Structure of Final Consumption in Light of GDP Dynamics[1]

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Abstract

This paper studies the evolution of the relationship between households' and general government's expenditure on final consumption in the most recent 15 years; our data covers more than 30 countries. The most recent 15-year period has been characterised by variability in the worldwide economic development; hence this paper mainly focuses on the relationship to the rate of GDP growth. The mentioned relationship has also been assessed from the viewpoints of both the economic policy and the concepts that may be utilised by political representatives as the tools for controlling such economic policy.
This text aims at pointing out the importance of utilising the indicated issues, as related to the evolution of the relationship between the structure of the final consumption and the rate of economic growth, as well as the necessity of a proactive approach to the cognitive and behavioural activities, rather than in the modelling area, which has been visibly prevailing lately.

Keywords

Final consumption expenditure of households, government final consumption expenditure, GDP, economic crisis

JEL code

E21, C82

INTRODUCTION

The turbulent development in the worldwide economy we have seen in the past 15 years has brought about a number of issues related to the causes of crises and methods to alleviate the crises' consequences. Analytical studies have focused on both purely economic aspects and the degree of influence the behaviour of political elites has on the economic troubles. The very nature of national accounts implies that a great deal of attention has been given to the aspects and factors of the expenditure approach to estimating the Gross Domestic Product (hereinafter "GDP").

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Within all such views on the economy, an important role is played by the key factor of the economic universe – the human factor as both an architect of investment and production plans and a user of the newly created wealth. The created resources are mainly realised in the form of individual consumption, represented by the actual final consumption by households, i.e., final consumption expenditure by households increased by social transfers in kind, paid to households by the general government and non-profit institutions serving households.[5] The actual collective consumption, i.e., the collective consumption expenditure by the general government, mainly includes the expenses incurred on defence, security, and administration, that is, in favour of society as a whole (not just households).

It is therefore clear that the main proportion of the final consumption, i.e., individual consumption expenditure, directly goes to households. If, however, we would like to view households as a factor influencing the dynamics of the economic development (i.e., from the viewpoint of the expenditure approach to estimating the GDP), we will be interested in households' "spending", expressed as the final consumption expenditure by households. In analogy, the expenses by general government incurred on final consumption represent the proportion influenced by their decision-making and determined by their economic behaviour.

The scope of the final expenditure by the general government depends on the level to which the role of the state in the economy is fulfilled, in other words, to what extent the state is trying, with the aid of its social and cultural policies,[6] with inequalities implied by households' different income levels and, at the same time, to what extent the state ensures its own functions as the centre of power and administration.[7] This second component, of course, depends on not only the fulfilment of this role of the state,[8] but also on the size of the general government' sector.

The above-mentioned considerations imply that it will be interesting to observe the relationship between the final consumption expenditure by households and that by general government and the evolution of this relationship in time and space. The ratio of these two indices reflects the relationship between the roles of households and general government in their effects on economic growth. This paper should find an answer to the question of to what extent the evolution of this ratio is connected with specific conditions prevailing in a given country, and with different stages of the economic cycle.[9]

1 CONSUMPTION SMOOTHING AS A REFLECTION OF ECONOMIC DYNAMICS

Consumption has a general character of both the cause and the effect in economic development; moreover, it is often considered from the viewpoint of a certain corrective role in this development. In times of recession, the effect on households' consumption is delayed after the worsening economic conditions. In other words, households' spending stereotypes (the trend to spend money or not reduce consumption) survives for a certain short period of time – this feature slows down the occurrence of recession and alleviates it in its beginning. And the other way around: with arising economic recovery, the consumption grows more slowly than the whole, households' spend their money cautiously, putting off the overall growth. Economists often use the term "consumption smoothing" to describe this phenomenon.

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[5] The amount of social transfers in kind paid to households by the government and the non-profit institutions is equal to that of the individual final consumption by the general government and non-profit institutions.

[6] In particular, via the expenses incurred on health care, education, culture, etc., corresponding to the social transfers in kind in favour of households.

[7] Via the collective consumption expenditure.

[8] Informally, they are sometimes called "royal services".

[9] The final consumption expenditure by non-profit institutions serving households is usually (due to its small value) added to the final consumption expenditure by households. We will follow this principle in this paper.

Consumption smoothing is an economic feature which expresses households' desire to have at their disposal a stable access to consumption. That is why households utilise their consumption in times of higher income to save for the times of recession to achieve a higher degree of economic stability and predictability. On the other hand, households reduce (or put off) consumption in times of uncertainty and unfavourable economic conditions to reduce uncertainty and prevent future problems. This tendency again survives even the beginning of economic recovery. This is the way in which households slow down the coming recovery.

