

Government Indebtedness and Family Indebtedness as an Inseparable Twins in the Modern World

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Abstract— This work seeks to explore the ties between certain aspects of government indebtedness in various countries (and the indebtedness of public budgets at large) and indebtedness of families in modern developed economies. Despite the differences between national economies that modern states shape to their liking and the situation of families in developed countries that are coerced to act within the limits outlined by the legal framework imposed by governments, a number of similar behavioural patterns may be identified between the two groups. A substantial amount of evidence exists that proves the thesis that a change in the behaviour of modern families stems out of not just the increased focus of banks on retail clients but also of the idea of indebtedness as an acceptable and natural model of behaviour, with the modern states leading by their example. The correlation analysis based debt ratios of selected countries and their families were made. A strong dependence was found between the evolution of government debt and their families in Hungary and the Czech Republic. No evidence of significant correlation between changes in the debt ratio of families and government debt was found in case of Euro area (16 countries).

Keywords—Correlation analysis, default, family indebtedness, government indebtedness, public budget deficit

I. INTRODUCTION

INDEBTEDNESS of countries (governments and public budgets at large) and household indebtedness share certain development features that invite several interesting questions. It is important to note that significant government debts are a phenomenon that has grown into a mass proportion only over the last several decades – say over the last half a century. The massive household indebtedness is even newer a phenomenon and has been a significant feature for approximately the last 25 years.

Therefore, we should ask the same questions as we do when assessing all “modern” phenomena without any substantial historical experience. The question stands: “What impact will a particular phenomenon have?” which translates, in this particular case, into: “What will the consequences be of the fact that families in the most developed countries have incurred debts equal to their annual disposable income?”

The question is indeed an exciting one. For illustrative purposes, consider the situation of the Czech Republic over the last twenty years. The country is far from being the most indebted one both in terms of government liabilities (or public sector liabilities) as well as household debt. In this respect, the country may be considered “trouble-free”. Throughout most of

the 1990s, public debt of the Czech Republic was almost stable, with occasional increases due to the necessity to finance reforms, e.g. government aid provided to the Czech banking industry as banks borne the costs of privatization via privatization loans. Data concerning government expenditures on this particular purpose differ, although most scholars agree on an amount between 250 to 350 billion crowns, i.e. somewhere between ten to fifteen billion euros, although the truth is that, at the time, the euro was yet to be created. Conversion of the amount into the USD is also problematic as the USD-CZK exchange rate has been anywhere from 1:40 to 1:15 over the last fifteen years. When this debt was incurred by the Czech cabinet, it amounted to 15 or 20 per cent of GDP, but since it was for some time “concealed” outside the official figures, this statement is rather confusing. But, realistically, the buyout of banks and other costs associated with financial economy have amounted to 10% of Czech Republic’s GDP.

It was not until 1997 and 1998 that the debt dynamics started to pick up, following the resolution of a local monetary crisis. At that time, the old debts were officially recognized as a standard part of public finance for the first time, the government would repeatedly buy out banks as they were preparing for being privatized, and, most importantly, the government also supported growth by implementing targeted budget deficits. Public debt has shown a rather dynamic growth ever since; specific figures will be discussed later.

The debt level of Czech families lagged behind in the growth, picking up approximately since 2002; however, its increase was a substantial one: during the first years of the 21st century, it grew at an annual rate of up to 35%, i.e. the debts doubled in less than three years, [1]. The cases of other European countries also show that the willingness of families to accept debt financing stems not only from the development of the banking industry, with its continued focus on retail debtors, but is also led by the “example” of the state, particularly by government incentives vis-à-vis mortgages, as stated by [2].

II. SHORT HISTORY OF GOVERNMENT DEBT

Saying that public debt and household debt are new phenomena within the economy is naturally subject to a few reservations. For example, the Roman Empire also incurred some serious debts. The collapse of its western part in the second half of the 5th century was the result of the migration of

nations, which was caused, among other factors, by the Romans withdrawing from the Rhine area. And, to a large extent, the withdrawal was the result of desperate economic policy of the state, with extreme devaluation of the gold and silver currency base that led to a general economic turmoil of an unseen scope. The historians of the period noted, somewhat ironically, that in many locations, the Barbarians had received a warmer welcome than the imperial tax collectors. The almost permanent government insolvency was dealt with through forced loans or via political processes resulting in seizures of property of the richest classes.

However, this changes nothing about the fact that government debt as we know it today is a relatively modern occurrence. To give you an idea – when Louis XIV needed money to finance the War of the Spanish Succession or Louis XVI sought to support the emerging United States of America in their war against the British, extraordinary taxes were imposed. They had a devastating economic impact. The subsequent revolution, including the beheading of Louis XVI, led to a somewhat painful realization that unbearable taxation of work and property inevitably leads to coups that eliminate the government as well as the system in place. While government loans naturally existed, their amounts would be perceived as marginal by today's standards. Other reasons for that were religious as most religions, including Judaism, Christianity and Islam, expressed some serious reservations concerning lending at interest. In Islam, the tradition has been maintained until the present day, still shaping the system of Islam banking. These lessons eventually led to an understanding that in order to maintain long-term peace within the society, long-term loans were a method preferable over instantaneous taxation when extraordinary financing was needed.

