# Exploring Differences in Household Debt across Euro Area Countries and the US[#]

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## Abstract

We use internationally comparable household-level data for the United States and 11 European economies to decompose cross-country differences in debt holdings into differences due to household characteristics and those arising from different economic environments. The data come from the US Survey of Consumer Finances and the newly available Household Finance and Consumption Survey. We find that US households show the highest prevalence of both collateralized and non-collateralized debt, and have comparatively large amounts of loans outstanding. Differences in household characteristics contribute relatively little to this outcome. In contrast, differences in economic environments play an important role, with US economic environment having been much more conducive to debt holdings. The Netherlands are the only European economy with, at least in parts, similarly favourable conditions.

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## 1. Introduction

In several advanced economies, household debt has risen substantially in the years leading up to the global financial crisis. At the same time, due to concurrent booms in house prices and stock markets, debt-to-asset ratios remained comparatively low in many countries. Hence, debt seemed to be sustainable. When share and house prices fell sharply during the recent financial crisis, however, the ensuing drop in household wealth often led to unsustainable increases in the debt-to-asset ratios. Furthermore, many households were faced with a drop in income or income prospects, making it harder for them to service their debt. As a consequence, there has been a substantial deleveraging in the household sector over the recent years.

This deleveraging process has shaped the post-crisis macroeconomic performance in several economies. Mian and Sufi (2011) stress the negative feedback effect of foreclosures and forced house sales on house prices, which in turn lower collateral values and lead to negative wealth effects. But even in the absence of foreclosures, households with high debt burdens have likely cut down their consumption in order to keep up with their debt service payments. Taken together, these developments have had substantial macroeconomic repercussions. For instance, using regional variation across the United States, Mian and Sufi (2010) show that US household leverage in 2006 predicts most of the fall in durable consumption in the subsequent recession.

Given the importance of household debt for the macro economy and for financial stability, it is interesting to note that household debt holdings, both at the extensive and the intensive margin, differ substantially across countries. This has been recently documented for the general population in euro area countries (Household Finance and Consumption Network 2013b), following the release – for the first time – of survey data with information on household finances. Comparisons across countries are not straightforward, however. For instance,

households are heterogeneous in several dimensions, therefore, observed differences in debt holdings might arise due to both composition effects and to the economic environment within which the households operate. The paper uses recent decomposition techniques based on Firpo, Fortin and Lemieux (2009) RIF regressions and data from the United States and 11 European countries in order to disentangle these two effects, with respect to the prevalence and outstanding amounts of collateralized and non-collateralized debt.

The data used in this paper come from the newly available Eurosystem Household Finance and Consumption Survey (HFCS), which are combined with data from the US Survey of Consumer Finances (SCF). Using this novel database, the paper first shows that among the 12 countries, households in the United States have the highest prevalence of collateralised and of non-collateralised debt. A key result of the paper is that differences in household composition contribute relatively little to the higher prevalence of debt of US households, whereas differences in economic environments play a much larger role. In other words, US economic environment has been much more conducive to taking on debt. Furthermore, the magnitude of this effect is substantial – for instance, had European households faced the US economic environment, 40% more Italian and 30% more Spanish households would have been expected to hold mortgage debt. As regards the prevalence of non-collateralised debt, exposing European households to US conditions would result in between 30% and 40% more households in Belgium, Austria, Italy, Spain, and Portugal assuming such debt. The differential effect of economic conditions is large, present in all countries, and is estimated to be statistically significant in all but one case, the exception being the prevalence of collateralised debt in the Netherlands. Difference in household characteristics, in contrast, typically account for less than 30% of the difference in debt prevalence.

Taking the analysis further, we document the important influence of real wealth on collateralised debt holdings: for a given level of real wealth, had European households faced US economic conditions, they would have been considerably more likely to have collateralised debt. Other factors like financial wealth or inheritances received, play a much smaller role. Real wealth has an important, if smaller, effect also in the case of non-collateralised debt as well, with financial wealth, income, and education found to be additional relevant factors.

Moving on to the outstanding amounts (conditional on having a certain debt type), we find again that debt holdings are comparatively high in the United States, exceeding those in 8 of our 11 comparison countries. Only indebted households in the Netherlands, Cyprus and partially in Luxembourg (namely for collateralised debt) show higher outstanding median amounts than those in the United States. The determinants favouring higher debt holdings in the United States are less clear cut than for participation. On the one hand, household characteristics matter, typically suggesting that those of US households favour higher levels of debt. On the other hand, the US economic environment seems to have generally favoured higher levels of debt, although there are some instances where the European economic conditions have been more favourable, this being the case notably in the Netherlands. Importantly, house price developments have had an effect on the levels of household debt – in an environment where house prices were growing rapidly (as measured by the cumulative growth of the national house price index in the three years prior to the mortgage take-out), the levels of household debt are estimated to be significantly higher. As regards non-collateralized debts we find that if European households had experienced the economic environment that US households of the same education face, they would have higher non-collateralized debts.

To summarise, these findings suggest, first, that the US economic environment has been considerably more conducive to taking out both types of debt than in Europe. Second, for a given level of real wealth, US households are substantially more likely to hold collateralised debt than their European counterparts. Third, for a given level of educational attainment, US households have more non-collateralized debt than their European counterparts. Fourth, the US economic environment has also generally been more favourable to assuming larger amounts of debt, although the considerable house price increases that observed in some European countries have also been favouring the take-out of large mortgages therein.

The current paper is related to two strands of the literature on household debt. The first deals with the determinants of household debt. Especially since the global financial crisis, there has been renewed interest in this question. Several authors have stressed the importance of loan supply in determining debt levels: Mian and Sufi (2008) argue that more widespread securitisation practices among banks shifted the supply of mortgages; Corbae et al. (2011) point to the large number of low-down payment mortgage contracts in the United States prior to the crisis. Damar et al. (2013) show how a reduction in lending supply during the crisis has reduced household borrowing in Canada, which in turn has affected consumption. Other studies emphasise the role of loan demand in shaping debt levels. Georgarakos et al. (2013) show how the perceived income of peers leads to social effects on borrowing: those who consider themselves poorer than their social circle tend to borrow relatively more. Importantly, this demand factor also affects indicators of over-indebtedness such as debt service ratios. Finally, house prices have also been shown to be instrumental in explaining household debt: with rising house prices, debt levels tend to increase, a finding that is reported inter alia by Mian and Sufi (2009).

A second strand of the literature to which this paper relates uses decomposition techniques to study differences in household finances across countries. Bover (2010) estimates wealth distributions in a comparative analysis of the United States and Spain, and finds that differences in household structure account for most of the differences in the lower part of the wealth distribution, whereas its upper part would be even more heterogeneous in the absence of differences in household structure. Christelis, Georgarakos and Haliassos (2013) concentrate on asset holdings of households, but also study mortgage debt. They compare older households in the United States and 12 European countries, and identify the economic environment as the main driver of differences in participation and values. Sierminska and Doorley (2012) find an important role for household characteristics in determining differences in ownership rates of several assets and liabilities, and in amounts held, comparing the United States with Germany, Italy, Luxembourg and Spain. Finally, Mathä et al. (2013) disentangle wealth differences across euro area countries by looking into the importance of intergenerational transfers, home ownership and house price dynamics. The current paper adds to this literature not only by expanding the number of the country comparisons (relative to Bover and to Sierminska and Doorley) but also by analysing a broader part of the household population (relative to Christelis et al.), and crucially, by using more recent decomposition techniques based on Firpo et al. (2009) that allow the quantification of the contribution of the various covariates to the observed differences in debt holdings.

The paper proceeds as follows: Section 2 presents the data, while Section 3 discusses the decomposition method. Section 4 reports the findings with regard to the prevalence of debt holdings, whereas Section 5 studies the amounts of debt. Section 5 concludes.

**2. Data**

This paper makes use of the Eurosystem HFCS, a novel household wealth survey that provides ex ante comparable data for 15 euro area countries (all euro area countries with the exception of Estonia and Ireland).[4] For the purpose of this paper, the data for Finland, Malta, Slovenia and Slovakia will not be used, as these either do not cover some relevant data, or have only small samples. This leaves us with data for Austria, Belgium, Cyprus, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal and Spain, i.e. 11 euro area countries which account for 95% of euro area GDP, and 94% of the euro area population. The reference year for the first wave of this survey is 2008 in Spain, 2009 in Greece and the Netherlands, and 2010 in all other countries. For the comparison with the United States, we match these data with those from the 2010 wave of the US SCF. In total, we compare more than 44,000 European households with nearly 6,500 households in the United States.

As is evident from Figure 1, which plots overall amounts of household debt as taken from National Accounts data, household deleveraging has taken place to a different extent across countries, and at different times. The fact that the reference years for Spain, Greece and the Netherlands are earlier than those for the other European countries does not seem to pose a major problem, as in all cases, no household deleveraging has occurred prior to the HFCS fieldwork. Instead, in 2010 much of the US deleveraging has already taken place. It is therefore important to keep in mind that our comparisons relate to a pre-deleveraging Europe and a post-deleveraging United States. Given that we find higher debt prevalence as well as larger outstanding volumes in

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[4] For more details on the survey, see http://www.ecb.europa.eu/home/html/researcher_hfcn.en.html as well as Household Finance and Consumption Network (2013a, 2013b). An important feature of both surveys is that missing observations (i.e. questions that were not answered by the respondent households) are multiply imputed – as a matter of fact, five datasets are provided, an issue that we will take into account when assessing the statistical significance of our estimates.

the United States, these differences would be even starker if we compared to the previous wave

of the SCF.

Figure 1 here

In the analysis, we consider two types of debt: collateralised debt (which include

mortgages, home equity loans, and debts for other real estate) and non-collateralised debts (i.e.

credit card debt, instalment loans, overdrafts and other loans).

Figure 2 here

Figures 2, 3, and 4 show how prevalence and conditional amounts (which are transformed

into 2005 US dollars based on PPP estimates) differ across countries. Figure 1 shows prevalence,

i.e. the fraction of households in each country having collateralised and non-collateralised debt.

As mentioned previously, prevalence in the United States is substantially larger than in all other

countries, with a particularly large gap for the case of non-collateralised debt, where more than

60% of US households participate, in contrast to around 20%-50% for European households. The

transatlantic difference in holdings of collateralised debt is less stark, but it is apparent that there

are enormous cross-country differences within Europe: whereas less than 20% of Austrian and

Italian households report to have collateralised debt, this number stands around 40% in Cyprus,

the Netherlands and Luxembourg.

Figures 3 & 4 here

Turning to conditional amounts (reported in figures 3 and 4), the median US figures are

much closer to those in Europe: around $100,000 in collateralised debt is held by the median US

and German households, less than in the Netherlands, Luxembourg and Cyprus, where median

debt holdings amount to $140,000-$150,000. Looking at non-collateralised debt, the overall

amounts are (as expected) much smaller than for collateralised debt. Here, US amounts are

smaller than in the Netherlands and Cyprus and in the same order of magnitude, namely around $10,000, as in Luxembourg and Spain. Also for conditional amounts, there is quite some cross-country heterogeneity, especially with regard to non-collateralised debt.

## 3. Decomposition Methodology

In order to investigate more thoroughly the observed differences in both the prevalence and amounts of the two types of debt across countries we use decomposition methods that estimate counterfactual distributions. Decomposition techniques have been extensively used in labour economics to examine differences in incomes across demographic groups (e.g. men versus women; minorities versus the rest). Oaxaca (1973) and Blinder (1973) were the first to implement these techniques in order to study the sources of gender gap in average wages.[5] Since their seminal work the development of new counterfactual techniques has allowed to examine differences not only in means, but also in percentiles of distributions and measures of inequality.[6]

These newer techniques have allowed addressing distributional questions such as whether the gender pay gap increases at higher income percentiles (Albrecht et al., 2003). They have also been used to compare changes in US income distribution across different points in time (e.g. Autor et al., 2008). Moreover, they have been used to compare differences in income distributions across regions (Nguyen et al., 2007) as well as across countries (see, for example, Blau and Kahn, 1996 who decompose differences in male wages between the US and nine OECD countries).

