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Dimitris Christelis, Dimitris Georgarakos,
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Center for Financial Studies
an der Universität Frankfurt ▪ Mertonstraße 17-21 ▪ D-60325 Frankfurt am Main

Telefon: +49 (0)69 798-30050
Fax: +49 (0)69 798-30077 ▪ http://www.ifk-cfs.de ▪ E-Mail: info@ifk-cfs.de

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Center for Financial Studies
an der Universität Frankfurt ▪ Mertonstraße 17-21 ▪ D-60325 Frankfurt am Main
Telefon: +49 (0)69 798-30050
Fax: +49 (0)69 798-30077 ▪ http://www.ifk-cfs.de ▪ E-Mail: info@ifk-cfs.de

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Economic Integration and Mature Portfolios*

Dimitris Christelis[1], Dimitris Georgarakos[2],
and Michael Haliassos[3]

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Abstract:
This paper documents and studies sources of international differences in participation and holdings in stocks, private businesses, and homes among households aged 50+ in the US, England, and eleven continental European countries, using new internationally comparable, household-level data. With greater integration of asset and labor markets and policies, households of given characteristics should be holding more similar portfolios for old age. We decompose observed differences across the Atlantic, within the US, and within Europe into those arising from differences: a) in the distribution of characteristics and b) in the influence of given characteristics. We find that US households are generally more likely to own these assets than their European counterparts. However, European asset owners tend to hold smaller real, PPP-adjusted amounts in stocks and larger in private businesses and primary residence than US owners at comparable points in the distribution of holdings, even controlling for differences in configuration of characteristics. Differences in characteristics often play minimal or no role. Differences in market conditions are much more pronounced among European countries than among US regions, suggesting significant potential for further integration.

JEL Classification: G21, E23

Keywords: Integration, Aging, Household Portfolios, Stockholding, Private Business, Housing, Counterfactual Decompositions, Quantile Regression.

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1 CSEF, University of Salerno, E-mail: cdimitri@unisa.it

2 University of Frankfurt and Center for Financial Studies; email: georgarakos@wiwi.uni-frankfurt.de

3 University of Frankfurt, Center for Studies and MEA; email: haliassos@wiwi.uni-frankfurt.de

1. Introduction

Economic integration represents the removal of market segmentation imposed by geographical barriers. In its broad sense, it applies to all markets: for goods and services, assets (financial and real), debts, and labor. As an ideal often echoed in public discussions on the European Union and on US federalism, it amounts to the process of harmonizing market conditions faced by households, regardless of location within the Union.

Intertemporal models of consumption, saving, and portfolio choice provide a theoretical context within which to understand the implications of economic integration at the household level. An economic agent of given preferences and characteristics makes optimizing choices for consumption and asset holdings in the face of processes for labor income and asset returns, policies (e.g. for taxation or retirement financing), and constraints (e.g. credit market imperfections, informational limitations). Equilibrium levels of consumption and asset holdings result from the interaction of household preferences and characteristics with the processes, policies, and constraints facing the household. Although market conditions in certain countries may not initially be as conducive to participation and/or to large holdings as those in other countries in the group, integration makes these 'market conditions' progressively more similar.[1]

Even under full integration, though, observed asset/debt holdings and consumption levels need not be the same in different countries or regions. These depend not only on market conditions facing households of given characteristics but also on the configuration of such characteristics in the population. Once differences in characteristics are controlled for, greater integration should be reflected in greater similarity of market behavior among households of given characteristics located in different geographical areas.

Starting from this premise, the paper introduces three novelties. First, it offers a novel perspective to integration that complements existing approaches by focusing on the relationship between household characteristics and asset market behavior of a particularly interesting and policy-relevant group of households. These are households aged 50+, who are well into their accumulation stage and face the consequences of the demographic transition and of the policy responses to it.[2] Results are reported for a range of assets, from stockholding (direct plus indirect in the form of mutual funds and retirement accounts[3]), to private businesses, to homes.

Second, it is the first paper that uncovers patterns of differences in asset market behavior using a set of newly available, internationally comparable, household-level data for the US and for 12 European countries. For the United States, we use data from the Health and Retirement Study (HRS); for England, data from the English Longitudinal Study of Aging (ELSA); and for eleven additional European countries, we use data from the Survey of Health, Aging and Retirement in Europe (SHARE).

In view of the emergence of micro data sets that allow comparisons among a large number of countries, innovative ways of making large-scale comparisons are needed. The third, methodological, novelty of this paper is linked to its new perspective on integration and amounts to a cross-fertilization between labor studies of discrimination and household finance. International comparisons of asset market behavior need to compare households of similar characteristics; discrimination cannot be established in the labor literature unless remaining characteristics are controlled for. We employ modern counterfactual techniques originally developed in the labor literature to study discrimination or other systematic differences in wages for similar remaining

characteristics.[4] We first use the US as a benchmark against which to compare European countries; then, compare different regions in the US; and finally, countries within Europe.

The broad existing literature on economic integration has followed three main approaches, each focused on a different feature of a fully integrated group of countries. One approach is based on the idea that integration should be reflected in considerable international *flows* across markets. Depending on which market is chosen for study, emphasis is placed on cross-border flows of goods and services,[5] claims to financial[6] or real assets,[7] or labor with its implications for immigration policy.

A second approach focuses on *prices* instead of quantities. In a fully integrated market for goods, the law of one price should hold.[8] In a fully integrated asset market, the price of risk should be the same, i.e. expected returns should be the same across assets that have the same covariance with world risk.[9] As market segmentation diminishes, expected returns in a country should be more a function of covariance with world risk and less a function of the variance of that country's returns.

A third approach has focused on *consumption* behavior under international risk sharing. In a fully integrated world, households would insure against output risks idiosyncratic to their countries by holding securities in other countries subject to different shocks. Under perfect risk sharing, country-specific shocks to consumption growth would bear no correlation to country-specific output growth shocks; and consumption growth rates would have high correlations internationally even if output growth rates did not. Lewis (1999) termed the observed violation of these patterns 'consumption home bias', surveyed the literature, and linked it to home equity bias.

Our findings suggest that US households of given characteristics tend to have greater participation probabilities than their European counterparts, often across the range of assets considered. However, European asset owners tend to hold smaller real, PPP-adjusted amounts in stocks and larger amounts in real assets (private businesses and primary residence) than US households at comparable positions of the distribution of holdings, even after controlling for differences in the configuration of characteristics in the asset holder pools. In most cases, international differences in the configuration of characteristics play minimal or no role in generating observed international differences in asset market behavior. Differences in market conditions are substantially more pronounced among European countries than among US regions, suggesting significant potential for further integration.

In Section 2, we describe the data for households aged 50 or above as regards asset market participation rates and levels of holdings among holders. In Section 3, we focus on asset market participation. We distinguish between the role of the configuration of characteristics and of the contributions of given characteristics to participation in the US and Europe. In Section 4, we focus on asset owners and decompose observed international differences in asset holdings at various percentiles of the distribution of such holdings into two parts: (i) those that result from differences in configuration of household characteristics; and (ii) those that arise from a different relationship between characteristics and amounts. We link results to existing indicators of the state of relevant asset markets and of government policy throughout. Section 5 offers concluding remarks.

2. The Data

We use the three most comprehensive data sets on portfolios of households aged 50 and above currently available. The Health and Retirement Study (HRS) surveys US older households every two years since 1992; the English Longitudinal Study of Aging (ELSA) surveys older households in England with waves in 2002 and in 2004; the Survey of Health, Aging and Retirement in Europe (SHARE), modeled after the HRS and ELSA, collected its first wave in 2004 in Sweden, Denmark, Germany, the Netherlands, France, Switzerland, Austria, Italy, Spain, and Greece; and in 2005 in Belgium. We use the 2004/5 wave for all countries.

Table 1 reports participation rates and levels, by quartile of holdings, for three main asset types (stockholding,[10] private business, and principal residence); as well as levels of net worth, all in PPP-adjusted thousands of 2004 dollars and for households aged 50 or above. Taking Europe as a whole, net worth is slightly higher than in the US at the median, but lower at the lower and upper quartiles. There is considerable variation of net worth within Europe, and country rankings change as we move along the distribution. The lowest median net worth is observed in Sweden and the largest in England. For the lowest quartile, Austria and Belgium provide the two extremes. Switzerland comes top for the richest quartile, with Sweden at the bottom.

Ownership of stocks, either direct or indirect through mutual funds and retirement accounts, is greatest in Sweden, Denmark, and in the US. It is smallest in Austria, Italy, Spain, and Greece. Homeownership is highest in Spain, and lowest in Germany, Netherlands, Switzerland, and Austria. The highest rates of business ownership are observed in Sweden and Switzerland, with the US and Denmark a short distance behind

them. The lowest rates are observed in Austria and England. Asset ownership rates differ also by region within the US, but the range of variation is substantially smaller.

Turning to the size of asset holdings, we find a stark contrast between real and financial assets. The US dominates practically every European country in stockholding;[11] and is dominated by the vast majority of European countries in real assets, both measured in real terms, PPP adjusted.[12] US regions also exhibit some heterogeneity in asset holdings. For stocks and private businesses, the range of values across US regions is substantially smaller than in Europe. This is also true for the lowest quartile of the housing distribution, but for the median and the 75th quartile there is variation in the US comparable to that in Europe.

3. Sources of International Differences in Asset Participation

3.1 Estimation Model and Methodology

In this section, we decompose differences in observed participation rates into those resulting from different configuration of characteristics in the population and those resulting from international differences in the influence of a given set of characteristics. We will refer to the former as 'covariate effects' and to the latter as 'coefficient effects'. This decomposition is based on a set of probit regressions, where participation in a given asset is regressed on a number of household characteristics.

We use as regressors the following variables: 2nd order age polynomial, gender, household size, education (high school certificate, and post secondary degree), work status (retired/working/unemployed-other inactive),[13] marital status (couple/widow/never married), recall ability[14], self-reported bad health (includes responses 'fair' and 'poor' in

HRS), subjective probability to leave a bequest, whether household provides help to relatives/neighbors, whether it is involved in voluntary activities, income quartile, wealth quartile (where wealth excludes the asset in question).

We first run one probit for each asset in the country used as the 'base'. Table A.1 presents a representative set of coefficient estimates. We then construct the counterfactual, $\hat{p}^{i,base}$, namely the average predicted probability of participation that the population in country *i* would exhibit if they faced the coefficients on characteristics that were estimated for the base country. The difference in participation rates between the base and country *i* is then decomposed into two differences:

$$pr^{base} - pr^{i} = \left\{pr^{base} - \hat{p}^{i,base}\right\} + \left\{\hat{p}^{i,base} - pr^{i}\right\} \quad (1)$$

The first ('covariate effects') is the difference between participation by residents in the base country and the average participation probability that residents of country *i* would exhibit if they faced the same coefficients as the base country. The second ('coefficient effects') is the difference between participation in country *i* and the participation probability that its residents would exhibit on average if they were faced with coefficients of the base country. This yields point estimates of the two effects. We compute bootstrap standard errors by drawing (with replacement) the full sample size from both countries and repeating this estimation and decomposition two hundred times.

The more integrated a set of countries or regions, the closer the probabilities of participation should be for households of given characteristics. Coefficient effects would speak directly to this question. Covariate effects show the extent to which differences in participation probabilities are due to a relatively unfavorable composition of the population in a particular country or region. We first use the US as 'base' and compare to

it European countries. In order to set a realistic standard, we then consider coefficient and covariate effects among US regions (using the Midwest as the base region), which share a common federal government but also allow state discretion, especially on fiscal matters. Finally, we examine integration among European countries, using Germany as the base.

Coefficient effects ('market conditions') in probit regressions are in principle a mix of demand- and supply-side factors. For example, better 'market conditions' for stockholding participation in the US could be resulting partly from institutional factors (e.g., transactions costs and the functioning of financial markets) and partly from taste and cultural factors favoring risky financial instruments. Moreover, the two may be linked: tastes and culture contribute to shaping institutions, while institutional factors can also influence the evolution of market culture. Integration is likely to work along both margins: harmonizing institutions and policies, and promoting convergence in tastes and culture. While precise attribution of coefficient effects to specific features of the market environment in each country is beyond the scope of our paper, we find that the pattern implied by our estimates is consistent with the pattern of various widely-used indicators of institutional and policy features. This in turn implies that observed coefficient effects are not the result of demand factors alone, and that harmonizing institutions and policies can be an important avenue towards achieving greater similarity in the link between household characteristics and asset market behavior.

3.2 US-Europe Comparisons

Figure 1 shows coefficient and covariate effects on average probabilities of participation in the stock market for European countries using the US as the base country.

Our findings imply that households of given characteristics are more likely to invest in stocks if they live in the US rather than in most European countries. According to our estimates, there are only three European countries whose older households would be discouraged from participating if they faced US market conditions: Sweden (where the effect exceeds 25 percentage points), Denmark and France.

Table 2 presents a number of stock market indicators. According to these, the US has the lowest transactions costs in the stock market, the greatest spending on information and communication technology as a percentage of GDP, and the highest stockholder protection. All three factors have been shown in existing literature on stockholding participation to encourage participation. The special position of the aforementioned three European countries seems to be related in part to the state of pension systems.[15] In Sweden and Denmark, mandatory retirement accounts exist.[16] The extremely high internet penetration in Sweden must have further contributed to the results. Finally, these are 3 of the 5 European countries in our sample where defined-contribution, occupational pension plans were available (in 2004), most likely creating spillovers to forms of stockholding included in our data.[17]

Older households in Europe are also estimated to have observable characteristics that are less conducive to participation in the stock market than their US counterparts. This is true even in Sweden, where observed stockholding participation is larger than the US. Although in most cases coefficient effects dominate covariate effects in size, population characteristics are estimated to be more important than market conditions in Belgium, Spain England, and France. In the last case, effects are of opposite signs, and characteristics are responsible for observed more limited stockholding relative to the US.

