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Familiarity versus Opportunity in Household Financial Behavior

PRELIMINARY REPORT



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1. Introduction

A wide and continuously expanding array of modern financial products, which includes both assets and loans, provide important opportunities for households to smooth consumption, manage risk, and plan for retirement. Financial innovation adds to this array, but at the same time creates the need for households to familiarize themselves with new and often complicated financial instruments. The risk of misselling to uninformed customers and the potential for impulsive purchases by those has led regulators recently to require tests of familiarity with the instrument to be purchased (e.g. MIFID), or even to impose financial product sale bans (like the recent ban on sales of structured products to households in Belgium). Presumably, regulation of participation opportunities for those lacking familiarity with financial products is based on the assumption that, in the absence of such regulation, such households would actively participate in unfamiliar financial products.

While this assumption seems plausible a priori, it is not inescapably accurate. Indeed, one could imagine that lack of familiarity per se leads households to avoid participating in complicated financial products for fear of suffering unnecessary losses. Furthermore, it is conceivable that households whose underlying characteristics and needs merit the use of unfamiliar products have ways to make up for their lack of familiarity and still participate at a rate commensurate to those characteristics and needs, such as access to information and advice. Setting up regulatory mechanisms to ban product sales to all, or even to those unfamiliar with an instrument, could then be unnecessary and possibly counterproductive.

Supposing that we have a way to measure accurately familiarity with a particular financial product in an environment without product access regulation, we might consider estimating the role of familiarity on participation in that product, controlling

for other relevant characteristics of households. Such a regression, however, could be subject to serious biases resulting from unobserved heterogeneity or even reverse causality. There may well be unobserved factors that lead households both to become familiar with advanced financial products and to participate in them, without a direct link between familiarity and participation. Moreover, familiarity could contribute to participation but could also be the result of participation. Finally, it is difficult to imagine that we could collect familiarity indicators for households and particular financial products on a large scale and over a representative sample.

A way to uncover the role of familiarity in participation decisions would be to provide (exogenously) the same participation opportunities to people who are either (exogenously) familiar or not familiar with particular financial instruments and to compare the extent to which the two groups choose to participate, controlling for other relevant characteristics. While this seems like a tall order that requires us to accept the challenges and limitations of controlled experiments with small groups, limited variation of characteristics, artificial financial instruments, and small stakes, a real-world experiment may well exist. The exogenous separation of Germany into East and West Germany, the consequent deprivation of East Germans from ‘capitalist’ products, such as stocks and consumer debt, and the exogenous opening up of similar opportunities to both following reunification, seem to fit quite closely the description of this ‘experiment’, and to do so on a large scale, namely an entire population.

This paper uses household-level data from the German Socioeconomic Panel (GSOEP) to compare the participation of former East and West Germans in various financial products following reunification of Germany. The nature and coverage of the data allow us to work with a representative sample of the German population and

to control for a range of their relevant characteristics. We are able to vary familiarity differentials between East and West Germans by considering ‘capitalist’ financial products that were not available in East Germany (such as stocks, bonds, and consumer credit) as well as ‘shared’ products that were available (such as savings accounts and life insurance); and by studying cohorts with different length of exposure to capitalism prior to the separation. We also trace the evolution of differences in participation behavior, both for ‘capitalist’ and for ‘shared’ products, as equal access to opportunities persisted through time and familiarity with ‘capitalist’ products grew.

Among unfamiliar (‘capitalist’) instruments, we document higher participation rates of East Germans in consumer credit and lower in securities (bonds and stocks) compared to West Germans; whereas for familiar products (savings accounts and life insurance policies), East Germans start off with higher participation rates than West Germans and, as time passes, they converge to those of West Germans and actually fall below them. Once we control for household characteristics, however, the tendency of East Germans to participate in securities is the same as that of West Germans, right from the start after reunification; while their tendency to participate in consumer credit is greater and does not diminish over the period we consider. Nevertheless, average behavior in the two subsamples masks some cohort-based variation: for certain cohorts of East Germans, we find clear signs of initial experimentation with stocks and subsequent retreat relative to their West German counterparts who were more familiar with such products.

For products familiar to both East and West Germans prior to reunification, controlling for characteristics does not alter the conclusions derived from descriptive statistics. This suggests the initially higher participation rates for East Germans and

the following convergence to, and drop below those of West Germans mainly represent gradual adjustment to the availability of a broader set of financial instruments than in East Germany.

We find evidence that the participation rates of East Germans in consumer credit and in securities correlate positively with average incomes in the circle of households with similar age and education, expanded by reunification to include West Germans. This correlation with peer income is observed among West Germans only for consumer credit but not for securities. When positive correlation with peer income is found, it continues to be significant and almost unchanged even when we introduce a control for future income expectations of the household. Thus, it seems to capture a true peer comparison effect, rather than a “tunnel” effect that would merely create better expectations about the future.

Section 2 describes the data. Section 3 provides descriptive statistics on the evolution of participation rates of East and West Germans in various financial instruments following reunification. Examples of capitalist products include securities (bonds and stocks) and consumer credit, while shared ones include savings accounts and life insurance. Section 4 presents results of decompositions of these differences in participation over time into those associated with remaining relevant characteristics of the East and West German households and those that are observed among East and West Germans of similar relevant characteristics. Section 5 provides a further perspective at what might lie behind these differences in behavior, by introducing average income in the new peer group that includes both East and West Germans. Section 6 offers concluding remarks.

2. The Data

The German Socioeconomic Panel (GSOEP) is a longitudinal survey of private households, established in West Germany in 1984 and carried out annually.¹ The GSOEP consists of two questionnaires: one is at the household level and the other one collects information on each member of the household. In the spring of 1990, a sample of East Germans was added to the survey. Additionally, new households from both East and West Germany were added in subsequent refreshment samples. We include all subsamples into our final sample with the exception of the high income subsample.²

The GSOEP includes a question on where individuals lived before reunification in 1989. We identify individuals as East Germans if they indicate that they lived in East Germany (GDR), including East Berlin, in 1989. Similarly, we identify individuals as West Germans if they indicate West Germany (FRG) including West Berlin. All other observations are dropped; in particular, all households whose household head was born after 1989 are not part of the final sample.

The asset participation data in the survey are recorded at the level of the household. The questionnaire asks which assets the respondent or any other person in the household possessed last year. The list of possible answers includes: savings account (*Sparbuch/Spargirokonto*), building-savings contract (*Bausparvertrag*), life insurance (*Lebensversicherung*), bonds (*Festverzinsliche Wertpapiere*), stocks (*andere Wertpapiere*), company assets (*Betriebsvermögen*), and none of the listed. However, it is only since 2000 that stocks and bonds are separately listed.³ Before that

¹ A detailed description of the survey can be found in Wagner et al. (2007).

² The high income sample (Sample G of the GSOEP) is unique in that it does not have an analogous benchmark in any other major survey, be it panel or cross-section. This is why this sample is not included in the overall standard weighting scheme of GSOEP (for further detail see <http://www.diw.de/documents/dokumentenarchiv/17/38951/dtc.354256.pdf>)

³ The change occurs in the questionnaire 2001, i.e. refers to participation in the year 2000.

year, both asset types were included under the common header securities (*Wertpapiere*). Note that this change in the question coincides with a jump in the participation rate for securities, i.e. stocks and bonds, from 31 (23) percent in 1999 to 39 (31) percent in 2000 for West Germans (East Germans). This might well be due to the more detailed design of the question.

The consumer debt data are recorded at the household level, as well, since 1997. The question reads (with slight changes over time): “Do you have to use a certain amount of your income for paying back loans that you took out for major purchases or other expenses?”

We carry out our analysis at the household level including individual characteristics, e.g. gender, from the household head’s individual questionnaire. The head of the household is defined as the person who knows best about the general conditions under which the household acts and is supposed to answer the household questionnaire in each given year.

2.1. Transformations

Most questions refer to the situation in the respective survey year; however, some questions refer to previous years, in particular the asset question. Therefore, we require households to participate in the survey for two consecutive years, in order to have a complete picture of the situation in a particular year. All statistics use weights, provided by GSOEP, to account for panel attrition and the sampling scheme.

All nominal variables are in € and are adjusted to represent purchasing power in 2000. In accordance with the residence in the observation year, inflation rates are taken from the CPI in East or West Germany until the year 1999, and from a common CPI from 2000 on.

Peer income is constructed in the following way: All household heads (both East and West Germans) are grouped in four age groups (25-35, 36-45, 46-65, and above 65) and three educational groups. We construct the educational groups according to the International Standard classification of Education (ISCED-1997).⁴ All individuals in the first group have completed general elementary schooling (*Haupt-/Realschulabschluss*) at most. Individuals in the second group have higher educational attainment in the form of a high school diploma (*Abitur/Fachhochschulreife*), vocational training, or kindred. The third group represents individuals with a tertiary education degree, i.e. completed college education (*Fachhochschule, Universität, Promotion*). Average income is computed for each possible combination of age and education groups. Finally, an individual's "peer income" is then set to the average income of the respective age and education group (excluding the individual's own income).

2.2. Sample Size

Although we observe already all covariates and dependent variables for East Germans in 1990, we do not include that year in the final sample, because the question on asset holdings in 1990 refers to 1989, i.e. to times before the Fall of the Berlin Wall. The final sample consists of 158,000 observations for the years 1991 to 2009, namely 112,000 observations for West Germans and 46,000 observations for East Germans. Yearly observations vary between 6,000 and 7,000 in the 1990s, and amount to around 10,000 in the 2000s. East Germans represent around 2,000 of those yearly observations in the 1990s and around 3,000 in the 2000s. When we include

⁴ A detailed description can be found in the GSOEP documentation: http://www.diw.de/en/diw_02.c.238110.en/generated_variables.html

income growth expectations, the sample size is further restricted, since we need at least three consecutive observations to observe the full set of covariates.

3. Evolution of Participation in East and West

In this section, we document the evolution of participation in various financial instruments for two groups of households, based on whether the head of household reports being born in East or in West Germany. Participation rates are computed using survey weights and are reported for all periods in our sample for which they are available.

3.1. Unfamiliar: Consumer Credit

In Figure 1, we report participation rates for consumer debt in the period 1997 to 2009. We observe that participation rates are uniformly greater for East German households than for West German ones and that they evolve in similar fashion across the two groups, with the distance between them not showing any tendency to disappear.

Figure 2 decomposes the household groups further, distinguishing between cohorts born in different periods. This reveals that participation rates in consumer debt were very similar for the oldest West and East German households in our sample, namely those born before 1930, for whom consumer debt is not so important, but persistent differences were present for the younger cohorts we consider.

In Figure 3, we distinguish households according to the level of educational attainment of the household head. We find greater similarities, and even some ranking reversals, in participation rates of the least educated, but a clear pattern of much

greater and persistent differences in participation of the two more educated groups as regards consumer credit.

All in all, while the period after 2004 tends to exhibit somewhat smaller differences in participation among East and West households compared to the earlier period for which we have data on consumer debt (1997-2004), we observe East Germans participating consistently more than West Germans, at least for the two more educated groups and for the cohorts that did not coexist prior to the division of Germany.

3.2. Unfamiliar: Securities

The participation rate in securities (bonds and stocks taken together) reported by both household groups, East and West, exhibits an upward trend in the first period following reunification, namely until 1999, and then follows a mildly downward path (Figure 4).⁵ The upward trend in the first period matches the international experience of increase in financial risk taking and especially in stock market participation of households during the 1990s (see Guiso et al, 2001). Existing literature attributes the increase in financial risk taking that took place in Europe and in the US in the 1990s to a combination of good stock market performance, dropping transactions costs, and spread of equity culture resulting from growing realization that social security systems will be unable to provide pension benefits at previous levels as a result of the demographic transition.

The slight drop in participation following 2000 is likely to be due, at least in part, to the burst of the internet bubble and associated losses for stockholders. It is clear from the Figure that West German households exhibited greater participation in

⁵ The sharp increase between 1999 and 2000 might be at least partly due to the change in the question.

stocks throughout our sample period, and the distance between West and East Germans narrowed only towards the end of the worldwide stock market rally in the late 1990s.

We can compare participation rates separately for stocks and for bonds only after 2000, and the comparison is shown in Figures 5 and 6. We see that both East and West Germans reduced their participation in both instruments following 2000, more rapidly for bonds than for stocks, but West Germans exhibited a consistently greater tendency to participate in either financial instrument compared to East Germans.

A look at cohort behavior in Figure 7 shows that West Germans exhibited greater participation in securities regardless of cohort, with the larger participation differences found for the oldest group, namely those born before 1930. While members of that cohort are likely to have shared their formative years in a unified country, they are unlikely to have been taught about stocks during those early formative years.

One might conjecture as a reason for this large difference that East Germans are likely to have missed the discussion about stocks initiated by privatization experiments in other countries, notably Thatcher's experiments in the 1980s, and may have been at an age not so conducive to learning new financial instruments in the 1990s, following reunification. Yet Figure 8, where participation rates in bonds and stocks are shown separately show a slight convergence of East to West participation rates for this oldest cohort towards the end of the period, while participation rates in bonds appear much more erratic. This is an issue to be investigated further using statistical analysis below.

When we compare participation rates in securities across groups with different educational attainment, we confirm a well-known result from the stock market participation literature, namely that more educated groups tend to exhibit higher participation rates, but we observe that it also holds for bonds (Figure 9 and 10). All participation rates are higher for West than for East Germans, regardless of the education group being examined.

3.3. Familiar: Life Insurance and Savings Accounts

We next consider two types of assets that were quite familiar to both West and East Germans, as they were available in East Germany: savings accounts and life insurance policies.⁶ Figures 11 and 12 exhibit a picture that is very different from the ones above that referred to assets and debts relatively unfamiliar to East Germans. In both cases, participation in the familiar financial instrument starts off being greater among East than among West Germans and, while falling for both, it drops faster for East Germans and is eventually overtaken by West German participation. The greater early participation of East Germans is perhaps to be expected as a remnant of a portfolio that was of necessity more restricted than those of Germans in the West. The faster drop in participation could also be seen as a gradual correction of this overrepresentation of familiar assets in the portfolio. More puzzling, however, is the observation that participation rates of East Germans do not simply converge to those of West Germans but fall, in both cases, below them.

3.4. Tied: “Building-savings” Accounts

Finally, we turn to the case of building-saving accounts, which are unfamiliar

⁶ It should be noted that life insurance policies in the East tended to be smaller in value and more targeted towards covering funeral expenses compared to those typically held in the West.

assets tied to a lumpy real asset. Such accounts were not available in the East, as they are relevant mainly for households who intend to buy their own apartment or house. In Figure 13, we see that the participation rate of East Germans is dramatically lower than that of West Germans, and while it remains remarkably stable for West Germans, it gradually converges for the two groups. Since this financial instrument is quite closely tied to the ownership of real estate, movements in participation rates are likely to be driven mostly by the demand for the underlying real asset and to be less closely linked to familiarity with the financial instrument itself.

4. East versus West: familiarity versus opportunity

4.1. Description of the method

Our descriptive analysis, based on observed participation rates in a range of assets and debts, has indicated that the participation behavior of East Germans differed widely from that of West Germans, and that the picture is much more complicated than the a priori plausible one of gradual convergence of East German to West German participation rates following reunification. An important first question is whether the observed differences in participation rates had a lot to do with differences in household characteristics relevant for participation, as opposed to differences in behavior of similar households that happened to be separated following the war.

In this section, we attempt to decompose the observed differences in participation rates to those two components. The former, arising from differences in participation-relevant characteristics, is attributed to what are known in the literature as “covariate effects”; the latter, arising from different behavior of East and West households with similar characteristics, is attributed to “coefficient effects”. Both terms refer to a participation regression (in our case, a probit model) that makes the latent variable

(utility differential between participation and non-participation) a function of observable characteristics (“covariates”) whose influence depends on the sign and magnitude of coefficients.

Specifically, the decomposition of the West-East difference in observed participation rates into “coefficient” and covariate effects is represented by the following equation:

$$pr^{West} - pr^{East} = \left\{ pr^{West} - \hat{p}^{West b, East X} \right\} + \left\{ \hat{p}^{West b, East X} - pr^{East} \right\} \quad (1)$$

The key here is computation of the counterfactual participation rate, $\hat{p}^{West b, East X}$. This is the average participation rate that West Germans would exhibit if they related their participation decisions not to their own characteristics but to those of the East German pool. The first difference term on the right hand side arises from using East rather than West German characteristics, so it represents “covariate effects”. Both items in the second bracket refer to East German characteristics, but the counterfactual probability term uses West German coefficients. Since the difference is due to using different sets of coefficients, this second bracket represents “coefficient effects”.

From an economic point of view, the first bracket shows the part of the participation difference that is due to a different configuration of characteristics in the East versus the West population. For example, part of the explanation for lower stockholding rates among East rather than among West Germans arises from lower incomes in the East, and this goes under covariate effects. On the other hand, there are differences in participation behavior between West and East Germans, i.e. in the way that East Germans link their characteristics to their participation decision. Since the link is made through the coefficients on characteristics, it is referred to as “coefficient effect”.

Such coefficient effects refer to differences in behavior, but in general they could also arise from differential treatment of the two groups by the financial sector. A case in point would be discrimination by the financial sector against one of the two groups. Such discrimination, based on the place of origin of German households living in unified Germany is not only illegal but also unlikely, as it has not been documented. We will, therefore, assume that coefficient effects arise mainly from differential interplay between familiarity of the household with regard to a given financial instrument and the opportunity it provides for future wellbeing. In the case of stocks, the latter could refer to the opportunity for wealth generation based on the equity premium; in the case of consumer credit, to the potential it provides to East German households to catch up with their West German counterparts sharing similar characteristics. We will provide below some evidence consistent with the existence of this “catching up” effect, controlling for own household characteristics.

To construct the counterfactual participation probability and derive the decomposition, we first run a participation probit regression for the relevant asset or debt in the West German sample and obtain the coefficients for the West. We are able to control for a range of household characteristics. Specifically, we include as regressors a gender dummy, four age categories (20-35, 35-50, 50-65, and above 65), and marital status (single, married and divorced). Furthermore, we control for household composition by including categorical variables for the number of adults (1,2, and 3 and above) and children (0, 1-2, and 3 and above). The three categories "at most general elementary schooling", "completed high school", and "completed college" describe the household head's educational attainment. We capture the labor force status and occupation of the household head, distinguishing between retired, unemployed, not in labor force, apprentice, self employed, blue collar, white collar in

financial sector, white collar in non-financial sector, and civil servant. We also control for (the logarithm of) household monthly net income, and we proxy for wealth through a dummy variable that indicates homeownership. Finally, we add two proxies for consumer sentiment, namely if the household head reports being concerned about the general economic development, and about its own economic development.

Once the probit coefficient estimates are obtained, we draw (randomly and with replacement) vectors of household characteristics from the East German population, thereby respecting any tendency of them to co-vary. For each East German household drawn, we use the West German coefficient estimates to compute the probability of participation that this East German household would exhibit if it behaved like a household from the West. Once we compute these counterfactual probabilities for all East German households drawn, we average them to compute the counterfactual probability in question. We also compute confidence intervals by bootstrapping the sample of East Germans, computing an entire set of coefficient estimates and covariate effects, and seeing whether zero lies in the 95% confidence interval of these estimated coefficient and covariate effects, in which case they are not statistically significant at the 5% level.

