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The Transmission of Banking Crises to Households

Lessons from the 2008–2011 Crises in the ECA Region

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Abstract

This paper examines the impact of the recent banking crises in Europe and Central Asia on households' incomes and consumption patterns. The analysis is based on the 2010 wave of the *Life in Transition Survey,* which covers 12,704 households in eleven countries that experienced a banking crisis between 2008 and 2011. It finds that households in middle-income crisis countries are more than twice as likely to be hit by an income shock as households in high-income crisis countries. The labor market channel is the predominant source of income shocks, with wage reductions more widespread than job-losses. In reaction to income shocks, households reallocate spending from non-essential goods to staple foods. Reductions in staple-food consumption are, however, prevalent among low-income households. The paper examines potential crisis mitigators and finds that at the macro level a flexible monetary regime is associated with fewer cutbacks in household consumption. At the meso level, it finds no evidence that foreign bank ownership amplified the transmission of banking crises to households in Europe. With respect to micro-level mitigators, the analysis finds that diversified income sources as well as stocks of non-financial and financial assets help households to cushion income shocks. Access to informal and formal credit also mitigates the impact of income shocks on household consumption, with the former especially important in middle-income countries.

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The Transmission of Banking Crises to Households: Lessons from the 2008-2011 Crises in the ECA Region

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1 Introduction

This paper examines to what extent and through which channels the recent banking crises in Europe and Central Asia may have impacted on households' incomes and consumption patterns. The paper also examines how the transmission of the banking crises to households has been mitigated or amplified at the macro level by different monetary regimes and at the meso level by differences in bank-ownership structure across countries. In terms of micro-level mitigators, we examine to what extent the portfolio of economic activities, household assets and liabilities as well as access to formal and informal credit enable households to cushion the impact of crises on their consumption.

Laeven and Valencia (2012) define banking crises as incidences of significant signs of distress in the banking sector, i.e. bank runs, losses by banks or bank liquidations. A banking crisis is classified as systemic if significant policy interventions are taken in response to the distress in the sector; i.e. liquidity support, bank restricting, bank nationalizations, guarantees of bank liabilities, asset purchases or deposit freezes/ bank holidays. Over the period 1970-2011 they identify 147 banking crises in 116 countries. Hereby, banking crises have occurred more commonly in high-income and upper-middle-income economies (91 crises) than in low-income and lower-middle-income countries (56 crises).

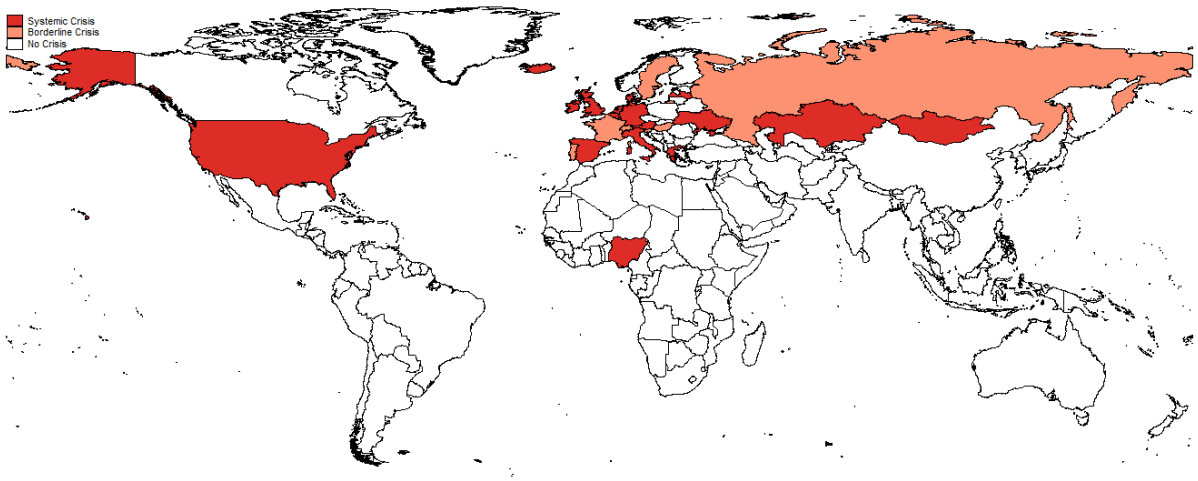
Banking crises sometimes - but by far not always – coincide with a currency crisis or a sovereign debt crisis. Laeven and Valencia (2012) document that only 48 of the 147 identified banking crises occur together with a currency crisis and/or sovereign debt crisis.[1] Moreover, only 19 of the 66 sovereign debt crisis identified between 1970 and 2011 occur together with a banking crisis, while only 36 of the 210 currency crises coincide with a banking crisis. In those instances where twin or triplet crises have taken place the sequencing of the crises varies: Banking crises are more likely to precede than follow a sovereign debt crisis, while they are equally likely to be preceded by or followed by a currency crisis.

The impact of banking crises at the aggregate level differs strongly between advanced, emerging and developing economies. Banking crises are hardly associated with a loss in real output (1.6% of GDP on average) in low-income countries, most likely due to the low penetration of the financial sector, By contrast, in high-income economies (37% of GDP) and middle-income economies (26% of GDP) the average loss of output is substantial.

[1] A currency crisis is defined according to Frankel and Rose (1996) as a depreciation of the local currency which exceeds 30% and exceeds the past years depreciation by 10 percentage points. Laeven and Valencia (2012) draw on various sources to identify sovereign debt crises. See Reinhart and Rogoff (2011) for a discussion of the relation between financial crises and debt crises.

The policy response to banking crises has differed only slightly between high-income and middle-income economies. Bank recapitalizations, liquidity support and guarantees on bank liabilities are standard responses, while bank nationalizations and deposit freezes are much less common. With respect to macroeconomic responses, expansionary monetary and fiscal policy are common in high-income economies, but less so in middle-income economies.

Figure 1. Banking crises, 2008-2011



Data source: Laeven & Valencia (2012)

The most recent wave of banking crises has been concentrated in the Europe and Central Asia (ECA) region.[2] As documented by Figure 1, the USA, Nigeria and Mongolia are the only non-ECA countries for which Laeven and Valencia (2012) identify a banking crisis between 2007 and 2011. Of the 22 ECA countries which recently experienced a banking crisis 16 are high-income countries in Western Europe, while six are middle-income countries in Eastern Europe / Central Asia.

Table 1 shows that on average the economic impact of the recent wave of crises was identical in the high-income economies of Western Europe to the middle-income countries of Eastern Europe and Central Asia: For both regions Laeven and Valencia (2012) estimate an average output loss of 32% of GDP. However, both regions display substantial cross-country variation in output loss ranging from no loss in Switzerland and Russia to a loss exceeding 100% of GDP in Ireland and Latvia. The policy

[2] Throughout the paper we will refer to the "ECA region" as Europe and Central Asian countries including the high-income Western European Countries.

response to the recent wave of banking crises mirrors that of previous ones: Laeven and Valencia (2012) document that most countries provided significant funds for bank recapitalization, liquidity support as well as guarantees on bank liabilities, while bank nationalizations were less common.

