Eddi Gerba and Waltraud Schelkle

The finance-welfare state nexus

Case

THE FINANCE-WELFARE STATE NEXUS

by

Eddie Gerba and Waltraud Schelkle

Visiting Fellow
European Institute
London School of Economics
WC2A 2AE
Tel: +447595960988
e-mail: e.e.gerba@lse.ac.uk

Associate Professor of Political Economy
European Institute
London School of Economics
WC2A 2AE
Tel: +442079556942
e-mail: w.schelkle@lse.ac.uk

American Consortium on European Union Studies (ACES)
EU Center of Excellence Washington, D.C.

ACES Cases, No. 2013.1

Stephen J. Silvia, American University, editor

Abstract

At the height of the financial crisis, the Western welfare state prevented a repeat of the Great Depression. But there were also suggestions that social policy had contributed to the crisis, particularly by promoting households' access to credit in pursuit of welfare goals. Others claim that it was the withdrawal of state welfare that led to the disaster. Against this background that motivated our interest, we propose a systematic way of assessing the relationship between financial market and public welfare provisions. We use structural vector auto-regression to establish the causal link and its direction. Two hypotheses about this relationship can be inferred from the literature. First, the notion that welfare states 'decommodify' livelihoods or that there is an equity-efficiency tradeoff would suggest that welfare states substitute to varying degrees for financial market offers of insurance and savings. By contrast, welfare states may support private interests selectively and/or help markets for households to function better; thus the nexus would be one of complementarity. Our empirical strategy is to spell out the causal mechanisms that can account for a substitutive or complementary relationship and then to see whether advanced econometric techniques find evidence for the existence of either of these mechanisms in six OECD countries. We find complementarity between public welfare (spending and tax subsidies) and life insurance markets for four out of our six countries, notably even for the United States. Substitution between welfare and finance is the more plausible interpretation for France and the Netherlands, which is surprising. Data availability constrains us from testing the implications for the welfare state contribution to the crisis directly but our findings suggest that the welfare state cannot generally be blamed for the financial crisis.[1]

Key words: crisis, household finance, insurance, SVAR, welfare state.

[1] We gratefully acknowledge funding from a grant by STICERD (LSE) that allowed us to undertake this research. We received very useful comments on an earlier version at the student-staff seminar of the European

1. Introduction: The welfare state and financial markets

At the height of the financial crisis, in 2009-10, the Western welfare state (along with unprecedented central bank interventions) prevented a repeat of the Great Depression with its haunting images of male breadwinners queuing for a meal. The built-in stabilizers of welfare states, i.e. progressive income taxes and unemployment benefits, worked effectively (Furceri 2009, Dolls et al 2010). In the early stages of the crisis, this was even a source of pride (or hubris) in Europe that Christine Lagarde, then French finance minister, expressed succinctly: 'The difference is that the French model provides shock absorbers that were already in place. We haven't had to reinvent our unemployment, health or welfare systems.' (Economist 2009: 28)

But there were also suggestions that social policy had contributed to the build-up of a potential for crisis, particularly by promoting households' access to credit in pursuit of welfare goals. In the US, this had ended with the subprime loan disaster that triggered the Great Recession (Committee 2009, Shiller 2008). In Europe, one could cite the privatization of pensions that exposes households to considerable retirement date risks when stock markets plunge and wipe out a considerable amount of lifetime savings. Low interest rates since 2007 reduce the value of pension funds and the providers as well as the sponsors of occupational pensions have started to raise their concerns about central bank policies (Cohen 2013, OECD 2012).2

Others claim that it was the withdrawal of state welfare that led to the disaster (Schwartz 2012). After the Golden Age of welfare expansion, financial markets were liberalized and welfare state provisions partly privatized, presumably forcing households to take recourse to

Institute (LSE), especially from Margarita Gelepithis, as well as from conference audiences at SASE in Boston, at EUSA in Baltimore and at a workshop of a research network on Nordic welfare states in Berlin.

financial markets. Innovations in mortgage finance made it possible to acquire nest-eggs in the form of homes with ever lower down payments, and not only for old-age security but also the financing of medical expenses or the education of children (Ansell 2011). Seabrooke and Schwartz (2009) assembled a number of scholars who extend this story for the US to European countries.

Hence, the financial crisis since 2008 has thrown a question into sharp relief for which the comparative welfare state literature has few answers (Schelkle 2012a): What kind of relationship between private finance and social welfare spending do these different accounts assume? Do they contradict each other fundamentally or are they just different empirical observations regarding the crisis but assume the same structural relationship? And what do the underlying relationships imply for the role of welfare states in the crisis and its build-up? In this paper, we propose a systematic way of assessing the relationship between financial markets and public welfare provisions, using structural vector auto-regression, to establish the causal link. Data availability constrains us from testing the implications for the welfare state contribution to the crisis directly but our findings speak to the proposition that the welfare state is partly to blame for the crisis.

Our paper proceeds as follows: The next section infers two hypotheses about the finance-welfare state nexus from the literature, bearing in mind that these approaches were developed with a view to the employment relationship centered on labor markets. The third section spells out the empirical method to search for causal mechanisms between private finance and social welfare, including our case selection. The fourth section presents the empirical findings. They consist of cross-sectional structural vector auto-regressions (SVAR) for four European and two non-European welfare states with ex ante very different configurations of

[2] The FT quotes consultants Mercers estimating that a drop of 0.10% in bond yields adds 2% to the pension liabilities of firms (Cohen 2013).

social spending and degree of financialization. The conclusions summarize our findings about the finance-welfare state nexus and spell out their implications for the contribution of the welfare state to the financial crisis.

2. Two views of the finance-welfare state nexus

The relationship between public welfare and private finance has been explicitly discussed in the welfare state literature at least once, for the specific case of pensions and housing finance. Kemeny (1980) and Castles (1998) were the protagonists in a debate on why the prevalence of homeownership may be associated with a small welfare state, especially low public pensions. Kemeny made taxpayers' resistance responsible for lean pension provisions, i.e. where homeownership is high, indebted households of working age resent being taxed for generous social spending. Castles, by contrast, argued that the 'big tradeoff' results from the fact that a weak welfare state provides incentives for homeownership as a nest-egg. In other words, homeownership can act as the equivalent of a social insurance mechanism (see also Conley and Gifford 2006). The two scholars disagreed on the exact motivation of and the causal link in this relationship, with Kemeny putting taxpayers' resistance at the beginning while Castles made underdeveloped safety nets responsible for households taking recourse to commercial sources of security. Ansell (2011) has recently provided evidence for Kemeny's argument, namely that Thatcher's policy of privatising council housing was predicated on a self-fulfilling promotion of homeownership: households who acquired a home change their preferences and resent higher taxes to finance benefits. But all three authors agree that private finance substitutes for public welfare and vice versa.

This debate ties in with the mainstream of comparative welfare state research. In the tradition of Karl Polanyi's *Great Transformation*, the power resources theory of Walter Korpi and Gøsta Esping-Andersen conceptualized all public welfare as 'decommodifying' labor by

replacing earnings with income and in-kind transfers (Esping-Andersen 1990: 3). Logically, this reasoning extends to financial markets: insofar as non-market income replaces earnings in the case of incapacity or unemployment, workers and their dependants have also no need to take recourse to savings, debt or private insurance. The welfare state decommodifies household finance, too. But what we do not know is how this comes about: is the more or less generous substitution of financial markets by the welfare state also the outcome of a political struggle of labor for protection from the vagaries of the capitalist economy (Iversen 2006) or were there other political forces at work that led to a similar, decommodifying outcome? Trumbull's work suggests that we have to research this more specifically even though the attitude of organized labor to household credit plays a role in the story (Trumbull 2012).

In this political conceptualization of a substitutive relationship, the Polanyi tradition in welfare state research is backed by the old mainstream in welfare economics, from Pigou's Economics of Welfare (1920) to Okun's big tradeoff between equity and efficiency (1975). Welfare economists in this tradition agree that redistribution must be pursued against the tendency of market forces to settle for income maximizing but inequitable outcomes. In financial markets, this means that low-income or marginally employed individuals are excluded from access to credit, that homeownership is out of reach for most households and that women with their longer life expectancy get considerably lower annuities from an insurance plan. Policymakers who want to correct for these inequities must be prepared to forego aggregate income by taxing the well-off or rein in financial innovation in order to correct the resulting inequality.

Despite these eminently plausible arguments for substitution, there is also a relevant strand in welfare state research that implies complementarity between public welfare and private finance. For instance, the welfare state guarantee of a minimum income may have allowed the popularization of banking after WWII enabling households to incur long-term financial

obligations, from mortgage credit to savings and insurance plans. Moreover, even the protagonists of the mainstream often remind policymakers that public welfare may have productivity-enhancing effects (Esping-Andersen 1997) although this is not entirely consistent with the conceptualization of welfare interventions as decommodifying.

We can discern a pessimistic-political and an optimistic-economic view of complementarity. The pessimistic version goes back to Richard Titmuss (1958) who had reservations against the very notion of a 'welfare state,' not only because of its teleological undercurrent[3], but also because the term concealed state patronage of special interests. He singled out the interests attached to 'occupational welfare,' i.e. all employment related benefits, and professionals in social services themselves. In both cases, special interests push for an extension of the welfare state and market provisions for social purposes like private health insurance and pension plans through tax-subsidies. [4] The increasing influence of financial interests should give the concomitant development of welfare states and financial markets a new impetus. The work of Howard (1997) and Hacker (2004) on the 'hidden welfare state' provide evidence for this link, specifically their studies of how risks of old-age security and health have been privatized with the help of tax expenditures, supported by lobbies of private providers as well as middle-class electorates.

A more optimistic version of a complementary relationship can be found in the new economics of the welfare state that rationalizes social policy interventions systematically as ways of correcting market failure (Barr 1992, 2012: ch.4). Competition in areas of health, pensions or insurance is actually self-defeating, with less coverage and less income

[3] Titmuss (1976: 219) resented the notion of a welfare state because it created the myth of finality that 'has led to the assumption that most – if not all – of our social problems have been – or soon will be – solved. Those few that remain will, it is thought, be automatically remedied by rising incomes and minor adjustments of one kind or another.'

[4] In this, he can be seen as a predecessor of the new politics of welfare (Pierson 2001; Weir et al 1988) in that Titmuss stressed that social policy creates its own stakeholders. Swenson (2002) provides evidence for Titmuss

generation in its wake. Yet in the presence of public interventions that rein in exploitation, exclusion and opportunistic behaviour, financial markets may flourish and at the same time satisfy individual and collective needs. The relatively new and burgeoning strand in behavioural financial economics that studies households supports this message for poor, unsophisticated or naïve investors (Campbell 2006). Lindert (2003) popularized the message by noting that the 'welfare state looks like a free lunch,' achieving both equity and efficiency. His solution to the puzzle is that contestation among interest groups and electoral politics provide a check on overly generous benefits that favour predominantly certain groups. This leads, on average and in the long run, to welfare states that exploit the spectrum of policies not subject to the big trade-off between equity and efficiency.

Even the most optimistic new welfare economist would admit, however, that substitution may result from households' budget constraints. If social insurance is quite high and raised further, there may be little room for private pensions or private health insurance until the efficiency gains feed into higher net incomes. This suggests that we need to interpret the effect of welfare interventions dynamically: while more generous social benefits that are financed by higher taxes and social insurance contributions at first lower private spending on welfare and financial products, they should in the medium to long run increase it because disposable income rises thanks to the better functioning of labor, goods and insurance markets. For empirical research, this means that we have to trace the relationship between welfare spending, taxation, household income and financial products like insurance or mortgages over time.

A third possibility is that there is no predictable connection between public welfare and private finance. Rising income may be the omitted variable that drives both the development

---

empirical claim on 'occupational welfare', notably the role of employers in the expansion of the welfare state in the US and Sweden.

of the welfare state and of financial markets, possibly at different speeds and time horizons. Moreover, the causalities may run in both directions: big welfare states may crowd out finance where they were established before the Big Bang in the 1980s. In turn, strong financial services, including those of households invested in the service, may prevent public offers from developing beyond a minimal level because a strong industry lobby and a private ownership ideology oppose them, a possibility that is compatible with the work of Ansell (2011) and Hacker (2004). Our empirical research design can uncover this third possibility of no significant relationship between welfare and finance as well as reverse causation or feedback effects.

What do these two views imply for the role of the welfare state in the financial crisis? For the sake of clarity, we can simplify them in the following way: the notion that welfare states 'decommodify' livelihoods suggest that welfare states substitute to varying degrees for financial market offers of insurance and savings, hence social policies did *not* contribute to the crisis. On the contrary, only where public welfare was withdrawn significantly, as in the US, would this hypothesis predict that households were pushed into risky financial transactions to make up for this withdrawal. If, however, welfare states help markets generally and financial markets for households particularly to be politically viable and economically more efficient, then the welfare state may have contributed to the most severe crisis of the post-war era. The exact ways of how social policy complements financial market provisions may make a difference still, however. Hence there is the possibility that welfare states underpin financial markets but did not necessarily contribute to the financial excess of the 2000s.[5]

3. The SVAR methodology

[5] This was arguably the case of the housing bubbles and policies in France and the UK, in contrast to the US (Schelkle 2012b).

This section first explains why we use the econometric technique of structural vector auto-regression (SVAR), then which causal mechanisms between public welfare and private finance we assume and finally which data we use. This section can be skipped as the next section on the findings is self-contained; but readers who are mildly interested in the methodology can rest assured that we tried to keep this section as non-technical as possible.

