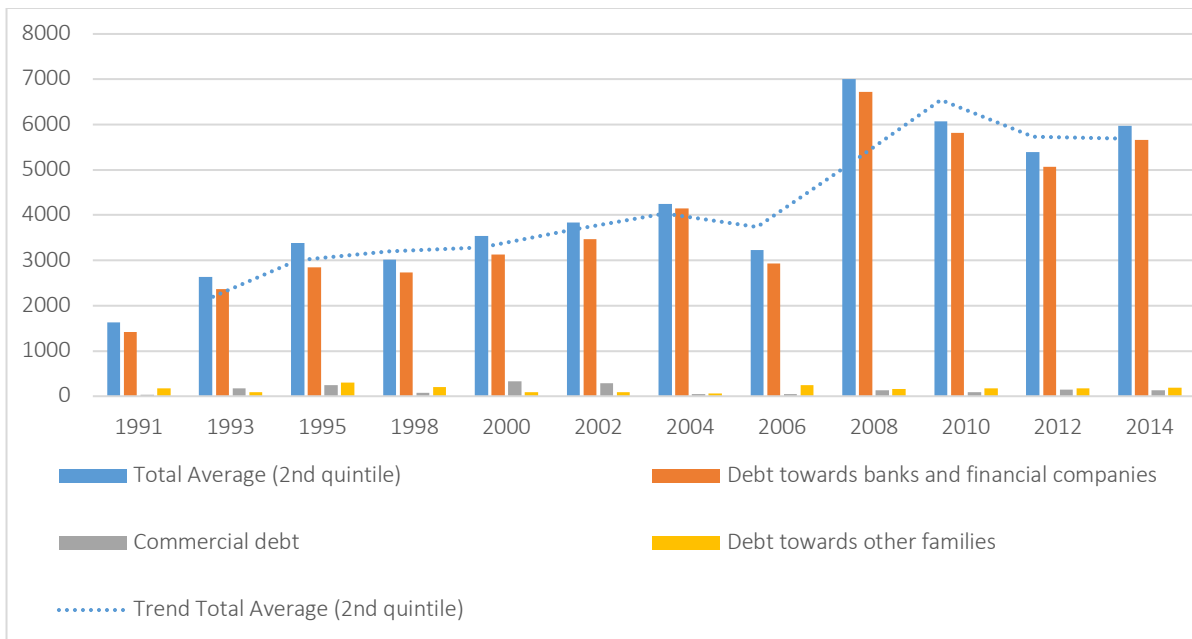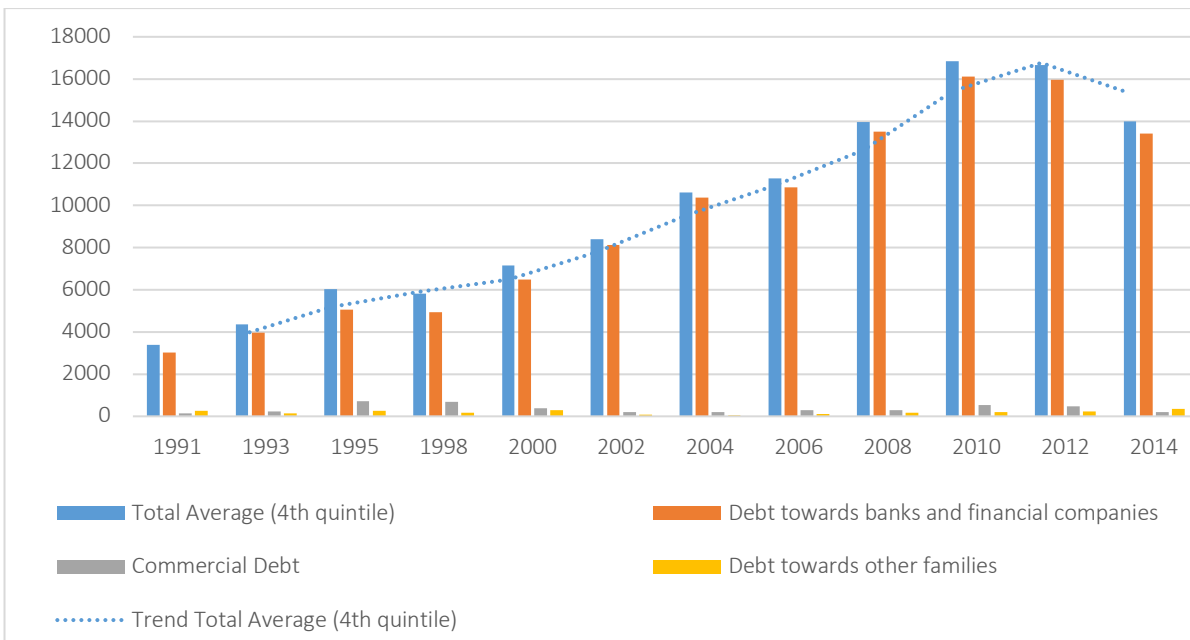

Source: Author's representation, SHIW - Bank of Italy (2018)

Figure 16: Italian Households' (3rd quintile) Average Financial Liability by type in euros (1991-2014)

Source: Author's representation, SHIW - Bank of Italy (2018)

Figure 17: Italian Households' (4th quintile) Average Financial Liability by type in euros (1991-2014)
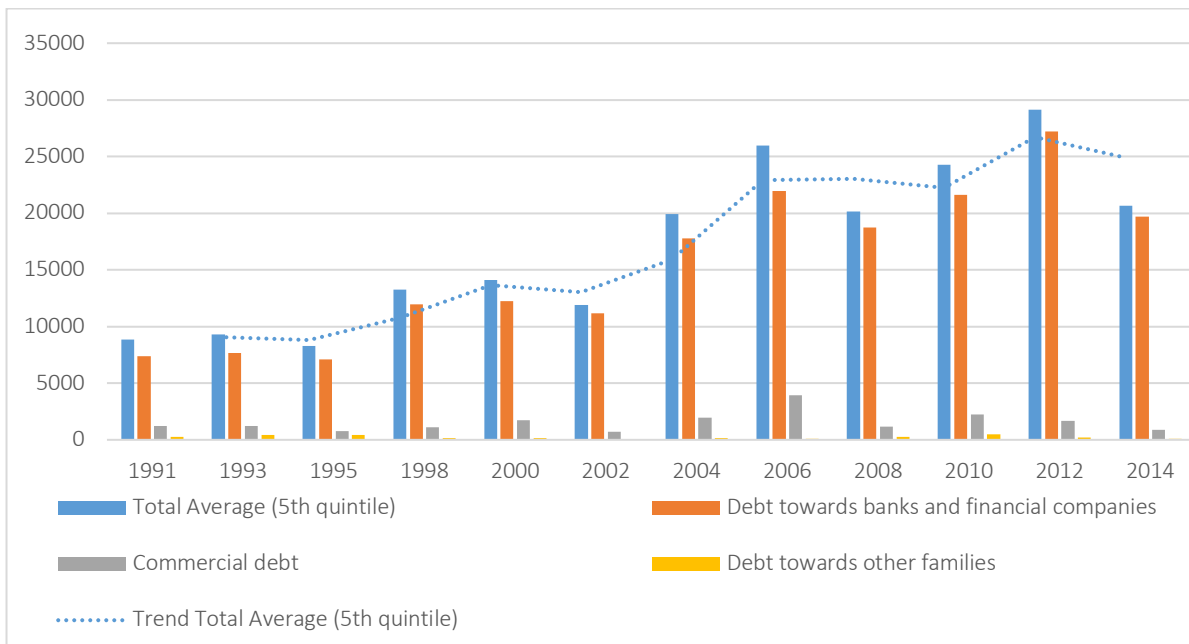

Source: Author's representation, SHIW - Bank of Italy (2018)

Figure 18: Italian Households' (5th quintile) Average Financial Liability by type in euros (1991-2014)

Source: Author's representation, SHIW - Bank of Italy (2018)

Going back to the macro-level and analyzing the composition of household debt, it is possible to make a distinction between mortgages and consumer credit. In the Italian case, according to the IMF (2013), the key component of households' debt is mortgages, accounting for 60% of the total household debt in 2012. Taking a closer look at this key component, it is possible to argue that even with a significant increase (growing from 11.1% of GDP in 2003 to 22.2% in 2014, as illustrated in Figure 19), mortgage financing in the Mediterranean country is still very low in comparison to other European countries and the US.

