

Analysis of the inflationary redistribution of consumption and wealth, evidence from Hungary

ZOLTÁN SÍPICZKI^{1*} , ANETT PARÁDI DOLGOS¹ and
JÓZSEF VARGA^{1,2} 

¹ Department of Investment, Finance and Accounting; Institute of Rural Development and Sustainable Economy, Hungarian University of Agricultural and Life Sciences, Kaposvár Campus, Hungary

² Department of Macroeconomics, Institute of Finance, Corvinus University of Budapest, Hungary

Received: July 20, 2021 • Revised manuscript received: January 14, 2022 • Accepted: February 17, 2022



© 2023 The Author(s)

ABSTRACT

Fluctuating prices can cause unintended redistribution of income and wealth, which may be particularly painful to lower income households. Our study examines the indirect effects of this redistribution in an empirical way: it focuses on the capital market distortions of inflation and the disparities in wealth and income. Consumer Price Index (CPI) measures average inflation. However, households feel different inflation rates because their expenditure patterns are different from the 'average' patterns. We used the Kruskal – Wallis H test to determine if there are statistically significant differences between low- and high-income households. We calculated alternative inflation rates based on income deciles' different consumption basket. The study finds that households with low income often feel higher inflation than in the actual price indices published by the statistical offices. As our research shows, individuals in different wealth deciles perceive significantly different inflation. Our results also provide important information for economic policymakers, because if social groups perceive different inflation, it modifies the expected behaviour of the population, thereby weakening the economic policy effectiveness of different decisions.

KEYWORDS

inflation, redistribution, income inequality, Hungary

JEL CLASSIFICATION INDICES

E3, O11

* Corresponding author. E-mail: sipiczki.zoltan@uni-mate.hu

1. INTRODUCTION, LITERATURE REVIEW

The position of inflation in economic growth cannot be overlooked, as it can affect either positively or negatively. This is because inflation has broad impacts on macroeconomy, such as economic growth, competitiveness and wealth distribution. Our hypothesis is that the redistribution of inflation affects different income groups to different degrees.

For the economic clarity, it is necessary to define the concept of inflationary costs and redistributive effects (Ziercke 1970). The cost of inflation is the negative effect on other entities that is not profitable. Typically, such an inflation cost is an increase in the net transaction costs due to increasing money requirements. On the other hand, we can speak of a redistributive effect if the loss of one economic entity also means a loss to another actor. With this simple demarcation, we can avoid the conceptual confusion caused by the mixed use of cost and distribution categories.

The root of the anti-inflation mood – in addition to historical experience, even in the case of compensated inflation – is that the rise in prices prevails psychologically stronger for the cost side of consumer goods than the income side. Also, there is a psychological point of view. It is not at all obvious that all prices are represented in the same way in our minds. Some may seem more important for our perception of the real value of money than others (Vincze 2019). People see an increase in income as recognition of their own merits, as a result of their work rather than as a means of inflation compensation. Owners of larger assets are generally able to avoid redistribution caused by inflation because their portfolios consist largely of real assets (tangible assets). Small savers, on the other hand, who hold their wealth in monetary securities, lose more on inflation compared to their wealth.

The calibrated model by Turdalie (2019) indicates that the implied optimal inflation rates are much higher than those observed in the data. One possible interpretation of the results is to question the recent general assumption of inequality as part of central banks' concerns. Within the population, redistribution is particularly acute in two areas: 1. Redistribution for the benefit of entrepreneurs from those who live on fixed wages and salaries. The former group is able to increase its income at a rate almost close to the rate of inflation (it is in a selling position), while the latter group is in a more difficult position to boost wages. 2. Income redistribution also takes place for the benefit of the working-age population, to the detriment of pensioners and dependents. The latter are usually able to exert less political pressure than active wage and salary workers. This is because their economic role is small and they do not have adequate advocacy channels.

Due to the adverse effects of the Great Recession in 2007–2009, economic inequality received much attention in the macroeconomic literature. While the U.S. monetary policy set by the Federal Reserve does not seek to directly influence economic inequality by operating under the dual mandate, it has indirect consequences on economic inequality as well as important redistributive effects as transaction patterns and cash constraints are not evenly distributed for different income groups (Kakar – Daniels 2019). Auclert (2019) evaluates the role of redistribution in the transmission mechanism of monetary policy to consumption. Three channels affect aggregate spending when winners and losers have different marginal propensities to consume: an earnings heterogeneity channel from unequal income gains, a Fisher channel from unexpected inflation, and an interest rate exposure channel from real interest rate changes. Statistics from Italian and US data suggest that all three channels are likely to amplify the effects



of monetary policy. In many cases, inflation can also exacerbate the generational problem. According to surveys in the United States (Jeck 1972), households over the age of 55 are above-average net lenders, and the 25–34 age group is the only net debtor group due to the use of consumer credit. Based on the confirmation of the debtor-creditor hypothesis, the younger generations are the winners of inflation redistribution against the middle-aged and older strata. According to Ziercke (1970), creeping inflation in Germany and its curbing basically hit the middle class of the population, but in terms of the magnitude of the effect, creeping inflation is more tolerable at the social level, consistent with the view cited by Samuelson – Nordhaus (1987).