Let us now turn to ownership of (at least a share in a) private business (Figure 2). Our estimates imply that market conditions are largely responsible for lower participation in private business in Europe than in the US. Only in Sweden are market conditions found to be more conducive to participation than in the US. Our estimates of covariate effects imply that most European older populations have characteristics equally conducive to business ownership as those of the US population.[18]

A number of indicators suggest that estimated coefficient effects reflect supply-side conditions rather than simply a stronger taste of US households for business ownership. Particularly telling is the World Bank 'Ease of Doing Business' indicator (Table 3). In terms of the overall index, the US is where it is easiest to do business among the countries we examine. The index takes a rather simple approach to aggregating rankings across different criteria, namely straight averaging. Sweden ranks above the US in various aspects, such as dealing with licenses, registering property, trading across borders, and enforcing contracts. It seems plausible that such issues have considerable weight in the decision of older Swedish households to participate in private business, contributing to the special role of Sweden in our findings.

For homeownership, coefficient effects are positive in most cases, suggesting that households of given characteristics face favorable market conditions in the US (Figure 3). Exceptions are Spain and Greece. We discuss indicators of market conditions below, when we look at size of holdings. Covariate effects are positive in Germany, the Netherlands, Austria and Spain, and negative in Belgium and Switzerland, thus giving a mixed picture on whether the characteristics of US homeowners are more conducive to homeownership than those of European homeowners.

3.3 Integration within the US

In this section, we carry out the analysis across four US regions, Midwest (MW, used as the base region), Northeast (NE), South (S), and West (W). We do so for two main reasons. First, coefficient effects across the Atlantic look sizeable, but it is useful to put them into perspective by comparing them to some realistic case of 'full' integration. Clearly, zero coefficient effects represent an extreme theoretical benchmark unlikely to be met in practice. Second, while the US enjoys mobility of labor and capital across geographical regions, a common monetary policy and stock market, and common federal institutions, it also exhibits variation across its States, e.g. with respect to fiscal matters. It is thus interesting to see if our method is sensitive enough to pick up significant differences in market conditions arising from such considerations, and how large these effects are compared to those across the Atlantic.

The top panel of Table 4 shows regional differences in average participation probabilities for each asset within the US. The column 'Total Difference' lists observed differences in ownership rates relative to the reference region (MW). Households in the MW exhibit somewhat higher participation in all three assets examined, especially relative to the S for stockholding, and to the NE for ownership of home and business.

The column 'Difference due to Coefficients' reports by how much participation probabilities would change on average if residents faced instead the market conditions of the reference region. Market conditions in the MW are typically estimated to be more conducive to participation in any of these asset classes. Though statistically significant, most estimated differences are small.[19]

The configuration of (older) household characteristics in the MW is estimated to be only slightly more conducive to ownership of the three assets considered (see third column: 'Difference due to Covariates'). Covariate effects are often statistically significant, positive, but all quite small. All in all, the pattern of coefficient (and covariate) effects suggests much greater integration within US regions than across the Atlantic, strengthening our confidence in the approach.

3.4 Integration within Europe

In this section, we consider how European countries differ in the distribution of characteristics and in the influence of given characteristics on asset market participation. The bottom panel of Table 4 reports differences in rates of asset market participation and their breakdown into coefficient and covariate effects for Europe using Germany as the base. We find that differences in participation rates across Europe arise mainly from differences in market conditions rather than in the mix of household characteristics. With very few exceptions, coefficient effects are statistically significant and often quite large, especially for stockholding and homeownership, though much smaller for business ownership. Covariate effects are insignificant more often than not, and usually small.

Market conditions in Germany are estimated to be impressively less conducive to stockholding compared to a number of other countries. Indeed, if Swedes were to face German market conditions, their average participation rate in stockholding would drop by more than 45 percentage points. The Danes and the French would also exhibit substantial drops, between 21 and 28 percentage points. Still, German conditions are found to be more conducive to stockholding than those in Austria, Spain, Italy, and Greece. Covariate

effects are generally small for stockholding, except perhaps for Spanish and Italian households, which would exhibit 5 to 7 percentage points lower average participation probabilities compared to the German population, if all faced the same conditions.

Germany has notoriously low homeownership rates. Our estimates show that this has nothing to do with the mix of observed characteristics of German households, which is either similar or more conducive to homeownership (sometimes substantially so – witness the Netherlands, Spain and England) than the other European countries considered. The real source of the difference is housing market conditions, and the economic significance of this difference is very large indeed. Homeownership rates in southern Europe and England would drop by between 28 and 43 percentage points if their populations were confronted with German conditions. But even in Belgium and France, drops would be of the order of 25 percentage points.

Undoubtedly, part of the differences in homeownership rates for households of given characteristics and observed attitudes has to do with culture: e.g., the importance attributed to homeownership, or to providing housing gifts to children when they marry. Another part could be due to differential transactions costs, tax treatments, and credit market conditions across Europe. This is indeed suggested by the high transactions costs in Germany and the inability of owners-occupiers to deduct mortgage interest, unlike what applies to owners who rent to others. As mentioned above, it is not clear if these two parts are conceptually distinct. Policies need to be acceptable given cultural predispositions of the electorate; and long-standing policies or features of the housing and employment markets may promote a particular 'culture' with respect to housing (e.g. a tendency to accumulate housing and give housing gifts to children). When there is

substantial interaction between culture, institutions, and policies, progress towards integration is likely to be slower and more cumbersome.

Our findings for private business ownership suggest greater similarity of market conditions in Europe. Coefficient effects are insignificant in the Netherlands, Belgium, France, Greece, and England; and relatively small when significant. Except for Austrians, other populations with significant effects would experience lower average estimated probabilities of participation if exposed to German conditions. Covariate effects are also small or insignificant.[20]

All in all, we find that although US regions do not provide complete uniformity in market conditions favoring ownership of different assets, European differences are quantitatively larger for stockholding and home ownership, though often not for private business ownership. In some cases, we also find that population characteristics differ in ways that matter, statistically and quantitatively, for differences in asset ownership.

4. Levels of Asset Holdings

We turn now to real, PPP-adjusted levels of asset holdings across the thirteen countries and ask whether market conditions in some countries (regions) are conducive to larger holdings. We study the entire distribution of holdings across the asset holder pool in each country, and are thus able to examine whether market conditions facing relatively small holders show greater similarity across countries compared to conditions facing large holders. We consider the same reference countries or regions as for participation.

4.1 Estimation Model and Methodology

We employ a variant of a technique proposed by Mata and Machado (2005), based on quantile regressions.[21] We first estimate nineteen vectors *j* of quantile regression coefficients at every 5th percentile, θ_j, of the distribution of the asset in the base country:

$$Q_{\theta j}^{base}\left[y^{base} \mid X^{base}\right] = X^{base} b^{base}\left(\theta_j\right) \tag{2}$$

We control for the same set of regressors as in the participation probit described in Section 3.1. Table A.2 presents sets of median regression estimates, by asset, for the three reference countries or regions: US, used for US-Europe comparisons; MW, used for within-US comparisons; and Germany, used for comparisons across Europe.

We then make *m* random draws, with replacement, of characteristics and corresponding weights from the European country *i*, where *m* is the number of owners of the asset in question in the sample from country *i*. This process is repeated nineteen times. Each outcome of these draws, containing m observations, is denoted by X_j^i. We generate nineteen counterfactual samples of size *m* from the desired conditional distribution: $y_j^* = X_j^i b^{base}\left(\theta_j\right)$. We use these values to generate the unconditional counterfactual distribution: $f^*\left(y; X^i b^{base}\right)$. Finally, for each of the three sequences of variables (log asset holdings in the 'base', in country *i,* and counterfactual values), we calculate percentiles using population weights.

The decomposition can be represented as:

$$f\left(y^{Base}\right) - f\left(y^i\right) = \left\{f\left(y^{Base}\right) - f^*\left(y; X^i b^{Base}\right)\right\} + \left\{f^*\left(y; X^i b^{Base}\right) - f\left(y^i\right)\right\} \tag{3}$$

The densities without asterisk represent the actual levels of the asset in question across their distribution among owners. The starred density is the counterfactual we construct.[22]

In interpreting this decomposition, we can think of starting with the distribution of asset holdings in a particular country or region *i* and comparing it to what would have been observed if the population of asset holders were confronted with the same market conditions facing asset holders in the base country. The resulting difference (in the second bracket) represents these coefficient effects. We also compare the counterfactual to the actual density in the base country. This difference (in the first bracket) represents covariate effects, i.e. those attributable to differences in configuration of characteristics between holders of this asset in country or region *i* and in the 'base'.

We also compute and present confidence bands for covariate and coefficient effects based on bootstrapped standard errors. To construct them, we first derive one hundred bootstrapped samples from the base sample of asset holders used in step 1. We then derive nineteen vectors of QR estimates using each of these bootstrapped samples. Then, by repeating the process described above one hundred times, we generate a series of one hundred bootstrapped counterfactual distributions and use them to derive standard errors.

We have performed several robustness checks, which have yielded results consistent with those presented here (details can be found in Appendix 2). An issue of potential concern is selectivity and its possible effects on the estimates of the covariate and coefficient effects. Given the lack of a generally accepted method of handling selectivity in quantile regression, we examined whether decompositions of mean differences in asset levels are sensitive to selectivity. Specifically, we applied the selectivity-corrected decompositions proposed by Neuman and Oaxaca (2004) and found that they give quite similar results to decompositions of mean differences that ignore selectivity (see

Appendix 2 for a fuller discussion). Thus, we doubt that our main conclusions in this paper are affected by this issue.

4.2 Europe versus the US

4.2.1 Direct and Indirect Stockholding

Figure 4 shows coefficient and covariate effects for stockholding levels. US stockholders hold greater amounts of stock wealth across the distribution of stock holdings compared to any European country (except for Switzerland). With some exceptions (Sweden and Spain), counterfactual decompositions show that this difference across the board is basically attributable to coefficient effects, with covariate effects close to zero. This means that, given their characteristics, European stockholders would achieve considerably higher levels of stock holdings if they were confronted with US market conditions. Sweden, still exhibits significant coefficient effects in this direction, but most of its observed difference in stockholding levels relative to the US is attributable to the characteristics of its stockholder pool. This is not a trivial consequence of the fact that stock market participation is more widespread in Sweden than in the US, and thus Swedish stockholders are less of a selected group than the US ones. In Denmark, participation is also greater than in the US, but coefficient effects dominate. In fact, coefficient effects are particularly large in Denmark, Austria, and Greece, which exhibit quite different participation rates. On the other hand, Switzerland represents the only country with insignificant coefficient effects across most of the percentiles.

Our findings seem quite consistent with World Bank and other indicators related to equity markets (Table 2). Denmark, Austria and Greece exhibit the three lowest scores in

terms of the World Bank stock market size indicator, which allows for market capitalization, value traded and turnover ratios. At the other extreme, Switzerland ranks at the top of this index. Low stockholding levels are observed in countries exhibiting poor institutional characteristics, such as high transactions costs and limited shareholder rights, rather than being closely linked to properties of stock returns (as reflected in the volatility and market stability measures).

Estimated coefficient effects in Belgium, and Austria clearly diminish at the upper end. This suggests that the larger stockowners in those two countries and US owners of given characteristics have stock holdings closer in value compared to how close the holdings of small holders are, for given characteristics. The opposite is true in Spain, Italy, (and to a lesser extent, France and Greece). There, coefficient effects show a tendency to increase as we move across the distribution of stock holdings, implying that large US stockholders of similar characteristics to large European holders end up holding substantially larger real amounts in stocks.

4.2.2 Private Businesses

Figure 5 shows observed differences and counterfactual decompositions for private business holdings among older households holding them. US households typically invest lower real amounts in private businesses across the entire distribution of such holdings. Most of the difference can be accounted for by differences in market conditions, with hardly any role for differences in characteristics of holders. If European private business holders were faced with US markets conditions, they would be holding lower amounts.

Differences with US holdings are not noticeable in Spain and Greece.[23] While Spain fails to exhibit significant coefficient or covariate effects, Greece is seen to have market conditions that favor larger holdings, but these are neutralized by covariate effects pushing in the opposite direction. England represents the only case where business holders (except for those at the top of the distribution) would hold higher amounts if they were faced with US market conditions. The size of coefficient effects diminishes as we move across the distribution of holdings, and is hardly noticeable for the largest holders.

Interestingly, findings on relative sizes of business holdings go in the opposite direction from results on participation rates: while it is easier to do business in the US (Table 3), those who do business there end up investing smaller amounts than most Europeans with similar characteristics. As discussed already in the participation section, Table 3 shows that the US does not rank at the top in several indicators of ease of doing business. Table 5 additionally shows that eight of the European countries considered rank above the US in terms of the overall quality of governance indicator. The complete reversal of the ranking between participation and size may reflect a tendency of many older households in the US to set up businesses mainly for tax reasons.

4.2.3 Value of Main Residence

Figure 6 shows differences in real gross values of another real asset, primary residence, between the US and European countries. As for private businesses, the overall picture is one of higher real, PPP-adjusted values in Europe than in the US. US homeowners invest larger amounts in the house only when compared to Swedish or Greek households at similar points in the distribution of home values. Differences are

negligible when US homeowners are compared to Denmark or Spain.