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[5] They use OLS estimates from a regression of (log) wages on various covariates to construct the counterfactual average wage that women would earn if they had the same characteristics as men. Using this, one can decompose the average wage gap into an 'explained' part that is due to gender differences in characteristics (e.g., education and experience) and an 'unexplained' part that is due to differences in wage schemes that men and women of similar characteristics face, often thought to reflect wage discrimination.

[6] See for example, Juhn, Murphy and Pierce (1993), DiNardo, Fortin and Lemieux (1996), and Machado and Mata (2005).

Following the recent availability of micro surveys with information on household assets and liabilities, decompositions methods have been also implemented to perform comparisons in household finances across time or countries. Gale and Pence (2006), using data from the US SCF, find a prominent role of changes in demographic characteristics for the rise in household net worth over the 1990s. Christelis, et al. (2013), using comparable data on older households from the US and twelve European countries, show that differences in economic environments account for most of the cross-country differences in household finances (see also Bover, 2010 and Sierminska and Doorley, 2012).

In this paper, we employ new decomposition techniques that draw on recentered influence function regressions (Firpo, Fortin and Lemieux, 2009). The latter are implemented as OLS regressions of the recentered influence function (RIF) of the quantile of interest on an array of covariates. RIF regressions allow to evaluate the impact of explanatory variables on the quantiles of the unconditional (marginal) distribution of the dependent variable [7] and can be used to extend the popular Oaxaca-Blinder decomposition method to any quantile (or to any other distributional measure of interest, see Firpo, Fortin and Lemieux, 2007).

One advantage of using RIF regressions in aggregate decompositions is that identification rests on the ignorability assumption that is relatively milder compared to the conditional independence assumption that a standard Oaxaca-Blinder framework requires. That is, the error term is allowed to correlate with covariates in the model as long as this correlation is similar in the two groups under comparison. Another advantage of RIF-based decomposition over other methods that allow quantile decompositions (e.g., the kernel reweighting approach of DiNardo,

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[7] RIF regressions are also termed *unconditional* quantile regressions to highlight the contrast to the widely used quatile regressions that estimate changes in the quantiles of the conditional distribution of the dependent variable.

Fortin and Lemieux, 1996, or the quantile regression based method of Machado and Mata, 2005) is that is resilient to the order that covariates enter in a detailed decomposition.

More specifically, we perform country-pair-wise decompositions in debt holdings of the following form:

$$Y^{US} - Y^{EA} = \{X^{US}\beta^{US} - X^{EA}\beta^{US}\} + \{X^{EA}\beta^{US} - X^{EA}\beta^{EA}\}$$

where differences in the left hand-side denote either differences in prevalence of each of the two types of debt between the US and the comparison euro area country, or differences in (log) outstanding amounts, evaluated at different quantiles of the respective distributions. X's consist of a rich set of household-specific characteristics that are discussed in detail below. Estimated coefficients derive either from a linear probability model in the case of participation in debt markets or from RIF regressions evaluated at different quantiles of the outstanding debt amounts.

This aggregate decomposition, decomposes the observed difference in debt prevalence or debt amounts between the US and each euro area country into: i) a part that is due to differences in the configuration of households' socio-economic characteristics (often termed 'covariate' or 'composition' effects); and ii) a part that is due to differences in the relationship of these characteristics with debt holdings in different countries (often termed 'coefficient' effects). This latter part in our context reflects differences in economic environments that households (of similar characteristics) living in different countries face.

We also perform a detailed decomposition that allows decomposing further the 'covariate' and 'coefficient' effects into components that can be attributed to each group of covariates, present in our specifications. This is likely to provide additional insights on the relative contribution of certain household characteristics (e.g., education, wealth) to the differences in debt holdings across countries.

**4. Decomposing the participation in debt markets**

In this section, we present results from aggregate and detailed decompositions on the difference between the US and each Euro area country with respect to the prevalence of collateralized and non-collateralized debt. As mentioned previously, estimated coefficients used in the decomposition derive from linear probability models, where the dependent variable takes the value of one if a household has the relevant type of debt. Recall that we are modelling $Y^{US}$-$Y^{EA}$, thus a positive coefficient effect (which is given by $X^{EA}\beta^{US} - X^{EA}\beta^{EA}$) implies that the economic environment in the US is more conducive to taking out debt than the conditions in any of the European countries under study. By contrast, a positive covariate effect (given by $X^{US}\beta^{US} - X^{EA}\beta^{US}$), implies that US households have a configuration of characteristics that is more conducive to having debt.

In our specifications we include variables that we expect to have an influence on indebtedness, as suggested by both theory and established empirical practice. It is important to note that we have harmonized the definitions of all variables across the two surveys, and thus our results are fully comparable across all pair-wise US-HFCS country comparisons.

In particular, we include age group dummies (denoting age less than 39, between 40 and 49, between 50 and 59, while those aged 60 and above are in the base category), household size, and marital status (married, never married, widowed, with the divorced forming the base category). Furthermore, we control for the level of education (finished high school/having at least some post-secondary education, with not having finished high school being the base category), which should influence the willingness to borrow and the ease of getting credit by signaling the household's earning capacities. We also control for work status (being employed,

retired, inactive, while being unemployed is the base category), as it also indicates the possibility to repay debt.

Importantly, we include income, real wealth and financial wealth quartiles because they indicate both the need for and the capacity to shoulder the burden of debt. We would expect, e.g. those who own an expensive house or other real estate to be more likely to finance it through a mortgage, while those who have large financial assets to be less likely to have mortgage or credit card debt. In order to make income and wealth comparable across countries in absolute terms, all quartiles are defined using the respective US population distributions. Hence, each HFCS household is placed into a quartile depending on how its income or wealth compares to the SCF quartile threshold values.[8]

Finally, we also control for whether a household has received a sizeable inheritance or gift (e.g. some real estate or a large monetary transfer). Moreover, in the case of non-collateralized debt we control for a number of other characteristics that could influence demand for credit in the short run: having an unexpectedly low income the previous year, which could induce some borrowing through credit cards; expecting next year's income to be higher, which could make someone more comfortable with borrowing now; being willing to undertake some financial risk, which could influence the propensity to get into debt.

An important role is also played by the constant term in our specification. It represents the propensity to acquire debt for households that fall into the base category with respect to a number of economic and demographic variables present in our specification. Importantly, we have chosen the base category in each case to refer to those households that are more likely to be at an economic disadvantage. In particular, the population groups reflected in the constant

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[8] All income and wealth items are adjusted for differences in the purchasing power of money, and their values are all expressed in 2010 US dollars.

include the oldest, the divorced, the least educated, the unemployed and those in the lowest income and real and financial wealth quartiles. Therefore, the constant will denote how different the prevalence of the debt of the most economically disadvantaged HFCS households would have been had they faced the economic environment prevailing in the US.

The distribution of the various economic and demographic characteristics in our sample can be seen in Table A1 in the Appendix. With respect to education, US households are on average more educated than their European counterparts, with the exception of Germany. One the other hand, Portugal has the fewest individuals who have at least graduated from high school. US households are also the most likely to be working and least likely to be retired, whereas the Netherlands, Portugal, Italy and Spain have the fewest people in employment.

As regards economic resources, one notes that US households have generally higher incomes than most of their European counterparts, as seen by the relatively lower prevalence of the latter in the two top income quartiles. The two exceptions are households in Luxembourg and the Netherlands (which are richer) and in Cyprus, where the distribution is similar to the US one. With respect to financial assets, households in Luxembourg, the Netherlands, Belgium and Cyprus have the highest prevalence of households in the top two quartiles, while Greece, Portugal and Spain the lowest. As for real assets (which include the main home, other real estate, and businesses and vehicles owned), it is Luxembourg, Cyprus, Spain and Italy that have the most households in the top two quartiles, while Germany and Austria the fewest. These differences in real wealth are to a great extent driven by discrepancies in home ownership among those countries.

We also observe that households in Cyprus, France, and Spain are the most likely to have received a sizeable inheritance or gift while the opposite is true for their Dutch and US

counterparts. Spanish, Greek, and Cypriot households are the most likely to have had an unexpectedly low income the year prior to the survey, which could possibly reflect the onset of the acute crises currently afflicting those countries. On the other hand, German and Austrian households are the least likely to have suffered from low incomes in the previous year. Italian, US, and Cypriot households are the most willing to take above average financial risk, while the opposite is true for households in Portugal, the Netherlands, Spain, and Germany. Finally, Spanish households are the most optimistic with respect to their income prospects, while Greek, Portuguese, and Cypriot ones the most pessimistic.

When we look at differences in participation in collateralized debt (shown in Panel A of Table 1), we observe that US households are in general much more likely to take on this debt than their European counterparts. The largest difference is observed with respect to Italy (37.6 pp), Greece (30.8 pp), and Austria (30.0 pp), and the smallest with respect to Cyprus (3.9 pp) and the Netherlands (4.2 pp). What is remarkable is that in all cases but one (the Netherlands, in which there is no significant result) the difference in taking on collateralized debt between the US and Europe is largely due to coefficient effects that are large in size and always favor the US. In other words, the economic environment in the US seems more conducive to having this kind of debt. On the other hand, differences in the configuration of economic and demographic characteristics (i.e. covariate effects) work in favor of a number of European countries, most notably Cyprus (14.7 pp), Spain (13.4 pp), Luxemburg (12.6 pp), Greece (4 pp), Italy (2.1 pp), and Belgium (2.1 pp).

We also perform a detailed decomposition which allows us to go more deeply than the total coefficient and covariate effects and examine which variables (or groups thereof) contribute the most to these effects. These decompositions on a selected group of covariates can be found in

Panel A of Table 1 for the case of collateralized debt. We can thus observe that by far the most important contributor to the coefficient effect, which are all in favor of the US, is real wealth.[9] This coefficient effect implies that, for any given level of household real assets, the probability of getting a collateralized loan is larger in the US. The reason behind this finding could be that real assets are deemed to be a safer collateral in the US financial system compared to Europe, or to denote higher future ability to repay the debt.

Besides real wealth, the coefficient effect of income is also relevant and still favoring the US compared to a number of countries, most notably Luxemburg, France, and Austria. On the other hand, we find a negative coefficient of financial wealth in the Netherlands, and to some a lesser extent in France. Finally, education does not have any significant role to play in terms of coefficient effects.

As already discussed, we observe a number of covariate effects that do not favor the US, and as can be seen in Table 1 these are due to real wealth. The mechanism behind these results works as follows: given that in some countries real wealth is higher in than the US, and given that real wealth is positively associated with having collateralized depth, then if the US had the higher real wealth of those countries the prevalence of this debt would have been higher. This is the reason why the covariate effect of real wealth is negative in countries with higher real wealth than the US.

In a similar vein, and given that income is positively associated with having collateralized debt (possibly because it denotes higher ability to repay), for countries in which households have higher incomes than their US counterparts (namely Luxemburg and the Netherlands) the

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[9] Other characteristics that have been taken into account in the estimation such as marital and occupation status, and inheritance reveived play in general a small or statistically insignificant role and are not presented in the table.

covariate effect of income will be negative, while the opposite will be true for countries with lower household incomes.

There are also negative covariate effects due to financial wealth, but in this case the mechanism is different. Financial wealth affects negatively the probability to have collateralized debt in the US, probably because having large financial assets makes taking a mortgage loan less necessary. Given that the US has higher financial wealth than a number of countries (e.g. France Italy, Spain, Portugal and Greece), the probability of having collateralized debt in the US would have been lower if the US had had those countries' levels of financial wealth.

Moving next to non-collateralized debt, we observe in Panel B of Table 1 that once more US households are much more likely to have this kind of debt, with the largest difference being observed in Italy and Portugal (43.9 pp) and the lowest in Cyprus (14.5 pp). As was the case with collateralized debt, these differences are overwhelmingly driven by coefficient effects, which are once more uniformly in favor of the US. However, in this case all covariate effects favor the US as well, although they are clearly smaller than the corresponding covariate effects.

Looking at results from the detailed decomposition, we note that now financial wealth typically contributes more than real wealth to coefficient effects, although both effects are sizeable in most countries. This result implies that for any given level of financial and real wealth, US financial firms give non-collateralized loans more easily than European firms. The same is true for education, at least in Luxemburg, France, and Italy.