The final consumption by households accounts for about 50% of the GDP (this proportion is even higher in some countries), it plays a dominant role in the economic climate. Such issues were addressed by Modigliani and Brumberg (1954) or Friedman (1956) shortly after World War II, in the time of the after-war economic boom; this interest was probably caused by reminiscences of the big crisis of the late 1920s and early 1930s. Another model of consumption smoothing was formulated 20 years later; it was Hall's model, inspired by Milton Friedman, cf. Hall (1978). Hall's work, to a certain extent, went against the then prevailing idea that households' tendency to consumption is marginal, and consequently their consumption is tightly correlated with the current income. On the contrary, he claimed that, assuming purposeful behaviour, households endeavour to optimise and keep the consumption stable, from which the smoothing effect ensues.

As already mentioned above, the final consumption by households is not a sole factor of wealth use; this use also includes the final consumption by the general government. A problem arises here on the borderline between economics and politics, namely, the ratio of these two types of expenditure in the respective economy. Political representations create and approve legislative measures (regarding taxes, budget, control, etc.), which may, even though to a limited extent, influence the value of this ratio. In other words, it is a form of "command economy", in which the state intervenes in the economy, or rather the creation of the economic policies. Within a suitable setting, such interventions may be an important tool of protection from recession. On the other hand, they may also accelerate the recession (especially in the social area, characterised by a high degree of redistribution) if the measures are accepted hastily and without a deeper concept.

The data from the period of 2002 through 2015 is analysed for evaluating the relationship between the final consumption expenditure by households and that by the general government. A prevailing majority of European countries, the U.S.A., and Japan are included in this analysis. First of all, the ratio of the final consumption expenditure by households (hereinafter "*HFCE*") with respect to the final consumption expenditure by general government (hereinafter "*GFCE*") was calculated in each of the years 2002 through 2015. For each of the 33 countries the arithmetic mean (non-weighted) was calculated over the entire period and the maximum and minimum values were identified, together with the years in which the extreme values were taken on. That is:

$$\overline{k}_i = \frac{\sum_{t=1}^{T} \frac{HFCE_t^i}{GFCE_t^i}}{T}, \tag{1}$$

where:

$T = 14$ is the number of the years in which the $HFCE_t/GFCE_t$ ratio was observed, $t = 1, 2, \ldots, 14$;
$n = 33$ is the number of the countries in which the $HFCE^i/GFCE^i$ ratio was observed, $i = 1, 2, \ldots, n$.

The *HFCE*/*GFCE* ratio reflects many long-term relationships: the scope of redistribution of newly created income; the degree of individual solidarity in society; cultural, historic and social conventions; differences between countries; tax (in)stability; etc. Undoubtedly, this ratio thus expresses the long-term concept of the respective country's economic policies. The results are shown in Table 1 and Figure 1.

Table 1 *HFCE/GFCE* ratio (average, minimum, and maximum)

Country *i*	$\bar{k}_i$ = average *HFCE/GFCE*	Minimum/year	Maximum/year
Sweden	1.79	1.73/2015	1.84/2005
Denmark	1.80	1.66/2009	1.87/2007
Netherlands	1.82	1.61/2010	2.11/2002
Norway	1.99	1.84/2015	2.14/2006
Luxembourg	2.06	1.77/2015	2.54/2002
Belgium	2.20	2.11/2010	2.34/2002
Island	2.20	1.98/2010	2.41/2005
Finland	2.27	2.20/2010	2.35/2002
Czech Republic	2.33	2.21/2003	2.45/2013
France	2.38	2.30/2014	2.47/2006
Hungary	2.49	2.36/2006	2.67/2012
Ireland	2.81	2.54/2012	3.14/2002
Austria	2.82	2.65/2015	2.97/2005
Slovenia	2.84	2.70/2010	3.05/2007
Estonia	2.87	2.38/2009	3.40/2006
Croatia	2.92	2.38/2010	3.40/2003
Italy	2.99	2.77/2009	3.22/2015
Germany	3.01	2.78/2015	3.19/2006
Malta	3.01	2.71/2014	3.31/2005
Spain	3.03	2.64/2010	3.39/2002
Slovakia	3.05	2.95/2015	3.26/2008
United Kingdom	3.07	2.70/2010	3.37/2015
Japan	3.09	2.99/2010	3.21/2002
Portugal	3.31	3.11/2005	3.64/2015
Latvia	3.36	3.07/2002	3.61/2007
Poland	3.43	3.26/2015	3.74/2002
Lithuania	3.47	2.92/2003	3.93/2006
Cyprus	3.71	3.25/2003	4.46/2014
Greece	3.95	3.22/2012	4.45/2006
Bulgaria	3.98	3.70/2003	4.27/2007
Romania	4.04	3.43/2003	4.56/2012
USA	4.29	4.09/2011	4.54/2002
Switzerland	5.11	4.93/2014	5.28/2007