Coefficient effects present an even starker picture than differences in observed values. In most countries considered and throughout the distribution of home values, European homeowners invest in the primary residence larger real amounts than US homeowners of similar characteristics.[24] Covariate effects are either insignificant or imply a configuration of characteristics in the US that is conducive to larger holdings than that in the European country considered. To be sure, Table 6 illustrates that larger real holdings do not represent, on average, larger homes in Europe than in the US: there is a quantum leap in average size of dwelling when crossing the Atlantic. Europeans simply tie up larger real amounts in their primary residence compared to US homeowners of similar characteristics and position in the distribution of home values.

We view this as an intriguing finding unlikely to have a simple explanation, primarily because of how widespread the tendency is for Europeans to have larger holdings. It seems unlikely that the difference is simply price-related. While there are areas in the US where land is abundant and house prices relatively low, the data include also homeowners from the W and the NE, where land is highly priced. While there are countries in Europe with particular land shortage (such as the Netherlands), and a number of countries that have experienced strong booms in real housing prices (especially Spain, UK, and Italy), the finding applies even to Germany, with stagnant or even declining house prices.

Another possibility would be a uniformly more favorable tax treatment of housing in Europe. However, Table 7, which gives details on the taxation of residential property, does not suggest a favorable treatment, except perhaps in terms of not taxing capital gains, but again this applies only to some European countries. Paying larger amounts for

the house (given household resources) is also unlikely to be linked to greater availability of large mortgages in Europe: loan to value ratios in mortgage markets are generally lower - or at least no higher - in Europe compared to the US (Table 8). Finally, the possibility that the European preference for real assets is linked to bequest motives or receipts of housing gifts or inheritance that tend to be more widespread in Europe than in the US is weakened by the fact that we are already controlling for survey responses indicating the probability to leave a bequest. Greater prevalence of such factors would thus be captured in the configuration of covariates, which is kept constant when deriving coefficient effects. Covariate effects imply that the pool of US homeowners has characteristics that are either quite similar to those of Europeans or even conducive to larger home values than the pool of European homeowners.[25]

4.3 Integration within the US

Table 1 shows real PPP-adjusted levels of asset holdings for owner at the 25th, 50th, and 75th percentiles located in four regions of the US. The W and NE clearly dominate in terms of amounts held in stocks, while the W exhibits the highest values of the primary residence, with NE as second. The MW dominates in values of private businesses.

Table 9 reports counterfactual decompositions at three indicative percentiles of the distribution of log differences in asset holdings: 25th, 50th, and 75th. For stockholding, coefficient effects are largely insignificant, suggesting that households located in different regions of the US face similar market conditions. We find greater incidence of statistically significant coefficient effects for private businesses and even more so for primary residence where they span all percentiles considered. Indeed, coefficient effects

can largely explain regional differences across the distribution of home values, with covariate effects making a statistically and quantitatively significant contribution only in the S. These findings are consistent with indicators of housing market conditions, such as lower prices and higher vacancy rates in the MW and in the S (Table 10).

The pattern of significance for coefficient effects seems quite consistent with what one would expect to hold across regions of a large, federal country. With regard to stockholding (and in view also of the well-known home equity bias), US households face essentially the same stock market but what can differ is their ease of access to stocks (e.g., through financial institutions, mutual funds, or brokers). At the opposite extreme is housing: those with primary residence in a particular region face the local housing market conditions. In order for these to be similar across regions, households need to be willing and able to move to where the housing market offers better terms. Even if the policy and institutional framework governing housing markets were fully harmonized across states, differences could still arise because of differential employment opportunities; or of differential quality of factors complementary to housing (e.g. school quality). It is also sensible that market conditions governing private business holdings turn out to be less integrated than those for stockholding and more integrated than housing. This market is less segmented than the housing market, because a household does not need to own a private business where its members want to live. However, supervision, control, and any participation in the management of the private business are considerably facilitated by geographical proximity. This results in some market segmentation, the effects of which show up in our findings.

4.4 Integration within Europe

The bottom panel of Table 1 reports PPP-adjusted, real asset holdings in European countries. Table 9 decomposes (log) differences in observed amounts for each asset class into coefficient and covariate effects, using Germany as the base country. Stocks were the asset for which coefficient effects were largely insignificant within the US, but this is not the case for Europe. The vast majority of countries exhibit strongly significant effects, both statistically and economically. Very few covariate effects turn out to be significant, all in favor of the German stockholder pool being conducive to larger holdings.

Our US results above suggest that fully integrated stock markets do not lead to strong coefficient effects when comparing households in different locations. Strong coefficient effects for financial assets suggest that European households neither invest in the same stock market nor do they consider the full spectrum of European markets as equally accessible to them. This European home equity bias (even after the adoption of the euro) is noteworthy, as it does not seem to be confined to small holders: coefficient effects tend not to disappear at the upper end of the distribution.

For private businesses, we find strongly statistically significant coefficient effects across Europe at the upper part of the distribution, and fewer such effects at the median and bottom part. This pattern of statistical significance is exactly the opposite of what we found for the US where coefficient effects suggest that large, rather than small or median, business holders face similar conditions regardless of location.

Finally, and consistent with the US, coefficient effects for home values are statistically significant across the distribution. However, their estimated size and sign exhibit much greater variation across European countries. This is so, even though

Germany has the lowest homeownership rate in the group and one might suppose a priori that it offers uniformly less favorable conditions to homeowners. A number of significant covariate effects have to do with homeowner characteristics in Europe. For countries in southern Europe, Austria and England they are only significant for small homeowners, but for other countries they are only significant for large homeowners.

5. Concluding Remarks

In this paper, we have used recently available, internationally comparable data across thirteen countries to document and study sources of differences in portfolios of older households, across the Atlantic, within the US, and within Europe. We focused on the question of whether households of given characteristics tend to have similar patterns of asset market participation and of asset holdings across these countries. We applied counterfactual analysis to the asset market behavior of households with mature portfolios in order to provide a fresh perspective on economic integration, complementary to existing studies based on international flows, prices, and risk sharing.

Our findings suggest that households of given characteristics tend to have quite different probabilities of participating in a given asset, and also quite different real, PPP-adjusted asset holdings, both across the Atlantic and within Europe. In most cases, participation probabilities are greater in the US than in Europe. However, the same is not true of levels of asset holdings. European asset owners tend to hold smaller real amounts in stocks and larger amounts in real assets (private businesses and primary residence) than US households at comparable positions of the distribution of holdings, even after controlling for any differences in the configurations of characteristics in the asset holder

pools. This pattern emerges clearly in many facets of our analysis, seems worthy of future investigation and is unlikely to have a simple explanation. In most cases, international differences in the configuration of asset holder pools play minimal or no role in generating observed differences in asset holdings. Moreover, differences in market conditions are substantially more pronounced among European countries than among US regions, suggesting a substantial potential for further integration.

Our analysis is positive rather than normative. Finding differences in market conditions does not necessarily imply that these differences should be eliminated through institutional reform and policy harmonization. Promoting participation in, or large holdings of, a particular type of asset can be a political choice on the part of certain governments or societies. Our findings provide a check on consistency between stated objectives and market conditions. However, our findings do not seem consistent with the notion that European households are already citizens of a Europe-wide (let alone transatlantic) 'village' facing similar economic environments, policies and constraints regardless of the country in which they reside.

Our study could encourage work in several directions. The pattern of coefficient effects between Europe and the US, signaling reversals between financial and real assets, as well as the pattern for smaller country groups present interesting challenges for future research. The approach to integration in terms of household asset market behavior, which we have introduced in this paper, can in principle be applied to a range of assets and debts; to different countries (for example, comparable surveys are currently designed or collected in Japan, Korea, China and India) and/or demographic groups of interest. Finally, counterfactual distributions can be applied to various areas of household finance.

Appendix 1: Probit and Quantile Regressions

Counterfactual analysis of participation is based on probit regressions for participation in the base country or region. Participation probits for the US, the Midwest, and Germany are presented in Table A.1. Counterfactual analysis of amounts held is based on quantile regressions for the base country or region. As an example, Table A.2 lists results for median regressions.

Appendix 2: Robustness Exercises

We have performed a variety of checks for robustness. First, we have estimated different specifications of the quantile regression models estimated in the base country or region (US, Germany and MW). In particular, we have experimented with specifications that use a non-linear (inverse hyperbolic sine) continuous transformation of income and wealth variables instead of quartiles and the patterns derived are similar to those we present.[26]

Second, we evaluated alternative counterfactual distributions that combine the configuration of characteristics of asset holders in the base country with the coefficients on those characteristics estimated for each comparison country or region *i*. This reverses the order of the decomposition in Section 4.1 in the following way:

$$f\left(y^{Base}\right) - f\left(y^{i}\right) = \underbrace{\left\{f\left(y^{Base}\right) - f^{*}\left(y; X^{Base} b^{i}\right)\right\}}_{Coefficients} + \underbrace{\left\{f^{*}\left(y; X^{Base} b^{i}\right) - f\left(y^{i}\right)\right\}}_{Covariates} \quad (4)$$

In the Mata-Machado decomposition, the relative contribution of coefficient and covariate effects can vary depending on the choice of base. A general way to address this problem is to use the Shorrocks-Shapley generalization (Shorrocks, 1999), according to which coefficient and covariate effects can be derived as averages of effects calculated from both possible choices. We have estimated coefficient and covariate effects according to the Shapley-Shorrocks generalization and the decomposition in (4) and they are both similar to those we present, with differences appearing only at high and low quantiles of business holdings. It is likely that these differences are due to the small samples of business owners in all European countries (less than 150 observations).

Third, we have implemented the original Mata-Machado decomposition[27]:

$$f\left(y^{Base}\right) - f\left(y^{i}\right) = \underbrace{\left\{f^{*}\left(X^{Base} b^{Base}\right) - f^{*}\left(y; X^{i} b^{Base}\right)\right\}}_{Covariates} + \underbrace{\left\{f^{*}\left(y; X^{i} b^{Base}\right) - f^{*}\left(X^{i} b^{i}\right)\right\}}_{Coefficients} + error \quad (5)$$

Again, coefficient and covariate effects are qualitatively similar to the ones we present.

Finally, we investigate the potential effects of selectivity in the counterfactual decompositions we present. To the best of our knowledge, the only method that corrects quantile regression estimates for selectivity is due to Buchinsky (1998). In his method however, identification of the constant term (which is necessary for our decompositions)

rests on the assumption that there is a subset of observations for which participation probability is very close to one. Unfortunately, there is no such subset of observations for any of the assets we consider, and thus we perform our quantile regression without taking selectivity into account.

In order to investigate the effects of ignoring selectivity, we examine its effects on the coefficient and covariate effects at the mean instead of different quantiles. To this end, we estimate coefficient and covariate effects from a standard Oaxaca-Blinder decomposition (see Blinder (1973) and Oaxaca (1973)) and we compare them with those derived from decompositions computed after taking into account selectivity through a Heckman-type model. There are various such decompositions (for a detailed discussion, see Neuman and Oaxaca, 2004). We choose the decomposition that corresponds to eqn. 14 in Neuman and Oaxaca (2004), which represents the most encompassing view for integration in the sense that country differences in the estimated parameters from the asset ownership equation and differences in the effects of selectivity in the amounts invested are viewed as reflecting lack of integration. On the other hand, differences in the configuration of characteristics determining asset ownership are treated as covariate effects. We perform selectivity–corrected decompositions only for holdings of stocks and the main home, since we find no evidence of selectivity for private business holdings.

Following the notation in Neuman and Oaxaca (2004) the conditional expectation of the asset amount among owners derived from a Heckman-type model is equal to[28]:

$$E(Y_i \mid L_i = 1) = \overline{X}_i'\hat{\beta} + \hat{\theta}\hat{\lambda}_i \tag{6}$$

where L is an index of participation, $\overline{X}$ denotes the mean of X, $\hat{\lambda}$ is an estimate of the mean (inverse) Mill's ratio evaluated from the asset participation stage, and $\hat{\theta}$ is its estimated coefficient. Then, we perform the following two decompositions:

$$\overline{Y}_{Base} - \overline{Y}_i = \underbrace{\overline{X}'_i(\hat{\beta}_{Base} - \hat{\beta}_i)}_{Coefficients} + \underbrace{(\overline{X}'_{Base} - \overline{X}'_i)\hat{\beta}_{Base}}_{Covariates} \tag{7}$$

$$\begin{aligned}\overline{Y}_{Base} - \overline{Y}_i = &\underbrace{\overline{X}'_i(\hat{\beta}_{Base} - \hat{\beta}_i) + \hat{\theta}_{Base}(\hat{\lambda}^0{}_i - \hat{\lambda}_i) + (\hat{\theta}_{base} - \hat{\theta}_i)\hat{\lambda}_i}_{Coefficients} \\ &+ \underbrace{(\overline{X}'_{Base} - \overline{X}'_i)\hat{\beta}_{Base} + \hat{\theta}_{Base}(\hat{\lambda}_{Base} - \hat{\lambda}^0{}_i)}_{Covariates}\end{aligned} \tag{8}$$

where $\hat{\lambda}^0{}_i$ represents the mean value of the inverse Mill's ratio if households in country *i* faced the same coefficients for participation in a given asset category as households in the base country. The decomposition in (7) is the traditional Oaxaca-Blinder one and thus does not take into account selectivity, while the one in (8) does. Results are summarized in Table A.3, and we observe that accounting for selectivity has practically no impact on the estimates of the covariate and coefficient effects. These findings lead us to believe that our counterfactual decompositions using quantile regressions are unlikely to be affected by the omission of any correction for selectivity.