3.1 The VAR method

VAR models are used if one wants to estimate time series that are presumably interrelated by more than just time, i.e. in more than a random way. Theory must tell us what could make for the presumption of a non-random correlation. In the present context, the two views outlined above propose that welfare state interventions are devised so as to either substitute for market provisions or complement market provisions; in other words, they claim (opposite) causal relationships for reasons of organized interests and economic functionality. SVAR estimates allow us to find out whether we have good reason to believe the relationship exists, what the nature of it is (substitutive or complementary) and how it may develop over a finite time horizon.[6]

Structural is a characterization in contrast to 'behavioural' and refers to the fact that these time series of variables may be related to each other like in a simultaneous equation model, so that we could predict the effect of an exogenous change (an 'intervention') on all variables at once through the system of equations. [7] In contrast to simultaneous equation models, however, SVARs allow us to be agnostic as to which functional form exactly generates this systematic and predictable relationship between series of variables. Also, SVARs are post-Lucas critique in the sense that, ex ante, a 'shock' can affect all variables (notably because the

[6] It is important to note that we still impose causality and do not strictly establish it. For a first attempt at doing the latter see Bayoumi and Bui (2010).
[7] The following has benefitted from Sims (2002).

change was expected), rather than assume that such a change affects only a subset of variables directly and deterministically.

The first go at the data, the *VAR estimates*, allows us to find out whether there is a more than random relationship between the time series of variables. This relationship can itself change over time, i.e. analogous to a dynamic simultaneous equation model but without all the problems that dynamic simultaneous equation models run into, such as complex modelling and/or very specific theoretical assumptions. This possible change over a horizon of 10 periods is revealed, on the one hand, by the *variance decomposition* in which we look at how much of the variance of a variable (such as a financial market variable like life insurance premia) is driven or explained by the variance of the other variables in the model (we are particularly interested in welfare state variables). Since we do this for all variables, we can also capture feedback effects (for instance whether variance in a welfare state variable is explained by private social spending or a financial market variable). On the other hand, we look at *impulse responses* which we get when all but the variable under consideration (say life insurance premia) are shocked by 1%. The results can be read like elasticities (i.e. the percentage change of a dependent variable in response to a 1% change in the independent variable, in the example just given: life insurance premia). We can also infer whether the impulse response of the financial market variable to a 1% increase in the welfare state variable is negative or positive, thus revealing a substitutive or complementary relationship, respectively. The relationship may even change over the time horizon of 10, in other words we may detect that a social spending shock first leads to lower spending on financial products (substitution due to households' budget constraints) but become complementary in the medium to long run (complementarity due to rising income). Our time horizon of 10 means over ten years as we use annual data. We tested for optimal lag length of our coefficients, using standard tests, and found a lag of 2 to be optimal.

3.2 Data issues and country cases

The relationship between finance and social welfare has received much less scholarly attention than the connection between finance and growth (Levine 2005). This can explain the limited data availability on items of household (in contrast to corporate) finance for European countries that reaches back to the early 1980s. This is slowly changing, however. The World Bank collects and publishes time series of indicators of financial development (Beck et al 2010) that contain some useful data, such as deposit-to-GDP ratios. The OECD has detailed and more meaningful data on social expenditure (Adema et al 2011). Other data sources include the IMF and Reuter's EcoWin, in particular for advanced economies that are our focus. [8]

As a consequence, our country case studies had to be selected not least on the basis of data availability. Only annual data make sense while typical SVAR applications, such as business cycle studies, use monthly or quarterly data. Indicators on household finance, such as mortgage credit or private pension assets, do not reach back any further than the early 1990s for European countries. This is too short for a valid SVAR and excluded Scandinavian countries. Relevant US statistics go back to the 1960s and cover a much larger range of indicators. We therefore selected Canada and the US as non-European countries, and France, Germany, the Netherlands and Spain with reasonably complete data for at least one relevant household finance indicator, namely life insurance premia. In the following, we outline the relevant differences between these countries and locate them in their relevant peer group, i.e. advanced democracies. Our sample period stretches from 1982-2011.

How do our country cases compare with respect to our key variables, public and private social spending? The OECD provides the most widely used measure on the size of welfare

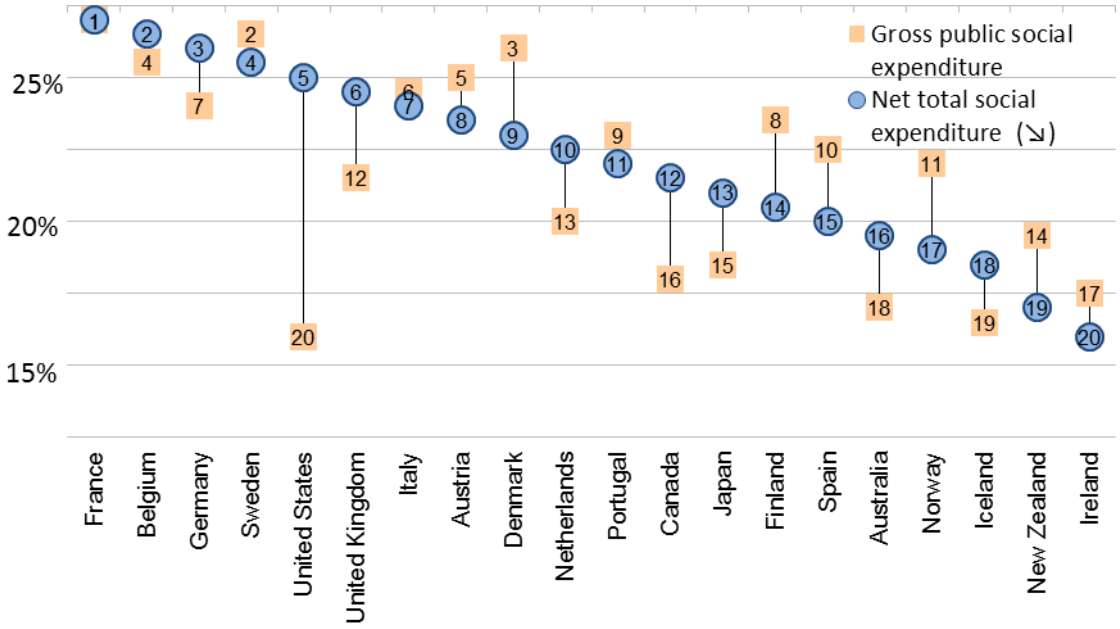
[8] The ECB started to build up a database on household debt and wealth that stirred controversy when first published (De Grauwe and Ji 2013, ECB 2013).

state, *gross public social expenditure* on both cash transfers and services. But this does not include social spending that makes for a 'hidden welfare state,' notably tax expenditures to stimulate private spending on social policy purposes. Willem Adema and his collaborators at the OECD now publish regularly a measure that includes benefits that are distributed through the tax system, i.e. the various forms of tax breaks for social purposes such as saving for old age or buying child care. Moreover, they correct the gross, i.e. before tax, measure for the fact that benefits can be taxed and that beneficiaries pay taxes on their consumption.[9] The alternative measure also takes into account that governments make private spending on social purposes mandatory, for instance force employers or wage earners to buy private accident insurance. Finally, governments also incentivize voluntary private spending for social purposes by making such spending tax-deductible, for instance on private health insurance.[10] Hence, the research carried out by Adema et al since the mid-1990s allows us now to take some of these indirect and hidden ways of public welfare provision into account.

The following graph shows for 20 OECD countries[11] just before the crisis how the ranking of welfare states according to size changes as we move from measuring *gross* (before tax) *public* social expenditure to *net* (after tax) *total* (public and private) social expenditure. The latter measure, shown as blue dots, has not only taken into account a number of tax breaks for social purposes (TBSPs), direct taxes on benefits as well as indirect taxes on beneficiaries' spending, but also mandatory and voluntary private social spending. It is *social expenditure* in that it is for a 'social purpose' (i.e. serving one of nine policy areas) and involves compulsion and/or interpersonal redistribution incentivized by tax advantages (Adema et al 2011: 90-94, Gilbert 2010).

[9] Indirect taxes are sometimes compensated, for instance when energy taxes go up, (poor) pensioners may get a higher winter fuel allowance.
[10] The tax incentives for private spending are counted as Tax Breaks for Social Purposes (TBSPs) which are then deducted from the amount of private social expenditure, so as to avoid double counting.
[11] Greece and Switzerland had to be left out because there was no breakdown of social expenditure available.

Figure 1: Ranking of welfare states according to size, based on two measures (2007, as % of GDP)

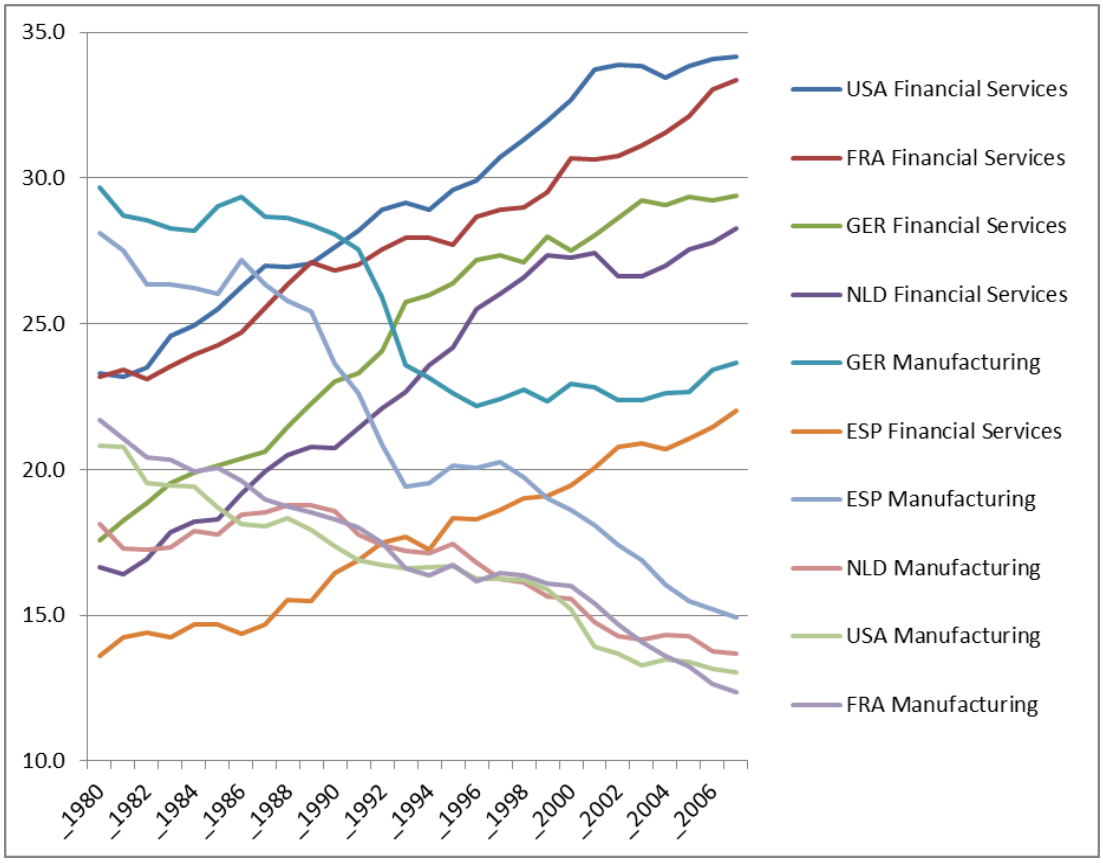


Source: OECD SOCX database 2011

France is the country with the highest social expenditure, whatever measure we use. Germany is high, especially when tax benefits are taken into account, the Netherlands is middle while Canada and Spain are in the lower half of rankings on both measures. The most dramatic change occurs for the US. With about 16 percent of GDP, the US is at the bottom of the lot when welfare state size is measured in terms of gross public social expenditure while it is the fifth largest behind Sweden when tax expenditures and private channels of social spending are taken into account: voluntary but tax-advantaged private health insurance adds more than 10% (gross and net). Yet Canada, Germany and the Netherlands also have a sizeable 'hidden' welfare state in the sense that their social expenditure is higher than the headline figure of gross public spending reveals. Spain is the only country in our sample that, like the Scandinavian countries, reclaims a considerable share of public benefits by taxing transfer income and/or the consumption of transfer recipients (like that of everybody else); therefore, Spain moves in its net social expenditure ranking below the Netherlands and Canada.

In terms of financial market development, we can look first at the 'financialization' of the economy from the supply side, namely measured as the contribution of financial activity to output, in contrast to manufacturing. Financial services include finance (intermediation), insurance, real estate and business services. The striking picture here is that France is not only the highest social spender but the share of financial services in value added is almost as high as in the US; if we find complementarity at all, we should find it for France. The US resembles France with respect to this indicator of financialization (share of financial services in contrast to manufacturing). It is also striking that even in Germany, with its manufacturing-based export-oriented economy, financial services contribute more to national income than manufacturing (higher than in the Netherlands). This is also the case in Spain that experienced the most dramatic deindustrialization over these years. Canada is not included as its data in KLEMS has neither been standardized nor updated.

