

Gikas Hardouvelis
Chief Economist &
Director of Research
ghardouvelis@eurobank.gr

Olga Kosma
Economic Analyst
okosma@eurobank.gr

Elena Simintzi
Economic Analyst
esimintzi@eurobank.gr

The differential rate of inflation between the poor and the rich following the introduction of the euro

- We utilize the Greek Statistical Agency's Household Budget Survey on 6.5 thousand households in 2004/2005 to construct separate inflation indices for the poor (21.7% of the sample, with income below 60% of median income) and rich (29.5% of the sample with income above 140% of median income).
- Over the period 1990-2007, there is no difference in the average inflation the two groups face, although after 1/1/2001, in 54 months the poor faced a higher inflation than the rich, whereas in only 19 months the rich faced a higher inflation than the poor.
- Since the introduction of the euro in 1/1/2001, the poor face greater inflation uncertainty than the rich and this may explain their discontent with the euro.
- The divergence in the uncertainty of inflation between the rich and the poor grows larger when comparing the more extreme tails of the income distribution, the poorest 10% and the richest 10%.

The differential rate of inflation between the poor and the rich following the introduction of the euro

By Gikas Harouvelis, Olga Kosma & Elena Simintzi

Synopsis

1. Introduction

The Greek rate of inflation came down drastically from a level of close to 20% in the early 1990s to 3% at the end of the same decade, thanks to the country's efforts to satisfy the Maastricht criteria and join the Euro Area (Figure 1). Yet, despite this dramatic reduction in inflation, Greek households increasingly complain about rising prices in goods and services, often blaming the introduction of the euro for the presence of inflation. The discrepancy between the actual rate of inflation and households' perceptions of inflation is a puzzle. This paper explores the possibility that households' discontent may be the result of the differential rate of inflation faced by the different income groups. Specifically, we construct the rates of inflation faced by the poor and the rich and compare their differences over time, paying particular attention to the period following the introduction of the euro.

2. The construction of the Consumer Price Index of the poor and the rich

Every five years, a comprehensive Household Budget Survey (HBS) is conducted throughout Greece in order to calculate households' consumption habits and recalibrate

the goods and services included in the national CPI and their relative weights. The last survey was performed in the period February 2004 – January 2005 and included 6.5 thousand households. The survey includes extensive questions on the households' monthly after tax income, originating from salaries, pensions, rents, dividends, capital gains, etc. Owner-occupied-rent, as well as consumption from owned produced goods, are also included as part of income. We calculated each household's disposable monthly income and found the median income from the sample of 6,555 households to be €1,986. We subsequently defined the "poverty" and "richness" lines to be the levels of income, which are 60% and 140% of the median income. Recall that the European Union definition for the "risk of poverty" is an income level lower than 60% of the median income. We call all the households, whose income is below the poverty line (€1,192) "poor" households - they represent 21.7% of the sample, and all the households, whose income is above the richness line (€2,781), "wealthy" households – they represent 29.5% of the sample (see Figure 2).

The poor and rich households do have different consumption habits. Table 1 contains the fractions of their total consumption expenditure spent

