

The Political Economy of Easy Credit Policies

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Abstract. *During the last thirty years, U.S. economic growth has disproportionately benefited the richest percentiles of the American population i.e., the top income earners. Although this phenomenon is difficult to explain from a “standard” political economy perspective (i.e., majority voting), recent literature emphasizes the role of consumer credit as a means of circumventing costly public redistribution. According to this theory, most OECD and, notably, American policymakers should have facilitated middle-class and low-income households’ access to consumer credit to cushion the effects of increased income inequality (i.e., an increased share of GDP held by top earners). Our contribution to this literature is to argue that increases in inequality (as measured by expansions in the share of GDP held by top income earners) should be associated with aggregate consumption increases. Indeed, as a response to increased inequality, easy credit policies stimulate low-income and middle-class consumption which contributes to the increase in aggregate consumption level. Using a panel dataset of 20 developed OECD economies between 1980 and 2007, we show that such increases in inequality are actually associated with expansions of aggregate consumption. Finally, when computing marginal effects, we conclude that these expansions increase with the size of the financial sector.*

JEL Classification: O40 - E21 – G20 – P16

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1 – Introduction

During the last thirty years, U.S. economic growth has primarily benefited the richest American households, the so-called ‘top incomes’ (Atkinson, Piketty and Saez, 2011).¹ From a standard political economy perspective, such a phenomenon is puzzling. Indeed, in a simple majority voting setting, it is difficult to explain why a situation that durably benefits a minority of the population (i.e., top earners) continues to be accepted by the majority of citizens (i.e. low-income and middle-class households) who experienced a deterioration in their relative income. To cope with this paradox, we rely on recent

¹ In a wake of increased income concentration among high-income households, some protest movements, such as ‘Occupy Wall Street’ in the U.S. and similar movements in European countries, have emerged.

literature that emphasizes the role of financialization, especially the importance of consumer credit (Kumhof and Rancière, 2010; Rajan, 2010; Reich, 2010; Boyer, 2011; Azzimonti, De Francesco and Quadrini, 2012). According to this literature, in the context of fiscal moderation, most OECD countries, notably the U.S., have facilitated household access to consumer credit with the aim of making inequality increases more acceptable by the majority of citizens (i.e. low-income and middle-class households).

The reasons that most developed OECD countries have adopted easy credit policies are deeply rooted in the finance-led accumulation regime that emerged during the Thatcher and Reagan era. Following this era, liberal policies spread to most developed OECD economies. One important feature of such policies is their particularly restrictive monetary component, which implies high interest rates. Such policies and associated high interest rates would then have facilitated a context of fiscal moderation. In this context of moderation, public authorities must control the progression of public expenditure, including its redistributive components. However, because they need to satisfy their constituents, policymakers must also find solutions to offset the increase in income inequality. Financialization, specifically consumer credit, is one of these solutions. Indeed, such policies appear to be an attempt to counterbalance increased income inequality by defending and supporting middle-class and low-income household consumption (e.g. this means that consumption inequality is less pronounced than income inequality). This solution would, in turn, help explain why a political majority (*i.e.*, a group that encompasses the poorest citizens) largely supports easy credit policies.²

Our contribution to this literature (Kumhof and Rancière, 2010; Rajan, 2010; Reich, 2010; Boyer, 2011; Azzimonti, De Francesco and Quadrini, 2012) is to investigate the effects of income inequality and consumer credit on aggregate consumption. Specifically, we argue that an increase in the share of GDP held by top income earners should be associated with an increase in the aggregate consumption level. Of course, such an association would be non-trivial because the expansion of aggregate consumption would not result solely from increases in top earners' consumption (itself stemming from the higher share of GDP that they hold). In other words, an expansion of the aggregate consumption level would result from an increase in middle-class and low-income household consumption, despite the weakening of their relative income (*i.e.*, stemming from the higher share of GDP held by top income earners). This means that whereas middle-class and low-income households are becoming poorer (because top earners' income has grown faster than income of low-income and middle-class households), their consumption actually increases thanks to consumer credit facilitation policies.

² In a depressed macroeconomic context in which most citizens relative income stagnate, households use credit mechanisms to improve their current economic situation (*i.e.*, to lower consumption inequality vis-à-vis income inequality). However, at some point, they also have to pay credits back. But if, as low-income and middle-class households might expect it, their incomes grow faster in the future, then it might be easier to reimburse their credit. This also helps to explain their support for easy credit policies.

Conducting a panel data analysis of 20 OECD developed economies between 1980 and 2007, we find strong support for our hypothesis. Specifically, relying on various data sources (World Bank Database, World Top Income Database, Standardized World Income Inequality Database, *etc.*), we show that an expansion of income inequality, measured as an increase in the share of GDP held by top income earners, is actually associated with an expansion of aggregate consumption. We also compute marginal effects and conclude that this expansion of the aggregate consumption level becomes more pronounced as the size of the financial sector (measured either by the share of value added or the share of employment in the financial sector) increases.

This paper is organized as follows. In the second section, we briefly survey the evolution of income inequality in developed OECD economies over the last thirty years and show how economic growth has disproportionately benefited top income earners. We then survey the political economy literature that seeks to explain this concentration of growth and conclude that an increase in the share of GDP held by top income earners should be associated with an increase in the aggregate consumption level. To test this argument, we present our dataset and our empirical strategy in the third section. The fourth section is dedicated to presenting and interpreting our empirical results. Finally, we briefly conclude in the fifth section.

2 – Top incomes, financialization and aggregate consumption: a political economy explanation

2.1 – Patterns of top incomes and financialization

During the last thirty years, income inequality has continuously increased in most OECD countries. For the OECD as a whole, the Gini index recorded an increase of nearly 10% between the mid-1980s and the late 2000s (OECD, 2011). One reason for this trend is the increase in the share of GDP held by top income earners,³ which has been particularly pronounced in Anglo-Saxon countries (see Figure 1). According to Atkinson *et al.* (2011), the share of GDP held by top income earners in the United States has increased substantially over the last three decades. The share of U.S. income before taxes and transfers held by the richest 10% of the population increased from 35% in the early 1980s to nearly 50% in 2007. Most of this change is attributable to the richest 1%, whose share of national income increased from 8.9% in 1976 to 23.5% in 2007 (Atkinson *et al.*, 2011).⁴

[INSERT FIGURE 1 ABOUT HERE]

What these figures show that the proceeds of economic growth are increasingly being captured by a miniscule part of the population. In a recent contribution, Förster *et al.* (2014) analyze the share of

³ Top incomes refer to the richest percentiles of the income distribution. They represent a tiny part of the population, but they hold a very significant part of today's national income.

⁴ During the same period, the share held by the richest 0.1% rose from 2.6% to 12.3%.

income growth captured by different income groups. This work notably shows that in some countries, particularly Anglo-Saxon ones, one-fifth or more of total income growth was captured by the top 1% between 1975 and 2007 (see Figure 2). Similarly, Tcherneva (2014) shows that since the 1950-53 expansion, the top 10% of households have been capturing a growing share of the income growth in the U.S. More recently, ‘rich’ households captured 98% and 115% of the income growth during the 2001-07 and 2009-12 expansions, respectively, whereas the bottom 90% of households captured 2% and -15% of the income growth during the same periods. Similarly, the growth in real median wages has been very modest in recent years (OECD, 2007; Boyer, 2011; Piketty, 2014), suggesting that middle-class households have not shared in the benefits of growth. The OECD (2007) notes that real median wages grew by 1.28% during the period 1998-2005 in the U.S. with a growth of -0.04% during the period 2002-05. Canada, France and Japan experienced real median wage growth of 0.68%, 0.79%, and 0.54%, respectively, during the period 1998-2005. Interestingly, in the latter economies, the growth in real median wages has been, on average, stronger than that in other large OECD countries.