Figure 19: Total outstanding residential loans to GDP ratio in Italy, Germany, France, Spain, and the US (2003 - 2014)
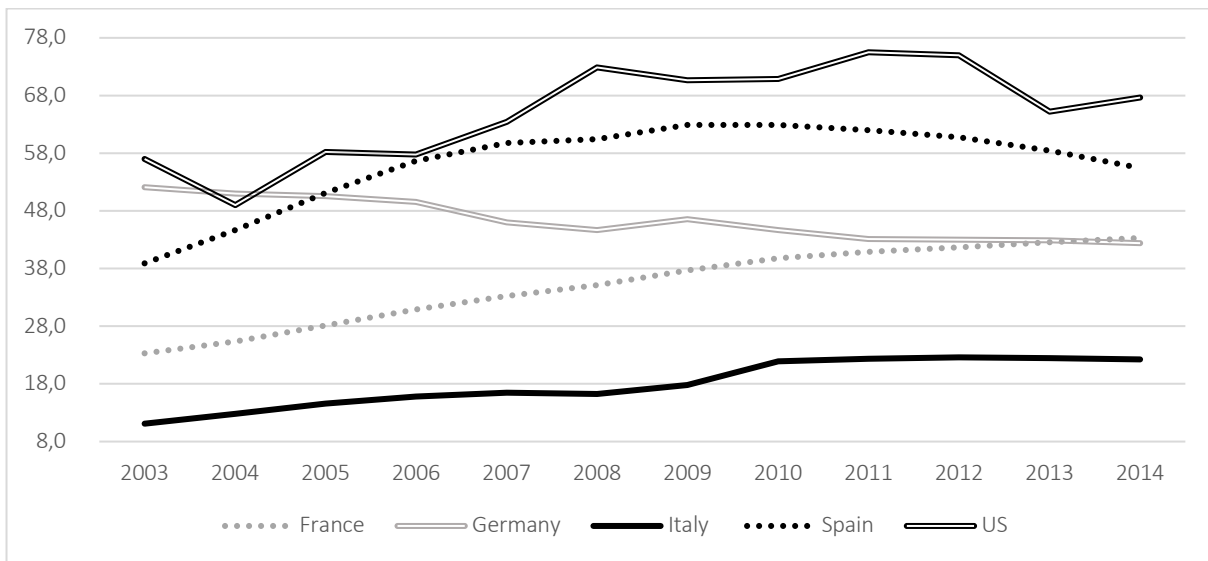
Source: Author's representation, CES (2018)

The fact that demand-depressing effects triggered by increasing inequality levels did not significantly shift private households' financial balances in Italy is also discussed in the literature of macro growth regimes. While some European member countries have experienced a debt-led private demand boom regime (Spain, for example) that compensated the scenario of stagnating income and increasing inequality through current account deficits and debt accumulation, other countries have complementarily developed an export-led mercantilist regime (Germany, for example). Italy (like France and Portugal) was qualified in the literature as an intermediate case, following a domestic-demand led regime in which "positive financial balances of the private household sector as well as the external sector, and hence, current account deficits" (Dodig et al. 2015, p.8) were sustained by negative results run by the government and by the corporate sector. In the Italian case, in particular, Gabbi et al. (2014) demonstrate that the largest component of aggregate demand and growth was aggregate private consumption, with a relatively low contribution of stock investments and a balanced current account. In this sense, the authors qualify the growth regime of the country as internal domestic-demand led.

Besides the possible compensation of debt-based consumption, wealth[15] might have also played a role. Barba and Pivetti (2009) and Cynamon and Fazzari (2008) have emphasized the mechanism of rising housing prices functioning as collateral with significant effects on consumption once mortgages holders make use of refinancing schemes to create disposable income (transforming houses in ATM machines[16]). This was, again, especially true in the US (which was extensively analyzed in the literature).

In Italy, however, despite the significant increase in housing loans (Figure 19) pushing the levels of total household debt, housing equity withdrawals did not play a significant role. Regardless of the attempt of the Ministry of Economy and Finance to encourage such recourse in the face of stagnating wages and consumption in 2003, housing equity withdrawals did not successfully boost consumption demand[17].