A significant part of household budgets is made up of less frequently purchased goods and services. Examples are cars or durable technical items. We tend to forget about these expenditures and changes in goods when we form an opinion about inflation. Meanwhile, some regularly purchased items (e.g., food, fuel) are more heavily perceived by households, so if the price of these product lines goes up, people can usually overestimate actual inflation (Molnár 2014). A comprehensive analysis of the redistributive effect mechanism of inflation is difficult. The analysis of individual redistribution effects is based on certain inflation redistribution hypotheses, while negative prejudices about inflation are still significant, as households often feel that inflation is higher than the actual price indices published by the statistical offices. This is often due to the observational problems, and the different capital and consumption patterns of different social groups.

Inflation redistribution occurs in another sense, when the expected and actual inflation rates differ (Cezanne 2005). There has been a wide-ranging debate in the economic literature on the effects of inflation redistribution. The debate can be traced in part to methodological problems in which the causes and nature of inflation have not been sufficiently explored in the economic literature. An important aspect in the analysis is the cause of inflation. As Oroszi (2005) revealed, in addition to traditional demand-pull and cost-push inflation, there is a third group, inertial inflation. Analysing the causes of inflation, following his interpretation, the dual role of wages – a cost and at the same time an income element – speaks to the interplay of demand and cost inflation. Phillips used econometric methods to study data from 1861 to 1957, including the “quiet period” until 1913. In his opinion, inflation is basically demand-driven inflation, and the increase in demand is mainly caused by the rise in nominal wages.

Chiu – Molico (2010) studied the long-run welfare costs of inflation studied in a micro-founded model, where the welfare costs of inflation are significantly smaller due to distributional effects of inflation. The welfare cost of increasing inflation from 0% to 10% is 0.62% of consumption for the US economy. Furthermore, the welfare cost is generally non-linear in the inflation rate. Meh et al. (2010) had the result that the youngest, the poorest and the government gain at the expense of the rest of the population and, when the government gain is given to households as lump-sum transfers, the effects on GDP are negative and long-lasting. Monnin (2014) explored the empirical link between income inequality and inflation in ten OECD countries over the period of 1971–2010 and found a U-shaped link between long-run inflation and income inequality. Low inflation rates are associated with higher income inequality. Menna – Tirelli (2017) considered the issue in a DSGE model characterized by limited participation to the market for interest bearing assets (LAMP). They showed that a combination of higher inflation and lower income taxes reduces inequality. Kakar – Daniels (2019)



had built a monetary growth model that generates patterns of income, wealth and earnings inequality in the U.S. They observe significant redistributive effects as inflation acts as a regressive tax on consumption; it adversely affects households at the bottom of the income partition and benefits those at the top. Doepke – Shneider (2006) estimated the wealth redistribution caused by a moderate inflation episode. The main losers from inflation are rich, old households, the major bondholders in the economy. The main winners are young, middle-class households with a fixed-rate mortgage debt. Besides transferring resources from the old to the young, inflation is a boon for the government and a tax on foreigners. Meh – Terajima (2011) quantified similar results regarding the redistributive effects of inflation in Canada that arise through the revaluation of nominal assets and liabilities. They found that the effects are non-trivial even for the low inflation episodes. The main winners are young, middle-class households with mortgage debt. The old, the rich or the middle-aged and middle-class individuals lose, largely owing to their holdings of bonds and non-indexed defined benefit pension assets. According to Fujiwara et al. (2019) simulation results, there indeed exists a tension between the young and the old on the optimal inflation rates, with the optimal inflation rates differing between generations. The optimal inflation rates for the old can be largely negative, reflecting their positive nominal asset holdings as well as lower effective discount factors. Societal aging may exert downward pressure on inflation rates through a politico-economic mechanism. In addition to the above reasons, an important factor in the perception of inflation is the rearrangement of wealth and income among various wealth and income groups. It is important to emphasize that the problem is exacerbated by the fact that the income and wealth situation of the population can differ significantly within national borders (Kovács-Szamosi et al. 2019; Csizmadia – Bareith 2020), therefore this effect is a serious social problem and the redistribution of inflation increases it. Should the monetary authority have to deal with an already existing fast inflation rate, a considerable reduction of the rate of inflation must be aimed at year by year. Once monetary policy succeeds in bringing down inflation, the low rate achieved must permanently be secured (Erdős 2008). Especially because the economic output (GDP per capita) is significantly larger within the inflation targeting countries (Wang 2016).

The effects of inflation do not, of course, stop at national borders, so what appears to be an inflationary loss for a country may indeed be a loss for that country, but it may just be a redistribution between countries. For example, in the context of a debtor-creditor relationship, a creditor loss is only an income realignment between countries. Our study does not deal with the effects between countries, it only examines the information processes in Hungary.