[INSERT FIGURE 2 ABOUT HERE]

Additionally, all OECD developed economies have experienced increases in both the absolute and relative size (*i.e.*, as a percentage of GDP) of their financial sectors. This process may refer to ‘financialization,’ which is defined as the growth of financial markets and financial institutions in the economy at both the national and international levels and as the shift from industrial to finance capitalism (Epstein, 2001; Van der Zwan, 2014). Many indicators reflect this phenomenon of financialization. A recent report from the ILS (2009) documents that the share of finance in GDP nearly doubled over the last 30 years, including in European countries. Profits in the financial sector (as a share of total corporate profits or as a share of the wages and salaries of all workers) have also nearly doubled since the 1980s in most advanced countries.

According to Alverado *et al.* (2013), the deregulation of finance and other industries increased the demand for skills at the top and contributed to the increase in the bargaining power of top earners (Kumhof and Rancière, 2010). One of the consequences is that the top income share has increased since the 1980s (Phillipon and Reshef, 2012; Jermanowski and Nabar, 2013; Godechot, 2012). Boyer (2011) also argues that the increased bargaining power of top earners is strongly related to increased income inequality.

2.2 – *The political economy of easy credit policies*

According to the above arguments, the finance-led regime of accumulation would *per se* be based on an unequal distribution of income. Figure 1 shows that the share of GDP held by top income earners has continued to increase, even after the last financial crisis, suggesting that the bargaining power of top earners has not been undermined by the subprime crash and subsequent economic downturn. To

continue to prosper, this regime of accumulation should be supported by a majority of citizens. Such a situation is, however, difficult to explain from a standard political economy perspective. Indeed, in a simple majority voting setting, a situation that durably benefits a minority of the population, *i.e.*, top income earners, should be rejected by the majority of citizens. To resolve this puzzling contradiction, we rely on a large body of literature (Kumhof and Rancière, 2010; Rajan, 2010; Reich, 2010; Azzimonti, De Francesco and Quadrini, 2012) that emphasizes the role of consumer credit.

According to this literature, in the context of growing income inequality, OECD countries, most notably the United States, have been encouraged to facilitate household access to consumer credit as a means of partly circumventing costly public redistribution.⁵ In other words, policymakers intended such easy credit policy to facilitate household consumption to offset the effects of increased income inequality. This idea is advocated by Rajan (2010), who argues that in the absence of a political consensus on redistributive policies and given increasing pressure on public debt, policymakers have strong incentives to implement easy credit policies as a substitute for purely redistributive policies.⁶ In other words, growing inequality has created political pressure not to reverse inequality but to encourage easy credit to sustain demand despite stagnating incomes. Similarly, Streeck (2014) argues that rapidly rising income inequality was counterbalanced by unprecedented opportunities for citizens and firms to become heavily indebted. In the United States, the financial sector was further deregulated by the Clinton administration in response to increasing income inequality in the 1990s. Streeck (2014) and Schelkle (2012) argue that subprime mortgages became a substitute for social policy: in this sense, the housing boom triggered prosperity for the poor. Financial deregulation has thus coincided with the sharp increase in household debt observed since the 1980s (OECD, 2006). Thus, financial liberalization compensated for an era of fiscal consolidation and public austerity.

Accordingly, the adoption of easy credit policies in developed OECD countries is closely related to the finance-led regime of accumulation that emerged following Thatcher and Reagan's terms in office. During this period, particularly restrictive monetary policies were conducted implying high interest rates. Such rates have two important consequences for the demand and supply sides, which both help explain the adoption of easy credit policies to offset the effects of increased income inequality.

On the demand side, high interest rates increase the cost of borrowing, which discourages investment and slows growth. In turn, this simultaneity of low-growth and restrictive monetary policies tend to increase the public-debt-to-GDP ratio. Restrictive monetary policy facilitates both the control and prediction of the inflation level. Yet, an accurately predicted inflation level is echoed in nominal interest rates, and inflation loses its ability to depreciate the real value of public debt. Additionally, when

⁵ Redistribution also includes costly public goods and services. Its increases are thus likely to increase public debt. On that point, Azzimonti, de Francisco and Quadrini (2013) find that the level of government debt not only increases when inequality increases but also when capital markets are liberalized.

⁶ It is worth noting that consumer credit may also appear as a complement to redistribution.

the growth rate is lower than the interest rate, a positive primary balance is a necessary condition to avoid snowball effects. In the opposite case, there will be an increase in the debt-to-GDP ratio (Azizi *et al.*, 2012). To avoid subsequent increases in public deficit, public authorities must then keep the progression of public expenditure constant, including its redistributive components. However, in order to get re-elected, policymakers must then find solutions to offset the increase in income inequality.

On the supply side, high interest rates stimulate household savings – provided that costly loans can be allocated to the economy. According to credit rationing theory, imperfect information, which characterizes credit markets, gives rise to moral hazard (Stiglitz and Weiss, 1981). Moral hazard distorts the perception that creditors may have about their potential debtors. To secure their transactions, creditors are thus induced to require caution from their debtors. Though necessary, such caution produces selection in the sense that poor agents face credit crunches. Loans may thus be granted but under conditions that are very detrimental (*i.e.*, costly) to the poor. Accordingly, these loans and hence easy credit policies allow poor citizens to support their consumption.

This pattern is precisely what Kumhof and Rancière (2010) demonstrate. According to their work, the process of financial deregulation has contributed to the increase in the bargaining power of top earners, which has two consequences. First, top earners use part of their extra income to acquire additional financial assets, resulting in an increase in income inequality. Second, top earners use this additional income to provide loans to middle-class and low-income households. Consequently, saving should be higher at the top of the income distribution whereas borrowing should be higher at the bottom of the distribution. On this point, Fesseau and van de Ven (2014) find evidence of a strong savings concentration at the top of the income distribution in a sample of OECD countries during the 2000s. Conversely, at the bottom end of the income scale, the poorest households have negative savings.

The loans allocated to middle-class and low-income households, and therefore financialization, would have cushioned the decline in these households' consumption level resulting from the decrease in their relative income. Accordingly, the increase in consumption inequality has been much less pronounced than the increase in income inequality (Pendakur, 1998; Attanasio *et al.*, 2006; Krueger and Perri, 2006; Iacoviello, 2008).

Maybe for this reason, policymakers have encouraged easy credit policies to offset income inequality. Accordingly, thanks to easy credit, income inequality should be disconnected from consumption inequality (Rajan, 2010).⁷ Following this thesis, Tabellini (2012) shows that easy credit policies were adopted between the mid-1990s and the mid-2000s in U.S. states with higher income inequality and were intended to increase homeownership among middle- and low-income households.

⁷ Reich (2010) underlines two alternative mechanisms. In response to the increase in income inequality, U.S. households have relied on longer working hours and higher rates of female labor force participation.

As underlined by Van der Zwan (2014), easy credit policies are intended to incorporate low-income and middle-class households into financial markets, which is one facet of financialization.