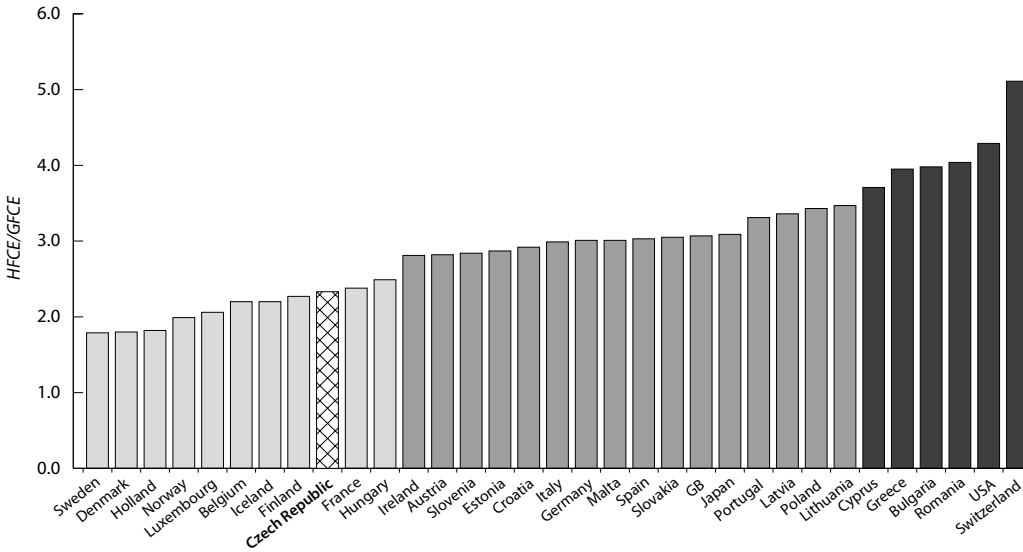
Source: EUROSTAT, authors' own calculations

Table 1 shows that the average values of the *HFCE*/*GFCE* ratio have been rather variable in the recent 14 years, ranging from 1.79 to 5.11. We have classified the countries into three categories: up to 2.50, between 2.51 and 3.50, and 3.50 plus values of the ratio (of course, a different categorisation would be admissible).

It is not surprising that all North European countries fall into the category with the smallest value of the *HFCE*/*GFCE* ratio – these countries have traditionally had a high degree of regulated redistribution, as well as social cohesion and solidarity. Neither is surprising the fact that countries such as Cyprus and Greece have a large value of this ratio, being countries in the south of Europe undergoing crises and high indebtedness of the general government in consequence of extraordinarily generous budget policies; this aspect has led to a drastic reduction of the final consumption expenditure by the general government, with a subsequent "transfer of full responsibility" for the consumption onto households. Another instance

of a high level of the *HFCE*/*GFCE* ratio is the U.S.A., in which – as compared to Europe – completely different concepts of social solidarity, health and social security insurance prevail, with a high degree of tax liberalism. Another example of an unusually high level of this ratio is Switzerland, for which the value is implied by a low volume of other non-market output by the general government[10] and the social transfers in kind in favour of households.

Figure 1 Average values of the *HFCE/GFCE* ratio



Source: EUROSTAT, authors' own calculations

Regarding the maximum values, it is worth mentioning that 24 out of 33 countries (i.e., nearly three-quarters) achieved the *HFCE*/*GFCE* maximum values either in the years 2002 through 2007, that is, prior to the mortgage and subsequent fiscal crisis, or later, in the years 2014 and 2015, after the crises faded away. There is an exception, Slovakia, in which the maximum occurred as late as 2008, after the beginning of the mortgage crisis; this country suffered badly during the crisis (with about a five-per-cent decrease of the GDP growth in 2009).

The minimum values of the *HFCE*/*GFCE* ratio, on the contrary, were taken on in the mid-crisis, mainly in the years 2010 and 2011. However, the distribution of the *HFCE*/*GFCE* minimum values is, regarding the years they occur, more variable than that of the maximum values.

2 RELATIONSHIP BETWEEN HFCE AND GFCE AS A TOOL OF ECONOMIC POLICY?

No less interesting is the time evolution of the average *HFCE*/*GFCE* ratio over all 33 countries in the 14-year period from 2002 to 2015. Namely,

$$\overline{k}_t = \frac{\sum_{i=1}^{n} \frac{HFCE_t^i}{GFCE_t^i}}{n}, \tag{2}$$

[10] The proportion of non-market output by general government in the overall national economy production amounts to less than 6% in Switzerland, but to about 8% in the Czech Republic and more than 10% in France.

where:

t = 1, 2, …, 14 stands for the years in which the $HFCE^i/GFCE^i$ is observed in the n = 33 countries, that is, i = 1, 2, …, 33.

The results are shown in Table 2.