4.2. Unfamiliar: Consumer debt

We have reported above that participation rates for consumer debt are consistently greater among East than among West Germans throughout the period for which debt is observed (1997-2009). Although one might conjecture that this is due to poorer economic conditions of East Germans, our decomposition analysis finds exactly the opposite: covariate effects are statistically insignificant throughout the period, and practically the entire observed difference in participation probabilities can be

attributed to a greater tendency of East Germans to have consumer debt outstanding compared to their West German counterparts of similar observed characteristics (Figure 14). It is also noteworthy that this greater tendency of East Germans to have consumer debt does not seem to disappear or diminish appreciably over time, at least in the period for which we have data.

The next set of Figures (15-18) uncovers an interesting cohort pattern to these coefficient effects, while covariate effects are statistically insignificant throughout. While for the oldest cohort (born before 1930), coefficient effects are also insignificant or at best very small, these tend to increase as we progressively consider younger cohorts. While it is generally true that younger households are more likely to borrow than older ones of similar characteristics, here the result refers to a growing differential tendency of East Germans to borrow compared to their West German counterparts as we consider younger groups. In other words, East German cohorts that were younger when they were introduced to debt, following reunification, were likely to exceed their West German counterparts more in their tendency to borrow. To the extent that borrowing needs of the two groups are equally well captured by the observed characteristics included in the regression, this result raises the question of what leads to these differences. One possibility is that consumer debt was partly undertaken in order to emulate peers, and younger East Germans at the time of reunification were more likely than older East Germans to resort to consumer debt in order to emulate their peers, thus creating this cohort pattern. The role of peer comparisons in consumer debt will be explored further later in the paper.

The next set of Figures (19-21) depict differences for three different groups of educational attainment of the head. For the least educated, namely those with no school or general elementary education only, we find hardly noticeable observed

differences in participation probabilities in consumer debt throughout the period. While our estimates indicate that this is the net effect of coefficient and covariate effects cancelling out, neither type of effect is statistically significant throughout the period. For the other two educational categories, however, not only do we find that East Germans are more likely to participate in consumer debt than West Germans, but also that this is fully due to differences in debt behavior of households of comparable observed characteristics. If anything, estimates of coefficient effects are somewhat larger for the most educated group suggest that whatever drives these East-West differences does not diminish with literacy and information collection and processing ability that are typically associated with higher educational attainment. This reinforces the conjecture that consumer debt, rather than being a sign of weakness or failure to cope with financial needs, is likely to be part of a focused plan to catch up with peers, either by consuming more or by releasing resources that can be invested profitably (e.g. in wealth-generating securities). We will be exploring this conjecture further in the next section.

4.3. Unfamiliar: Securities

We now turn to participation in risky assets. First, we consider stocks and bonds together (“securities”), as we can observe this throughout the post-reunification period. An interesting reversal to the results on consumer debt occurs here. In our descriptive section, we saw that West Germans were more likely to participate in securities throughout the period and this differential tendency did not seem to diminish with time. In Figure 22, we see that practically all of this difference was due to the fact that West Germans had observed characteristics that were more conducive to holding securities: comparable East and West Germans were equally likely to be holding risky securities right from the start, and this did not change throughout the

post-reunification period. This is despite the lack of familiarity of East Germans with risky securities due to the time spent under the communist regime. The picture does not change when we focus on stocks and restrict attention to the period for which separate data on stocks exist (Figure 23

When we consider different age cohorts separately (Figures 24-31), we find that all cohorts of West Germans exhibit greater participation in securities and specifically in stocks than East Germans throughout the period we consider. For the oldest cohort, born before 1930, the difference is split between coefficient and covariate effects, while for the other cohorts, it is mostly explained by West German characteristics being more conducive to stockholding than those of East Germans.

Interestingly, during the period following the crash of the internet bubble, young to middle-aged East German households (born between 1950 and 1970) were more likely to hold securities in general and stocks in particular than West Germans of comparable characteristics. This differential tendency to hold stocks disappeared in the later part of the decade and it is missed by looking at observed differences in participation, which continued to be in favor of West Germans throughout the period and only fell slightly during the aftermath of the crash of the internet bubble. This tendency to exhibit statistically significant coefficient effects following the crash is consistent either with delayed reaction of East Germans to the internet bubble crash or with a greater tendency of them to take advantage of the wealth generating opportunities arising from buying stocks at lower prices following the burst of the bubble.

In unreported results, we also examine separately the participation patterns in bonds and the corresponding coefficient and covariate effects. Looking at all age cohorts taken together, West Germans are seen to be more likely to participate in

bonds throughout the period, with coefficient and covariate effects being significant and accounting almost equally for the difference in participation. Taking a closer look at different cohorts, we find that East and West Germans of similar characteristics tend to be equally likely to invest in bonds, with the exception of the oldest and youngest cohorts, where we see that West Germans dominate even controlling for their characteristics. Even for these two cohorts with significant coefficient effects, however, we do not observe a clear tendency of these effects to diminish over time, as familiarity of East Germans with bonds increases.

Securities in general, and stocks in particular, are considered information-intensive assets. Stock market participation studies have consistently pointed to a significant role of educational attainment in participation, which could be attributed to greater ease of more educated people to obtain and process relevant information, lowering their stock market entry and participation costs. An extension of these arguments to familiarity would also suggest that, among households less familiar with risky financial instruments, those with the lowest degree of educational attainment would have greater difficulty familiarizing themselves with the new instruments.

Yet the picture we obtain when we considered different education classes separately does not quite fit this conjecture (Figure Figure Figure Figure Figure Figure). For securities, coefficient effects tend to be largely insignificant regardless of educational attainment, and this is more consistently so for stocks in particular (for the period in which we can observe them). Among the highest education group, we do find statistically significant coefficient effects towards the end of our sample (after 2005), both for securities overall and specifically for stocks, but they are in favor of West Germans: highly educated East Germans fall below their West German counterparts and are less likely to participate, despite the fact that they are the most

capable to collect information and they have had plenty of time to do so, following reunification. It is hard to attribute this pattern of coefficient effects either to lack of familiarity of East Germans or to greater facility of their most educated members to familiarize themselves with risky assets as time goes by. If anything, these results are consistent with the idea that familiarity differences were not the factors producing observed lower patterns of participation in securities among East Germans, and that opportunity to participate was taken up by East Germans to the same extent as it was by West Germans of similar household characteristics.

4.4. Familiar: life insurance and savings accounts

A cleaner look at the role of opportunity, as opposed to familiarity, can be obtained from examining East and West German household behavior with respect to assets that are familiar to both, as they also existed in East Germany. We consider two such assets here: savings accounts and life insurance policies. In both cases, observed participation rates of East Germans start out being higher than those of West Germans following reunification, and then gradually come closer together as time elapses, even with a slight reversal in participation rankings towards the end of our sample period.

Our decompositions show that this pattern of evolution of observed participation differences is governed primarily by coefficient effects (Figures 38 and 39): East Germans start out being more likely to participate in savings accounts and life insurance policies than their West German counterparts, but gradually they become no more likely than West Germans to participate.

As familiarity is not an issue here, a possible interpretation has to do with how opportunities evolved. In East Germany, given the limited opportunities to participate in wealth-generating assets, there was considerable participation in savings accounts and life insurance policies. Participation was not stopped when East Germans were

given opportunities to participate also in riskier assets with return premia, even though East Germans jumped at those opportunities. The gradual easing of participation in assets familiar from the past is consistent with a pattern of experimentation: trying the newly available but unfamiliar assets but not immediately giving up the familiar ones from the previous era.

Finally, we look at an unfamiliar financial asset tied to a familiar but lumpy real asset, namely housing. The financial asset is “building/saving” accounts, deposits in which qualify the depositor later for lower-interest mortgages on real estate. Although they provide a financial opportunity, it is clear that these accounts will be (predominantly) used by households that have decided to own real estate.

Immediately following reunification, the participation rates of West Germans exceeded those of East Germans by as much as 15 percentage points (Figure 40). These observed differences came down and stabilized fairly rapidly (from 1995 on) to about 5 percentage points. We can see from our decompositions that, once they stabilized, they were completely due to covariate effects: West Germans had characteristics that made them more likely to participate in those accounts, but they were as likely to participate as their East German counterparts. This later pattern mimics what we saw about securities and stocks, i.e. unfamiliar financial assets that did not necessarily require lumpy investments.

However, immediately following reunification, covariate effects were already at their relatively flat level of 5 percentage points, while coefficient effects accounted for 10 out of the total 15 percentage-point difference. Gradually, these coefficient effects dropped to a level not statistically different from zero. A possible explanation for this gradual drop is that East Germans were slow to take up participation in this unfamiliar instrument in order to familiarize themselves with it. This, however, raises

the question of why such a familiarization process was not observed with the other unfamiliar assets we considered, namely securities and consumer debt. An alternative explanation, consistent with our findings for other unfamiliar assets, is that the delay in taking up building/savings accounts has to do with a gradual adjustment to the idea of saving for real estate ownership, to which these financial accounts are tied.

5. A further perspective on differences in East-West financial behavior

In previous sections, we employed counterfactual decompositions to uncover differences in financial behavior between East and West Germans following reunification. Estimation of coefficient effects still leaves open the question of what lies behind the differences in behavior. The patterns of coefficient effects we found for assets and debts of different familiarity to East Germans suggested an interpretation in which participation of East Germans responds to the provision of opportunities more than it is hampered by lack of familiarity with certain products. In this section, we employ regression analysis to study differences in the extent to which financial behavior of East Germans responds differently to the opportunities provided by the new environment following reunification, as compared to their West German counterparts. We will focus on consumer debt and on securities, which covers not only assets and debts but also the two cases of East-West observed participation ranking: East Germans as a group participate in consumer debt more than West Germans, while the opposite is true for securities.

How do we proxy opportunities in the new environment following reunification? Here we take a perspective based on social interactions. East Germans can be led to use credit and risky assets not only by their own personal resources and characteristics but also by the objective to catch up with their new peers. A key factor in determining

consumption and asset holding by peers, as well as describing labor market success, is income. We will consider the possibility that, in addition to their own characteristics, households in the post-unification era were sensitive to average incomes in their age/education peer group, which now included East and West Germans, when making choices of financial instruments. Specifically, we will examine econometrically whether participation in consumer debt or in securities responded to peer income, separately for East and for West Germans, controlling for other observables.⁷

Tables 1 and 2 present probit participation regressions for consumer debt, separately for West and then for East Germans, with identical specifications. The first column of marginal effects in each of the two tables refers to a model in which the usual set of determinants of participation in consumer debt are augmented by the average income of peers, defined as comprising people in the same age and education category as the respondent, regardless of whether they come from the East or from the West. We find that there is a positive marginal effect of peer income on consumer debt participation, both for those who originated in the East and those in the West, with the estimate being considerably higher for East Germans. A unit increase in peer incomes increases the probability that an East or a West German participates in consumer debt, but the probability goes up by more percentage points for the East German.⁸ To the extent that this estimate represents a marginal effect of being immersed in a mixed peer group with both East and West Germans, there are two reasons why the East German participation rate in consumer debt would be influenced more than the West German one: first, East Germans were immersed in a pool with

⁷ We prefer this approach to considering asset and debt holdings in the peer group directly, both because incomes determine such holdings and because forming perceptions about peer income tends to be easier than observing peer assets and (especially) debts.

⁸ As separate regressions are run, this allows for different coefficients in the East and in the West sample, as well as for differences in the configuration of characteristics. Notice also that, in order to avoid the reflection problem, we remove the respondent's income when computing average incomes in the peer group.

higher average incomes than when they were in the East; and second, they were more responsive to any change in peer income than West Germans were.

Estimation of peer effects is always challenging and we need to think about how far we can push this interpretation of our findings on marginal effects. First, how do we know who the peers of each household are? We obviously don't, but the usual practice of assuming that peers consist of all those in the same age and education group seems more warranted in our context: we are trying to capture peer effects induced by reunification rather than by one's own social activities. Second, how do we handle endogeneity of the peer group, namely the fact that each respondent chooses the peers? Here, we are focusing on the change induced by reunification, which was exogenous to individual respondents. Third, could it be that changes in average incomes of peers in the broad sense simply capture changes in macroeconomic conditions? In order to purge the effect from these macro-considerations, we have included in the regression year dummies. Fourth, the reunification brought with it not only an increase in average peer incomes for those coming from the East but also expectations of higher future own incomes. When we control for a perfect foresight measure of income expectations in the second column of Tables 1 and 2, we find that income expectations have a significant impact on the probability of participation in consumer debt, but also peer income continues to have a statistically significant marginal effect of an essentially unchanged estimated magnitude relative to the regression without income expectations.

Tables 3 and 4 repeat the same exercise, but for securities instead of consumer debt. Our counterfactual decomposition analysis above showed essentially no coefficient effects in the average participation rate in securities. Our regression analysis in this section suggests that there is a differential response of East and West

Germans to peer income when the latter is included in the regression. West Germans are estimated to have a statistically insignificant response to peer income when they decide their participation in securities, while East Germans exhibit a statistically significant, positive response. This is again net of macro effects, unaffected by controlling for expected income growth, and jointly significant with the latter when both variables are included (in the second column of Tables 3 and 4).

Our results on trying to sharpen the implications of the new opportunities for East Germans following reunification, and the corresponding reactions of West Germans, are consistent with the view that East Germans used both consumer credit and securities partly in response to the higher average incomes for their age and education group in the unified country. West Germans are not estimated to respond to average incomes in the unified country when it comes to their securities investments, but to do so in their decision to participate in consumer debt. While estimation of peer effects is usually problematic in big surveys, the nature of the question and of the reunification experiment alleviate at least some of these concerns.

6. Concluding Remarks

This paper used several waves of representative GSOEP data from Germany in order to study differences in financial behavior of East and West Germans following the reunification of the country. Three different types of financial instruments were considered, in an effort to study the interplay between familiarity and opportunity provided by “capitalist” products: financial instruments, such as consumer debt and securities, that were largely unfamiliar to people in the East; familiar instruments, such as bank accounts and life insurance policies; and an unfamiliar instrument (building- savings account) tied to a bulky real asset (real estate).

We documented differences in observed participation rates across East and West Germans, studied whether these were due to differences in the configuration of characteristics in the two groups or to differences in behavior of similar people, and how both issues varied as time passed after reunification. East Germans were more likely to participate in consumer debt and less likely to participate in securities than West Germans. The former result holds also when we control for characteristics of the two groups, while the latter is almost entirely explained by characteristics of West Germans that are more conducive to securities holding. These differential tendencies seem to be very persistent through time and neither to be phased in following reunification nor phased out as time passes. This finding is consistent with a relatively secondary role for familiarity when it comes to participation decisions in previously unavailable capitalist products.

Turning to familiar assets, we find greater participation rates for East Germans compared to West Germans for a number of years following reunification, but with gradual convergence of participation rates over time. These patterns are dictated mainly by differences in behavior among similar East and West households. Taken together, our findings suggest that East Germans were not discouraged by lack of familiarity with risky financial instruments but also held on to those familiar to them and only gradually reduced their participation to West German levels. Gradual participation in unfamiliar instruments linked to housing seems to have been governed by a gradually developing interest in owning a home.

Regression analysis sheds additional light to the role of opportunity. It finds that, in addition to usual factors determining participation in consumer debt and risky securities, such participation also responded to the new average levels of peer incomes following reunification. For East Germans, this was true both for consumer

debt and for securities, whereas for West Germans we only found an effect on consumer debt.

All in all, our findings seem quite different from what we expected to find, given the usually assumed role of familiarity with financial instruments. Our usual perception of the role of familiarity is that people unfamiliar with certain financial instruments will take time to participate in them and will only gradually increase their participation rates to match those of experienced households. Here we seem to find that lack of familiarity takes a secondary role when households are confronted with opportunities for wealth generation and for catching up through borrowing, and unfamiliar households are as likely to participate as familiar ones of similar characteristics. This need not hold for instruments tied to lumpy real investments, such as real estate purchases. Participation differences may also be quite persistent through time, as they may be linked to persistent differences in participation-relevant household characteristics other than familiarity with the instrument.

The German reunification episode resulted in the provision of the same financial opportunities to people of common culture but different familiarity with financial instruments. The findings could have implications for distinct policy questions. For example, we found that lack of familiarity is not a sufficient deterrent for participation when important financial opportunities and peer pressure are present. Or one may want to think about harmonizing financial products and opportunities across less and more financially developed countries in the European Union. Even when cultural differences are not relevant for financial behavior, our findings suggest that the opportunities generated by financial harmonization can lead to rapid utilization of advanced financial instruments such as consumer debt or risky securities, but without guarantees as to the optimality of such use.

In both cases, it seems that we should not rely on lack of familiarity to provide the friction necessary for the household to gain knowledge of the financial product before it adds it to its portfolio of assets or of debts. Financial literacy, sound financial advice, and clever design of default options for use of financial products are indispensable, both when we deal with overconfident investors familiar with risky financial products and when we deal with those who lack familiarity but are eager to respond to opportunity.

References

Wagner, Gert G., Frick, Joachim R., and Schupp, Jürgen (2007), [The German Socio-Economic Panel Study \(SOEP\) – Scope, Evolution and Enhancements](#), *Schmollers Jahrbuch* 127 (1), 139-169.