State default and insolvency have become “widespread” in just the last several decades, although this does not mean they would be unheard of throughout history. Although when we look at the first state insolvencies in the 16th century (Spain under the reign of Philip II 1557–1592 became insolvent three times), as well as the 18th and 19th centuries (Austria and Denmark became insolvent during/after the Napoleonic Wars), the period after WW1 (with red Russia insolvent in 1919 and Germany in 1923) or following WW2 (Germany 1948), these cases were almost exclusively the result of extreme wartime expenditures as opposed to being the result of erroneous economic policy of the government.

The current national debt is rising (in the last thirty years), primarily resulting from deficits in the government, but the result of efforts of governments to “improve” the standard of living and quality of life of its own population in excess of what would provide the economy “on its own free will”. This leads to the fatal economic mistakes, the overloading of the economy's ability to fund allocation, the imbalance in the monetary and fiscal terms, and then to the uncontrolled collapse of finance.

In this respect, the second half of the 20th century saw a

major shift. The period was filled with larger or smaller monetary or financial crises, with a number of them resulting in insolvency of governments – whether this would mean the incapacity to honour the full amount of liabilities as they became due or unwillingness to pay (Russia 1998). Also the countries of Latin America experienced what may be called a state bankruptcy (with Argentina being on or beyond the verge of bankruptcy for the last thirty years, with the most famous cases being the bankruptcy of 1999 to 2002 and the year 2005 when the country stripped the creditors holding its government bonds of approximately 90% of their original value, with other examples including Brazil, the financial sinking of Ecuador in 2009 or two insolvency periods in Mexico at the end of the 20th century). The Asian Tigers of the first and second generation also went through a period of insolvency, including Singapore, Indonesia, Thailand, Korea and others. Then we have the case of Iceland, the last minute buyout of Greece, potential bankruptcy of Spain, Portugal, Italy, serious problems in Great Britain and Ireland, the state of insecurity in the United States that makes the entire global economy nervous, and the astronomical debts of Japan... all this changes the way state debts are perceived.

When we look at Table 1, i.e. the countries that experienced at least 2 periods of insolvency, we see relatively successful, even if not the most developed, countries. As the last months have shown, however, bankruptcy may affect any country. Not surprisingly, the way in which state debts are perceived is undergoing a major change. Some thirty forty years ago, economics students were taught the “unshakable truth” that a state could not go bankrupt because if a situation like that was imminent, the government would simply raise taxes. The roots of this assumption are deeply anchored in the past. Now it is becoming apparent that in a global world, the tax burden cannot be increased without affecting others, raising taxes is not that easy and crises come so quickly and are so drastic that trying to solve them with increased revenue would be absurd. Added to this is the fact that current solvency crises do not target creditors using the same currency, maybe with the exception of United States or the euro area countries, and most creditors do not benefit from tax rises as these only generate local currency, rather than the one needed to cover the liabilities.

The problem of indebtedness has grown to concern not only the countries with relatively strong and important economies but also the most developed states. As Table 2 shows, the state debt in individual countries has been growing dramatically.

What is alarming is that the vast majority of these countries posted much lower debts in the late 1990s, mostly more than 10 percentage points lower compared to the 2009. This is even more worrisome when we realize that the global economy went through a period of a steady and long boom at that time. Only a handful of the states actually went in the opposite direction of debt reduction, including Denmark which posted debts of more than 60% GDP in 1998. Also Belgium has shown perseverance in tackling the problem. However, most of the

countries rely on the favour of markets. While it is true that if it had not been for the 2008 and 2009 crisis, the total debt would be significantly lower, it is also true that many countries, including the euro area which should serve as a showcase example of budgetary discipline and modesty, have continued accumulating their debts over many years; while the countries' total debt expressed as a percentage of GDP was reduced in the new millennium, it was merely the result of their GDP growing – in absolute numbers the debts continued to rise.

Table 1 Countries with repeated insolvencies
(Source: Manasse, P. – Roubini, N. (2005),
<http://www.penize.cz/46095-kdy-muze-stat-vyhlasit-bankrot>)

Country	Insolvency cases	Average duration (years)	Critical periods
Argentina	3	5	1982-94, 1995-96, 2001-
Bolivia	2	6,5	1980-85, 1986-94
Brasil	3	5,3	1983-95, 1998-00, 2001-
Ecuador	2	8	1982-96, 1999-01
Indonesia	2	2,5	1997-01, 2002-
Jamaica	3	4,7	1978-80, 1981-86, 1987-94
Mexico	4	1,8	1976-78, 1985-88, 1989-90, 1993-94
Morocco	2	2	1980-82, 1997-99
Peru	2	5	1982-91, 1995-96
South Africa	2	3	1983-84, 1986-91
South Korea	3	6,3	1976-77, 1978-81, 1983-98
Thailand	2	1	1981-82, 1997-98
Turkey	2	3,5	1978-83, 2000-02
Uruguay	2	2	1983-86, 1987-88, 1990-92
Venezuela	3	3,3	1983-89, 1990-91, 1995-98

Table 2 Government consolidated gross debt as a percentage of GDP
(Source: Czech Statistical Office,
<http://apl.czso.cz/ode/tab/teina220.htm>)