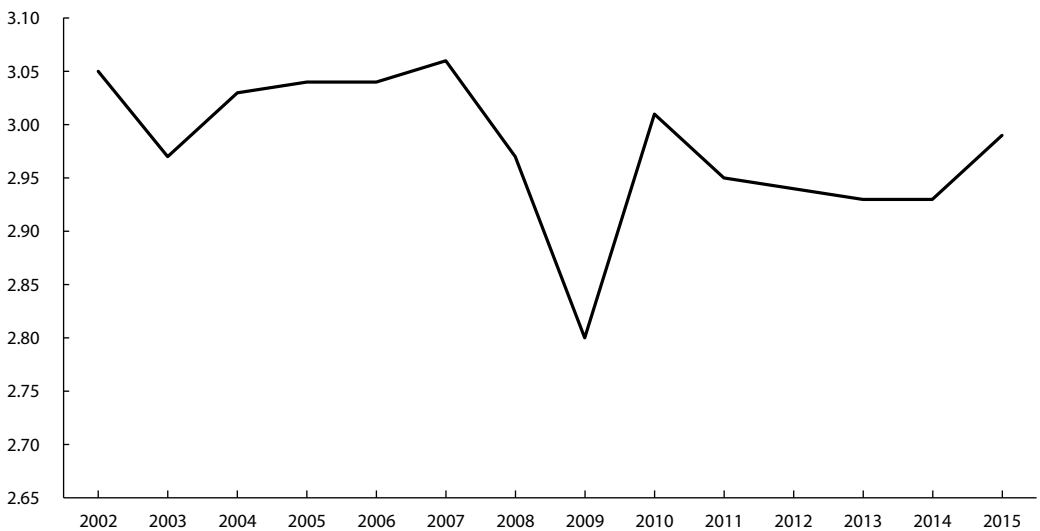
Table 2 Average values of the *HFCE/GFCE* ratio

Year *t*	$\bar{k}_t$ = average *HFCE/GFCE*	Year *t*	$\bar{k}_t$ = average *HFCE/GFCE*
2002	3.05	2009	2.80
2003	2.97	2010	3.01
2004	3.03	2011	2.95
2005	3.04	2012	2.94
2006	3.04	2013	2.93
2007	3.06	2014	2.93
2008	2.97	2015	2.99

Source: EUROSTAT, authors' own calculations

Plotting the values from Table 2 into a chart (Figure 2), we can see that in the years of the mortgage and subsequent fiscal crisis (say, from 2008 to 2013, with a temporary and insignificant recovery in 2010 and 2011) the *HFCE*/*GFCE* ratio value tended to be decreasing, and to be increasing (that is, the consumption by households getting higher) again after the crises fading out and a vague indication of recovery in 2014 and later. An exception is represented by the year 2010, in which the ratio temporarily returned to a higher level (3.01) at the end of the mortgage crisis, but the quickly coming fiscal crisis sent the *HFCE*/*GFCE* ratio's trend back to decreasing.

Figure 2 *HFCE/GFCE* ratio values (averages over 33 countries, years 2002 through 2015)

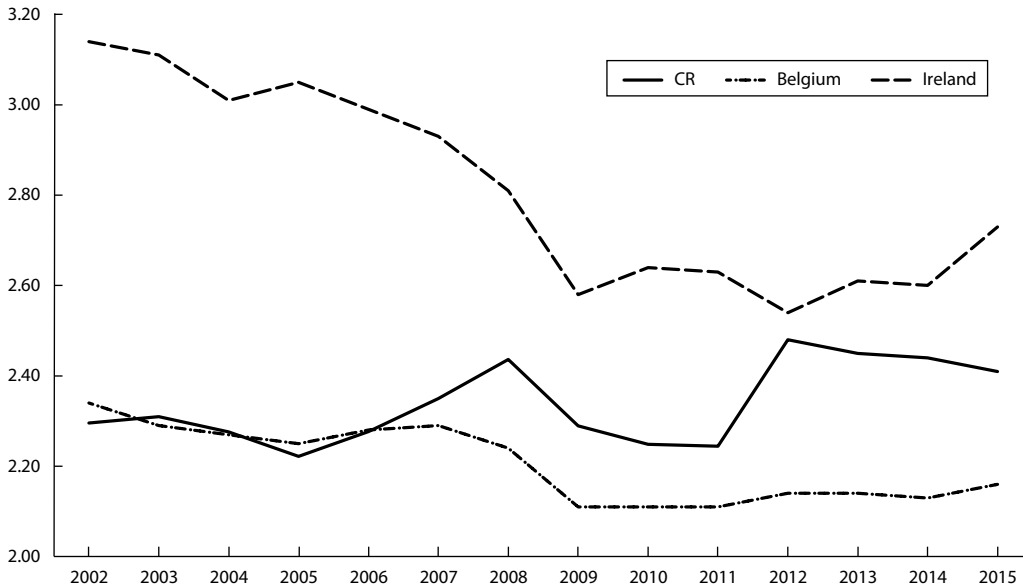


Source: EUROSTAT, authors' own calculations

In Figure 3 we compare the *HFCE*/*GFCE* ratio values for the Czech Republic with those of two more countries (Belgium and Ireland) whose sizes are similar to that of the Czech Republic, even though, on a long-term basis, their economic conditions and concepts of economic policies a\re somewhat different.

What is interesting is Ireland – considered an economic tiger some time ago – and the significant decrease of its final-consumption ratio in the time of crisis. This decrease is not so distinct, even if it is present, for the Czech Republic and Belgium. The ratio began to grow after the crises ended.