Figure 1:
Greek Inflation based on the CPI Index published by ESYE

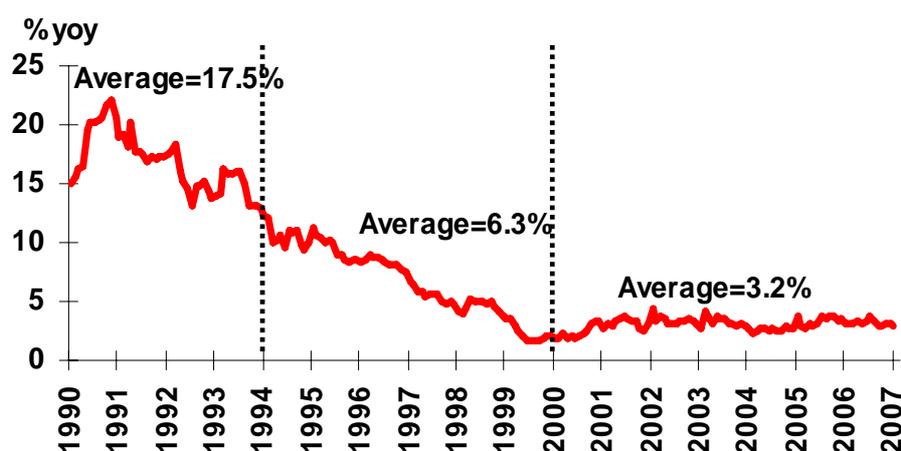


Table 1:
Proportion of household expenses for poor and rich households

Groups of Expenses	Weights in CPI sub-groups (%)	
	Poor (Income < €1.192)	Rich (Income > €2.781)
1. Food and non-alcoholic beverages	24.12	15.60
2. Alcoholic beverages, tobacco and narcotics	4.18	3.71
3. Clothing and footwear	7.38	9.35
4. Housing, water, electricity, gas and other fuel	19.75	8.03
5. Furnishings, household equipment and routine maintenance of the house	6.84	8.31
6. Health	9.71	6.95
7. Transport	5.98	14.90
8. Communication	4.81	4.60
9. Recreation and culture	2.95	5.56
10. Education	1.03	3.73
11. Restaurants and hotels	7.57	11.53
12. Miscellaneous goods and services	5.66	7.73
Total	100.00	100.00

Source: Household Budget Survey 2004/2005, authors' calculations.
Note: The income ceiling for the poor and income floor for the rich households correspond to 60% and to 140% of median income, or to the leftward 21.7% and to the rightward 29.5% of the total income distribution of Figure 2.

