

## The impact of the 2008 financial crisis on household income and wealth in Visegrad countries

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Economic history conducting investigations into financial crises of the long 20th century primarily analyses the permanent character of crises and their macroeconomic consequences. Statistics focuses, primarily, on the number of bank failures, corporate bankruptcies, low macroeconomic output (gross domestic product [GDP]), decreased employment rates, increased inflation, and government debts. Both economic history and statistics only deal with the decrease in household income and with losses in their net wealth positions afterwards.

The authors of this study investigate the impact of the 2008 crisis on household income and their net wealth positions. They also examine options of restoring household income in Visegrad countries based on the data of NUTS 2 level (Nomenclature des unités territoriales statistiques) territorial units. The authors have used empirical analysis and statistical comparison for the change of the income and wealth situation of the Visegrad countries' households. The results show that in the 2000s, the growth in the income gap between households slowed down, but after the crisis of 2008, the differentiation of the wealth of households in the region continued. As a result of this crisis, the income differences also started to rise again, which led to even wider gaps in income inequalities. Recovery of income and wealth has begun, but it will take at least 3-4 years to reach the pace of the pre-crisis growth. In addition, its level could be permanently lower since households and credit institutions behave more cautiously than before the crisis.

## Introduction

The 20th century was not only the age of ‘huge’ geopolitical changes but also the age of global and local financial turbulence and crises. As a result of the financial situation, households in Central Europe experienced considerable increase in income and wealth positions until 2008, which was followed by huge losses and subsequent inter-regional disparities (KSH 1981, Segert 2013). Although it is impossible to be exhaustive, it is worth mentioning the reasons lying behind these changes, which are described below.

In the aftermath of World War I, the states of the Central Power suffered from such a high inflation rate that retail deposits and the capital invested in war loans had no value at all. The depression recovery that started in the 1920s ground to a halt because of The Great Depression (1929–1933) (Matolcsy 1938, Blaich 1990, Andorka 2006).

Following World War II, the recovery of household income and their wealth positions was not only extremely slow but also considerably hindered by ideological reasons in the countries occupied by the Soviet Union.

During the second half of the 1970s, the differentiation of net wealth positions took place at a much higher pace than ever before in the countries under investigation (KSH 1981, Andorka–Harcsa 1990, Valuch 2017). The invasion of Czechoslovakia (1968), the interruption of market-oriented reforms in the Hungarian economic policy (1972–1973), and the introduction of a state of emergency in Poland (1981) seriously damaged economic growth, hindered households’ capacity to generate income, and hampered consumption in the countries concerned (Poznanski 1996, Kowalik 2011, Teichowa 1988, Kosta 2005).

Major geopolitical changes sweeping across the countries in Central Europe (1989/90) triggered structural reforms in public economies and enhanced new types of ownership structures, which resulted in the increasing rate of income of those ranked in low deciles.

The US mortgage crisis of 2007–2008 also seriously affected the European Union, especially financial intermediary systems, economies, and households of the countries lying in its periphery.<sup>1</sup>

Presumably, the history of financial crises has not ended. The future is as likely to be prone to crises as the past since there may be temporary relief from the root causes, but they will not disappear.

Economists have been investigating crises, and within them financial crises, for over a hundred years. As a result, they have identified several causes of financial crises, which are as follows: rapid and unfounded credit expansion (lacking real

<sup>1</sup> The income of 10% of the lowest-income households decreased by 16%, whereas the income of the 10% of the highest-income households decreased only by 4% in the developed countries during the crisis of 2007–2010 (OECD 2008 2016a).

economic background) and raising money out of bubbles (Eichengreen 2015); introduction of financial instruments involving excessive risk-taking; imprudent and irresponsible speculative activities of investors and banks, overvaluation of mortgages and securities, etc. (Kosłowski 2009, Umantsiv–Ishchenko 2017); investors' hope to make decent profits in a rapid and easy way, lack of values and ethical behaviour (Bauer 2008); imprudent regulation of financial markets (Lähn 2004).

Financial crises have significant adverse macro- and microeconomic as well as social consequences because increasing economic inequalities generate increasing social tensions (Piketty 2014). As a result of this: the real economic growth will fall, inflation will rise and solvent demand will decrease; the unemployment rate will increase (Okun's law), which will have an adverse effect on the net financial wealth of households.

The development (convergence vs divergence) and the concentration of household income, net monetary savings, and financial positions (inequalities between certain social groups) are of paramount importance both from economic (consumption, GDP, budget deficit) and political (national mood) aspects.

This study investigates economic and social processes, causes, and consequences of asset losses as well as asset restoring options in the Visegrad countries in the period after the financial crisis of 2008.

## Theoretical background, data sources, and methodology

### General considerations

An important micro level contribution to the socio-spatial inequalities and polarisation is represented by the incomes and wealth of households (Benedek–Moldovan 2015). The latter are influenced by a range of demographic factors like age, education level (Jackson et. al 2016), and number of active persons living in one household (Jackson et. al 2016).

Net wealth is understood as the total amount (marketable value) of financial assets plus non-financial assets (housing and land) less debts (Cowell–Van Kerm 2015, Kersley–Koutsoukis 2016). There is the huge challenge represented by the valuation (pricing) of the assets (housing for example). A distinction is made between real assets (real estate property including the household's main residence, self-employment businesses, vehicles, etc.) and financial assets (bank deposits, private pensions and life insurance, bonds, shares, etc.). Debt refers to home-secured debts (residence mortgage debts), vehicle loans, educational loans, credits, and informal debts (Cowell–Van Kerm 2015). In the Eurozone, real assets have a share of 85% of total gross assets, while households' main residences represent 61% of the total real assets (European Central Bank 2013).

Globalization has reduced international income inequality but has widened intra-national inequality (Khondker 2017). Income inequality has increased in many de-

veloped countries due to the income increase in the top of the distribution (Roine–Waldenström 2011). An important component of the top income groups is represented by the capital gains. Roine and Waldenström (2011) have proved for Sweden that there is a capital gains-driven inequality increase since the 1980s fuelled by the strong asset price increases of the deregulated financial markets.

Income distribution determines the accumulation process and, therefore, it can be considered the engine of economic growth (Molero-Simarro 2017). Piketty (2014) considers that income inequalities have an increasing tendency due to the faster growth of wealth in comparison to economic output.

Household income and net financial savings are determined by total amount of liquid assets, financial savings, and investments available at a particular time. The calculation of households' net wealth positions and net financial savings is based on the adjusted real estate and other assets. Based on the explanation of the European Central Bank, 'Net wealth is defined as real assets plus financial assets minus debt of a household. Real assets consist of the main residence, other real estate property, investments in self-employed businesses, vehicles, and other valuables. Financial assets are current accounts, savings deposits, mutual funds, bonds, stocks, money owed to the household, and other financial assets... Gross household income is the sum of employee income, self-employment income, income from pensions, regular social transfers, regular private transfers, income from real estate property, income from financial investments, income from private business and partnerships, and other non-specified sources of income.' (ECB 2015, pp. 11–12.)

Financial assets may consist of households' own and external financial resources. Households' own financial resources include net salary (basic salary, wage supplements, and other monetary benefits), social income (pensions, unemployment benefits, children-related allowances and other social allowances), and income generated from assets and properties (interests, dividends, leasing fees, etc.).

The examination of factors affecting individuals' and households' income and wealth positions has a long history since all schools of economic theory have addressed these issues<sup>2</sup>.