More important, these policies can be viewed as an instrument to offset the increase in income inequality by facilitating middle-class and low-income household consumption, which, in turn, can help to explain why a political majority that encompasses the poorest citizens largely supports the adoption of easy credit policies. Indeed, a large body of literature considers the process of financialization redistributive (see Van der Zwan, 2014).

Moreover, according to Amable and Palombarini (2009), specific policies must rely on a solid political base to be implemented or maintained. In other words, such policies must be supported by a coalition of heterogeneous interests. The role of policymakers is then to create viable configurations to make these divergent interests compatible. Based on this conceptual framework, our understanding of the political economy foundations of a finance-led accumulation regime and, specifically, easy credit policies is the following. Easy credit policies permit the formation of a coalition of two different sociopolitical groups with potentially diverging interests: top income earners and low-income and middle-class households. First, top income earners are highly in favor of increasing financialization, as they accumulate financial wealth that directly enters into their utility functions. A growing financial sector offers them greater opportunities to make considerable profits from more sophisticated financial services. Second, low-income and middle-class households support the extension of financial activities because the expansion of consumer credit provides greater access to consumption goods and services. In other words, low-income and middle-class households support easy credit because they believe either that consumer credit can help them defend their consumption or that they can become wealthier in the future (Boyer, 2011). For these two reasons, middle-class and low-income households paradoxically continue to accept the finance-led regime of accumulation that is also responsible for a continuous increase in income inequality. In other words, the poorest households continue to support this regime of accumulation because it affords them the opportunity to increase their consumption through consumer credit. Accordingly, policymakers have strong incentives to implement easy credit policies because a large part of the population, *i.e.*, top incomes as well as low-income and middle-class households, supports those policies.

2.3. Hypotheses

The contribution of our paper is twofold. First, we argue that increases in income inequality (measured as expansions in the share of GDP held by top income earners) should be associated with increases in aggregate consumption. Increases in inequality should give rise to social discontent. To satisfy their constituents, especially in a context of constrained public finances and redistribution, policymakers should then be induced to promote consumption by middle-class and low-income

households through easy credit policies. As a result, the aggregate consumption level should increase. As we shall see, this expansion is non-trivial, as it does not stem solely from the increase in top earner consumption (itself resulting from the higher share of GDP held by top income earners). The expansion of the aggregate consumption level results from an increase in consumption by middle-class and low-income households despite the decrease in their relative income. This result implies that while middle-class and low-income households are becoming poorer, their consumption actually increases due to consumer credit facilitation policies.

Hypothesis 1. *The share of GDP held by top income earners is expected to be positively correlated with the aggregate consumption level.*

Second, this positive correlation is expected to be even more pronounced when the volume of consumer credits granted to middle-class and low-income households is important. In other words, easy credit policies may allow non-rich households to compensate for the relative stagnation of their incomes. This mechanism can help explain the political support for such policies among middle-class and low-income households. As underlined by Van der Zwan (2014), easy credit policies are one facet of financialization. Accordingly, we argue that the positive relationship between consumption and income inequality is conditional on the level of financialization. Despite increasing inequality, non-rich households can increase their own consumption even more when easy credit policies are well developed, *i.e.*, when financialization is deeper. This hypothesis is consistent with the idea advocated above that middle-class and low-income households will support the finance-led regime of accumulation if well-developed financial markets allow them to increase their consumption level⁸.

Hypothesis 2. *The positive correlation between the income share held by top incomes and aggregate consumption is stronger when financial markets are well developed.*

3 – Empirics

In this section, we test our two hypotheses, relying on a panel data analysis of 20 developed OECD economies⁹ between 1980 and 2007. At the theoretical level, our econometric specification relies on the life cycle–permanent income (LCPI) theory of consumption (Modigliani and Brumberg, 1954; Modigliani, 1957; Friedman, 1957; Hall, 1978; Flavin, 1981; Deaton, 1986). According to this theory, consumers choose their current consumption after considering all the resources available to them over the course of their entire lifetimes. In this framework, the aggregate consumption level is expressed as a function of its lagged value; the aggregate income level, proxied by GDP; and the real interest rate.

⁸ Note that such an accumulation regime is responsible for increasing income inequality.

⁹ The list of countries of our sample is the following: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Table 1 presents a summary of the descriptive statistics and provides the sources for all the variables used in our regression analysis.

[INSERT TABLE 1 ABOUT HERE]

Equation (1) below depicts this baseline specification.

$$Consumption_{i,t} = \beta_i + \alpha_1 \cdot Consumption_{i,t-1} + \alpha_2 \cdot GDP_{i,t} + \alpha_3 \cdot Lending\ rate_{i,t} + \varepsilon_{i,t} \quad (1)$$

In equation (1), *Consumption* is our dependent variable in country *i* for year *t*. Our baseline explanatory variables are *Consumption*_{*i,t-1*}, which is the lagged value of our dependent variable; *GDP*, which measures the aggregate income level; and *Lending rate*, which measures the real interest rate β_i denotes country fixed effects. ε_{it} is an error term. Our dependent variable, *Consumption*, is the level of final household consumption expressed in constant PPP-corrected U.S. dollars provided by the World Bank (2014)¹⁰. Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. Household consumption expenditure includes the expenditures of nonprofit institutions serving households, even when reported separately by the country. We include in our specification a one year-lagged aggregate consumption variable (*Lagged dependent variable*) as used in the LCPI framework. The *GDP* variable measures the aggregate income level and is drawn from the Penn World Tables (Feenstra, Inklaar and Timmer, 2013); it is real GDP corrected by PPP expressed in current prices. Finally, the real interest rate is proxied by the lending rate (*Lending rate*), which refers to the bank rate that usually meets the short- and medium-term financing needs of the private sector. This variable is provided by the World Bank (2014).

To test our first hypothesis (H1), we complete this basic specification with the share of national income held by top income earners (*Top1*) and the Gini coefficient (*Gini*), which yields equation (2) below:

$$Consumption_{i,t} = \beta_i + \alpha_1 \cdot Consumption_{i,t-1} + \alpha_2 \cdot GDP_{i,t} + \alpha_3 \cdot Lending\ rate_{i,t} + \alpha_4 \cdot Top1_{i,t} + \alpha_5 \cdot Gini_{i,t} + \varepsilon_{i,t} \quad (2)$$

Top1, our key explanatory variable, is the share of GDP held by the richest 1% of the population. It is drawn from the *World Top Incomes Database* (Alvaredo *et al.*, 2014). This database provides different time series of the top income shares over the long run for more than twenty countries from 1870 to 2010. Income tax data are used to compute the top income series, and national accounts are used to compute income. Data on top incomes are not available for Austria or Belgium, and some observations are missing for some countries in our sample.

¹⁰ This database is available at <http://data.worldbank.org/indicator>

Our regressions also control for the Gini coefficient, measured using the level of pre-tax and pre-transfer inequality provided by the Standardized World Income Inequality Database (Solt, 2014).¹¹ In this way, we wish to test whether an increase in traditional income inequality, as measured by the Gini index, *i.e.*, transformations that, by construction, primarily affect middle-class households (Atkinson, 1970), have a differentiated effect on aggregate consumption. Indeed, compared to an increase in the income share held by top income earners, an increase in the Gini coefficient should be associated with the relative impoverishment of middle-class households and hence with either a decrease in or stagnation of the aggregate consumption level.