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Table 1: Asset ownership rates and levels by asset quartiles

Country/ Region	Number of Households	NET WORTH			STOCKS				OWN BUSINESS				HOME			
		Quantiles			Ownership Rate (%)	Quantiles among owners			Ownership Rate (%)	Quantiles among owners			Ownership Rate (%)	Quantiles among owners		
		25	50	75		25	50	75		25	50	75		25	50	75
United States	***13,073***	***40.0***	***162.1***	***437.0***	***49.7***	***11.0***	***49.5***	***169.0***	***9.8***	***40.0***	***100.0***	***350.0***	***77.3***	***80.0***	***150.0***	***250.0***
Midwest	3,170	52.0	178.2	428.1	54.5	10.0	45.0	150.2	13.8	50.0	150.0	400.0	80.9	82.0	132.0	200.0
Northeast	2,125	39.7	193.5	475.9	54.7	11.0	52.0	172.5	6.8	40.0	100.0	300.0	70.6	92.0	190.0	340.0
South	5,138	29.9	113.0	326.0	42.6	10.0	43.9	153.0	9.3	25.0	90.0	250.0	78.3	63.0	100.0	180.0
West	2,399	53.0	228.5	582.0	52.1	14.0	53.3	182.5	8.6	30.0	100.0	300.0	76.9	140.0	250.0	400.0
Europe	***25,394***	***31.5***	***166.0***	***371.2***	***26.3***	***5.0***	***16.9***	***52.7***	***6.3***	***58.6***	***165.1***	***562.5***	***68.3***	***112.5***	***195.2***	***314.6***
Sweden	2,140	24.6	98.2	238.2	71.1	4.1	13.1	38.4	12.8	31.8	153.5	507.8	69.0	51.2	102.3	163.7
Denmark	1,176	28.5	147.5	334.8	56.0	2.8	9.2	31.1	9.5	52.7	340.4	556.0	69.0	90.8	141.8	226.9
Germany	2,002	13.3	110.9	322.1	24.1	4.7	16.2	52.4	6.3	77.1	209.7	1,304.9	51.1	154.1	209.7	314.6
Netherlands	1,954	11.0	144.7	367.0	24.0	7.6	24.8	88.5	6.7	101.2	333.9	1,489.3	55.3	192.3	263.1	384.5
Belgium	2,532	102.2	224.8	473.8	37.5	6.3	32.7	138.5	5.4	146.4	308.3	770.8	80.0	127.4	178.3	256.9
France	2,110	57.5	208.1	489.9	42.9	4.7	18.2	55.0	5.9	66.0	180.2	311.9	72.2	125.1	200.3	325.1
Switzerland	712	41.7	234.6	632.3	35.7	11.2	35.7	118.8	10.8	62.5	206.6	982.7	55.1	253.6	357.0	561.1
Austria	1,409	10.3	119.0	287.5	9.8	4.9	14.0	44.7	4.1	80.6	113.3	164.0	56.6	108.0	194.4	324.0
Italy	1,778	44.0	164.0	345.4	10.1	7.9	20.3	42.2	6.4	67.1	116.2	562.5	75.2	111.2	168.7	314.4
Spain	1,753	74.3	170.8	366.8	11.1	5.5	14.6	30.5	7.0	51.1	116.5	232.4	86.9	85.4	146.4	244.1
Greece	1,982	57.3	124.1	245.7	10.6	2.7	7.9	20.6	6.8	37.6	124.1	236.7	84.3	62.0	99.3	186.1
England	5,721	75.7	257.4	443.3	39.4	4.6	15.6	52.1	2.5	6.1	38.3	268.1	76.1	191.5	275.7	398.3

Notes: Weighted statistics using 2004 HRS, SHARE and ELSA data. All amounts are in thousand of PPP-adjusted dollars. PPP exchange rates are taken from the Penn World Tables, version 6.2 (Heston et al., 2006)

Table 2: Indicators Relevant to Stockholding

Country	Equity Mrket Size Index	Equity market Stability Index	Equity Return Volatility (%)	Equity Market Turnover Ratio (%)	Market Cap to GDP Ratio (%)	Transaction Costs (%)	Trade Volume to GDP Ratio (%)	Shareholder Rights	Internet Connections (per thousand)	Information and Communication Technology Expenditure (% of GDP)
Austria	5.3	5.3	10.0	34.0	29.6	3.5	8.2	2	486	5.5
Belgium	6.4	5.1	19.3	14.9	219.6	2.6	20.1	0	458	5.8
Denmark	6.3	5.0	16.0	71.4	62.3	3.3	40.1	2	527	6.0
France	6.6	4.7	22.8	81.7	92.7	3.9	65.5	3	430	6.3
Germany	6.5	4.3	27.1	123.7	44.0	5.3	51.8	1	455	6.1
Greece	5.6	5.2	15.8	37.5	61.6	3.1	21.4	2	180	4.1
Italy	6.5	5.0	17.7	114.5	47.2	1.5	48.1	1	478	4.3
Netherlands	7.3	4.6	23.8	108.8	107.8	2.5	104.7	2	739	6.3
Spain	7.7	4.9	18.8	143.3	94.9	1.5	120.5	4	348	3.7
Sweden	7.6	4.8	23.1	123.7	108.8	4.1	119.1	3	764	7.4
Switzerland	9.0	4.8	19.4	93.7	229.7	2.2	202.3	2	498	7.5
UK	8.6	5.0	18.3	140.5	131.5	6.3	173.2	5	473	7.3
USA	8.3	5.0	18.2	126.5	139.9	1.3	165.9	5	630	8.8

Notes: For columns 2-7: World Bank, data for 2004. Equity Market - Size Index: A composite index on equity market size is created on the basis of (1) market capitalization to GDP, (2) value traded to GDP and (3) turnover ratio. Each of the above component indicators are standardized by subtracting the median of the distribution of the variable and scaling by the standard deviation of the variable. Equity Market - Stability Index: A composite index on equity market stability is created on the basis of (1) skewness, (2) volatility of market returns. Each of the above component indicators are standardized by subtracting the median of the distribution of the variable and scaling by the standard deviation of the variable. Equity Return Volatility (%): Volatility is the standard deviation of the market index returns. This measure is annualized to give a measure of the annual volatility. Volatility is reported as three year moving averages. (Source: Datastream and Emerging Market Database). Equity Market Turnover Ratio (%): The indicator is defined as the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period (Source: World Bank, World Development Indicators). Number of Listed Firms: The indicator is defined as the number of the domestically incorporated companies listed on the country's stock exchanges at the end of the year (Source: World Development Indicators). Market Cap to GDP Ratio (%): The indicator is defined as the ratio of market capitalization to GDP (Source: World Development Indicators). Trade Volume to GDP ratio (%): Stock Traded to GDP is the total value traded divided by GDP. Value traded is the total value of shares traded during the period (Source: World Development Indicators). Column 8: Shareholder rights: an index computed by La Porta et al. (1998) aggregating the shareholder rights ("anti-director rights"). The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or (6) shareholders have preemptive rights that can only be waved by a shareholders' vote. The index ranges from 0 to 6. Columns 9-10: 2005 Data. (Source: World Bank, World Development Indicators 2007)

Table 3: Indicators Relevant to Business Ownership

Country	Ease of Doing Business Rank	Starting a Business	Dealing with Licenses	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
US	3	3	18	1	10	7	5	55	10	4	16
UK	5	8	42	16	19	1	9	11	14	22	10
Denmark	7	15	8	14	31	19	18	19	3	1	24
Sweden	14	20	17	95	6	33	114	37	9	2	17
Switzerland	16	30	36	23	11	19	156	7	47	9	32
Belgium	20	41	43	41	157	41	12	62	38	21	9
Germany	21	53	30	129	33	3	81	70	6	29	29
Netherlands	22	42	81	86	20	13	96	81	16	30	8
Austria	30	68	45	104	26	19	141	102	13	14	19
Spain	38	94	54	163	36	19	81	103	24	41	15
France	47	12	34	135	158	96	58	92	81	17	31
Italy	69	46	109	102	50	41	81	112	103	147	43
Greece	111	134	53	166	146	76	156	100	119	48	33

Notes: World Bank, Doing Business (http://www.doingbusiness.org), rankings for 2005. The ease of doing business index is calculated as the ranking on the simple average of country percentile rankings on each of the 10 topics covered in Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicators. Starting a business: Procedures, time, cost and paid-in minimum capital to open a new business. Dealing with licenses: Procedures, time and cost of business inspections and licensing (construction industry). Employing workers: Difficulty of hiring index, rigidity of hours index, difficulty of firing index and firing cost. Registering property: Procedures, time and cost to register commercial real estate. Getting credit: Strength of legal rights index, depth of credit information index. Protecting investors: Indices of the extent of disclosure, extent of director liability and ease of shareholder suits. Paying taxes: Number of tax payments, time to prepare tax returns and total taxes as a share of commercial profits. Trading across borders: Documents, time and cost to export and import. Enforcing contracts: Procedures, time and cost to resolve a commercial dispute. Closing a business: Recovery rate in bankruptcy.

Table 4: Decompositions of Differences in Asset Ownership Rates within the US and Europe

Country/ Region	Stocks			Own Business			Home		
	Total Difference	Difference due to Coefficients	Difference due to Covariates	Total Difference	Difference due to Coefficients	Difference due to Covariates	Total Difference	Difference due to Coefficients	Difference due to Covariates
US Northeast	-0.002	-0.020	0.019 ***	0.070	0.052 ***	0.019 ***	0.102	0.066 ***	0.037 ***
US South	0.119	0.083 ***	0.036 ***	0.045	0.028 ***	0.018 ***	0.025	-0.016	0.041 ***
US West	0.025	0.024 *	0.001	0.053	0.041 ***	0.012 ***	0.041	0.021	0.020 ***
Sweden	-0.469	-0.461 ***	-0.008	-0.065	-0.073 ***	0.008	-0.178	-0.209 ***	0.030 *
Denmark	-0.318	-0.279 ***	-0.039 ***	-0.032	-0.033 ***	0.001	-0.178	-0.180 ***	0.001
Netherlands	0.001	-0.003	0.004	-0.004	-0.012	0.007	-0.042	-0.106 ***	0.064 ***
Belgium	-0.133	-0.138 ***	0.004	0.009	0.002	0.007	-0.289	-0.274 ***	-0.015
France	-0.187	-0.208 ***	0.020	0.004	-0.007	0.011 *	-0.211	-0.239 ***	0.029 *
Switzerland	-0.116	-0.093 ***	-0.023	-0.046	-0.052 ***	0.006	-0.040	-0.051 *	0.011
Austria	0.144	0.140 ***	0.004	0.021	0.020 ***	0.001	-0.055	-0.099 ***	0.044 ***
Italy	0.140	0.091 ***	0.049 **	-0.001	-0.021 *	0.020 *	-0.241	-0.277 ***	0.036
Spain	0.131	0.065 **	0.066 **	-0.007	-0.036 ***	0.029 **	-0.358	-0.431 ***	0.074 **
Greece	0.135	0.117 ***	0.018	-0.005	-0.007	0.002	-0.332	-0.357 ***	0.025
England	-0.153	-0.154 ***	0.001	0.038	0.007	0.031 ***	-0.249	-0.330 ***	0.081 **

Notes: All decompositions for US regions refer to differences with respect to the Midwest, while for European countries to differences with respect to Germany. ***, **, * denote significance at 1%, 5% and 10%, respectively. Standard errors have been computed using 200 bootstrap replications.

Table 5: Indicators of Governance

Country	Percentile Rank (0-100)	Rule of Law Governance Score (-2.5 to +2.5)	Percentile Rank (0-100)	Regulatory Quality Governance Score (-2.5 to +2.5)	Percentile Rank (0-100)	Political Stability Governance Score (-2.5 to +2.5)	Percentile Rank (0-100)	Control of Corruption Governance Score (-2.5 to +2.5)
Austria	95.2	1.81	91.7	1.49	80.8	0.97	97.1	2.13
Belgium	92.4	1.51	90.7	1.43	70.7	0.78	91.7	1.51
Denmark	98.1	1.97	97.1	1.79	83.7	1.03	99	2.42
France	91.4	1.41	83.4	1.16	63.5	0.51	90.3	1.39
Germany	93.3	1.73	90.2	1.42	67.8	0.69	93.2	1.9
Greece	73.8	0.81	76.6	0.87	60.1	0.4	70.9	0.55
Italy	68.6	0.65	80	1.05	57.2	0.27	71.4	0.56
Netherlands	94.3	1.77	97.6	1.81	80.3	0.95	95.1	2.04
Spain	87.1	1.2	87.3	1.31	57.7	0.3	89.8	1.39
Sweden	96.7	1.87	96.1	1.73	93.3	1.31	97.6	2.17
Switzerland	99.5	1.98	93.7	1.58	94.2	1.33	96.6	2.12
UK	93.8	1.73	96.6	1.76	59.6	0.4	94.2	1.99
US	91.9	1.48	91.2	1.47	52.9	0.12	92.7	1.76

Notes: Information taken from Kaufmann et al. (2007). The governance indicators presented here aggregate the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, and international organizations.