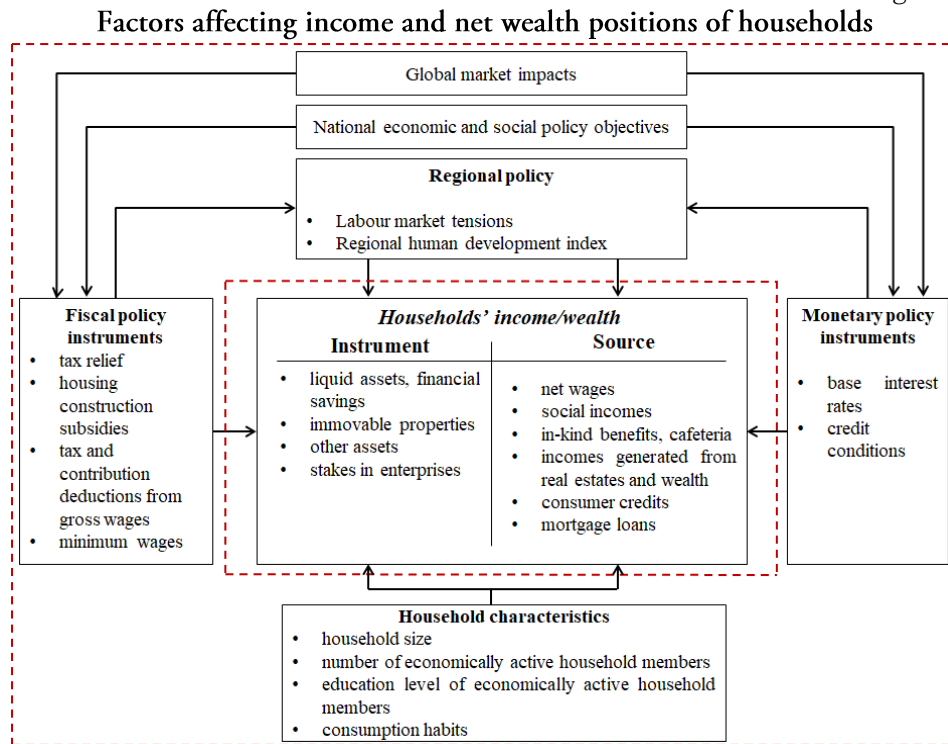
Macro (global, national and local) and micro (household) factors considerably influence households' income and wealth positions (see Figure 1).

The extent of transfer effects of particular indicators change depending on the level of development of the country under investigation and its data series (OECD 2007).

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<sup>2</sup> Wealth accumulation of households is discussed in Adam Smith's, Werner Sombart's, and Max Weber's works on revenue accumulation and in Maynard Keynes' writings on savings and investments.

Figure 1



**Effects of monetary policy on household incomes and net savings rates**

All major theories of economics (classical, neoclassical and Keynesian) and the so-called life-cycle theories (Browning–Lusardi 1996) investigate the relationship between interest rates and saving willingness. They conduct detailed analyses of factors affecting balance interest rates (and the inflection point between investment and financial reserves) and attempt to find out how real interest rates influence net household savings. Inflation-targeting central banks change basic interest rates and the reserve requirement ratio of commercial banks, which significantly affect deposit and credit terms and conditions as well as willingness of households to apply for credits and to accumulate savings. There is empirical evidence that there is a relationship between household income and economic and social processes because, through consumption, incomes affect economic output, which influences investment and employment (Marschak 1951, Diacona–Mahab 2015, World Economic Forum 2017).

### Effects of fiscal policy on household incomes and net savings rates

Fiscal policy regulates household incomes through cuts (taxes<sup>3</sup>, charges, inflations) and redistribution tools (maternity pay, minimum pension regulation, etc.) (Feldstein 1995). The scope of practice of the fiscal policy depends highly on the budgetary position of the country and the government debt. There is a dual relationship between fiscal policy and household savings. On the one hand, fiscal policy affects macroeconomic equilibrium. Permanent budget deficit results in increasing government debt and the adopted budgetary austerity measures may lead to cuts in family allowances (social policy).<sup>4</sup> On the other hand, household savings (by investing into government bonds) may contribute to budgetary consolidation and decrease the international exposure of public finances.

### Effects of regional (local) policies on household incomes and net savings rates

Governments may affect the asset and the liability side of a family balance sheet by adopting various reallocation mechanisms. In disadvantaged regions, these mechanisms may be as follows: create workplaces, introduce public works schemes, enhance the foundation of social cooperatives,<sup>5</sup> and provide educational and training programmes to promote labour-market integration of disadvantaged job seekers (ILO 2008, OECD 2016b).

### Data sources and methodology

This study investigates 35 NUTS 2 regions of the Visegrad countries in the period of 2008–2015.<sup>6</sup> While conducting the investigation into household wealth and income positions, information from financial accounts and the databases of the European Central Bank (ECB 2016), national central banks<sup>7</sup>, statistical offices of the

<sup>3</sup> Personal income tax in the Czech Republic (2017) is 22%, in Hungary 16%, in Poland 32%, and in the Slovak Republic 25%.

<sup>4</sup> This happened in Hungary on 1 July 2009 when the socialist government abolished the 13th month pension, altered pension indexation rules (inflation-related indexation was adopted) and increased the pension age from 62 to 65 in order to mitigate the increasing budgetary deficit.

<sup>5</sup> It is well-known that the F. D. Roosevelt administration adopted a series of fiscal measures and established several government agencies (Agricultural Adjustment Act, National Industrial Recovery Act, Security and Exchange Commission, Glass-Steagall Act, margin requirements of the US Federal Reserve System (Fed), Federal Deposit Insurance Corporation, Social Security Act) in response to the Great Depression between 1929 and 1933 in order to recover from the consequences of the financial crisis, enhance employment and eliminate unemployment. However, the economic literature interprets the consequences of the measures in different ways.

<sup>6</sup> This analysis was hampered by the fact that the investigation of household incomes and wealth has a short history compared to practices adopted in industrialized countries. A comprehensive statistical data collection on financial and non-monetary instruments and obligations of households in Hungary started only in 2014.

<sup>7</sup> Financial accounts of central banks provide detailed and relatively actual data on household net wealth. There is no reliable information available about household gross wealth in Visegrad countries since there is no wealth tax in Visegrad countries.

countries concerned, and Eurostat<sup>8</sup> was collected. External factors influencing household income and wealth were examined by using the following indicators:

- fiscal (debt, budget deficit) and monetary (base interest rate, inflation) policy indicators (which affect credit conditions, GDP and the employment rate);
- regional (NUTS 2) characteristics (human development index, employment rate).

Internal factors of household income and wealth differentiation includes household sizes and the number, education level and consumption habits of the wage earners who live in the households.

### Household income inequalities

The changes in geo- and economic policies and in economic indicators in Visegrad countries after 1990 triggered reforms and market-oriented transformation of the economy, which significantly affected income and wealth accumulation opportunities (Benedek–Kocziszky 2012, 2015, 2017). The changes passed through three stages.

In the initial transition stage (1989–1999), considerable inequalities in income and net financial assets were experienced. Factors affecting this stage were as follows (European Commission 1997, Bhalla–Lapeyre 2016): restructuring of economies, reduction of capacities in particular sectors (mining, metallurgy), and increase in unemployment rates in heavy industry areas; the initial (less regulated) stage of privatisation provided opportunities for a small privileged group to accumulate substantial assets; rate of return on capital well exceeded the rate of growth of output and income for years (Piketty effect).

In the second stage (2000–2007), the real income of households decreased in all four member states<sup>9</sup> compared with the previous period, as the growth of real incomes was slowing down, which was followed by another decrease in 2008 (in the third stage) in most of the Visegrad countries (except Poland) (see Figure 2).