One other notable coefficient effect that works in favor of the US is that of the constant, which as we discussed above, denotes the economic environment facing the most economically disadvantaged households. Hence, our results in Portugal, Italy, Spain, Greece and France imply that in those countries financial firms provide non-collateralized loans to the most disadvantaged

with much more difficulty compared to the US. This finding is in agreement with the well-known problem of the large number of loans in the US given to people with low resources who are more likely to face problems repaying them.

We next turn to covariate effects of non-collateralized debt from the detailed decomposition. We note that education works in favor of the US, which is to be expected, given that on average US households are more educated and that education is positively associated with having non-collateralized debt (possibly because it signals higher ability to pay back the loan). The same mechanism operates also for income, and thus for countries like Luxemburg and the Netherlands the covariate effect of income becomes negative.

Interestingly, financial assets have a positive association with non-collateralized debt at the second and third quartile, while a negative one at the fourth. This hump-shaped relation between prevalence of non-collateralized debt and financial wealth leads to negative covariate effects in countries with more households in the second and third quartiles (e.g. Germany, Luxemburg, France, Austria, Italy, Spain, Portugal and Greece) compared to the US. There is a similar hump-shaped pattern in the association between collateralized debt and real wealth, which is again the reason behind the small positive covariate effects in Germany, Belgium, the Netherlands, Luxemburg, France, and Austria. The contribution of other factors (not shown in the table) that we have taken into account (e.g. willingness to assume more risk, unexpectedly low income last year, expectations of a higher future income) is quantitatively very small or statistically insignificant.

We have a performed a number of robustness exercises to ensure the consistency of the above mentioned findings. First, we have applied the same decompositions controlling for variables that denote resources (i.e. income, financial wealth, and real wealth) through a non-

linear transformation (i.e. inverse hyperbolic sine), instead of dummies representing quartiles. Second, we have re-estimated our models taking into account quartiles of net financial and net real wealth, instead of their gross measures. Third, we have reversed the order of the decomposition to examine its sensitivity to the choice of the base country. That is, we perform again every pair-wise decomposition by treating the Euro area country therein as the base one and the US as the comparison country (i.e. using X's from the US and b's from the Euro area country to define the counterfactual). In all these cases results are similar to those we present.

**5. Decomposing conditional amounts of debt**

The next step in the analysis is to conduct a related exercise for the amounts of debt. Here, we will only look at those households that actually report to have debt on their balance sheet. We use RIF regression-based decomposition methods, which allow studying the importance of covariate and coefficient effects at different points of the distribution of debt holdings. Thus, in what follows, we decompose differences in (log) outstanding amounts of each type of debt into two parts, one related to differences in the configuration of household characteristics and another one related to different economic environments that households of similar characteristics face. We also perform a detailed decomposition that allows assessing the relative contribution of certain (groups of) covariates on the two effects.

We condition our specifications on the same sets of covariates used to model the prevalence of collateralized and non-collateralized debt (see section 4). When modelling the amounts of collateralised debt held by households we also take into account information on the duration of the mortgage. Furthermore, we exploit the fact that the year in which the mortgage was taken out is known. This allows controlling for the time elapsed since the mortgage was

taken. Moreover, it allows matching the mortgage decision with certain macroeconomic conditions that prevailed at the time the mortgage was taken. In particular, we wish to assess the role of the cumulative growth of the national house price index (defined over the three years prior to the mortgage take-out) for observed differences in debt amounts.[10] Controlling for different house price developments across countries can be important given the findings of the literature that house price developments are a highly relevant determinant of mortgage debt.

We first decompose differences in outstanding amounts of collateralized debt. For brevity, we report decomposition results at the $20^{th}$, $50^{th}$, and $80^{th}$ percentiles in Tables 2, 3, and 4, respectively. A first thing to note is that results are less clear-cut than those for prevalence discussed in the previous section. However, coefficient effects imply also here that US economic environment is more conducive to larger debt amounts than the environment in a large number of euro area countries. These results are furthermore rather robust across different quantiles of the collateralized debt distribution.

According to the detailed decompositions, real wealth makes an important contribution to coefficient effects at the bottom of the distribution, suggesting a more favourable US economic environment for borrowing at given levels of real wealth holdings. In other words, if European households with relatively small debt holdings were able to borrow as much as their US counterparts with comparable real wealth, they would have had a larger collateralized debt.

There are two exceptions, namely Germany and the Netherlands, where, especially for households at the bottom of the distribution, economic environment is estimated to be more conducive to higher debt holdings. In Germany, the estimated negative coefficient effect is mostly due to the years elapsed since the mortgage was taken. This implies that German households would have had a lower collateralized debt if, for a given number of years elapsed,

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[10] These data are taken from the AMECO database.

they were facing the US economic conditions that relate years elapsed with collateralized debt. In other words, German households are induced to pay off a larger amount of their mortgage than what they would have paid off in the US in a given period. Instead, the estimated negative coefficient effect for Netherlands is mostly due to the contribution of the constant term. Given that the constant term in our specification represents the most disadvantageous households (i.e. less educated, lower income, less wealthy, divorced) this finding suggests that the financial system in the Netherlands is more likely to provide loans to this risky group of borrowers than in the US.

Differences due to covariate effects are in most of the cases either insignificant or in favour of the US. The latter implies that there are certain covariates that make US households more prone to assume a larger collateralized debt than what their European counterparts would have assumed if they had faced the same (i.e. US) environment. In most of the detailed decompositions, differences in real wealth are in favour of the comparison country (i.e. 'pushing' covariate effects towards the opposite direction). Similarly, differences in cumulative growth rates of the housing index (three years prior to the mortgage take up) are in favour of the comparison country. This suggests that if in the US there was a stronger growth increase in housing prices (like the one recorded in most of the comparison countries), it would have resulted into a higher outstanding collateralized debt, especially among those households with smaller holdings. Nevertheless, differences in covariate effects due to years elapsed since the loan was taken and original loan duration dominate in general, reflecting the fact that US households have a shorter time elapsed (due to more frequent re-mortgaging) and a longer original duration than their European counterparts.[11]

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[11] Note that estimated coefficients from RIF regressions (not reported) imply a negative (positive) association between years elapsed (original loan duration) and collateralized debt.

Luxembourgish and Cypriot households represent two notable exceptions, given that their configuration of characteristics makes them more prone to larger collateralized borrowing. Recall that Luxembourg, Cyprus, and the Netherlands are the three countries in which households have larger (PPP-adjusted) outstanding collateralized debt than their US counterparts. In Luxembourg and Cyprus, household characteristics play a key role in explaining observed differences with the US, while on the other hand, differences with Netherlands are mainly driven by the economic environment.

Tables 5, 6, and 7, show decomposition differences in non-collateralized debt at the $20^{th}$, $50^{th}$, and $80^{th}$ percentiles, respectively. At the $20^{th}$ percentile, we find a more favourable economic environment for non-collateralised debt in Luxembourg, Italy, Spain, and Cyprus. Moreover, estimated differences due to economic environment are insignificant in the Netherlands, France, Portugal, and Greece. US economic environment appears more conducive to non-collateralized debt in relation to many euro area countries at higher quantiles. The only exception is the Netherlands that displays a more favourable economic environment for larger amounts of non-collateralized debt in comparison to the US.

Results from detailed decompositions suggest an important contribution of education for estimated differences due to coefficient effects. That is, European households would have higher non-collateralized debts, if they had experienced the economic environment that US households of comparable education face. This is likely to be the case because US financial institutions, as compare to European ones, consider education to represent a higher ability to repay non-collateralized debts in the future.

Covariate effects, with very few exceptions, are in favour the US (i.e. household characteristics in the US differ in a way that makes them more prone to holding larger amounts

of non-collateralized debt). Education contributes to such positive covariate effects, reflecting the fact that on average US households are more educated and that education is positively associated with non-collateralized debt. Finally, results presented in this section appear in general to be robust to the same checks that we had applied for decompositions of binary outcomes and had discussed in the end of the previous section.

## 6. Conclusions

Household debt has attracted a lot of attention in the academic as well as the policy debate since the onset of the financial crisis. The build-up of household debt has often been seen as one of the major imbalances that eventually triggered the crisis, and the deleveraging that has been triggered by the crisis has shaped the economic performance of several advanced economies. When comparing household debt across countries, considerable heterogeneity is apparent. However, such a comparison needs to take into account that also household characteristics as well as the economic environment differ across countries. The aim of this paper has therefore been to decompose differences in debt holdings between households in the Unites States and 11 European countries into these two factors.

Using novel household-level data for Europe from the HFCS, and supplementing them with comparable data from the US SCF, the paper first shows that US households tend to have a substantially higher prevalence of debt, and also hold relatively large amounts of it. This difference is largely due to a more favourable economic environment in the United States – had European households encountered the US conditions, many more would be expected to hold debt, and considerably larger amounts. A notable exception to this is the Netherlands, which are also characterised by an economic environment that is rather conducive to debt holdings.

Importantly, we find a substantial role for households' assets in explaining differences in debt holdings – if European households, given the value of their assets, were to be facing US conditions, they would hold more debt. With regard to collateralised debt, this is particularly the case for real assets, suggesting that US households were able to get access to mortgage debt at much lower levels of collateral. This finding is in line with Corbae et al. (2011), who highlight the large number of low-downpayment mortgage contracts in the United States prior to the crisis, and find that this market segment in particular has been important in triggering the financial crisis.

# References

Albrecht, James, Anders Björklund, and Susan Vroman (2003). "Is There a Glass Ceiling in Sweden?" *Journal of Labor Economics* 21:1, 145-177.

Autor, David H., Lawrence F. Katz, and Melissa S. Kearney (2008). "Trends in US Wage Inequality: Revising the Revisionists," *Review of Economics and Statistics,* 300–323.

Bover, Olympia (2010). "Wealth Inequality and Household Structure: US vs. Spain", *Review of Income and Wealth*, 56, 259-290.

Blau, Francine D.; Kahn, Lawrence M. (1996). "International Differences in Male Wage Inequality: Institutions versus Market Forces". *Journal of Political Economy* 104 (4): 791–837.

Christelis, D., D. Georgarakos, and M. Haliassos (2013). "Differences in portfolios across countries: Economic environment versus household characteristics". *Review of Economics and Statistics*, 95(1): 220–236.

Damar, E., R. Gropp and A. Mordel (2013). "Banks financial distress, lending supply and consumption expenditure." Mimeo, Bank of Canada.

DiNardo, John, Nicole M. Fortin, and Thomas Lemieux (1996). "Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach". *Econometrica* 64: 1001-1044.

Firpo, S., N. Fortin, and T. Lemieux (2007). "Decomposing Wage Distributions using Recentered Influence Functions Regressions", mimeo, University of British Columbia.

Firpo, S., N. Fortin, and T. Lemieux (2009). "Unconditional Quantile Regressions." *Econometrica*, 77(3): 953-973.

Gale, William G., and Karen M. Pence (2006). "Are Successive Generations Getting Wealthier, and If So, Why? Evidence from the 1990s," *Brookings Papers on Economic Activity* 1, 155-234.

Georgarakos, Dimitris, Giacomo Pasini and Michael Haliassos (2013). "Household Debt and Social Interactions." CEPR discussion paper, DP9238.

Guiso, L., Haliassos, M., Jappelli, T. (2001) *Household Portfolios*. Cambridge: MIT Press.

Household Finance and Consumption Network (2013a). The Eurosystem Household Finance and Consumption Survey – Methodological Report for the First Wave, ECB Statistics Paper Series No. 1.

Household Finance and Consumption Network (2013b). The Eurosystem Household Finance and Consumption Survey – Results from the First Wave, ECB Statistics Paper Series No. 2.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce (1993). "Wage Inequality and the Rise in Returns to Skills" *Journal of Political Economy* 101: 410-442.

Mian, Atif and Amir Sufi (2011). House Prices, Home Equity-Based Borrowing, and the US Household Leverage Crisis, *American Economic Review*, 101: 2132-2156.

Mian, Atif and Amir Sufi (2009). The consequences of mortgage credit expansion: Evidence from the US mortgage default crisis. *Quarterly Journal of Economics* 124:1449–96.

Nguyen, Binh, James Albrecht, Susan Vroman, and M.Daniel Westbrook (2007). "A Quantile Regression Decomposition of Urban-Rural Inequality in Vietnam", *Journal of Development Economics*, 83(2), 466-490.