Table 6: Housing Size

Country	Year	Average m^2 for total dwellings
Austria	2004	97
Denmark	2005[a]	111
France	2002	90
Germany	2002	90
Italy	2001	92
Spain	2001	93
UK	2003	85
US	2003	165

Notes: Data from United Nations Statistics. a) Data refer to average living floor space.

Table 7: Taxation of residential property

Country	Imputed Rental Income Taxed	Tax relief on mortgages		Capital gains on housing assets taxable	Inheritance tax	Stamp duty
		interest	principal payment			
Austria	N	Y (up to ceiling)	N	Y (if sold <10 years)	Y	6%
Belgium	Y (with fixed deduction)	Y (up to imputed rental income)	Y (within limit)	Y (if sold < 5 years) POOD are exempt	Y	10%-12.5% (5%-6% for modest houses)
Denmark	Y	Y	n.a.	Y POOD are exempt	Y	1.50% total trading costs 7.2%
Germany	N	N	N	Y (if sold <10 years) POOD are exempt	Y (lower than for financial assets)	3.50%
Greece	Y (for POOD)	Y (for POOD)	n.a.	N	Y	11%-13%
France	N	N	N	Y POOD are exempt	Y	2%-3%
Italy	N (for POOD)	Y (for POOD)	N	Y (50% for POOD)	Y (until 2001)	10% (3% for POOD)
Netherlands	Y	Y	N	N	Y (above tax free threshold)	6%
Spain	N (for POOD)	Y	Y	Y (exempt if reinvested)	Y	n.a.
Sweden	Y	Y	N	Y	Y	1.5%-3%
Switzerland	Y	Y (up to total property income + fixed amount)	N	Y (cantonal only) POOD are exempt	Y (cantonal only)	n.a.
UK	N	N	N	Y POOD are exempt	Y	1%, 2% or 4% (depends on house value)
US	N	Y (up to ceiling)	N	Y (until 2002) (deduction for POOD if held >2 years)	Y (to be phased out)	n.a

Notes: Information taken from Catte et al. (2004). POOD = principal owner-occupied dwellings.

Table 8: Characteristics of Mortgage Markets

Country	Mortgage debt to GDP ratio	Home ownership ratio*	Loan to value ratio**	Interest rate adjustment***	Typical duration (years)
Belgium	31%	72%	80-85%	F(75%) M(19%) V(6%)	20
Germany	52%	39%	≈70%	Mainly F and M	≤30
Denmark	67%	59%	80%	F (75%) M (10%) V (15%)	30
Greece	21%	80%	70-80%	F(5%) M(15%) V(80%)	15-20
Spain	46%	85%	≈80%	V(≥75%) Rest mainly M	15-25
France	26%	58%	80%	F/M/Other(86%) V(14%)	15
Italy	15%	69%	50%	F(28%) Rest mainly M	10-25
Netherlands	111%	53%	112%	F(74%) M(19%) V(7%)	10
Austria	20%	56%	60%	F(75%) V(25%)	20-30
UK	73%	70%	70%	M(28%) V(72%)	25
US	69%	69%	80%	F(85%) M(15%)	30

Notes: Information taken from Calza et al. (2007). * Share of owner-occupied dwelling. ** Estimated average loan-to-value ratio on new mortgage loans. *** Breakdown of new loans by type. Fixed (F): Interest rate fixed for more than five years or until expiry; Mixed (M): Interest rate fixed between one and five years; Variable (V): Interest rate renegotiable after one year or tied to market rates or adjustable at the discretion of the lender.

Table 9: Decompositions of Differences in Asset Distributions within the US and Europe

Country/ Region	25th Quantile			50th Quantile			75th Quantile		
	Total Difference	Difference due to Coefficients	Difference due to Covariates	Total Difference	Difference due to Coefficients	Difference due to Covariates	Total Difference	Difference due to Coefficients	Difference due to Covariates
Panel A. Stocks									
US Northeast	-0.095	0.111	-0.206 **	-0.145	-0.002	-0.142 *	-0.139	-0.001	-0.138 *
US South	0.000	0.104	-0.104	0.025	0.027	-0.002	-0.019	0.054	-0.073
US West	-0.337	0.080	-0.416 ***	-0.168	0.195 ***	-0.363 ***	-0.195	0.142 *	-0.337 ***
Sweden	0.142	-0.736 ***	0.878 ***	0.214	-0.602 ***	0.816 ***	0.312	-0.485 ***	0.797 ***
Denmark	0.512	0.270 **	0.241	0.562	0.347 ***	0.214 *	0.521	0.318 **	0.203
Netherlands	-0.475	-0.741 ***	0.266	-0.427	-0.537 ***	0.111	-0.524	-0.711 ***	0.187
Belgium	-0.284	-0.345 **	0.061	-0.705	-0.689 ***	-0.015	-0.971	-1.050 ***	0.079
France	0.014	-0.486 ***	0.500 ***	-0.118	-0.472 ***	0.354 ***	-0.048	-0.322 ***	0.274 *
Switzerland	-0.866	-1.065 ***	0.198	-0.791	-0.816 ***	0.024	-0.818	-0.909 ***	0.091
Austria	-0.048	0.213	-0.261	0.142	0.345 *	-0.203	0.159	0.209	-0.051
Italy	-0.512	-0.708 ***	0.196	-0.225	-0.343 **	0.118	0.217	0.111	0.107
Spain	-0.152	-0.566 **	0.415 *	0.100	-0.051	0.151	0.542	0.425 **	0.117
Greece	0.565	0.187	0.379 **	0.723	0.407 ***	0.316 **	0.934	0.664 ***	0.271 *
England	0.026	-0.322 **	0.348	0.035	-0.081	0.116	0.007	-0.103	0.110
Panel B. Own Business									
US Northeast	0.223	0.309	-0.086	0.406	0.460 ***	-0.054	0.288	0.341	-0.053
US South	0.693	0.798 ***	-0.105	0.511	0.514 ***	-0.003	0.470	0.420 ***	0.050
US West	0.511	0.653 **	-0.142	0.406	0.461 **	-0.056	0.288	0.325	-0.037
Sweden	0.885	0.774 ***	0.112	0.312	0.867 ***	-0.555 **	0.944	1.737 ***	-0.794 *
Denmark	0.381	0.287	0.094	-0.484	-0.085	-0.399 *	0.853	1.355 ***	-0.502
Netherlands	-0.271	-0.316	0.044	-0.465	-0.115	-0.350	-0.132	0.300	-0.433
Belgium	-0.641	-0.583 **	-0.058	-0.385	0.175	-0.560 ***	0.527	0.901 ***	-0.374
France	0.157	-0.002	0.159	0.152	0.489 **	-0.338	1.431	1.860 ***	-0.429
Switzerland	0.211	0.298	-0.087	0.015	0.428	-0.413 *	0.284	0.613 **	-0.329
Austria	-0.044	-0.545 *	0.500 ***	0.616	0.257	0.359 *	2.074	1.739 ***	0.335
Italy	0.140	0.405 *	-0.266 *	0.591	1.502 ***	-0.912 ***	0.842	1.652 ***	-0.810 *
Spain	0.412	-0.020	0.432 *	0.588	0.926 ***	-0.338	1.726	2.081 ***	-0.356
Greece	0.718	0.709 ***	0.009	0.525	0.817 ***	-0.292	1.707	2.011 ***	-0.304
England	2.533	2.741 ***	-0.208	1.700	2.026 ***	-0.325	1.583	1.863 ***	-0.280
Panel C. Home									
US Northeast	-0.115	-0.088 **	-0.027	-0.364	-0.342 ***	-0.022	-0.531	-0.502 ***	-0.029
US South	0.264	0.167 ***	0.097 ***	0.278	0.198 ***	0.080 ***	0.105	0.054 *	0.051 *
US West	-0.535	-0.508 ***	-0.027	-0.639	-0.617 ***	-0.022	-0.693	-0.664 ***	-0.029
Sweden	1.103	1.051 ***	0.052	0.718	0.744 ***	-0.027	0.653	0.703 ***	-0.050
Denmark	0.529	0.467 ***	0.062	0.391	0.432 ***	-0.041 **	0.327	0.380 ***	-0.053 *
Netherlands	-0.221	-0.264 ***	0.043	-0.227	-0.160 ***	-0.066 ***	-0.201	-0.130 ***	-0.070 **
Belgium	0.191	0.124 ***	0.066	0.162	0.215 ***	-0.053 **	0.202	0.276 ***	-0.073 **
France	0.209	0.106 ***	0.103 **	0.046	0.053	-0.007	-0.033	-0.019	-0.014
Switzerland	-0.498	-0.444 ***	-0.054	-0.532	-0.382 ***	-0.150 ***	-0.579	-0.429 ***	-0.149 ***
Austria	0.356	0.178 ***	0.178 ***	0.076	0.033	0.043 **	-0.030	-0.063 ***	0.033
Italy	0.326	0.157 **	0.169 ***	0.217	0.138 ***	0.079 **	0.001	-0.033	0.034
Spain	0.590	0.364 ***	0.226 ***	0.359	0.298 ***	0.061	0.254	0.274 ***	-0.020
Greece	0.910	0.739 ***	0.171 ***	0.748	0.708 ***	0.041	0.525	0.535 ***	-0.010
England	-0.217	-0.395 ***	0.178 ***	-0.274	-0.316 ***	0.042	-0.236	-0.170 ***	-0.066

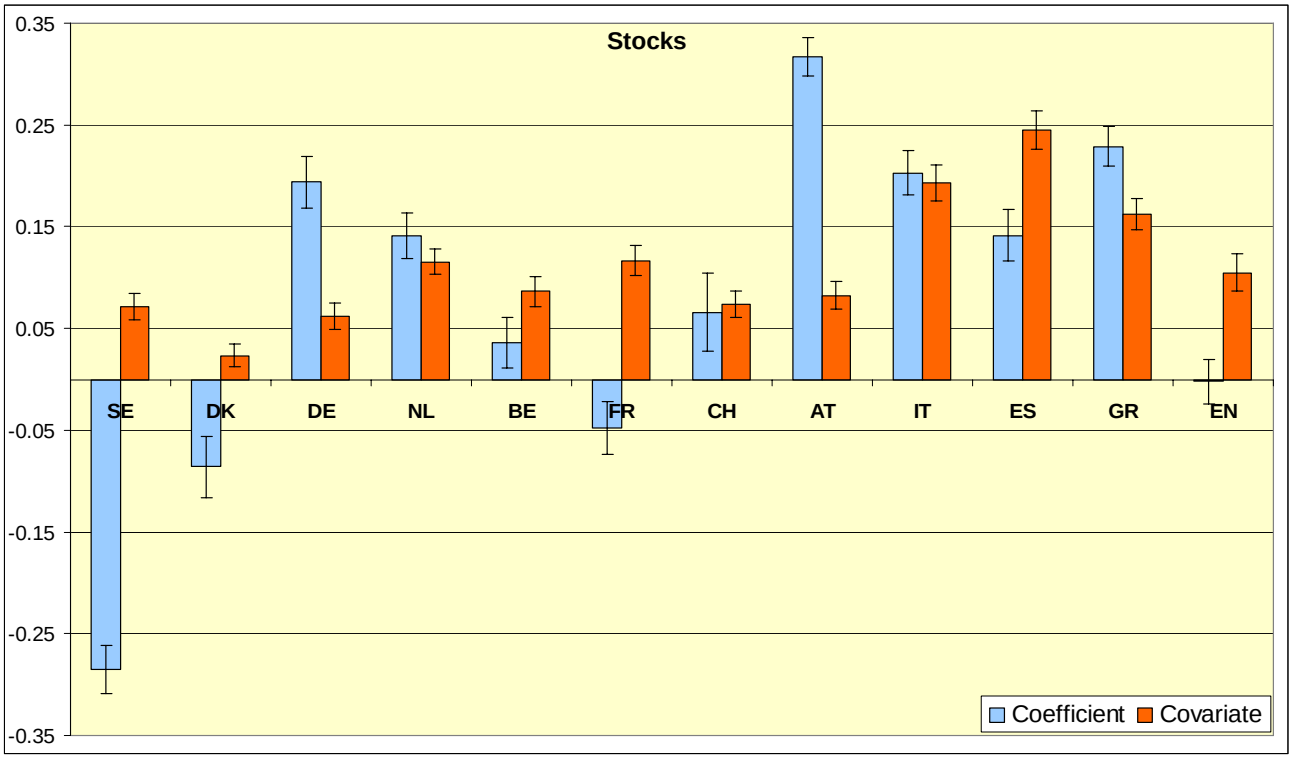
Notes: All decompositions for US regions refer to differences with respect to the Midwest, while for European countries to differences with respect to Germany. Quantiles are computed among owners of each asset. ***, **, * denote significance at 1%, 5% and 10%, respectively. Standard errors have been computed using 100 bootstrap replications.