**TABLE 1: Consumer Debt Regression With Income Growth and Peer Income
(West Germans)**

Dependent variable	Consumer debt participation	
	No Inc. Growth	Income Growth
	(i)	(ii)
male	0.0082**	0.0079**
age 35-50	-0.0542***	-0.0535***
age 50-65	-0.0988***	-0.0976***
age 65+	-0.1566***	-0.1554***
married	0.0086*	0.0086*
separated, divorced	0.0499***	0.0500***
2 adults	0.0143**	0.0139***
3+ adults	0.0211***	0.0201***
1-2 children	0.0208***	0.0208***
3+ children	0.0403***	0.0400***
retired	-0.0911***	-0.0912***
unemployed	-0.0638***	-0.0639***
not in labor force	-0.0752***	-0.0760***
apprentice	-0.0398	-0.0415*
self employed	-0.0117*	-0.0129*
white collar in fin. sector	-0.0336***	-0.0346***
white collar in nofin. sector	-0.0217***	-0.0224***
civil servant	0.0020	0.0009
middle vocational, plus abi	-0.0119**	-0.0122**
higher education	-0.1042***	-0.1050***
own house	-0.0689***	-0.0692***
gen. econ. dev. very conc.	0.0189***	0.0188***
own econ. sit. very conc.	0.0553***	0.0556***
Log of Income	0.0603***	0.0633***
year dummies	x	x
Peerincome	0.1235***	0.1226***
	(4.4412)	(4.4117)
Income Growth	-	0.0080**
		(2.3204)
Observations	62521	62521
Source: GSOEP		

**TABLE 2: Consumer Debt Regression With Income Growth and Peer Income
(East Germans)**

Dependent variable	Consumer debt participation	
	No Inc. Growth	Income Growth
	(i)	(ii)
male	0.0017	0.0015
age 35-50	-0.0797***	-0.0788***
age 50-65	-0.1258***	-0.1245***
age 65+	-0.1799***	-0.1786***
married	0.0491***	0.0488***
separated, divorced	0.0552***	0.0553***
2 adults	0.0454***	0.0450***
3+ adults	0.0820***	0.0810***
1-2 children	0.0280***	0.0278***
3+ children	0.0354*	0.0350*
retired	-0.1307***	-0.1306***
unemployed	-0.1123***	-0.1121***
not in labor force	-0.0935***	-0.0942***
apprentice	-0.0664**	-0.0667**
self employed	-0.0601***	-0.0608***
white collar in fin. sector	0.0225	0.0209
white collar in nofin. sector	-0.0341***	-0.0346***
civil servant	-0.0342*	-0.0357*
middle vocational, plus abi	-0.0253*	-0.0255*
higher education	-0.1249***	-0.1254***
own house	-0.0435***	-0.0437***
gen. econ. dev. very conc.	0.0058	0.0058
own econ. sit. very conc.	0.0613***	0.0616***
Log of Income	0.0666***	0.0696***
year dummies	x	x
Peerincome	0.2361***	0.2356***
	(4.2620)	(4.2549)
Income Growth	-	0.0076
		(1.3841)
Observations	26542	26542
Source: GSOEP		

**TABLE 3: Securities Regression With Income Growth and Peer Income
(West Germans)**

Dependent variable	Consumer debt participation	
	No Inc. Growth	Income Growth
	(i)	(ii)
male	0.0235***	0.0214***
age 35-50	-0.0125**	-0.0098
age 50-65	-0.0230***	-0.0155**
age 65+	-0.0402***	-0.0305***
married	-0.0042	-0.0042
separated, divorced	-0.0641***	-0.0637***
2 adults	-0.0530***	-0.0563***
3+ adults	-0.1212***	-0.1276***
1-2 children	0.0544***	-0.0542***
3+ children	-0.1349***	-0.1354***
retired	0.0581***	0.0580***
unemployed	0.0274***	0.0253***
not in labor force	0.1209***	0.1138***
apprentice	0.0022	-0.0125
self employed	0.0447***	0.0370***
white collar in fin. sector	0.2848***	0.2775***
white collar in nofin. sector	0.1010***	0.0964***
civil servant	0.1022***	0.0950***
middle vocational, plus abi	0.0967***	0.0948***
higher education	0.1999***	0.1898***
own house	0.0916***	0.0888***
gen. econ. dev. very conc.	-0.0006	-0.0010
own econ. sit. very conc.	-0.0926***	-0.0901***
Log of Income	0.2074***	0.2291***
year dummies	x	x
Peerincome	-0.0405	-0.0400
	(-1.6062)	(-1.5935)
Income Growth	-	0.0606***
		(18.4154)
Observations	83649	83649
Source: GSOEP		

**TABLE 4: Securities Regression With Income Growth and Peer Income
(East Germans)**

Dependent variable	Consumer debt participation	
	No Inc. Growth	Income Growth
	(i)	(ii)
male	0.0328***	0.0310***
age 35-50	-0.0700***	-0.0656***
age 50-65	-0.0370***	-0.0281***
age 65+	-0.0705***	-0.0609***
married	-0.0201***	-0.0210***
separated, divorced	-0.0812***	-0.0804***
2 adults	-0.0526***	-0.0578***
3+ adults	-0.0857***	-0.0950***
1-2 children	-0.0211***	-0.0223***
3+ children	-0.1413***	-0.1420***
retired	0.0124	0.0133
unemployed	0.0227***	0.0229***
not in labor force	0.0721***	0.0659***
apprentice	0.0497*	0.0453
self employed	0.0212**	0.0147
white collar in fin. sector	0.1346***	0.1232***
white collar in nofin. sector	0.0310***	0.0267***
civil servant	-0.0297**	-0.0393***
middle vocational, plus abi	0.0677***	0.0657***
higher education	0.1100***	0.1023***
own house	0.0252***	0.0237***
gen. econ. dev. very conc.	-0.0083*	-0.0081*
own econ. sit. very conc.	-0.0629***	-0.0604***
Log of Income	0.2260***	0.2517***
year dummies	x	x
Peerincome	0.1757***	0.1770***
	(4.3191)	(4.3666)
Income Growth	-	0.0627***
		(13.9951)
Observations	35979	35979
Source: GSOEP		

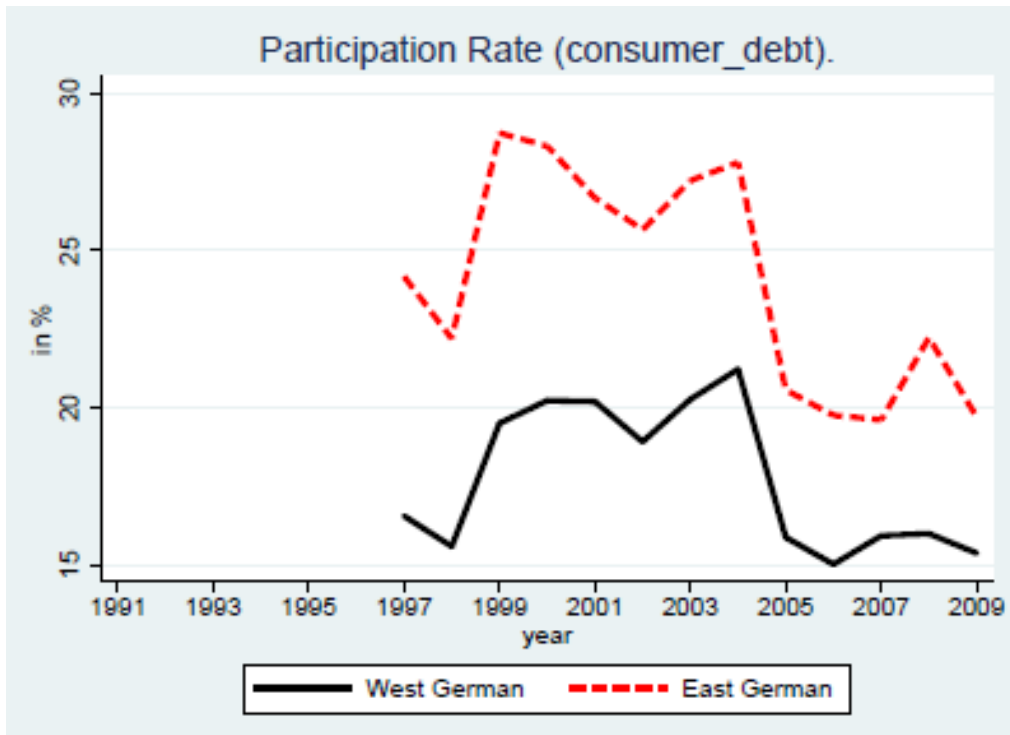


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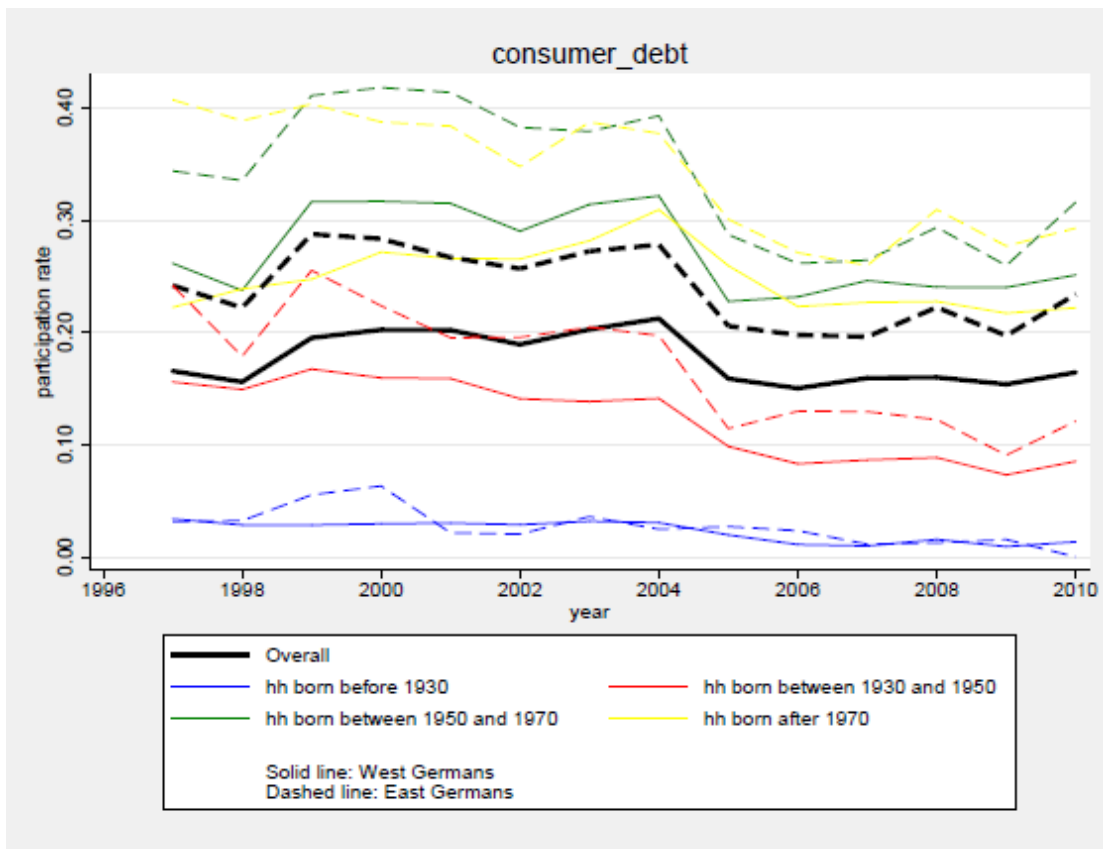


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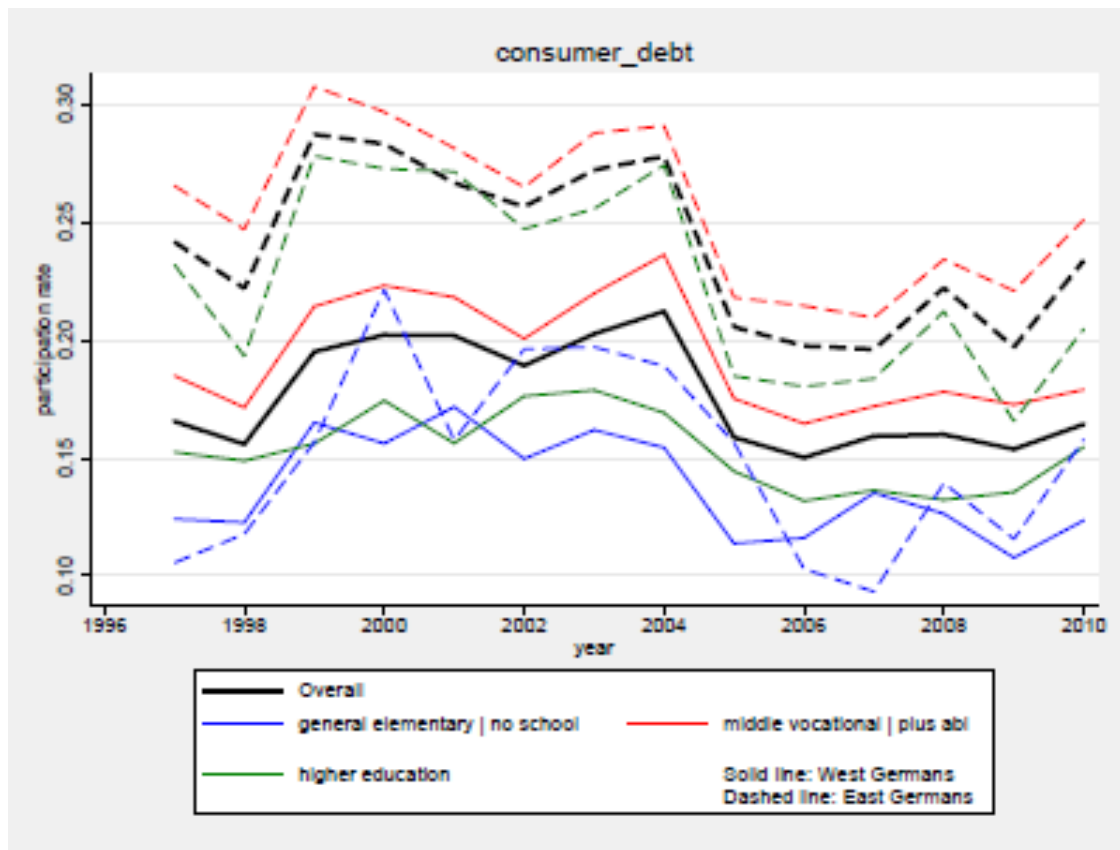


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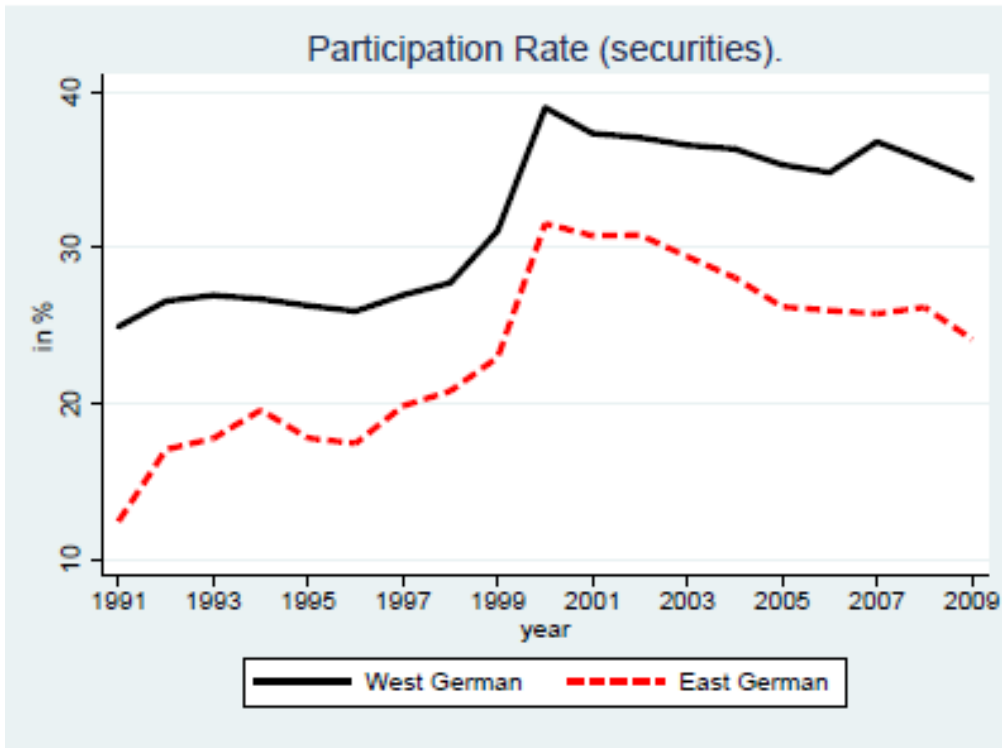


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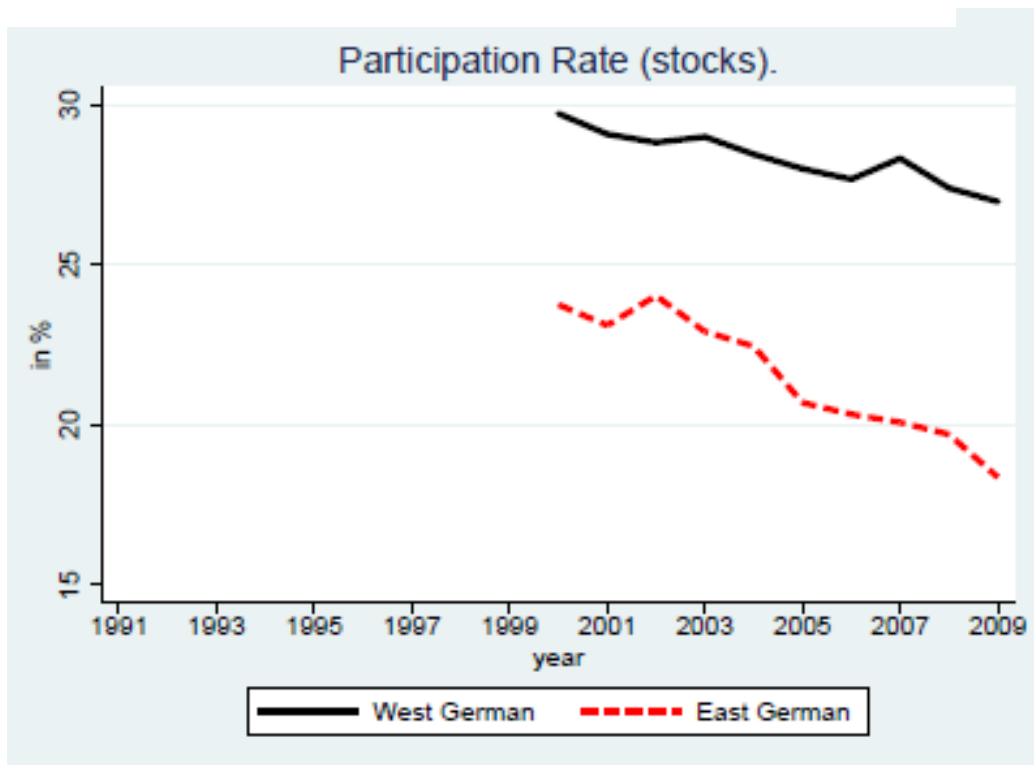


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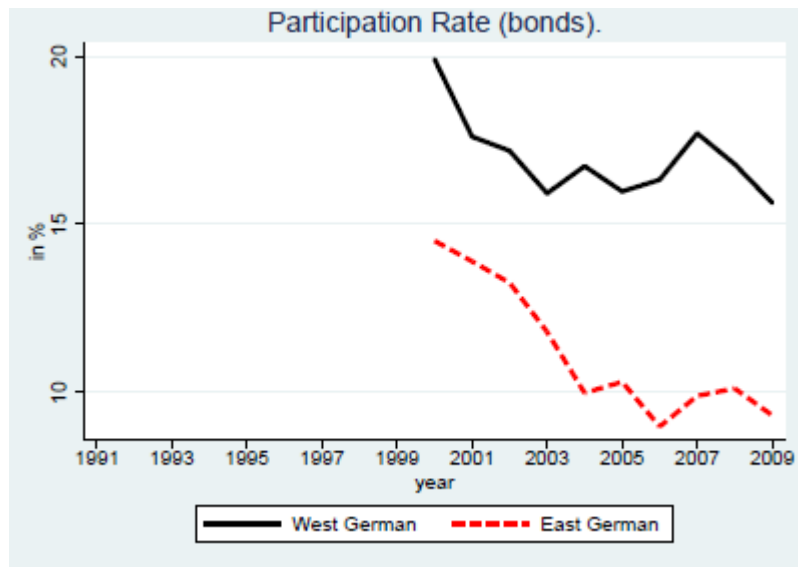