Note that our regressions control for the level of GDP because we wish to focus on mean-preserving spread transformations. As argued in H1, the aggregate consumption level is expected to increase with the share of GDP held by top income earners. However, this increase in the aggregate consumption level could result solely from the increase in top-income household consumption (itself stemming from their higher share of GDP). To avoid this effect, the regressions need to control for the GDP level. In that case, an expansion of inequality, measured by the increased share of GDP held by top-income households, implies a proportional decrease in the share of GDP held by middle-class and low-income households. This means that top income earners are becoming richer whereas other households are becoming poorer. Accordingly, following an increase in the share of GDP held by top income earners, the aggregate consumption level should decrease, especially because the propensity to consume is higher for poorer than for richer households¹². The only possibility for aggregate consumption to increase following an increase in the share of GDP held by top income earners thus comes from an expansion of low-income and middle-class household consumption. Three types of arguments considered in the literature may help explain this expansion of low-income and middle-class household consumption. For instance, Reich (2010) argues that, in response to increased income inequality, American households have used longer working hours and higher female labor force participation rates. Easy credit policies constitute a third explanation. In the presence of such consumption supports (*i.e.*, longer working hours, higher female labor force participation and easy credit policies), the share of GDP held by top income earners could well be positively associated with the aggregate consumption level because non-rich household consumption increases. In what follows, we focus on the third explanation, *i.e.*, easy credit policies.

Finally, we argued in H2 that the positive relationship between the aggregate consumption level and upper-tail income inequality (*i.e.*, inequality at the top of the income distribution) should be

¹¹ This database has the main advantage of distinguishing between pre-tax, pre-transfer inequality (the Gini market coefficient) and net income inequality after direct taxes and subsidies.

¹² Indeed, we saw earlier that saving is higher at the top of the income distribution whereas borrowing is higher at the bottom end of the distribution, suggesting a higher propensity to consume for poorer households than for richer households.

conditional on the size of the financial sector in the economy. Specifically, we suppose that this positive relationship should be stronger when easy credit policies and thus financialization are well developed. To test this second prediction, we complete Equation (2) with two different measures of the extent of financialization (*Finance*) and an interaction term between the share of GDP held by top income earners and our measures of financialization (*Top1*Finance*). Therefore, Equation (2) can be rewritten as follows:

$$\begin{aligned} Consumption_{i,t} = & \beta_i + \alpha_1 \cdot Consumption_{i,t-1} + \alpha_2 \cdot GDP_{i,t} + \alpha_3 \cdot Lending\ rate_{i,t} \\ & + \alpha_4 \cdot Top1_{i,t} + \alpha_5 \cdot Gini_{i,t} + \alpha_6 \cdot Finance_{i,t} + \alpha_7 \cdot Top1 \cdot Finance_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

We use the value added in finance as a share of total value added and the employment in finance as a share of total employment as two different measures of the extent of financialization (*Finance*). These two variables are employed by Darcillon (2015), and the shares are computed using the EU-KLEMS database from the OECD that provides data on value added and employment across sectors based on national accounts from 1970 to 2007. The financial sector refers to financial intermediation, except insurance and pension funding (but including compulsory social security and activities auxiliary to financial intermediation), following the NACE classification. We use these measures of financialization as proxies for consumer credit. The selection of these financialization variables is motivated by the lack of cross-national data on consumer credit over a long period. Indeed, such data are provided by the OECD but only from the mid-1990s or early 2000s. Accordingly, our use of the aforementioned measures of financialization implies that well-developed financial markets should be associated with an increase in the credit supply.

After estimating Equation (3), which includes interaction terms between the share held by top income earners (*i.e.*, the top share) and financialization, we examine whether the relationship between the aggregate consumption level and upper-tail inequality depends on the extent of financialization. That interest is why we must evaluate the effects of upper-tail inequality on our dependent variable at different levels of financialization. In other words, the overall impact of the share of GDP held by top income earners on the aggregate consumption level is conditional on the values of the financialization variables as exemplified in equation (4) below, which is derived from (3).

$$\frac{\partial Consumption_{it}}{\partial Top1_{it}} = \hat{\alpha}_4 + \hat{\alpha}_7 \cdot Finance_{it} \quad (4)$$

It appears from equation (4) that the overall effect of the top share on aggregate consumption depends on the value of the financialization variable (*Finance*). To investigate whether the relationship between the top share and aggregate consumption is stronger when financialization is more pronounced, we must compute marginal effects, *i.e.*, the values resulting from (4) for different sample values of the

financialization variables. In this paper, we focus on five sample values (*i.e.*, the minimum, mean minus one standard deviation, mean, mean plus one standard deviation and maximum) of the financialization variables.

4 – Empirical results and interpretations

4.1 – Basic empirical results

The results reported in Table 2 are based on fixed effects estimations. Table 3 displays the corresponding marginal effects. However, the estimated coefficients may be biased because all the specifications in Table 2 include both an AR(1) and, possibly, an endogenous explanatory variable. To cope with this, subsection 4.2 below is dedicated to robustness checks.

To test our first hypothesis (H1), we estimate the LCPI theory augmented with two different income inequality variables, *i.e.*, the share of GDP held by the richest 1% in column (1) and the Gini coefficient in column (2). In accordance with LCPI theory, the lagged consumption level is positively and significantly associated with the current level of aggregate consumption. Consistent with this theory, we find that the coefficients associated with the real interest rate and GDP are negative and positive, respectively. Moreover, they are both statistically significant at the 1% level. In addition, and in line with our intuition, we find that an increase in traditional inequality, as measured by the Gini index, has no significant effect on the aggregate level of consumption (see column (2)). More important, an increase in the share of GDP held by the richest 1% is associated with an increase in the aggregate consumption level (see column (1)).

To ensure that *Top1* does not capture the effect of general income inequality, as is the case with *Gini*, we include in a third column with both measures of inequality (*i.e.*, *Gini* and *Top1*). The results indicate that an increase in traditional inequality has no significant impact on our dependent variable, whereas *Top1* remains positive and significant, thus providing strong support for hypothesis H1, according to which aggregate consumption increases are associated with increases in the share of GDP held by top income earners. Recall that these regressions controlled for the GDP level to focus on mean-preserving spread transformations. In such transformations, an increased share of GDP held by top-income households implies a proportional decrease in the share of GDP held by middle-class and low-income households. Accordingly, the aggregate consumption level should decrease¹³ unless middle-class and low-income household consumption increases. Therefore, the positive relationship between the top share (*i.e.*, the share of GDP held by top income earners) and aggregate consumption necessarily results from an increase in middle-class and low-income household consumption.

[INSERT TABLE 2 ABOUT HERE]

¹³ Here, top earners represent only 1% of the income distribution, and their propensity to consume is lower than that of poorer households.

To test H2, we include our two different measures of financialization, *Finance*, as well as the interaction term, *Top1*Finance*, in columns (4) and (5). According to H2, the positive association between the top income share and aggregate consumption should be stronger when financialization – and thus easy credit policies – are well developed. This effect is consistent with Rajan’s (2010) thesis that policymakers have promoted the adoption of easy credit policies, especially for middle-class and low-income households, in response to increasing inequality. As a result, middle-class and low-income households would be in favor of an expansion of financial markets to obtain greater access to consumer credit, despite that this expansion is responsible for generating income inequality. As proxies for consumer credit, we use the value added of the financial sector as a share of value added for the entire economy and employment in the financial sector as a share of total employment in columns (4) and (5), respectively.