Table 10: Housing Market Conditions by US Region in 2004

Period	US	Northeast	Midwest	South	West
Panel A. Median Asking Sales Price (thousand dollars)					
1st Quarter	126.7	232.1	111.0	111.7	183.6
2nd Quarter	124.7	125.0	128.8	99.2	192.3
3d Quarter	113.6	135.0	115.0	94.0	178.4
4th Quarter	121.8	123.5	82.9	122.9	206.2
Annual	122.1	150.0	111.0	104.5	189.6
Panel B. Quarterly Homeowner Vacancy Rate (percentage points)					
1st Quarter	1.7	0.9	2.1	2	1.3
2nd Quarter	1.7	1.1	1.7	2	1.4
3d Quarter	1.7	1.2	2.1	1.9	1.4
4th Quarter	1.8	1.2	2.2	2	1.5

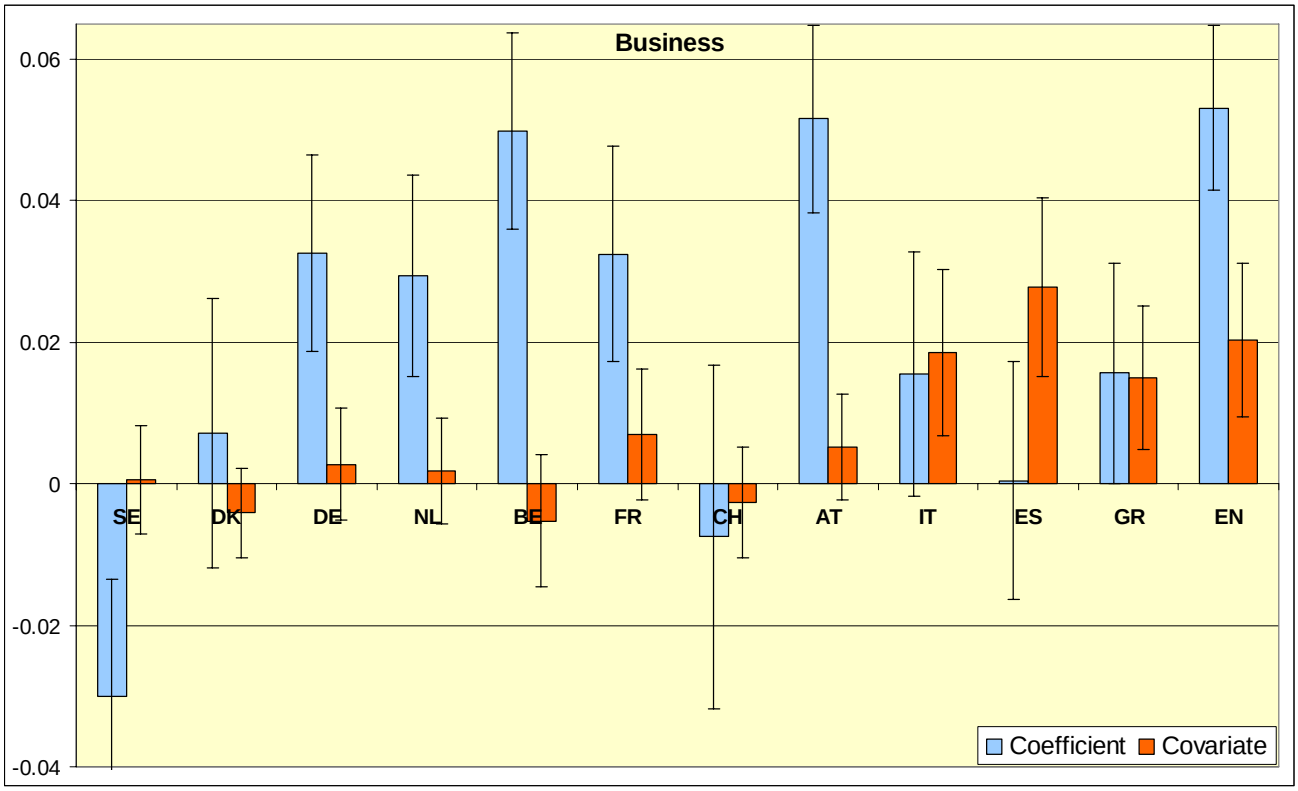
Notes: Data taken from Current Population Survey/Housing Vacancy Survey, Series H-111, Bureau of the Census, Washington, DC.

Figure 1: Decompositions of Differences in Stock Ownership Rates (relative to the US)



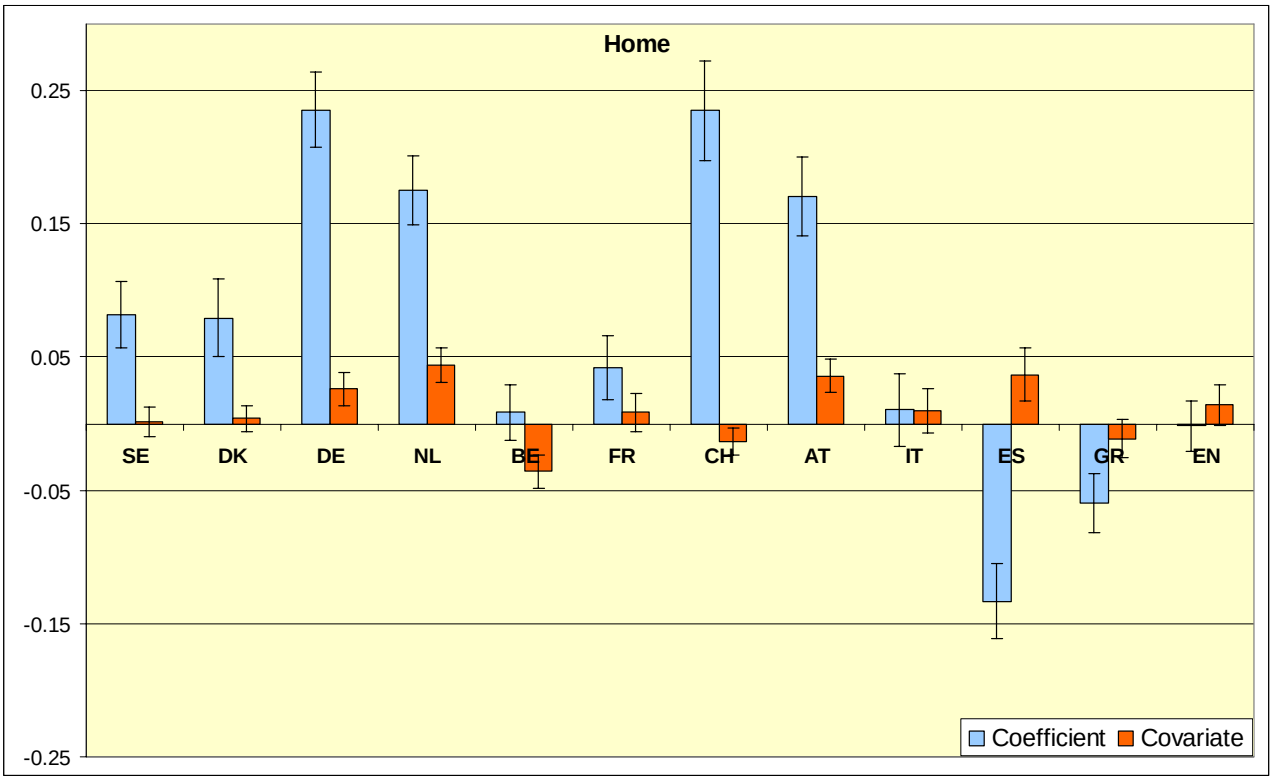
Notes: All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Figure 2: Decompositions of Differences in Business Ownership Rates (relative to the US)



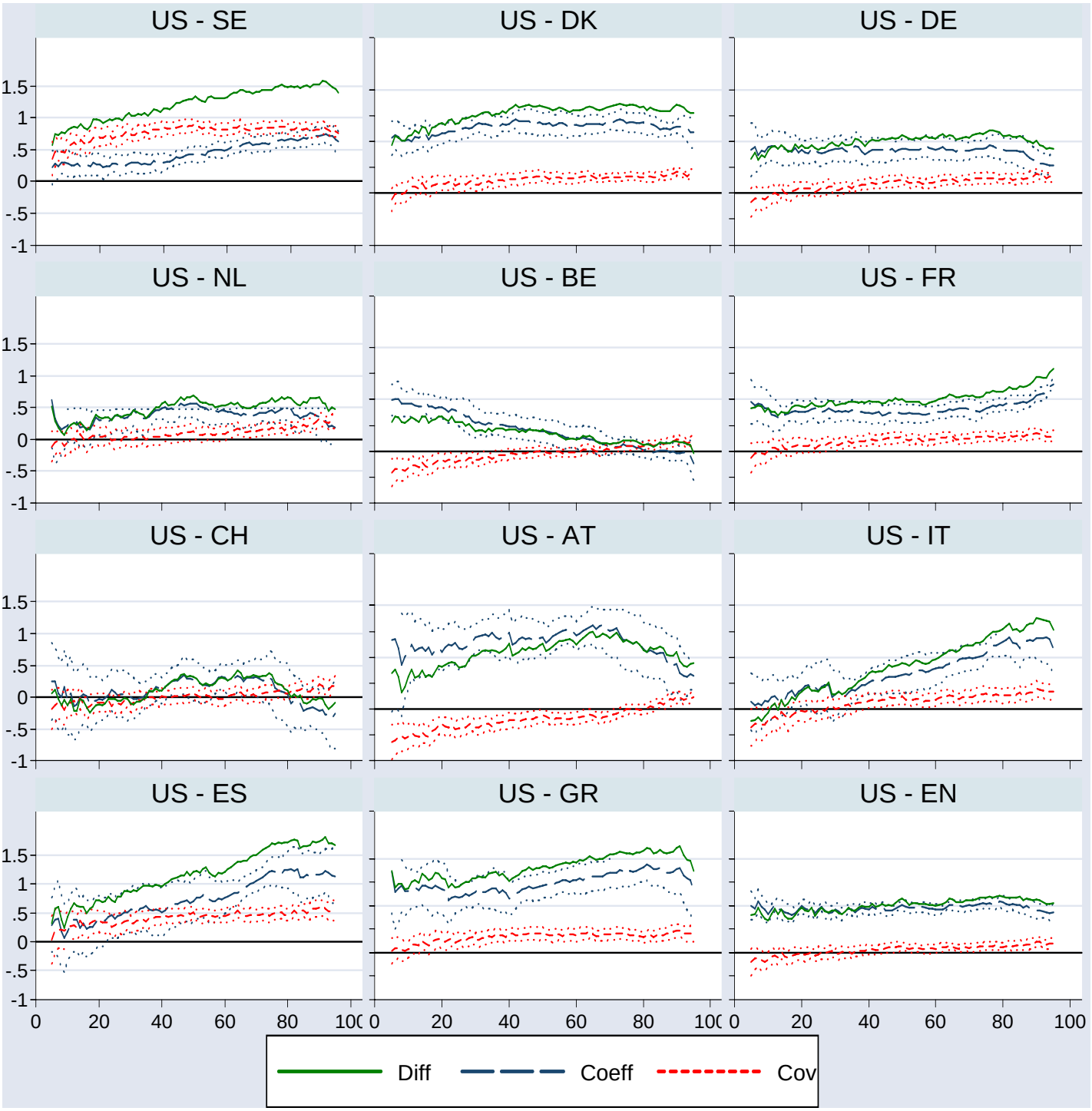
Notes: All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Figure 3: Decompositions of Differences in Home Ownership Rates (relative to the US)



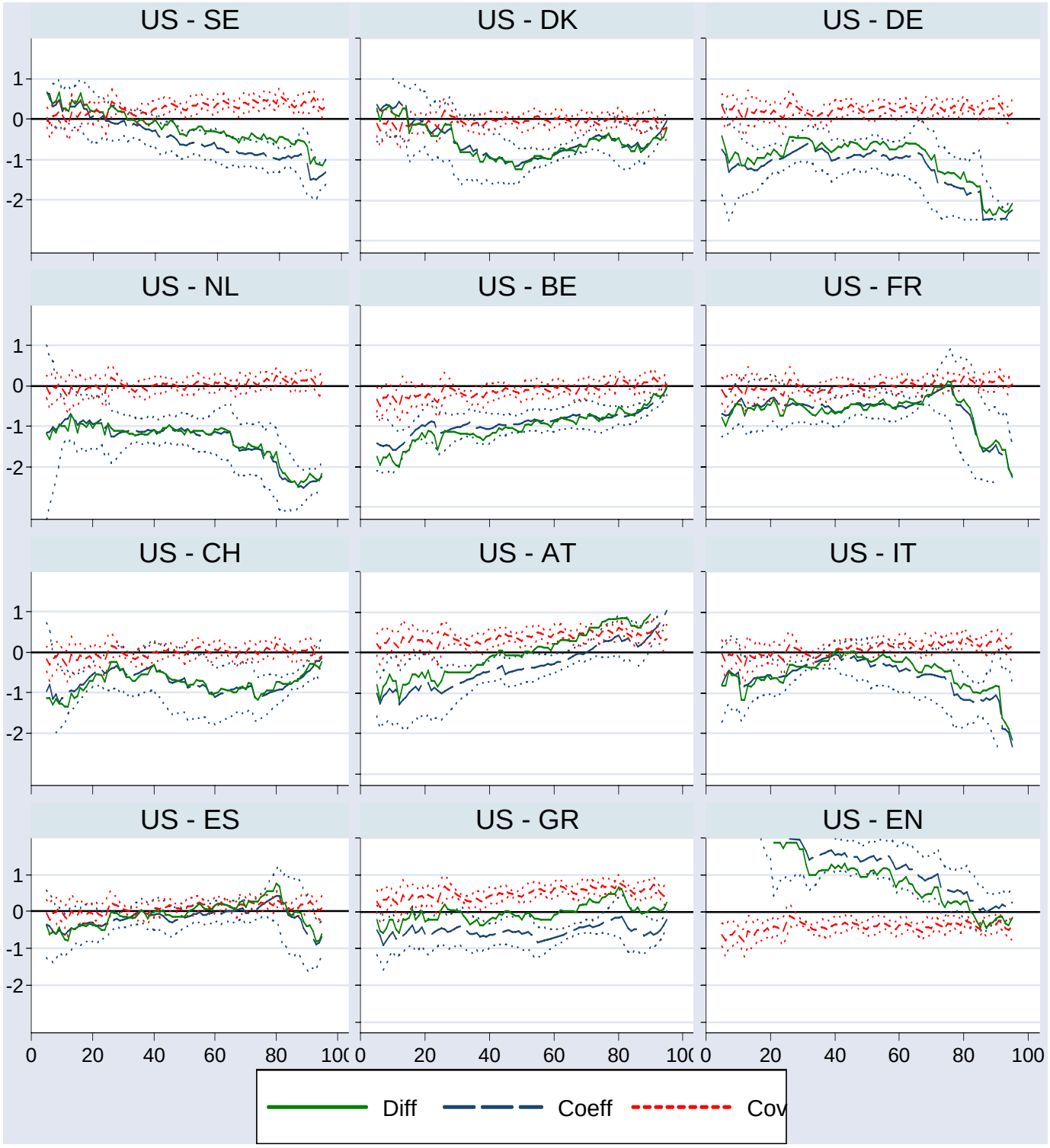
Notes: All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Figure 4: Decompositions of Differences in Stock Wealth Distribution (relative to the US)