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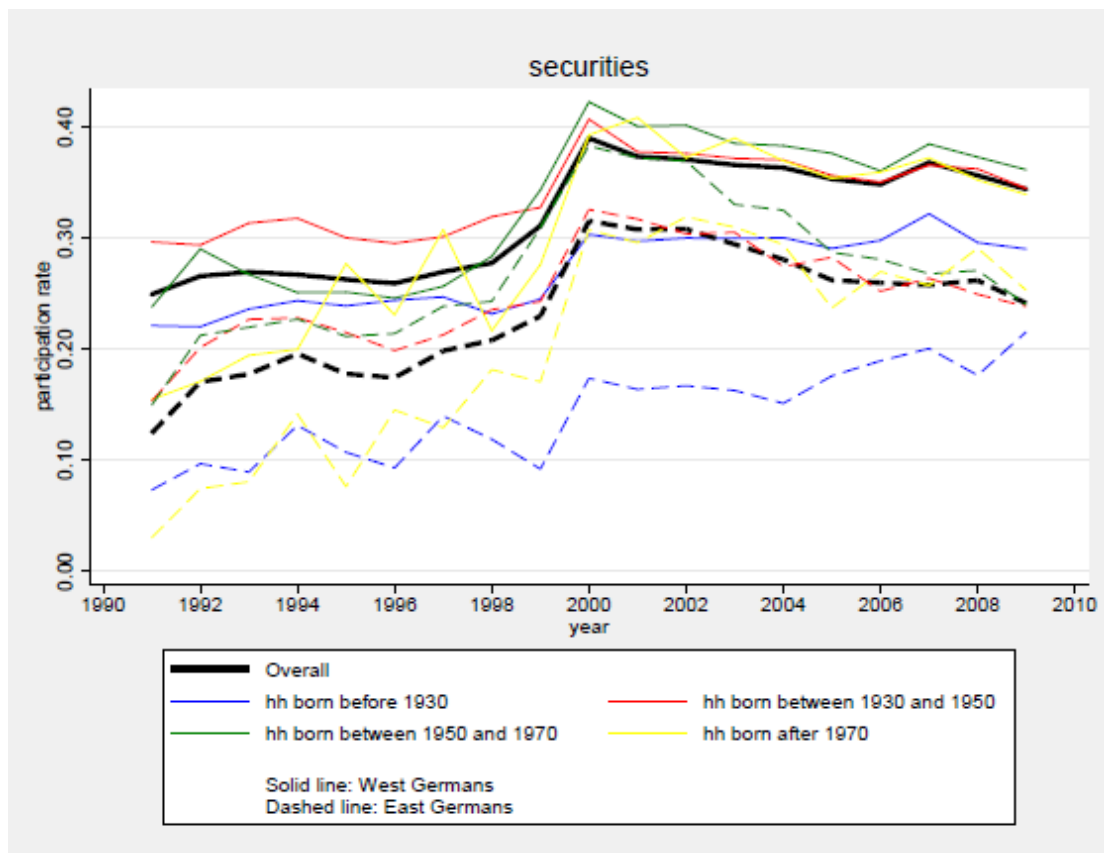


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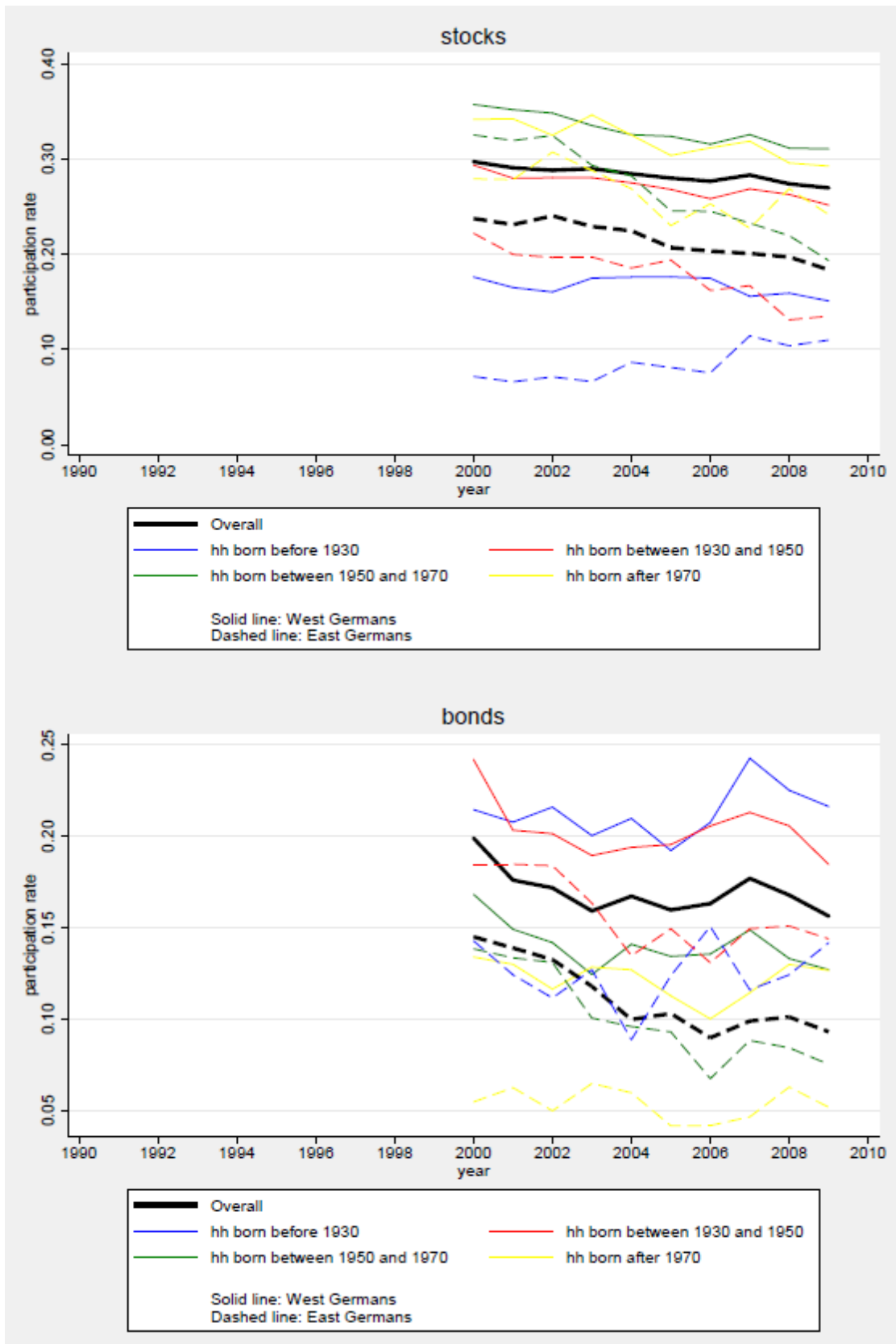


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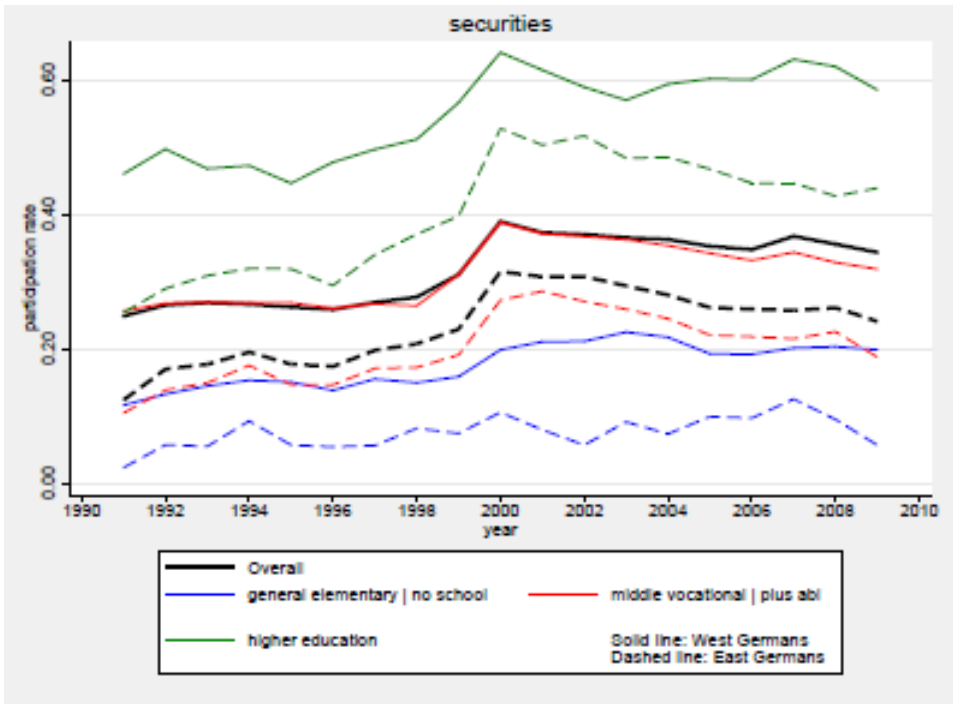


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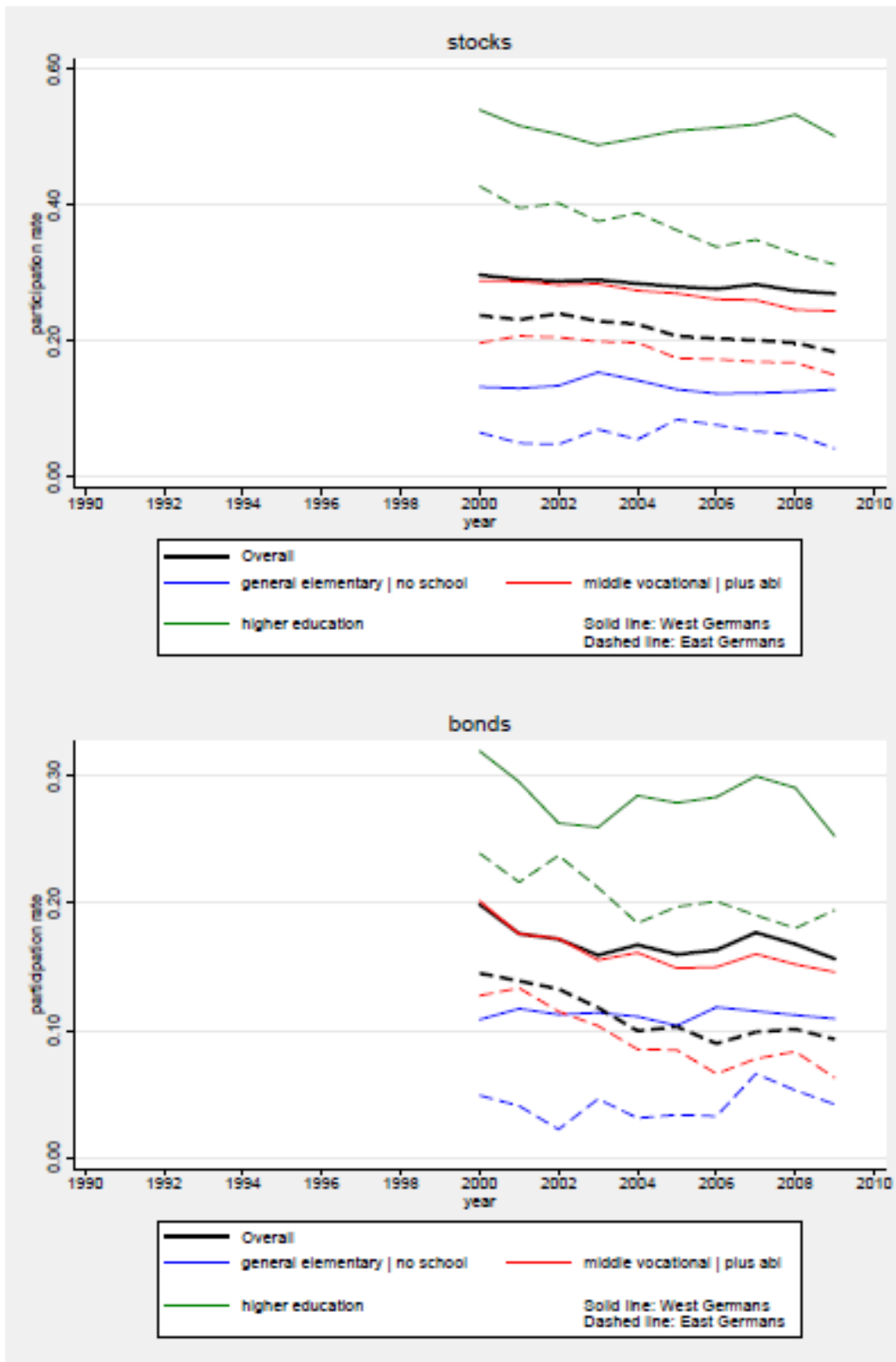


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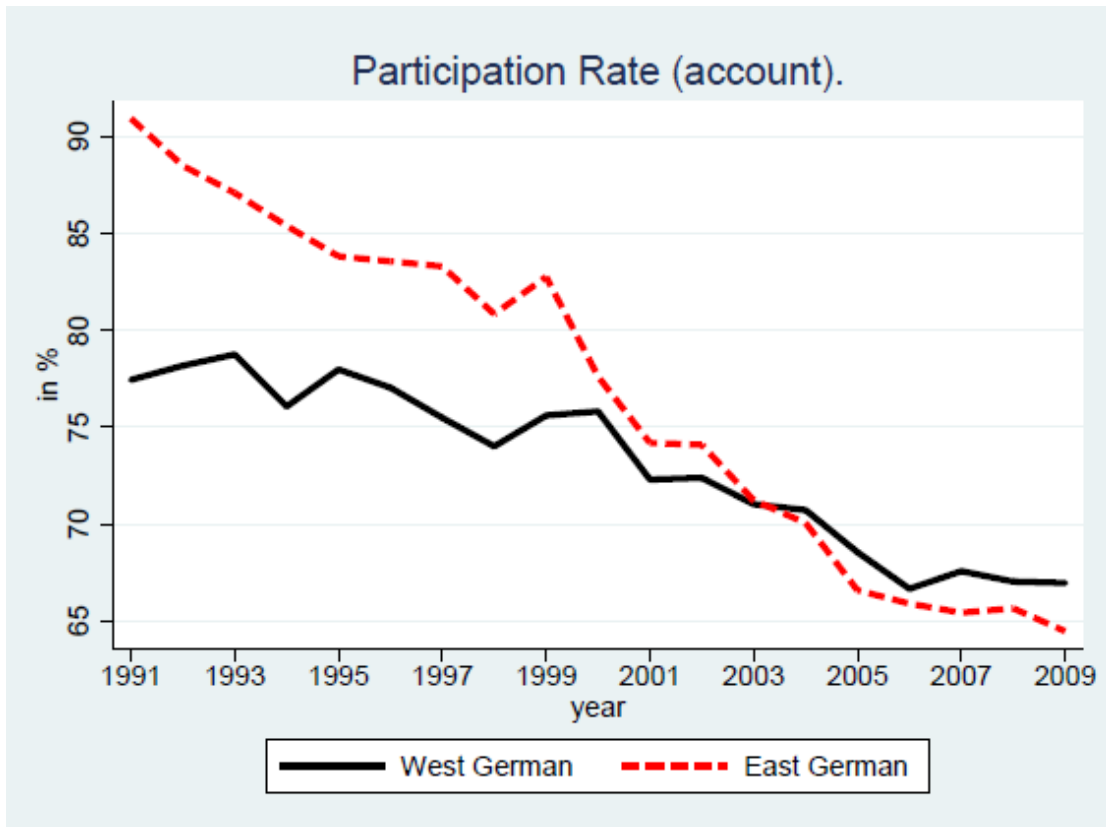


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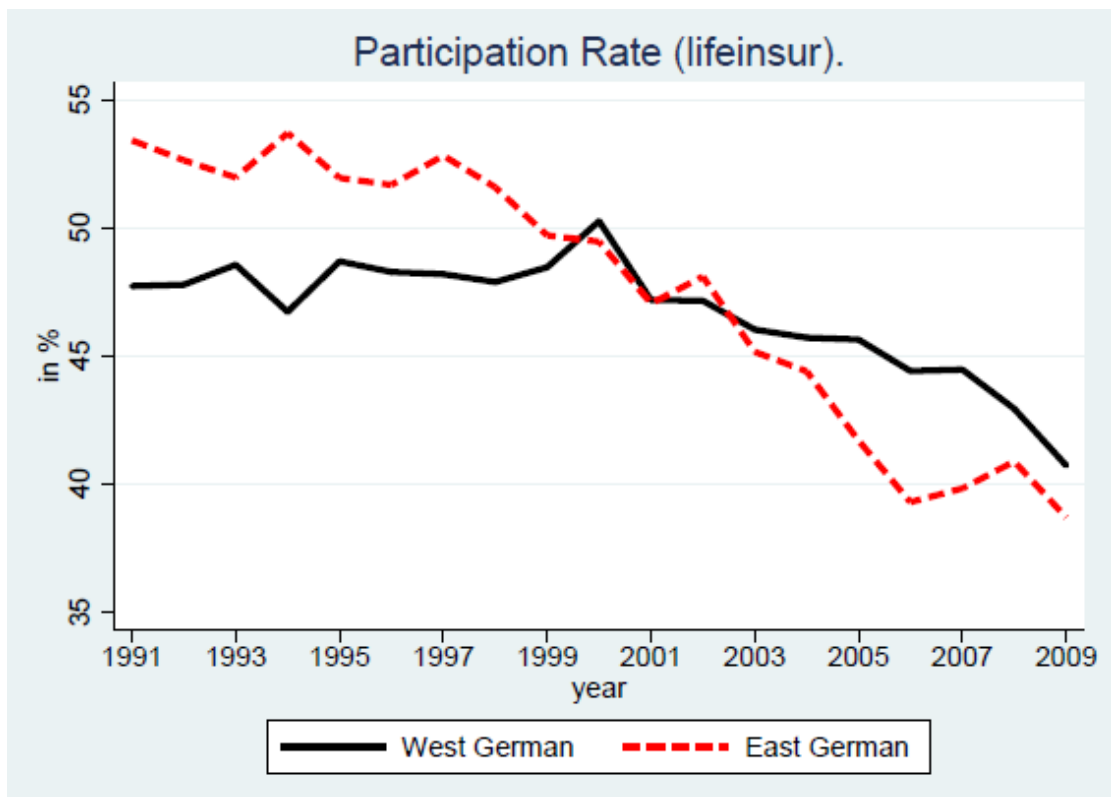


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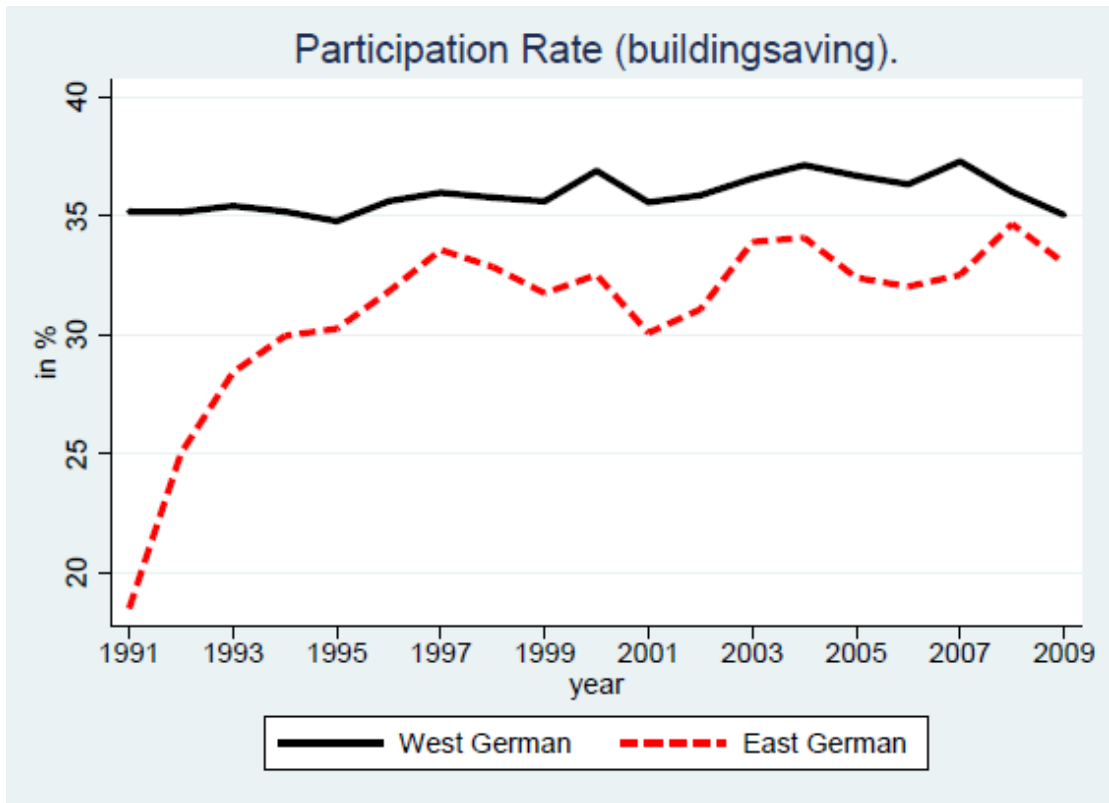