Sierminska, Eva and Doorley Karina (2012). "Decomposing household wealth portfolios across countries: An age-old question?", CEPS/INSTEAD Wo.Pa. 2012-32.

Figure 1: Household debt levels
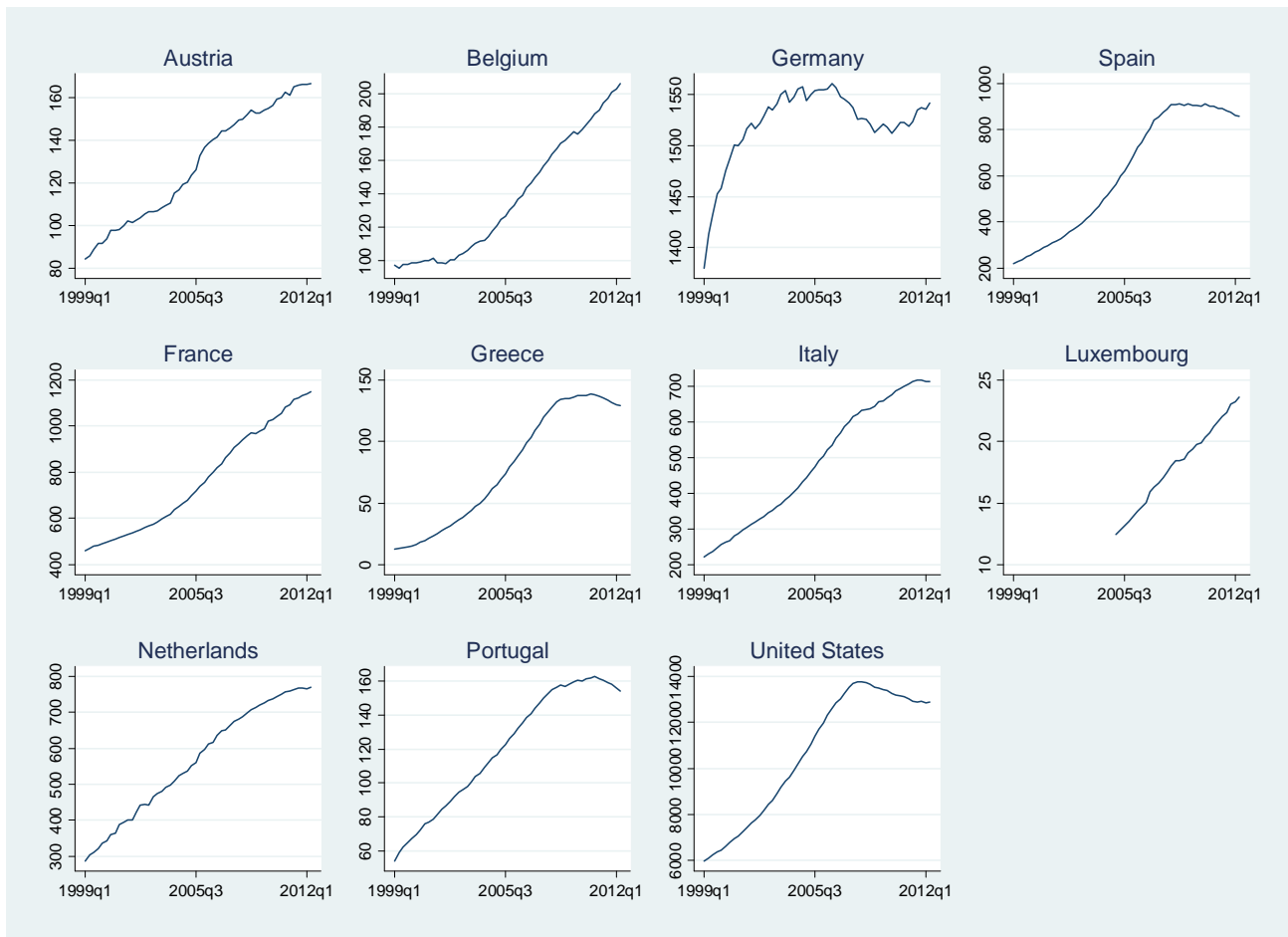


Note: The figure plots the level of total credit to private households including non-profit institutions serving households. Measure in billion US$ for the United States, in billion € in all other countries. Source: BIS. Data for Cyprus are not available.

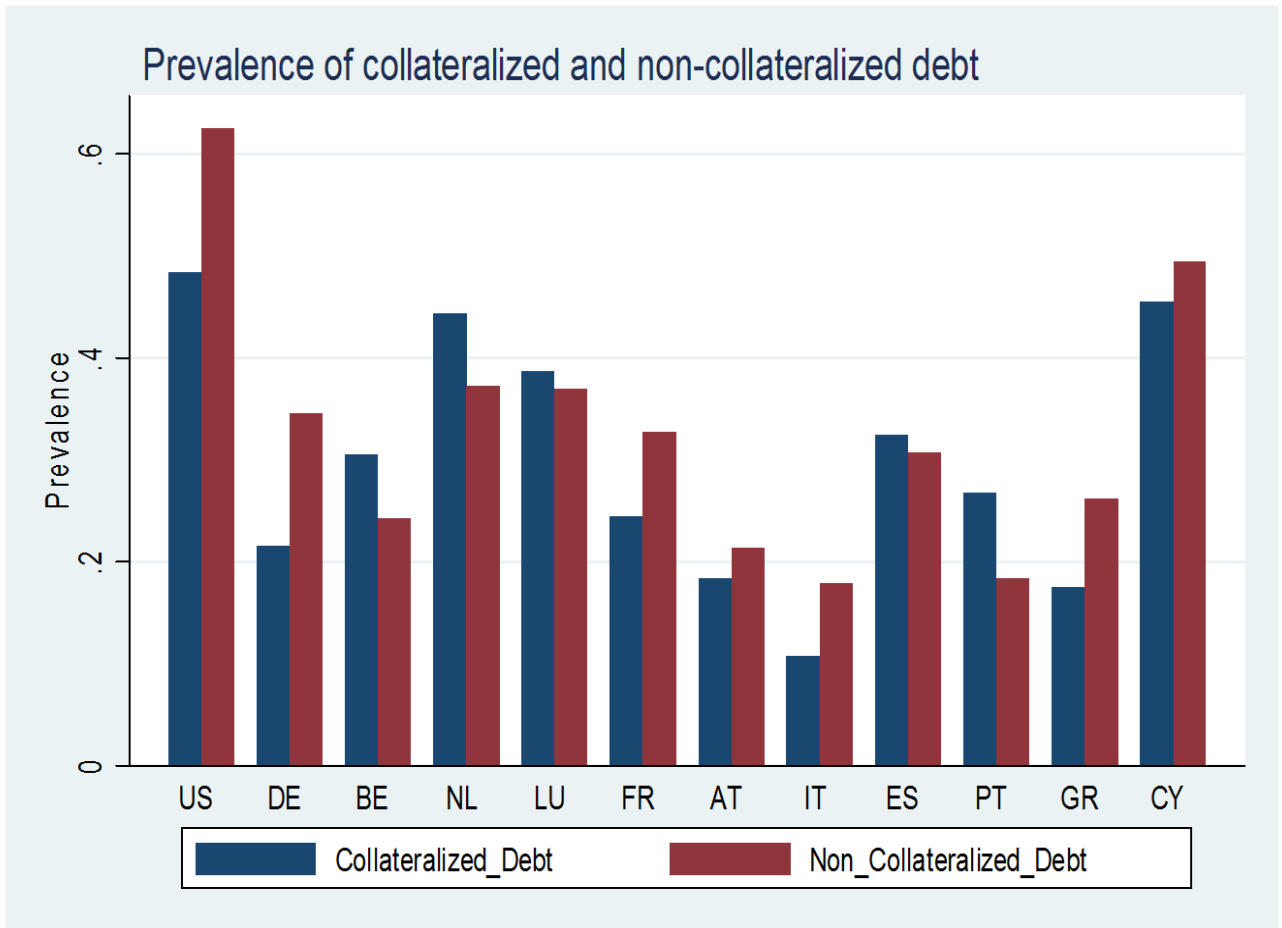Figure 2: Prevalence of collateralized and non-collateralized debt

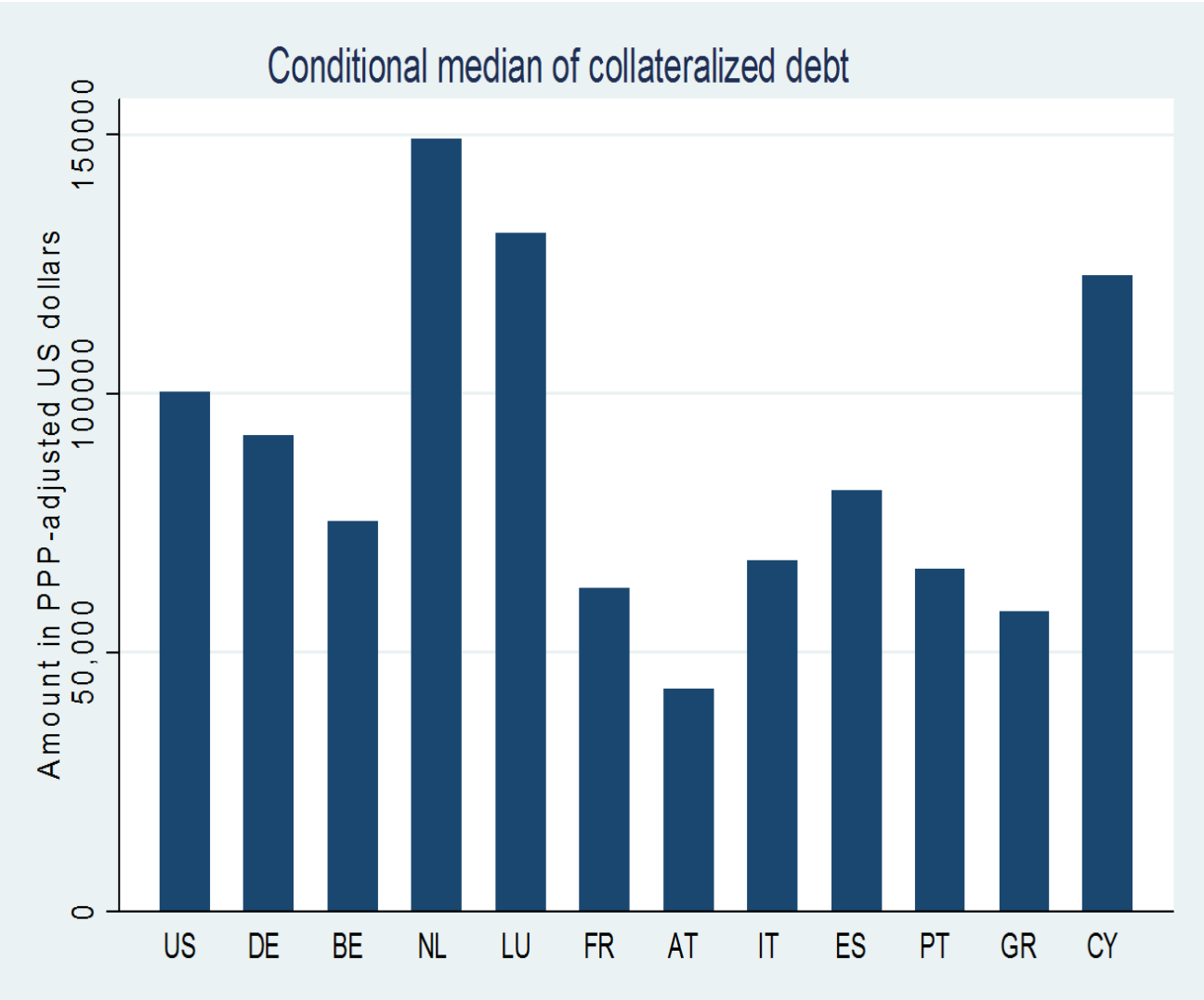Figure 3: Collateralized debt – conditional medians