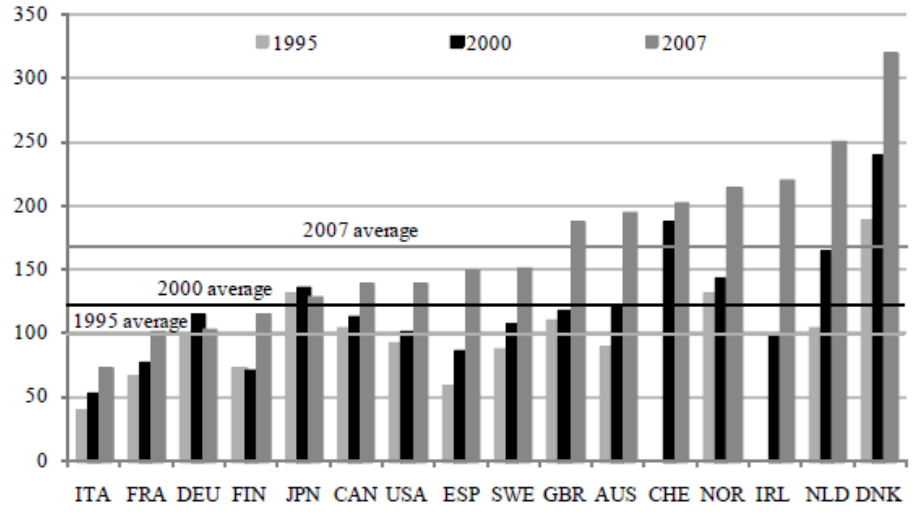
Figure 2: Financial services and manufacturing, value added as percentage of GDP (1980-2007)



Source: EU KLEMS Database

Household indebtedness is another, demand-side indicator of financialization. This time series is not available back to the 1980s for all countries which we therefore could not include into our SVAR estimates.

Figure 3: Household debt as percentage of disposable income



Note: Averages are unweighted.
Source: OECD National accounts.

Source: André (2010, fig.8)

Here, the Netherlands is the country with the highest household debt. This can be attributed, until recently, to very high tax incentives for mortgage credit that made Dutch households hold on to one purely for tax purposes. Our other country cases range in the middle (Canada, Spain, US12) to the low end (Germany, France). Germany, along with Japan, was the only country where households reduced debt as a share of disposable income between 2000 and 2007, a tribute to the depressed development of real wages over these years. We can also see that it matters a lot for the characterization of countries how financialization is defined and measured: the US and France in particular appear as highly financialized if we look at the supply side of finance, but not necessarily so if we look at the demand side. Last but not least, this last graph destroys the myth that financialization did not reach the household sector in Europe.

Given the limits on data availability and our interest in (European) welfare states, the only relevant indicator for household finance that was available for all these countries over a reasonable time span were (life and non-life) insurance premia. Life insurance is an

equivalent for survivor benefits and a savings product for old age like pensions. Table 1 gives a snapshot of how important life insurance was in 2007, and whether life insurance was likely to contribute to old-age security of insurance holders through annuity markets, or served as a benefit for their survivors.

Table 1: Select insurance indicators in comparison, 2007

	Density of all insurance (premiums per capita, in US-$)	**Life insurance, share as % of total insurance premia**	**Penetration of life insurance (gross premiums as share of GDP)**	**Type of annuity market**
Canada	3,404	46.0	3.4	Immediate annuity, purchase at retirement
France	4,745	59.8	7.4	Residual, small market
Germany	2,707	41.8	3.1	Deferred annuity, purchase during working years
Netherlands	3,944	56.0	4.8	Mix of immediate and deferred annuities
Spain	1,663	40.8	2.2	No information
United States	3,864	39.1	5.2	Immediate annuity, purchase at retirement
EU-15	4,015	62.4	6.6	n.a.
OECD	3,267	52.3	5.5	n.a.

Sources: OECD Insurance Statistics, Rusconi (2008) for annuity markets

The first observation is that insurance markets in our sample generally have a normal size(as measured by density); with the exception of relatively big France, they are somewhat smaller than the EU-15 average but higher than the OECD average. Life insurance markets, as a share of the total and in terms of penetration of the economy, are actually relatively small in Canada, Germany, Spain and the US; only France and the Netherlands reach above or average OECD levels. Yet, these markets are not insignificant either, except perhaps in

12 For a more detailed analysis of how household finances changed over time in the US, see Gerba (2013).

Spain. The last column, finally, gives us an idea of whether life insurance serves as a substitute or top-up for survivor benefits or as a savings vehicle for old age. Deferred annuities[13], prevalent in Germany and with a significant market share in the Netherlands, are a classic instrument for the latter as they are acquired over a life-time, often through a life insurance that pays out after a fixed term. In Canada and the US, these annuities are likely to be acquired by liquidating shares while life insurance is a form of survivor benefit. Real estate assets, acquired through a mortgage credit over a lifetime, are an important vehicle of old-age savings in all countries except Germany. Unfortunately, only the US has data that goes back long enough for using our SVAR model.

3.3 The model

A model in SVAR boils down to the ordering of variables – this ordering is what gives it the 'structure,' i.e. the theory underpinning the estimation.[14] The first variable is assumed to determine the second and all subsequent variables, the second the third and all subsequent and so on. At the same time, the second can have feedback effects on the first, the third can have feedback effects on the first and second variables etc. The VAR set-up has in the first row all the variables in their ordering and in the first column each variable with a one- and a two-period lag.

Our first model for the six countries consists of the following ordering (all six series of variables are measured in natural logs)[15]:

[13] Annuities turn a lump sum of savings into an income stream until the end of life.
[14] More precisely, the Cholesky decomposition of the impulse responses requires an identification of the causal relationship between the variables of the model; the model cannot identify the causation as such.
[15] We tried out many more specifications but this one worked reasonably well in terms of significant VAR estimates. For robustness purposes, we also estimated the country-specific VAR ordering Output per capita first in the model.

Public social spending per capita → Taxes and social security contributions per capita → Output per capita → Private social spending per capita → Average annual earnings → Ratio of life insurance premia to non-life insurance premia

We think this captures the line of reasoning in old and new welfare economics and can be supported with political considerations, indicated in the 'Two views' section. We start with two fiscal variables, public social spending and (redistributive) taxes. The ordering implies that we assume governments determine their desired level of spending first and raise revenue in line with their spending plans. The two welfare state variables then determine private sector variables, such as GDP, private spending on social purposes and average earnings. The fiscal variables can affect output negatively (the neoclassical distortionary-taxation story) or positively (the New Keynesian market-failure-amended story). Output or value added in production determines private social spending because of households' budget constraint. This determines average earnings, either because firms adjust their output so that productivity justifies the level of social benefits (neoclassical reading) or because the quality of work and the functioning of markets is directly affected by social benefits (New Keynesian reading). Finally the financial market variable is a measure of insurance premia: spending on life insurance as a form of saving for old age and private survivor benefit.[16] It rises with earnings as households tend to get more of everything as long as it is not an inferior good and because individuals tend to get more risk averse as they become more affluent (these behavioural assumptions are standard and apply across economic theories).

Schematically, the two theoretical narratives can be further simplified as they concern the relationship between the first set of fiscal variables and output as well as the relationships between private social spending and earnings. The following matrix summarizes the possibilities:

[16] The use of a ratio works best in a technical sense because it increases the size of the variable compared to the others and scales it in a way that controls for the bigger size of insurance markets in France compared to Spain, to take the two extremes in our sample (table 1).

Table 2: Theoretical lines of causation

Polanyi tradition/ Old welfare economics **Titmuss tradition/ New welfare economics**	Public social spending and taxes/ SSC	Economic output	Private social spending, earnings and spending on life insurance
Public social spending and taxes/ SSC	n.a. n.a.	**Negative (distortion)** **Positive (less market failure)**	**Negative (substitution)** **Positive (complement)**
Economic output	**Negative (distortion)** **Positive (less market failure)**	n.a. n.a.	Positive Positive
Private social spending, earnings and spending on life insurance	**Negative (substitution)** **Positive (complement)**	Positive Positive	n.a. n.a.

Source: see section 2

For the interpretation of our results, this means we have a direct effect of public welfare (spending, taxes and social security contributions) on the financial variable (insurance premia). It can be negative (substitution, due to decommodification and distortion of economic activity) as in the upper left-hand corner, or it can be positive (complementarity, due to piggybacking and amendment of market failures). We also have an indirect effect that works through output on private spending and private finance which reinforces the direct effect through households' budget constraint.

To arrive at hypotheses regarding plausible findings, we can exploit the diversity of our six countries. They represent, ex ante, a diverse set of configurations as regards welfare state size and the relevance of financial markets for their economies. More specifically, the configurations vary with the size of social spending, the extent of the hidden welfare state (discrepancy between public and private social spending) and the degree and nature of

financialization. So we might expect, depending on the configuration, different outcomes 1) for the basic public welfare-private finance nexus depending on the size of public social spending and the degree of financialization: substitution is more likely where they have different sizes as in the US and complementarity if they are both substantial as in France. The other country cases are less clear-cut but we tend still to complementarity since they are, in the OECD context, fairly large welfare states and fairly financialized economies. This basic relationship may be qualified 2) by the level of public social spending in relation to private social spending (the hidden welfare state): substitution is more likely where they are of opposite size (Canada, France, US), while weak or no causation is expected where they are both in a medium range (Germany, the Netherlands) or comparatively low as in Spain -- always taking into account that private social spending is generally lower than public. So this would reinforce the finding of substitution for the US but reduce the hypothesized complementarity for Canada and France. Finally, the basic nexus may be reinforced 3) by the relationship between the hidden welfare state and private finance: we should expect complementarity where private social spending and financialization are both comparatively high (Canada, Germany, Netherlands, US); this would strengthen the complementarity between public welfare and private finance in the first three countries but also substitution for the US. Thus, we are interested in this third relationship more for its significance than the direction which makes no difference; but it might be interesting for the politics of the finance-welfare state nexus, answering the question whether the financial industry and/or middle-class households are joint or separate forces behind the expansion of the hidden welfare state. Table 3 summarizes our conjectures.

Table 3: Summary of country characteristics and hypothetical relationships

	Relevant characteristics of the national political economy	**1 Do public social spending and taxes cause private finance?**	**2 Does public social spending cause private social spending?**	**3 Do private social spending and tax subsidies cause private finance?**
Canada	Moderate to low social spending, large hidden welfare state; low financialization	Complementary (i.e. positive causation)	Positively, leaves room for private spending and incentivizes it	Reinforcing complementarity
France	High social spending, no hidden welfare state; high supply-side financialization	Complementary	Negatively, crowding out private spending	Weak or non-existent relationship
Germany	High social spending, some hidden welfare state; high supply-side financialization	Substitutive (i.e. negative causation), complementary in the long run	Weakly	Reinforcing complementarity
Netherlands	Medium social spending, some hidden welfare state; high financialization	Complementary	Weakly	Reinforcing complementarity
Spain	Moderate to low social spending, no hidden welfare state; high demand-side financialization	Complementary	None, leaves room for private spending but discourages it	Weak or non-existent relationship
United States	Low public and high private social spending, large hidden welfare state; high supply-side financialization	Substitutive	Positively, leaves room for private spending and incentivizes it	Reinforcing substitution

4 Cross-sectional evidence from six mature welfare states

As outlined above and summarized in tables 2 and 3, we tried to answer three theoretically and empirically motivated questions:

a) Does public social spending indeed cause spending on financial products like life insurance that can substitute for or complement public provisions? We can answer this by looking at the SVAR estimates (t-statistics) together with the vector decomposition, the latter allowing us to pick up the dynamic of the causal link as well as feedback effects from private to public social spending.
b) What is the direction of this causation, if any, i.e. are social spending and taxation substitutive or complementary to products sold in insurance markets? For an answer, we look at the impulse response of (the time series of) the insurance market variable because this tells us its elasticity.
c) What are the significant drivers of (life) insurance premia or financial markets more generally? The sources for an answer are the same as under a) and answer a question that is of theoretical interest.

In the following, we summarize our results and document them in the appendix. To take first our quest for the public welfare-private finance nexus: we find evidence for these drivers of insurance markets in every country but to varying degrees. We start with a caveat, namely that the SVAR estimates of the drivers we can identify in the variance decomposition are not all significant. But since the variance decomposition is more relevant, given the quality of the data that is highly correlated, we concentrate on the latter. The first set of graphs for each country in the Appendix, i.e. Canada (1), France (1) etc. shows the variance decompositions of each variable which is relevant for the causal significance. Our primary interest is in the graph to the bottom right for each country (Variance Decomposition of LNLPRM, i.e. for the natural log of the life insurance premium ratio); within this graph we look at how much of the volatility in the insurance market variable is explained by the blue line with white dots (LNPSCAP, i.e. the natural log of public spending per capita) and the red line with dots (LNTCAP, i.e. the natural log of taxes per capita). The second set of graphs, under Canada

(2), France (2) etc, shows the impulse response, which is relevant for the direction of causation, once we have established significance. Here, again, we look primarily at the graph to the right-hand bottom for each country (Response of LNPRM) and within each graph what kind of changes in LNPRM, a rise or a decline, are caused by the public social spending variable (LNPSCAP), the tax variable (LNTCAP) and private social spending (LNPRSCAP). Table A1 summarizes the results of these graphs.

Canada

We find for Canada quite significant effects of both public social spending and taxes. The public social spending variable explains more than 30% of the variance in the insurance market variable after two horizons, the tax variable between 30% initially and 20% later; this suggests a fairly strong public-welfare-private finance nexus for Canada. The impulse response of the insurance variable to the public spending shock is first negative and then positive, the other way round for taxes. Private social spending is indeed caused by public social spending, first increasing and then lowering it. Private spending is also a significant driver of the insurance ratio, explaining more than 20% of its variance over the entire horizon. The response of the insurance variable to a private spending shock is first positive and becomes negative after three years. The connection between public and private spending is thus reinforcing the long-run complementarity between public welfare and private finance.

France

We find for France a significant effect of both public social spending and taxes, although less than in Canada. The public social spending variable explains more about 10-15% of the variance in the insurance market variable after two horizons; so does the tax variable. There is an immediate positive impulse response of the insurance variable to the public spending shock that becomes negative and then peters out. The response to the tax innovation is positive. Private social spending is negatively affected by a public spending innovation, i.e.

there is crowding out. In turn, private spending is also a significant driver of the life insurance premia, explaining about 20% of the variance in insurance over the entire horizon. There is a strong immediate positive response of insurance to a private spending shock that remains positive over the entire time horizon. The interaction between public and private social spending and the latter's impact on the insurance premium can explain why France seems to have a substitutive connection between public welfare and private finance.