We cannot delve into the issue of measuring inflation, but it is worth highlighting some issues before interpreting the results. This is because many points in modern technology have made the measurement of the traditional inflation rate more uncertain. Matolcsy et al. (2019:1) summarized well the problems of measuring inflation: Distortions in the measurement of the consumer price index – and GDP in general – are also intensifying in the digital age, which, in the absence of treatment, could become a factor influencing economic policy. Improving the quality of products, shortening their life cycle, increasing the share of services, developing emerging platform economies, and spreading free content mean that the statistical framework developed in the middle of the last century has become a more and more inaccurate measure of inflation.



It is difficult to explain why inflation has not been increased by the huge liquidity and the large-scale stimulus programs. An essential element of the explanation is the change in the nature of inflation, the separation of consumer inflation and asset prices (increases in financial assets and house prices). In the post-crisis period of 2008, high levels of liquidity led to increases in financial assets and house prices rather than consumer inflation.

2. DATA AND METHODS

The Hungarian consumer price statistics are based on the observation of about 1,000 representatives (goods and services). In order for the observed prices to correctly indicate the effect of price changes on household expenditures, it is necessary to know their role and weight in consumption. The weights used to calculate the consumer price index represent the share of product and service groups in the purchased consumption. The weights are reviewed annually, based on household consumption.

The price index of total consumption is calculated using the following formula:

$$I_p = \frac{\sum w_i p_i}{\sum w_i} (\text{Laspeyres – price index}),$$

where w_i = percentage of “ i ” goods consumption in total consumption, p_i = price index for consumption group “ i ”.

The Hungarian Central Statistical Office (HCSO) not only publishes statistics on the average household consumer basket and pensioner consumer basket, but also provides consumer baskets according to the harmonized index of consumer prices for each income decile. As well as in the average household consumer basket, which can be interpreted as a national average, consumer goods and services that are not specific to the given income group have been excluded from the calculation of weights. We used the above formula to calculate inflation in terms of income deciles.

The purpose of calculating the Harmonized Index of Consumer Prices (HICP) is to provide an international comparison in the Member States of the European Union. The index is calculated taking into account national specificities; there is no mandatory requirement for the selected products and services. However, the use of the international abbreviation for the classification of individual consumption by purpose (COICOP) is mandatory.¹ The weights given to the various expenditure groups that make up the income deciles shopping basket are calculated from data on the expenditure patterns of these households.

We calculated alternative inflation rates based on income deciles’ different consumption basket. In addition to the average consumption basket, the data series “Annual expenditures per capita by COICOP main groups and income deciles” number 2.2.3.4 is available among the HCSO data. If we compare this with the total expenditure of a given income decile, we get the main group of products and services that each income decile buys (Table 1).

¹COICOP, is a classification developed by the United Nations Statistics Division to classify and analyze individual consumption expenditures incurred by households, non-profit institutions serving households and general government according to their purpose.



Table 1. Annual expenditure per capita by COICOP major groups and deciles of income as a percentage of total expenditure, 2019

| | Income deciles | | | | | | | | | |
|---|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | I. | II. | III. | IV. | V. | VI. | VII. | VIII. | IX. | X. |
| Food and non-alcoholic beverages | 30.6 | 29.8 | 27.1 | 26.8 | 26.3 | 26.3 | 25.0 | 23.8 | 22.7 | 19.4 |
| Alcoholic beverages, tobacco products | 4.9 | 4.8 | 4.1 | 3.5 | 4.0 | 3.2 | 3.3 | 3.5 | 3.1 | 3.0 |
| Clothing and footwear (including service) | 3.4 | 3.9 | 4.0 | 4.0 | 3.8 | 3.8 | 4.1 | 4.3 | 4.3 | 4.9 |
| Housing maintenance, household energy | 23.2 | 21.7 | 21.4 | 19.2 | 19.7 | 18.8 | 18.6 | 18.2 | 18.0 | 15.2 |
| Furnishings, household | 3.3 | 4.3 | 4.2 | 4.3 | 4.3 | 4.6 | 4.5 | 4.6 | 4.2 | 4.4 |
| Healthcare | 3.6 | 3.4 | 4.2 | 5.0 | 5.7 | 5.7 | 5.1 | 5.8 | 5.1 | 5.0 |
| Transport | 8.3 | 9.0 | 9.7 | 11.4 | 10.6 | 11.1 | 12.5 | 11.3 | 12.8 | 14.6 |
| Communication | 6.8 | 6.1 | 7.7 | 7.4 | 7.1 | 6.9 | 6.8 | 7.0 | 7.3 | 6.8 |
| Culture, entertainment | 4.5 | 4.8 | 5.3 | 5.6 | 5.7 | 6.7 | 6.9 | 7.1 | 8.1 | 10.8 |
| Education | 1.4 | 1.0 | 0.9 | 1.1 | 1.0 | 1.0 | 0.9 | 0.9 | 0.7 | 0.7 |
| Hospitality and accommodation services | 3.9 | 4.7 | 4.2 | 3.8 | 3.9 | 4.2 | 4.3 | 4.6 | 4.9 | 6.5 |
| Other products and services | 6.1 | 6.3 | 7.1 | 7.7 | 7.9 | 7.4 | 8.0 | 9.0 | 8.8 | 8.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Own editing based on HCSO (2020).