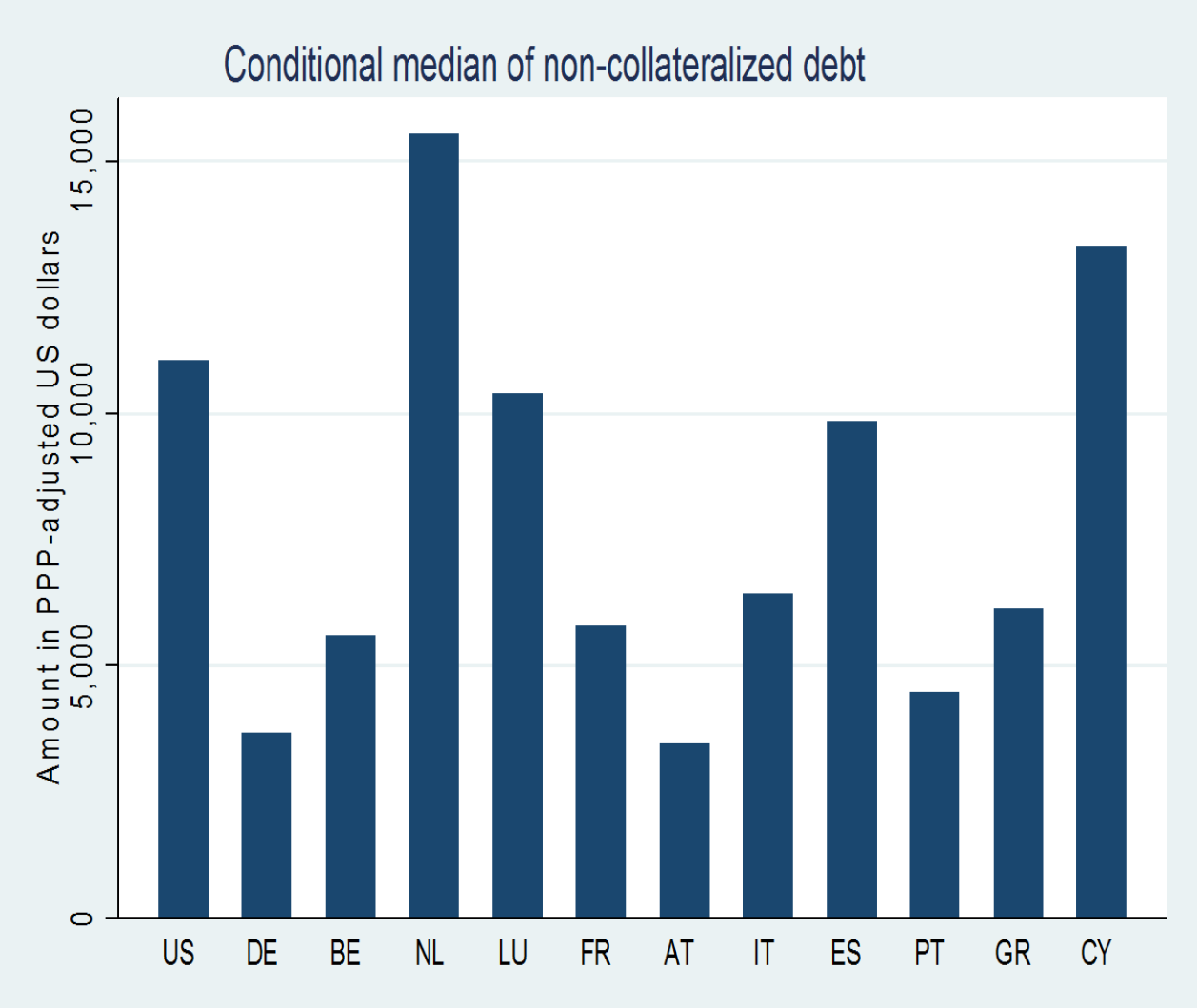Figure 4: Non-collateralized debt – conditional medians



Conditional median of non-collateralized debt

Table 1: Differences in prevalence of collateralized and non-collateralized debt - Detailed Decomposition

**Panel A. Collateralized Debt**

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.269 0.012 *** | 0.176 0.016 *** | 0.042 0.020 ** | 0.097 0.019 *** | 0.240 0.010 *** | 0.300 0.011 *** | 0.376 0.008 *** | 0.158 0.012 *** | 0.217 0.011 *** | 0.308 0.010 *** | 0.039 0.019 ** |
| *Detailed Covariate Effects* | | | | | | | | | | | |
| Education | 0.002 0.001 * | 0.000 0.003 | 0.001 0.004 | 0.003 0.005 | 0.003 0.005 | 0.006 0.003 * | 0.005 0.009 | 0.003 0.008 | 0.007 0.013 | 0.004 0.006 | 0.002 0.007 |
| Income | 0.005 0.002 ** | 0.005 0.002 ** | -0.011 0.003 *** | -0.029 0.005 *** | 0.015 0.003 *** | 0.005 0.002 * | 0.018 0.003 *** | 0.014 0.003 *** | 0.040 0.007 *** | 0.017 0.003 *** | -0.002 0.002 |
| Financial Wealth | -0.005 0.003 * | 0.007 0.003 *** | 0.013 0.004 *** | 0.006 0.004 | -0.012 0.003 *** | -0.008 0.003 ** | -0.023 0.004 *** | -0.017 0.003 *** | -0.026 0.004 *** | -0.036 0.005 *** | -0.001 0.003 |
| Real Wealth | 0.123 0.010 *** | -0.063 0.012 *** | 0.012 0.015 | -0.112 0.014 *** | 0.030 0.006 *** | 0.081 0.008 *** | -0.060 0.007 *** | -0.154 0.008 *** | 0.001 0.008 | -0.060 0.007 *** | -0.154 0.012 *** |
| **Total Covariate Effects** | **0.155 0.011 *** | **-0.021 0.015** | **0.021 0.019** | **-0.126 0.017 *** | **0.066 0.010 *** | **0.120 0.012 *** | **-0.022 0.012 *** | **-0.134 0.013 *** | **0.055 0.016 *** | **-0.040 0.012 *** | **-0.147 0.016 *** |
| *Detailed Coefficient Effects* | | | | | | | | | | | |
| Education | 0.004 0.023 | 0.015 0.021 | -0.007 0.024 | 0.020 0.026 | -0.010 0.013 | 0.012 0.024 | 0.002 0.010 | -0.018 0.013 | 0.000 0.007 | -0.008 0.015 | -0.017 0.024 |
| Income | 0.038 0.021 * | 0.044 0.024 * | 0.069 0.035 * | 0.116 0.043 *** | 0.034 0.015 ** | 0.073 0.020 *** | 0.022 0.014 | 0.016 0.019 | 0.002 0.012 | 0.050 0.017 *** | 0.009 0.042 |
| Financial Wealth | -0.018 0.023 | -0.036 0.035 | -0.072 0.035 ** | -0.013 0.041 | -0.040 0.016 ** | -0.039 0.024 | -0.030 0.016 * | 0.014 0.020 | -0.002 0.017 | 0.037 0.016 ** | -0.065 0.039 * |
| Real Wealth | 0.158 0.015 *** | 0.206 0.025 *** | 0.043 0.018 ** | 0.107 0.033 *** | 0.201 0.013 *** | 0.210 0.014 *** | 0.437 0.015 *** | 0.251 0.021 *** | 0.198 0.017 *** | 0.332 0.018 *** | 0.319 0.043 *** |
| Constant | 0.010 0.056 | 0.099 0.070 | -0.031 0.078 | 0.142 0.106 | -0.006 0.042 | -0.006 0.058 | 0.028 0.047 | 0.125 0.067 * | -0.018 0.053 | 0.025 0.066 | -0.100 0.115 |
| **Coefficient Effects** | **0.114 0.012 *** | **0.196 0.014 *** | **0.021 0.015** | **0.222 0.018 *** | **0.174 0.011 *** | **0.180 0.012 *** | **0.398 0.013 *** | **0.293 0.016 *** | **0.161 0.017 *** | **0.349 0.013 *** | **0.187 0.020 *** |

**Panel B. Non-collateralized Debt**

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.281 0.013 *** | 0.382 0.015 *** | 0.291 0.021 *** | 0.256 0.021 *** | 0.298 0.009 *** | 0.412 0.012 *** | 0.439 0.010 *** | 0.318 0.012 *** | 0.439 0.010 *** | 0.364 0.013 *** | 0.145 0.020 *** |
| *Detailed Covariate Effects* | | | | | | | | | | | |
| Education | 0.001 0.001 | 0.012 0.004 *** | 0.015 0.004 *** | 0.020 0.006 *** | 0.024 0.006 *** | 0.002 0.003 | 0.033 0.011 *** | 0.037 0.011 *** | 0.054 0.015 *** | 0.027 0.008 *** | 0.027 0.007 *** |
| Income | 0.006 0.002 *** | 0.003 0.002 | -0.016 0.005 *** | -0.032 0.006 *** | 0.014 0.003 *** | 0.005 0.003 * | 0.016 0.003 *** | 0.015 0.003 *** | 0.044 0.008 *** | 0.019 0.004 *** | -0.001 0.003 |
| Financial Wealth | -0.025 0.004 *** | -0.001 0.004 | 0.002 0.006 | -0.009 0.005 * | -0.034 0.004 *** | -0.032 0.004 *** | -0.044 0.004 *** | -0.038 0.004 *** | -0.041 0.005 *** | -0.047 0.006 *** | -0.008 0.004 ** |
| Real Wealth | 0.019 0.004 *** | 0.012 0.004 *** | 0.018 0.004 *** | 0.027 0.008 *** | 0.014 0.002 *** | 0.015 0.003 *** | 0.002 0.003 | 0.002 0.006 | -0.009 0.002 *** | -0.009 0.002 *** | 0.013 0.008 |
| **Total Covariate Effects** | **0.038 0.009 *** | **0.053 0.010 *** | **0.052 0.014 *** | **0.022 0.015** | **0.055 0.009 *** | **0.034 0.009 *** | **0.050 0.013 *** | **0.018 0.015** | **0.082 0.016 *** | **0.015 0.011** | **0.033 0.013 *** |
| *Detailed Coefficient Effects* | | | | | | | | | | | |
| Education | 0.046 0.039 | 0.038 0.026 | 0.030 0.033 | 0.071 0.031 ** | 0.034 0.015 ** | 0.054 0.029 * | 0.032 0.014 ** | 0.031 0.016 * | 0.006 0.007 | 0.010 0.018 | -0.014 0.027 |
| Income | 0.024 0.029 | 0.051 0.029 * | 0.081 0.074 | -0.016 0.067 | -0.027 0.020 | 0.026 0.027 | 0.023 0.020 | -0.037 0.023 | -0.002 0.012 | -0.004 0.022 | -0.043 0.041 |
| Financial Wealth | 0.112 0.043 ** | 0.116 0.039 *** | 0.164 0.081 ** | 0.007 0.071 | 0.114 0.022 *** | 0.107 0.035 *** | 0.087 0.022 *** | 0.112 0.025 *** | 0.045 0.017 *** | 0.087 0.018 *** | -0.019 0.037 |
| Real Wealth | 0.069 0.017 *** | 0.066 0.032 ** | 0.095 0.038 ** | 0.057 0.056 | 0.034 0.015 ** | 0.111 0.021 *** | 0.033 0.023 | 0.068 0.036 * | 0.085 0.022 *** | 0.031 0.028 | 0.099 0.049 ** |
| Constant | 0.039 0.118 | 0.205 0.118 * | -0.022 0.211 | 0.236 0.201 | 0.177 0.059 *** | -0.035 0.092 | 0.357 0.080 *** | 0.287 0.093 *** | 0.367 0.096 *** | 0.208 0.087 ** | 0.012 0.123 |
| **Coefficient Effects** | **0.243 0.014 *** | **0.329 0.018 *** | **0.240 0.025 *** | **0.235 0.022 *** | **0.243 0.012 *** | **0.378 0.015 *** | **0.390 0.017 *** | **0.299 0.018 *** | **0.357 0.019 *** | **0.349 0.015 *** | **0.112 0.022 *** |