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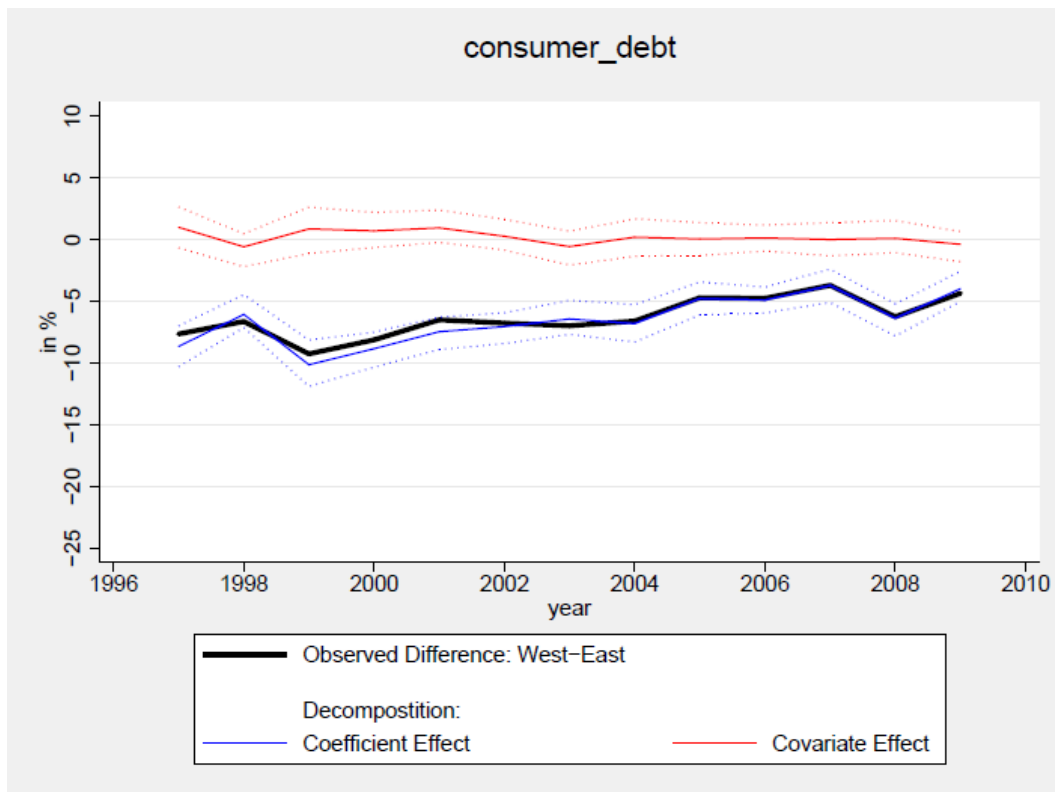


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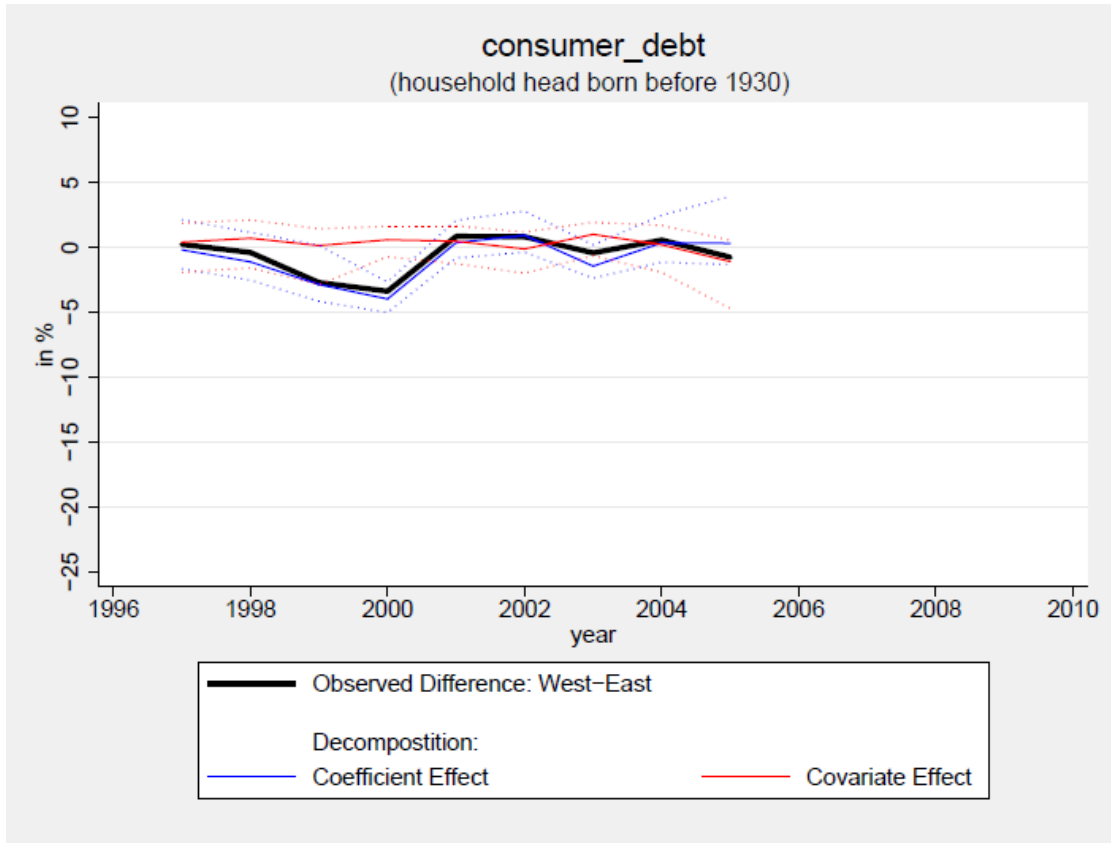


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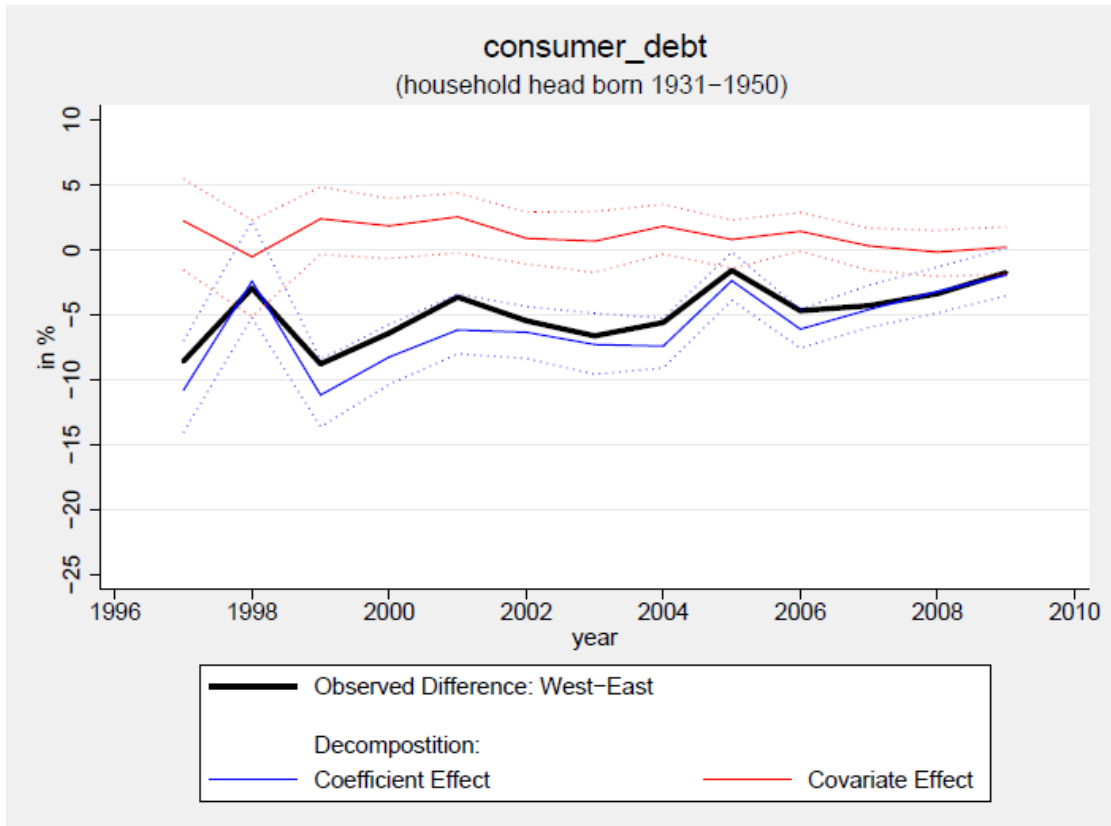


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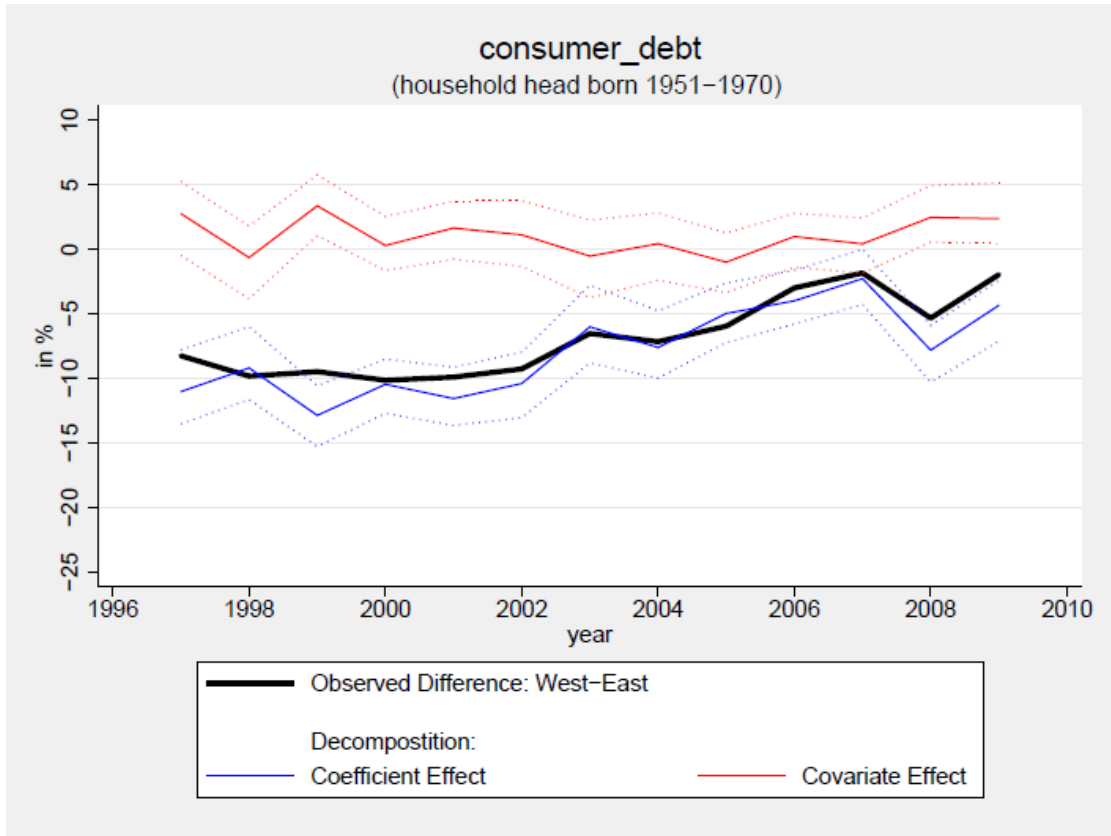


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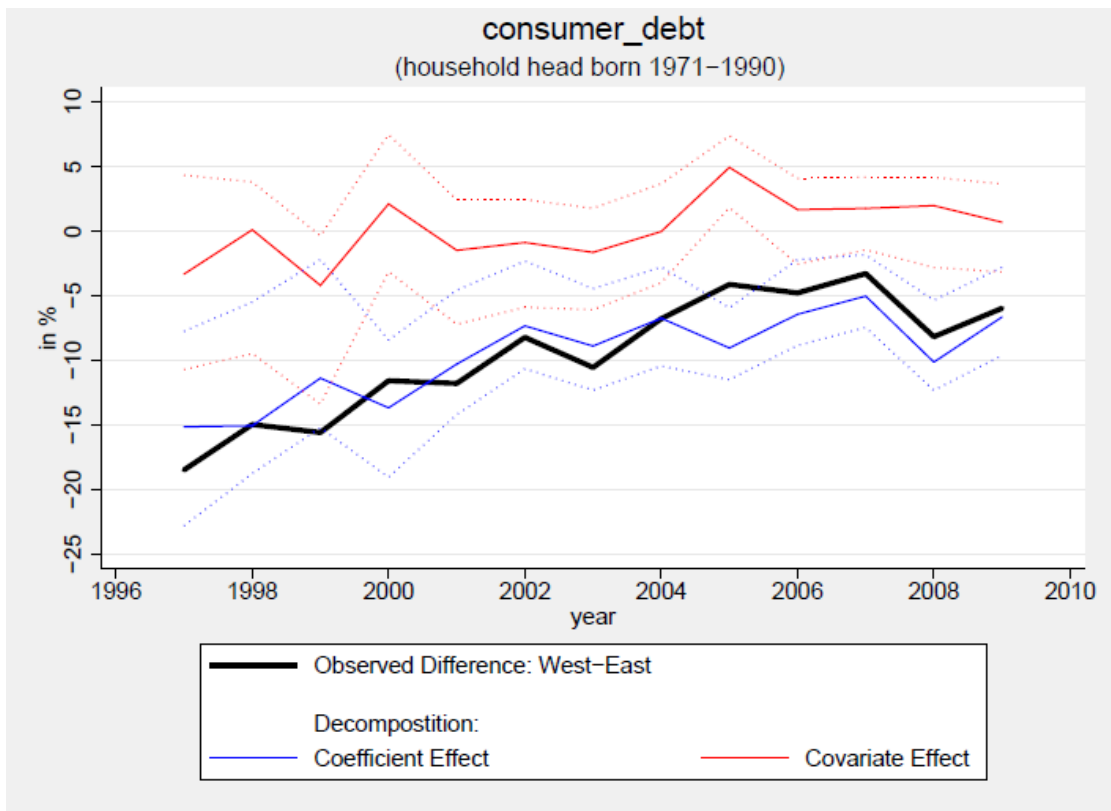


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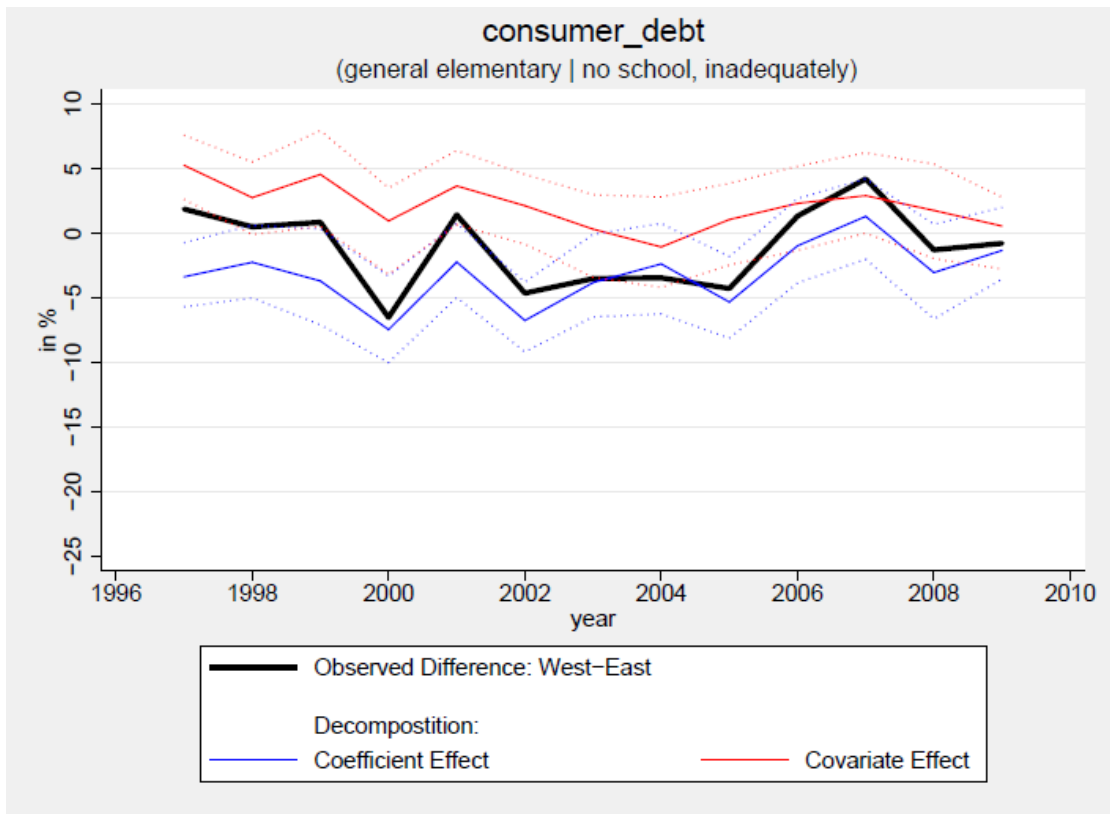


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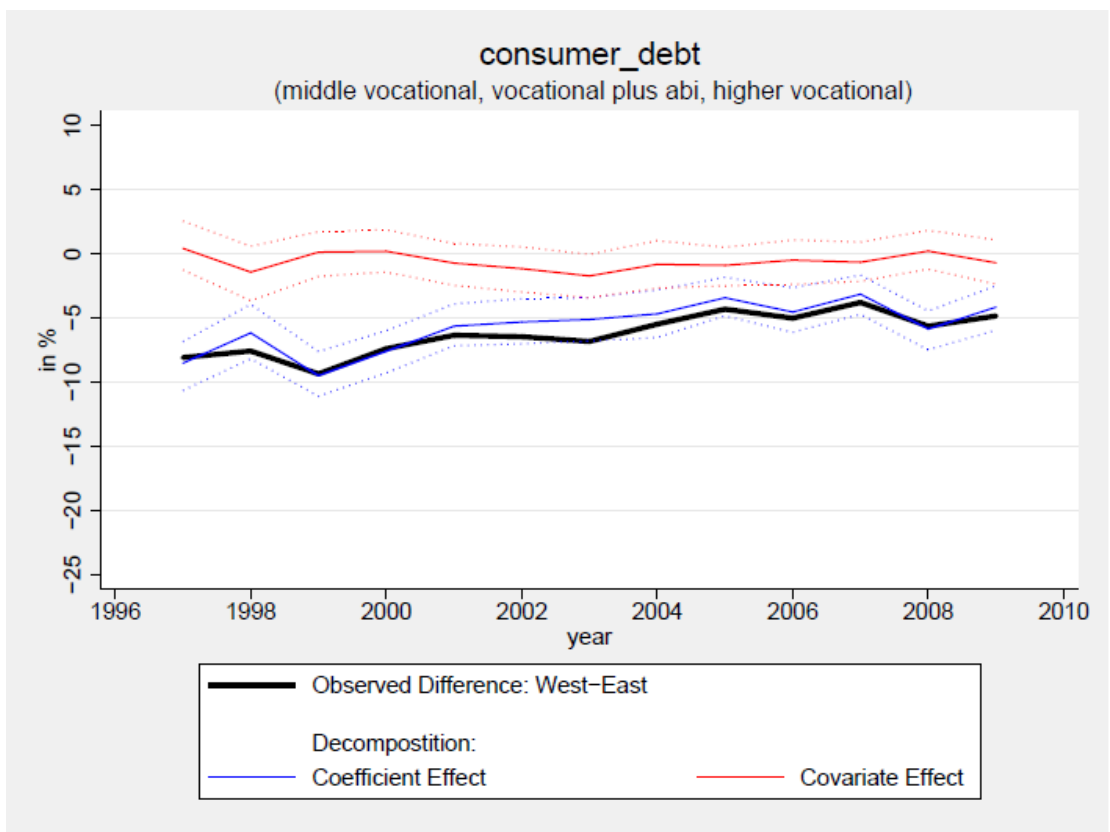