The strategy of the Ministry was accurate in what concerns the decomposition of wealth of Italian households, which, according to data from the Italian SHIW, was around 90 per cent concentrated in real assets (as illustrated in Figure 20). However, most of Italian households' real wealth is concentrated in residential properties[18] that they fear to lose in refinancing schemes, which not only prevented them from incurring in home equity withdrawals but also contributed to the relatively low risk contribution coming from the household sector (IMF 2013).

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[15] The positive impact of wealth on consumption is discussed by different economic paradigms. As highlighted by Stockhammer et al. (2018), whereas in the mainstream the positive effect of wealth is related to utility-maximizing behavior of rational households, in the heterodox literature it is related to financialization, to the role of lenders, and to consumption norms. In addition, New Keynesians have argued that the effect of wealth on consumption runs from the channel of wealth functioning as collateral to households that are credit constrained.

[16] For an extensive description of mortgage refinancing in the US see Guttmann (2016).

[17] The main argument behind this attempt is that "much of the wealth of Italian households is concentrated in the real estate market and that support to consumption could come from the possibility of converting part of this wealth into disposable income" (Ministero dell'Economia e delle Finanze 2003, p.25, author`s translation).

[18] In 2014, 85 percent of Italian households' real assets were made up by dwellings, 6 percent by non-residential buildings, 4 percent by land, 3 percent by plant, machinery, equipment, inventories and goodwill, and 2 percent by valuables (Bank of Italy 2014).

Figure 20: Italian Households' Average Net Wealth by component in euros (1991-2014)
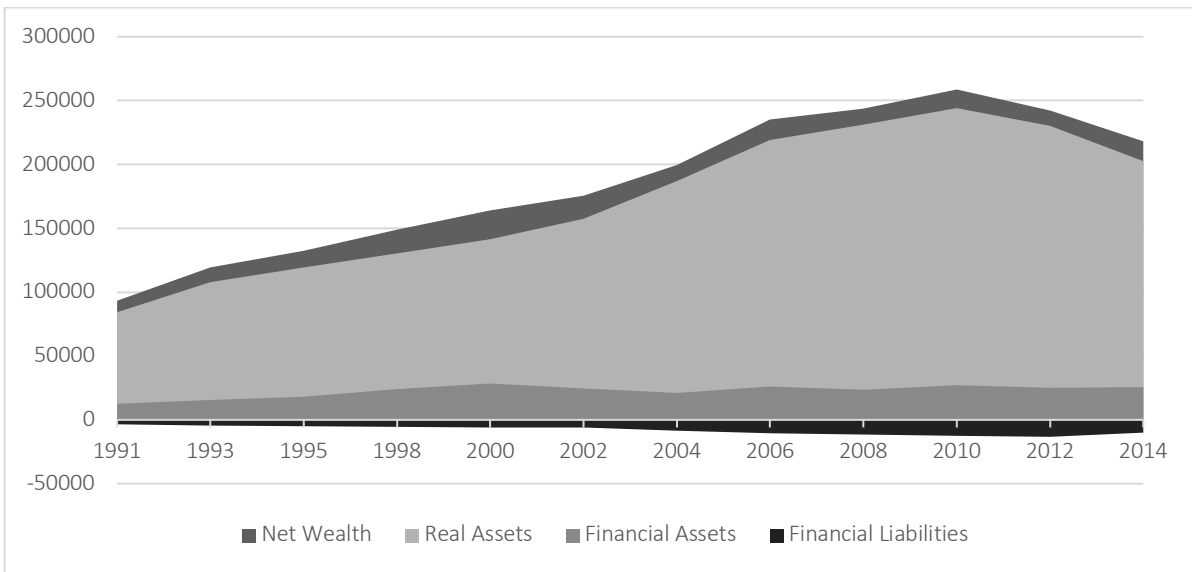
Source: Author`s calculation, SHIW - Bank of Italy (2018)

Besides social norms that shape Italian households' behavior and their reluctance towards mortgage refinancing schemes, the low presence of wealth effects might also be related to the very unequal wealth distribution, as highlighted by Gabbi et al. (2014) and illustrated in Figures 21 and 22.