Figure 3 *HFCE/GFCE* ratio values (Czech Republic, Belgium and Ireland, years 2002 through 2015)



Source: EUROSTAT, authors' own calculations

Let us now have a look at a phenomenon that is not often analysed: the relationship between the *HFCE/GFCE* ratio and the economic growth, expressed as the GDP growth rate. As we will see below, it may be generally expected and proven that, in the time of imminent recession, political elites and representations endeavour to increase the level of redistribution and economic regulation, while they aim at liberalisation of consumption in the time of recovery by releasing the temporary regulation measures, thus lowering the level of restrictions on the behaviour of consumers and investors.

Table 1A in the Appendix shows data of the *HFCE* and *GFCE* values, and of the GDP growth rate values in 33 countries and the years 2002 through 2015. The data of the *HFCE*/*GFCE* ratio says by what proportion the *HFCE* is larger than the *GFCE* in the respective country and year. The economic growth rates (in percentages) express the dynamics of the GDP as a top-level aggregate index of the national accounts (again for the same 33 counties and years 2002 through 2015). Figure 4 sums up this data taken from the national accounts.

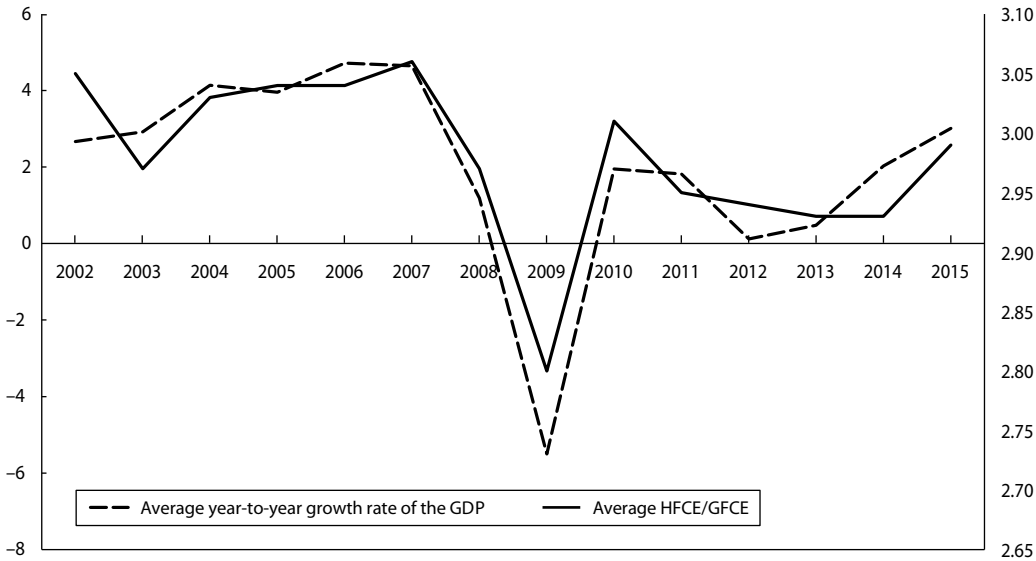
Figure 4 clearly shows that the *HFCE/GFCE* index of final consumption and the GDP growth rate are very tightly correlated. In order to calculate the value of this correlation, we first have to remove the linear trends from both series. For the average growth rate values, the trend function is:

$$T_t = 419{,}0731 - 0{,}2076 \cdot t, \quad t = 2002, 2003, \ldots, 2015,$$

and for the HFCE/GFCE ratio it is:

$$T_t = 18{,}8266 - 0{,}0079 \cdot t, \quad t = 2002, 2003, \ldots, 2015.$$

Figure 4 The *HFCE/GFCE* ratio vs. GDP growth rates (years 2002 through 2015, averages for 33 countries)



Source: EUROSTAT, authors' own calculations

The residuals after this data cleaning lead to values of 2.063 for the consumption and 1.556 for the growth rates in the Durbin-Watson test, which means that the autocorrelation has been successfully removed from both series. The correlation coefficient for the residuals of both series amounts to 0.9233, which confirms the strong mutual dependence between these series, already deduced from Figure 4. We can therefore observe that the time evolution of the *HFCE*/*GFCE* ratio is nearly a carbon copy of the GDP evolution in the years of both recession and recovery worldwide, regardless of their actual levels.

The above-mentioned considerations imply that the final consumption is highly sensitive with respect to the aggregate dynamics of the economy. However, utilisation of tools aimed at increasing consumption to alleviate the effects of crises is rather limited. The relationship between both indices is obvious (cf. Figure 4), but political representations have a rather small chance to make actual use of the *HFCE*/*GFCE* ratio. Hence the changing character of the final consumption during recessions is a consequence of the above-described *consumption smoothing* more than a result of purposeful decision-making by political elites at times of a coming crisis. There are several reasons:

- In nearly all countries, even if to a different extent, the proportion of mandatory and quasi-mandatory expenses is high (up to about 85% in some countries); this fact does not allow for continuous regulation of consumption by households and restricts the options in the area of expenditure by the general government;
- Political representations are unable to modify the structure of the final consumption, i.e., the *HFCE*/*GFCE* ratio, in a sufficiently operative way (whether up or down) because legislative processes are traditionally rigid, consensus is hard to achieve, and the negotiation procedures (such as about pension reforms) are dragging;
- The growth rates of wages (which represent a decisive factor for the growth of the final consumption by households) is more or less independent of the actual measures taken by the decision-makers – the wages hence grow with a time lag after occurrence of economic recovery (in consequence of careful employers unwilling to let wages grow too quickly after the recession has faded out, lengthy collective bargaining processes, etc.), and vice versa;

- In the economy, the prevailing tendencies are to liberalisation and it is not popular to regulate the final consumption in the liberally oriented Euro-Atlantic environment, not even if the recession is coming or has already arrived. The conflict between liberalism and economic interventions from the centres of influence of power has been predetermined by the traditions prevailing in the respective society and such stereotypes are hard to overcome, even in times of economic need;
- It is very difficult to predict occurrences of crises – estimates of turn-points lack in efficiency, as we saw in connection with the two most recent crises. Both economic theory and mathematical-statistical modelling fail as a rule, and political elites do not have sufficient support from economic research to help them carry through their – often unpopular – regulatory measures;
- From the formal viewpoint, the variations in the *HFCE*/*GFCE* ratio values – measured by the variation coefficient for each country in the years 2002 through 2015 – are many times lower than those in the GDP growth rates. The variation coefficient values range from approx. 2% (1.7% in Sweden) to approx. 12% (12.21% in Croatia); the variation coefficient values for the GDP growth rates are as high as tens or even hundreds of per cent. For both of these indices it is true that stronger economies are characterised by much lower variability compared with weaker, more fluctuating ones, in particular those in the south of Europe or certain East-European economies (of the former socialistic block). A low variability in the values of the *HFCE*/*GFCE* ratio, in formal expression, indicates smaller changes in the structure of consumption and, consequently, a lower potential to purposefully influence this ratio.

Nonetheless, we can say that, despite the above-listed objective restrictions, the extent might be higher to which the final consumption is utilised as a corrective measure to influence the economic development. Achievement of this goal should mainly be facilitated by a deeper analysis of the causes for the changes in the *HFCE*/*GFCE* ratio values in times of recession and recovery and by giving enough attention to the consumption smoothing. Other aspects of this problem include utilisation of behavioural and institutional economics.

CONCLUSIONS

The relationship between the final consumption expenditure and the growth rate, as well as the possible utilisation of this mechanism for alleviating economic recessions, is a slightly explored area. That is also why it is a seldom utilised tool of active economic policy. However, one aspect of this relationship, namely, the consumption smoothing, is better known, especially in the model-descriptive context. Motivation aspects of economic subjects have, however, not been studied so well. Analysing this relationship and, above all, its time evolution in dependence on the current stage of the economic cycle, which is also a topic of the present paper, aims directly at the focus of economic recessions and recoveries.

It is turning out that utilisation of the relationship between the individual and collective consumption on the one hand and the aggregate growth rate on the other hand is, as also shown above, rather difficult and meets a number of more or less objective obstacles. Hence the effort to overcome these obstacles, in particular, in the legislative, cognitive and behavioural areas, might gradually lead to a strong tool of regulatory protection against recessions and stalling of economic growth.

It is the analysis of the above-mentioned issues, and efficient action in the cognitive and behavioural areas, rather than in model-forming, which seems to have been prevailing recently, which might contribute to our deeper knowledge of motivations driving economic subjects towards positive activation in their economic behaviour in the current environment.

Analytical work, as well as possible recommendations, should go in this direction: the utilisation of this "behavioural ratio" for aiming at the mechanisms governing the arrivals and departures of economic peaks and saddles, thus facilitating alleviation of the socio-economic consequences of such cycles in combination with households' consumer habits and traditional behaviour.