Germany

Here we find quite significant effects of public social spending but not taxes. The public social spending variable explains 25-30% of the variance in the insurance market variable. The impulse response of the insurance variable to the public spending shock is immediately positive, becomes negative after two years and positive again in the last two years. The response to a tax shock is first negative but peters out quickly. Private social spending is also a significant driver of the life insurance premia, explaining about 10% of its variance after three years. Private social spending is significantly affected by public social spending, first rising and then declining in response. The response of insurance to a private spending shock is first negative and then becomes positive. So, taken together, the effect of social spending on private finance is ambiguous and while the public part is likely to dominate the overall effect, private spending may tilt it towards complementarity.

The Netherlands

The Netherlands is the mirror image to Germany as regards significant drivers: public social spending is not while the tax variable is, explaining between 10 and 15% of the variance. [17] However, there is a negative impulse response of the insurance variable to a public spending shock. The impulse response to a tax shock is still stronger and also negative. Private social spending is significantly affected by a public spending shock and declines in response. But

private spending is not a significant driver of the life insurance premia, yet there is first a positive response of the insurance variable to a private spending shock that becomes quickly quite negative.

Spain

We find for Spain a weakly significant effect for public social spending, explaining only about 5-10% of the variance in insurance, while the tax variable explains almost 20% after two horizons. There is a strong positive impulse response of the insurance variable to a public spending shock, the reverse holds for taxes. Private social spending is caused by public spending, and rises with a delay. Private spending is a more significant driver of the life insurance premia, explaining almost 20% of its variance over the entire horizon. But the response of the insurance variable to a private spending shock is negative. So we have a somewhat ambiguous relationship between social spending overall and private finance, although public welfare seems to be complementary.

United States

The US estimate shows quite significant effects of both public social spending and taxes. The public social spending variable explains between 60% and 40% of the variance over the time horizon, taxes between 15-20%! This suggests an even stronger public-welfare-private finance nexus for the US than for Canada. There is first a weak negative impulse response of the insurance variable to the public spending shock that then becomes strongly positive, while the reverse holds for the tax shock. Public social spending causes private spending first to fall and then to rise. Private social spending is also a significant driver of the life insurance premia, explaining about 20% of its variance on average over the horizon. The response to a private spending shock is negative, i.e. the latter diverts spending on life insurance relative to

[17] This result for the Netherlands confirms what was said with respect to tax incentives for mortgage debt above and is also visible in graph 1.

non-life insurance. This may reflect the fact that incentives for private spending in the US are targeted on health care and housing, not life insurance.

Regarding our basic question of whether public welfare substitutes for or complements private finance, our findings are mixed. We find complementarity in Canada, Spain and the US, to some extent also in Germany, for public social spending. This interpretation takes into account that any increase in public social spending is likely to make households spend less on private provisions at first, because they have less demand for the latter but also because they face a tighter budget constraint if this leads to higher taxes (public spending causes taxes to respond positively and are fairly significant for the variance in taxes in Canada and with a delay in France, Germany and the US). But as time goes by, public spending has a positive effect on output (significant and positive in Canada, with a delay in France, Germany, and the US), households and private providers piggy-back on the public services at the margin, hence public welfare and private spending on insurance complement each other over time.[18] The finding for the US contradicts our expectations where we would have expected substitution, given the combination of low public social spending and a large hidden welfare state. Substitutability of private finance and public welfare is the most plausible interpretation for the Netherlands and with a delay France. Both findings are unexpected, especially in the case of France, due to its combination of high public and low private social spending with a highly financialized economy.

The fact that the impulse responses of insurance markets to taxes are typically the mirror image of public spending is quite reassuring. If private social spending is typically incentivized by tax subsidies, then lower tax revenue means higher subsidies for private spending and vice versa. So, in fact, this is in line with a story of complementarity between

public welfare (here foregone tax revenue) and private finance for social purposes (here life insurance). Again, France is the exception while the US joins the European mainstream – both unexpected and possibly due to specificities of their insurance markets.

For robustness purposes, we also ran a SVAR(2) specification with output per capita ordered before public social spending and taxes per capita. This means that automatic stabilizers as well as structural social policies play a role while our initial model concentrated on cyclically adjusted ('structural') social policies only. Impulse response results are reported in brackets in Table A1. We do not observe any significant or systematic deviations from our initial estimates. The only outlier is the impulse responses of US output per capita to the six shocks, where there is some difference (albeit small) between our benchmark model and the current (modified) model. However, the emphasis of our analyses is on the impact of innovations in the economy on social spending and household finances. Thus for our purposes, the minor divergence in the responses of US output per capita are of secondary importance. This implies that our SVAR(2) model is robust to the type of social spending/social policies considered. In turn, this means that the majority of policies affecting public and private social spending are structural, and not business cycle driven. That is an important finding since we can firmly discuss spending behaviour and alterations to these from a structural perspective.

Finally, we do not find a robust relationship of private social spending and insurance premia. This is a surprising non-finding. One would have thought that when insurance premia vary, this is explained largely and triggered largely by impulses from private social spending. But only in Canada, France and the US does private spending explain more than 20% of the variance in the insurance variable. Moreover, the signs of the impulse response are first positive and then negative, whether the hidden welfare state is sizeable (Canada) or actually

[18] This dynamically varying response in five rather different countries can explain why we do not necessarily find a significant VAR estimate for the entire time series. The effects neutralise themselves over time even

the reverse (Spain); and the response is positive where there is no significant net private social spending (France) and where the hidden is two thirds of the visible welfare state (US). We would find complementarity, i.e. a positive variation, more plausible for the private part of social spending as paying for insurance is part of it. One possibility is that our measure of voluntary private spending does not capture the spending on insurance as it may be mandated. Or, as in the US, the tax incentives go towards other purposes. Only a closer look at country cases can tell. Table 4 summarizes our results.

Table 4: Summary of causal relationships in our model for six welfare states

	1 Do public social spending and tax subsidies cause private finance?	**2 Does public social spending cause private social spending?**	**3 Do private social spending and tax subsidies cause private finance?**	**Relationships as expected?**
Canada	Yes, first negative, then positive: **Complementarity**	Yes, first positive, then negative	Yes, private spending substitutive and tax subsidies complementary	Yes, except for (3) private social spending and insurance premia
France	Yes, first positive and then slightly negative: **Substitution**	Yes, negative	Yes, both substitutive	No
Germany	Yes, spending first positive, then negative, positive again; tax subsidies positive with delay: (**Complementarity**?)	Yes, first positive, then negative	Yes, private social spending first complementary, then substitutive, tax incentives complementary	Yes, although complementarity rather weak

though there is an effect at any point in time.

Netherlands	Weak, spending negative, tax subsidies positive: (**Substitution?)**	Yes, negative	Weak, tax incentives and private spending complementary	No for public spending, yes for tax incentives and private spending

Spain	Weak, positive: **Complementarity**	Yes, first negative, then positive	Weak, private spending substitutive, tax incentives complementary	Yes, although (3) gives ambiguous results
United States	Yes, first negative, then strongly positive: **Complementarity**	Yes, first negative, then positive	Mixed, private spending substitutive, tax incentives complementary	No for public spending, yes for (2) and for (3) tax incentives

5 Conclusions

Our model establishes a link between public welfare and private finance (in the guise of life insurance premia relative to non-life premia) that so far hardly anybody in comparative welfare state research or in financial economics has even looked for. For four of the six OECD countries we looked at, the finance-welfare state nexus seems to be one of complementarity. The economic links via taxes and output on private social spending are also broadly in line with the new economics of the welfare state, even in France where we find a substitutive relationship. We were surprised that the United States, with its small visible and large hidden welfare state plus a financialized economy, shows complementarity between public welfare and insurance markets. But the connection is far from universal and at least two countries with big welfare states and highly financialized economies, either on the supply-side (France) or on the demand-side (Netherlands), seems to have a substitutive nexus between public welfare and private finance. In the Netherlands (and in Spain), the economic link is more in line with the old welfare economics, i.e. equity through more social spending would come at the cost of foregone output.

We inferred the complementarity hypothesis theoretically from an account of the welfare state inspired by Richard Titmuss (1958). His work on the welfare state – a term he resented -- stressed the private interests that attach themselves to the benefits of public welfare and use it for their own, not necessarily intended purposes, for instance to reduce the risk of private insurance. Another, more optimistic version of this complementarity can be inferred from the new welfare economics, which is interested in the range of policy options that escape the equity-efficiency tradeoff because redistributive policies may also alleviate market failures. The latter could actually explain why we found lagged complementarity between public social spending and private finance in four countries, even in the US: higher public social spending raises earnings (typically with a lag), which then feeds into the purchasing power

for financial products. This would suggest that France and the Netherlands have exploited the symbiotic range of equity and efficiency enhancing policies that instrumentalize financial markets, the latter compete for private welfare provision with the state.

The prevalence of complementarity in our sample raises the question whether the welfare state has been implicated in the creation of a potential for the financial crisis: if markets for household finance flourish on the back of the welfare state, the welfare state may have made them flourish too much. We note, however, that Canada and Germany had no problem with over-indebted households while France and the Netherlands had housing bubbles even though the collapse was not disastrous. The latter are the countries for which we found substitution to be the more plausible direction of causation. All we can say at this stage is that there is no simple line of causation. Spain and the US are candidates for a worrying role in the crisis even though the former has no hidden welfare state while the latter has a very big one. We must leave further explorations into the finance-welfare nexus of the crisis for another paper.

Bibliography

Adema, W., P. Fron and M. Ladaique (2011), 'Is the European Welfare State Really More Expensive?: Indicators on Social Spending, 1980-2012; and a Manual to the OECD Social Expenditure Database (SOCX)', *OECD Social, Employment and Migration Working Papers*, No.124, Paris: OECD Publishing.

André, C. (2010), 'A Bird's Eye View of OECD Housing Markets', OECD Economics Department Working Paper No.746, Paris: OECD.

Ansell, B. (2011), 'Nest Eggs and Negative Equity: The Political Economy of Ownership', Working Paper.

Barr, N. (1992), 'Economic Theory and the Welfare State: A Survey and Interpretation', *Journal of Economic Literature*, vol 30(2), 741-803.

Barr, N. A. (2012), *Economics of the Welfare Sstate*. 5th ed., Oxford: Oxford University Press.

Bayoumi, T. and T. Bui (2010) *Deconstructing the International Business Cycle: Why Does a U.S. Sneeze Give the Rest of the World a Cold?*, IMF WP 10/239, Washington DC: IMF.

Beck, T., A. Demirgüç-Kunt and R. Levine (2010), 'Financial Institutions and Markets across Countries and over Time: The Updated Financial Development and Structure Database', *The World Bank Economic Review*, vol 24(1), 77-92.

Campbell , J.Y.(2006), 'Household Finance', *Journal of Finance* 61(4), pp.1553-1604.

Castles, F. G. (1998), 'The Really Big Trade-Off: Home Ownership and the Welfare State in the New World and the Old', *Acta Politica*, 33(1), pp. 5–19.

Committee (2009) 'The Role of Government Affordable Housing Policy in Creating the Global Financial Crisis of 2008', *Staff Report U.S. House of Representatives*, 111th Congress, Committee on Oversight and Government Reform July 7, 2009, Washington DC: House of Representatives.

Cohen, N. (2013) 'Pension scheme deficits set to rise by £100bn at UK companies', Financial Times 15 April, p.19.

De Grauwe, P. and Y. Ji (2013) 'Are Germans really poorer than Spaniards, Italians and Greeks?', Vox column, April 16th, URL: http://www.voxeu.org/article/are-germans-really-poorer-spaniards-italians-and-greeks.

Dolls, M., Fuest, C. and Peichl, A. (2010) 'Social Protection as an Automatic Stabilizer*,' IZA Policy Papers* 18, Cologne: Institute for the Study of Labor (IZA).

ECB (2013) The Eurosystem Household Finance and Consumption Survey, Results from the First Wave", *Statistics Paper Series* 2, April, Frankfurt a.M.: European Central Bank.

Esping-Andersen, G. (1990), *The Three Worlds of Welfare Capitalism*, Cambridge: Polity Press.

Esping-Andersen, G. (1999), *Social Foundations of Postindustrial Economies*, Oxford: OUP.

Furceri, D. (2009), *Stabilization Effects of Social Spending: Empirical Evidence from a Panel of OECD Countries Overcoming the Financial Crisis in the United States*, OECD Economics Department Working Papers, No. 675.

Gilbert, N. (2010) 'Comparative Analyses of Stateness and State Action: What Can We Learn From Patterns of Expenditure?' in J. Alber and N. Gilbert (eds.), *United in Diversity,* New York: Oxford University Press, 2010, 133-150.

Gerba, E. (2013) 'The US Business Cycle: The Balance Sheet Dimension', unpublished PhD Thesis, ch.1, University of Kent.

Hacker, Jacob S. (2004), 'Privatizing Risk without Privatizing the Welfare State: The Hidden Politics of Social Policy Retrenchment in the United States'. *American Political Science Review* 98 (2): 243-260.

Howard, C. (1997), *The Hidden Welfare State. Tax Expenditures and Social Policy in the United State*, Princeton, NJ: Princeton University Press.

Iversen, T. (2006), 'Capitalism and Democracy', In B. R. Weingast and D. A. Wittman (eds), *The Oxford Handbook of Political Economy*, Oxford: Oxford University Press, 601-623.

Kemeny, J. (1980), 'Home Ownership and Privatisation', *International Journal of Urban and Regional Research* 4(3), 372–388.