In these specifications, the effect of the top income share on our dependent variable depends on the values of the financialization variables. Such effects are computed based on the results of columns (1) and (2) of Table 2 for five different values (minimum, mean minus one standard error, mean, mean plus one standard error, maximum) of our financialization variables. Table 3 displays the results of these computations (*i.e.*, the marginal effects) when financialization is measured as the value added of the financial sector as a share of the total value added in column (1) and employment in the financial sector as a share of total employment in column (2). Using both measures of financialization, we find, as expected, increasing marginal effects when the level of financialization increases. In other words, the positive relationship between the top share and aggregate consumption is stronger as the influence of financial markets in the economy increases.

[INSERT TABLE 3 ABOUT HERE]

4.2 – Robustness checks

Several robustness checks have been implemented and are presented in Table 4. First, we replicated specifications (4) and (5) presented in Table 2 using the Newey-West estimator (1987) to produce heteroskedasticity- and autocorrelation-consistent (HAC) standard errors. The inclusion of a lagged dependent variable may create biased standard errors.

Moreover, because all our specifications include an AR(1), one might be tempted to use a GMM estimator for dynamic panel data models (Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998). However, Roodman (2009) shows that those estimators are appropriate for small T and large N , which it is the case here because our dataset only includes 20 countries at most. The bias-corrected least squares dummy variable (LSDVC) estimators proposed by Bruno (2005) are plausible and appropriate alternatives in dynamic unbalanced panel data models with a small number of individuals and strictly exogenous regressors. This estimator accounts for autocorrelation and unobserved individual heterogeneity and estimates a bootstrap variance-covariance matrix for the

corrected estimator with small N .¹⁴ The condition of exogeneity of regressors is, however, required for LSDVC to be N -consistent. In this respect, all our explanatory variables appear to be strictly exogenous to our dependent variable except the income variable. In other words, we could suspect that our income variable is potentially endogenous to our dependent variable in that the aggregate consumption level can impact real income. Then, the *GDP* coefficients may be biased, and the LSDVC may be invalid. This potential endogeneity demands an instrumentation strategy for our income variable. We proceed in two steps. We first regress the instrumental variables (*i.e.*, lagged versions of the endogenous variable) on the income variable. Second, we add the fitted value of the income variable to the LSDVC specification. To test the validity of our instruments, we estimate IV-GMM regressions¹⁵ and use different lagged values of our endogenous variables as instruments. Overidentification and weak instrument tests validate our instrumentation, and the endogeneity tests confirm the validity of the instrumental variable approach. Using the fitted value of our potential endogenous variable increases the efficiency of our estimation.¹⁶

Columns (1) and (2) of Table 4 display our estimation results using the HAC estimator. In columns (3) and (4), we use the aforementioned LSDVC estimator proposed by Bruno (2005). The results reported in Table 5 are dedicated to the marginal effects obtained with the HAC estimator in columns (1) and (2) and the LSDVC estimator in columns (3) and (4). These four columns indicate increasing marginal effects. That is, we find strong evidence of an increasing association between the top share and aggregate consumption due to financialization. In other words, this result confirms our intuition that the positive relationship between the share of GDP held by top income earners and aggregate consumption is stronger when low-income and middle-class households have easier access to consumer credit.

Finally, in columns (5) and (6), we consider the income share held by the richest 0.1% as an explanatory variable when *Finance* is measured by the financial sector's share of total value added (column 5) and by the share of employment in the financial sector (column 6).¹⁷ Similarly, columns (7) and (8) use the income share held by the richest 0.01% as an explanatory variable when *Finance* is measured by the financial sector's share of total value added (column 7) and by the share of employment in the financial sector (column 8). We find again that the positive relationship between the top income

¹⁴ The procedure proposed by the STATA command 'xtlsdvc' is to implement GMM estimations. The first step consists of using either the Blundell and Bond estimator or the Arellano-Bond estimator. The second step of this procedure is to correct the bias by undertaking multiple replications to bootstrap the estimator's standard errors. We first use the Blundell and Bond estimator and undertake 50 replications. We find similar results with more replications, such as 100, 200 or 500, and when the Arellano and Bond (1991) estimator is chosen as the initial estimator. These results are not reported here but are available from the authors upon request.

¹⁵ We use the STATA command 'xtivreg2' that proposes several tests for the validity of instruments (Baum *et al.* 2007).

¹⁶ Initial (unreported) System-GMM estimations indicate that the two-step robust Hansen statistic and the AR(2) test support instrument validity. More important, the difference-in-Hansen tests provide empirical support for the exogeneity of the regressors.

¹⁷ Data on the income share held by the richest 0.1% and 0.01% are only available for a few countries (see Table A1), which substantially reduces the number of observations in our regressions.

share and aggregate consumption is stronger and that the financialization level is important (Table 5). As shown in Table 5, with the exception of column (6), columns (5) to (8) indicate higher marginal effects and show that the increase in the aggregate consumption level becomes more pronounced as the income shares at the very top of the income distribution increase.

[INSERT TABLES 4 AND 5 ABOUT HERE]

4.3 – Interpretation of the results

Two different interpretations can be provided for our results. First, some recent contributions (Kumhof and Rancière, 2010; Boyer, 2011; Piketty, 2014) emphasize that easy credit policies are rooted in stagnant median income and increasing inequality. Similarly, Tcherneva (2014) argues that households in the bottom 90% of the U.S. income distribution have been forced to rely on debt to finance their consumption in the absence of income growth. This tendency will result in higher debt-to-income ratios, which can generate more financial instability. A report from the OECD (2006) notes that debt-to-income ratios have increased in most OECD countries since the 1980s. A second interpretation, however, is proposed in a recent paper by Bertrand and Morse (2013). They argue that non-rich households have increased their consumption due to a trickle-down effect. Indeed, thanks to easy credit policies, both low- and middle-income households have replicated the consumption behaviors of the richest households and have thus increased their consumption level. In that sense, the loans granted to non-rich households are notably intended to reduce consumption inequality. Non-rich households would thus have the opportunity to spend more on ‘superior’ or luxury goods and services, which are primarily intended for top income earners. Indeed, the supply of such goods and services has surged. In other words, a ‘social norm of consumption’ has thus emerged, whereby the consumption style trickles down from the rich to the poor. To replicate the consumption behavior of top-income households, middle-class and low-income households must purchase the same goods and services without reducing their other expenditure components. In turn, this should have led to an increase in non-rich household consumption and thus to an increase in aggregate consumption. Finally, Bertrand and Morse (2013) also show that easy credit policies are more common in areas where top incomes are particularly increasing.

5 – Concluding remarks and policy implications

The aim of this paper is to test the relationship between inequality (*i.e.*, the share of GDP held by top income earners) and aggregate consumption. Rising inequality, especially concentration at the top of the income distribution, has become a key issue in political debates. Policymakers had to provide solutions to offset the increase in income inequality. Most OECD policymakers chose to promote financialization. A large body of literature (Kumhof and Rancière, 2010; Rajan, 2010; Reich, 2010; Boyer, 2011; Azzimonti, De Francesco and Quadrini, 2012) argues that despite stagnant incomes, middle-class and low-income households have supported easy credit policies because such policies facilitate their

consumption. In turn, policymakers receive the support of these households to pursue the adoption of easy credit policies and the expansion of financial markets in the economy.