Table 2: Differences in Collateralized Debt: Q20 - Detailed Decomposition

| | DE | | BE | | NL | | LU | | FR | | AT | | IT | | ES | | PT | | GR | | CY | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.299 | 0.132 ** | 0.493 | 0.086 *** | -0.290 | 0.084 *** | 0.067 | 0.062 | 1.167 | 0.078 *** | 1.264 | 0.258 *** | 0.337 | 0.123 *** | 0.437 | 0.085 *** | 0.404 | 0.092 *** | 0.539 | 0.137 *** | -0.063 | 0.191 |
| *Detailed Covariate Effects* | | | | | | | | | | | | | | | | | | | | | | |
| Education | 0.002 | 0.005 | -0.002 | 0.016 | 0.005 | 0.029 | 0.010 | 0.028 | 0.013 | 0.027 | 0.028 | 0.020 | 0.023 | 0.051 | 0.005 | 0.063 | 0.022 | 0.104 | 0.016 | 0.050 | 0.003 | 0.035 |
| Income | -0.023 | 0.011 ** | 0.002 | 0.007 | 0.010 | 0.010 | -0.050 | 0.015 *** | 0.020 | 0.017 | -0.001 | 0.009 | 0.017 | 0.014 | 0.036 | 0.023 | 0.133 | 0.050 *** | 0.059 | 0.025 ** | -0.002 | 0.015 |
| Financial Wealth | -0.005 | 0.015 | -0.001 | 0.011 | 0.001 | 0.010 | -0.005 | 0.011 | -0.024 | 0.019 | -0.009 | 0.014 | -0.022 | 0.019 | -0.025 | 0.022 | -0.025 | 0.025 | -0.023 | 0.045 | -0.006 | 0.012 |
| Real Wealth | -0.071 | 0.020 *** | -0.206 | 0.030 *** | -0.240 | 0.029 *** | -0.300 | 0.030 *** | -0.135 | 0.021 *** | -0.156 | 0.025 *** | -0.194 | 0.028 *** | -0.217 | 0.031 *** | -0.004 | 0.016 | -0.083 | 0.017 *** | -0.308 | 0.033 *** |
| Years elapsed since loan was taken | 0.360 | 0.052 *** | 0.253 | 0.041 *** | 0.560 | 0.077 *** | 0.324 | 0.048 *** | 0.122 | 0.023 *** | 0.353 | 0.069 *** | 0.215 | 0.043 *** | 0.225 | 0.031 *** | 0.403 | 0.051 *** | 0.076 | 0.029 *** | -0.606 | 0.057 *** |
| Original loan duration | 0.719 | 0.083 *** | 0.405 | 0.051 *** | -0.161 | 0.030 *** | 0.297 | 0.031 *** | 0.711 | 0.084 *** | 0.281 | 0.254 | 0.502 | 0.062 *** | 0.194 | 0.030 *** | -0.083 | 0.031 *** | 0.431 | 0.058 *** | 0.395 | 0.067 *** |
| Housing price index growth | 0.104 | 0.023 *** | -0.142 | 0.032 *** | -0.107 | 0.025 *** | -0.168 | 0.026 *** | -0.220 | 0.048 *** | 0.022 | 0.014 | -0.042 | 0.011 *** | -0.227 | 0.048 *** | 0.028 | 0.008 *** | -0.170 | 0.036 *** | -0.082 | 0.022 *** |
| **Total Covariate Effects** | **1.114** | **0.123 ***** | **0.258** | **0.082 ***** | **0.065** | **0.094** | **0.048** | **0.069** | **0.435** | **0.102 ***** | **0.490** | **0.272** | **0.471** | **0.097 ***** | **-0.041** | **0.101** | **0.449** | **0.137 ***** | **0.307** | **0.098 ***** | **-0.678** | **0.109 ***** |
| *Detailed Coefficient Effects* | | | | | | | | | | | | | | | | | | | | | | |
| Education | -0.361 | 0.431 | -0.311 | 0.268 | -0.276 | 0.225 | 0.024 | 0.138 | -0.037 | 0.198 | -0.667 | 0.905 | -0.093 | 0.195 | 0.135 | 0.136 | 0.106 | 0.090 | 0.039 | 0.187 | 1.096 | 0.385 *** |
| Income | -0.086 | 0.550 | 0.182 | 0.317 | 0.534 | 0.297 * | -0.141 | 0.373 | -0.240 | 0.259 | 0.658 | 0.771 | 0.481 | 0.356 | 0.101 | 0.228 | 0.287 | 0.187 | 0.512 | 0.257 ** | -0.747 | 0.677 |
| Financial Wealth | 0.269 | 0.547 | 0.144 | 0.277 | 0.413 | 0.223 * | -0.057 | 0.325 | 0.191 | 0.236 | 0.860 | 0.944 | -0.304 | 0.262 | 0.200 | 0.160 | 0.014 | 0.163 | 0.070 | 0.115 | -0.256 | 0.596 |
| Real Wealth | 0.368 | 0.854 | 2.469 | 0.447 *** | 1.848 | 2.256 | 2.976 | 0.461 *** | 2.007 | 0.515 *** | 1.759 | 2.438 | 2.570 | 0.484 *** | 1.832 | 0.946 * | 1.387 | 2.022 | 3.218 | 0.748 *** | 3.337 | 1.080 ** |
| Years elapsed since loan was taken | -0.772 | 0.205 *** | -0.067 | 0.271 | -0.538 | 0.237 ** | -0.267 | 0.182 | 0.099 | 0.158 | -0.783 | 0.331 ** | 0.256 | 0.304 | 0.374 | 0.213 * | -0.372 | 0.216 * | -0.278 | 0.252 | -0.195 | 0.410 |
| Original loan duration | 0.413 | 0.265 | 0.146 | 0.456 | 1.537 | 0.393 *** | -0.348 | 0.436 | -1.717 | 0.336 *** | 0.725 | 0.753 | -0.768 | 0.583 | -0.569 | 0.390 | 0.270 | 0.496 | 0.438 | 0.381 | -0.424 | 0.644 |
| Housing price index growth | -0.235 | 0.163 | 0.005 | 0.124 | 0.070 | 0.076 | 0.320 | 0.094 *** | 0.082 | 0.108 | 0.093 | 0.048 * | -0.154 | 0.126 | 0.106 | 0.094 | -0.025 | 0.023 | -0.275 | 0.245 | 0.248 | 0.481 |
| Constant | 0.066 | 1.568 | -1.738 | 0.987 * | -4.357 | 2.449 * | -2.955 | 1.077 ** | -0.006 | 0.878 | -1.128 | 3.225 | -0.914 | 1.175 | -1.517 | 1.139 | -1.945 | 2.137 | -4.200 | 1.031 *** | -3.609 | 1.672 ** |
| **Coefficient Effects** | **-0.816** | **0.174 ***** | **0.235** | **0.098 ***** | **-0.355** | **0.105 ***** | **0.019** | **0.078** | **0.731** | **0.117 ***** | **0.774** | **0.226 ***** | **-0.134** | **0.139** | **0.478** | **0.114 ***** | **-0.045** | **0.159** | **0.232** | **0.154** | **0.615** | **0.185 ***** |

Table 3: Differences in Collateralized Debt: Q50 - Detailed Decomposition

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.102 0.063 | 0.319 0.079 *** | -0.342 0.040 *** | -0.190 0.062 *** | 0.541 0.039 *** | 0.769 0.298 ** | 0.338 0.079 *** | 0.267 0.049 *** | 0.399 0.054 *** | 0.379 0.085 *** | -0.448 0.107 *** |
| *Detailed Covariate Effects* | | | | | | | | | | | |
| Education | 0.001 0.004 | 0.009 0.008 | 0.028 0.015 * | 0.042 0.010 *** | 0.033 0.012 *** | 0.040 0.014 *** | 0.063 0.025 ** | 0.049 0.029 * | 0.102 0.052 * | 0.055 0.025 ** | 0.042 0.014 *** |
| Income | -0.023 0.008 *** | 0.006 0.007 | 0.022 0.007 *** | -0.074 0.010 *** | 0.056 0.012 *** | 0.012 0.010 | 0.045 0.011 *** | 0.077 0.017 *** | 0.134 0.026 *** | 0.079 0.016 *** | 0.040 0.016 ** |
| Financial Wealth | 0.004 0.009 | 0.004 0.007 | 0.010 0.007 | 0.001 0.007 | -0.021 0.012 * | 0.000 0.009 | -0.030 0.013 ** | -0.040 0.015 *** | -0.047 0.017 *** | -0.080 0.029 *** | -0.014 0.008 * |
| Real Wealth | -0.100 0.019 *** | -0.226 0.021 *** | -0.256 0.022 *** | -0.420 0.032 *** | -0.176 0.017 *** | -0.188 0.024 *** | -0.231 0.024 *** | -0.259 0.024 *** | 0.018 0.018 | -0.091 0.018 *** | -0.411 0.032 *** |
| Years elapsed since loan was taken | 0.191 0.023 *** | 0.134 0.021 *** | 0.297 0.035 *** | 0.172 0.022 *** | 0.065 0.010 *** | 0.188 0.037 *** | 0.114 0.020 *** | 0.119 0.016 *** | 0.214 0.023 *** | 0.040 0.014 *** | -0.321 0.024 *** |
| Original loan duration | 0.383 0.037 *** | 0.216 0.021 *** | -0.086 0.016 *** | 0.158 0.014 *** | 0.379 0.033 *** | 0.149 0.136 | 0.268 0.029 *** | 0.103 0.015 *** | -0.044 0.016 *** | 0.230 0.026 *** | 0.210 0.029 *** |
| Housing price index growth | 0.034 0.014 ** | -0.047 0.018 ** | -0.035 0.014 ** | -0.055 0.018 *** | -0.073 0.030 ** | 0.007 0.006 | -0.014 0.006 ** | -0.075 0.029 ** | 0.009 0.004 ** | -0.056 0.022 ** | -0.027 0.010 *** |
| **Total Covariate Effects** | **0.517 0.055 \*\*\*** | **0.077 0.045 \*** | **0.022 0.051** | **-0.191 0.047 \*\*\*** | **0.246 0.053 \*\*\*** | **0.201 0.156** | **0.194 0.051 \*\*\*** | **-0.050 0.060** | **0.363 0.064 \*\*\*** | **0.159 0.054 \*\*\*** | **-0.508 0.056 \*\*\*** |
| *Detailed Coefficient Effects* | | | | | | | | | | | |
| Education | -0.031 0.317 | 0.206 0.139 | 0.077 0.107 | 0.025 0.106 | 0.028 0.083 | -0.143 0.321 | -0.001 0.106 | 0.044 0.069 | 0.073 0.053 | 0.166 0.131 | 0.520 0.193 ** |
| Income | 0.019 0.312 | -0.149 0.244 | 0.179 0.194 | -0.699 0.381 | 0.058 0.111 | -0.136 0.536 | 0.220 0.187 | 0.040 0.120 | 0.004 0.087 | 0.150 0.197 | -0.413 0.399 |
| Financial Wealth | -0.165 0.353 | 0.203 0.235 | 0.014 0.245 | 0.072 0.176 | -0.094 0.119 | -0.238 0.381 | -0.148 0.127 | -0.114 0.115 | 0.074 0.108 | -0.003 0.091 | 0.330 0.247 |
| Real Wealth | -1.168 0.599 * | -0.036 0.657 | 0.419 0.835 | -0.176 0.948 | 0.733 0.224 *** | 0.111 0.981 | 0.280 0.452 | 0.088 0.492 | 0.291 0.798 | 2.189 1.806 | 1.150 0.843 |
| Years elapsed since loan was taken | -0.315 0.104 *** | 0.243 0.143 * | -0.247 0.080 *** | 0.379 0.142 ** | 0.376 0.070 *** | 0.014 0.319 | 0.217 0.150 | 0.431 0.116 *** | 0.014 0.114 | 0.704 0.275 ** | -0.385 0.214 * |
| Original loan duration | 0.288 0.132 ** | -0.665 0.346 * | 0.825 0.146 *** | -0.930 0.317 *** | -1.318 0.152 *** | -0.203 0.574 | -1.234 0.316 *** | -0.614 0.208 *** | -0.132 0.219 | -0.488 0.285 * | -1.251 0.419 *** |
| Housing price index growth | -0.089 0.065 | -0.079 0.101 | 0.080 0.040 ** | -0.035 0.076 | -0.043 0.052 | 0.037 0.023 | -0.132 0.049 *** | 0.005 0.054 | -0.010 0.011 | -0.170 0.159 | 0.532 0.230 ** |
| Constant | 0.846 0.846 | 0.619 0.833 | -2.111 0.947 ** | 1.607 1.023 | 0.444 0.366 | 0.681 1.606 | 0.159 0.736 | 0.064 0.560 | -0.579 0.846 | -2.238 2.069 | 0.518 1.158 |
| **Coefficient Effects** | **-0.415 0.079 \*\*\*** | **0.241 0.077 \*\*\*** | **-0.364 0.052 \*\*\*** | **0.001 0.067** | **0.295 0.057 \*\*\*** | **0.568 0.217 \*\*** | **0.144 0.081 \*** | **0.317 0.064 \*\*\*** | **0.036 0.074** | **0.220 0.089 \*\*** | **0.060 0.104** |