It can be seen, for example, that in 2019, households in the lowest income decile spent 30.6% of all their money on food and non-alcoholic beverages. As we move toward households in higher income deciles, this amount is declining. Households in the top decile with much higher income spent only 19.4% on products in this major group.

A similar trend can be observed for alcoholic beverages, tobacco and, for example, housing, household energy. However, the trend is reversed for the groups “Clothing and footwear”, “Health”, “Transport” and “Culture, entertainment”, where households in the higher income decile spend on average more – in proportion to their income – than households in the lower deciles. We calculated these consumer baskets by deciles of income with inflation by each COICOP major group to see if a different consumption pattern results in a different inflation redistribution.

We used Kruskal – Wallis test to determine if there are statistically significant differences between I. decile and X. decile inflation.

The statistic *H* is

$$H = \frac{12}{NN + 1} \sum \frac{R_i^2}{n_i} - 3N + 1$$

where *N* is the total number, *n_i* is the number in the *i*th group, and *R_i* is the total sum of ranks in the *i*th group. The value of *H* is tested against the chi-square distribution for *k* – 1 degrees of freedom, where *k* is the number of groups. If there are tied ranks, a correction is used but it makes very little difference (Figure 1).



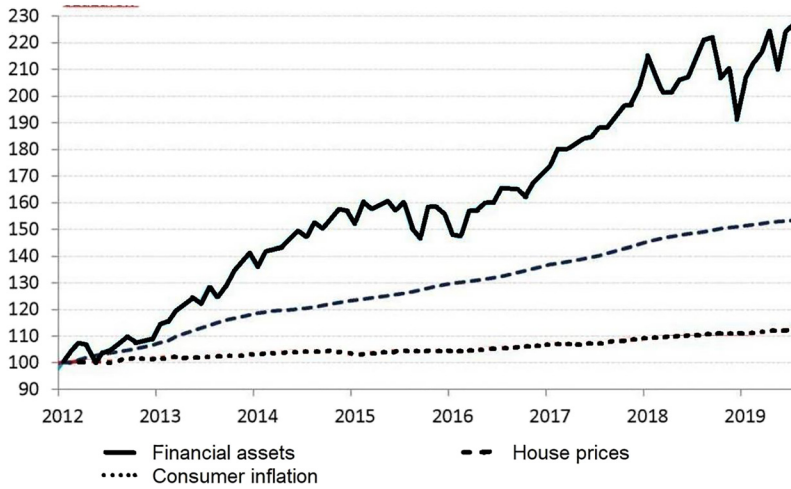


Fig. 1. Financial assets (S&P 500), house prices and consumer inflation in Hungary, %
 Source: Matolcsy et al. (2019).
 Notes: January 2021 = 100.

3. RESULTS AND DISCUSSION

The financial instruments most exposed to inflation are cash and uncommitted bank deposits. We relied on the data of the Hungarian National Bank (MNB) 2017 survey. About 70% of the financial assets are owned by the top household decile formed on the basis of net worth (Figure 2). Most of the X. decile 35,048 billion HUF financial assets are securities and shares.

We examined the ratio of total financial assets of households to their holdings of cash and bank deposits. This is an important sign because this part of wealth retains its real value the least

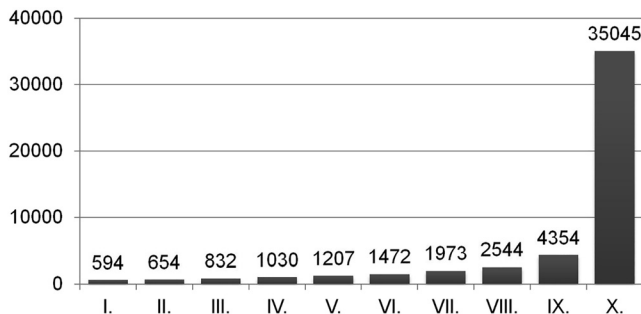


Fig. 2. Total financial assets of households by deciles on the basis of net worth, at the end of 2017 in Hungary, HUF billion
 Source: MNB (2017).



towards inflation, so the population suffers the most inflationary loss here. However, the inflation loss differs significantly by deciles formed on the basis of each net worth (Figure 3).

Nominally, the wealthiest deciles own a lot of cash (Figure 3) and deposits (Figure 4). However, compared to Figure 2, it can be seen that in their proportions, the groups belonging to the less-wealthiest deciles hold a larger share of their assets in cash and deposits, while the richest decile holds only HUF 967 billion and HUF 4,205 billion of cash and deposits type, respectively. They hold HUF 29,876 billion from their wealth in securities, stocks, shares and other receivables.