Table 1. Banking Crises in the ECA region 2008 - 2011

Country	Output Loss	Fiscal Costs	Liquidity Support	Peak NPLs	Increase in Public Debt
Austria	14	5	8	3	15
Belgium	19	6	14	3	19
Denmark	36	3	11	5	25
France	23	1	7	4	17
Germany	11	2	4	4	18
Greece	43	27	42	15	45
Iceland	43	44	17	61	72
Ireland	106	41	16	13	73
Italy	32	0	6	11	9
Luxembourg	36	8	4	1	15
Netherlands	23	13	4	3	27
Portugal	37	0	17	7	34
Spain	39	4	6	6	31
Sweden	25	1	13	2	11
Switzerland	0	1	3	1	0
United Kingdom	25	9	6	4	24
Western Europe	32	10	11	9	27
Hungary	40	3	1	13	0
Kazakhstan	4	5.5	31.9	9.1	3.3
Latvia	106	6	3	16	28
Russia	0	2.3	23.9	9.6	6.4
Slovenia	38	4	10	12	18
Ukraine	2	4.5	9.2	15.5	28.9
Eastern Europe / Central Asia	32	5	13	12	16

Source: Laeven and Valencia (2012) and LiTS. *Output loss:* Cumulative sum of the differences between actual and trend real GDP over the period [T,T+3], expressed as a percentage of trend real GDP, with T the starting year of the crisis. *Fiscal costs:* Fiscal costs are defined as the component of gross fiscal outlays related to the restructuring of the financial sector in percent of GDP. They include fiscal costs associated with bank recapitalizations but exclude asset purchases and direct liquidity assistance from the treasury. Liquidity support: is measured as the ratio of central bank claims on deposit money banks and liquidity support from the Treasury to total deposits and liabilities to non-residents (in%). Peak Non Performing Loans (NPL) are measured in percentage of outstanding private sector credit. *Increase in Public Debt:* is computed as the difference between pre- and post-crisis debt projections (in % GDP). See Laeven & Valencia (2008, 2012) for detailed definitions and sources.

Our analysis is based on cross-sectional household-level data taken from the 2010 wave of the *Life in Transition Survey*. The 2010 LiTS survey covers eleven of the 22 countries in Europe and Central Asia which experienced a banking crisis between 2008 and 2011. Among these countries are five high-income countries from Western Europe and six middle-income countries from Eastern Europe / Central Asia. In each of these countries the survey covered between 900 and 1,583 households. We assess the impact of the crises on households using available indicators on changes in household income, consumption, education expenditures and health expenditures during 2008/2009. The advantage of the LiTS data is that it provides us with comparable data on the impact of the recent crises for a representative sample of households in a large number of countries. However, the cross-sectional nature of the data limits the extent to which the correlations observed in the data may be interpreted as causal relationships. Thus, the results presented in the paper should be interpreted with caution.

In line with studies of financial crises in the 1990s our analysis shows that the impact of the recent banking crises on households occurred mainly through the labor market channel, and mainly through reduced wage income as opposed to job losses. Income reductions were more significant in the middle-income countries of Eastern Europe than in the high-income countries of Western Europe, leading to a more significant reduction in basic consumption. In Eastern Europe, urban and high-income households were more likely to experience income shocks, but seem to have smoothed these out through a reduction in non-essential consumption. In the West, rural households seem to have been hit harder by the crises than urban households.

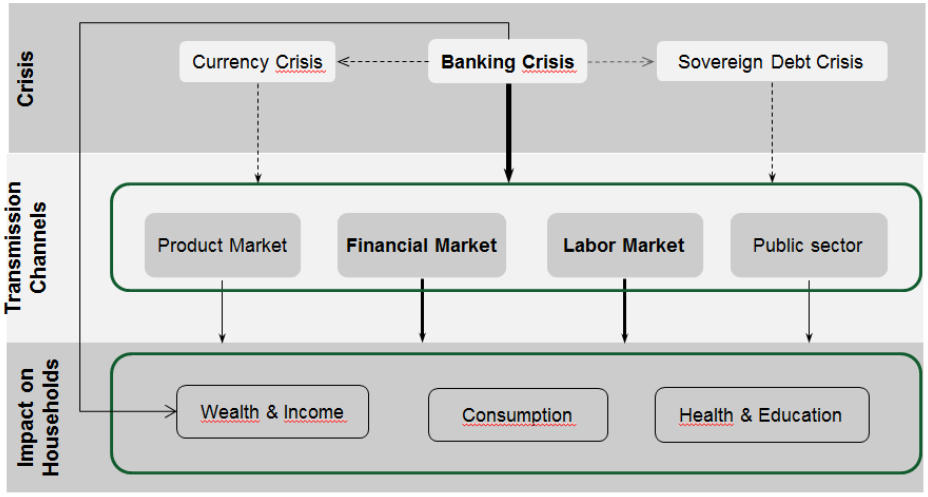
We contribute to the literature by examining potential macro-level, meso-level and micro-level mitigators of the impact of banking crises on households. At the macro level, our analysis suggests that a flexible monetary regime may have mitigated the impact of banking crises on households: Households which were hit by an income shock were less likely to cut back on consumption in those countries which had an independent monetary policy and a floating currency than in countries which are part of a currency union or have pegged currencies. At the meso level, we find that foreign bank ownership does not seem to have amplified the crisis impact on households. In line with evidence from previous crises our analysis suggests that at the micro level, the diversification of household income, access to informal and formal credit as well as the build-up of a stock of non-financial assets are important stabilizers of household specific income shocks. The importance of income diversification and non-financial assets is similar in high-income and middle-income economies, while access to informal credit is an important stabilizer only in middle-income countries.

The rest of the paper is organized as follows: Section 2 discusses the main transmission mechanisms through which banking crises may affect households and reviews the microeconomic evidence which studies these transmission channels. Section 3 documents the impact of the recent crises in the ECA region on household income, consumption, health and education, providing separate estimates by income group and for rural vs. urban households. Section 4 examines macro-level, meso-level and micro-level mitigators of shocks to households in crisis countries.

2 The Transmission of Banking Crises to Households

Figure 2 illustrates the main channels through which financial crises may impact on households as laid out in World Bank (2010, 2011, 2012). Households may be impacted directly through a reduction in wealth if losses are imposed on bank creditors, e.g. depositors or bondholders. However, this direct impact is likely to be limited given the prevalence of explicit and implicit depositor insurance around the world (Demirgüc Kunt et al. 2005). The direct impact of banking crises through wealth losses is likely to be very limited among low-income households in developing and emerging economies due to their limited financial sector participation (Beck and Brown 2012). The majority of households are more likely to be impacted indirectly through the labor market (wage and job cuts induced by a credit crunch) or the credit market (credit rationing, higher lending rates). A banking crisis may also impact households through the product market or the public sector if it coincides with a currency and/ or sovereign debt crisis. In the following we describe each of these channels and review empirical evidence on their relative importance.

Figure 2. The Impact of Banking Crises on Households: Transmission Channels



2.1 The Labor Market Channel

The primary channel through which banking crises are likely to impact households is through the labor market – as the result of a credit crunch in the corporate sector. Credit losses and losses on non-loan assets erode bank capital limiting their provision of credit to the firms. The extension of credit may further be constrained as the availability of funding dries up or the cost of funding increases when wholesale and retail creditors exert market discipline on banks (Martinez Peria and Schmukler, 2001).[3]

Whether the reduced lending by some banks may lead to a widespread credit crunch in the corporate sector depends on firms' banking relationships. Even a reduction in lending by large, systemically important banks may not lead to a credit crunch if firms can replace this funding with loans from other banks.[4] Firms are most likely to be insulated from lending stops by specific banks when they maintain multiple bank relationships (Gobbi and Sette 2012). As suggested by the literature on the financial accelerator and the credit channel of monetary policy see e.g. Bernanke and Gertler 1995) the impact of banking crises on access to credit will strongly depend on the firms balance sheets as well: Those firms and sectors with strong equity positions are less likely to be constrained, while firms or sectors which experience a deterioration of their balance sheets in the crisis are mostly likely to be hit by a credit crunch (Jimenez et al. 2012).

A credit crunch in the corporate sector can trigger a reduction in production and investment, leading to reduced employment and wages. Evidence from financial crises in the 1990's suggests that credit crunches are most likely to affect labor demand in the construction and manufacturing sectors (Fallon & Lucas 2002). When banking crises lead to currency crises they further lead to sectoral changes in labor demand: Employment in export-orientated sectors (e.g. commodities, agriculture) are boosted, while labor demand in manufacturing sectors that rely on imported inputs decreases. Evidence from Indonesia during the East Asian Crisis shows, for example, that agricultural employment rose by 13% in 1998 while employment in the manufacturing sector fell by 10%. Fallon and Lucas (2002) report similar sectoral shifts in employment for Korea, Malaysia and Thailand during that period.