We find that the share of GDP held by top income earners and aggregate consumption are positively associated, and this increasingly with the size of the financial sector. Indeed, thanks to financialization, top earners may accumulate additional financial assets and may thus be active in promoting easy credit policies. In turn, these additional financial assets are granted to low-income and middle-class households in the form of consumer credit. In this way, non-top earners are willing to boost their consumption in response to increased income inequality. This pattern should then result in an expansion of the aggregate consumption level. This suggests that the political support of easy credit policies may result from a coalition of heterogeneous interests, *i.e.*, the middle-class and low-income households as well as top earners.

Using panel data estimations for 20 developed OECD economies from 1980 to 2007, our empirical results clearly support this prediction. Specifically, we find that increases in the income shares held by the richest 1%, 0.1% and 0.01% are positively associated with an increase in the aggregate consumption level. We also conclude that this positive relationship is strengthened as the importance of financial markets in the economy increases. In other words, as financial markets develop, low-income and middle-class households have more opportunities to become indebted and to consume more. This mechanism is closely connected to the process of financialization, defined as a process of the democratization of finance whereby financial products and services have been made available to a large part of the population. Beyond consumer credit, additional instruments, such as capital-funded pension plans, home mortgages and other mass-marketed financial products, incorporate low-income and middle-class households into financial markets.

In summary, we have shown that credit easing has helped boost consumption. However, some contributions reveal that credit easing may also result in higher debt-to-income ratios, which can generate greater financial instability (Kumhof and Rancière, 2010). Recent data on consumer credit provided by the OECD indicate that the expansion of consumer credit has persisted, even after the subprime crash of 2007-08. Consequently, debt-to-income ratios have continued to increase since 2007. Yet, credit booms are among the main determinants of financial crises, as witnessed in the recent global economic downturn. Accordingly, over the long term, credit easing may contribute to increased household leverage ratios and bankruptcies. Kumhof and Rancière (2010) propose two different solutions to reduce leverage: orderly debt restructuring or increasing worker earnings to allow them to reduce their debt over time.

References

- Alverado F, Atkinson A.B, Piketty Th. and Saez E. (2013), "The Top 1 Percent in International and Historical Perspective", *Journal of Economic Perspectives*, 27(1): 1-21.
- Amable B. and Palombarini S. (2009), "A Neoralist Approach to Institutional Change and the Diversity of Capitalism", *Socio-Economic Review*, 7(1): 123-143.
- Arellano M. and Bond S. (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment equations", *The Review of Economic Studies*, 58(2): 277-297.
- Arellano M. and Bover O. (1995), "Another Look at Instrumental Variables Estimation of Error-Component Models", *Journal of Econometrics*, 68(1): 29-51.
- Atkinson A.B. (1970), "On the Measurement of Inequality", *Journal of Economic Theory*, 2: 244-263.
- Atkinson A.B., Piketty Th., Saez E. (2011), "Top incomes in the long run of history", *Journal of Economic Literature*, 49(1): 3-71.
- Attanasio, O.P., Battistin, E., and A. Leicester (2006): From Micro to Macro, from Rich to Poor: Consumption and Income in the UK and the US, National Poverty Center, University of Michigan.
- Pendakur, K. (1998): Changes in Canadian Family Income and Family Consumption Inequality Between 1978 and 1992, *Review of Income and Wealth*, 44, 259-283.
- Krueger, D., and F. Perri (2006): Does Income Inequality Lead to Consumption Inequality? Evidence and Theory, *Review of Economic Studies*, 73, 163-193.
- Azizi K., Canry N., Chatelain J.B., and Tinel B. (2012), "Are No-Ponzi Game and Transversality Conditions Relevant For Public Debt?", *European Journal of Economic and Social Systems*, 25 (1-2): 45-58.
- Azzimonti M., De Francisco E. and Quadrini V. (2013), "Financial Globalization, Inequality, and the Raising of Public Debt", *American Economic Review*, forthcoming.
- Baum, C.F., Schaffer, M.E. and Stillman, S. (2007) 'Enhanced routines for instrumental variables/GMM estimation and testing', *Stata Journal*, 7(4): 465-506.
- Bertrand M. and Morse A. (2013), "Trickle-Down Consumption", *NBER Working Paper Series*, 18883.
- Blundell R. and Bond S. (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models", *Journal of Econometrics*, 87(1): 115-143.
- Boyer R. (2011), *Les financiers détruiront-ils le capitalisme ?*, Economica. Paris.

Bruno G.S.F. (2005), “Estimating and inference in dynamic unbalanced panel-data models with a small number of individuals”, *The Stata Journal*, 5(4): 473-500.

Deaton, A. (1986), “Life-Cycle Models of Consumption: Is the Evidence Consistent with the Theory?” *National Bureau of Economic Research*, Working Paper, No. 1910.

Feenstra, R.C., Inklaar, R. and Trimmer, M.P. (2013), “The Next Generation of the Penn World Table”, available for download at www.ggdnet.net/pwt

Flavin M.A. (1981), “The Adjustment of Consumption to Changing Expectations about Future Income”, *Journal of Political Economy*, 89(5): 974-1009.

Förster, M., Llena-Nozal, A. and Nafilyan, V. (2014), “Trends in Top Incomes and their Taxation in OECD Countries”, *OECD Social, Employment and Migration Working Papers*, No. 159, OECD Publishing.

Friedman, M. (1957), *A Theory of the Consumption Function*, Princeton, NJ: Princeton University Press.

Godechot Olivier, 2012, « Is finance responsible for the rise in wage inequality in France? », *Socio-Economic Review*, 10 (2), p. 1-24.

Hall, R. (1978), “The Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence”, *Journal of Political Economy*, 86 (6): 971-987.

Iacoviello, M. (2008), “Household Debt and Income Inequality, 1963-2003”, *Journal of Money, Credit and Banking*, 40(5): 929-965.

IILS [International Institute for Labour Studies] (2009) *World of Work Report 2009: The global jobs crisis and beyond*, Geneva: International Labour Organisation.

Jerzmanowski, M., and Nabar, M. (2013), “Financial development and wage inequality: theory and evidence”, *Economic Inquiry*, 51(1): 211-234.

Kumhof M. and Rancière R. (2010), “Inequality, Leverage and Crises”, *IMF Working Paper*, WP/10/268.

Kumhof M., Rancière R. and Winant, P. (2013), “Inequality, Leverage and Crises”, Working Paper.

Modigliani F. (1957), “Tests of the Life-Cycle Hypothesis of Saving”, *Bulletin of the Oxford University Institute of Statistics*: 99-124.

Modigliani, F. and Brumberg, R. (1954), “Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data”, In K. Kurihara (Ed), *Post-Keynesian Economics*, New Brunswick, NJ: Rutgers University Press.

Newey, W.K., and West, K.D. (1987), “A Simple, Positive Semi-definite, Heteroskedascity and Autocorrelation Consistent Covariance Matrix”, *Econometrica*, 55(3): 703-708.

OECD (2006), “Has the rise in debt made households more vulnerable?”, *OECD Economic Outlook*, Vol.2006/2, No. 80, December.

Philippon, T. and Reshef, A. (2012), “Wages and Human Capital in the U.S. Financial Industry: 1909-2006”, *The Quarterly Journal of Economics*, 127(4): 1551-1609.

Piketty T. (2014), *Capital in the 21st century*, Cambridge, Massachusetts: Harvard University Press.