A general feature of inflation theory models is that they tend to work with a small, highly aggregated large social group. In this framework, however, it is not clear what the extent of the redistribution between individual social groups (in our case, wealth groups) is.

The monetarist explanation for inflation thinks over a long period of time and assumes complete anticipation. Here, inflation appears neutral in terms of redistribution, except for money holding, which is summarized as an inflation tax.

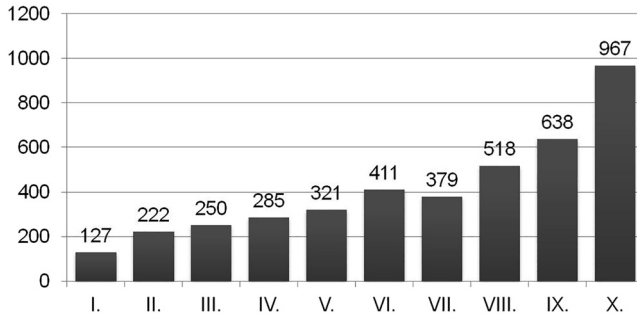


Fig. 3. Households' cash holdings by deciles on the basis of net worth, at the end of 2017 in Hungary, HUF billion

Source: MNB (2017).

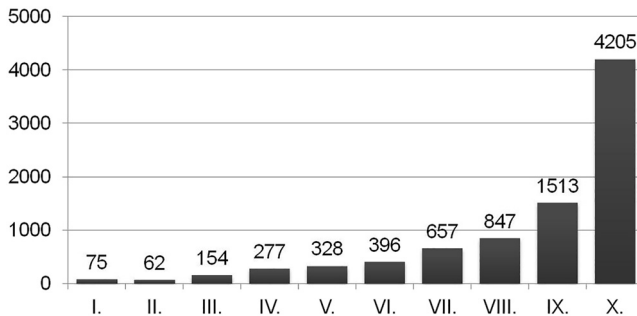


Fig. 4. Household deposits by deciles on the basis of net worth, at the end of 2017 in Hungary, HUF billion

Source: MNB (2017).



Quantitative measurement of inflation redistribution is rare. The costs of the inflation tax are defined as losses that do not represent as a profit for other entities. Typically, cash or uncommitted bank account money have such inflation costs. Assuming the latter, financial institutions tend to provide less loan because of uncommitted deposits liquidity risk (Gál 2016), or do so at a similar rate, and include a lower cost of funds than inflation when pricing credits and receivables due to market competition. Since without this, interest margin difference between loans and uncommitted deposits money would increase, so the cost of uncommitted deposits inflation would be profits to the financial institutions. We can talk about a redistribution effect if the loss of one economic entity is profit for another actor. With this simple demarcation, we can avoid the conceptual confusion caused by the mixed use of cost and distribution categories.

The individual asset portfolio consists not only of money and receivables, but also of real asset categories. In addition to the negative real interest rate on domestic forms of cash and bank deposits, it is worth investing in real assets even if it has no current return but retains the real value of the assets due to the inflation. However, *typically the wealth of households in the lower wealth deciles consists almost exclusively of real assets (own property, for example) and there is no substantial amount of savings in cash and bank deposits compared to their total wealth.* Households in the highest wealth deciles have much larger savings in cash and bank deposits in nominal terms, but in their wealth portfolios, these items represent a much smaller share than households in the middle or lower deciles. After all, securities or technical insurance financial instruments have a much larger share in their asset portfolio.

Those whose wealth consists of item components with price index exceeding the rate of inflation do well compared to those whose assets prices are below inflation. Based on our results, *the less affluent sections of the population lose out hardest on inflation due to their high share of cash.* As a result, inflation affected those who had a large share of liquid monetary assets within their asset portfolios. As Figure 5 below shows, the inflation process has hit the middle wealth strata of the population hardest, based on the ratio of monetary net worth to total wealth. The high liquid monetary assets ratio is further illustrated by adding the ratios of the two financial

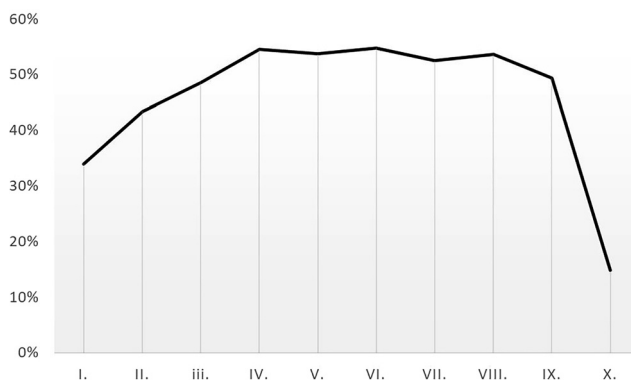


Fig. 5. Amount of cash and bank deposits as a proportion of total financial assets by income deciles in Hungary, at the end of 2017

Source: Own editing based on MNB (2017) data.



instruments that are most exposed to inflation and examining their ratios to the total financial assets in a given decile.