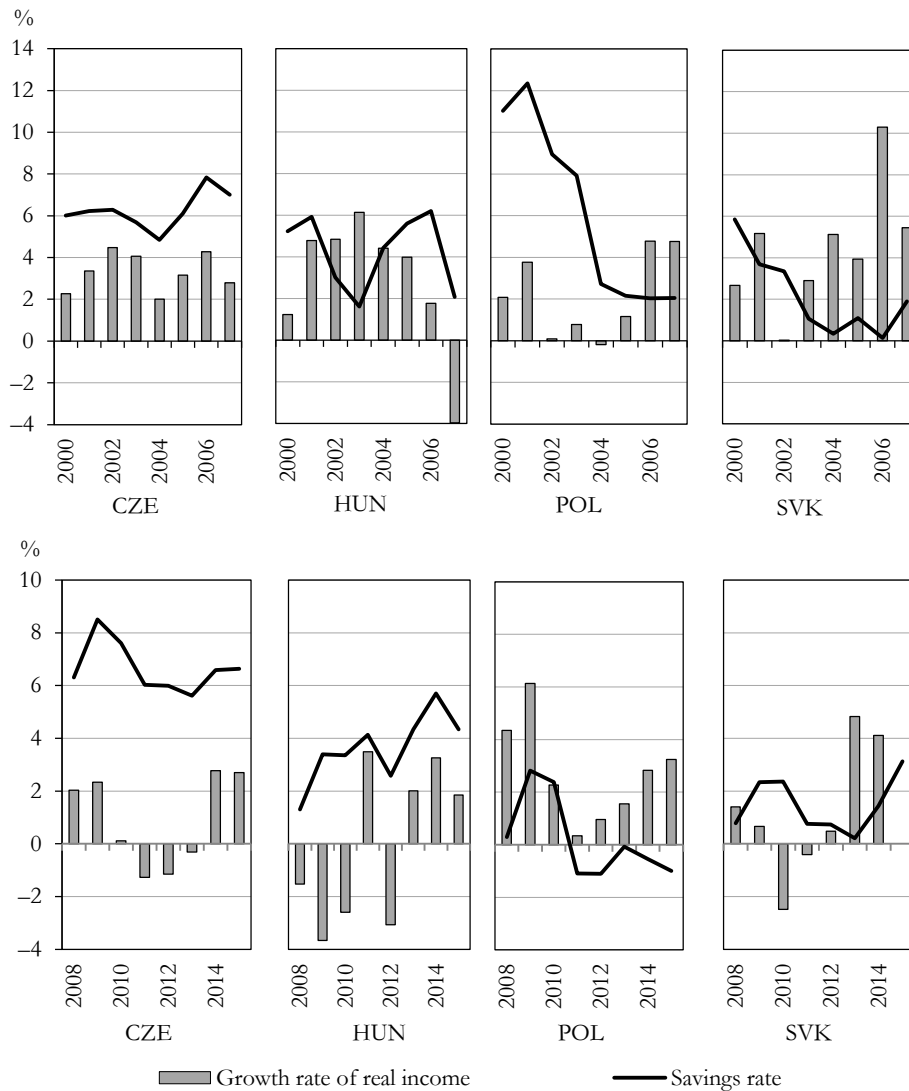
Before the crisis (from 2000 to 2007), there was a negative relationship between the growth rate of real incomes and the households' savings in the EU28 countries ( $y = -1.518x + 4.206$ ), which was also true for the countries under investigation. However, after the crisis there was a clear change from this aspect, as the relationship of the two indicators became positive ( $y = 0.5895x + 1.717$ ) in the European Union and the Visegrad countries (Palócz–Mateika 2014). This process was clearly observable in the case of Hungary and the Czech Republic, where the gap between the indicators increased significantly.

<sup>8</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php/Households\\_-\\_statistics\\_on\\_financial\\_assets\\_and\\_liabilities](https://ec.europa.eu/eurostat/statistics-explained/index.php/Households_-_statistics_on_financial_assets_and_liabilities)

<sup>9</sup> In Hungary, the labour income reached the average level of 1990 in 2002, and the pension only reached this level in 2004.

Figure 2

### Household real income and savings rate in the Visegrad countries



*Note:* Here and in the following figures and tables, the abbreviations of the four Visegrad countries are as follows: CZE – Czech Republic, HUN – Hungary, POL – Poland, SVK – Slovakia.

*Source:* Own calculation based on OECD database.

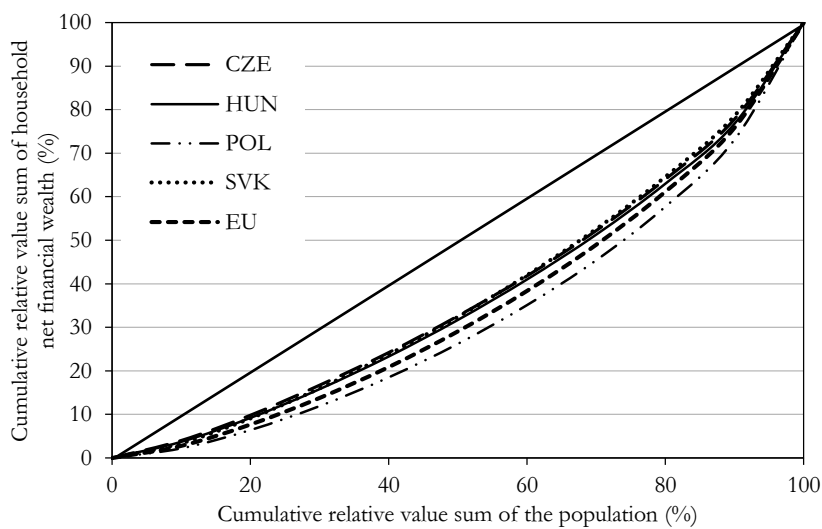
The Lorenz curve in Figure 3 shows that the distribution of household income in the countries under investigation for the years 2005 and 2015 is almost the same.



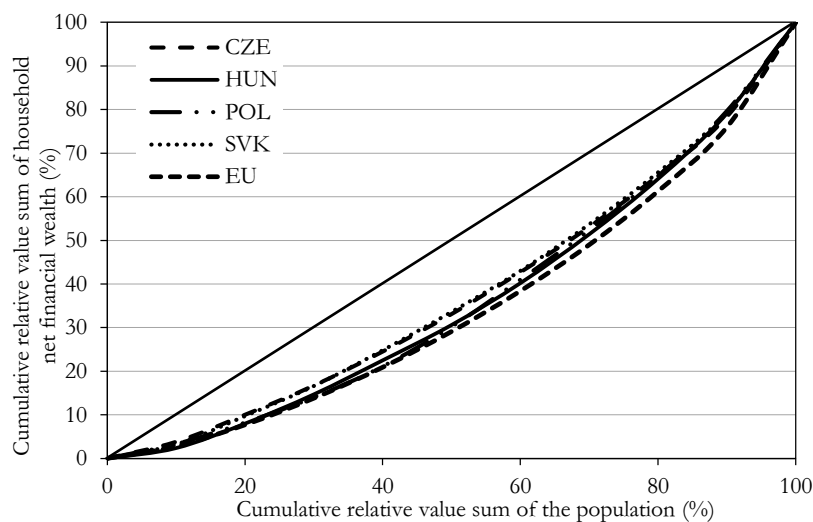
Per capita income of about 40% of the population amounts to 20% of the cumulative relative value, whereas slightly more than 6% of the total population belong to the highest income category (the last decile) (see Figure 3). The notable exemption is Poland with a more equilibrated distribution in 2015 than in 2005. The distribution of income in all Visegrad countries is more equilibrated than the EU average.

Figure 3

Distribution of household income in the Visegrad countries  
2005



2015



Source: Own calculation based on Eurostat database.

Household income inequalities decreased slightly in the Czech Republic and the Slovak Republic, increased in Hungary, and decreased considerably in Poland for the period 2005–2015 (see Table 1). If we compare the years 2000 and 2015, the only improvement has been registered in Slovakia.

Table 1

**GINI index<sup>10</sup> of household income (after taxation and social transfers)  
in the Visegrad countries**

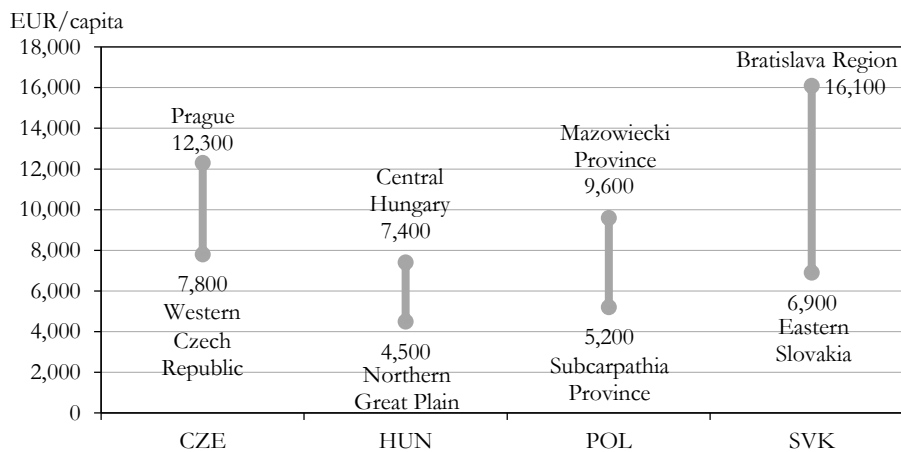
	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CZE	25.0	26.0	25.3	25.3	24.7	25.1	24.9	25.2	24.9	24.6	25.1	25.0
HUN	26.0	27.6	33.3	25.6	25.2	24.7	24.1	26.9	27.2	28.3	28.6	28.2
POL	30.0	35.6	33.3	32.2	32.0	31.4	31.1	31.1	30.9	30.7	30.8	30.6
SVK	26.2	26.2	28.1	24.5	23.7	24.8	25.9	25.7	25.3	24.2	26.1	23.7
Mean	26.8	28.9	30.0	26.9	26.4	26.5	26.5	27.2	27.1	27.0	27.7	26.9

Source: Own calculation based on Eurostat database.