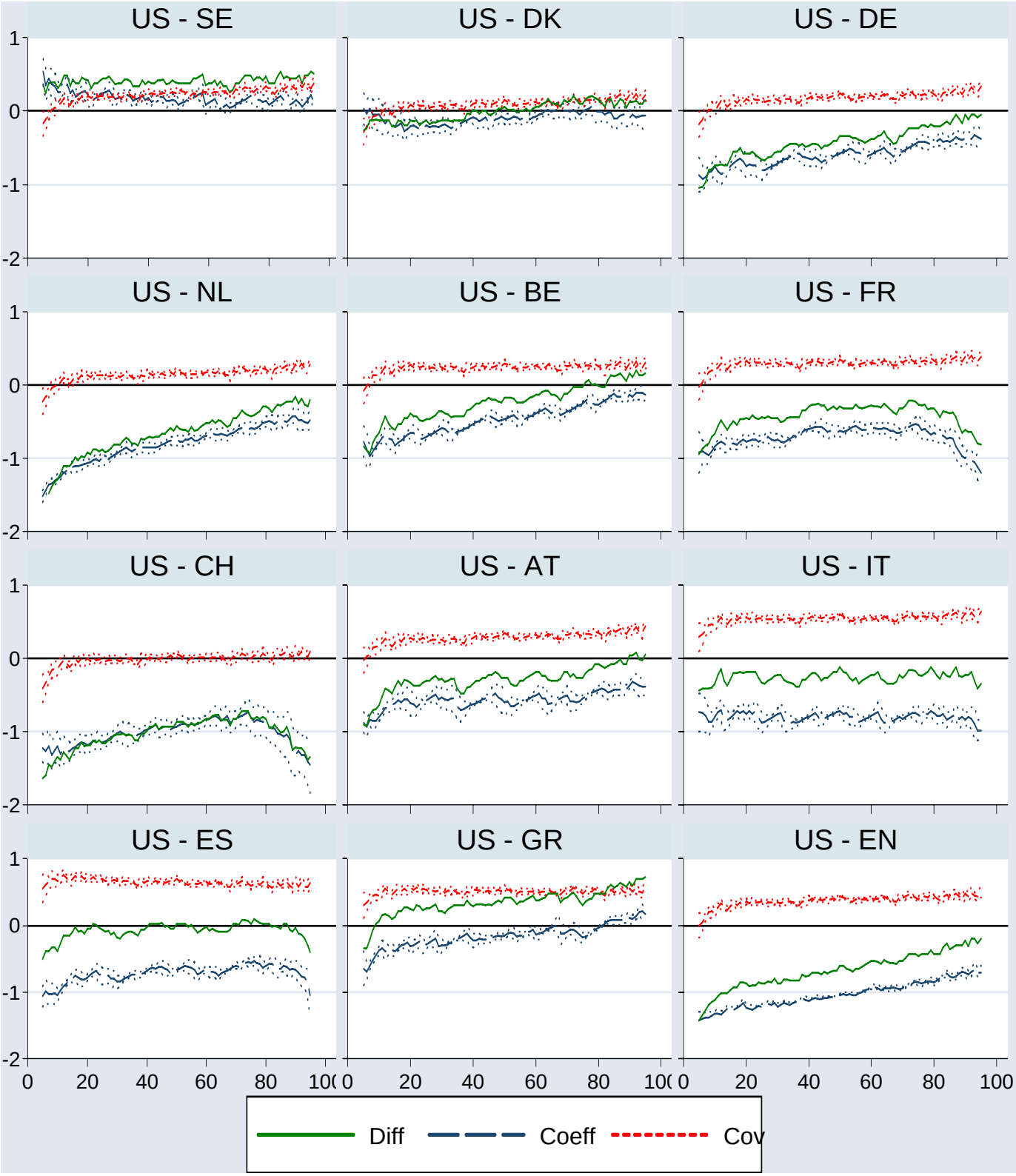
Notes: The actual difference in the (log) stock wealth level, 'Diff', is decomposed at each percentile into two parts: one reflecting the effect of coefficients ('Coeff') and one due to the effect of covariates ('Cov'). Dots represent 95% confidence bands derived using 100 bootstrap replications.

Figure 5: Decompositions of Differences in Business Wealth Distribution (relative to the US)



Notes: The actual difference in the (log) business wealth level, 'Diff', is decomposed at each percentile into two parts: one reflecting the effect of coefficients ('Coeff') and one due to the effect of covariates ('Cov'). Dots represent 95% confidence bands derived using 100 bootstrap replications.

Figure 6: Decompositions of Differences in Housing Wealth Distribution (relative to the US)



Notes: The actual difference in the (log) housing wealth level, 'Diff', is decomposed at each percentile into two parts: one reflecting the effect of coefficients ('Coeff') and one due to the effect of covariates ('Cov'). Dots represent 95% confidence bands derived using 100 bootstrap replications.

Table A.1 Asset Ownership probit regressions for the US as whole, US Midwest and Germany

Variable	STOCKS						OWN BUSINESS						HOME					
	United States		US Midwest		Germany		United States		US Midwest		Germany		United States		US Midwest		Germany	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Age	3.08	1.40 **	3.22	2.74	-2.53	4.90	-3.46	1.81 *	-0.39	3.25	10.12	8.65	13.99	1.41 ***	11.60	3.00 ***	17.77	4.49 ***
Age squared	-1.84	1.02 *	-1.73	1.98	0.07	3.73	1.68	1.34	-0.31	2.39	-12.13	7.07 *	-10.19	1.00 ***	-8.87	2.11 ***	-12.53	3.32 ***
Couple	0.05	0.04	0.12	0.09	0.11	0.16	0.40	0.06 ***	0.50	0.12 ***	0.22	0.22	0.73	0.04 ***	0.81	0.09 ***	0.32	0.14 ***
Widow	-0.02	0.05	-0.02	0.10	-0.11	0.18	-0.03	0.07	-0.05	0.13	0.04	0.28	0.39	0.04 ***	0.52	0.09 ***	0.28	0.15 ***
Never Married	0.08	0.07	0.17	0.15	0.16	0.19	0.00	0.10	-0.09	0.20	0.16	0.27	-0.06	0.06	0.02	0.13	-0.04	0.17
Household Size	-0.11	0.01 ***	-0.10	0.03 ***	-0.09	0.05 *	-0.10	0.02 ***	-0.08	0.04 **	0.01	0.07	-0.05	0.01 ***	-0.02	0.03	0.16	0.06 ***
High School Graduate	0.53	0.04 ***	0.45	0.09 ***	0.09	0.18	0.17	0.06 ***	0.09	0.12	0.61	0.39	-0.02	0.04	0.03	0.08	0.41	0.13
Post-Secondary Degree	0.89	0.05 ***	0.83	0.11 ***	0.38	0.18 **	0.19	0.07 ***	0.06	0.14	0.62	0.39	0.01	0.05	0.05	0.11	0.38	0.14
Bad Health	-0.19	0.03 ***	-0.11	0.06 *	-0.09	0.07	-0.13	0.04 ***	-0.09	0.07	-0.33	0.11 ***	-0.11	0.03 ***	-0.15	0.07 **	0.06	0.07 ***
Number of ADL	-0.02	0.01	-0.08	0.03 ***	-0.03	0.05	0.00	0.02	-0.02	0.04	-0.18	0.13	-0.05	0.01 ***	-0.02	0.03	-0.07	0.04 ***
Recall Score	0.07	0.01 ***	0.06	0.02 ***	0.04	0.02 **	-0.01	0.01	-0.02	0.02	-0.04	0.03	0.03	0.01 ***	0.02	0.02	0.03	0.02 ***
2nd Income Quartile	0.20	0.04 ***	0.26	0.07 ***	-0.03	0.11	-0.34	0.05 ***	-0.35	0.09 ***	-0.13	0.15	0.08	0.04 **	0.12	0.07 *	0.00	0.10 **
3d Income Quartile	0.30	0.04 ***	0.40	0.08 ***	0.04	0.10	-0.50	0.05 ***	-0.54	0.10 ***	-0.40	0.15 ***	0.15	0.04 ***	0.14	0.09	-0.03	0.09 ***
4th Income Quartile	0.40	0.05 ***	0.39	0.10 ***	0.19	0.10 *	-0.55	0.06 ***	-0.58	0.11 ***	-0.25	0.14 *	0.39	0.06 ***	0.41	0.12 ***	0.16	0.10 ***
2nd Wealth Quartile	0.54	0.04 ***	0.61	0.08 ***	0.62	0.14 ***	0.40	0.07 ***	0.55	0.13 ***	-0.08	0.19	-0.52	0.04 ***	-0.44	0.08 ***	-0.26	0.10 ***
3d Wealth Quartile	1.09	0.04 ***	1.20	0.08 ***	0.84	0.13 ***	0.66	0.07 ***	0.76	0.13 ***	0.26	0.18	-0.21	0.04 ***	0.02	0.09	-0.05	0.09 ***
4th Wealth Quartile	1.52	0.05 ***	1.46	0.09 ***	1.23	0.13 ***	0.93	0.07 ***	1.01	0.13 ***	0.70	0.18 ***	0.05	0.05	0.33	0.10 ***	0.26	0.10
Working	0.11	0.06 *	-0.08	0.12	0.26	0.17	-..-	-..-	-..-	-..-	-..-	-..-	-0.07	0.06	0.02	0.12	-0.10	0.15
Retired	0.15	0.05 ***	-0.01	0.11	0.23	0.19	-..-	-..-	-..-	-..-	-..-	-..-	-0.04	0.05	-0.01	0.10	-0.26	0.15
Probability to leave a bequest	0.58	0.06 ***	0.58	0.13 ***	0.44	0.15 ***	0.63	0.12 ***	0.54	0.22 **	0.22	0.22	1.20	0.04 ***	1.14	0.10 ***	1.60	0.13 ***
Provides help to others	0.11	0.03 ***	0.06	0.06	-0.03	0.07	0.13	0.04 ***	0.11	0.08	-0.04	0.10	0.08	0.03 **	0.18	0.07 ***	-0.03	0.07 ***
Engages in voluntary activities	0.09	0.03 ***	0.12	0.06 **	-0.03	0.07	0.04	0.04	0.09	0.07	-0.14	0.10	0.07	0.03 **	0.01	0.07	0.18	0.07 **
Constant	-3.74	0.49 ***	-3.53	0.97 ***	-0.73	1.61	-0.86	0.63	-1.74	1.15	-3.81	2.66	-5.30	0.50 ***	-4.57	1.07 ***	-8.36	1.54 ***
Log Likelihood	-6,136.1		-1,577.2		-949.2		-3,384.1		-1,076.7		-403.6		-5,365.4		-1,200.2		-1,091.6	

Notes: Standard errors are robust. ***, **, * denote significance at 1%, 5% and 10%, respectively.