[3] Han and Melecky (2013) show that bank's access to deposit funding in crisis times may depend on the degree of financial inclusion in a country. They show that countries with a broader use of deposit accounts experienced a weaker slowdown in deposit growth between 2006 and 2010.

[4] Alternatively, capital market funding or trade credit may cushion a bank-credit crunch on the corporate sector. De Haas and Van Horen (2013) document that financial crises are associated with a sudden stop in cross-border syndicated lending to large enterprises in emerging markets. This suggests that commercial (international) financial markets may hardly provide emergency funding to firms hit by domestic credit crunches. Garcia-Appendini and Montirol-Garriga (2013) show that trade credit replaced bank-credit as a source of liquidity for large US firms during the Great Recession.

Which types of households are most likely to be affected by the change in labor demand arising from banking crises? The cutback in employment in the construction sector seems to be particularly relevant for poor households in the urban areas (Corbacho et al. 2003). At the same time the potential increase in labor demand in the agricultural sector would seem to benefit the rural poor (Smith et al. 2002).

Credit crunches in the formal banking sector may affect self-employed households in the agricultural and non-agricultural sectors as well. However, this channel is arguably less important for self-employed households in emerging and developing economies. These households strongly rely on family and friends, informal credit and trade credit rather than credit from the formal banking sector for working capital and investment purposes (Brown et al. 2011).[5] Indeed, family business may absorb workers displaced from the formal labor market as a consequence of banking crises. Evidence from the East Asian crises and the Tequilla crisis shows a strong migration of labor from wage employment to employment in family businesses (Fallon and Lucas 2002).

2.2 The Financial Market Channel

The second main channel through which banking crises may affect households is through the availability and price of financial services. Households' abilities to smooth consumption over their lifecycle (or over a year) and especially their ability to cushion income shocks rely strongly on their access to both savings and credit (Attanasio & Weber 2010). As with corporate credit, losses on assets, higher funding costs and scarce capital may lead banks to reduce the volume and increase the price of household credit, i.e. mortgages and consumer loans. Mortgage lending may be especially subject to a credit crunch when a banking crisis coincides with a real-estate crisis as recently experienced in Ireland, Spain or the US.

When coupled with a currency crisis, a banking crisis may lead to a substantial increase in household financial liabilities and thus a reduction of net wealth. In many emerging and developing countries household loans (and deposits) are largely denominated in foreign currency. Recent evidence suggests that 38% of household loans in Emerging Europe are denominated in foreign currency (Brown & De Haas 2012) while 24% of households hold foreign currency deposits (Fidrmuc et al. 2011). In economies with substantial financial "dollarization" a depreciation of the local currency leads to an increase in the local currency equivalent of loans, decreasing the wealth of net borrowers

[5] Self-employed households may be indirectly hit by a credit crunch through a drying up of trade-credit if their (larger) suppliers find it more difficult to access bank credit.

in foreign currency and increasing the local currency amount of loan installments. (Dvorsky et al. 2010).

To what extent may a credit crunch in the household credit market or a reevaluation of existing household debt affect poor households in emerging and developing economies? Existing evidence suggests that the prevalence of household credit is still very limited. At the aggregate level Buyukkarabcak and Valev (2010) show that the ratio of household credit to GDP in upper-middle-income (lower-middle-income) countries is 15% (7%) compared to 43% in high-income countries. Beck and Brown (2012) show that only 9% of households in Eastern Europe and Central Asia have a mortgage, while only 22% use a credit card. Hereby, the use of bank credit is strongly correlated with household income, formal employment and higher education. Thus it is very unlikely that a reduction in the provision of mortgage and consumer credit by banks will affect a substantial share of households in developing and emerging economies.

While a household credit crunch in the banking sector is unlikely to have a major impact on poor households, a restructuring of the banking sector itself may affect the access of households to savings and payment services. Banking crisis often lead to a strong concentration of the banking sector. For example, as a consequence of the Savings and Loans Crisis a third of the savings banks in the US were closed.[6] This restructuring of the banking sector may reduce the physical access to banking services, especially for the rural, low-income population.[7]

2.3 The Product Market and Public Sector Channels

When followed by a currency crisis or a sovereign debt crisis a banking crisis can indirectly affect the relative prices of consumption goods which households use as well as their access to public services and safety networks.

A substantial depreciation of the local currency raises the relative price of imported goods and domestically produced tradable goods. In emerging and developing countries the increase in prices of imported goods is most likely to affect the middle class as especially durable consumption goods (vehicles, electric and electronic devices) are imported. However, the rise in the price of tradable domestic goods may also impact strongly on low-income households, as the prices of staple goods goes up (e.g. rice, maize). The rise in prices of staple goods is likely to have a stronger impact on

[6] See Curry and Shibut (2000) for a discussion of the S&L crisis.
[7] See Brown et al. 2012 for theory and evidence on how the location of bank branches affects access to finance for low-income households.

urban households than rural households, as the latter benefit from the corresponding increase in income (Fallon & Lucas, 2002).

Banking crises typically raise government debt due to the direct costs of financial sector bail outs (e.g. as in the case of Ireland in 2009). At the same time, banking crises reduce tax revenues through a fall in real economic activity. Increases in government debt and a tightening of the current fiscal budget may lead to a reduction in the provision of public services, such as health, education or transport, impacting on households which rely on those services. Evidence from financial crises in the 1990s shows that public expenditure on health and education in the East Asian economies (Indonesia, Korea, Malaysia, Thailand) fell in absolute terms. In Mexico, expenditure on health fell by 16 percent and expenditure on education fell by 10% between 1994 and 1996 as a result of the Tequilla crisis. A tightening of government budget constraints may also reduce public spending on social safety nets leading to lower coverage or reduced benefits at a time when reduced employment puts stronger pressure on these safety nets. The experience of emerging economies in the 1990s shows that the response of social safety net expenditures to financial crises may vary substantially. While Mexico cut social spending significantly in response to the Tequilla crisis, Indonesia and Korea increased spending on social security programs during the East Asian crisis.

2.4 The Impact of Crises on Household Income, Consumption, Health and Education

What do we know about the impact of banking crises on households, especially in emerging economies? In this section we briefly review the evidence on how households were hit by the crises in Latin America, East Asia and Russia during the 1990's. We hereby focus on changes in household income, consumption, health and education.

McKenzie (2006) uses repeated cross-sectional household data from the period 1992-1998 to examine the impact of the **1994 crisis in Mexico** (Tequilla crisis or Peso crisis) on household income and consumption patterns. His study shows that average real household income fell by 23% between 1994 and 1996, coupled with a relative price increase for staple food items. The rural poor seem to have been much less affected by the crisis than the richer, urban population. On average households cut back much more in durable consumption goods (-27%) than on basic food expenditures (-9%), so that the share of income spent on food, and in particular staple goods rose during the crisis. The share of income spent on health services was reduced during the crisis, especially among the poor. By contrast, spending on education increased during the crisis for all income groups. McKenzie (2006) suggests that the reallocation of spending from durable goods and health to basic food items was at

least partly driven by liquidity constraints: Households depleted their stocks of durable goods in order to free up resources for essential consumption.

Corbacho et al. (2003) use panel data constructed from urban household surveys to examine the impact of the **1999-2002 Argentinian crisis**, which included a freeze on bank deposits in 2001. Their analysis shows that households experienced a substantial decline in per capita income between 1999 and 2002 with a particularly strong decline in 2001/2002 (-28%). Contrary to the Mexican crisis, the poor were much stronger hit by this fall in income than the rich. The labor market channel seems to have played a key role, with higher unemployment among low-educated households, especially those which were active in the construction sector.