The distribution of household income between regions (NUTS 2 units) was the highest in Poland and the lowest in Hungary. The latter also registered the lowest average per capita income among the NUTS 2 regions of the Visegrad countries (see Figure 4).<sup>11</sup>

Figure 4

**Income distribution in the Visegrad countries, 2013**



Source: Own calculation based on Eurostat and Czech, Hungarian, Polish, and Slovak statistical offices databases.

<sup>10</sup> The Gini index is a measure of inequality of a distribution. It was developed by the Italian statistician Corrado Gini.

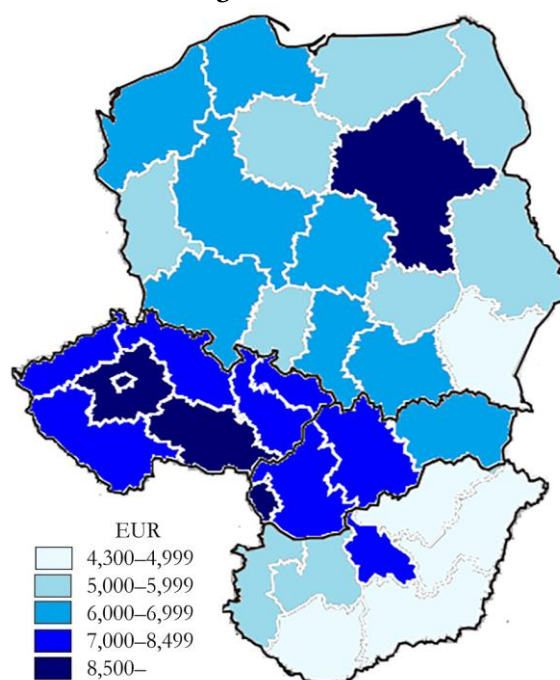
<sup>11</sup> The analysis of income distributions across EU member states illustrates that income inequalities were higher in low-income countries and lower in high-income countries (Eurostat 2017).

Since the crisis from 2007, and between 2008 and 2013, we have observed considerable income inequality increases: Hungary showed a difference of 65.1% between the lowest and highest values, and an inequality increase of 9.11%, followed by Poland (difference of 85.7%, an increase of 5.67%), while Slovakia registered the highest level of inequalities (135.4%), with a stationary tendency (0.21%). The only exemption is the Czech Republic with a difference of 60.8%, and a slight decrease of regional income inequalities of  $-1.69\%$ .

The income position in the capital cities was far more favourable in all Visegrad countries (see Figure 5).

Figure 5

Map of household income distribution in the NUTS 2 regions of the Visegrad countries, 2013



Source: Own elaboration based on Eurostat database.

Based on the GINI coefficient of disposable income, the situation of the Visegrad countries, compared with the other member states of the EU, is quite good; their values are almost in every case below the EU average (see Table 2). The highest income inequality among the member states is shown by Bulgaria with a value of 38.3 in 2016. Besides this country, Latvia, Lithuania, Romania and Spain also have high values. In contrast, Slovakia had the lowest rates in 2016 among all of the member states.

Table 2

## GINI index of the household income in the EU member states

	2008	2009	2010	2011	2012	2013	2014	2015	2016	Yearly average change, % 2008–2016
European Union	31.0	30.6	30.5	30.8	30.5	30.5	31.0	31.0	30.8	-0.08
Eurozone	30.5	30.2	30.2	30.6	30.4	30.6	30.9	30.8	30.7	0.08
Belgium	27.5	26.4	26.6	26.3	26.5	25.9	25.9	26.2	26.3	-0.56
Bulgaria	35.9	33.4	33.2	35.0	33.6	35.4	35.4	37.0	38.3	0.81
Czech Republic	24.7	25.1	24.9	25.2	24.9	24.6	25.1	25.0	25.1	0.20
Denmark	25.1	26.9	26.9	26.6	26.5	26.8	27.7	27.4	27.7	1.24
Germany	30.2	29.1	29.3	29.0	28.3	29.7	30.7	30.1	29.5	-0.29
Estonia	30.9	31.4	31.3	31.9	32.5	32.9	35.6	34.8	32.7	0.71
Ireland	29.9	28.8	30.7	29.8	30.5	30.7	31.1	29.8	29.5	-0.17
Greece	33.4	33.1	32.9	33.5	34.3	34.4	34.5	34.2	34.3	0.33
Spain	32.4	32.9	33.5	34.0	34.2	33.7	34.7	34.6	34.5	0.79
France	29.8	29.9	29.8	30.8	30.5	30.1	29.2	29.2	29.3	-0.21
Croatia	–	–	31.6	31.2	30.9	30.9	30.2	30.4	29.8	-0.97
Italy	31.2	31.8	31.7	32.5	32.4	32.8	32.4	32.4	33.1	0.74
Cyprus	29.0	29.5	30.1	29.2	31.0	32.4	34.8	33.6	32.1	1.28
Latvia	37.5	37.5	35.9	35.1	35.7	35.2	35.5	35.4	34.5	-1.04
Lithuania	34.5	35.9	37.0	33.0	32.0	34.6	35.0	37.9	37.0	0.88
Luxembourg	27.7	29.2	27.9	27.2	28.0	30.4	28.7	28.5	31.0	1.42
Hungary	25.2	24.7	24.1	26.9	27.2	28.3	28.6	28.2	28.2	1.42
Malta	28.1	27.4	28.6	27.2	27.1	27.9	27.7	28.1	28.5	0.18
Netherlands	27.6	27.2	25.5	25.8	25.4	25.1	26.2	26.7	26.9	-0.32
Austria	27.7	27.5	28.3	27.4	27.6	27.0	27.6	27.2	27.2	-0.23
Poland	32.0	31.4	31.1	31.1	30.9	30.7	30.8	30.6	29.8	-0.89
Portugal	35.8	35.4	33.7	34.2	34.5	34.2	34.5	34.0	33.9	-0.68
Romania	35.9	34.5	33.5	33.5	34.0	34.6	35.0	37.4	34.7	-0.42
Slovenia	23.4	22.7	23.8	23.8	23.7	24.4	25.0	24.5	24.4	0.52
Slovakia	23.7	24.8	25.9	25.7	25.3	24.2	26.1	23.7	24.3	0.31
Finland	26.3	25.9	25.4	25.8	25.9	25.4	25.6	25.2	25.4	-0.43
Sweden	25.1	26.3	25.5	26.0	26.0	26.0	26.9	26.7	27.6	1.19
United Kingdom	33.9	32.4	32.9	33.0	31.3	30.2	31.6	32.4	31.5	-0.91

Source: Own compilation based on Eurostat database.