Owners of larger assets were generally able to avoid redistribution caused by inflation because their portfolios consisted largely of stock-shares, debt securities and equities. Middle savers, on the other hand, who held their wealth in cash or other liquid monetary securities, lost on inflation.

The situation of small savers has even been aggravated by the fact that their knowledge and information about inflation and optimal portfolio selection are often inadequate. Unfortunately, the level of financial knowledge of the population in Hungary is still insufficient (Kovács – Szóka 2020). Furthermore, they cannot easily change their portfolio composition because the transaction costs of portfolio restructuring are too high compared to their small assets.

It is generally accepted that low creeping inflation will not be able to exert a significant redistributive effect or, if it does, it will only affect actors with a larger stock of money, so the wealthier groups. By contrast, our study now points out that basically inflation harms mostly the middle classes, who have some monetary assets, but their amount is not large enough to be able to invest properly to counteract the effects of inflation.

3.1. Inflation redistribution by consumption

In Hungary, there are consumer price index (CPI) of average household inflation and pensioners' inflation, however, there are not any CPI measures for different income groups. Therefore, we have calculated them based on different income groups' consumption basket.

Households will have different inflation rates because their expenditure patterns are different from the 'average' patterns. There is often considerable variation in household inflation rates within a single year or a single month.

As we mentioned previously, in Hungary the households in lower deciles spend a larger share of their income – almost 35% – in these main group categories, while the households belonging to the higher income deciles spend just over 22% of their expenditures on these categories. Based on the breakdown by main groups of expenditure (same period of the previous year = 100.0%), from January 2018 to December 2020, the price increase of food and non-alcoholic beverages, as well as alcoholic beverages and tobacco products exceeded the general price index.

The inflations of "Transport", "Communication" and, "Culture, Entertainment" categories are lower than the general price index. However, these categories are more likely to be included in the budgets of the households in higher income deciles. For households that do not spend on culture and entertainment, these weights will be too high, but for households that do, they may well be too low. Similarly, food have a high weight in the average basket; households with high income may spend fragments of their income on this item, but low-income social group may spend a much bigger share of their budget on food.

As can be seen in Figure 6, in the period of 2018–2020, households in the lowest income decile (I. decile) often experienced 50–100 basis points higher inflation rates than households in the highest decile (X. decile).

During 2018, inflation appeared to be similar in different income groups. Recently, more striking gaps have started to emerge between income groups. Looking at inflation on a month-by-month basis in recent years, for I. income decile inflation was higher than X. income households, and similarly in case of even average inflation. The rapid increase in "Food and non-alcoholic beverages" prices in 2019 and 2020 affected households in I. income decile far more than other income groups on average.



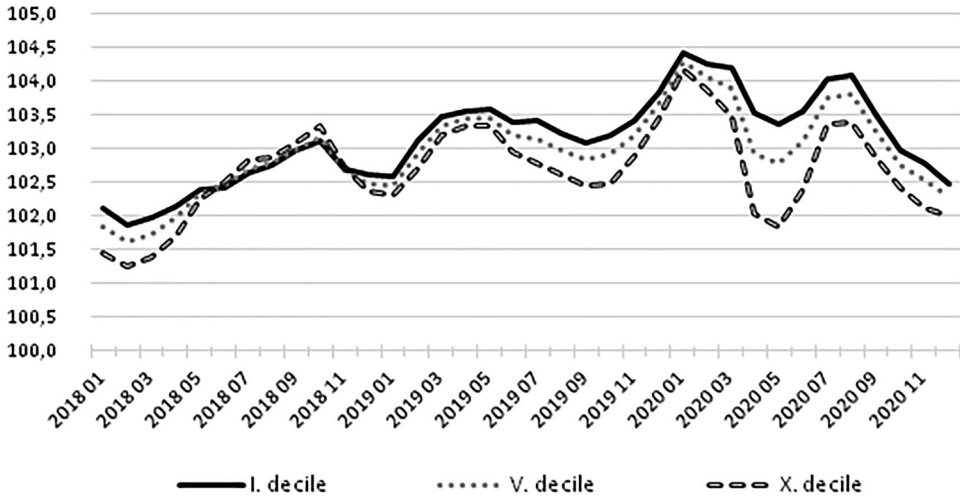


Fig. 6. Consumer price indices per capita annual expenditure by COICOP main groups and deciles of income in Hungary

Source: Own editing based on HCSO (2020).

Note: Same period of the previous year = 100.0%.

The Kruskal – Wallis H test showed statistically significant differences between I. decile and X. decile inflation. If $P > 0.05$, we usually conclude that our differences are not statistically significant. Note that our exact is $\chi^2(2) = 6.848, P = 0.009$.

The average inflation rate for I. income decile is often a better guide to the typical inflation experience of low-income households than the average for all households. However, even looking within low-income household type, there is still a variation in inflation rates.