Kemeny, J. (2005), '"The Really Big Trade-Off " between Home Ownership and Welfare: Castles' Evaluation of the 1980 Thesis, and a Reformulation 25 Years on', *Housing, Theory and Society* 22(2), 59-75.

Konings, M (2008) 'European finance in the American mirror: financial change and the reconfiguration of competitiveness', *Contemporary Politics* 14, 253-275.

Lindert, P. H. (2003), 'Why the Welfare State Looks Like a Free Lunch', *NBER Working Paper* No.9869, Cambridge MA: National Bureau of Economic Research.

OECD (2012) *Pension Markets in Focus*, September, Paris: OECD.

Okun, A. M. (1975), *Equality and Efficiency: The Big Tradeoff*, Washington DC: The Brookings Institution.

Pigou.A.C. (1920), *The Economics of Welfare*, London: Macmillan.

Polanyi, K. (1944, 1957), *The Great Transformation: the political and economic origins of our time*. Boston: Beacon Press.

Rusconi, R. (2008), "National Annuity Markets: Features and Implications", *OECD Working Papers on Insurance and Private Pensions*, No. 24, OECD Publishing.

Seabrooke, L. and Schwartz, H.M. (2009), *The Politics of Housing Booms and Busts*, New York: Palgrave Macmillan.

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

Schelkle, W. (2012b) 'A crisis of what? Mortgage credit markets and the social policy of promoting homeownership in the United States and in Europe', *Politics & Society* 40(1), 59-80.

Schwartz, H.M. (2012), 'Housing, the Welfare State, and the Global Financial Crisis: What is the Connection?', *Politics & Society* 40(1): 35-58.

Shiller, R.J. (2008) *The Subprime Solution*, Princeton NJ: Princeton University Press.

Sims, C (2002), *Structural VAR's,* typescript, available at URL: *www.eco.uc3m.es/jgonzalo/teaching/PhDTimeSeries/**SimsVARS**.pdf.*

Titmuss, R. M. (1958), *Essays on 'the Welfare State'*. London: University Books.

Trumbull, G. (2012) 'Credit Access and Social Welfare: The Rise of Consumer Lending in the United States and France', *Politics& Society* 40(1): 9-34.

Weir M., Orloff A.S. and Skocpol, T. (eds) (1988), *The Politics of Social Policy in the United States*, Princeton, NJ: Princeton University Press.

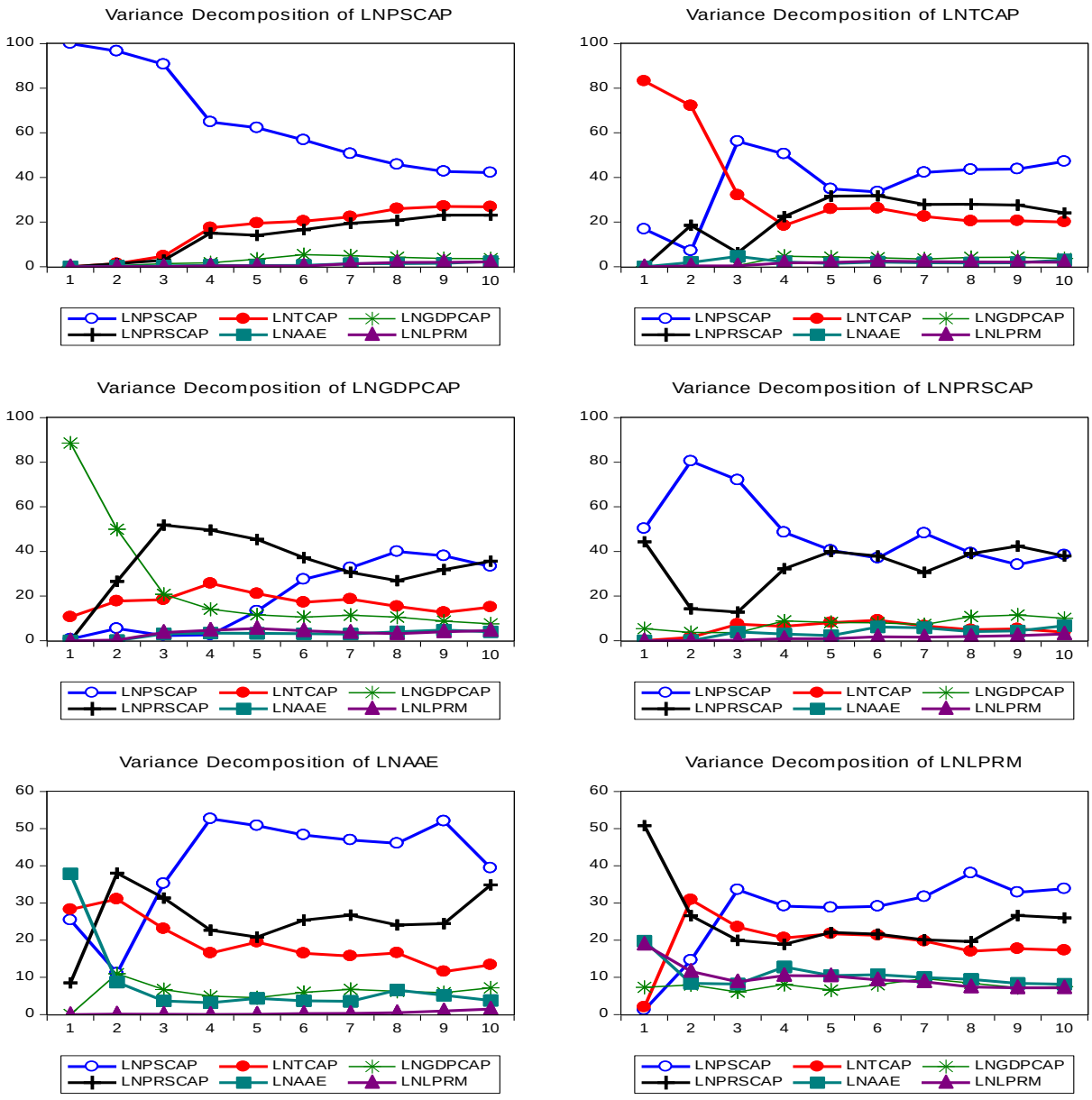
Appendix

SVAR(2) – 6 OECD Countries

Model 1: [Public Social Spending per capita (*LNPSCAP*), Taxes per capita (*LNTCAP*), Output per capita (*LNGDPCAP*), Private Social Spending per capita (*LNPRSCAP*), Average Annual Earnings (*AAE*), Life-to-Nonlife ratio of insurance premia (*LNLPRM*) ¦ Government debt (*LNGOVDEB*)]

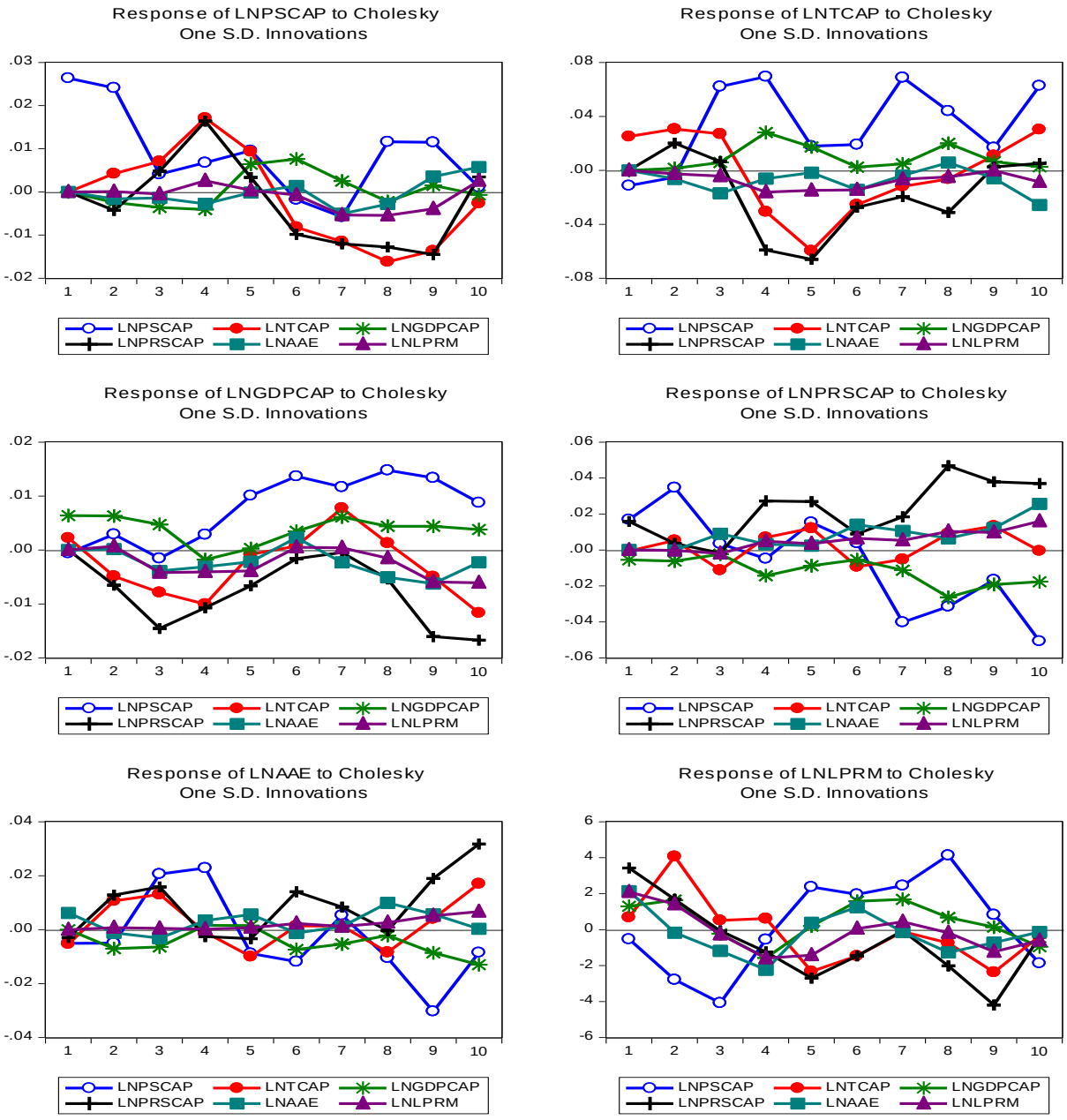
CANADA (1)

Figure A1: Canada –Variance Decomposition



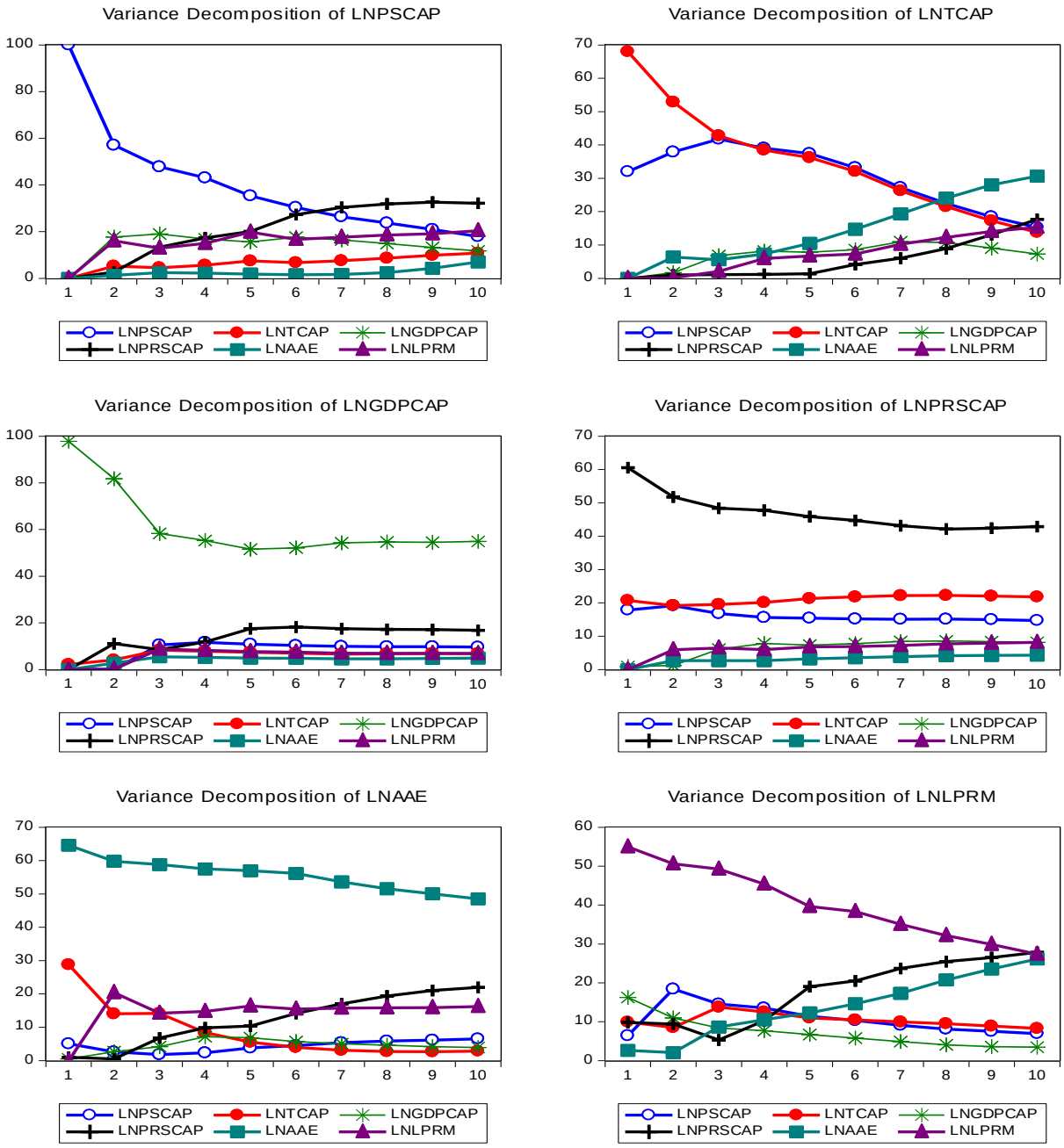
CANADA (2)