Table 4: Differences in Collateralized Debt: Q80 - Detailed Decomposition

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.142 0.059 ** | 0.385 0.052 *** | -0.086 0.043 ** | -0.325 0.054 *** | 0.466 0.035 *** | 0.376 0.212 | 0.387 0.070 *** | 0.226 0.044 *** | 0.550 0.040 *** | 0.491 0.062 *** | -0.485 0.152 *** |
| *Detailed Covariate Effects* | | | | | | | | | | | |
| Education | 0.005 0.005 | -0.007 0.008 | 0.005 0.013 | 0.011 0.009 | 0.019 0.013 | 0.054 0.016 *** | 0.033 0.023 | -0.003 0.025 | 0.023 0.043 | 0.022 0.022 | -0.006 0.012 |
| Income | -0.012 0.009 | 0.012 0.008 | 0.036 0.009 *** | -0.076 0.012 *** | 0.075 0.015 *** | 0.020 0.013 | 0.063 0.013 *** | 0.082 0.016 *** | 0.087 0.027 *** | 0.070 0.018 *** | 0.050 0.018 ** |
| Financial Wealth | 0.000 0.009 | -0.001 0.007 | -0.001 0.006 | 0.000 0.007 | 0.000 0.015 | 0.000 0.010 | 0.001 0.017 | 0.006 0.018 | 0.007 0.019 | 0.012 0.030 | 0.002 0.010 |
| Real Wealth | -0.133 0.025 *** | -0.189 0.027 *** | -0.191 0.032 *** | -0.602 0.039 *** | -0.160 0.022 *** | -0.201 0.030 *** | -0.245 0.036 *** | -0.272 0.033 *** | 0.070 0.019 *** | -0.069 0.024 *** | -0.543 0.049 *** |
| Years elapsed since loan was taken | 0.115 0.018 *** | 0.080 0.015 *** | 0.178 0.027 *** | 0.103 0.015 *** | 0.039 0.007 *** | 0.113 0.023 *** | 0.068 0.014 *** | 0.072 0.012 *** | 0.129 0.018 *** | 0.024 0.009 *** | -0.193 0.021 *** |
| Original loan duration | 0.255 0.039 *** | 0.144 0.023 *** | -0.057 0.014 *** | 0.105 0.016 *** | 0.252 0.038 *** | 0.096 0.088 | 0.178 0.029 *** | 0.069 0.013 *** | -0.030 0.011 *** | 0.153 0.026 *** | 0.139 0.023 *** |
| Housing price index growth | -0.006 0.015 | 0.008 0.020 | 0.006 0.015 | 0.009 0.021 | 0.012 0.032 | -0.001 0.004 | 0.002 0.006 | 0.013 0.032 | -0.002 0.004 | 0.010 0.024 | 0.005 0.012 |
| **Total Covariate Effects** | **0.269 0.057 *** | **0.074 0.052** | **0.009 0.050** | **-0.419 0.052 *** | **0.248 0.062 *** | **0.124 0.107** | **0.078 0.056** | **-0.044 0.058** | **0.274 0.063 *** | **0.197 0.056 *** | **-0.533 0.062 *** |
| *Detailed Coefficient Effects* | | | | | | | | | | | |
| Education | 0.142 0.250 | 0.000 0.131 | -0.062 0.085 | 0.006 0.098 | 0.016 0.076 | -0.218 0.518 | -0.068 0.102 | 0.060 0.066 | -0.017 0.046 | -0.088 0.130 | 0.254 0.272 |
| Income | -0.358 0.232 | -0.168 0.190 | 0.109 0.166 | -0.187 0.096 * | -0.232 0.096 ** | -0.014 0.558 | 0.194 0.255 | -0.315 0.107 *** | -0.244 0.075 *** | -0.243 0.165 | -1.786 0.635 *** |
| Financial Wealth | -0.226 0.165 | -0.056 0.156 | -0.010 0.165 | -0.001 0.091 | -0.069 0.106 | 0.079 0.463 | -0.038 0.180 | 0.211 0.104 ** | 0.016 0.073 | 0.008 0.068 | -0.794 0.387 ** |
| Real Wealth | 0.013 0.272 | 0.319 0.205 | 0.349 0.398 | 0.332 0.255 | 0.229 0.234 | 0.347 0.408 | 0.032 0.316 | 0.275 0.188 | 0.188 0.481 | 0.153 0.363 | 1.411 1.198 |
| Years elapsed since loan was taken | -0.034 0.095 | 0.180 0.096 * | -0.190 0.072 *** | 0.159 0.073 ** | 0.221 0.049 *** | 0.355 0.292 | 0.335 0.112 *** | 0.159 0.089 * | 0.074 0.079 | 0.393 0.134 *** | -0.280 0.249 |
| Original loan duration | 0.122 0.147 | -0.413 0.253 | 0.657 0.233 ** | -0.596 0.211 *** | -0.692 0.094 *** | -0.261 0.432 | -1.055 0.276 *** | -0.348 0.177 * | 0.063 0.182 | -0.375 0.224 * | -1.386 0.542 ** |
| Housing price index growth | 0.098 0.057 * | 0.025 0.094 | 0.033 0.035 | 0.024 0.065 | 0.043 0.053 | -0.004 0.014 | 0.029 0.047 | -0.002 0.063 | -0.005 0.008 | -0.119 0.117 | 0.382 0.275 |
| Constant | -0.093 0.557 | 0.097 0.428 | -1.276 0.581 ** | 0.871 0.528 | 0.382 0.345 | 0.231 2.008 | 1.625 0.671 ** | 0.355 0.370 | -0.166 0.564 | 0.448 0.609 | 3.193 1.853 * |
| **Coefficient Effects** | **-0.127 0.077** | **0.311 0.067 *** | **-0.095 0.061** | **0.094 0.076** | **0.218 0.067 *** | **0.252 0.182** | **0.309 0.083 *** | **0.270 0.068 *** | **0.276 0.072 *** | **0.294 0.080 *** | **0.047 0.159** |

Table 5: Differences in Non-collateralized Debt: Q20 - Detailed Decomposition

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.777 0.133 *** | 0.613 0.187 *** | -0.150 0.356 | -0.428 0.130 *** | 0.311 0.091 *** | 1.093 0.199 *** | 0.178 0.128 | -0.121 0.145 | 1.111 0.198 *** | 0.297 0.143 ** | -0.324 0.156 ** |

*Detailed Covariate Effects*

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Education | 0.082 0.027 *** | 0.179 0.056 *** | 0.186 0.065 *** | 0.400 0.063 *** | 0.321 0.065 *** | 0.193 0.048 *** | 0.569 0.119 *** | 0.554 0.133 *** | 0.850 0.197 *** | 0.301 0.069 *** | 0.325 0.090 *** |
| Income | 0.077 0.026 *** | 0.014 0.024 | -0.066 0.041 | -0.239 0.045 *** | 0.070 0.030 ** | 0.066 0.029 ** | 0.059 0.025 ** | 0.047 0.030 | 0.264 0.074 *** | 0.031 0.024 | -0.090 0.031 *** |
| Financial Wealth | -0.045 0.023 * | 0.005 0.018 | 0.023 0.030 | 0.007 0.015 | -0.058 0.031 * | -0.047 0.024 * | -0.063 0.030 ** | -0.070 0.034 ** | -0.085 0.045 * | -0.095 0.057 * | 0.032 0.032 |
| Real Wealth | 0.262 0.064 *** | 0.032 0.037 | 0.144 0.058 ** | -0.055 0.050 | 0.103 0.030 *** | 0.260 0.068 *** | -0.066 0.040 * | -0.096 0.052 * | 0.017 0.022 | -0.066 0.032 ** | -0.153 0.083 * |
| **Total Covariate Effects** | **0.314 0.095 \*\*\*** | **0.186 0.090 \*\*** | **0.223 0.149** | **0.036 0.087** | **0.406 0.092 \*\*\*** | **0.520 0.112 \*\*\*** | **0.529 0.136 \*\*\*** | **0.341 0.147 \*\*** | **1.015 0.222 \*\*\*** | **0.106 0.105** | **0.044 0.141** |

*Detailed Coefficient Effects*

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Education | 1.155 0.533 ** | 1.181 0.398 *** | 0.179 1.171 | 0.844 0.223 *** | 0.781 0.236 *** | 1.819 0.548 *** | 0.553 0.207 *** | 0.830 0.190 *** | 0.449 0.169 *** | 1.104 0.306 *** | 1.250 0.330 *** |
| Income | 0.460 0.337 | -0.016 0.648 | 2.246 1.464 | 1.763 0.580 ** | -0.294 0.296 | -0.280 0.669 | 0.513 0.270 * | 0.125 0.343 | 0.059 0.293 | 0.340 0.311 | -0.461 0.615 |
| Financial Wealth | -0.538 0.535 | 0.002 0.446 | 1.394 1.446 | 0.314 0.307 | -0.363 0.227 | -0.577 0.446 | 0.012 0.244 | 0.268 0.259 | -0.151 0.294 | 0.047 0.161 | 0.072 0.481 |
| Real Wealth | 0.245 0.213 | 0.155 0.479 | 0.512 0.631 | -0.535 0.536 | 0.176 0.211 | 0.621 0.261 ** | 0.524 0.368 | -0.042 0.466 | -0.110 0.462 | 0.526 0.325 | -0.223 0.968 |
| Constant | -2.971 1.098 *** | -1.446 1.485 | -3.446 3.649 | -1.370 1.090 | -0.584 0.887 | -2.022 1.332 | -3.114 1.006 *** | -3.475 1.184 *** | -0.623 1.964 | -3.623 1.019 *** | -0.871 1.644 |
| **Coefficient Effects** | **0.463 0.152 \*\*\*** | **0.427 0.196 \*\*** | **-0.373 0.368** | **-0.464 0.141 \*\*\*** | **-0.095 0.121** | **0.572 0.211 \*\*\*** | **-0.351 0.187 \*** | **-0.462 0.214 \*\*** | **0.096 0.291** | **0.190 0.176** | **-0.368 0.211 \*** |

Table 6: Differences in Non-collateralized Debt: Q50 - Detailed Decomposition

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 1.116 0.077 *** | 0.631 0.116 *** | -0.555 0.226 ** | 0.047 0.053 | 0.646 0.053 *** | 1.125 0.130 *** | 0.540 0.074 *** | 0.112 0.096 | 0.893 0.140 *** | 0.586 0.117 *** | -0.182 0.089 ** |