Smith et al. (2002) use data from income and employment surveys as well household panel data to examine the impact of the **1998 crisis in Indonesia** which was ignited by the collapse of the Rupiah in January 1998**.** Their analysis shows that also in this crisis households were strongly impacted through the labor market channel. Aggregated employment saw only a small decline, albeit with a significant reallocation of labor from the wage-sector to the self-employment sector. Falling real wages due to spiraling inflation were the main source of income shocks for households. This fall in wages (by roughly 40% between 1997 and 1998) seems to have affected rural and urban households similarly as well as households across all income and education groups. By contrast the wages of self-employed males in the rural areas declined much less than in the urban areas, most probably due to the relative price increase of agricultural products (product market channel). Family-level incomes fell much less in rural areas than in urban areas, while incomes declined more for poor households as more of their family members transitioned from paid jobs to unpaid family labor.

Goh et al. (2005) examine the impact of the **1997/1998 crisis in Korea** on household income and consumption.[8] They show that real household income decreased on average by 24% between 1997 and 1998, while household expenditure fell even more (-29%). Households reacted to the crisis by strongly cutting expenditure on non-essential goods (-69%). Spending on food, clothing and housing as well as on health and education was also cut, but by a much smaller degree. Rural households and poor households seem to have been more vulnerable to the crisis; reducing essential spending more than urban and high-income households. The authors further show that prior to the crisis Korean households used formal and informal credit to smooth long-term income patterns. During the crisis the access to formal credit seems to have dried up (credit channel), while informal credit helped households cushion income shocks.

[8] See also Kang and Sawada (2008)

Lokshin and Ravaillon (2000) examine the impact of the **1998 crisis in Russia** on household income and consumption using household panel data from 1996 and 1998.[9] This study also documents a strong labor market impact on households: average household income fell by 20% in real terms and the share of households below the poverty line rose from 22% to 33%. Earnings from the formal labor market declined strongly so that the share of salary earnings in total income fell from 41% to 36%. The share of household income originating from home production (16% to 20%) and government benefits (27% to 31%) rose during the crisis. Household expenditure fell stronger for households in urban areas than in rural areas. Lokshin and Ravaillon (2000) document that the response of the Russian social safety network – by targeting benefits more to the poor - substantially reduced the number of households which fell below the poverty line during the crisis. They also suggest that households also experienced substantial wealth losses due to the collapse of the banking system. However, they do not document which households were most hit by this wealth effect.

The above studies suggest that the main impact of banking crises on households runs through the labor market: Households face worse employment prospects and lower real wages, especially when the crisis coincides with a currency crisis and spiraling inflation. There is only limited evidence (from Korea) of a credit crunch on households in the crisis, reducing their ability to smooth income. The product market channel also seems to affect households when the crisis coincides with a currency crisis. However, as suggested in the previous section, rural households seem less affected by changes in relative prices than urban households. Finally, there seems to be no direct evidence that a cutback in public services or safety nets amplify the impact of banking crises on the poor. If anything, the evidence from Russia suggests that the public sector partly cushioned the impact of the 1998 financial crisis.

3 The Impact of Recent Banking Crises in the ECA Region

In this section we employ household-level data from the 2nd wave of the EBRD / World Bank *Life in Transition Survey* (LiTS) carried out in 2010 to examine the impact of the recent wave of banking crises in the ECA region.[10] As documented above, among the 25 countries which experienced a banking crisis during 2008-2011 22 countries are located in the ECA region. The 2010 LiTS survey covers eleven of these countries, including five high-income countries from Western Europe and six

[9] See also Lokshin & Yemtsov (2004)

[10] See Christelis et al. (2011) as well as Hurd and Rohwedder (2010) for an analysis of the impact of the crisis on US households.

middle-income countries from Eastern Europe / Central Asia. In each of these countries the survey covered between 900 and 1'583 households. We assess the impact of the crises on households using available indicators on changes in household income, consumption, education and health during 2008/2009. Table 2 provides an overview of the countries covered in this section. In order to benchmark the impact of the banking crises we compare changes in household well-being in countries that experienced a banking crisis to households in similar countries which did not experience a banking crisis (according to the classification of Laeven and Valencia 2012). The sample of non-crisis countries was selected to match the crisis countries based on per capita income and financial sector development prior to the crisis.

3.1 Data

The LiTS 2010 questionnaire provides a wide range of information on how households were impacted by the global financial crisis in 2008/2009 and how they responded to economic difficulties in the crisis. While the survey does not provide quantitative data on changes in real household income it does provide information on whether the household experienced an income shock. Each household indicated whether one or more household members lost their job (*Lost job*); working hours were reduced, wages were delayed, suspended or reduced (*Lower wages*); or whether remittances were reduced or family members returned home from abroad (*Less remittances*). If a household experienced any one of these three impacts we classify the household as having experienced an *Income shock*.

Table 3 provides an overview of the share of households hit by different income shocks by country. Data is reported separately for high-income crisis countries, middle-income crisis countries and non-crisis countries. The table shows that the share of households hit by a negative income shock was substantially higher in middle-income crisis countries (62%) than in high-income crisis countries. In both regions a reduction in wages is the most common income shock followed by job losses and lower remittances. These findings confirm those reported in World Bank (2011) which shows that many more households in the region experienced a decline in real wages compared to those who actually lost a job.

The share of households hit by an income shock, as well as the type of income shocks that households were hit by are almost identical in middle income crisis countries and non-crisis countries. This finding suggests that in Eastern Europe the observed income shocks to households

may be more related to real economic shocks as a result of the global economic crisis rather than domestic banking crises.

The LiTS survey provides qualitative information on how households responded to economic difficulties during the crisis. Households were asked whether they took any of 17 different measures as a response to the crisis. The survey elicits reduced consumption of *Staple foods* or *Other consumption* goods (alcohol, tobacco, luxury goods, use of a car, or vacation). With respect to *Health care*, households were asked whether they skipped a visit to the doctor; reduced medication or cancelled health insurance. With respect to *Education* households indicated whether they postponed or withdrew from university or a training course.[11]

Table 3 provides an overview of household responses to the crisis by country. The table displays the share of households which reduced the consumption of staple foods, reduced other consumption, reduced education or reduced health care. Overall, the table displays a picture similar to that painted in the studies reviewed in section 2.4: Households cut back strongly on non-essential consumption while the reduction in spending on staple foods is less pronounced. Reflecting the differences in income shocks and income levels the reduction in staple food consumption is much stronger in middle-income crisis countries (43%) and non-crisis countries (35%) compared to the high-income crisis countries (11%).

Households in middle-income crisis countries also experienced a much stronger cut-back in health expenditures (19%) than high-income crisis countries (6%). By contrast very few households reduced their educational activities in either sub-sample. Hereby it is important to note that the survey elicited only changes in higher education, i.e. university education and training courses. Previous evidence suggests that in economic crises households are less likely to reduce basic education than higher education (see e.g. Smith et al. 2002). Thus it is reasonable to assume that primary and secondary school enrollment in the ECA region was hardly affected by the recent banking crises. The fact that education was less affected by the crises than the use of health care suggests that the public-sector channel may have played a role in shaping the impact on households in Eastern Europe and Central Asia. A recent study by the World Bank (2011) suggests that governments in the region did cut back their spending on health more than their spending on education.

[11] Households were further asked whether they took one of seven other measures including delayed utility payments; delayed payments on loans, had utilities cut, cut TV, internet, and phone services, reduced help to friends; sold off assets or move to another premises.