Figure A2: Canada –Impulse Responses



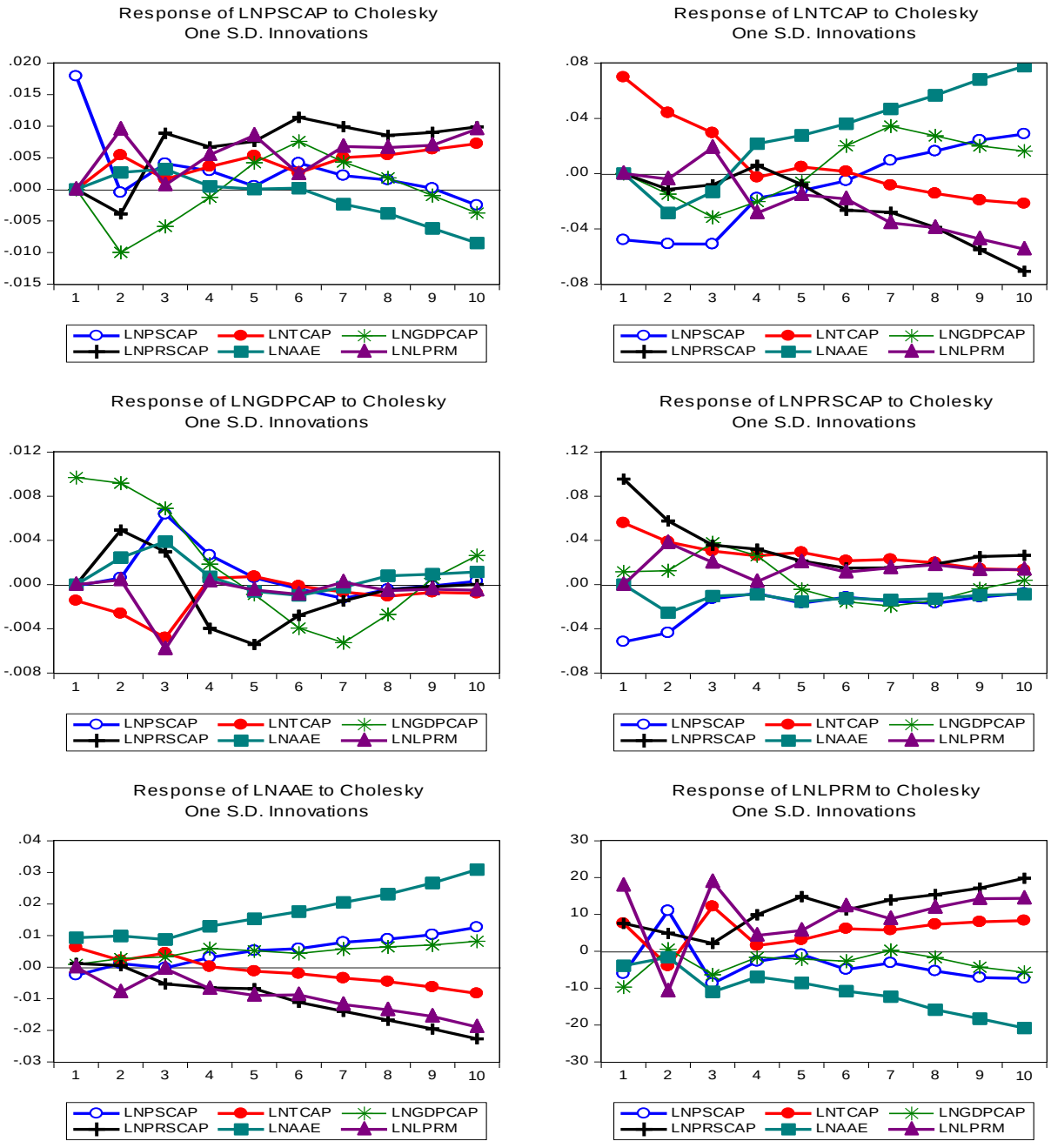
FRANCE (1)

Figure A3: France – Variance Decomposition



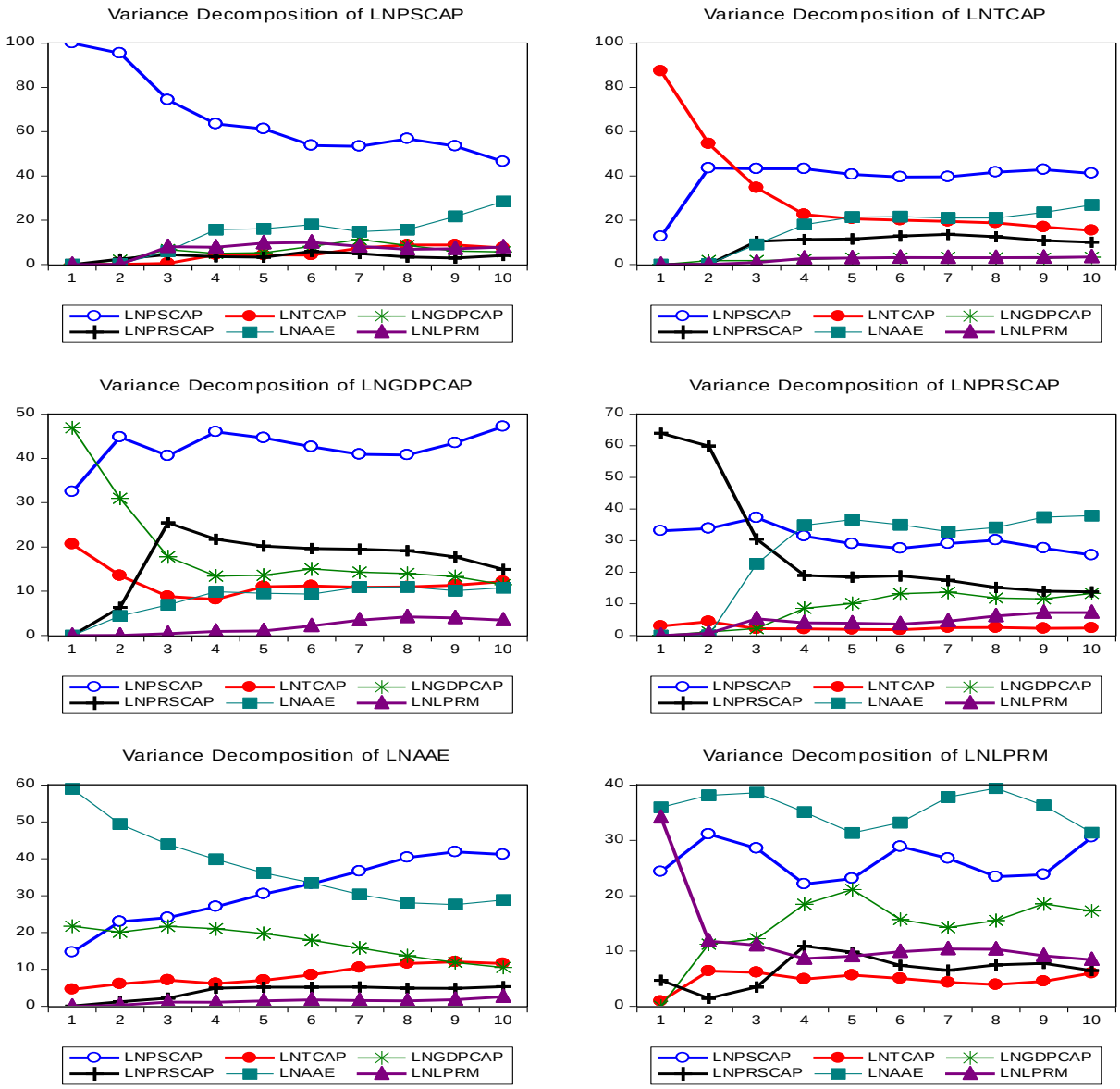
FRANCE (2)

Figure A4: France – Impulse Responses



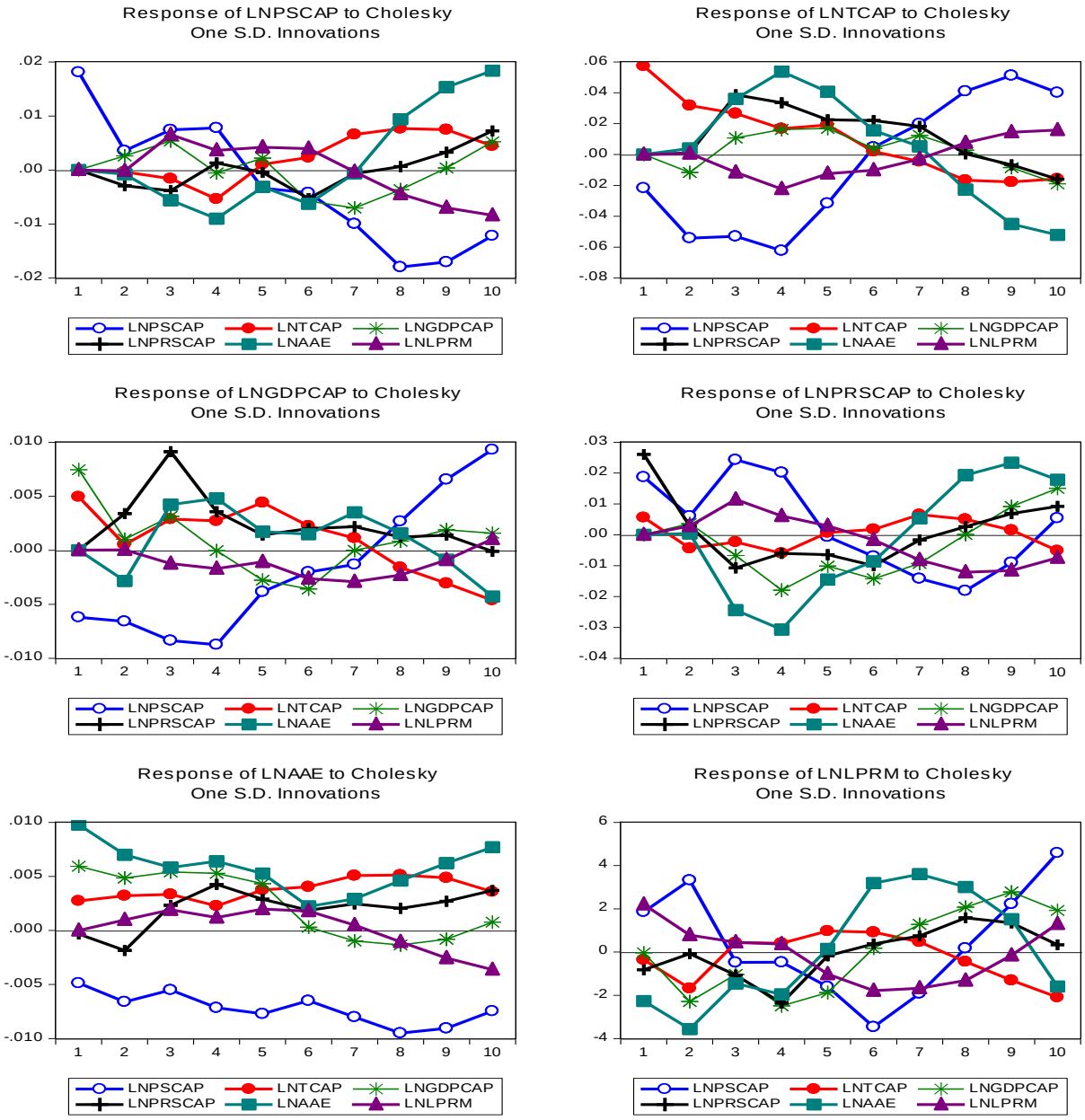
GERMANY (1)