If we take a look at the last column of Table 2 that shows the changes happened from 2008 to 2016 in the GINI coefficient of the member states, we can state that in half of the member states there was a positive shift in income disparities, while in the other half a negative shift. The biggest increase of the income inequalities can be

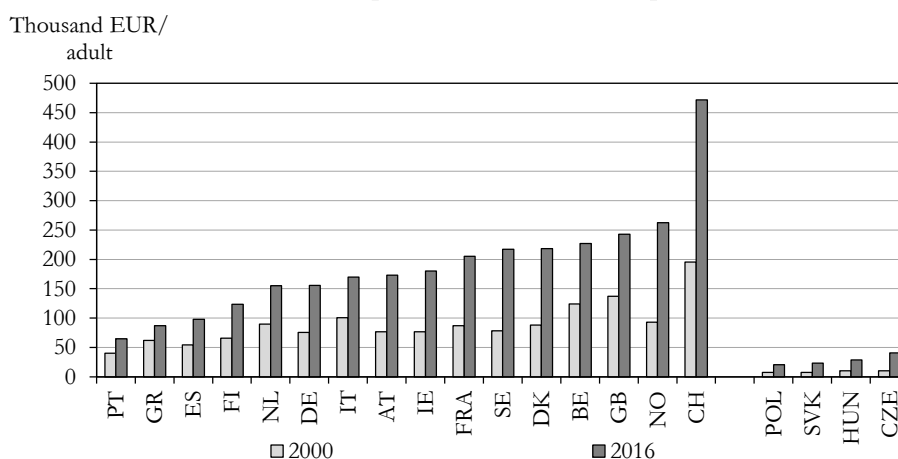
seen in the case of Cyprus and Denmark, with yearly average growth of 1.28 and 1.24 percentage points, respectively. The biggest declines were shown by Latvia (−1.04) and Croatia (−0.97) in the analysed period. In the case of the Visegrad countries, there was an increase in income disparities (except for Poland where it decreased by 0.89%), it was the biggest in Hungary with 1.42%.

### Household wealth inequalities

There are considerable inequalities in terms of accumulated financial assets between the developed EU member states and Visegrad countries. Residents of Visegrad countries own the fewest gross financial assets, which amount to almost half of the assets owned by the Portuguese (see Figure 6).

Figure 6

#### Gross financial assets per adult in some European countries



Note: For country abbreviations, see <https://www.iso.org/obp/ui/#search/code/>.

Source: Own calculation based on Global Wealth Databook 2016 (Kersley–Koutsoukis 2016).

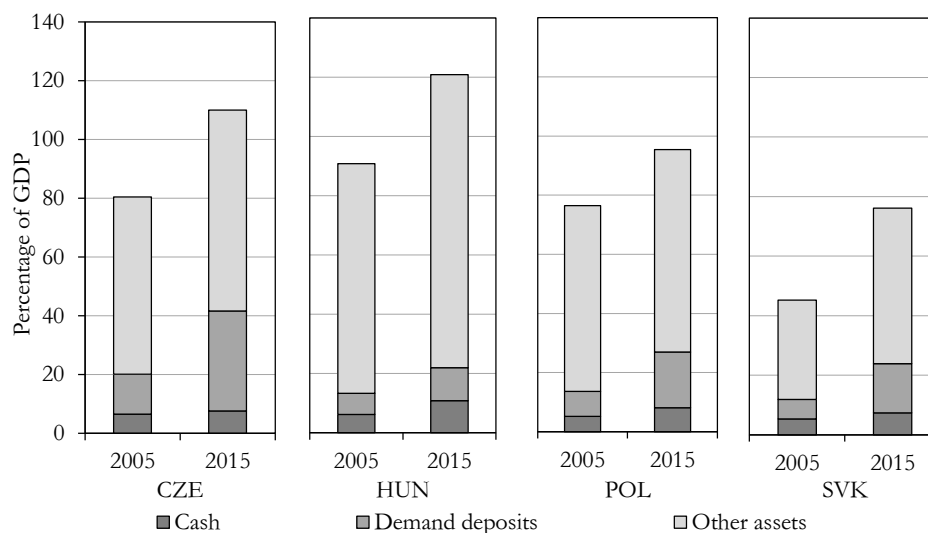
The household financial assets started to increase after 2010 (in Hungary in 2013) with the increase of liquid savings. Household financial assets were the highest in Hungary compared to the other three Visegrad countries (assets exceeded 120% of GDP by the end of 2015) despite the fact that the wealth was held in liquid assets in all Visegrad countries, which is the result of the increase in the cash-to-GDP ratio (see Figure 7). Cash balances in Hungary increased at a higher pace than in other countries in the region, whereas a considerable increase in demand deposits was observed in the Czech Republic, Poland and the Slovak Republic. The greatest increase in demand deposits was reported in the Czech Republic where the rate of total liquid assets accounted for almost 40% of gross financial assets by 2015. The shift of the household demand towards liquid financial assets was generated by

a lack of confidence and a record-low return climate, which resulted in a decrease in the costs of liquid asset alternatives.

The cause for the high level of demand deposits in the Czech Republic can be that this type of deposit (especially current accounts) counts as the major source of funding and reinvestment possibility for a bank. Current accounts have a stable core and due to this stable core balance, current accounts represent a stable source of funding for banks (Dzmuřánová–Teply 2015, p. 280.). Regarding this, from 2003 to 2015, cash compared with demand deposits (liquid assets of households and enterprises) clearly confirms a declining importance (Revenda 2017, p. 22.). In Hungary, the level of households' net financial assets was relatively low before the crisis, as there was a significant indebtedness of households. After the crisis, the households have saved an increasing amount of their income, which went either for credit repayment or into deposits. From the end of 2012, households were looking for investments with higher yields, and the demand for liquid financial assets (cash, demand deposits) was increased (MNB–Portfolio 2016). In the international comparison, the level of Hungarian demand deposits is relatively low, but the share of securities is the highest in the region, which means that the level of households' financial assets is the highest in Hungary among the Visegrad countries. The high share of securities is the consequence of significant government securities investments (MNB 2016).

Figure 7

### Household gross financial assets in the Visegrad countries by asset type



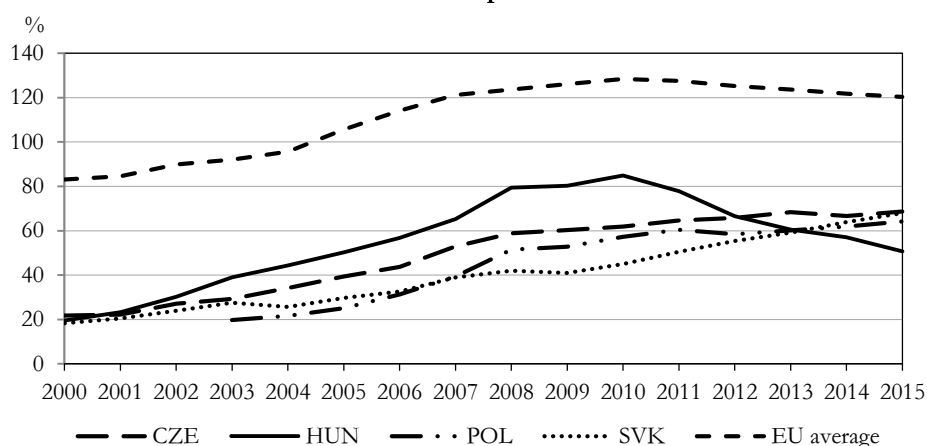
*Note:* Types of financial assets: monetary gold and special drawing rights; currency and deposits; debt securities; loans; equity and investment fund shares or units; insurance; pension and standardised guarantee schemes; financial derivatives and employee stock options; other accounts receivable/payable.

*Source:* Own calculation based on Eurostat database.

Credit to household trends increased considerably. However, the pace of increase varied across the region. The only exception to this trend was Hungary where households became more risk aware, due to the unfavourable impact of the 2008 crisis, and made attempts to get rid of their foreign-currency denominated debts (see Figure 8). It is observable that the households' debt to disposable income ratio is lower in the Visegrad countries than the EU average, which also shows a slow consolidation after 2011. In Slovakia, there was a great increase in this indicator from the beginning of the 2000s, which corresponds to structural changes and to positive macroeconomic development reflected in strong demand (National Bank of Slovakia 2006). In the last five or six years the increase of households' debt to disposable income ratio was more rapid, which can be explained as a result of improved financial conditions that are triggering higher credit growth and rising household debt in excess of increases in gross disposable income (IMF 2016).