Table 2. LiTS countries with a banking crisis in 2008-2011 and comparable countries without a banking crisis

Country	LiTS observations	Crisis Country	GDP per capita (2007, USD)	Currency regime (2008)	Credit to GDP (2007, %)	Foreign bank assets (2007, %)	GDP growth (percentage points)	Credit growth (percentage points)
Sweden	900	yes	33'259	Float	130.4	0.0	-6.7	0.7
United Kingdom	1'504	yes	29'771	Float	186.7	54.2	-5.6	15.4
Germany	1'042	yes	25'297	Union	124.7	6.5	-5.4	20.9
France	1'009	yes	23'516	Union	122.0	15.5	-3.9	-6.3
Italy	1'048	yes	20'291	Union	128.2	11.1	-5.3	-7.3
Slovenia	1'000	yes	13'378	Union	81.8	28.8	-8.6	-4.8
Latvia	1'007	yes	6'296	Peg	89.5	63.8	-22.4	-12.9
Hungary	1'053	yes	5'884	Float	75.7	64.2	-5.0	-7.7
Russia	1'583	yes	2'889	Peg	24.4	75.5	-10.0	7.0
Kazakhstan	999	yes	2'332	Peg	41.0	38.5	-8.3	-2.6
Ukraine	1'559	yes	1'126	Float	61.1	39.4	-14.1	-0.3
Slovakia	1'011	no	8'095	Peg	51.6	28.8	-9.1	-4.0
Czech Republic	1'007	no	7'868	Float	51.3	84.8	-7.3	-0.7
Estonia	1'002	no	7'072	Board	90.3	98.8	-18.0	-6.4
Croatia	1'006	no	6'652	Peg	71.6	90.4	-7.4	-1.7
Poland	1'616	no	5'932	Float	46.3	75.5	-3.2	6.3
Lithuania	1'011	no	5'839	Board	59.9	91.7	-14.9	-6.7
Turkey	1'004	no	5'324	Float	49.3	14	-7.7	10.1
Romania	1'078	no	2'596	Float	35.0	17.2	-6.3	2.3
Bulgaria	1'014	no	2'494	Board	55.6	82.3	-6.2	-1.4
Serbia	1'519	no	1'167	Float	31.7	99	-4.4	13.7

Sources: EBRD Life in Transition Survey, Laeven and Valencia (2012), EBRD Transition Indicators, World Development Indicators, IMF (2008). GDP per capital in 2007 is measured in USD at 2000 prices. The classification of currency regimes is taken from IMF (2008): we classify members of the euro-zone as currency-union countries. GDP growth during the crisis is measured as average GDP growth in 2008 and 2009 minus average growth in 2006 and 2007. Credit growth during the crisis is measured as the increase in Credit to GDP between 2007 and 2009 (in percentage points) minus the corresponding change between 2005 and 2007.

Table 3. Household Income, Consumption, Health and Education by country

Country	Income shock	Lost job	Lower wages	Less remittances	Staple foods	Other consumption	Health care	Education
France	0.36	0.12	0.28	0.04	0.13	0.60	0.07	0.02
Germany	0.35	0.08	0.17	0.12	0.08	0.42	0.06	0.02
Italy	0.58	0.13	0.46	0.00	0.19	0.84	0.09	0.04
Sweden	0.17	0.05	0.11	0.03	0.04	0.25	0.03	0.01
United Kingdom	0.36	0.13	0.21	0.10	0.10	0.46	0.05	0.04
Crisis, High income	0.37	0.11	0.25	0.06	0.11	0.52	0.06	0.03
Hungary	0.82	0.18	0.23	0.62	0.57	0.67	0.17	0.04
Kazakhstan	0.49	0.19	0.36	0.06	0.37	0.44	0.18	0.03
Latvia	0.74	0.34	0.59	0.10	0.56	0.60	0.37	0.05
Russia	0.50	0.14	0.41	0.05	0.35	0.41	0.11	0.03
Slovenia	0.65	0.13	0.56	0.03	0.21	0.74	0.05	0.05
Ukraine	0.58	0.18	0.45	0.08	0.53	0.55	0.26	0.03
Crisis, Middle income	0.62	0.19	0.43	0.15	0.43	0.55	0.19	0.04
Bulgaria	0.55	0.23	0.37	0.07	0.56	0.84	0.21	0.01
Croatia	0.65	0.18	0.50	0.09	0.36	0.68	0.06	0.09
Czech Republic	0.42	0.13	0.34	0.01	0.22	0.57	0.08	0.02
Estonia	0.57	0.22	0.43	0.11	0.26	0.54	0.19	0.08
Lithuania	0.90	0.21	0.55	0.46	0.41	0.66	0.20	0.04
Poland	0.34	0.09	0.24	0.03	0.21	0.39	0.06	0.02
Romania	0.70	0.23	0.53	0.15	0.45	0.62	0.25	0.04
Serbia	0.79	0.22	0.46	0.34	0.46	0.75	0.12	0.03
Slovakia	0.44	0.17	0.30	0.09	0.13	0.46	0.05	0.03
Turkey	0.62	0.23	0.51	0.06	0.41	0.49	0.09	0.03
Non-crisis	0.59	0.19	0.42	0.14	0.35	0.60	0.13	0.04

Notes: See the Appendix for definitions and summary statistics of all variables.

The advantage of the LiTS data is that it provides us with comparable data on the impact of the recent crises for a representative sample of households in a large number of countries. That said, the cross-sectional nature of the data limits the extent to which the correlations observed in the data may be interpreted as causal relationships. At the household-level, we cannot rule out that the exposure of households to income shocks and their reaction to these shocks may both be driven by unobserved household characteristics. At the country-level, we cannot rule out that the observed relations between the monetary regime or banking sector structure and household reaction to income shocks may be driven by a wide range of other differences in the macroeconomic and institutional environment across countries. For these reasons the results presented below should be interpreted with caution.

3.2 Which Households Were Hit the Most?

The studies surveyed in section 2.4 suggest that the impact of financial crises on household income, consumption, health and education may vary according to the income level and location (urban versus rural) of households. In this section we examine whether these patterns are confirmed by the LiTS data for the recent banking crises in the ECA region. We hereby focus our analysis on the impact variables *Income shock*, *Staple foods*, *Other consumption* and *Health*, comparing these for households by rural / urban location and income level prior to the crisis.[12] We provide separate analyses for high-income crisis countries, middle-income crisis countries and non-crisis countries.

The sub-sample means presented in Table 4 suggest that in the **high-income crisis countries** rural households were hit harder by income shocks (46%) than urban households (33%). As a consequence 15% of rural households cut back on staple food consumption and 62% cut back on non-essential consumption goods compared to only 9% and 47% respectively among urban households. In the high-income crisis countries, households of all income-levels are equally likely to be hit by an income shock. Not surprisingly though, income shocks have different consequences households according to their income level: Households in the lowest income-quintile are much more likely to reduce staple-food consumption than households in higher income quintiles.

Table 4 shows a completely different impact on households in **middle-income crisis countries** compared to high-income crisis countries. In line with the evidence for other emerging markets (see section 2.4) we find that in the middle-income countries urban and high-income households were more likely to experience income shocks and were more likely to cut back on non-essential

[12] Each household head was asked where their household was positioned on the national income ladder (on a scale of 1-10) in 2006 relative to other households in their country. We use this subjective measure of income as opposed to current expenditures as it gives us an assessment of the income position prior to the crisis.

consumption than rural and low-income households. Despite the higher exposure to income shocks high-income households are less likely to cut back in staple food consumption and health care than low-income households. Thus it appears that high-income, urban households were able to smooth the impact of income shocks by adapting non-essential consumption.

Table 4 reveals an interesting difference in the distribution of income shocks across households between middle-income crisis countries and **non-crisis countries**. It appears that income-shocks are more evenly distributed across income-levels and rural versus urban location in the non-crisis countries compared to the crisis countries. This suggests that in emerging markets one specific impact of a financial crisis compared to a non-financial economic crisis may be that urban and richer households, which benefit more from the preceding economic and financial boom, are more likely to be hit in the bust.[13]

Table 5 examines whether the univariate patterns in income and consumption shocks displayed in Table 4 can be confirmed in a multivariate, within-country context. To this end we regress our impact variables on household location (a dummy variable for *Rural* households), household income (a dummy variable for the *Low income* households) and a set of country fixed effects.[14] The explanatory power of the *Income Shock* models presented in Table 5 for the crisis countries is weak, suggesting that the exposure to income shocks was largely independent of households' location and income-level. The estimates for *Staple foods*, *Other consumption* and *Health care* suggest that rural and low-income households are more likely to cut back on staple food consumption in high-income crisis countries. In middle-income crisis countries rural and low-income households are less likely cut back on other consumption than urban and higher-income households. Low-income households are, however, more likely to cut back on staple food consumption. The results for middle-income non-crisis countries mirror those of middle-income crisis countries.