Country	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	60.4	61.8	62.2	62.7	61.4	58.8	61.6	73.6
EU-25	60.6	62.0	62.5	63.1	61.9	59.4	62.3	74.3
EU-15	61.6	63.0	63.3	64.1	62.8	60.4	.	.
Euro area-16	68.0	69.1	69.5	70.1	68.3	66.0	69.4	78.7
Euro area-15	68.1	69.2	69.6	70.3	68.5	66.2	69.7	79.0
Austria	66.5	65.5	64.8	63.9	62.2	59.5	62.6	66.5
Belgium	103.5	98.5	94.2	92.1	88.1	84.2	89.8	96.7
Bulgaria	53.6	45.9	37.9	29.2	22.7	18.2	14.1	14.8
Cyprus	64.6	68.9	70.2	69.1	64.6	58.3	48.4	56.2
Czech Republic	28.2	29.8	30.1	29.7	29.4	29.0	30.0	35.4
Denmark	48.3	45.8	44.5	37.1	32.1	27.4	34.2	41.6
Estonia	5.7	5.6	5.0	4.6	4.5	3.8	4.6	7.2
Finland	41.4	44.4	44.4	41.8	39.7	35.2	34.2	44.0
France	58.8	62.9	64.9	66.4	63.7	63.8	67.5	77.6
Germany	60.4	63.9	65.7	68.0	67.6	65.0	66.0	73.2
Greece	101.7	97.4	98.6	100.0	97.8	95.7	99.2	115.1
Hungary	55.6	58.4	59.1	61.8	65.6	65.9	72.9	78.3
Ireland	32.2	31.0	29.7	27.6	24.9	25.0	43.9	64.0
Italy	105.7	104.4	103.8	105.8	106.5	103.5	106.1	115.8
Latvia	13.5	14.6	14.9	12.4	10.7	9.0	19.5	36.1
Lithuania	22.3	21.1	19.4	18.4	18.0	16.9	15.6	29.3
Luxembourg	6.3	6.1	6.3	6.1	6.5	6.7	13.7	14.5
Malta	60.1	69.3	72.1	70.2	63.7	61.9	63.7	69.1
Netherlands	50.5	52.0	52.4	51.8	47.4	45.5	58.2	60.9
Poland	42.2	47.1	45.7	47.1	47.7	45.0	47.2	51.0
Portugal	55.6	56.9	58.3	63.6	64.7	63.6	66.3	76.8
Romania	24.9	21.5	18.7	15.8	12.4	12.6	13.3	23.7
Slovakia	43.4	42.4	41.5	34.2	30.5	29.3	27.7	35.7
Slovenia	28.0	27.5	27.2	27.0	26.7	23.4	22.4	35.9
Spain	52.5	48.7	46.2	43.0	39.6	36.2	39.7	53.2
Sweden	52.6	52.3	51.3	51.0	45.7	40.8	38.3	42.3
United Kingdom	37.5	38.7	40.6	42.2	43.5	44.7	52.0	68.1

What does the above information reveal? In fact, the conclusion is quite sad. The fact that the nominal amount of debts was not reduced but, to the contrary, continued growing shows that the individual countries of the euro area as well as the EU as a whole continuously enforced the same policies that were based on growing indebtedness as a standard behaviour. Even though some voices expressed their concern about excessive indebtedness, they were mostly rejected on the grounds that, compared to GDP, debts did not grow but were stable or went down. This was used as a proof that careful and realistic concept prevailed within public finance. But the fact is that in nominal terms, the euro area countries (euro area-15) increased their debts by almost 57% during the period of 1998 to 2009 (Table 3).

Table 3 Government consolidated nominal debt in billions EUR
(Source: Czech Statistical Office,
<http://apl.czso.cz/ode/tab/teina200.htm>)

	1998	1999	2000	2001	2002	2003
Euro area	4,359	4,473	4,528	4,799	4,953	5,184
Euro area-16	4,492	4,618	4,694	4,825	4,981	5,215
Euro area-15	4,486	4,609	4,683	4,814	4,97	5,202
EU-27	5,422	5,645	5,694	5,843	6,001	6,245
EU-25	5,408	5,629	5,676	5,822	5,981	6,227
	2004	2005	2006	2007	2008	2009
Euro area	5,426	5,676	5,807	5,911	6,406	7,062
Euro area-16	5,46	5,71	5,842	5,94	6,424	7,062
Euro area-15	5,446	5,697	5,828	5,924	6,406	7,04
EU-27	6,595	6,937	7,174	7,269	7,699	8,688
EU-25	6,576	6,918	7,156	7,249	7,677	8,655

Even though the general political rhetoric seemed to disapprove of the increasing indebtedness, the governments acted in exactly the opposite way. By trying to hide the real state of affairs through expressing debt as a percentage of GDP, the governments created an overall feeling that it is “OK to have debts”, when “things are fine” and debts are “under control”. The message governments actually sent out to families was: “If you expect your future income to be sufficient, go ahead and take out a loan”. And as governments continued lending, families automatically assumed that “income expectations were looking good.”

What the governments did not say or did not stress enough was that their debt was mostly foreign, i.e. held by foreign investors. This situation encompasses certain currency risks and threat to balance [3]. Table 4 shows that the Euro zone countries which are considered the riskiest have also posted significantly negative current account balances.

Whether we look at Greece, Portugal, Spain or other countries that are in potential danger of a monetary crisis, including Italy and, maybe somewhat surprisingly to some, the U.K., we see that the indicator has developed in an unfavourable way, in sharp contrast to stability. If the high deficit of the current account is linked to dynamic growth of other debt, then the debt service financing is basically ruled out since the affected (perhaps “badly managed” would be more fitting) country has “nowhere to escape within the euro area.” If the country had its own currency, it could come to terms with its defeat and devalue its currency with all impacts such a situation entails for the local inhabitants and economy, and, after going through a period of crisis, the country could re-emerge stronger thanks to its competitive advantage thus gained. However, within the euro area, such a solution is impossible and we may only guess what message this sends out to families in respect to debts.