Table A.2 Asset amounts quantile regressions for the US as whole, US Midwest and Germany

Variable	STOCKS						OWN BUSINESS						HOME					
	United States		US Midwest		Germany		United States		US Midwest		Germany		United States		US Midwest		Germany	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Age	-0.05	0.03 *	-0.04	0.06	0.13	0.16	0.06	0.07	0.14	0.09	0.42	0.97	-0.01	0.01	-0.01	0.01	0.04	0.04
Age squared	0.00	0.00 **	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Couple	0.13	0.10	0.02	0.21	0.73	0.48	0.49	0.25 *	0.44	0.33	1.37	1.50	-0.01	0.03	0.11	0.05 **	0.15	0.14
Widow	0.14	0.11	0.16	0.22	0.45	0.60	0.19	0.29	0.06	0.35	-0.67	2.17	0.01	0.04	0.14	0.05 ***	0.00	0.16
Never Married	0.21	0.16	0.02	0.32	0.55	0.60	0.33	0.43	0.65	0.53	-0.35	1.67	-0.12	0.06 **	-0.06	0.08	-0.15	0.20
Household Size	-0.10	0.03 ***	-0.16	0.07 **	0.11	0.15	0.03	0.08	0.01	0.12	0.09	0.41	0.07	0.01 ***	0.05	0.02 ***	0.08	0.04 *
High School Graduate	0.41	0.12 ***	0.35	0.25	1.22	0.63 *	-0.13	0.28	0.01	0.35	-0.63	1.69	0.17	0.03 ***	0.02	0.05	0.14	0.14
Post-Secondary Degree	1.21	0.13 ***	1.13	0.27 ***	1.76	0.64 ***	-0.24	0.30	0.19	0.38	-0.86	1.70	0.43	0.04 ***	0.24	0.06 ***	0.24	0.15
Bad Health	-0.21	0.06 ***	-0.35	0.13 ***	0.00	0.21	-0.03	0.16	0.06	0.19	-0.39	0.75	-0.10	0.02 ***	-0.11	0.03 ***	-0.09	0.06
Number of ADL	-0.06	0.03 *	-0.05	0.07	0.16	0.17	-0.01	0.08	0.05	0.10	-0.69	0.92	-0.03	0.01 ***	-0.01	0.01	-0.02	0.04
Recall Score	0.06	0.02 ***	0.04	0.04	0.03	0.06	0.02	0.05	0.03	0.06	-0.06	0.16	0.05	0.01 ***	0.04	0.01 ***	0.01	0.02
2nd Income Quartile	0.10	0.09	0.21	0.17	0.14	0.36	-0.12	0.20	0.03	0.22	0.07	0.97	0.10	0.03 ***	0.05	0.04	-0.10	0.09
3d Income Quartile	0.10	0.09	0.31	0.18 *	-0.37	0.31	-0.32	0.20	-0.44	0.22 **	0.46	0.93	0.15	0.03 ***	0.09	0.04 **	-0.09	0.09
4th Income Quartile	0.28	0.10 ***	0.42	0.20 **	0.21	0.29	-0.03	0.20	-0.11	0.24	0.08	0.78	0.43	0.04 ***	0.20	0.05 ***	-0.10	0.08
2nd Wealth Quartile	0.57	0.13 ***	0.92	0.23 ***	-0.11	0.50	0.23	0.32	0.25	0.34	0.91	1.43	0.18	0.03 ***	0.16	0.04 ***	0.09	0.10
3d Wealth Quartile	1.18	0.12 ***	1.60	0.23 ***	-0.01	0.51	0.62	0.31 **	0.74	0.33 **	0.13	1.36	0.42	0.03 ***	0.36	0.04 ***	0.12	0.09
4th Wealth Quartile	2.21	0.12 ***	2.78	0.23 ***	0.88	0.51 *	1.42	0.31 ***	1.37	0.33 ***	0.05	1.24	0.75	0.03 ***	0.63	0.04 ***	0.32	0.09 ***
Retired	0.17	0.12	0.43	0.25 *	0.38	0.62	-..-	-..-	-..-	-..-	-..-	-..-	-0.04	0.04	0.03	0.06	-0.06	0.14
Working	-0.30	0.13 **	-0.12	0.26	0.37	0.62	-..-	-..-	-..-	-..-	-..-	-..-	-0.06	0.04	0.00	0.06	0.03	0.14
Probability to leave a bequest	0.59	0.21 ***	0.11	0.44	1.05	0.62 *	1.33	0.64 **	-0.41	0.64	0.23	1.70	0.40	0.05 ***	0.33	0.07 ***	0.25	0.17
Provides help to others	-0.02	0.06	-0.13	0.13	-0.15	0.20	0.13	0.17	0.17	0.21	0.77	0.65	-0.02	0.02	0.05	0.03 *	-0.02	0.06
Engages in voluntary activities	0.04	0.06	0.02	0.11	-0.09	0.21	0.12	0.14	0.09	0.16	0.08	0.67	-0.03	0.02	0.02	0.03	0.06	0.06
Constant	8.94	1.06 ***	9.04	2.16 ***	0.68	5.27	6.40	2.48 ***	5.50	2.96 *	-3.99	###	10.71	0.37 ***	10.87	0.50 ***	9.74	1.39 ***

Notes: Standard errors have been computed using 100 bootstrap replications. ***, **, * denote significance at 1%, 5% and 10%, respectively.

Table A.3: Effects of Selection on Coefficient and Covariate Effects for Mean Holdings

Countries Compared	Decomposition Type	Stocks					Home				
		Mean Difference	Covariate Effect	Coefficient Effect	$\hat{\theta}_{US}$	$\hat{\theta}_i$	Mean Difference	Covariate Effect	Coefficient Effect	$\hat{\theta}_{US}$	$\hat{\theta}_i$
US – Sweden	Oaxaca Standard	1.1155	0.4607	0.6549	1.47***	0.39	0.2662	0.0126	0.2536	-0.708***	1.01
	Neuman-Oaxaca with Selectivity	1.1155	0.4774	0.6382			0.2662	0.0099	0.2563		
US - Denmark	Oaxaca Standard	1.562	0.2866	1.2754	1.47***	-1.14	-0.1023	-0.0373	-0.065	-0.708***	-1.80**
	Neuman-Oaxaca with Selectivity	1.562	0.2891	1.2729			-0.1023	-0.04	-0.0623		
US - Germany	Oaxaca Standard	0.9547	0.057	0.8977	1.47***	-1.48	-0.5545	-0.0734	-0.4811	-0.708***	-1.04
	Neuman-Oaxaca with Selectivity	0.9547	0.0721	0.8827			-0.5545	-0.0782	-0.4764		
US - Netherlands	Oaxaca Standard	0.4561	0.0928	0.3633	1.47***	-10.07	-0.8195	-0.0517	-0.7678	-0.708***	0.52*
	Neuman-Oaxaca with Selectivity	0.4561	0.1171	0.3391			-0.8195	-0.0585	-0.761		
US – Belgium	Oaxaca Standard	0.396	0.1843	0.2118	1.47***	2.63*	-0.388	0.1085	-0.4965	-0.708***	0.50
	Neuman-Oaxaca with Selectivity	0.396	0.2064	0.1896			-0.388	0.1029	-0.4909		
US – France	Oaxaca Standard	1.0993	0.4522	0.6471	1.47***	1.23	-0.5396	0.1541	-0.6938	-0.708***	-1.11**
	Neuman-Oaxaca with Selectivity	1.0993	0.4497	0.6496			-0.5396	0.1498	-0.6894		
US - Switzerland	Oaxaca Standard	0.1473	0.3039	-0.1566	1.47***	3.34	-1.131	0.0198	-1.1508	-0.708***	0.88
	Neuman-Oaxaca with Selectivity	0.1473	0.33	-0.1827			-1.131	0.0139	-1.1449		
US – Austria	Oaxaca Standard	1.2012	-0.2853	1.4866	1.47***	6.88	-0.3873	0.0548	-0.442	-0.708***	0.92
	Neuman-Oaxaca with Selectivity	1.2012	-0.2548	1.456			-0.3873	0.0497	-0.437		
US – Italy	Oaxaca Standard	0.8993	0.2126	0.6867	1.47***	-15.17	-0.3862	0.2585	-0.6447	-0.708***	0.97
	Neuman-Oaxaca with Selectivity	0.8993	0.2511	0.6482			-0.3862	0.2535	-0.6398		
US – Spain	Oaxaca Standard	1.1773	0.4475	0.7298	1.47***	-5.12	-0.3019	0.3662	-0.668	-0.708***	-0.90
	Neuman-Oaxaca with Selectivity	1.1773	0.4824	0.6949			-0.3019	0.3532	-0.6551		
US – Greece	Oaxaca Standard	1.8602	0.2217	1.6386	1.47***	-0.96	0.2054	0.2075	-0.0021	-0.708***	0.33
	Neuman-Oaxaca with Selectivity	1.8602	0.2363	1.6239			0.2054	0.202	0.0033		
US - England	Oaxaca Standard	0.9761	0.2101	0.766	1.47***	1.29	-0.7206	0.0684	-0.789	-0.708***	-0.03
	Neuman-Oaxaca with Selectivity	0.9761	0.2406	0.7354			-0.7206	0.0637	-0.7843		

Notes: See Appendix 2. ***, **, * denote significance at 1%, 5% and 10%, respectively.

Endnotes

[1] Studying portfolio structure has recently become both more informative and more interesting in its own right. Theory and country-level data on the structure of household portfolios are presented in the contributions contained in Guiso, Haliassos, and Jappelli (2001); and in the review paper of Haliassos (2006). Retirement accounts were a major factor promoting stockholding participation in the US. Limited stockholding participation in the early to mid 1980s was documented in US data by King and Leape (1984), Mankiw and Zeldes (1991), and Haliassos and Bertaut (1995). A number of authors have recently explored determinants of participation in stockholding. See, for example, Haliassos and Bertaut (1995), Cocco et al. (2005), Heaton and Lucas (2000), Gollier (2001), Campbell and Viceira (2002), Haliassos and Michaelides (2003), and Gomes and Michaelides (2005). Bilias et al. (2006 a, b) explore effects of increased participation on the distribution of wealth and stock trading patterns, respectively. Campbell (2006) discusses stockholding participation, as well as under-diversification, and mortgage behavior of households, while reviewing the relevant literature. Campbell and Cocco (2003) study optimal mortgage choice, while Cocco (2005) studies effects of housing on the composition of the financial portfolio.

[2] The demographic transition and the resulting inability of social security systems to provide customary benefit levels are forcing households in major European countries and the US to accumulate for retirement on their own, and governments to provide tax and other incentives for doing so. The process neither started simultaneously nor is it progressing at an even pace across countries, thus intensifying cross-country variation in mature portfolios.

[3] Indirect stockholding in the form of stocks in defined-contribution occupational pension plans is not available in the data and is therefore not included in our analysis.

[4] For recent examples, see Albrecht et al. (2003), Mata and Machado (2005).

[5] There is a vast literature on import controls and other trade restrictions, but we can point here to studies that find a home bias in trade, namely a tendency for trade to occur within national borders than across them with neighboring countries, even after controlling for tariffs (McCallum, 1995; Helliwell, 1998).

[6] The reference here is to the literature on foreign portfolio investment. Perhaps the most telling subset focuses on the observed tendency of households to under-invest in foreign stocks, the well-known 'home equity bias' (French and Poterba, 1991; Tesar and Werner, 1995; Kang and Stulz, 1997; Pastor, 2000, Christelis and Georgarakos, 2008).

[7] Foreign direct investment is a prime example of acquisition of a foreign real asset extensively studied in the literature. In their seminal paper, Feldstein and Horioka (1980) found that domestic saving rates explain over 90% of the variation in investment rates in a sample ending in 1974. Obstfeld and Rogoff (2000) report similar findings for the more recent period 1990-1997.

[8] For surveys of the vast literature on the law of one price and the purchasing power parity hypothesis, see for example Rogoff (1996) and Taylor and Taylor (2004).

[9] While the international version of the capital asset pricing model, ICAPM, is not rejected for developed countries (with the exception of Japan), it performs much more poorly for emerging markets that are more likely segmented (see Harvey, 1991; Bekaert and Harvey, 1995 and 2000).

[10] All forms of direct and indirect stockholding are included, except for occupational defined-contribution pension plans, for which data are not collected in our sources.

[11] Except Switzerland.

[12] The US and Switzerland exhibit the largest stock holdings at the median and at the bottom quartile; Belgium is added for the top quartile of holdings. Denmark, Netherlands and Belgium top the list for median values of private businesses. Germany and the Netherlands clearly dominate the top of the distribution. Switzerland, England and the Netherlands dominate in terms of real values of primary residence, across all quartiles.

[13] Work status is not included in regressions pertaining to private business ownership, in order to avoid potential endogeneity problems arising from the fact that owning a private business typically implies work status.

[14] Survey participants are read 10 words and are then asked to repeat them, with the score in the recall test being equal to the number of correctly remembered words. For the effect of cognitive abilities (including recall) on stockholding see Christelis et al. (2006).

[15] We are grateful to Julia LeBlanc for providing us with comparative information on pension systems from her own dissertation work on individual retirement accounts in the SHARE countries.

[16] In Sweden, 2.5 percentage units of the 18.5 percentage units of lifetime income that are required as contribution to the public retirement scheme are saved and earn interest in a premium reserve account. The person insured can choose an investment manager for his or her premium reserve account, with the option to invest in stocks. In Denmark, The Special Pension (SP) is a mandatory individual retirement program (second pillar) with an annual contribution rate of 1% which was introduced in 1999.

[17] Spain and England are missing from this list picked up by our estimates.

[18] Exceptions are Italy, Spain, Greece and England.

[19] Market conditions in the S are estimated to be substantially less favorable to stockholding than in the MW; and similarly for the NE for home- and business ownership.
[20] Our estimates imply that the characteristics of Spanish and English populations are somewhat less conducive to business ownership.
[21] See also Albrecht et al. (2003).
[22] The thresholds for income and wealth quartiles are defined for the base country or region over all households in the sample. Households in the country or region under comparison to the base are then placed in quartiles according to those thresholds.
[23] They are reversed among small Swedish business owners and large Austrian owners.
[24] Sweden and Denmark are exceptions. In Greece, differences are relatively small and get reversed in the top 15% of the distribution.
[25] The largest covariate effects are observed vis-à-vis the southern countries (Italy, Spain, Greece) and England.
[26] We chose as our baseline specification the one with income and wealth quartiles because it is less subject to measurement error and is found preferable according to both the Akaike and Schwarz information criteria.
[27] Given the computational intensity of this decomposition we estimate 19 quantile regressions (at every 5^{th} percentile).
[28] We estimate a standard Heckman model with selection using the same set of explanatory variables we employ in our baseline specifications (presented in Sections 3.1 and 4.1) in both the first and the second stage. Thus, identification is obtained through the nonlinearity of the Mills ratio.

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