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APPENDIX

Table 1A HFCE/GFCE ratio (ratio) and year-to-year growth rate (g.r.) of the GDP

	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		Ø	Ø
	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %	ratio	g.r. %
Czech Rep.	2.30	2.1	2.21	3.8	2.28	4.7	2.22	6.8	2.28	7.0	2.35	5.7	2.44	3.1	2.29	-4.5	2.25	2.5	2.24	1.8	2.48	-1.0	2.45	-0.9	2.44	2.7	2.41	4.5	2.33	2.74
Belgium	2.34	1.4	2.29	0.8	2.27	3.3	2.25	1.8	2.28	2.7	2.29	2.9	2.24	1.0	2.12	-2.8	2.11	2.3	2.11	1.8	2.14	-0.1	2.14	0.2	2.12	1.3	2.13	1.4	2.20	1.29
Bulgaria	3.93	4.7	3.70	5.5	3.77	6.7	3.90	6.4	4.24	6.5	4.27	6.4	4.18	6.2	4.06	-5.5	3.94	0.4	4.08	1.8	4.27	0.6	3.77	0.9	3.82	1.5	3.74	3.0	3.98	3.22
Danmark	1.81	0.5	1.80	0.4	1.82	2.3	1.85	2.4	1.86	3.4	1.87	1.6	1.82	-0.8	1.66	-5.7	1.69	1.4	1.74	1.1	1.82	-0.4	1.81	0.4	1.81	1.3	1.84	1.0	1.80	0.64
Estonia	3.08	6.6	3.06	7.8	3.20	6.3	3.23	8.9	3.40	10.1	3.27	7.5	2.88	-4.2	2.38	-14.1	2.40	2.6	2.49	9.6	2.75	3.9	2.74	0.8	2.65	2.9	2.61	1.1	2.87	3.56
Finland	2.35	1.8	2.34	2.0	2.31	4.1	2.29	2.9	2.33	4.4	2.35	5.3	2.29	0.3	2.20	-8.5	2.20	3.4	2.21	2.8	2.24	-1.0	2.21	-1.4	2.24	-0.7	2.27	0.2	2.27	1.11
France	2.39	0.9	2.38	0.9	2.39	2.5	2.40	1.8	2.43	2.5	2.47	2.3	2.46	-0.1	2.37	-3.1	2.35	1.7	2.37	2.0	2.34	0.0	2.32	0.2	2.30	0.6	2.31	1.3	2.38	0.96
Croatia	3.40	4.9	3.40	5.4	3.32	4.1	3.36	4.3	2.73	4.9	2.73	5.1	2.68	2.1	2.41	-6.9	2.38	-2.3	2.41	-0.2	3.00	-2.2	3.00	-0.9	3.03	-0.4	3.01	1.6	2.92	1.39
Ireland	3.14	5.4	3.11	3.7	3.01	4.2	3.05	6.1	2.99	5.5	2.93	5.0	2.81	-2.2	2.58	-6.4	2.64	-1.1	2.63	2.2	2.54	0.2	2.61	-0.3	2.60	8.5	2.73	23.6	2.81	3.89
Island	2.16	0.1	2.20	2.4	2.27	7.8	2.41	7.2	2.39	4.7	2.37	6.0	2.14	1.2	1.98	-6.6	2.10	-4.1	2.19	2.7	2.17	1.5	2.15	3.3	2.16	2.0	2.12	4.0	2.20	2.30
Italy	3.06	0.5	3.00	0.0	2.94	1.7	2.91	0.9	2.94	2.2	2.98	1.7	2.94	-1.2	2.77	-5.5	2.81	1.7	2.88	0.4	3.14	-2.4	3.10	-1.9	3.16	-0.3	3.22	0.8	2.99	-0.10
Japan	3.21	0.3	3.18	1.7	3.17	2.4	3.15	1.3	3.19	1.7	3.17	2.2	3.12	-1.0	3.03	-5.5	2.99	4.7	2.99	-0.5	3.00	1.4	3.01	1.2	2.99	1.4	3.02	1.5	3.09	0.91
Cyprus	3.55	2.1	3.25	1.9	3.62	4.2	3.59	3.9	3.46	4.1	3.82	5.1	3.88	3.6	3.45	-1.9	3.36	1.3	3.38	0.4	3.81	-2.4	3.90	-5.4	4.46	-2.5	4.44	1.6	3.71	1.14
Lithuania	2.96	6.8	2.92	10.3	3.24	7.4	3.59	7.8	3.93	7.8	3.57	9.8	3.21	2.9	3.29	-14.8	3.45	16.0	3.76	6.0	3.62	3.7	3.74	3.3	3.72	3.0	3.58	1.6	3.47	5.11
Latvia	3.07	7.1	3.22	7.7	3.35	8.8	3.45	10.1	3.35	11.0	3.61	10.0	3.37	-2.8	3.15	-17.7	3.24	-1.3	3.38	5.3	3.50	5.2	3.47	4.1	3.48	4.0	3.41	3.2	3.36	3.91
Luxembourg	2.54	4.1	2.30	1.7	2.20	4.4	2.15	5.3	2.16	4.9	2.14	6.6	2.15	-0.7	2.00	-5.6	1.94	3.1	1.91	1.9	1.95	-0.2	1.89	2.1	1.82	4.1	1.77	4.8	2.06	2.61