But not to stay only in the European Union let us have a look at other countries for illustration (Table 5).

Table 4 Current account balance as a percentage of GDP (Source: Czech Statistical Office, <http://apl.czso.cz/ode/tab/teina200.htm>)

Country	2003	2004	2005	2006	2007	2008
EU-27	.	-0,40	-0,80	-1,2	-1,1	-2,1
Euro area 16	0,30	0,80	0,10	-0,10	0,10	-1,50
incl.:						
Belgium	7,1	6,6	2,6	2,0	2,2	-2,5
Bulgaria	-8,5	-6,6	-12,4	-18,4	-25,2	-25,4
Czech Republic	-6,2	-5,3	-1,3	-2,4	-3,2	-3,1
Denmark	3,4	3,0	4,3	3,0	1,5	2,2
Estonia	-11,3	-11,3	-10,0	-16,9	-17,8	-9,4
Finland	5,2	6,6	3,6	4,5	4,2	3,0
France	0,4	0,6	-0,6	-0,5	-1,0	-2,3
Ireland	0,0	-0,6	-3,5	-3,6	-5,3	-5,0
Italy	-1,3	-0,9	-1,7	-2,6	-2,4	-3,4
Cyprus	-2,3	-5,0	-5,9	-6,9	-11,7	-17,5
Lithuania	-6,8	-7,7	-7,1	-10,6	-14,5	-11,7
Latvia	-8,2	-12,9	-12,5	-22,5	-22,3	-13,0
Luxembourg	8,1	11,9	11,0	10,3	9,7	5,5
Hungary	-8,0	-8,3	-7,2	-7,5	-6,8	-7,1
Malta	-3,1	-6,0	-8,8	-9,2	-6,1	-5,6
Germany	1,9	4,7	5,1	6,5	7,9	6,6
Netherlands	5,5	7,5	7,3	9,3	8,7	4,8
Poland	-2,5	-4,0	-1,2	-2,7	-4,7	-5,1
Portugal	-6,1	-7,6	-9,5	-10,0	-9,4	-12,1
Austria	1,7	2,1	2,0	2,8	3,6	3,2
Romania	-5,5	-8,4	-8,6	-10,5	-13,4	-11,8
Greece	-6,5	-5,8	-7,5	-11,3	-14,4	-14,6
Slovakia	-0,8	-3,4	-8,4	-8,2	-5,7	-6,6
Slovenia	-0,8	-2,6	-1,7	-2,5	-4,8	-6,2
United Kingdom	-1,6	-2,1	-2,6	-3,3	-2,7	-1,6
Spain	-3,5	-5,3	-7,4	-9,0	-10,0	-9,6
Sweden	7,2	7,3	6,9	8,4	8,8	6,3
Other countries						
Japan	3,2	3,7	3,6	3,9	4,8	3,2
Norway	12,9	13,6	16,3	17,2	16,0	19,5
United States	-4,7	-5,3	-6,0	-6,0	-5,2	-4,9
Turkey	-2,5	-3,7	-4,6	-6,1	-5,9	-5,6

We see clearly that the debt is not just a problem of the European Union, on the contrary. The national debt is worth noting once again - it is very important how the debt is financed, not merely its volume. If we look at Japan, whose debt is astronomical and according to the latest information it exceeded 200 percent of GDP it is funded from domestic sources from more than 80 percent, which is far safer than smaller debt of Greece, which, however, depends on foreign investors in similar proportion. This remark, to some extent, although not fully explains why the markets plunge Greece, possibly Spain, Ireland and Portugal and leave Japan bond holders in peace.

Table 5 Public debt in selected world countries (2009, as percentage of GDP) (Source: CIA – Central Intelligence Agency – The World Factbook 2009)

Country	Public debt (% GDP)
Zimbabwe	304.30
Japan	192.10
Singapore	117.60
Iceland	95.10
Egypt	79.80
Israel	78.00
Canada	72.30
India	59.60
Uruguay	58.70
U.S.A.	52.90
Argentina	49.10
Turkey	48.50
United Arab Emirates	47.20
Finland	46.60
Switzerland	43.50
Mexico	42.60
New Zealand	29.30
Romania	20.00
Venezuela	19.40
Australia	18.60
China	18.20
Hong Kong	18.20
Chile	9.00
Qatar	7,10
Russia	6,90
Oman	2,80

But this is certainly not sufficient argument, for instance, the U.S. debt is already very high and dangerous their deficit astronomical, while the U.S. government still finds markets for its bonds.

The state infection, however, is spreading elsewhere, and in the present situation it is necessary to weigh against the seriousness of the debt not only of debt of governments themselves, but also against the debt of non-financial corporations and financial sectors. In this direction the breakthrough comparison includes a study by the McKinsey Global Institute, from 2010 titled *Deleveraging and Debt* [5].