[13] This finding questions the interpretation of the pre-crisis credit boom as an equilibrium catching-up phenomenon. See Coricelli et al. (2006) for a discussion of the expansion of household credit as an equilibrium catching-up phenomenon. See Buncic and Melecky (2013) for a cross-country a discussion of equilibrium credit growth.

[14] Throughout the paper we present estimates of linear probability models as opposed to non-linear models (probit, logit) due to the difficulties of interpreting the marginal effects of interaction terms (see Table 6) in non-linear models.

Table 4. Impact by household location and income-level: Sub-sample means

	Crisis, High-income (5'503 Observations)				Crisis, middle income (7'201 Observations)				Non- crisis (11'268 Observations)			
	Income shock	Staple foods	Other consumption	Health care	Income shock	Staple foods	Other consumption	Health care	Income shock	Staple foods	Other consumption	Health care
All households	0.37	0.11	0.52	0.06	0.62	0.43	0.55	0.19	0.59	0.35	0.60	0.13
Location												
Rural	0.46	0.15	0.62	0.07	0.56	0.41	0.51	0.17	0.57	0.35	0.57	0.13
Urban	0.33	0.09	0.47	0.05	0.65	0.44	0.58	0.20	0.61	0.34	0.61	0.13
Income group												
(lowest) 1	0.35	0.21	0.51	0.09	0.57	0.61	0.48	0.28	0.62	0.57	0.57	0.25
2	0.36	0.12	0.51	0.06	0.60	0.47	0.52	0.20	0.60	0.40	0.60	0.14
3	0.37	0.09	0.51	0.05	0.63	0.36	0.59	0.15	0.57	0.30	0.60	0.11
4	0.40	0.10	0.56	0.07	0.71	0.38	0.65	0.18	0.61	0.26	0.62	0.10
(highest) 5	0.37	0.10	0.41	0.06	0.70	0.36	0.58	0.18	0.66	0.24	0.58	0.09

Table 5. Impact by household location and income-level: Multivariate results

Countries:	Crisis, High-income				Crisis, middle income				Non- crisis			
Dependent variable:	Income shock	Staple foods	Other consumption	Health care	Income shock	Staple foods	Other consumption	Health care	Income shock	Staple foods	Other consumption	Health care
Rural	0.0389***	0.0217**	-0.01	0.01	-0.0902***	0.00	-0.0406***	-0.0194**	-0.0371***	0.0172*	-0.0188**	0.00
	[0.0148]	[0.00971]	[0.0140]	[0.00738]	[0.0122]	[0.0120]	[0.0119]	[0.00963]	[0.00920]	[0.00898]	[0.00896]	[0.00651]
Low income	-0.01	0.119***	0.02	0.0402***	-0.119**	0.200***	-0.0381**	0.104***	-0.0348**	0.188***	-0.0642***	0.127***
	[0.0253]	[0.0166]	[0.0239]	[0.0126]	[0.0535]	[0.0170]	[0.0167]	[0.0136]	[0.0150]	[0.0146]	[0.0146]	[0.0106]
Income shock		0.106***	0.296***	0.0718***		0.193***	0.303***	0.106***		0.188***	0.320***	0.0755***
		[0.00891]	[0.0128]	[0.00677]		[0.0119]	[0.0117]	[0.00954]		[0.00930]	[0.00928]	[0.00674]
Observations	5'412	5'412	5'412	5'412	6'988	6'988	6'988	6'988	10'995	10'988	10'988	10'988
Countries	5	5	5	5	6	6	6	6	10	10	10	10
Country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
R2	0.07	0.06	0.22	0.03	0.01	0.11	0.14	0.09	0.13	0.12	0.17	0.07

Notes: The reported coefficients are estimates from a linear probability model. All regressions include country fixed effects. See the Appendix for a definition of all dependent and explanatory variables.

4 Stabilizers and Amplifiers

In this section we examine to what extent the monetary regime of a country and the ownership structure of the banking sector smooth or amplify the impact of income shocks to households during a banking crisis.[15] We also examine which household-level characteristics cushion the transmission of income shocks through to household consumption.

4.1 Macro Level: Monetary Regimes

As documented by Laeven and Valencia (2012), expansionary monetary policy and liquidity support to the banking sector have been key policy responses to past financial crises, especially in high-income economies. The effectiveness of monetary policy in spurring economic recovery during the recent financial crisis is strongly debated (see e.g. Bech et al 2012). Nevertheless, the current low-interest-rate policy of the US Federal Reserve, European Central Bank, Bank of England, or Swiss National Bank highlights the view that accommodating monetary policy (beyond the direct provision of liquidity to banks and financial markets) may be an important tool to cushion the impact of financial crises. The potential devaluation of the domestic currency is also viewed as a powerful instrument to promote economic recovery of crisis-hit economies. The recent crises in the peripheral countries of the euro-zone (e.g. Greece) or countries aspiring to be members of the currency union (e.g. Latvia) have led to intensive debates over the potential benefits of an exit from the currency union or a departure from the currency peg as a recovery strategy as opposed to internal devaluation.[16]

We examine to what extent the **monetary regime** affected the transmission of banking crises in the ECA region through to households. We contrast the impact of the crises in countries which have an independent monetary policy and a floating currency regime (Sweden, United Kingdom, Hungary, Ukraine) to those which were either members of the euro-zone currency union (Germany, France, Italy, Slovenia) or maintained a currency peg at the outset of the crisis (Latvia, Russia, Kazakhstan).[17]

[15] In addition to monetary policy and the structure of the banking sector the stabilization/ amplification of banking crises obviously relies crucially also on fiscal policy as well as the design of formal safety nets. For a discussion of the role of policy-level and institutional-level stabilizers in the ECA region see e.g. World Bank (2010), World Bank (2011) and EBRD (2010).

[16] Weisbrot and Ray (2011) question the view that the recent policy measures in Latvia are an example of a successful internal devaluation policy.

[17] We acknowledge that Russia and Kazakhstan abandoned their fixed-rate policies during the course of the crisis, adopting a more flexible monetary policy. As our data captures only the initial crisis effect during 2008/2009 we focus on the monetary regime at the onset of the crisis (April 2008).

As the monetary regime of a country is arguably correlated with other characteristics of the economic, institutional and financial environment of a country we do not attempt to estimate the level effect of the monetary regime on household income and consumption using our limited cross-sectional data. Instead, we examine whether households which experienced an *Income shock* are less likely to have to cut back on consumption if they are located in a country which can use monetary policy to combat the crisis. Thus we employ our cross-sectional data to assess the differential effect of monetary flexibility on how households have to respond to the crisis if they are affected an income shock.[18] However, we cannot rule out that the observed relations between the monetary regime and household reaction to income shocks may be driven by a wide range of other differences in the macroeconomic and institutional environment across countries.

Table 6 presents separate estimates of the impact of the monetary regime for high-income and middle-income crisis countries. In all regressions we include household location, household income and country fixed effects as covariates. In columns (1,3) we examine changes in staple foods consumption, while in columns (2,4) we examine changes in non-essential consumption. The key explanatory variable in all specifications is the interaction term *Floating currency * Income shock* which captures the differential effect of the monetary regime on households which experienced an income shock (versus those that did not).

The estimates displayed in columns (1-2) of Table 6 suggest that in the high-income crisis countries the monetary regime may have affected the transmission of the banking crisis to households. In the two countries with independent monetary policy (UK, Sweden) households that were hit by an income shock were less likely to cut back on staple food consumption than households hit by an income shock in the euro-zone (France, Germany, Italy). That said, households in the UK and Sweden were more likely to react to income shocks by cutting back on non-essential consumption.

The estimates displayed in columns (3-4) of Table 6 provides some evidence that in the middle-income crisis countries, monetary flexibility also affected the transmission of the banking crisis to households. The column (3) estimates show no differential reaction of staple food consumption by households hit by income shocks in countries with floating exchange rates (Hungary, Ukraine) compared to the currency-union / peg countries (Slovenia, Latvia, Russia, Kazakhstan). However, the column (4) estimates suggest that in Hungary and Ukraine households that were hit by an income shock had to cut back less on non-essential consumption than households hit by an income shock in the four other countries.