Hungary	2.46	4.5	2.40	3.9	2.45	4.8	2.46	4.0	2.36	3.9	2.53	0.1	2.50	0.9	2.47	-6.8	2.45	1.1	2.50	1.6	2.67	-1.7	2.65	1.1	2.49	3.7	2.49	2.9	2.49	1.71
Malta	3.17	2.4	3.14	0.7	3.18	-0.3	3.31	3.6	3.17	2.6	3.21	4.1	2.96	3.9	2.94	-2.8	2.93	4.2	2.99	1.5	2.84	0.8	2.88	2.6	2.71	3.5	2.73	6.4	3.01	2.37
Germany	3.07	0.0	3.08	-0.4	3.13	1.2	3.16	0.7	3.19	3.7	3.16	3.3	3.12	1.1	2.97	-5.1	2.91	4.0	2.91	3.3	2.93	0.7	2.89	0.4	2.83	1.6	2.78	1.7	3.01	1.16
Netherlands	2.11	0.1	2.04	0.3	2.04	2.2	2.06	2.0	1.88	3.4	1.83	3.9	1.79	1.8	1.64	-3.7	1.61	1.5	1.62	0.9	1.71	-1.2	1.72	-0.8	1.73	1.4	1.76	2.0	1.82	0.99
Norway	2.06	1.5	2.06	1.0	2.11	4.0	2.14	2.6	2.14	2.3	2.10	2.7	2.01	0.1	1.90	-1.6	1.91	0.5	1.92	1.3	1.90	2.9	1.89	0.6	1.85	2.2	1.84	1.6	1.99	1.55
Poland	3.74	1.4	3.64	3.9	3.68	5.3	3.50	3.6	3.42	6.2	3.38	6.8	3.32	5.1	3.36	1.6	3.30	3.9	3.41	4.5	3.44	2.0	3.35	1.6	3.28	3.3	3.26	3.6	3.43	3.77
Portugal	3.25	0.8	3.21	-0.9	3.19	1.6	3.11	0.8	3.24	1.4	3.35	2.4	3.42	0.0	3.17	-2.9	3.14	1.9	3.14	-1.3	3.58	-3.2	3.42	-1.4	3.56	0.9	3.64	1.5	3.31	0.11
Austria	2.93	1.7	2.90	0.9	2.95	2.6	2.97	2.4	2.94	3.7	2.90	3.7	2.84	1.4	2.76	-3.8	2.75	1.8	2.74	2.8	2.71	0.9	2.72	0.3	2.70	0.6	2.65	1.0	2.82	1.43
Romania	4.54	5.1	3.43	5.2	4.23	8.5	3.99	4.2	4.13	7.9	4.18	6.3	3.83	7.3	3.47	-6.6	3.59	-1.1	3.67	2.3	4.21	0.6	4.30	3.5	4.40	3.0	4.55	3.8	4.04	3.57
Greece	3.98	3.4	4.13	5.9	4.07	4.4	4.23	2.3	4.45	5.5	4.23	3.5	4.29	-0.2	3.82	-3.1	4.13	-4.9	4.24	-7.1	3.22	-7.0	3.48	-3.9	3.54	0.7	3.52	-0.2	3.95	-0.05
Slovenia	2.93	3.8	2.95	2.9	2.91	4.4	2.85	4.0	2.81	5.8	3.05	7.0	2.91	3.4	2.71	-7.9	2.70	1.3	2.71	0.7	2.79	-2.5	2.78	-1.1	2.79	3.0	2.81	2.9	2.84	1.98
Slovakia	2.85	4.6	2.78	4.8	3.02	5.1	3.14	6.7	3.02	8.3	3.24	10.5	3.26	5.8	3.09	-4.9	2.98	4.4	2.99	3.0	3.21	1.8	3.11	0.9	3.01	2.5	2.95	3.6	3.05	4.08
Spain	3.39	2.7	3.31	3.1	3.25	3.3	3.21	3.6	3.19	4.1	3.12	3.5	2.95	0.9	2.64	-3.8	2.64	-0.2	2.73	0.1	2.97	-1.6	2.96	-1.2	3.01	1.4	2.98	3.2	3.03	1.36
Sweden	1.81	2.5	1.79	2.3	1.82	4.2	1.84	3.2	1.82	4.3	1.83	3.3	1.80	-0.6	1.76	-5.0	1.76	6.6	1.79	2.9	1.80	0.9	1.78	1.6	1.76	2.3	1.73	4.2	1.79	2.34
Switzerland	5.17	0.2	5.10	0.0	5.15	2.4	5.13	2.7	5.17	3.8	5.28	3.8	5.25	2.2	5.15	-1.9	5.23	3.0	5.19	1.8	4.94	1.0	4.94	2.0	4.93	1.9	4.94	1.7	5.11	1.76
USA	4.54	1.8	4.43	2.8	4.45	3.8	4.47	3.3	4.46	2.7	4.45	1.8	4.25	-0.3	4.16	-2.8	4.17	2.5	4.09	1.6	4.15	2.3	4.22	2.2	4.13	2.4	4.13	2.1	4.29	1.87
UK	3.32	2.3	3.19	3.9	3.10	4.09	3.04	3.2	2.98	2.8	3.02	3.4	2.97	-0.8	2.77	-5.2	2.70	1.7	2.74	1.1	3.16	0.3	3.26	1.7	3.29	3.1	3.37	2.2	3.07	1.70
Average	3.05	2.67	2.97	2.92	3.03	4.14	3.04	3.96	3.04	4.72	3.06	4.65	2.97	1.19	2.80	-5.50	2.81	1.95	2.85	1.82	2.94	0.12	2.93	0.48	2.93	2.03	2.93	3.01	2.95	2.01

Source: EUROSTAT, authors' own calculations