Figure 21: Italian households' wealth by type and quintile (1991)
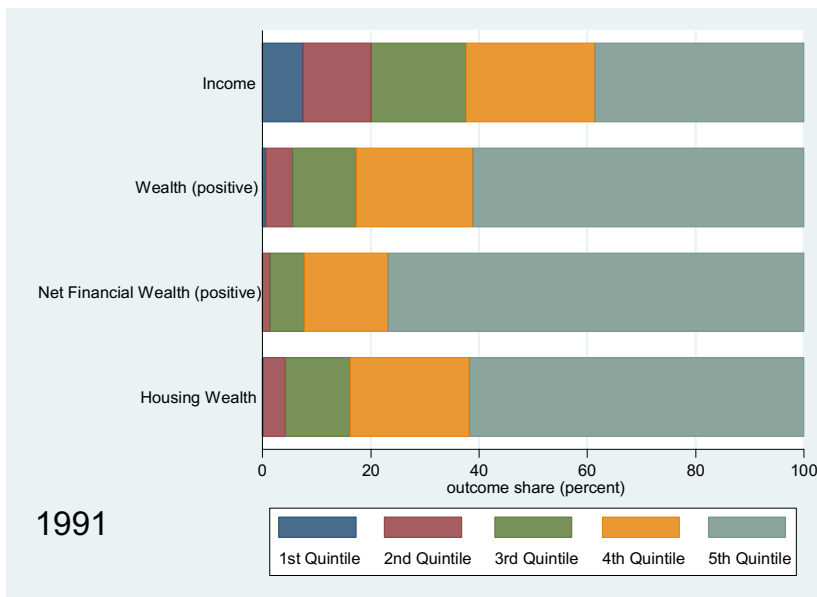
Source: Author`s calculation, SHIW - Bank of Italy (2018)

Figure 22: Italian households' wealth by type and quintile (2014)
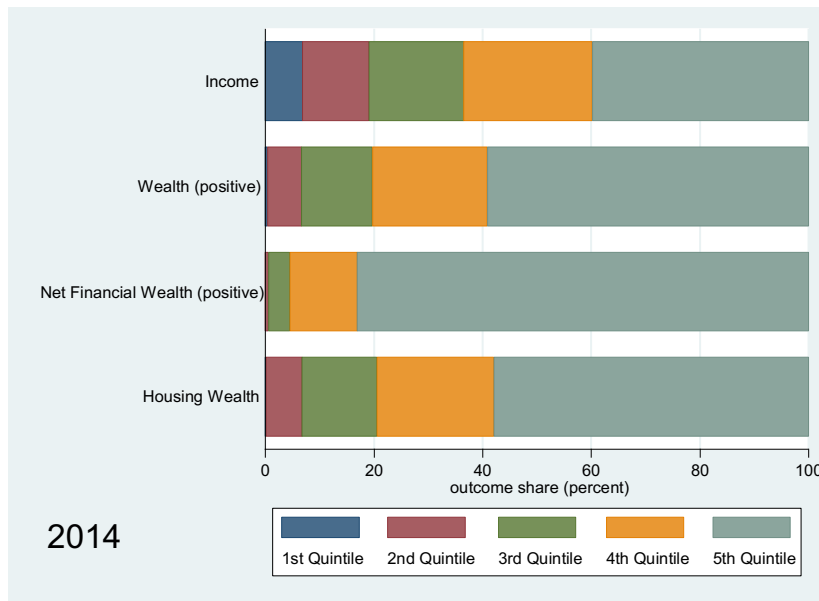
Source: Author`s calculation, SHIW - Bank of Italy (2018)

Recent econometric studies have also tested the influence of real and financial wealth on Italian households' consumer behavior. Rossi and Visco (1995) have shown that the marginal propensity to consume out of wealth varies between 3 and 3.5 percent. A smaller magnitude of around 2 percent is found by Paiella (2007), Grant and Peltonen (2008), and Guiso et al. (2005). Slacalek (2009) applies an estimation method based on the sluggishness of aggregate consumption, implying that "the eventual (long-run) marginal propensity to consume out of total wealth is 5 cents (averaged across countries)" (*ibid.*, p. 4). In Italy, however, the total wealth effect on the MPC is found to be statistically insignificant. Analyzed separately, neither financial nor housing wealth effects are significantly different from zero (at the 95 percent significance level) in the Mediterranean country.