Figure 8

### Households' debt to disposable income ratio



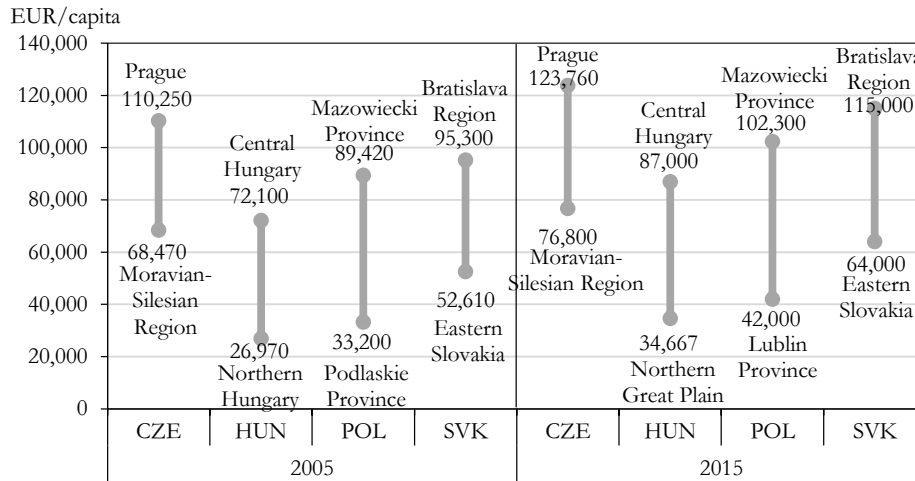
Source: Own calculation based on Eurostat database.

Household net financial assets are largely dispersed at NUTS 2 level, especially in the case of Hungary and Poland (see Figure 9).

In the examined period, we have analysed the distribution of net financial assets, and we have observed that the greatest in-country differences between the maximum and minimum values (150.95%) are present in Hungary. It is a positive fact, that the differences decreased by approximately 2.44% from 2005 to 2015. The lowest difference between the maximum and minimum values of financial assets is characterised by the Czech Republic in 2015 (61.14%), which increased by 0.48% from 2005. Poland has shown similar tendencies to Hungary in the examined years, as the difference of regional values was 143.57%, with a decrease of 3.92% from 2005. In Slovakia, there was a 79.68% gap among the values (which is 0.44% lower than in 2005).

Figure 9

**Distribution of household net financial assets at NUTS 2 level in the Visegrad countries**

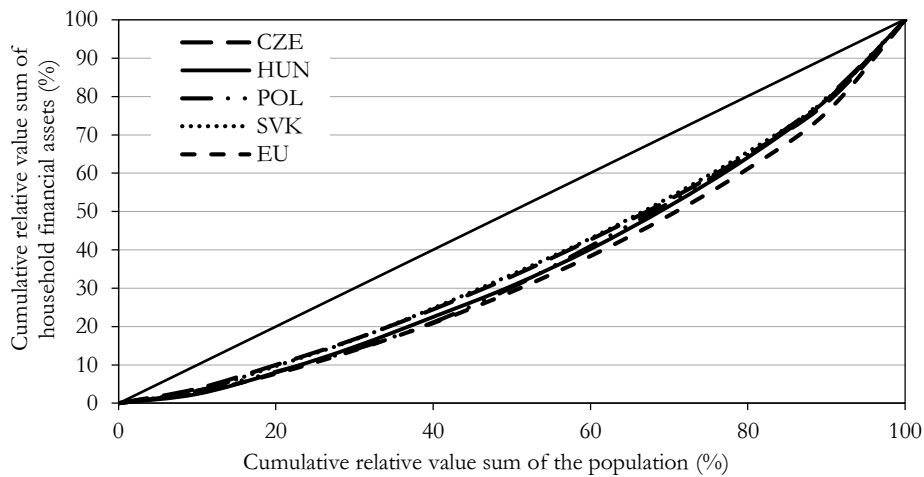


Source: Own calculation based on Eurostat database.

The distribution of household net financial assets in the Visegrad countries is similar and closely follows the distribution of the net income (see Figures 10).

Figure 10

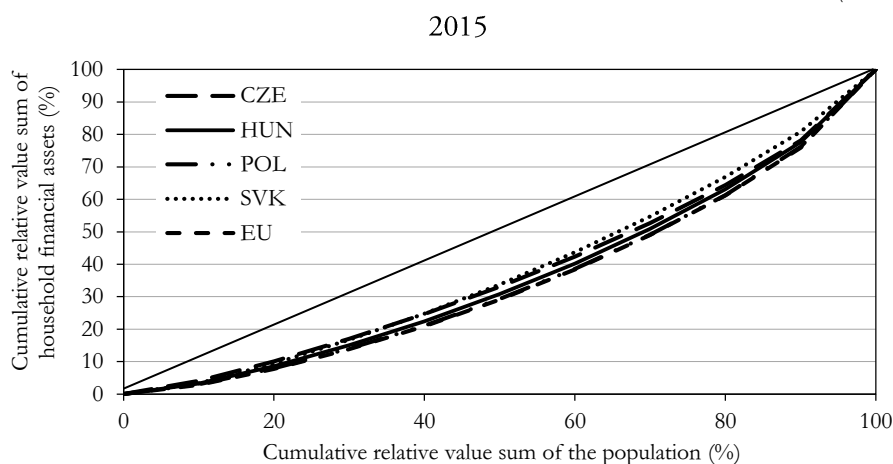
**Distribution of household financial assets in the Visegrad countries 2005**



(Continued on the next page)



(Continued)



Source: Own calculation based on ECB database.

The period after the crisis of 2008 saw a considerable increase in the net financial assets of households (see Figure 9 and Table 3).

Table 3

**GINI index of household net financial assets**

	Eurozone	CZE	HUN	POL	SVK
2005	0.678	0.641	0.652	0.624	0.598
2008	0.672	0.634	0.651	0.662	0.620
2010	0.648	0.588	0.650	0.619	0.576
2012	0.633	–	–	–	0.450
2015	0.685	0.521	0.643	0.587	0.492

Note: There are no 2012 data for the Czech Republic, Hungary, and Poland.

Source: ECB database and household finance and consumption survey data.

### Effects of monetary policy on household wealth

In housing loan practices related to housing construction/purchases, mortgage borrowings denominated in foreign currencies (in EUR and Swiss franc [CHF]) soared at the beginning of the 2000s (especially in Hungary and Poland) due to high inflation, high bank interest rates and more favourable credit conditions.<sup>12</sup>

As a result of the 2008 financial crisis and the weakening rate of the Hungarian forint (HUF) and the Polish zloty (PLN), the interest rates and capital repayments in

<sup>12</sup> In Hungary, in the summer of 2011, 576 thousand households had mortgages, i.e. almost 1.9 million people (every fifth Hungarian) were involved, 287 thousand families out of these (almost 945 thousand people) had a loan in foreign currency (kormanyzat.hu; date of access: 25/06/2012).

respect of loans gradually grew. An increasing number of mortgage holders were unable to meet their obligations; thus, they expected their government to introduce some measures to ease their burden.<sup>13</sup>

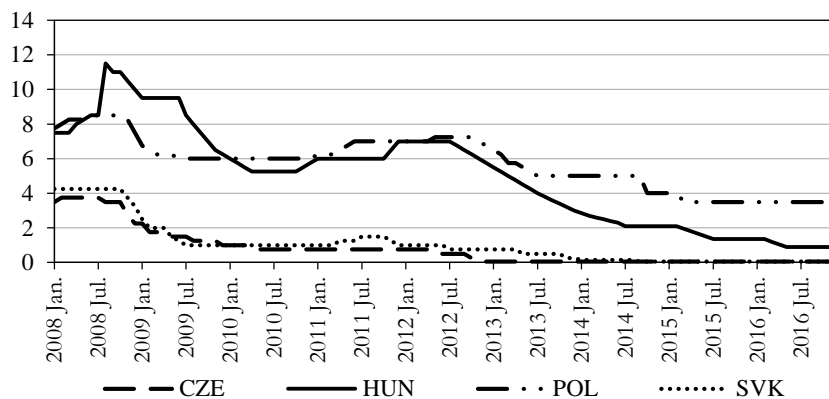
Mortgage lending considerably reduced the consumption of households, exposing both the population and the government, wishing to handle mortgage-lending problems, to long and protracted difficulties.<sup>14</sup>

As a consequence of the financial crisis of 2008, the real economy experienced a serious downturn, and the unemployment rate rose in the countries of the region. In order to compensate for this, the central banks of Europe (e.g. ECB as well as the Czech, Polish and Hungarian central banks) took a more active role in resolving the problems than before (albeit more belatedly than the Fed). In order to prevent further GDP decline they decreased interest rates and launched non-traditional monetary programs (e.g. quantitative easing).