Figure A5: Germany –Variance Decomposition



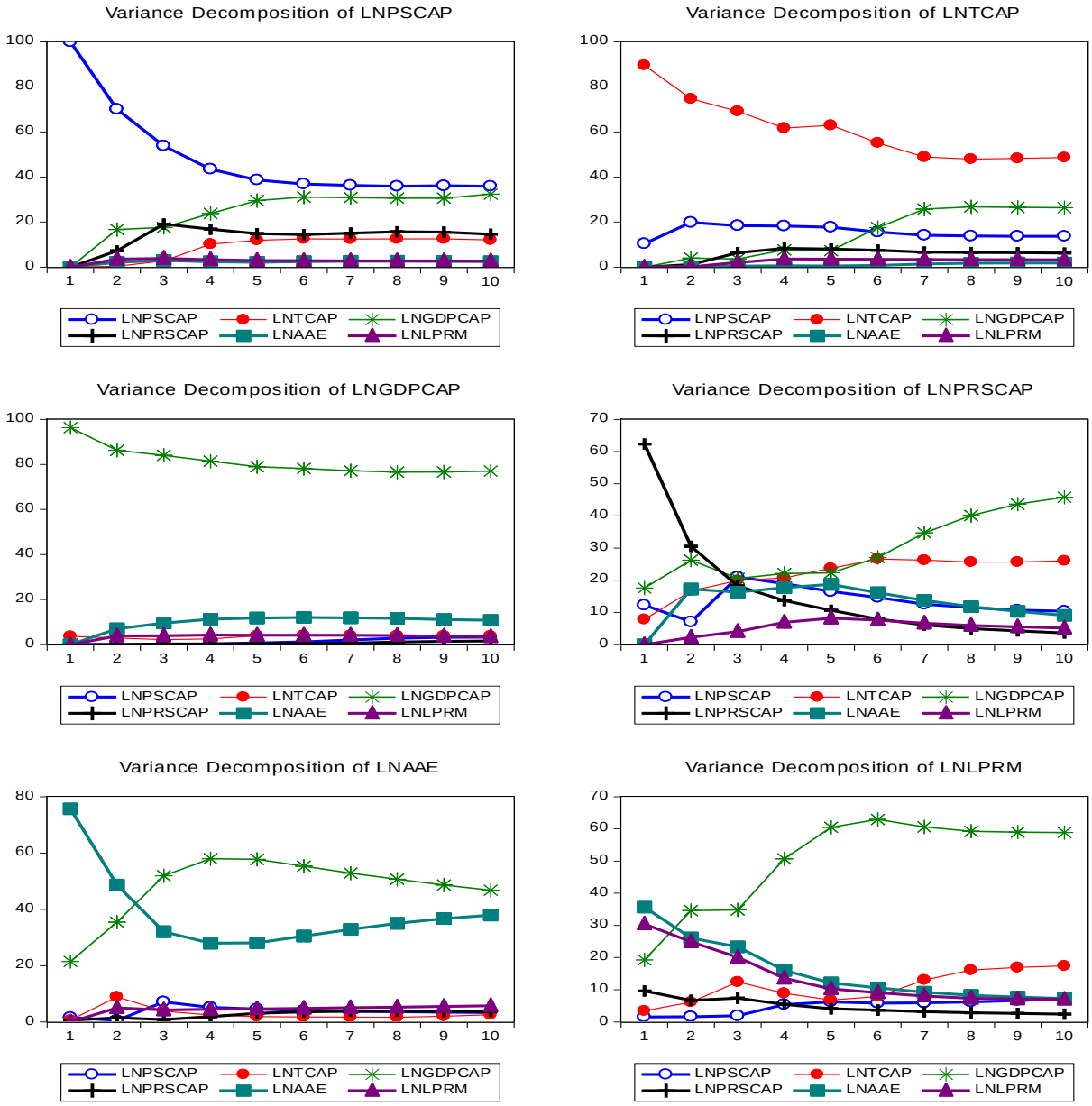
GERMANY (2)

Figure A6: Germany –Impulse Responses



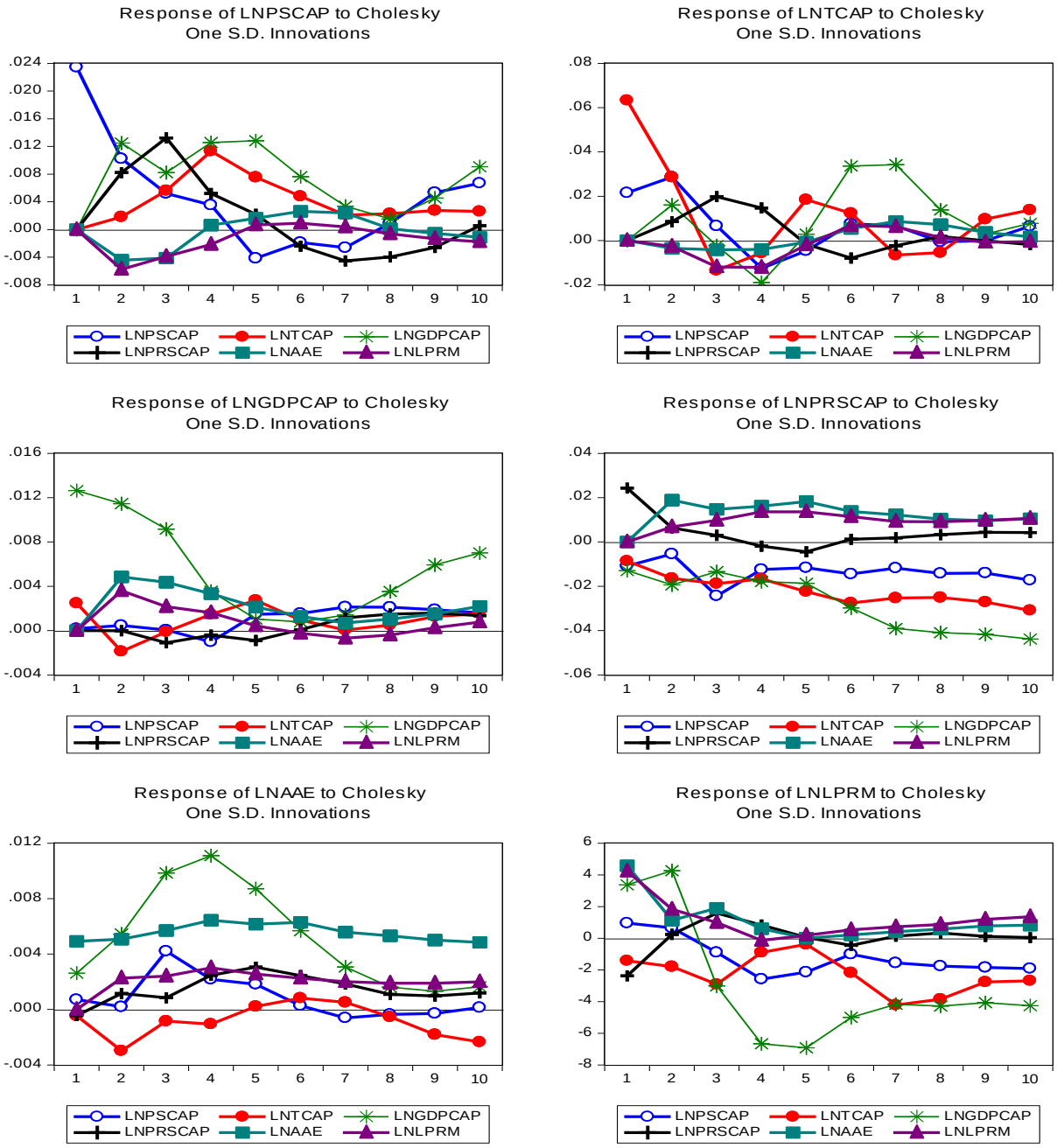
THE NETHERLANDS (1)

Figure A7: Netherlands – Variance Decomposition



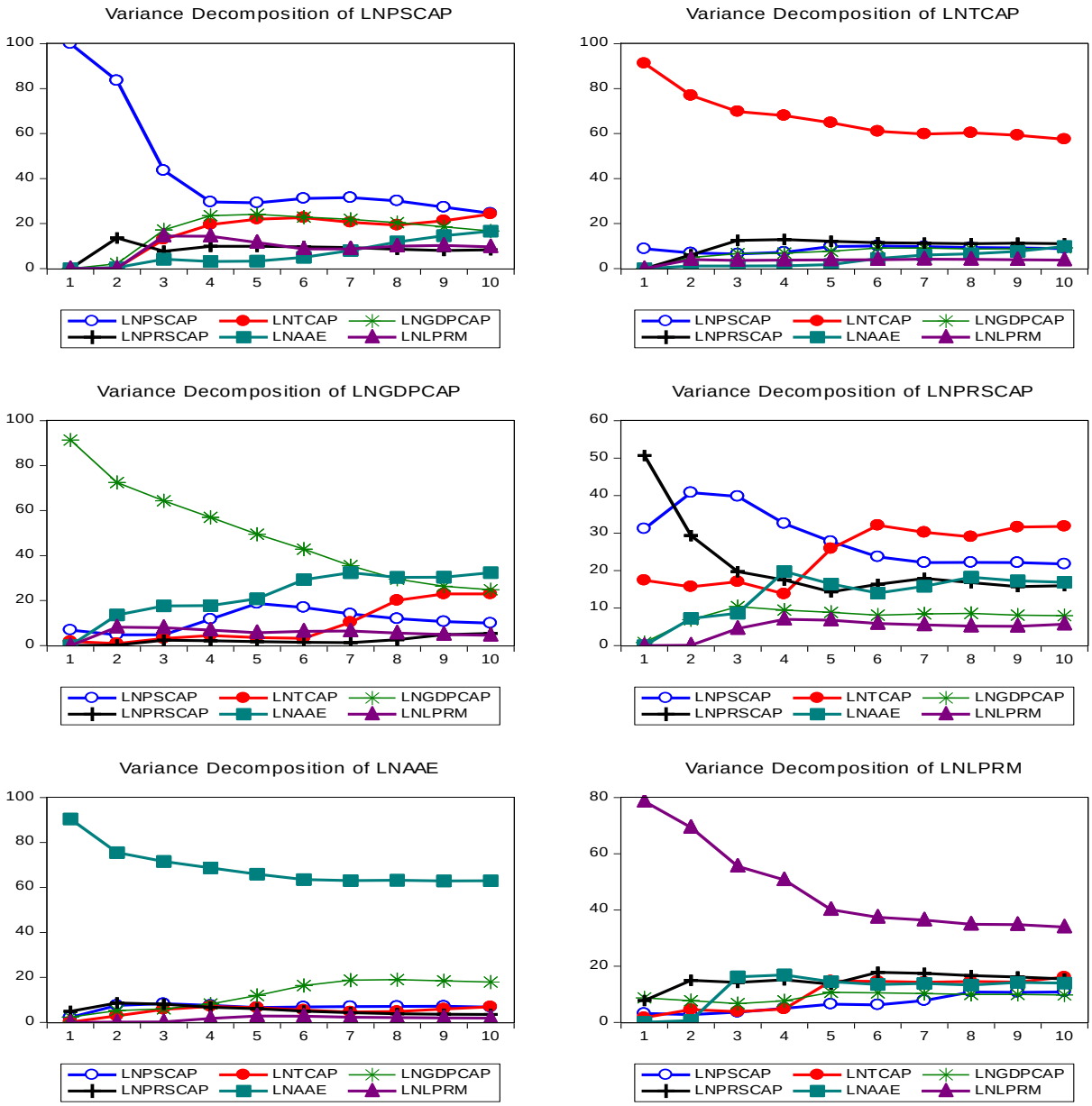
THE NETHERLANDS (2)

Figure A8: Netherlands – Impulse Responses



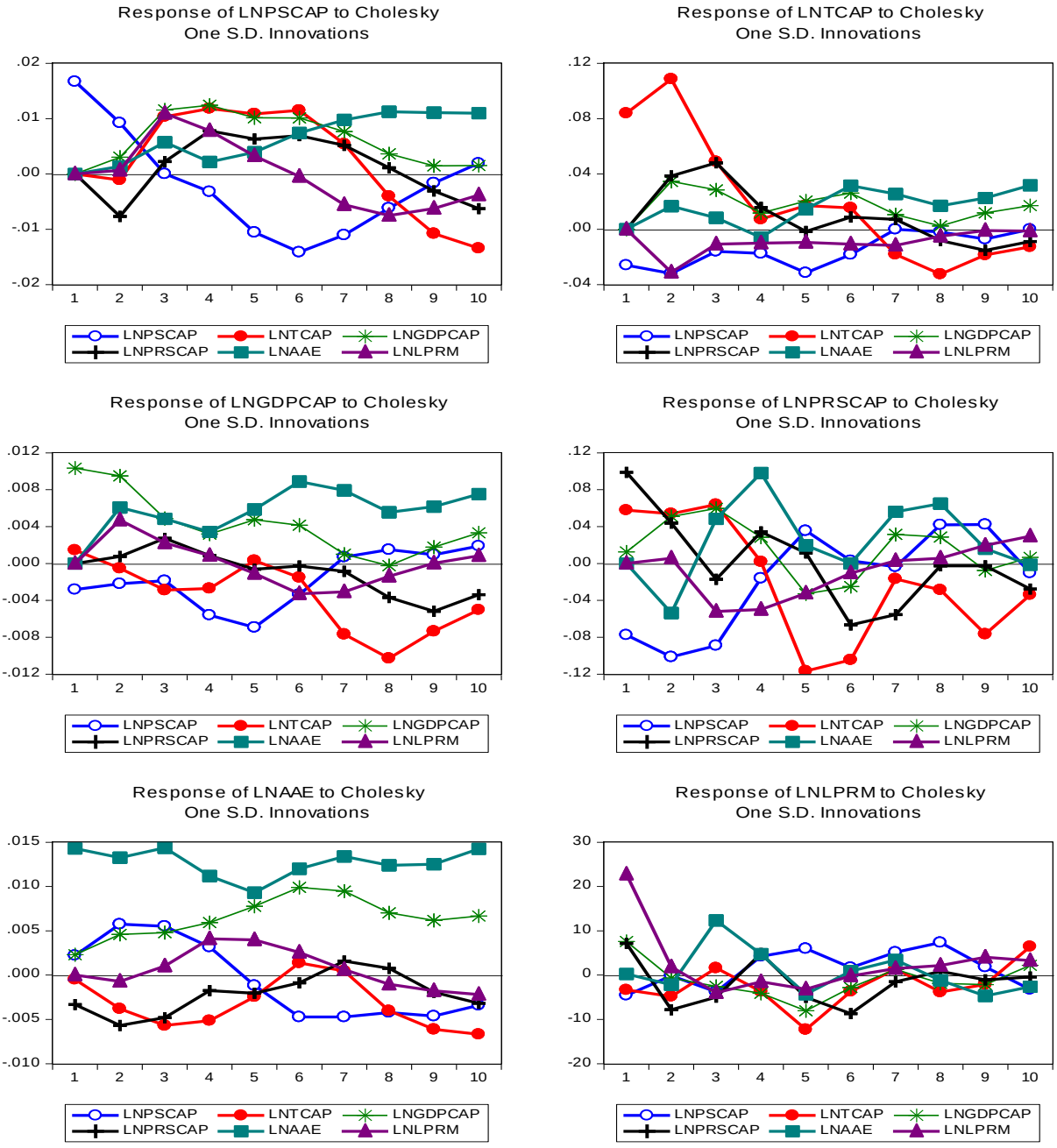
SPAIN (1)