Rajan R. (2010), *Fault Lines: How Hidden Fractures Still Threaten the World Economy*, Princeton: Princeton University Press.

Reich, R. (2010), *Aftershock: The Next Economy and America's Future*, New York: Random House.

Roodman D. (2009), “How to do xtabond2: An Introduction to Difference and System GMM in Stata”, *The Stata Journal*, 9(1): 86-136.

Schelkle, W. (2012), “In the Spotlight of Crisis: How Social Policies Create, Correct, and Compensate Financial Markets”, *Politics & Society*, 40(1): 3-8.

Solt, F. (2014), “The Standardized World Income Inequality Database”, Working paper. SWIID Version 5.0, October 2014.

Streeck, W. (2011), “The crisis of democratic capitalism”, *New Left Review*, 71: 5-29.

Tabellini, M. (2012), “Income Inequality, Easy Credit Policies and Homeownership”, Working Paper.

Tcherneva, P (2014), “Reorienting Fiscal Policy: A Bottom-up Approach”, *Journal of Post Keynesian Economics*, 37 (1): 43-66.

Van der Zwan, N. (2014), “Making sense of financialization”, *Socio-Economic Review*, 12(1): 99-129.

Table 1 Descriptive statistics

	Mean	Standard deviation	Min	Max
Consumption (log)	26.32	1.32	23.93	29.90
Lending rate	9.67	5.39	0.5	29.45
GDP (log)	26.95	1.25	24.49	30.29
Pre-tax Gini coefficient	40.75	5.11	26.82	54.79
Top 1% Income Share	8.24	2.81	3.49	19.34
Top 01% Income Share	2.53	1.45	0.73	8.25
Top 001% Income Share	0.85	0.63	0.17	3.53
Value added in finance	0.05	0.01	0.03	0.11
Employment in finance	0.03	0.01	0.01	0.05

Table 2 Fixed effects estimation results

Dependent variable	Aggregate consumption level				
	(1)	(2)	(3)	(4)	(5)
Lagged dependent variable	0.7299*** (0.0184)	0.7702*** (0.0162)	0.7331*** (0.0186)	0.6869*** (0.0259)	0.6836*** (0.0246)
Lending rate	-0.0007** (0.0004)	-0.0012*** (0.0003)	-0.0009** (0.0004)	-0.0011*** (0.0004)	-0.0012*** (0.0004)
GDP (log)†	0.2374*** (0.0177)	0.2116*** (0.0160)	0.2341*** (0.0180)	0.2656*** (0.0225)	0.2683*** (0.0221)
Gini coefficient		-0.0003 (0.0003)	-0.0005 (0.0003)	0.0002 (0.0004)	0.0001 (0.0004)
Top 1% Income Share	0.0027*** (0.0008)		0.0030*** (0.0009)	-0.0039 (0.0029)	-0.0027 (0.0028)
Value added in finance				-1.1267*** (0.3774)	
Top 1%*Value added in finance				0.1262*** (0.0422)	
Employment in finance					-1.7744** (0.7027)
Top 1%*Employment in finance					0.1782** (0.0712)
Constant	0.7146*** (0.2143)	0.3853*** (0.1422)	0.7369*** (0.2145)	1.1521*** (0.2775)	1.1645*** (0.2626)
Estimator	FE	FE	FE	FE	FE
Observations	417	527	415	312	336
Number of country	17	21	17	14	15
R-squared	0.9945	0.9939	0.9946	0.9943	0.9943

Table 3 Marginal effects conditional to the level of financialization (fixed-effects estimations)

	(1)	(2)
	Share of value added in finance	Share of employment in finance
Finance_min	-0.0005 (0.0019)	0.0001 (0.0018)
Finance_mean_less_1sd	0.0018 (0.0014)	0.0015 (0.0014)
Finance_mean	0.0031*** (0.0012)	0.0029** (0.0011)
Finance_mean_plus_1sd	0.0044*** (0.0011)	0.0044*** (0.0011)
Finance_max	0.0072*** (0.0016)	0.0056*** (0.0013)

Note: Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4 Robustness checks

Dependent variable	Aggregate consumption level							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged dependent variable	0.6869*** (0.0361)	0.6836*** (0.0358)	0.9498*** (0.0122)	0.9451*** (0.0116)	0.6646*** (0.0412)	0.6987*** (0.0417)	0.6056*** (0.0455)	0.6058*** (0.0314)
Lending rate	-0.0011*** (0.0004)	-0.0012*** (0.0004)	-0.0024*** (0.0005)	-0.0025*** (0.0005)	-0.0006 (0.0007)	-0.0005 (0.0006)	-0.0006 (0.0006)	-0.0007 (0.0005)
GDP (log)	0.2656*** (0.0343)	0.2683*** (0.0337)			0.3267*** (0.0404)	0.2974*** (0.0438)	0.3710*** (0.0430)	0.3684*** (0.0400)
Gini (pre-tax)	0.0002 (0.0004)	0.0001 (0.0004)	-0.0024*** (0.0005)	-0.0024*** (0.0005)	-0.0005 (0.0006)	-0.0009* (0.0005)	-0.0007 (0.0007)	-0.0007 (0.0007)
Top 1% Income Share	-0.0039 (0.0030)	-0.0027 (0.0028)	0.0021 (0.0030)	-0.0003 (0.0032)				
Value added in finance	-1.1267*** (0.3593)		-0.8470** (0.4218)		-0.7245* (0.4374)		-0.5975 (0.3863)	
Top 1%*Value added in finance	0.1262*** (0.0429)		0.0495 (0.0458)					
Employment in finance		-1.7744** (0.7890)		-1.9619** (0.8445)		0.3594 (0.8740)		-0.7117 (0.6794)
Top 1%*Employment in finance		0.1782*** (0.0666)		0.1346 (0.0849)				
Top 01% Income Share					-0.0165 (0.0172)	0.0001 (0.0140)		
Top 01%*Value added in finance					0.3390 (0.2264)			
Top 01%*Employment in finance						0.1280 (0.3148)		
Top 001% Income Share							-0.0433 (0.0357)	-0.0234 (0.0304)
Top 001%*Value added in finance							0.8933* (0.4993)	
Top 001%*Employment in finance								0.9466 (0.6600)
Constant	1.3209*** (0.3310)	1.3351*** (0.3277)	- -	- -	- -	- -	- -	- -
Estimator	HAC	HAC	LSDVC-BB	LSDVC-BB	LSDVC-BB	LSDVC-BB	LSDVC-BB	LSDVC-BB
Observations	312	336	275	275	257	281	199	223
Number of country			14	14	13	14	10	11

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; HAC: heteroskedasticity and autocorrelation consistent; LSDVC-BB: LSDVC estimator with the Blundell-Bond as initial estimator