This very interesting studies shows very suggestive new evidence that has been greatly overlooked in world economics literature but it will certainly get among closely watched problems after the Greek crisis - what level of debt is actually bearable for the economy in their completeness and common action? We must realize as developed countries broke down debt taboo with deficit financing particularly in the sixties, the overall social perception of debt has begun to change. Family debt began rising rapidly since the eighties, in the post-

communist countries since the new millennium, often with various government support to promote particular mortgage schemes as a way to acquire own housing.

It can be argued, and with good evidence that massive government subsidies and mortgage banking efforts of governments to address problems of individual support for the new housing development and purchase of residential units were a main reason for the financial crisis of 2007 and 2008. Unrealistic derivatives issued primarily in the United States have only become the gear lever problem creating the artificially induced real estate bubble, which led to a dramatically unbalanced state due to state investment aid represented by hundreds of billions and trillions of dollars.

III. FAMILY INDEBTEDNESS

Saying that the more debt a particular country has, the more indebted are its citizens would be easy; however, things are not so simple even though some common links do exist. One of them is shown in the early mentioned studies [1] that demonstrates the development of indebtedness of households in respect to their disposable income, using several countries as an example. The comparison is based on disposable income, i.e. it is free from somewhat dubious indicators such as standard of living or, in this particular case, nominal amount of debt.

Going back to government debt as a percentage of GDP (Table 2) and looking at the data concerning the Czech Republic, we can clearly see that an obvious correlation exists in this case. From what originally was a low government debt (less than 15 per cent in the 1990s) quite quickly became 40% of GDP. While the actual figure is exceptionally low within the EU, the speed in which it grew is quite striking. A quote by the Analytical Department of the Czech Statistical Office is very descriptive in this respect: *"Total indebtedness of Czech households to their gross disposable income grew up to 49.6% in 2008, up from 11.7% in 1997. The growth was most dynamic in 2004 – while the relative indebtedness of Czech households grew by 9.2 percentage points in 1997 to 2003, the growth amounted to 28.8 percentage points in 2004 to 2008."* The case of Hungary is also worth noting, it shows a very similar figure and dynamics of family indebtedness. The only difference may lie in the fact that Hungary was not so thrifty, although it is true that the difference dates back prior to 1989 when the communist regime in Czechoslovakia collapsed. Czechoslovakia split up peacefully on 1 January 1993 when two new countries were founded: the Czech Republic and the Slovak Republic. They both are now EU member states, with Slovakia having also joined the euro area.

Compared to their Hungarian counterparts, Czechoslovak economist managed state finance in a conservative way, with the debts of the Czechoslovak Socialist Republic remaining very low. This could only hardly be said about Hungary in the late 1980s, with Budapest continuing its rather bohemian budgetary practices even today. Lithuania and Latvia have seen their debts soaring, Poland has been unsuccessfully

struggling to keep its debts at bay, Bulgaria is an example of healthy state finance and Slovenia and Slovakia implement responsible budgetary policies – undoubtedly more responsible than the euro area as a whole.

Looking at the countries with a relatively high or fast growing debt, including but not limited to Lithuania, Latvia or Poland, we may see that the growth of family debt has also been dynamic. Some may say that the change in the behaviour of families in post-communist countries was not so much the result of “irresponsible government” but rather was caused by a sudden emergence of new banking products in the new millennium, with banks focusing on retail sales that were fuelled by reduced interest rates and government support granted to the mortgage market.

The booming banking services in post communist countries are an interesting subject discussed for example by [4] who states that: *“Considering the current trends, policymakers in the South Eastern European countries should analyze the pace of financial deepening through its three main determinants: productivity gains (greater productivity justifies higher speeds and larger accounts deficits), factor market flexibility (the compatibility between labour, capital and financial markets), financial development (in terms of regulation and infrastructure). The macroeconomic concerns associated with speedy financial deepening relate to economic overheating due to demand outstripping supply and excessive pressure put on prices.”*

However, the most representative data concerning the EU as a whole do not support the above assumption. In 1999, the indebtedness of households in EU-16 amounted to 72.3% of their disposable income. At the end of the first decade in the 21st century, household indebtedness of EU-25 reached 93.2% of their disposable income, with mild, yet steady growing trend. It is important to note that the people in new EU countries have mostly incurred a smaller amount of debt expressed as a percentage of their disposable income because the product offering was simply not so wide in the past and the socialist banks did not provide much credit. This means that the statistical development may not be explained by the EU suffering from an influx of “new and indebted” Europeans that distorted the statistics.

Unfortunately, without much exaggerating, European families act the same way as European countries. We are yet to see whether the families are to experience the same level of insolvency that plagued some countries of the euro area in 2009 and the first half of 2010, as in [6].

IV. RISK OF FAMILY DEFAULT IN EUROPE

A new disturbing question emerges: “How serious is the current level of financial fragility of European families?” Financial fragility is a notion mostly used in models that look into the financial vulnerability of banking systems. A number of works have been written on the subject over the last years, e.g. [7]– [10].

Other questions include the following: How many families

are actually at risk of insolvency and how could potential mass defaults of families affect social stability on the continent and within the banking industry? Is the risk of family default definable for various social groups, regions or based on other criteria? Are we able to create financial fragility models for families, similarly as they exist for banks? Simply: Will we be able, in the future, to carry out relatively exact calculations of potential family defaults, e.g. for the euro area if the key interest rate of the European Central Bank goes up to, say, six or seven per cent from the original three per cent level?