4. CONCLUSIONS AND SUMMARY

In Hungary, there are CPI measures of averages household inflation and pensioners' inflation, however, there are not any CPI measures for different income groups. Therefore, we calculated them based on different income groups' consumption baskets. It is extremely unlikely that any one household will have the same spending pattern as the average. We have raised concerns over the impact of rising inflation on low-income social groups schemes. As we have shown in our study, inflation can in many cases become larger in the wealth-differences problem.

According to our analysis, the inflation redistributive effect is most damaging to the low- and middle classes.

Our hypothesis is confirmed: the redistribution of inflation affects different income groups at different degrees. A Kruskal – Wallis H test showed that there was a statistically significant difference between I. decile and X. decile inflation. Households in the lowest decile of income experienced 0.5–1.5 basis points higher inflation compared to those in the top tenth of the income distribution. In addition, inflation hurts the middle classes the most, who have monetary assets, but their amount is not large enough to be able to invest properly to counteract the effects of inflation.



Low level inflation can significantly reduce the redistributive effect of inflation. Creepy inflation and its negative effects on consumption and wealth redistribution are also fundamentally borne by the lower- and middle classes of the population. However, in terms of the magnitude of the impact, creeping inflation is more socially tolerable, so achieving and maintaining a persistently low and stable inflation rate is of paramount importance. The economic policy lesson of the above is that in addition to the official price index, the distribution of perceived inflation is also worth monitoring.

One of the important things to state in our study is that the inflation-induced income rearrangements and asset restructuring are often only potential effects, not always happening in reality. In the case of the population in particular, it can be observed that it will not be able to realize its potential inflationary profits if it cannot sell the property in which it lives and sell, the personal items it uses in its daily life. However, an inflation loss occurs when you have to buy new items due to the wear and tear of the consumables. Inflation gains can therefore be made at that time only in so far as it treats its objects of use, at least in part, not as users but as undertakings, in so far as it sells or leases its objects. The economic attitude of the population is a transition between the attitude of the users and the attitude of economic organizations towards their assets. The latter can not only potentially take advantage of the increase in the price of their assets, but can also make a real inflationary profit by passing on this as an increase in depreciation.

ACKNOWLEDGEMENT

The research was supported by the ÚNKP-22-4-II New National Excellence Program from the source of the Hungarian National Research, Development and Innovation Fund.

REFERENCES

- Auclert, A. (2019): Monetary Policy and the Redistribution Channel. *American Economic Review*, 109(6): 2333–2367.
- Cezanne, W. (2005): General Economics. Woll's Economics and Social Sciences. (Allgemeine Volkswirtschaftslehre. Woll's Lehr- und Handbücher der Wirtschafts- und Sozialwissenschaften.) Oldenbourg.
- Chiu, J. – Molico, M. (2010): Liquidity, Redistribution, and the Welfare Cost of Inflation. *Journal of Monetary Economics*, 57(4): 428–438.
- Csizmadia, A. – Bareith, T. (2020): Empirical Analysis of the Income Situation in the Southern Transdanubian Region. *Economics & Working Capital*, Special issue: 12–22.
- Doepke, M. – Schneider, M. (2006) Inflation and the Redistribution of Nominal Wealth. *Journal of Political Economy*, 114(6): 1069–1097.
- Erdős, T. (2008): Inflation Targeting in Hungary: A Case Study. *Acta Oeconomica*, 58(1): 29–59.
- Fujiwara, I. – Hori, S. – Waki, Y. (2019): *Generational War on Inflation: Optimal Inflation Rates for the Young and the Old*. Globalization Institute Working Paper, No. 372.
- Gál, V. (2016): Fenntarthatóság a bankok gyakorlatában; Pénzügyi-társadalmi vállalkozások (Sustainability in banking practice; Financial-social enterprises). In: Kerekes, S. (ed.): *Pénzügyekről másképpen: Fenntarthatóság és közösségi pénzügyek. (A Different Approach to Finance: Sustainability and Community Finance)*. Budapest: CompLex Wolters Kluwer, pp. 93–146.