In this respect, the Czech National Bank was the most active since it practically kept its base rate at almost zero from the end of 2012. The Slovak National Bank followed the ECB policy (see Figure 11).

Figure 11

#### Change of the central bank base rate in the Visegrad countries



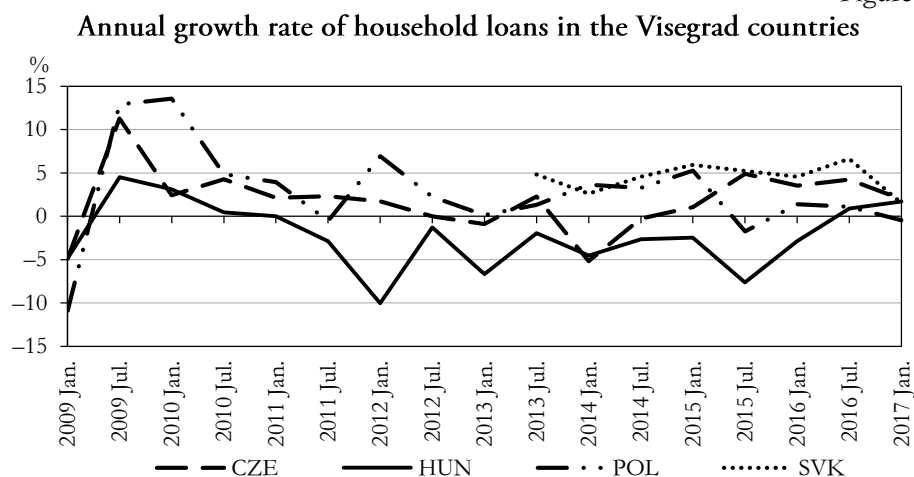
Source: Own calculation based on Czech, Hungarian, Polish, and Slovak central bank data.

<sup>13</sup> The situation got even worse when in January 2015 the Swiss Central Bank unexpectedly abandoned the CHF 1.2 exchange rate threshold in EUR/CHF exchange rate, in effect from January 2011 (thus preventing CHF from strengthening), and let CHF get stronger, which also cut the EUR/USD exchange rate. As a result, the HUF and the PLN started to devalue. The majority of the Hungarian foreign currency borrowers, who had taken the opportunity of the National Bank of Hungary with a measure of HUF-denominated foreign currency lending, averted the disaster, however, nearly 377,000 car loan and personal loan contracts went through gross revaluation.

<sup>14</sup> According to the Polish Financial Fiduciary Authority (KNF), Polish mortgage holders can be supported by about 9.1 billion PLN (670 billion HUF) if they accept the related law. According to the draft endorsed by the president, Andrzej Duda, the mortgage lending banks had to repay their customers the difference between the allowed price gap (the difference between the disbursement and repayment rates compared to the official central bank rate) and the interest rates of the loans granted in CHF – between 1 July, 2000 and 26 August, 2011. The latter date coincides with the date when the measures to eliminate the price gap came into force (Mártonffy 2017).

The number of credit transactions and their value decreased in the examined period, especially in Hungary (see Figure 12). The decrease in the base rate had a favourable impact on GDP (see Table 4) and public debts (see Figure 16) in all four countries, however, this was not experienced immediately.

Figure 12



Source: Own calculation based on Eurostat data.

After the financial turmoil of 2008, the impact of interest rate cuts affected inflation to a lesser extent than in the 1995–2007 period due to the moderate consumption of the population (see Table 4).

Table 4

**Impacts of monetary policy on issuance (GDP)**

Denomination	CZE	HUN	POL	SVK
1995–2007				
Base rate	-0.791**	-0.916**	-0.918**	-0.920**
Inflation	-0.676*	-0.858**	-0.846**	-0.609*
CDS surcharge	N/D	N/D	N/D	N/D
Employment	-0.247	0.830**	-0.174	0.395
Base rate (by filtering the employment rate)	-0.921	-0.598	-0.896	-0.880
2008–2015				
Base rate	-0.534	-0.789*	-0.683	-0.856**
Inflation	-0.093	-0.674	-0.757*	-0.398
CDS surcharge	-0.562	-0.457	-0.572	-0.363
Employment	0.813*	0.727*	0.714*	0.286
Base rate (by filtering the employment rate)	-0.300	-0.487	-0.229	-0.868

*(Continued on the next page)*

(Continued)

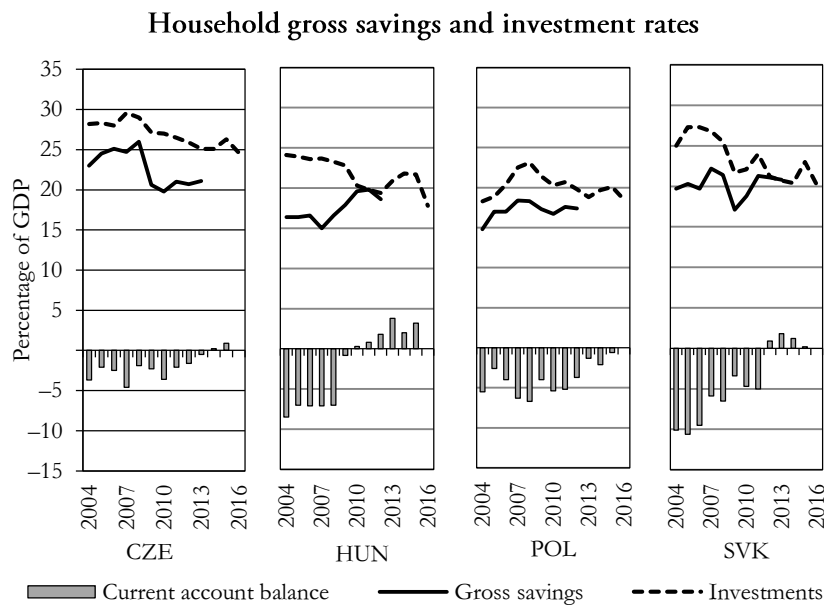
Denomination	CZE	HUN	POL	SVK
	NUTS 2			
	2007			
Employment	0.081	0.902**	0.810**	-0.719
	2015			
Employment	0.180	0.860*	0.863**	-0.796

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ . CDS stands for credit default swap. As for CDS spreads, the data were available for the 2010–2015 period. The employment rate data covers the years 1998 to 2015.

Source: Own compilation based on Eurostat, World Bank, Bloomberg data, and Czech, Hungarian, Polish, and Slovak central bank data.

The 2008 crisis also curbed the investment and savings rates of households (see Figure 13).

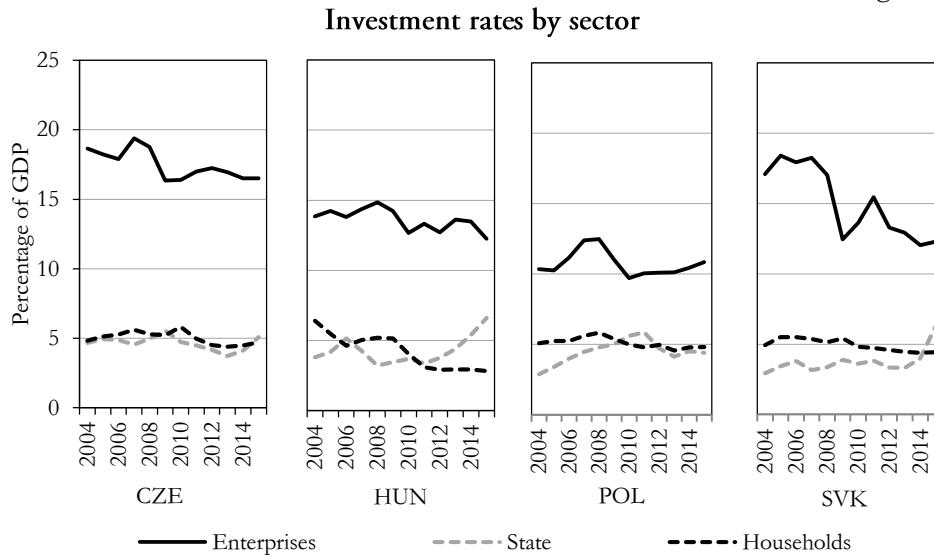
Figure 13



Source: Own calculation based on Eurostat data.