Default families and number of personal bankruptcies are rising in all developed countries, especially during the last three years (2008-2010) and at a pace very different regionally but always dynamically. In 2009, for instance, there were 2500 cases of personal bankruptcy declared in the Czech Republic, which is 248 percent more than in 2008 [11].

Very similar development is recorded by other European countries, and there is a real danger the situation will soon come closer to the state relatively common in the U.S., where cases of personal bankruptcy usually exceed the number of one million per year and their number is growing dynamically. Table 6 documents the situation in 2008 and 2009.

Table 6 Insolvent businesses and personal bankruptcies in the U.S.A. (Source: Creditreform, http://web.creditreform.cz/cs/resources/pdf/Insolvency_Evropa_20098918.pdf)

	2009	2008	Change 2008/2009
			%
Total	1,481,600	1,117,771	+32.5
Insolvent businesses	60,600	43,546	+39.2
Personal bankruptcies	1,421,000	1,074,225	+32.3

The question of default, so pressing at times of economic turmoil, seems to be often forgotten at times of economic boom. In this sense, managers and entrepreneurs are similar to scientists. When the times are good who wants to deal with disturbing problems? Even as we speak the threat of default seems to be underestimated, in spite of the euro crisis not being over, or, at least not definitely.

The debt phenomenon brings entirely new problems in many related areas. These are absolutely positively the accounting area [12] - [15] and the valuation of assets [16, 17], where new approaches are needed to be found, which are flexible and resilient to the effects of the economic cycle or to say human error [18]. The point is that the current dynamic global economy, which is dynamic in all senses of the word including a positively evolving system and also a treacherous marsh of a rapid fall, very quickly punishes all the imbalances in government finances as well as in other sectors of the economy, i.e. for businesses and individuals.

This is especially tricky because of the valuation of claims and their potential security - for this argument we could find perhaps millions of real examples in recent months and years. CDO, however, are probably the most famous case.

CDOs or Collateralized Debt Obligation are investment instruments related mostly to the underlying asset portfolio, which usually consists of loans, but they can be also lease contracts and other financial products.

Based on these underlying assets are securities designed to allow in principle to trade the risk of asset portfolio.

The whole system was formed around 1994 in the team bank JP Morgan in response to the BASEL I rules generally adopted in 1988 and implemented in key countries in 1992. They basically demanded that the banks just because of reducing the risk of capital hold of at least eight percent of their risk-weighted assets (assets were divided into five categories). In principle, Basel I, however, meant that the capital had to be eight percent on the assets, which meant a substantial burden primarily for large banks, and because of their portfolio it was really a quite hard measure. In 1996, the Fed confirmed transactions between JPMorgan Chase and Exxon Oil the legality of derivative transactions and transactions with risk. Originally, then, were traded products relative to credit quality in order to relieve the banks capital adequacy. Only later the boom came in derivatives developed based on very dubious asset values which are even shown to be extremely risky - even though these papers received high ratings. It is therefore clear that the original idea of trade with clear and definable risks was gradually transformed in the process which we call gambling. But at that time only few people recognized the fundamental change that took place between 1994 and 1996, when the principle of these trades, and the following year, say 2001, when the same procedure was used on completely different underlying asset quality.

The above questions and problems outlined are so pressing due to one simple reason. A hundred years ago, only very few people could imagine a state that would owe an amount equal to all products produced in its territory over an entire calendar year. Even thinking about government expenditures exceeding its income was equally impossible. On the contrary – states would provide government loans to infrastructure projects that they were interested in; it did not occur to anyone that a road or railroad should be built by the government, let alone that the government should build it by using money that it did not have. WW1 was such a blow to state treasuries and entailed such economic changes that debt, for the first time, became the inevitable solution. Ever since that time, the development in the Euro-American civilization has only made things worse. Over the last few decades, there has not been a single period when at least one of the major countries would not be insolvent.

Let us now have a look at the families and their financial situation. The U.S. example is absolutely extreme and the debt level of American families as well as the lack of savings on their part is alarming. But Europe has followed the U.S. footsteps and, for the first time, we are experiencing a situation where families owe one year-worth of their disposable income. Not long ago, no person would believe that any country of the Euro area could be on the brink of bankruptcy, let alone that

their number could grow up to three or five. While the state and family are two completely different economic units, the laws of mathematics apply to both of them equally.

V. STATISTICAL EVALUATION OF DATA

Using SPSS Statistics 15, the correlation analysis based debt ratios of selected countries and their families given in Table 7.

Table 7 Rate debt of selected states and families in 1999-2009 (Sources: Czech Statistical Office, <http://www.czso.cz/csu/csu.nsf/informace/ckta120310.doc>; *own calculation)