[18] This approach obviously ignores the potential mitigating effect that a flexible monetary regime may have on the incidence of income shocks.

Table 6. Monetary regime, income shocks and household consumption

Countries:	Crisis, high-income		Crisis, middle-income	
Dependent variable:	Staple foods	Other consumption	Staple foods	Other consumption
Rural	0.0209**	0.00	0.00	-0.0407***
	[0.00971]	[0.0140]	[0.0120]	[0.0118]
Low income	0.118***	0.02	0.200***	-0.0389**
	[0.0166]	[0.0239]	[0.0170]	[0.0167]
Income shock	0.122***	0.251***	0.191***	0.327***
	[0.0115]	[0.0165]	[0.0146]	[0.0144]
Floating currency				
** Income shock*	-0.0400**	0.116***	0.01	-0.0715***
	[0.0182]	[0.0262]	[0.0251]	[0.0247]
Observations	5'412	5'412	6'988	6'988
Countries	5	5	6	6
Country FE	yes	yes	yes	yes
Method	OLS	OLS	OLS	OLS
R2	0.06	0.23	0.11	0.14

Notes: Floating currency countries are countries which are not member of the euro-zone and did not have a pegged currency at the end of 2007. Among the high-income crisis countries these are UK and Sweden, among the middle-income countries these are Hungary and Ukraine. The reported coefficients are estimates from a linear probability model. All regressions include country fixed effects. See the Appendix for a definition of all dependent and explanatory variables.

4.2 Meso Level: Foreign Bank Ownership

Financial globalization, i.e. cross-border lending and the entry of **foreign-owned banks**, was a crucial determinant of credit growth and economic growth in Eastern Europe prior to the crisis (EBRD,2010). However, recent evidence suggests that the reliance on foreign creditors and foreign owned banks may have exacerbated the crises in the region, as these withdrew funding more sharply than domestic banks (De Haas and Van Horen 2013, Popov and Udell 2012, De Haas and Van Lelyveld 2012, De Haas et al 2012). We therefore examine whether the market share of foreign banks affected the transmission of banking crises to households in Eastern Europe. We focus our analysis on the middle-income crisis countries and compare the three countries in which foreign banks dominate the banking sector (Hungary, Latvia, Ukraine) to the three countries where foreign banks have only a minor market share (Kazakhstan, Russia, Slovenia).

Table 7. Foreign bank ownership, income shocks and household consumption

Countries:	Crisis, middle-income	
Dependent variable:	Staple foods	Other consumption
Rural	0.00	-0.0406***
	[0.0120]	[0.0119]
Low income	0.199***	-0.0378**
	[0.0170]	[0.0167]
Income shock	0.221***	0.315***
	[0.0351]	[0.0346]
Foreign banks		
** Income shock*	-0.02	0.03
	[0.0242]	[0.0238]
Credit to GDP		
** Income shock*	-0.03	-0.04
	[0.0513]	[0.0506]
Observations	6'988	6'988
Countries	6	6
Country FE	yes	yes
Method	OLS	OLS
R2	0.11	0.14

Notes: The reported coefficients are estimates from a linear probability model. All regressions include country fixed effects. See the Appendix for a definition of all dependent and explanatory variables.

Table 7 presents our estimates of the impact of foreign-bank ownership. Our methodology is identical to that applied above: We examine whether households which experienced an income shock are less or more likely to have to cut back on consumption if they are located in a country with foreign bank dominance. In both regressions we include household location, household income and country fixed effects as covariates. The interaction term *Foreign banks * Income shock* captures the differential effect of foreign bank dominance on households which experienced an income shock (versus those that did not). To rule out that our findings are driven by a correlation of foreign bank ownership and financial sector size we include the interaction term *Credit to GDP * Income shock* as a control variable.

The estimates displayed in Table 7 suggest that there is no relation between the market share of foreign-owned banks and the transmission of the banking crisis to households. The estimated interaction term *Foreign banks * Income shock* is insignificant suggesting that foreign ownership did

not aggravate or ameliorate the impact of income shocks on consumption through e.g. different availability of household credit.

4.3 Micro Level: Household Income Sources, Assets and Liabilities and Access to Credit

In this section we examine which household-level characteristics cushion the impact of income shocks on household consumption. Motivated by the evidence reviewed in section 2 we focus on (i) the diversification of household income sources, (ii) access to informal and informal credit and (iii) the pre-crisis accumulation of assets and debt.

If the labor market constitutes the major channel through which banking crises are transmitted to households, one would expect that the ability of households to smooth income shocks depends on how well their **income sources** are diversified (e.g. between formal employment, self-employment and agriculture) and how flexible their labor supply is. Evidence from the financial crises in the 1990's suggests indeed that households smooth income shocks by increasing labor supply or reallocation labor supply from formal labor markets to informal (e.g. family) employment (see in particular Smith et al. 2002).

The access to **informal credit** from family and friends and **formal credit** from financial institutions may be crucial to reducing household liquidity constraints and enabling households to smooth income shocks.[19] Goh et al. (2005) provide evidence that while access to formal credit dried up during the 1997/1998 Korean crisis households used informal credit sources to cushion income shocks.

The accumulation of **assets and durable consumption goods** may protect households from income shocks if they can liquidate assets or reallocate spending from durable to non-durable consumption. McKenzie (2006) provides evidence that Mexican households used existing durable consumption goods as a buffer to reallocate spending to essential consumption during the Tequila crisis. Goh et al. (2005), however, provide evidence that households are less likely to cushion income shocks by selling off existing assets, arguably because most households hold illiquid real assets rather than liquid financial assets.

Finally, the accumulation of **financial liabilities** prior to the crisis may amplify income shocks. This will especially be the case if households take on risky loans, i.e. loans for which the costs and debt

[19] See Beck and Brown (2012) for an analysis of household access to formal credit in the ECA region. See e.g. Jappelli & Pistaferri (2010) for a discussion of liquidity constraints and consumption smoothing.

burden are positively correlated with income shocks (Campbell and Coco 2003). As shown e.g. by Brown and De Haas (2012) a substantial share of household debt accumulated in Emerging Europe prior to the crisis was denominated in foreign currency (EUR, CHF). In those countries in which the banking crisis was accompanied by a sharp currency devaluation (e.g. Ukraine, Hungary) pre-crisis debt accumulation may have amplified the impact of income shocks.[20]

In order to study the role of household-level stabilizers in smoothing the effects of banking crises we replicate our multivariate analysis of Table 5, controlling for household income sources, access to informal credit, asset accumulation and pre-crisis debt. The variable *Income diversified* is a dummy variable which is one for households which rely on both wage income and income from self-employment.[21] The variables *Formal credit applied* and *Formal credit received* capture whether the household applied for and received credit from a financial institution during the crisis. The variables *Informal credit applied* and *Informal credit received* capture whether the household applied for and received credit from family or friends during the crisis. The variable *Assets* captures whether the household has non-financial assets such as computer, a car, or a second house. The variable *Bank account* is our indicator of financial assets. The variable *Mortgage* captures financial liabilities, i.e. whether the household took out a mortgage between 2000 and 2008.

Table 8 reports separate estimates for high-income crisis countries (columns 1-2) and middle-income crisis countries (columns 3-4). The table suggests that households with diverse income sources were less likely to reduce staple consumption, but only in the high-income crisis countries. The estimates further show that households which had built up non-financial and financial assets (Assets, *Bank account*) prior to the crisis were less likely to cut back on staple consumption but more likely to cut back on non-essential consumption during the crisis. Thus in line with the evidence of McKenzie (2006) it seems that households with assets were able to cushion essential consumption through changes in expenses on durable goods and non-essentials.