Figure 2:
Histogram of total net monthly income of Greek households

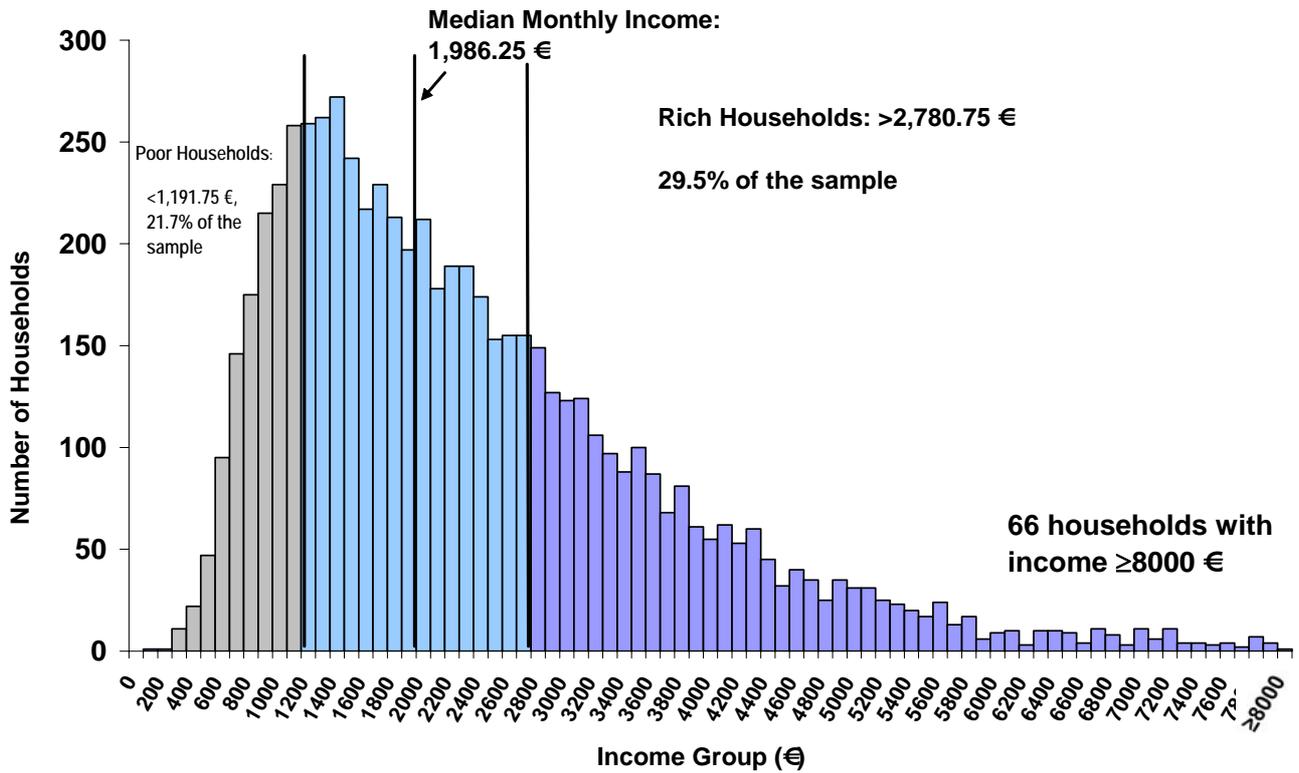


Figure 3:
Inflation of poor minus inflation of rich households

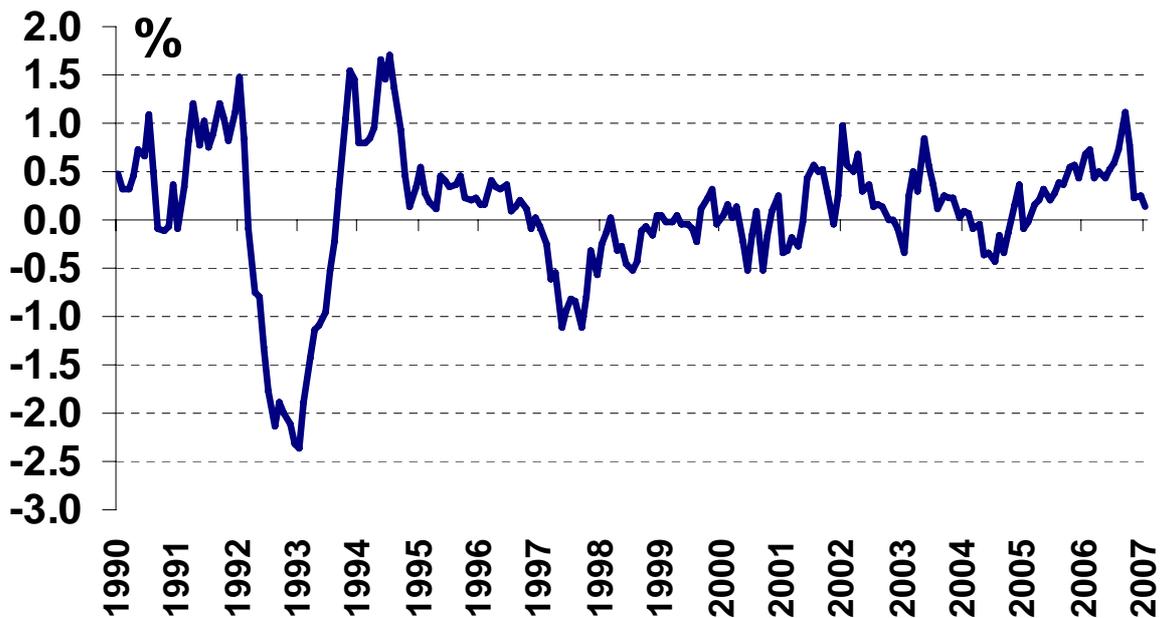
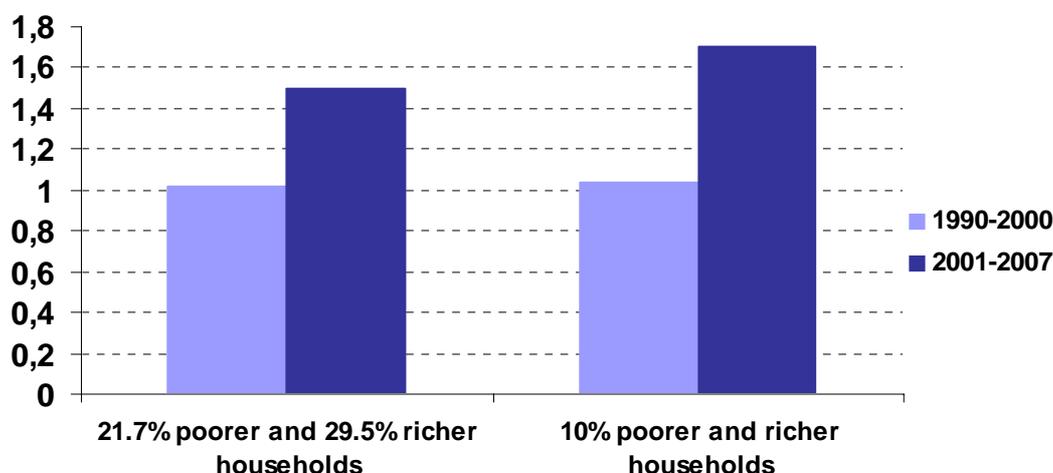