Figure A9: Spain – Variance Decomposition



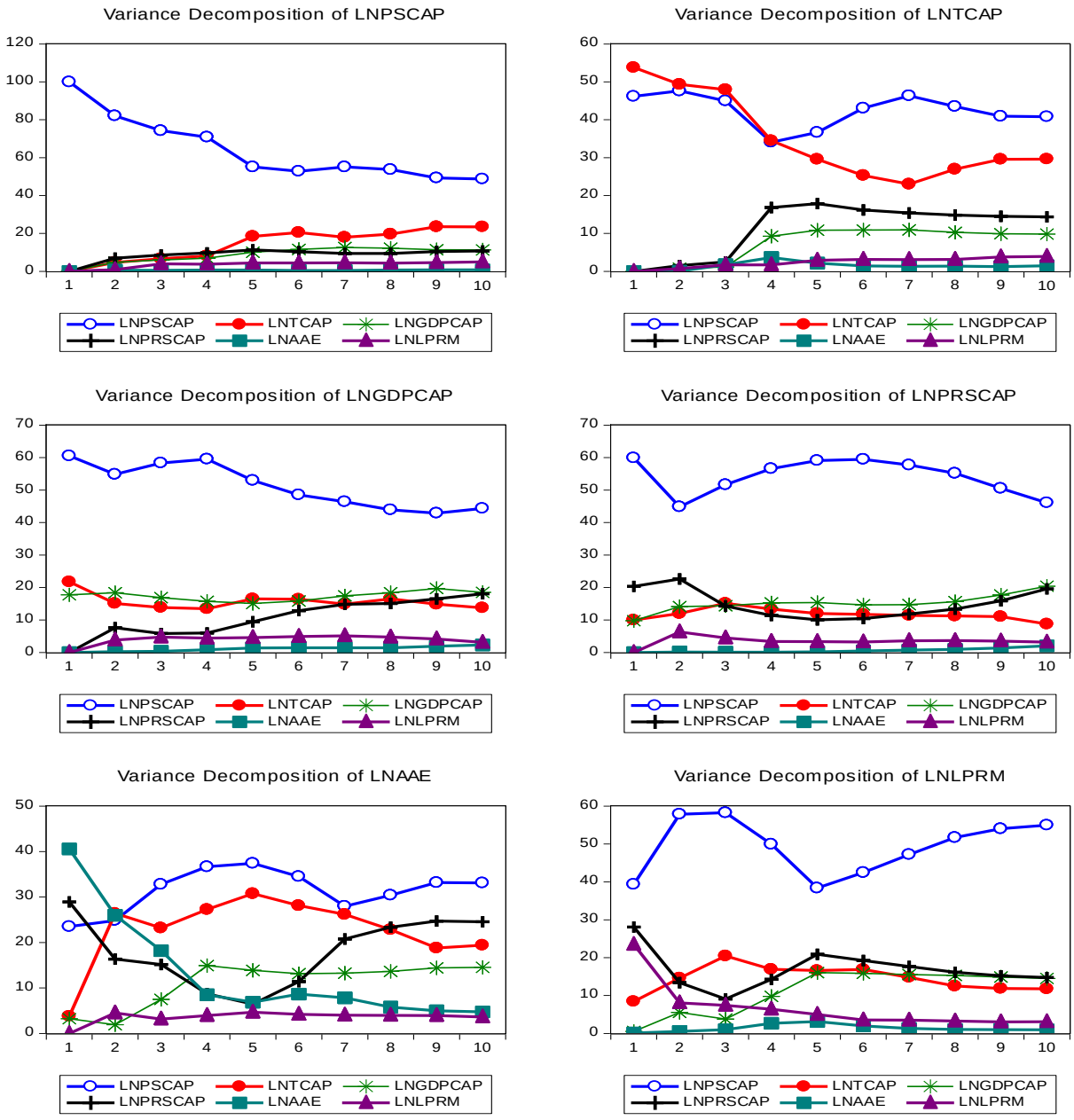
SPAIN (2)

Figure A10: Spain – Impulse Responses



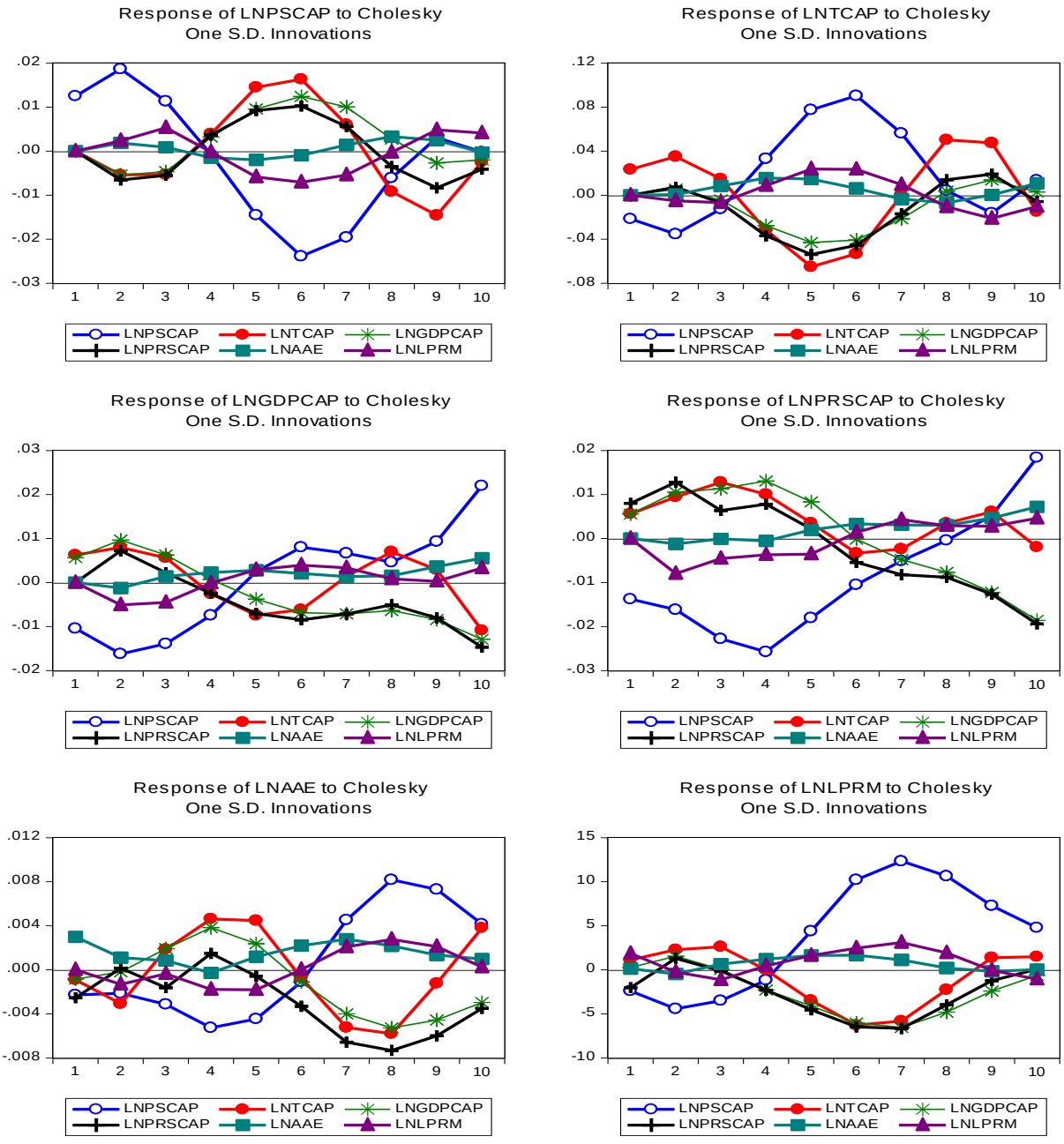
UNITED STATES (1)

Figure A11: United States – Variance Decomposition



UNITED STATES (2)

Figure A12: United States – Impulse Responses What kind of response (positive or negative) does a standard deviation innovation in the endogenous variable (column) cause over a horizon of 10 years?



What kind of response (positive or negative) does a standard deviation innovation in the endogenous variable (column) cause over a horizon of 10 years?

Do endogenous variables (column) explain more than 20 per cent of the variability in each AR variable (row)?

Table A1: OECD SVAR(2) model results, impulse responses and strongly significant variance decomposition.

Country	Impulse Responses	**LNPSCAP**	**LNTCAP**	**LNGDPCAP**	**LNPRSCAP**	**LNAAE**	**LNLPRM**
	LNPSCAP	Pos	Pos/Neg*	Pos	Pos/Neg*	Neg (0)	0
	LNTCAP	Pos**	Pos/Neg	Pos (0)	Neg*	Neg	Neg
Canada	**LNGDPCAP**	Pos*	Neg*	Pos	Neg**	Neg	Neg
	LNPRSCAP	Pos/Neg**	0 (Pos)	Neg	Pos	Pos	Pos
	LNAAE	Pos/Neg**	Pos*	Neg (0)	Pos*	Pos (0)	0
	LNLPRM	Neg/Pos*	Pos/Neg*	Pos	Pos/Neg**	Neg*	Pos/Neg
	LNPSCAP	Pos/Neg	Neg/Pos	Pos/Neg (Neg/Pos)	Neg	Neg/Pos*	Pos/Neg
	LNTCAP	Neg/Pos*	Pos/Neg	Pos (Pos/Neg)	Pos	Pos/Neg*	Neg/Pos
Germany	**LNGDPCAP**	Neg/Pos*	Pos/Neg*	Pos/Neg	Pos*	Pos	Neg
	LNPRSCAP	Pos/Neg*	0 (Pos)	Neg	Pos/Neg	Neg/Pos*	Pos/Neg
	LNAAE	Neg*	Pos	Pos*	Pos	Pos	Pos (0)
	LNLPRM	Pos/Neg/Pos*	Neg/Pos (Pos/Neg)	Neg/Pos*	Neg/Pos	Neg/Pos*	Pos/Neg
	LNPSCAP	Pos/Neg (Pos)	Pos	Pos*	Pos/Neg*	0	Neg
	LNTCAP	Pos	Pos*	Pos	Pos/Neg	0	0
Netherlands	**LNGDPCAP**	0	Pos (Neg/Pos)	Pos	0	Pos	Pos
	LNPRSCAP	Neg*	Neg*	Neg**	Pos	Pos*	Pos
	LNAAE	Pos	Neg	Pos**	Pos	Pos	Pos
	LNLPRM	Neg	Neg	Pos/Neg**	Neg/Pos (Pos)	Pos*	Pos
	LNPSCAP	Pos	Pos	Neg/Pos*	Pos*	Neg (Pos/Neg)	Pos*
	LNTCAP	Neg/Pos*	Pos/Neg	Pos (Neg/Pos)	Neg	Pos*(Neg/Pos)	Neg

Country	Impulse Responses	LNPSCAP	LNTCAP	LNGDPCAP	LNPRSCAP	LNAAE	LNLPRM
France	**LNGDPCAP**	Pos	Neg	Pos/Neg	Pos/Neg	Pos	Neg
	LNPRSCAP	Neg*	Pos*	Pos	Pos	Neg	Pos
	LNAAE	Pos	Neg*	Pos	Neg*	Pos	Neg*
	LNLPRM	Pos/Neg*	Pos	Neg	Pos*	Neg*	Pos
	LNPSCAP	Pos/Neg	Pos/Neg*	Pos*	Neg/Pos	Pos	Pos/Neg
	LNTCAP	Neg	Pos/Neg	Pos	Pos	Pos	Neg
Spain	**LNGDPCAP**	Neg	Neg*	Pos	Neg	Pos*	0
	LNPRSCAP	Neg/Pos*	Pos/Neg*	Pos (Pos/Neg)	Pos/Neg	Neg/Pos* (Pos)	Neg
	LNAAE	Neg (Pos/Neg)	Neg	Pos*	Neg	Pos	Pos
	LNLPRM	Pos	Neg	Neg	Pos/Neg	Pos	Pos
	LNPSCAP	Pos/Neg	Neg/Pos/Neg*	Neg/Pos (Neg/Pos/Neg)	Neg/Pos/Neg (Pos/Neg)	0	0
	LNTCAP	Neg/Pos*	Pos/Neg/Pos	Neg (Pos/Neg/Pos)	Neg	0	0
US	**LNGDPCAP**	Neg/Pos**(Neg/Pos/Neg)	Pos/Neg*(Neg/Pos)	Pos/Neg (Pos/Neg/Pos)	Pos/Neg*(Neg)	0 (Pos)	0 (Neg/Pos/Neg)
	LNPRSCAP	Neg/Pos**	Pos	Pos	Pos/Neg	0	0
	LNAAE	Neg/Pos*	Pos/Neg*	Pos/Neg	Neg*	Pos	0
	LNLPRM	Neg/Pos**	Pos/Neg*	Neg (Pos/Neg)	Neg*	Pos	Pos

(*) At least 20% of the variation in the AR variable is explained by this endogenous variable.

(**) At least 50% of the variation in the AR variable is explained by this endogenous variable.

Information in brackets are impulse responses from the SVAR(2) specification where LNGDPCAP is ordered first. This is for robustness purposes.