*Detailed Covariate Effects*

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Education | 0.044 0.013 *** | 0.052 0.023 ** | 0.058 0.026 ** | 0.134 0.023 *** | 0.116 0.024 *** | 0.105 0.022 *** | 0.200 0.045 *** | 0.169 0.051 *** | 0.275 0.074 *** | 0.101 0.027 *** | 0.091 0.036 ** |
| Income | 0.068 0.018 *** | 0.012 0.022 | -0.029 0.031 | -0.197 0.029 *** | 0.094 0.020 *** | 0.060 0.022 *** | 0.065 0.018 *** | 0.080 0.021 *** | 0.221 0.037 *** | 0.051 0.020 *** | -0.064 0.023 *** |
| Financial Wealth | -0.040 0.013 *** | -0.005 0.012 | 0.002 0.018 | -0.014 0.010 | -0.048 0.017 *** | -0.036 0.014 ** | -0.048 0.017 *** | -0.042 0.018 ** | -0.042 0.026 | -0.038 0.030 | 0.006 0.015 |
| Real Wealth | 0.140 0.031 *** | -0.014 0.021 | 0.040 0.030 | -0.111 0.034 *** | 0.028 0.014 ** | 0.139 0.034 *** | -0.072 0.024 *** | -0.104 0.030 *** | 0.014 0.012 | -0.058 0.018 *** | -0.165 0.049 *** |
| **Total Covariate Effects** | **0.237 0.049 \*\*\*** | **0.080 0.052** | **0.140 0.085** | **-0.162 0.053 \*\*\*** | **0.200 0.043 \*\*\*** | **0.340 0.055 \*\*\*** | **0.178 0.065 \*\*\*** | **0.047 0.071** | **0.471 0.083 \*\*\*** | **0.057 0.054** | **-0.146 0.081 \*** |

*Detailed Coefficient Effects*

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Education | 0.580 0.267 ** | 0.320 0.235 | 0.262 0.417 | 0.207 0.111 * | 0.289 0.104 *** | 0.608 0.350 * | 0.099 0.093 | 0.207 0.100 ** | 0.212 0.108 ** | 0.525 0.184 *** | 0.363 0.205 * |
| Income | -0.176 0.215 | -0.132 0.369 | -0.359 1.051 | 0.677 0.374 | -0.192 0.130 | -0.296 0.374 | 0.275 0.161 * | 0.058 0.211 | -0.146 0.204 | -0.105 0.269 | -0.064 0.403 |
| Financial Wealth | -0.213 0.201 | -0.197 0.319 | 0.954 0.611 | -0.146 0.228 | 0.075 0.126 | -0.600 0.309 * | 0.246 0.131 * | 0.519 0.173 *** | 0.030 0.201 | 0.181 0.129 | -0.172 0.329 |
| Real Wealth | 0.143 0.123 | -0.129 0.306 | 0.046 0.326 | -0.325 0.155 ** | -0.115 0.106 | 0.443 0.175 ** | 0.018 0.189 | -0.177 0.240 | -0.326 0.326 | 0.042 0.277 | 0.778 0.473 |
| Constant | -0.201 0.614 | -0.224 0.889 | -2.907 1.842 | -0.568 0.518 | 0.486 0.339 | 1.157 0.944 | -0.663 0.474 | -1.308 0.602 ** | -0.589 1.284 | -1.517 0.779 * | -0.997 0.890 |
| **Coefficient Effects** | **0.879 0.091 \*\*\*** | **0.551 0.122 \*\*\*** | **-0.694 0.219 \*\*\*** | **0.209 0.073 \*\*\*** | **0.445 0.061 \*\*\*** | **0.785 0.135 \*\*\*** | **0.362 0.101 \*\*\*** | **0.065 0.121** | **0.422 0.158 \*\*\*** | **0.529 0.126 \*\*\*** | **-0.036 0.106** |

Table 7: Differences in Non-collateralized Debt: Q80 - Detailed Decomposition

| | DE | BE | NL | LU | FR | AT | IT | ES | PT | GR | CY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Difference | 0.888 0.084 *** | 0.613 0.086 *** | -0.885 0.212 *** | 0.198 0.050 *** | 0.485 0.055 *** | 0.462 0.168 *** | 0.304 0.125 ** | 0.124 0.069 * | 0.669 0.077 *** | 0.371 0.079 *** | -0.217 0.120 * |
| *Detailed Covariate Effects* | | | | | | | | | | | |
| Education | 0.063 0.015 *** | 0.037 0.019 * | 0.049 0.026 * | 0.124 0.017 *** | 0.117 0.019 *** | 0.149 0.026 *** | 0.195 0.034 *** | 0.135 0.033 *** | 0.241 0.049 *** | 0.094 0.020 *** | 0.061 0.026 ** |
| Income | 0.063 0.015 *** | 0.015 0.019 | 0.013 0.026 | -0.163 0.024 *** | 0.107 0.018 *** | 0.057 0.019 *** | 0.072 0.016 *** | 0.093 0.017 *** | 0.165 0.031 *** | 0.060 0.017 *** | -0.037 0.020 * |
| Financial Wealth | -0.046 0.012 *** | -0.004 0.014 | 0.009 0.019 | -0.010 0.010 | -0.055 0.015 *** | -0.042 0.013 *** | -0.059 0.015 *** | -0.053 0.015 *** | -0.057 0.022 ** | -0.060 0.024 ** | 0.012 0.016 |
| Real Wealth | 0.056 0.022 ** | -0.018 0.015 | 0.001 0.018 | -0.079 0.033 ** | 0.000 0.011 | 0.055 0.022 ** | -0.044 0.020 ** | -0.064 0.027 ** | 0.008 0.008 | -0.033 0.014 ** | -0.101 0.046 ** |
| **Total Covariate Effects** | **0.206 0.041 ***** | **0.072 0.044 *** | **0.169 0.070 **** | **-0.065 0.043** | **0.195 0.033 ***** | **0.295 0.051 ***** | **0.171 0.047 ***** | **0.069 0.054** | **0.365 0.056 ***** | **0.060 0.044** | **-0.067 0.064** |
| *Detailed Coefficient Effects* | | | | | | | | | | | |
| Education | 0.240 0.235 | 0.230 0.184 | 0.572 0.381 | 0.246 0.082 *** | 0.106 0.079 | 0.480 0.464 | -0.069 0.135 | 0.171 0.074 ** | 0.126 0.062 ** | 0.399 0.148 *** | 0.050 0.221 |
| Income | -0.036 0.235 | 0.107 0.259 | 0.237 0.847 | 0.049 0.130 | -0.293 0.112 *** | -0.585 0.396 | -0.101 0.268 | -0.170 0.190 | -0.092 0.119 | -0.248 0.174 | -0.516 0.396 |
| Financial Wealth | -0.008 0.200 | -0.095 0.219 | -0.227 0.623 | -0.061 0.119 | 0.030 0.110 | -0.721 0.316 ** | 0.615 0.227 *** | 0.133 0.136 | -0.060 0.121 | 0.158 0.089 * | 0.060 0.343 |
| Real Wealth | -0.061 0.133 | -0.088 0.197 | -0.281 0.351 | 0.103 0.110 | -0.318 0.096 *** | 0.211 0.205 | -0.745 0.238 *** | 0.066 0.191 | 0.011 0.150 | -0.122 0.177 | 0.534 0.543 |
| Constant | -0.482 0.726 | 0.014 0.711 | -1.156 1.795 | -0.109 0.490 | 0.986 0.303 *** | 1.453 1.192 | 0.145 0.795 | -0.665 0.635 | -1.160 0.726 | 0.043 0.622 | -0.880 0.939 |
| **Coefficient Effects** | **0.682 0.088 ***** | **0.540 0.094 ***** | **-1.053 0.205 ***** | **0.263 0.069 ***** | **0.290 0.059 ***** | **0.167 0.170** | **0.133 0.130** | **0.055 0.089** | **0.304 0.089 ***** | **0.312 0.090 ***** | **-0.150 0.132** |

Table A1: Household characteristics by country

| | age<39 | age:40-49 | age:50-59 | couple | single | widowed | high school | college | employed | slfempl | retired | othinact | hhsize |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 0.26 | 0.21 | 0.18 | 0.50 | 0.24 | 0.11 | 0.71 | 0.14 | 0.44 | 0.10 | 0.38 | 0.04 | 2.12 |
| BE | 0.27 | 0.20 | 0.19 | 0.55 | 0.20 | 0.13 | 0.38 | 0.36 | 0.44 | 0.05 | 0.33 | 0.07 | 2.29 |
| CY | 0.27 | 0.20 | 0.22 | 0.47 | 0.12 | 0.10 | 0.27 | 0.28 | 0.54 | 0.11 | 0.25 | 0.04 | 2.74 |
| DE | 0.26 | 0.20 | 0.17 | 0.50 | 0.25 | 0.13 | 0.57 | 0.31 | 0.49 | 0.07 | 0.31 | 0.08 | 2.04 |
| ES | 0.24 | 0.22 | 0.18 | 0.64 | 0.14 | 0.15 | 0.19 | 0.25 | 0.44 | 0.11 | 0.24 | 0.12 | 2.67 |
| FR | 0.28 | 0.18 | 0.17 | 0.46 | 0.29 | 0.14 | 0.40 | 0.21 | 0.45 | 0.08 | 0.35 | 0.06 | 2.23 |
| GR | 0.29 | 0.18 | 0.17 | 0.64 | 0.18 | 0.12 | 0.35 | 0.20 | 0.37 | 0.19 | 0.34 | 0.06 | 2.64 |
| IT | 0.15 | 0.23 | 0.18 | 0.62 | 0.14 | 0.16 | 0.34 | 0.11 | 0.41 | 0.12 | 0.41 | 0.02 | 2.53 |
| LU | 0.26 | 0.27 | 0.18 | 0.53 | 0.25 | 0.09 | 0.40 | 0.25 | 0.57 | 0.06 | 0.27 | 0.07 | 2.48 |
| NL | 0.22 | 0.24 | 0.22 | 0.44 | 0.36 | 0.08 | 0.39 | 0.32 | 0.45 | 0.04 | 0.22 | 0.14 | 2.21 |
| PT | 0.19 | 0.21 | 0.20 | 0.66 | 0.11 | 0.15 | 0.13 | 0.09 | 0.42 | 0.11 | 0.37 | 0.04 | 2.69 |
| US | 0.29 | 0.20 | 0.21 | 0.58 | 0.16 | 0.09 | 0.52 | 0.37 | 0.57 | 0.11 | 0.25 | 0.02 | 2.56 |

| | income-Q2 | income-Q3 | income-Q4 | finw-Q2 | finw-Q3 | finw-Q4 | realw-Q2 | realw-Q3 | realw-Q4 | inheritance received | last year inc low | disslikes risks | exp income up |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 0.31 | 0.26 | 0.17 | 0.38 | 0.36 | 0.13 | 0.20 | 0.19 | 0.23 | 0.35 | 0.11 | 0.92 | 0.09 |
| BE | 0.28 | 0.23 | 0.21 | 0.26 | 0.35 | 0.25 | 0.08 | 0.27 | 0.41 | 0.34 | 0.19 | 0.95 | 0.08 |
| CY | 0.25 | 0.29 | 0.22 | 0.23 | 0.36 | 0.21 | 0.10 | 0.16 | 0.62 | 0.44 | 0.31 | 0.88 | 0.05 |
| DE | 0.28 | 0.27 | 0.18 | 0.32 | 0.39 | 0.15 | 0.19 | 0.17 | 0.20 | 0.34 | 0.16 | 0.97 | 0.11 |
| ES | 0.33 | 0.25 | 0.12 | 0.39 | 0.29 | 0.10 | 0.12 | 0.28 | 0.49 | 0.30 | 0.40 | 0.98 | 0.22 |
| FR | 0.36 | 0.27 | 0.10 | 0.39 | 0.33 | 0.12 | 0.13 | 0.24 | 0.29 | 0.40 | . | . | . |
| GR | 0.31 | 0.24 | 0.11 | 0.39 | 0.17 | 0.04 | 0.25 | 0.31 | 0.27 | 0.30 | 0.32 | 0.94 | 0.05 |
| IT | 0.32 | 0.24 | 0.10 | 0.38 | 0.34 | 0.06 | 0.18 | 0.26 | 0.35 | . | 0.18 | 0.81 | 0.13 |
| LU | 0.18 | 0.29 | 0.44 | 0.24 | 0.43 | 0.22 | 0.09 | 0.06 | 0.67 | 0.29 | 0.19 | 0.98 | 0.11 |
| NL | 0.29 | 0.39 | 0.20 | 0.27 | 0.39 | 0.26 | 0.08 | 0.24 | 0.34 | 0.07 | 0.07 | 0.98 | 0.14 |
| PT | 0.27 | 0.12 | 0.06 | 0.39 | 0.24 | 0.07 | 0.31 | 0.28 | 0.19 | 0.29 | 0.23 | 0.98 | 0.05 |
| US | 0.24 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.20 | 0.25 | 0.83 | 0.17 |