	Euro area (16 countries)		Germany		Hungary		Netherlands		Czech	
	Gross debt-to-income ratio of households %	Government consolidated gross debt (% of GDP)	Gross debt-to-income ratio of households %	Government consolidated gross debt (% of GDP)	Gross debt-to-income ratio of households %	Government consolidated gross debt (% of GDP)	Gross debt-to-income ratio of households %	Government consolidated gross debt (% of GDP)	Gross debt-to-income ratio of households %	Government consolidated gross debt (% of GDP)
1999	72.7	71.7	104.8	60.9	7.2	59.8	140.9	61.1	12.3	16.4
2000	74.3	69.2	105.0	59.7	9.4	55.0	151.6	53.8	13.0	18.5
2001	74.1	68.2	102.6	58.8	12.5	52.0	152.8	50.7	14.9	24.9
2002	77.1	68.0	102.6	60.4	18.5	55.6	163.6	50.5	17.7	28.2
2003	79.9	69.1	101.7	63.9	27.3	58.4	179.3	52.0	20.9	29.8
2004	83.5	69.5	100.3	65.7	32.1	59.1	189.6	52.4	26.1	30.1
2005	88.2	70.1	98.2	68.0	37.5	61.8	205.3	51.8	33.7	29.7
2006	92.1	68.3	95.9	67.6	42.3	65.6	218.8	47.4	36.7	29.4
2007	94.4	66.0	92.7	65.0	49.5	65.9	222.3	45.5	44.8	29.0
2008	94.6	69.4	88.7	66.0	61.5	72.9	230.1	58.2	50.0	30.0
2009	96.3	78.7	89.2	73.2	62.7	78.3	241.3	60.9	55.2*	35.3

The achieved results for each rated file are presented in Table 8.

Table 8 Results correlation analysis (Sources: Results derived from IBM SPSS Statistics 15 software)

	Euro area (16 countries)	Germany	Hungary	Netherlands	Czech
Pearson correlation coefficient	0.237	-0.784	0.910	-0.042	0.751
Correlation Significance (P)	0.483	0.004	0.000	0.903	0.008

Regarding the evaluated data of selected countries in the Euro zone (euro area 16), no evidence of significant correlation between changes in the debt ratio of families and government debt was found as evidenced by the data presented in Table 8 and Fig. 1. A similar situation can be observed between the evolution of the indebtedness of families and governments in the Netherlands, where government debt in the period varies but indebtedness of families is growing see Fig. 2.

In the case of Germany we can see quite a surprising result, when the level of indebtedness of families and the government moves in the opposite direction. While the debt ratio of families is more or less declining, the government debt is growing almost constantly see Fig. 3.

Fig. 1 Correlation of Euro area (Sources: Results derived from IBM SPSS Statistics 15 software)

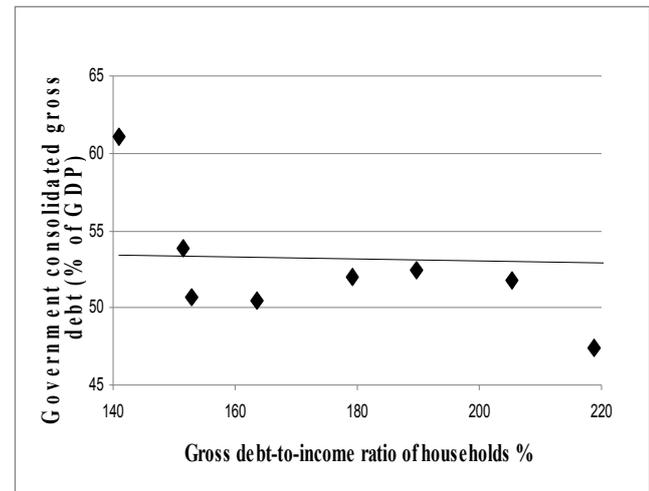
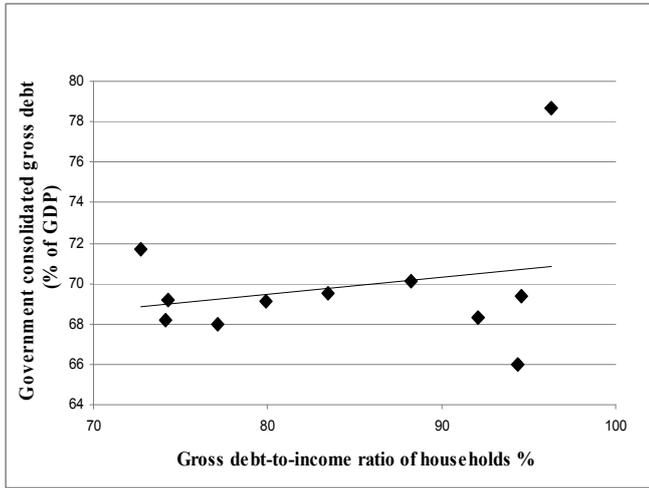


Fig. 2 Correlation of Netherlands (Sources: Results derived from IBM SPSS Statistics 15 software)

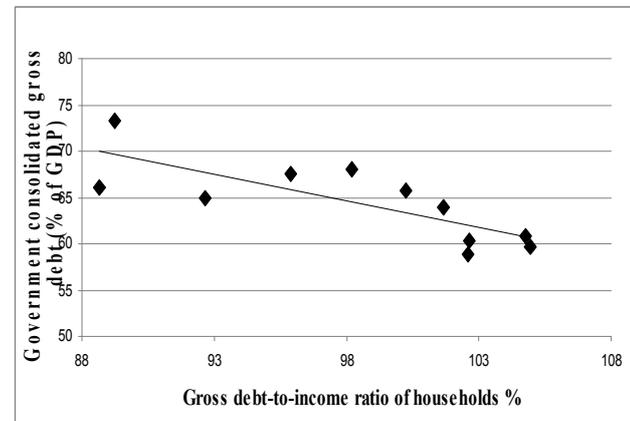


Fig. 3 Correlation of Germany (Sources: Results derived from IBM SPSS Statistics 15 software)

A strong dependence was established between the evolution of government debt and their families in Hungary and the Czech Republic. These countries have undergone a similar historical development in the past. As already mentioned, Communist planners getting into debt in Hungary more than their Czechoslovak counterparts, and this trend persists even after the change of social relationships. In both countries we can observe a linear increase in debt of families dismantling of the communist establishment, especially in the early years of the new millennium. Results of correlation analysis and fitted

curve clearly confirm this conclusion - see Figs 4 and 5.