Figure 4:
Ratio of the standard deviation of the inflation of the poor to the standard deviation of the inflation of the rich



in each of 12 CPI categories. Poor households spend a larger part of their income for food and housing than rich households, and the reverse is true for transports, entertainment, hotels or education.

We construct a separate CPI for each group, using the weights of Table 1 and the 12 price indices – provided by the Greek Statistical Agency from 1989 to the present - of the 12 categories in Table 1. Please note that the weights of Table 1 have not changed a lot over time, so the construction of the two indices going back to 1989 is appropriate.

3. The statistical characteristics of the inflation differentials between poor and rich households in Greece following the introduction of the euro

Figure 3 describes the inflation rate of poor households over the corresponding inflation rate of rich households in Greece from 1990 to the present. While there are substantial deviations

from zero across the different periods, the average difference is close to zero, 0.09 percentage points for the full period and 0.2 percentage points for the period following the introduction of the euro. Consequently, it cannot be claimed that the introduction of the euro resulted in a substantially higher rate of inflation for the poor. It has hurt the poor relatively to the rich, but not by a substantial margin. Since 1/1/2001, the rate of inflation for the poor is higher than the rate of inflation for the rich in 54 months and lower in the remaining 19 months.

The differences between the CPIs of the poor and the rich become substantially larger after January 1, 2001 when it comes to their standard deviations. Figure 4 shows that the ratio of their standard deviations increased by 50%, from unity to 1.5.

More interestingly, the more apart the two groups are in terms of after-tax income, the larger become the differences in their standard deviations, following the introduction of the euro: We have repeated the entire empirical analysis for the poorest 10% and richest 10% of the households, by

constructing new CPIs that capture the consumption habits of those two new groups. We find that their standard deviations after 1/1/2001 grow apart even more: The ratio is now 1.7 (Figure 4).

An alternative way to see the higher volatility of the inflation faced by the poor is to plot their extra inflation, as was done in Figure 3, but divided by the average rate of inflation (Figure 5). This is a plot of inflation differences, scaled by the importance of inflation in every month. Since inflation has come down over the years, inflation differences in the later years are much more important than the same differences in the early 1990s. Figure 5 shows that, indeed, the inflation differences when expressed in fractions of average inflation are much larger after 1/1/2001: The average deviation is 1/10 of total inflation and is quite volatile. At some point in 2006, it was even as high as 4/10 of total inflation.

4. Conclusion

The euro was not followed by a substantial increase in the inflation faced by the poor relative to the rich. It was, however, followed by a substantial increase in the relative standard deviation of inflation. Following the introduction of the euro, the poor are faced with higher inflation uncertainty than the rich. Perhaps, this is one reason why they complain about inflation and the euro.

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Eurobank EFG, Division of Economic Research & Forecasting Research Team

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**Eurobank EFG, Othonos 6, 10557 Athens, tel: +30.210.333.7365, Fax: +30.210.333.7687,
web: <http://www.eurobank.gr/research>, Contact email: Research@eurobank.gr**

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