Table 5 Marginal effects conditional to the level of financialization (robustness checks)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Finance_min	-0.0005 (0.0020)	0.0001 (0.0019)	0.0035* (0.0020)	0.0019 (0.0020)	-0.0057 (0.0102)	0.0021 (0.0092)	-0.0146 (0.0203)	-0.0081 (0.0203)
Finance_mean_less_1sd	0.0018 (0.0015)	0.0015 (0.0015)	0.0044*** (0.0014)	0.0029* (0.0015)	-0.0009 (0.0072)	0.0031 (0.0070)	-0.0031 (0.0144)	-0.0019 (0.0163)
Finance_mean	0.0031** (0.0013)	0.0029** (0.0013)	0.0049*** (0.0012)	0.0039*** (0.0012)	0.0021 (0.0055)	0.0041 (0.0050)	0.0043 (0.0110)	0.0062 (0.0117)
Finance_mean_plus_1sd	0.0044*** (0.0013)	0.0044*** (0.0012)	0.0054*** (0.0012)	0.0050*** (0.0013)	0.0052 (0.0041)	0.0052 (0.0037)	0.0117 (0.0083)	0.0142* (0.0084)
Finance_max	0.0072*** (0.0016)	0.0056*** (0.0013)	0.0065*** (0.0017)	0.0060*** (0.0016)	0.0115*** (0.0038)	0.0060 (0.0037)	0.0304*** (0.0094)	0.0206*** (0.0079)

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

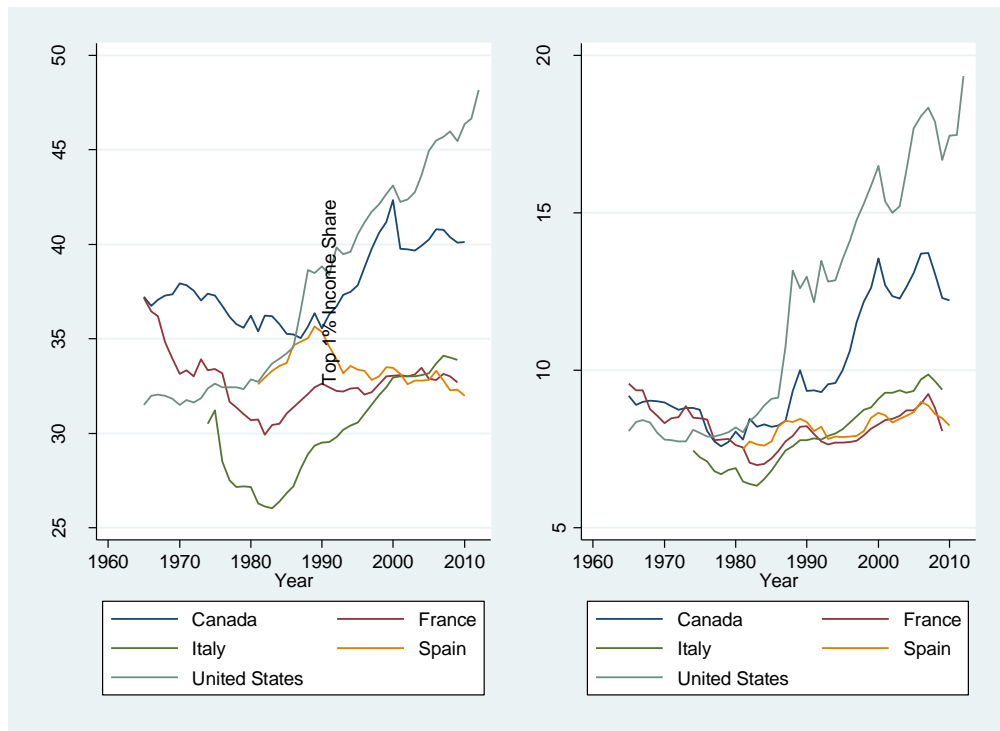


Figure 1 Top Decile Income Shares, 1970-2010

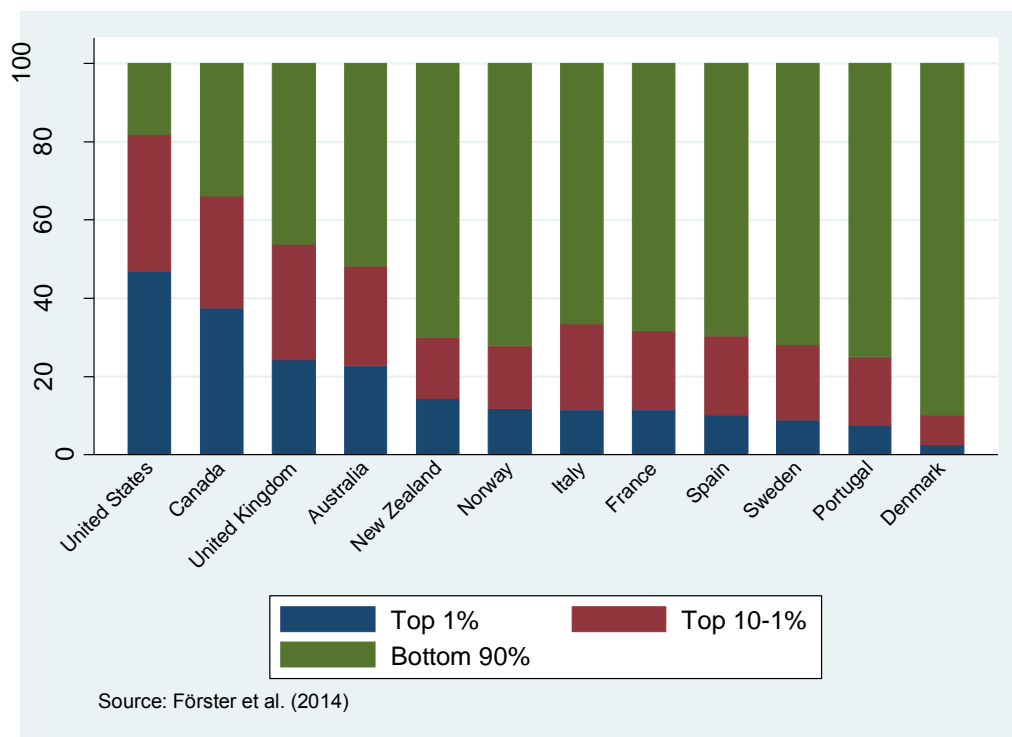


Figure 2 Share of income growth captured by income groups, 1975-2007

Table A1. Variables description

Variables	Description	Time	N	Countries
<i>Dependent variable</i>				
Aggregate consumption level	Household final consumption expenditure level expressed in constant PPP corrected U.S. dollars (source: World Bank Database)	1980-2007	660	20
<i>Explanatory variables</i>				
Top 1% Income Share	Shares of GDP held by the 1% percentile of the income distribution (source: World Top Incomes Database)	1980-2007	475	17
Top 0.1% Income Share	Shares of GDP held by the 0.1% percentile of the income distribution (source: World Top Incomes Database)	1980-2007	406	16
Top 0.01% Income Share	Shares of GDP held by the 0.01% percentile of the income distribution (source: World Top Incomes Database)	1980-2007	306	13
Value added in finance	Share of value added in the financial sector ('financial intermediation' in the NACE classification) in the total value added (source: OECD's EU-KLEMS Database)	1980-2007	471	17
Employment in finance	Share of employment in the financial sector ('financial intermediation' in the NACE classification) in the total employment (source: OECD's EU-KLEMS Database)	1980-2007	497	18
<i>Control variables</i>				
Lending rate	Bank rate that usually meets the short- and medium-term financing needs of the private sector (source: World Bank Database)	1980-2007	539	20
GDP	PPP corrected real GDP expressed at current prices (source: Penn World Tables)	1980-2007	660	20
Pre-tax Gini coefficient	Pre-tax and pre-transfer Gini coefficient ('Gini market') (source: Standardized World Income Inequality Database)	1980-2007	636	20