- Hungarian Central Statistical Office (HCSO) (2020): *Annual Expenditure Per Capita by COICOP Population Groups and Income Deciles*. https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_zhc021a.html.
- Jeck, A. (1972): Wer Gewinnt, wer Verliert bei einer Inflation? In: Schlemmer, J. (Hrsg): *Enteignung durch Inflation. Fragen der Geldwertstabilität*. München: R. Piper & Co. Verlag, pp. 90–102.
- Kakar, V. – Daniels Jr, G. E. (2019): Role of Cash and Costs of Inflation for Different Income Groups in the US. *Economic Modelling*, 80(C): 303–319.
- Kovács, T. – Szóka, K. (2020): *A pénzügyi kultúra és pénzügyi tudatosság helyzete* (The state of financial culture and financial awareness). In: XIV. Soproni Pénzügyi Napok: Gazdaságvédelem és pénzügyi kiutak. Pénzügyi, adózási és számviteli szakmai és tudományos konferencia (XIV Sopron Financial Days. Security of Financial Protection and Economic Growth). A Soproni Felsőoktatásért Alapítvány, pp. 104–112.
- Kovács-Szamosi, R. – Bareith, T. – Csonka, A. (2019): Attitudes against Personal Bankruptcy of Foreign-Currency Debtors in Hungary. *Köz-Gazdaság*, 14(1): 190–203.
- Matolcsy, Gy. – Nagy, M. – Palotai, D. – Virág, B. (2019): *Az infláció mibenléte – ideje a mérőrendszereinket újragondolni* (The nature of inflation – time to rethink our measurement systems). <https://www.mnb.hu/letoltes/matolcsy-gyorgy-nagy-marton-palotai-daniel-virag-barnabas-az-inflacio-mibenlete.pdf>.
- Meh, C. A. – Ríos-Rull, J. V. – Terajima, Y. (2010): Aggregate and Welfare Effects of Redistribution of Wealth Under Inflation and Price-Level Targeting. *Journal of Monetary Economics*, 57(6): 637–652.
- Meh, C. A. – Terajima, Y. (2011): Inflation, Nominal Portfolios, and Wealth Redistribution in Canada. *Canadian Journal of Economics*, 44(4): 1369–1402.
- Menna, L. – Tirelli, P. (2017): Optimal Inflation to Reduce Inequality. *Review of Economic Dynamics*, 24(March): 79–94.
- MNB (2017): *A háztartási szektor pénzügyi megtakarításai mikro- és makrostatistikai adatok alapján* (Financial savings in the household sector based on micro- and macro-statistics). <https://www.mnb.hu/letoltes/haztartasok-hun-0531.pdf>.
- Molnár, Gy. (2014): Miért lehet magasabb az érzékelt infláció a valóságnál? (Why can perceived inflation be higher than reality?) <https://www.mnb.hu/letoltes/molnar-gyorgy-miert-lehet-magasabb-az-erzekelt-inflacio-a-valosagnal.pdf>.
- Monnin, P. (2014): *Inflation and Income Inequality in Developed Economies*. CEP Working Paper Series, No. 41.
- Oroszi, S. (2005): Az inflációelmélet fejlődése Phillipstől napjainkig (The development of inflation theory from Phillips to the present day). *Tudásmenedzsment*, 6(1): 17–30.
- Samuelson, P. A. – Nordhaus, W. D. (1987): *Közgazdaságtan (Economics)*. Budapest: KJK.
- Turdaloe, N. (2019): Monetary Policy, Heterogeneous Population and Inflation. *Research in Economics*, 73(4): 277–292.
- Vincze, J. (2019): Money Illusion: Reconsidered in the Light of Cognitive Science. *Acta Oeconomica*, 69(2): 191–215.
- Wang, C. (2016): Does Inflation Targeting Work Well? Evidence from CEE Countries. *Acta Oeconomica*, 66(3): 375–392.
- Ziercke, M. (1970): *Die redistributiven Wirkungen von Inflationen*. Göttingen: Vandenhoeck & Ruprecht.



Appendix

Kruskal – Wallis H test in SPSS

| Descriptives | | | | |
|--------------|----------------------------------|-------------|-----------|------------|
| | | | Statistic | Std. Error |
| I. decile | Mean | | 103.1361 | 0.10977 |
| | 95% Confidence interval for mean | Lower bound | 102.9133 | |
| | | Upper bound | 103.3590 | |
| | 5% Trimmed mean | | 103.1346 | |
| | Median | | 103.1500 | |
| | Variance | | 0.434 | |
| | Std. Deviation | | 0.65864 | |
| | Minimum | | 101.90 | |
| | Maximum | | 104.40 | |
| | Range | | 2.50 | |
| | Interquartile range | | 0.97 | |
| | Skewness | | 0.014 | 0.393 |
| Kurtosis | | −0.662 | 0.768 | |
| X. decile | Mean | | 102.6889 | 0.11518 |
| | 95% Confidence interval for mean | Lower bound | 102.4551 | |
| | | Upper bound | 102.9227 | |
| | 5% Trimmed mean | | 102.6870 | |
| | Median | | 102.7000 | |
| | Variance | | 0.478 | |
| | Std. Deviation | | 0.69108 | |
| | Minimum | | 101.30 | |
| | Maximum | | 104.20 | |
| | Range | | 2.90 | |
| | Interquartile range | | 0.98 | |
| | Skewness | | −0.074 | 0.393 |
| Kurtosis | | −0.306 | 0.768 | |



| Ranks | | | |
|------------------------|-----------|----------|------------------|
| | | N | Mean Rank |
| Inflation | I. decile | 36 | 42.94 |
| | X. decile | 36 | 30.06 |
| | Total | 72 | |
| Test Statistics | | | |
| Chi-Square | | 6.848 | |
| df | | 1 | |
| Asymp. Sig. | | 0.009 | |

Open Access. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited, a link to the CC License is provided, and changes - if any - are indicated. (SID_1)