The willingness of households to invest fell especially in Hungary (see Figure 14).

Figure 14

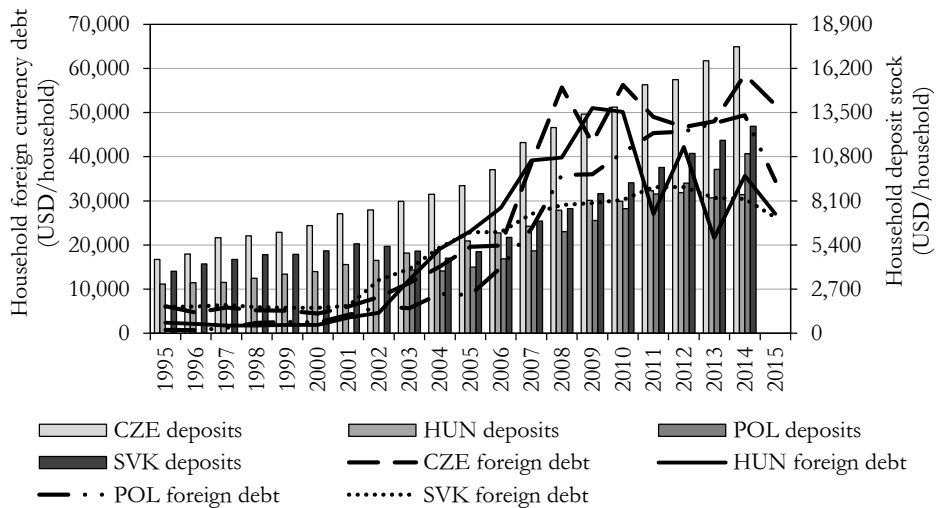


Source: Own calculation based on OECD data.

From the beginning of the 2000s, in the Visegrad countries the demand for consumer durables and new homes increased, and people intended to cover this demand mainly from long-term loans (see Figure 15).

Figure 15

### Change in foreign currency debt and household deposits in the Visegrad countries



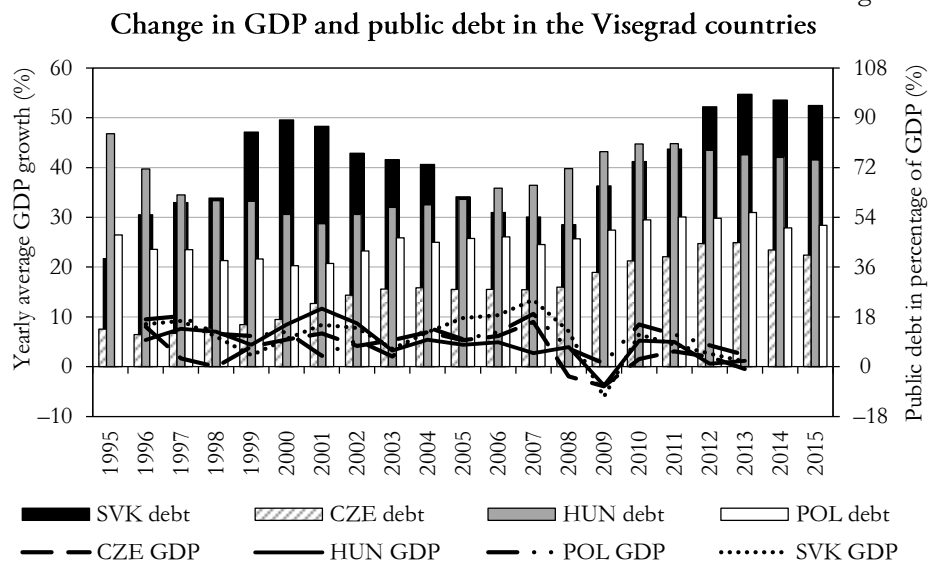
Source: Own calculation based on OECD data.

Compared to debt practices followed decades ago, a new element emerged in the credit growth (mainly in Hungary and Poland), namely the indebtedness in foreign currencies.

The turbulence of the financial crisis in 2008 affected families extremely unfavourably. Lending banks further weakened national currencies. As a result, mortgage borrowers were trapped: most of them had almost no chance to repay the continuously increasing monthly instalments. Consequently, banks began to enforce their rights in line with the mortgage contract. Low-income young families got into a particularly disadvantageous situation. As a result of the crisis, however, unemployment grew in the majority of the region, which also affected the income disparities.

After the change of regime, Czechoslovakia's public debt was extremely low compared to Poland's and Hungary's. The Czech Republic and Slovakia have retained this advantage while Hungary has again increased its public debt since 2002 (see Figure 16).

Figure 16



Source: Own calculation based on Eurostat data.

### Chances of restoring financial positions

There is no consensus in the economic literature in connection with the income recovery from crisis (Lehmann et. al. 2017). There is a debate as to whether GDP

growth will return to the pre-crisis level, if there will be a prolonged decline in the level, or whether a long-lasting loss of growth will be experienced.<sup>15</sup>

In fact, three scenarios can be outlined for the future of GDP: 1. it will return to the original growth rate (trend); 2. the deviation from the original trend will be permanent, and a new lower but parallel trend will emerge; 3. a new, flatter trend will be observed.

Following 1990, there is already some empirical experience in the case of Hungary, where in 2002 the labour income reached the average level of 1990, while pensions did so in 2004.

According to the current data, the financial crisis of 2008 slowed down growth rate of household income and financial assets in the Visegrad countries. Since 2010, it has been on a new trend path. In the period of 2010–2015, household loan stocks were written-off and restructured, which had a significant impact on the wealth of households, for each asset item.<sup>16</sup>

According to our estimates, the restoration of financial assets has slowed down due to the rising household lending, the recovery of housing markets and rising consumption (providing the Fed and ECB's tightening monetary policy will not cause more turbulence in the global financial markets).

In the coming years, net financial savings of households may decrease as a result of increasing consumption which was hindered by the crisis, measures introduced by governments, decreasing interest rates, and increasing household investments. In the future, the financing potential of households may further exceed the pre-crisis level and may amount to around 4% of GDP in the region by 2019.

## Conclusions

The neoliberal economic policy revolution of the 1970s resulted in the increase in households' income and wealth differences in developed countries. This trend in the Visegrad countries became stronger, with a delay, after the 1989/1990 geopolitical model change. This was partly due to the change in the economic structure in the countries of the region and, on the other hand, to privatization, where a small social group acquired a significant part of former state property.

In the 2000s, the growth in the income gap between households slowed down, and after the crisis of 2008, the differentiation of the wealth of households in the region continued.

Despite the restarted growth, the financial property of households in the Visegrad countries is significantly smaller than in the developed EU member states.

<sup>15</sup> According to a 2000–2016 study on real GDP in the US and the Eurozone (Lehmann et. al. 2017), the recovery in GDP was slower in the period following the outbreak of the crisis than before the crisis.

<sup>16</sup> Our findings are in line with the fact that the rate of recovery of income depends on the real GDP growth rate.

Serious social tension emerged – due to foreign currency mortgages – whose treatment required serious state interference in Hungary. These tensions are still experienced even nowadays.

According to our empirical studies, there would have been a credit crunch (lack of money and lending willingness) without monetary and fiscal easing after 2008. The relaxed monetary policy of the relevant central banks (Czech, Polish and Hungarian) was therefore justified. At the same time, this policy could only partially compensate for the economic downturn due to the banks' pro-cyclical lending practices. As a result of the crisis, income differences started to rise again, which led to even wider gaps in incomes.

The loss of family assets was mainly due to families affected by foreign currency mortgage lending (for Hungary and Poland).

Recovery of income and wealth has begun, but it will take at least 3-4 years to reach the pace of pre-crisis growth. In addition, its level could be permanently lower since more families and credit institutions are behaving more cautiously than before the crisis.

On the other hand, it has been demonstrated that the more open an economy is (e.g. the Visegrad countries), the more vulnerable the affected households are to the global crisis. Therefore, in order that the impacts of the expected financial crises could be addressed, increased attention should be paid to macro-prudential regulation, ethical interest rates, as well as to strengthening the financial culture of the population.

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