The significant positive estimates for *Informal credit applied* and *Formal credit applied* suggest that households which tried to get "emergency" credit from formal or informal sources are those which are hardest hit by the crisis. In the middle-income crisis countries (but not in the high-income countries) those households which receive informal credit are less likely to cut back on consumption, with a stronger reduction in staple consumption. This result suggests that informal safety networks are more important shock absorbers in emerging and developing economies than in advanced

[20] See Brown et al. (2013) for a detailed analysis of pre-crisis household debt and household vulnerability during the crisis.
[21] Self-employment income includes income both from agricultural and non-agricultural activities.

economies. By comparison, we find that those households which received formal credit are less likely to cut back on staple-food consumption in both high-income and low-income countries.

Table 8. Household-level stabilizers of income shocks on consumption

Countries:	Crisis, High-Income		Crisis, Middle Income	
Dependent variable:	Staple foods	Other consumption	Staple foods	Other consumption
Rural	0.0308***	0.00	-0.01	-0.0287**
	[0.00960]	[0.0140]	[0.0119]	[0.0118]
Low income	0.0795***	0.01	0.135***	0.00
	[0.0166]	[0.0242]	[0.0170]	[0.0168]
Income shock	0.0937***	0.273***	0.191***	0.272***
	[0.00892]	[0.0130]	[0.0119]	[0.0118]
Income diversified	-0.0408**	0.01	-0.03	0.02
	[0.0176]	[0.0257]	[0.0222]	[0.0220]
Informal credit applied	0.150***	0.125**	0.192***	0.189***
	[0.0409]	[0.0596]	[0.0383]	[0.0380]
Informal credit received	-0.01	0.06	-0.0747*	-0.116***
	[0.0427]	[0.0623]	[0.0396]	[0.0393]
Formal credit applied	0.147***	0.158***	0.152***	0.05
	[0.0381]	[0.0555]	[0.0490]	[0.0486]
Formal credit received	-0.115***	-0.10	-0.143***	-0.02
	[0.0404]	[0.0588]	[0.0530]	[0.0526]
Assets	-0.0402***	0.0183**	-0.0966***	0.0788***
	[0.00595]	[0.00867]	[0.00705]	[0.00700]
Bank account	-0.0913***	-0.01	-0.0681***	0.0854***
	[0.0212]	[0.0309]	[0.0159]	[0.0158]
Mortgage	-0.01	0.0398***	0.0518*	0.0823***
	[0.0103]	[0.0151]	[0.0283]	[0.0281]
Observations	5'351	5'351	6'822	6'822
Countries	5	5	6	6
Country FE	yes	yes	yes	yes
Method	OLS	OLS	OLS	OLS
R2	0.10	0.24	0.16	0.18

Notes: The reported coefficients are estimates from a linear probability model. All regressions include country fixed effects. See the Appendix for a definition of all dependent and explanatory variables.

The Table 8 results suggest that the accumulation of pre-crisis debt is associated with a stronger reduction in (non-essential) consumption in middle-income countries and high-income countries.

Thus, while pre-crisis debt accumulation is associated with stronger household vulnerability, this finding is not limited to risky foreign currency loans in Eastern Europe. This finding is in line with the findings of Brown and Lane (2011) and Brown et al. (2013) and suggests that foreign currency debt is not a major driver of the decline in household consumption in the region. This surprising result is likely driven by the fact that in most countries foreign currency loans were more likely to be extended to more creditworthy clients, i.e. clients which are less leveraged, have lower debt-service to income ratios or are "hedged" with foreign currency deposits or foreign currency (remittance) income (Fidrmuc et. al. 2011).

5 Conclusions

This paper examines the impact of the recent banking crises in Europe and Central Asia on households' incomes and consumption patterns. The analysis is based on cross-sectional household-level data taken from the 2010 *Life in Transition Survey*. The survey covers eleven of the 22 countries in Europe and Central Asia which experienced a banking crisis between 2008 and 2011. We assess the impact of the crises on households using available indicators on changes in household income, consumption, education and health during 2008/2009. We further investigate potential macro-level, meso-level and micro-level mitigators of the impact of the crises on households.

Our analysis reveals that the transmission of recent banking crises in the ECA region to households largely mirrors the transmission mechanism of financial crises in the 1990's. Households were predominantly affected through the labor market channel, whereby the reduction of wages was more severe than actual job-losses. The exposure of individual households to income shocks depends strongly on the economic development of the country as well as the income level and location of the household. In Eastern Europe and Central Asia more than twice as many households were hit by an income shock than in Western Europe. In Eastern Europe the urban and rich were more likely to experience income shocks. By contrast in Western Europe the rural population more likely experienced income shocks. We find that changes in household consumption patterns also mirror those in previous crises: Households reallocate spending from non-essential goods to staple foods in order to cushion income shocks. Households also cut back on health care while education is largely insulated from income shocks. Reductions in staple-food consumption are strongest among low-income households.

When investigating possible crisis mitigators at the macro level, our results suggest that a flexible monetary regime may mitigate the impact on household consumption: In the high-income crisis countries monetary flexibility is associated with less cut backs in essential consumption, while in middle-income countries it is associated with less cut backs in non-essential consumption. At the meso level we find that the ownership structure of the banking sector does not affect the transmission of banking crises to households in emerging Europe. With respect to micro-level mitigators, we find that the ability of households to cushion income shocks is related to the diversification of income sources and the build-up of a stock of non-financial and financial assets. Access to credit seems to be important in cushioning the impact of income shocks on household consumption, with informal credit more important in middle-income countries. The build-up of pre-crisis debt exacerbates the impact of shocks on consumption, but this effect is not specific to foreign currency loans in Eastern Europe.

Given the limitations of the available data at hand, the results documented above should be interpreted with caution. That said, they do bear implications for macroeconomic and institutional policies towards enhancing the resilience of economies to future banking crises. With respect to macroeconomic policy, our findings suggest that a flexible monetary regime (e.g. exchange rate flexibility) may help cushion the impact of banking crises on households. With respect to institutional policy, our findings suggest that frameworks which foster diversified household activities (e.g. enabling business environments and labor market flexibility), encourage households to build up stocks of assets, and promote their access to emergency credit (e.g. legal environment and creditor protection) may reduce the vulnerability of households to future banking crises.

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Appendix. Variable Definitions

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
	Crisis impact and response					
Income shock	Household experienced a negative income shock (job loss, closed business, less wage income, or less remittances) during the crisis,(0=no, 1=yes)	23'972	0.55	0.50	0	1
Staple foods	Reduction of staple consumption goods (0=no, 1=yes)	23'965	0.32	0.47	0	1
Other consumption	Reduction of other consumption, i.e. luxury goods, alcoholic drinks, car, vacations or tobacco smoking (0=no, 1=yes)	23'965	0.57	0.50	0	1
Health	Reduction of health expenses, i.e. doctor visits, health insurance or medication (0=no, 1=yes)	23'965	0.13	0.34	0	1
Education	Reduction of education i.e. for training courses or university (0=no, 1=yes)	23'965	0.04	0.19	0	1
	Household-level explanatory variables					
Rural	Household located in rural area (0=no, 1=yes)	23'972	0.35	0.48	0	1
Income	Self assessment of household position on national income ladder in 2006, (1=low, 5=high)	23'395	2.69	0.93	1	5
Income diversified	Household has wage income and self-employment income (0=no, 1=yes)	23'972	1.32	0.53	0	3
Informal credit applied	Household applied for credit from family or friends during crisis (0=no, 1=yes)	23'411	0.20	0.40	0	1
Informal credit received	Household was rejected credit from family or friends during crisis (0=no, 1=yes)	23'411	0.19	0.39	0	1
Formal credit applied	Household applied for credit from family or friends during crisis (0=no, 1=yes)	23'411	0.10	0.30	0	1
Formal credit received	Household was rejected credit from family or friends during crisis (0=no, 1=yes)	23'411	0.08	0.28	0	1
Assets	Household has a car, pc, and/or 2nd residency (scale 0-3)	23'972	1.27	0.92	0	3
Bank account	Household has a bank account (0=no, 1=yes)	23'968	0.65	0.48	0	1
Mortgage	Has a mortgage that was originated between 2000 and 2008 (0=no, 1=yes)	23'972	0.09	0.29	0	1