Summarizing, it is possible to argue that the discussed stylized facts and the literature cannot confirm the existence of significant wealth and debt effects on consumption, despite the increasing trend in indebtedness particularly related to the real estate sector in Italy. This can be justified by the very unequal distribution of both financial and real wealth among Italian households (Gabbi et al. 2014) as well as by its high concentration on real estate, particularly residential properties that Italian households are skeptical to involve in refinancing schemes or use as collateral (Barba and Pivetti 2009).

5. Conclusions and policy implications

In this paper, the evolution of Kaleckian growth models, particularly regarding the incorporation of personal income inequality and taxation, has been briefly reviewed. Despite the amendments done up until now, it has been pointed out that the inclusion of interpersonal inequality with heterogeneous propensities to consume and the connection between the personal dimension of inequality and income taxation has not been touched upon. Therefore, the first goal of this work was to develop a simple neo-Kaleckian model, inspired by You and Dutt (1996), incorporating both personal income inequality as well as income taxes in order to identify how changes in income taxes and personal income distribution affect output and growth.

The result of the model both with respect to tax reforms that affect income distribution and to shifts in income distribution coming from other sources is primarily dependent on the propensities to consume out of each income quintile. These propensities should be heterogeneous and a decreasing function of the income levels (following the Keynesian tradition based on *The General Theory*) for progressive tax shifts to be positive (and *vice versa*). Thereafter, the model's result was shown to be conditioned by the type of relation between overall inequality and aggregate consumption. In this sense, the strictly negative trade-off between aggregate consumption and inequality has been attached to the dominance of absolute income effects. Accordingly, the second research goal of this work was to verify empirically the behavior of the propensities to consume by quintiles as well as to test the dominance of absolute income effects in Italy.

As demonstrated in section 4.2, the propensities to consume of the Italian households are a decreasing function of their income level. In other words, the propensity to consume out of disposable income is higher in the bottom and lower in the top quintiles. The interesting feature here is that not only the assumption of heterogeneity of the propensities to consume has been confirmed but the dispersion of the APCs of the quintiles has increased in a comparison based on the Italian SHIW of 1989 and 2014.

In the Italian case, the worsening of the distribution has implied a decrease in the aggregate APC, confirming the dominance of absolute income effects in the country. In this regard, a redistribution policy would be effective in terms of boosting aggregate demand (through the consumption channel), increasing capacity utilization and growth. Furthermore, as argued in

section 3, the positive effect on the aggregate consumption function would boost the size of the multiplier, also increasing the positive effects of positive shifts in animal spirits and government expenditure. In other words, the adoption of progressive income tax reforms could improve the positive effect of the public-sector component on aggregate demand.

Despite the existence of some minor relative income effects, the stylized facts could not confirm the existence of significant wealth and debt effects on consumption, regardless of the increasing trend of indebtedness (particularly related to the real estate sector). In this sense, the dominance of the absolute income effects was argued to be based on financial and consumption norms that prevent a detachment of the consumer behavior of Italian households from their income budget, thus avoiding the dominance of relative income effects (as occurred in the US case).

The last possible shift in the stylized model presented is related to shifts in functional income distribution that have an indirect effect on the result through their influence on overall inequality (changing the shares of the different income strata). In the specific case of Italy, a shift towards profits has implied an overall increase in inequality. Hence, the indirect negative effect of an increase in the profit share is also confirmed for the Italian case.

Succinctly, it is possible to argue that, in the Italian case, a progressive income tax reform would have a positive effect on aggregate demand, utilization, and growth because of the heterogeneity in the propensities to consume and the dominance of absolute income effects. Moreover, adding more income brackets could also be efficient in the Italian case, given the significant disparities of consumption propensities from one stratum to the other. Furthermore, a redistribution policy would also increase the size of the fiscal multiplier, which was only briefly discussed here. Lastly, a shift towards wages and the abolishment of the neoliberal labor market reforms implemented in Italy could also affect the model positively, decreasing the overall level of inequality and mitigating the harmful scenario raised in the country in terms of youth unemployment, massive emigration flow, and in-work poverty levels.

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