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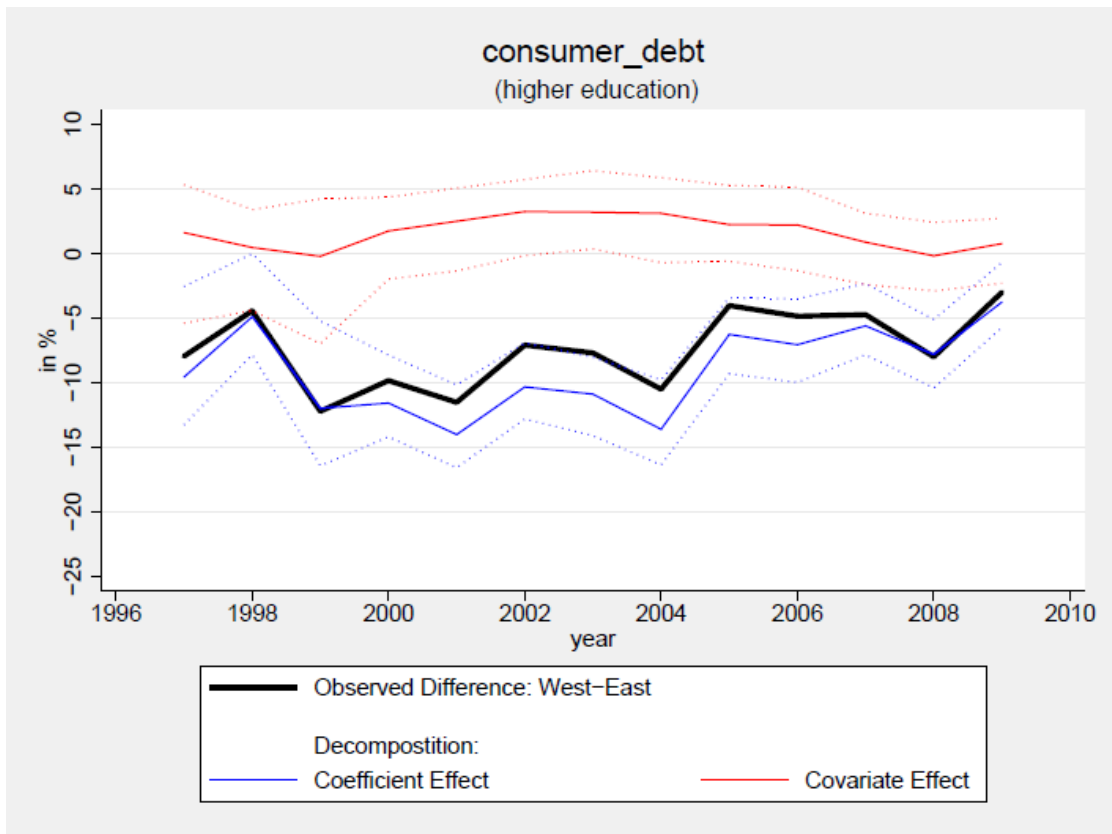


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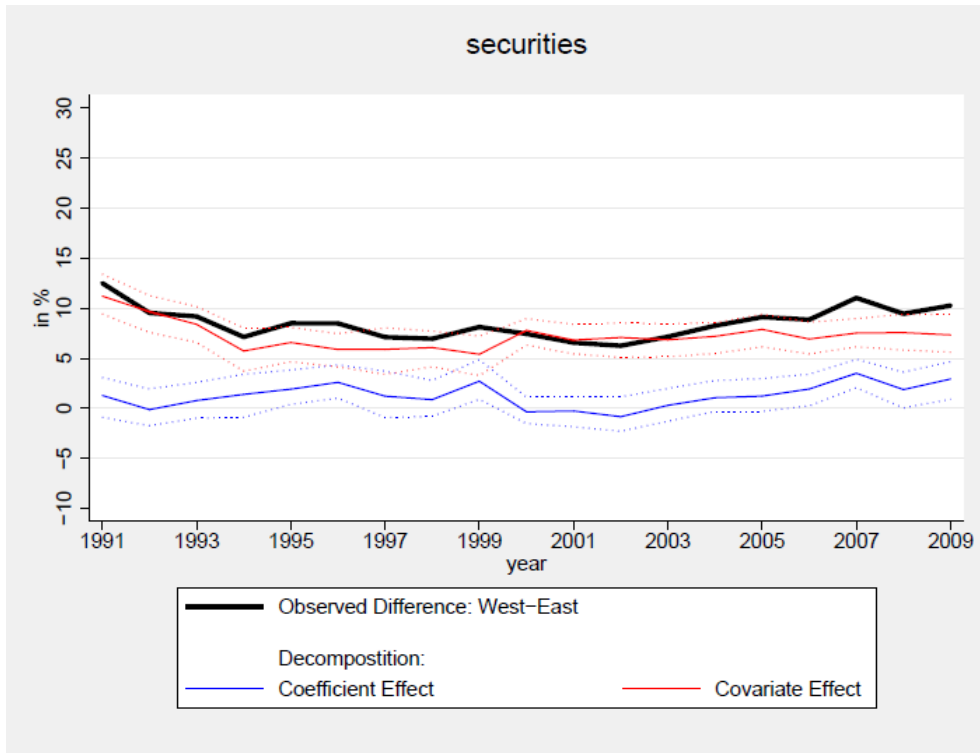


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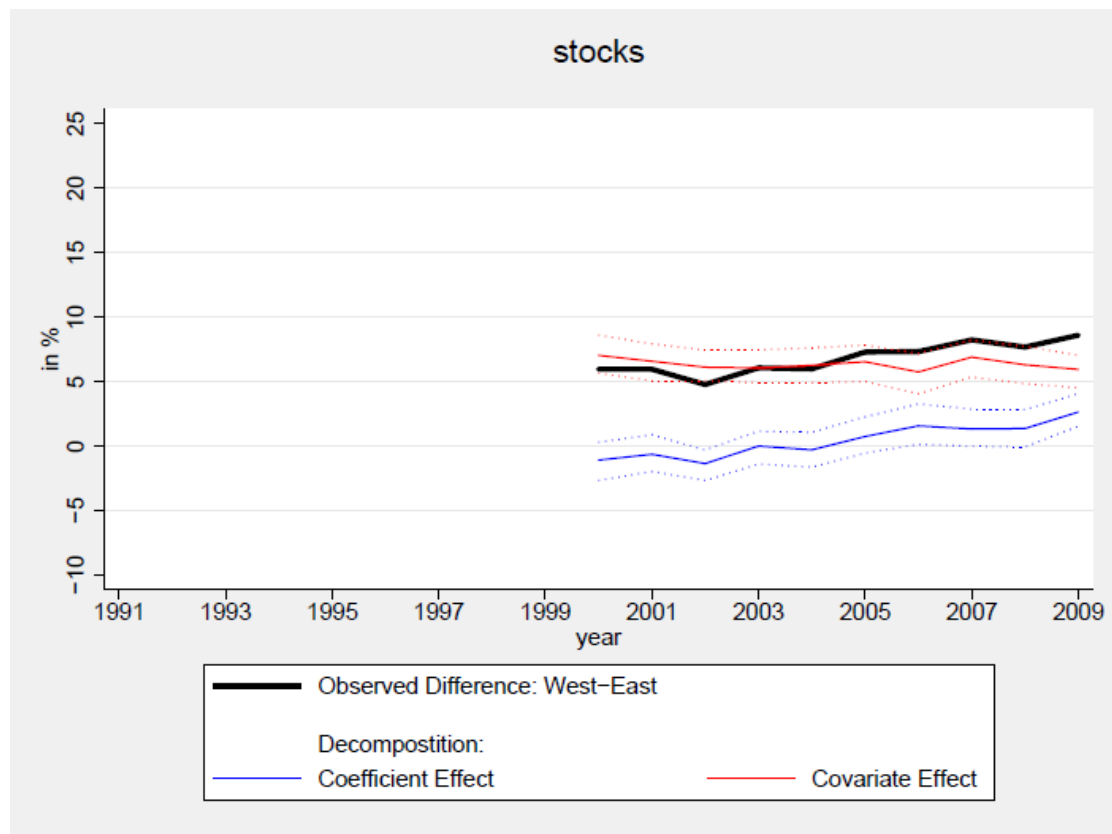


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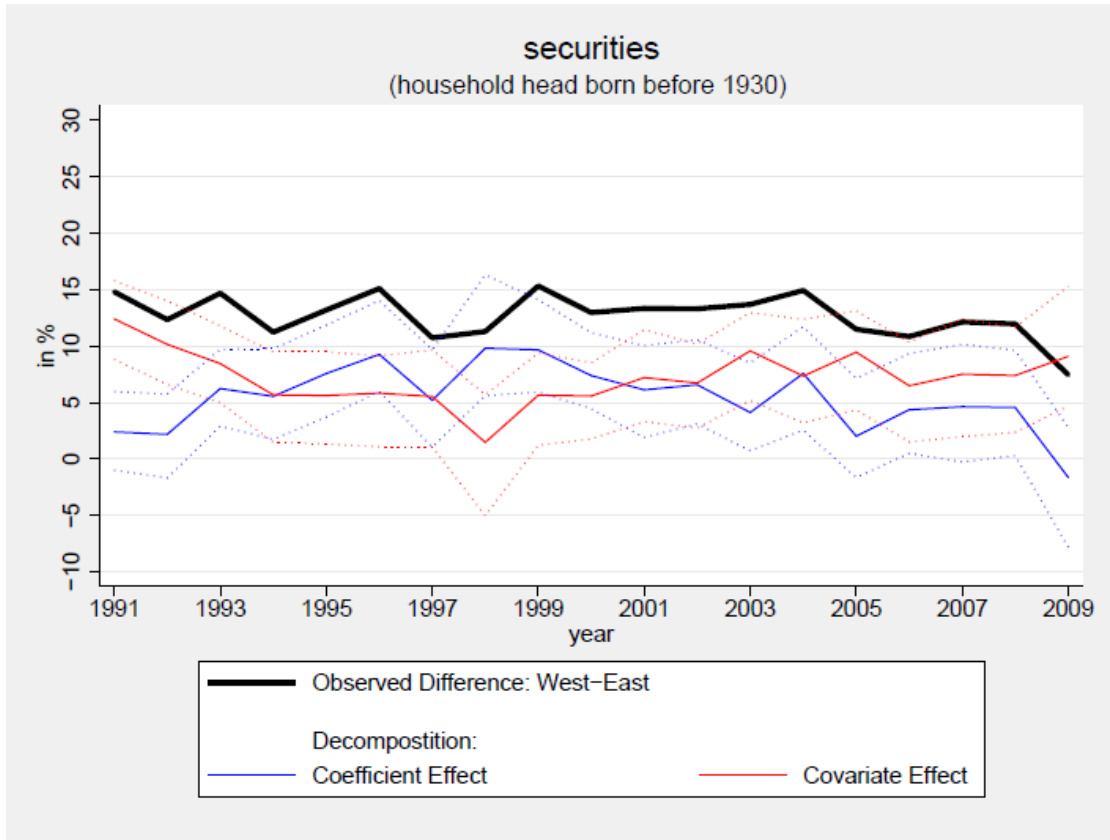


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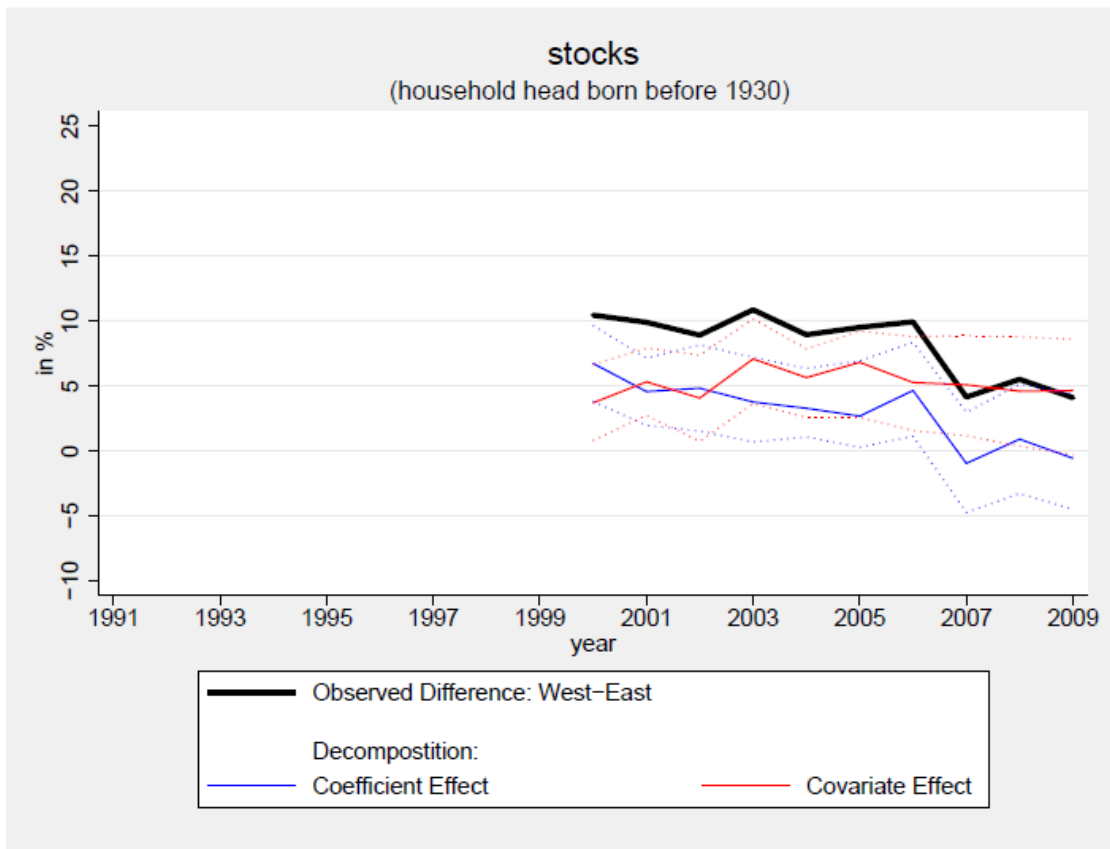


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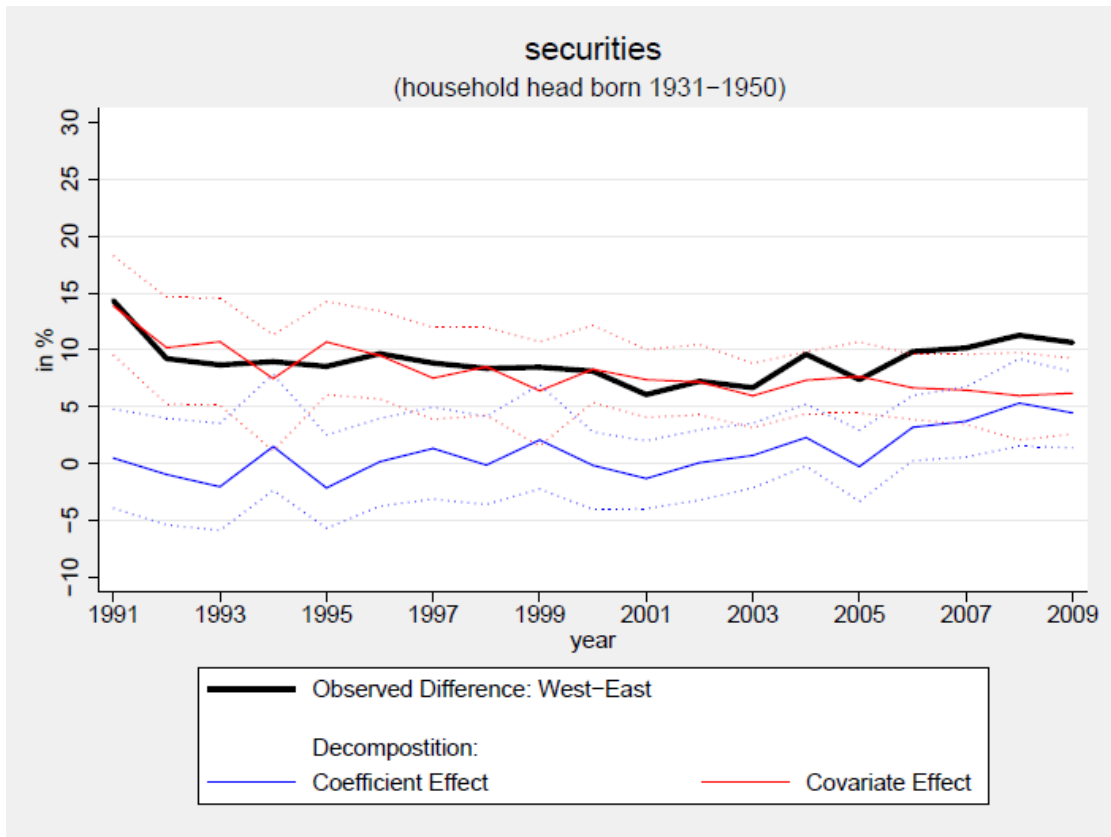