In the case of the Czech Republic, we have carried out an evaluation of debt dependence of families and government in absolute terms. Again, these results confirm the trend described above, see Fig. 6 and Table 9.

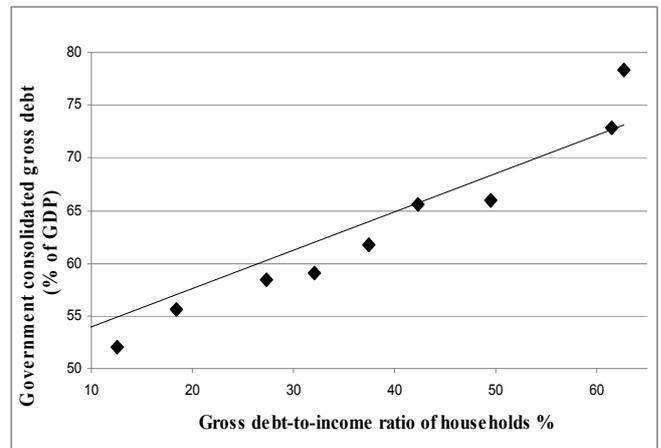


Fig. 4 Correlation of Hungary (Sources: Results derived from IBM SPSS Statistics 15 software)

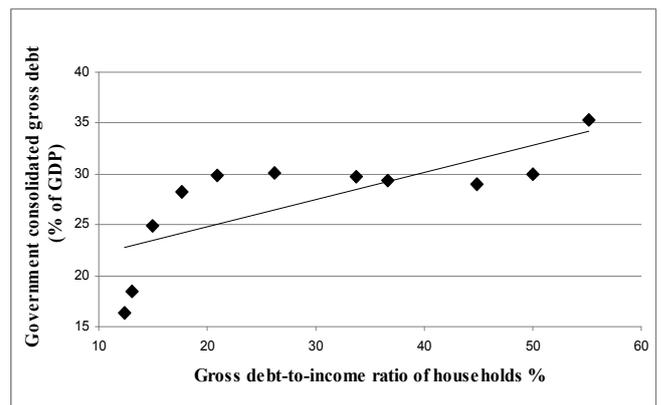


Fig. 5 Correlation of the Czech Republic (Sources: Results derived from IBM SPSS Statistics 15 software)

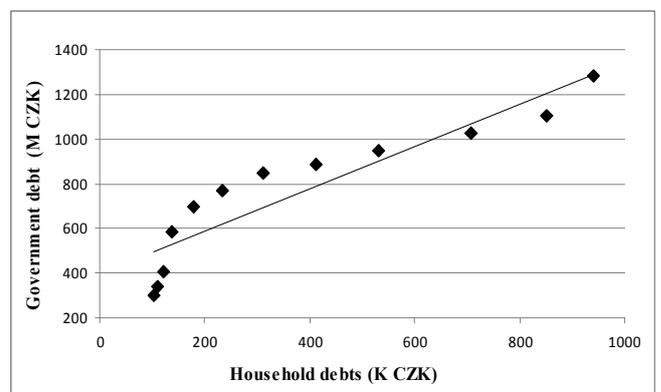


Fig. 6 Correlation of the Czech Republic (Sources: Results derived from IBM SPSS Statistics 15 software)

Table 9 Czech Republic: Rate debt of household and government in 1999-2009 (Sources: Czech Statistical Office, <http://www.czso.cz/csu/csu.nsf/informace/ckta120310.doc>) and Results correlation analysis (Sources: Results derived from IBM SPSS Statistics 15 software)

Years	Household debts (K CZK)	Government debt (M CZK)
1998	103.6	299.8
1999	108.8	340.5
2000	120.20	405.4
2001	136.9	574.7
2002	177.4	695
2003	234.3	768.3
2004	310.8	847.8
2005	411.8	885.4
2006	529.9	948.3
2007	707.0	1023.8
2008	850.7	1104.9
2009	939.6	1208.4

Person correlation coefficient	0.919
Correlation Significance (P)	0.000

VI. CONCLUSION

We can see that the widespread debt produced on all fronts increases the pressure on default – this applies not only to the states and businesses, but also families. It would be a mistake to imagine that behind this wave there is mainly the crisis during the years of 2008-2010, but rather was merely the trigger event, which further matured and got swollen, however, it would have shown exactly the same and perhaps even more dynamic way in a historically short time. The primary problem of the world economy is not a recession as such but dramatically increasing inequality in debt. In this respect, the crisis brought about inconsistent developments when on one hand it means the cleaning of companies and ultimately of the family as well by the relative massive bankruptcies of each unit which will at least lead to acknowledgement of the loss and can be addressed.

On the other hand, the states even more dynamically increased debts and their growth rate in an effort to help the economy and prevent further potential economic decline. This indicates the total imbalance created by debt in the broadest sense is not decreasing

Whereas we do not have real economic arguments based on models and mathematical methods to support the assumption that within a relatively short time the developed world is about to experience family defaults on a mass scale, we may say that such a danger is indeed very real and needs to be dealt with.

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