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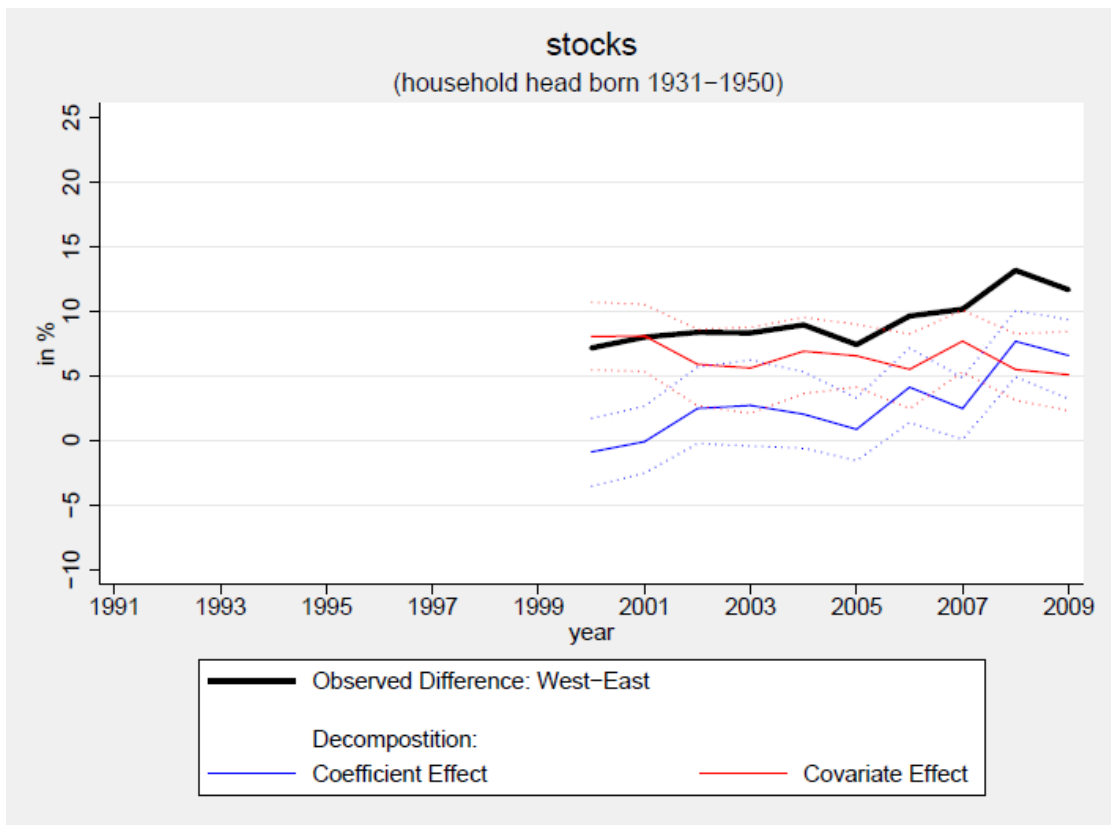


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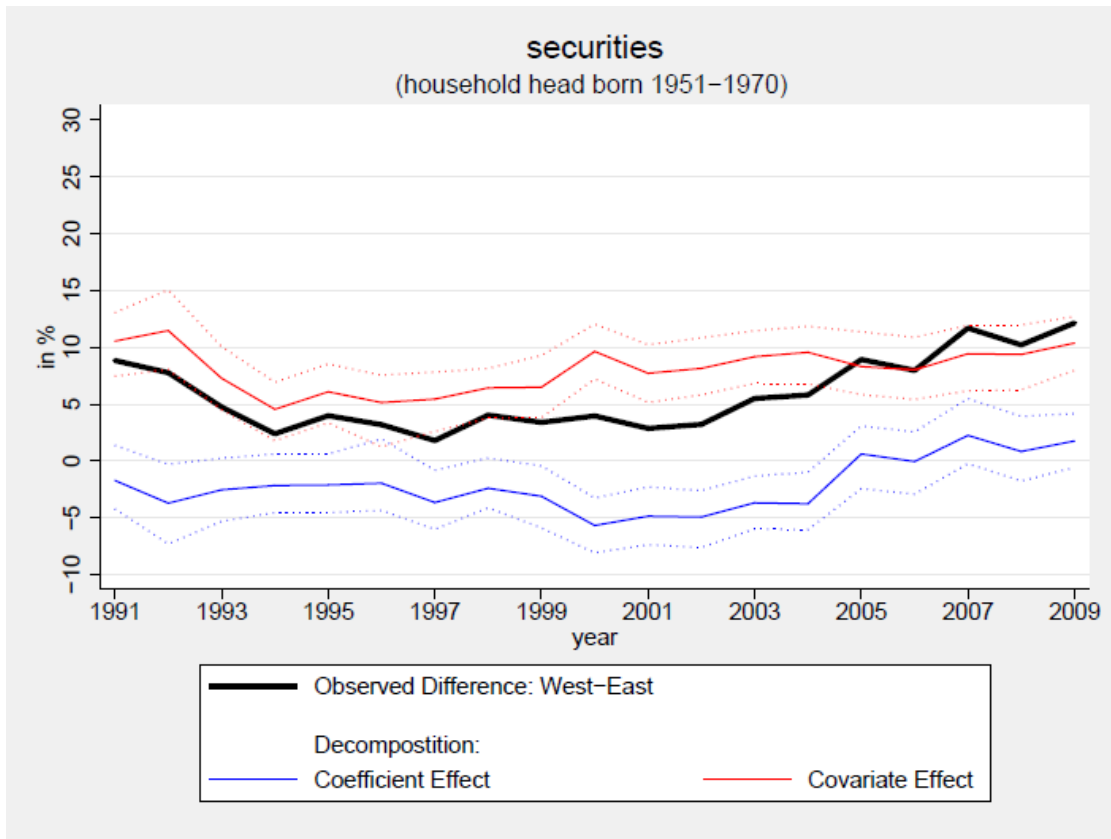


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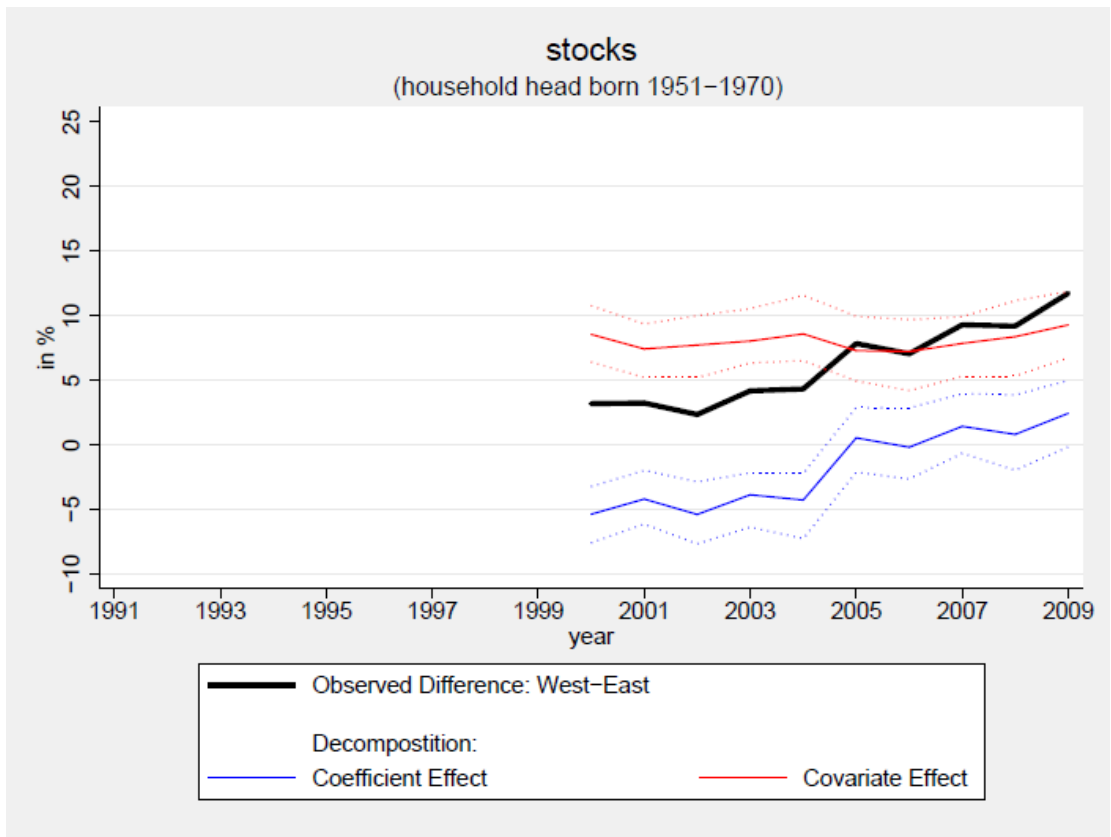


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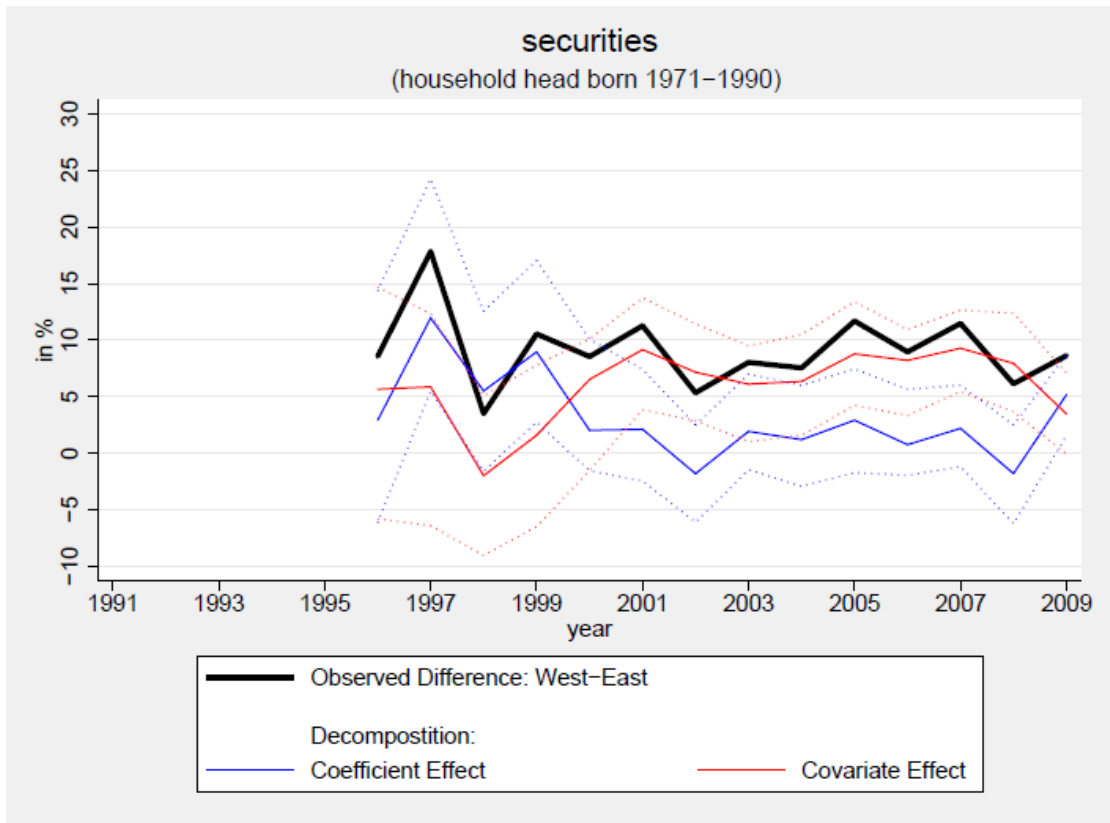


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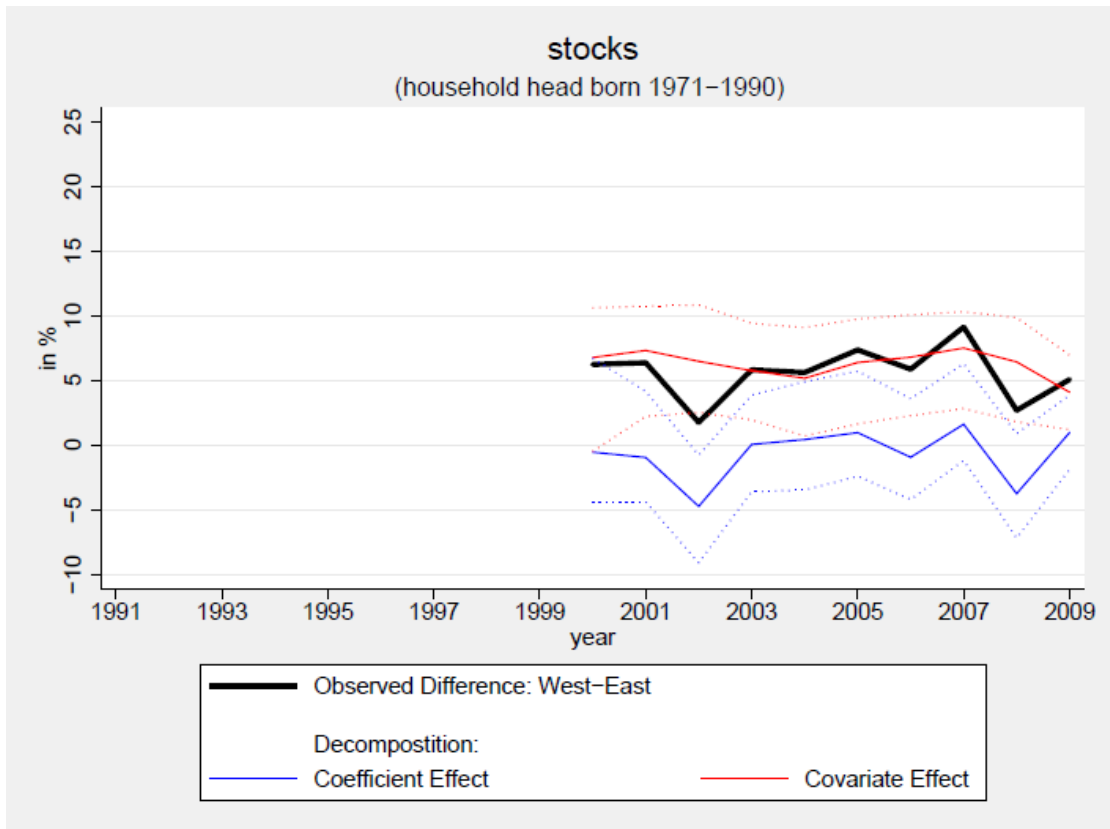


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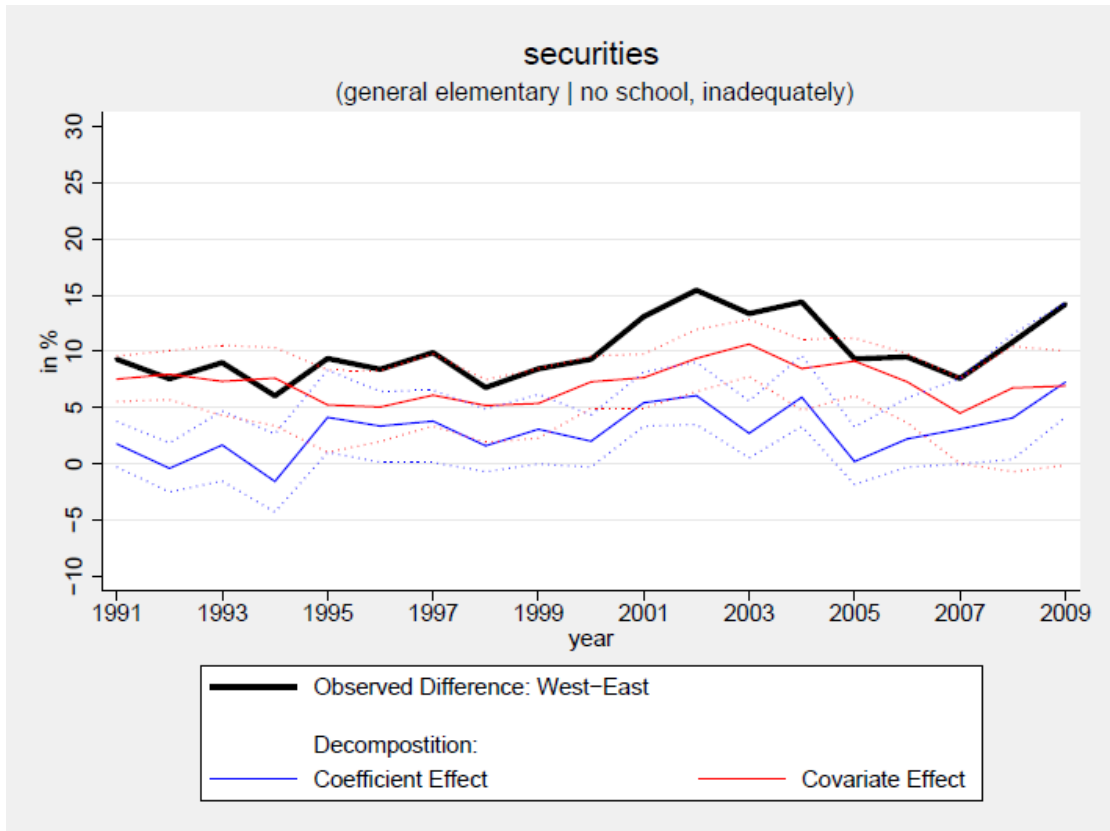


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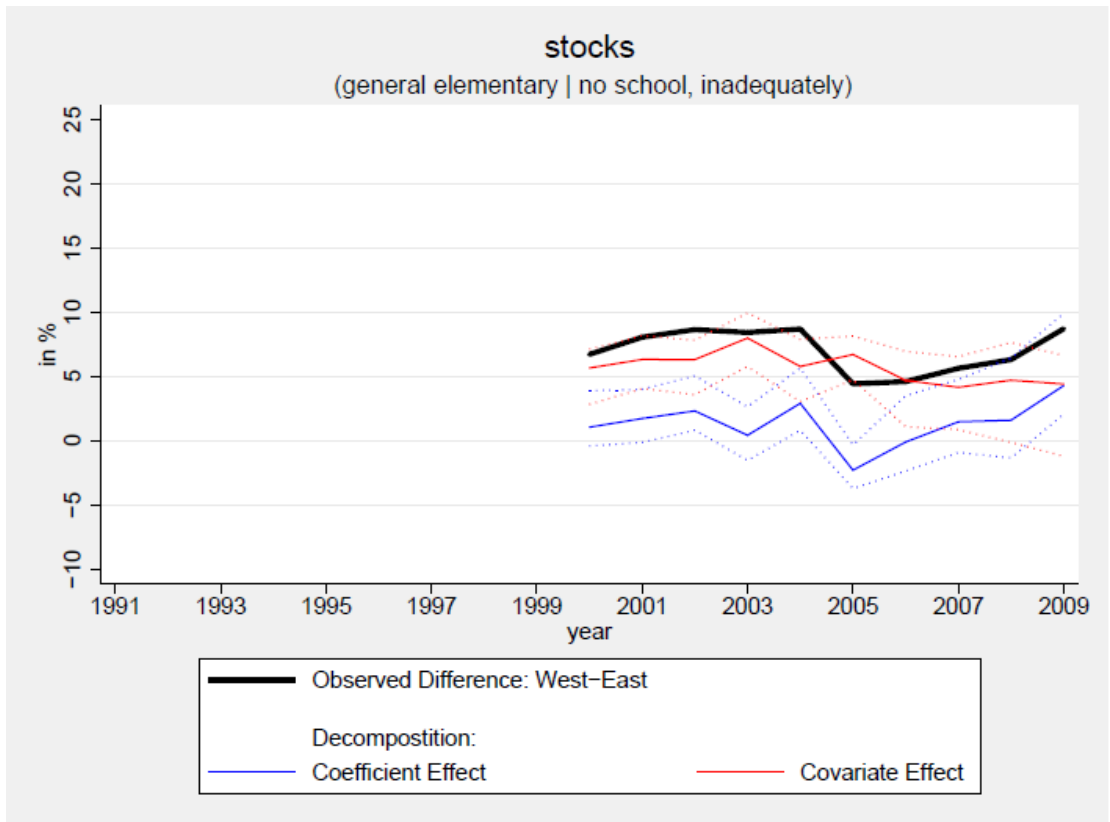


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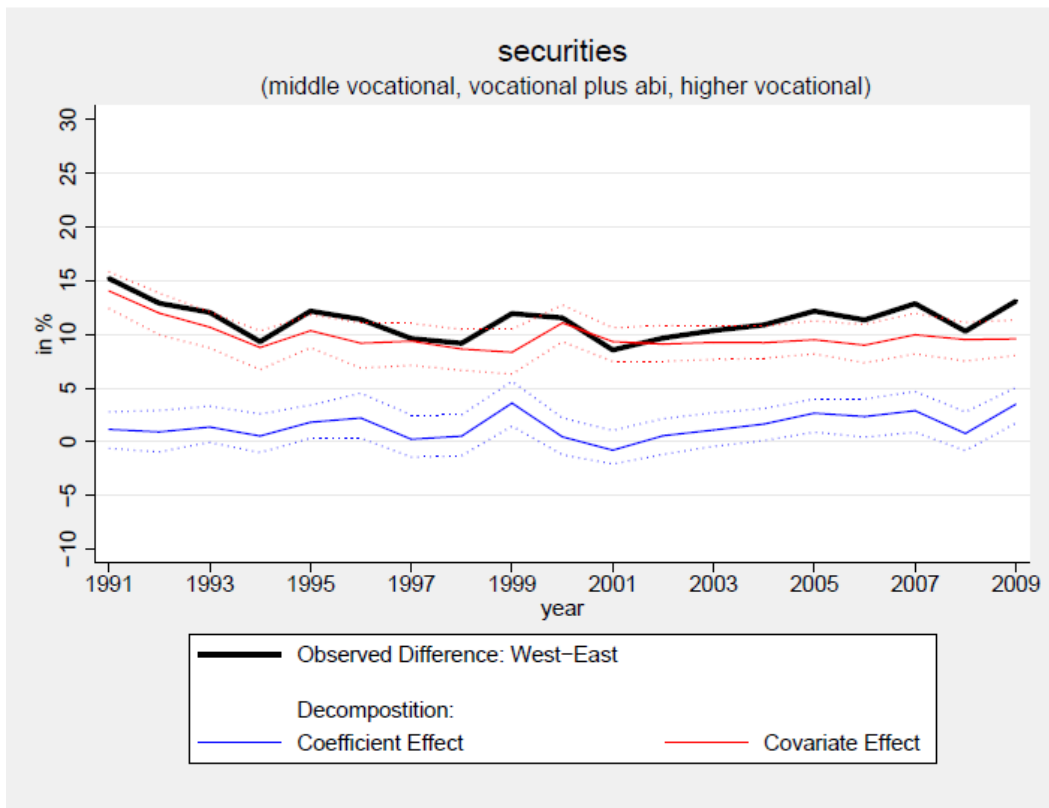


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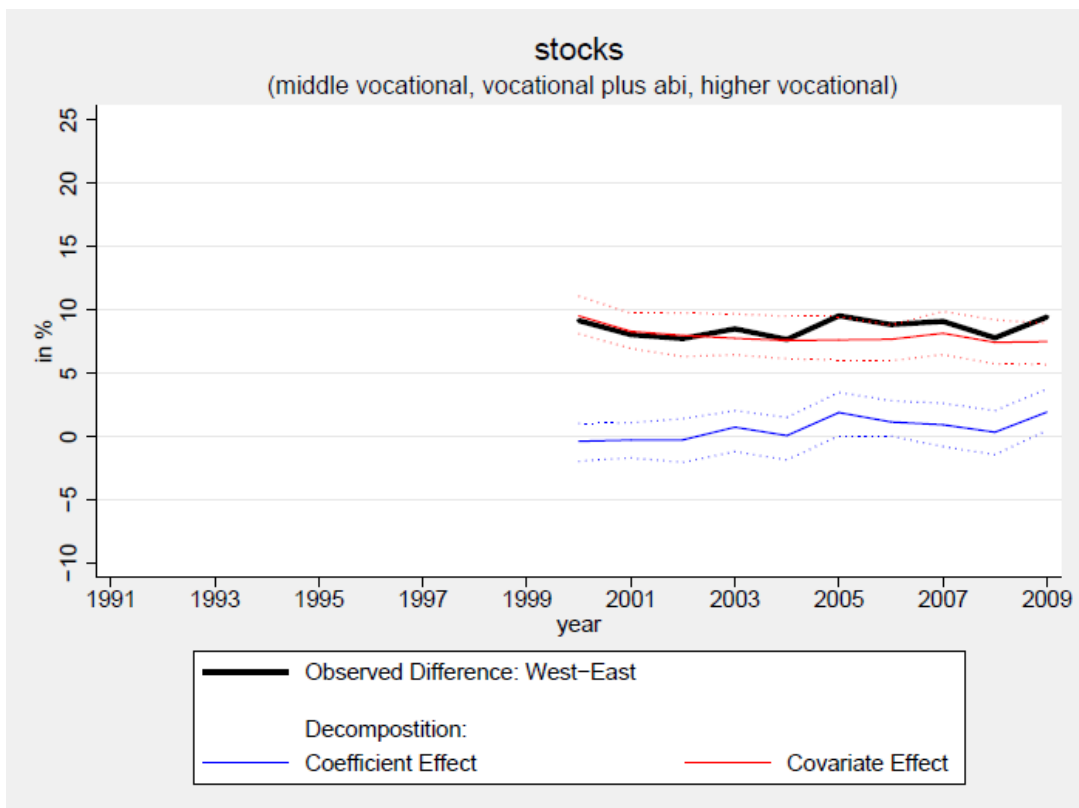


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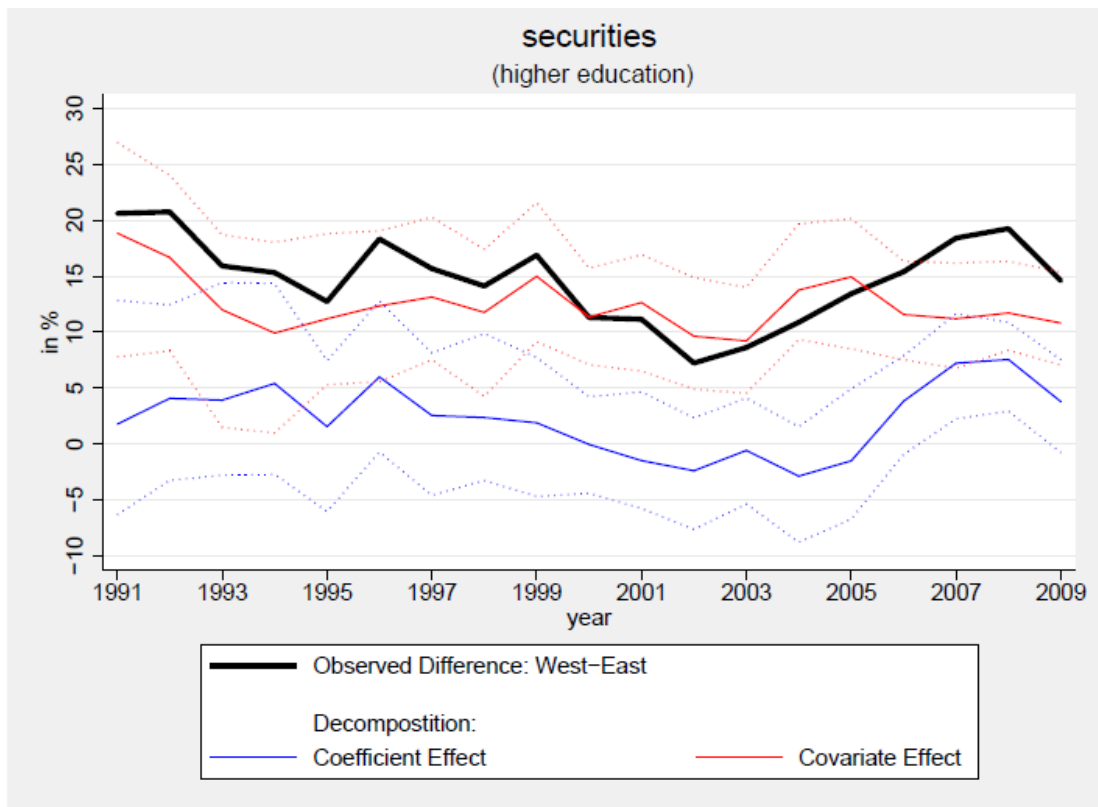


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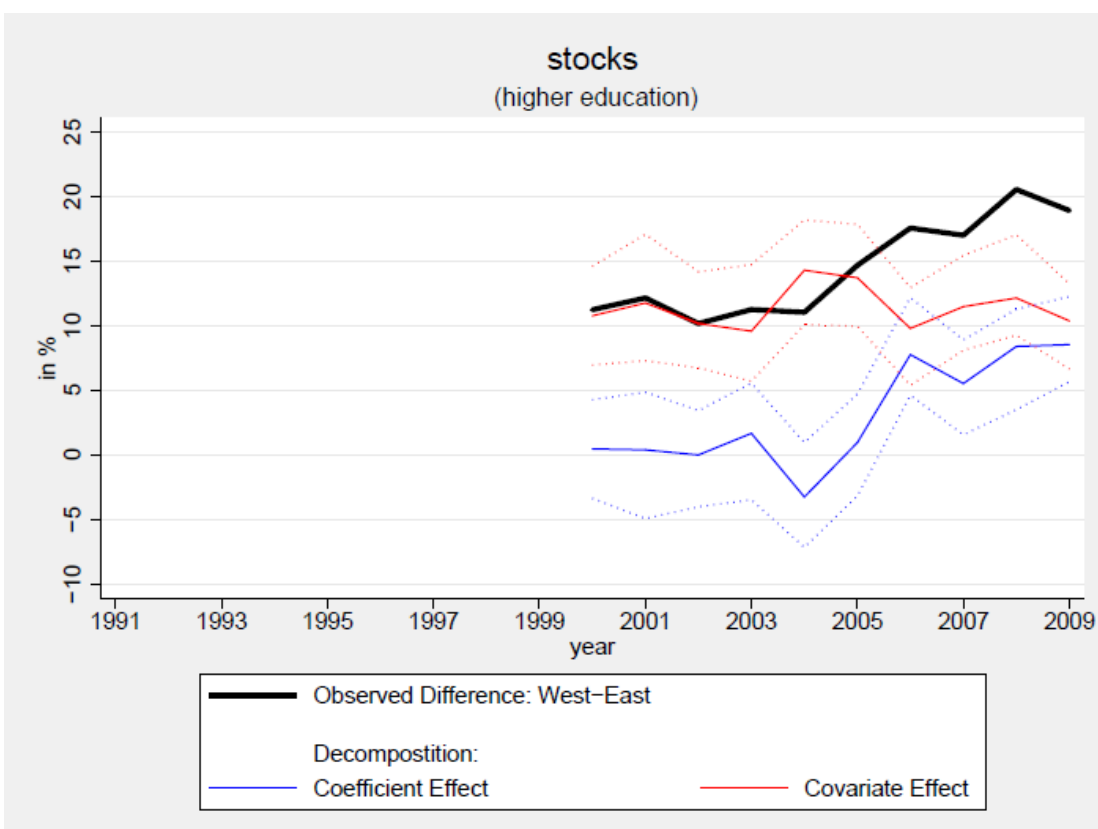


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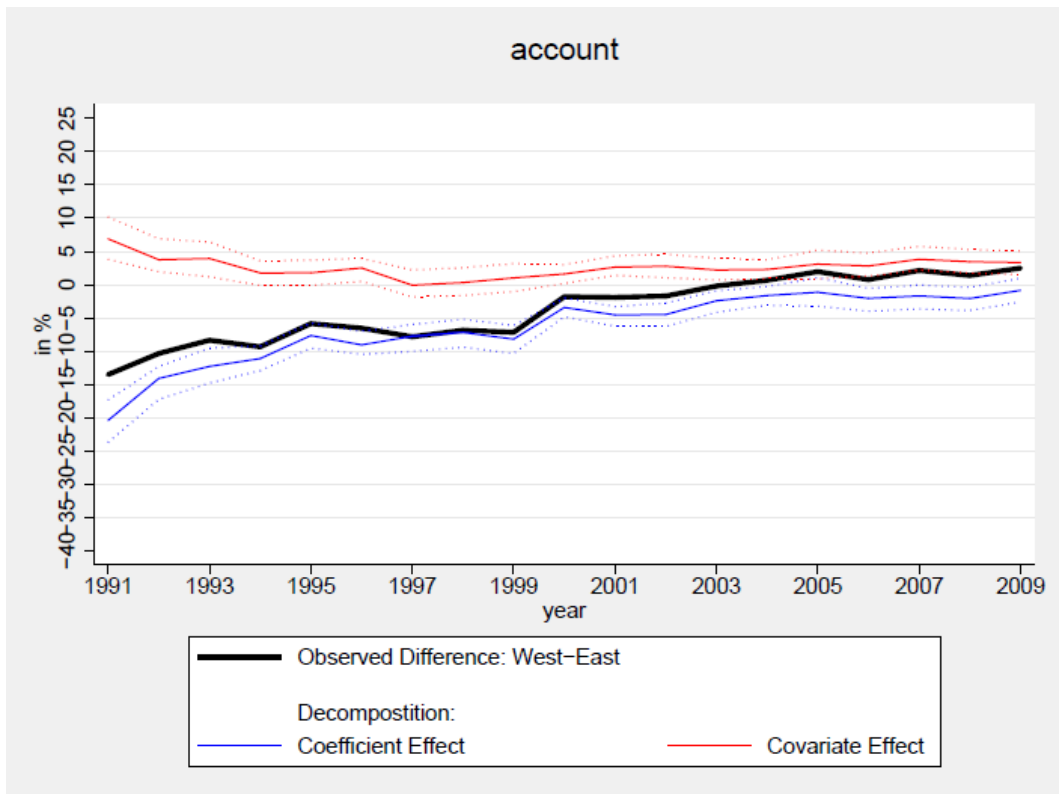


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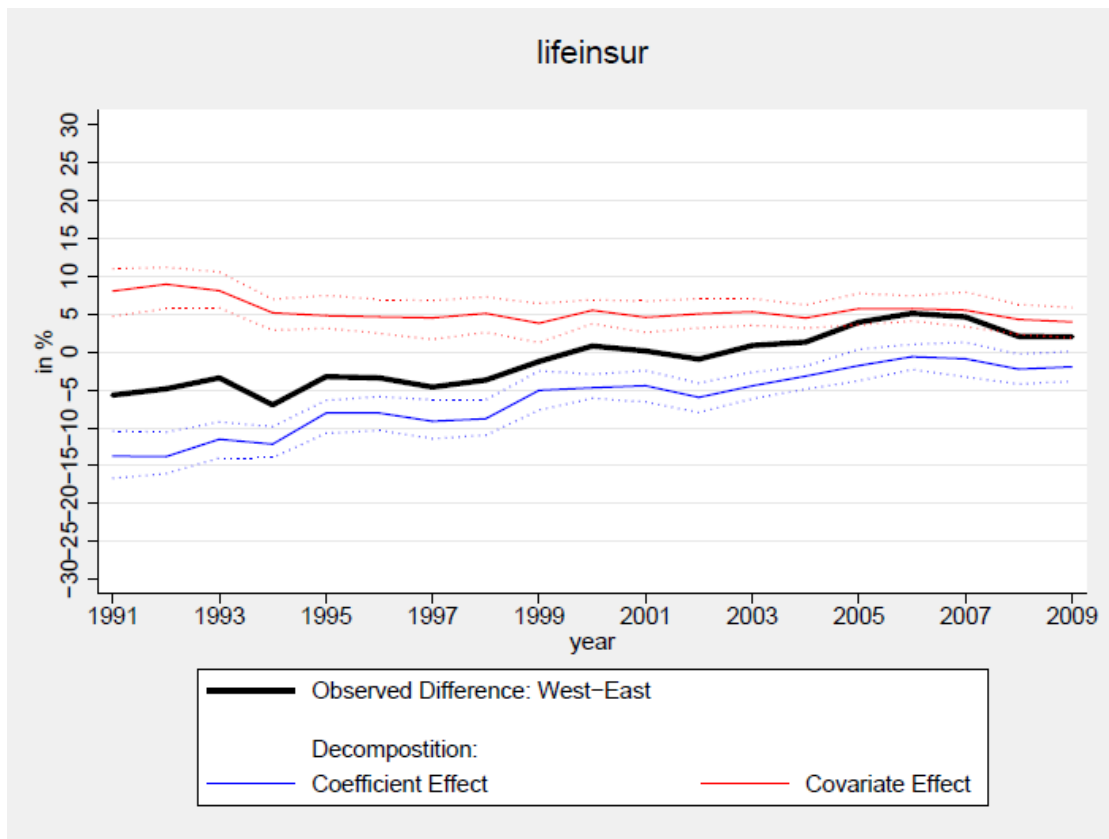


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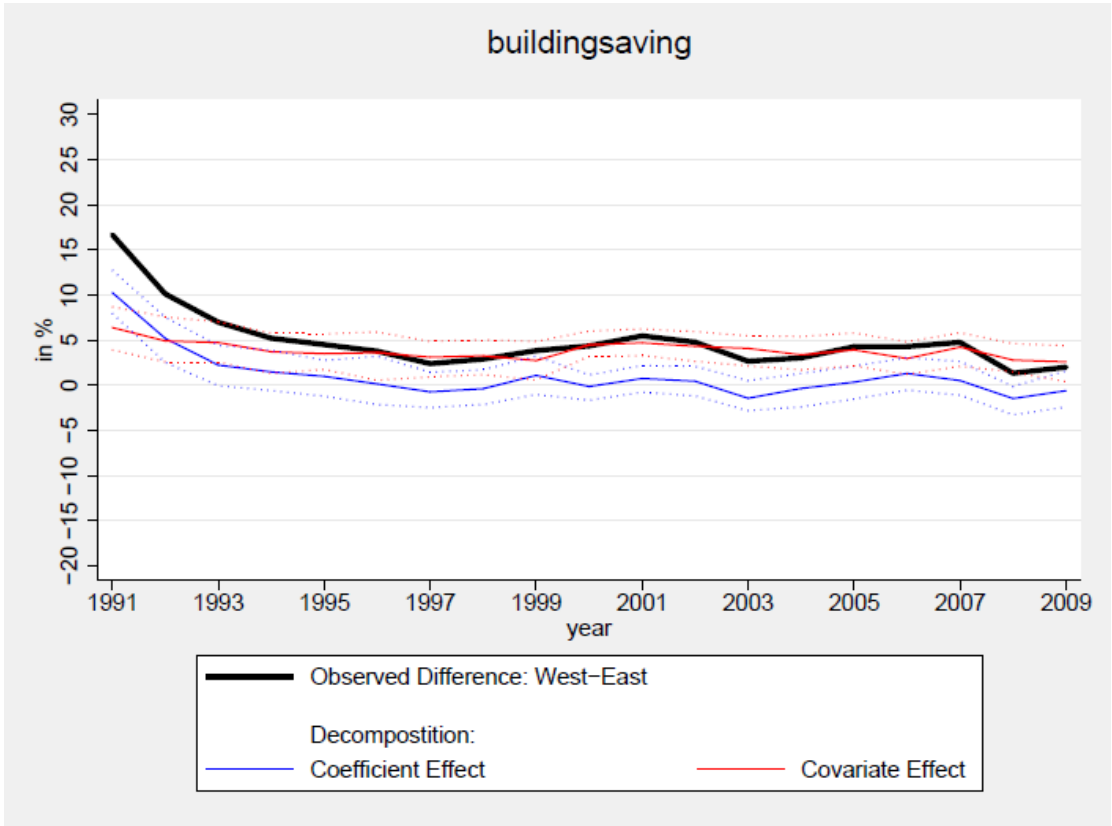


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