ASSESSING INFLATION PERSISTENCE: MICRO EVIDENCE ON AN INFLATION TARGETING ECONOMY

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Abstract

The paper provides an empirical analysis of inflation persistence in an inflation targeting country, the Czech Republic, using 412 detailed product-level consumer price indexes underlying the consumer basket over the period from 1994:M1 to 2005:M12. Subject to various sensitivity tests, our results suggest that raw goods and non-durables, followed by services, display smaller inflation persistence than durables and processed goods. Inflation seems to be somewhat less persistent after the adoption of inflation targeting in 1998. There is also evidence for aggregation bias, that is, aggregate inflation is found to be more persistent than the underlying detailed components. Price dispersion, as a proxy for the degree of competition, is found to be *negatively* related to inflation persistence, suggesting that competition is not conducive to reducing persistence.

Keywords: inflation dynamics, persistence, inflation targeting.
JEL Codes: D40, E31.

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Abstrakt

Tento článek poskytuje empirickou analýzu inflační persistence v jedné ze zemí cílících inflaci, České republice, použitím 412 detailních individuálních cenových indexů ve spotřebním koši v období 1994:M1 a 2005:M12. Po provedené citlivostní analýze, výsledky naznačují, že surové a netrvanlivé zboží, následované službami, vykazují menší inflační persistenci než zpracované a trvanlivé zboží. Inflace se zdá být méně persistentní po zavedení inflačního cílování v roce 1998. Dále je patrná agregovaná vychýlenost, což znamená, že agregátní inflace je více persistentní než průměr persistencí inflace na úrovni jednotlivých položek. Cenová disperze, jakožto proxy pro míru konkurence, je negativně závislá na inflační persistenci, což naznačuje, že konkurence persistenci nesnižuje.

1. Introduction

The sensitivity of aggregate inflation to various macroeconomic disturbances has been traditionally at the focus of the attention of monetary authorities. Indeed, the transmission of monetary policy actions to prices depends on a number of factors, including *inter alia* the degree of nominal rigidities. Consequently, in the last 20 years or so, there has been substantial research investigating the macroeconomic consequences of nominal rigidities for the working of an economy in response to various shocks and for the design of monetary policy rules. The result of this effort has been a number of micro-founded models with price or wage stickiness which predict various types of inflation dynamics. Nevertheless, two standard models in their original versions, Calvo (1983) and Taylor (1980), imply no role for the backward-looking dimension of inflation. These models, while assuming price stickiness, do not imply intrinsic inflation stickiness.[1]

Several models address this issue by introducing the lagged value of inflation into a new Keynesian Phillips curve. The rationale behind the inclusion of the lagged value differs across the models. Apart from simply assuming rule of thumb behavior (Galí and Gertler, 1999), Fuhrer and More (1995) suggest that the relative wage structure might be a reason for the backward-looking nature of inflation. Mankiw and Reis (2002) stress the significance of information processing lags in price setting mechanisms. In addition, Erceg and Levin (2003) and Orphanides and Williams (2003) explain persistence with the adaptive learning of agents in response to changes in the monetary policy regime. Consequently, the ability of monetary policy to anchor long-term inflation expectations induces agents to rely on past inflation to a lesser extent. In this regard, Sargent (1999) studies extensively the interactions between the conduct of monetary policy and inflation persistence. Nimark (2005) suggests that optimal price setting with firm-specific marginal cost rationalizes the link between past and current inflation. Calvo, Celasun and Kumhof (2002) show that in an environment of high steady state inflation, firms not only choose their price today, but also set the rate at which they will update prices in the future (the firm-specific inflation rate). Under a monetary policy shock, some firms will not reset their inflation rate (and prices) and this gives rise to inflation inertia.

[1] Assuming the Galí and Gertler (1999) hybrid New Keynesian Phillips curve specification for inflation dynamics, Angeloni *et al.* (2006) distinguish between various sources of inflation persistence and label them accordingly. They define *intrinsic inflation persistence* as the persistence originating in past inflation, *extrinsic inflation persistence* as the persistence related to inertia in the output gap, and *expectation-based inflation persistence* as the persistence rooted in deviations from rational expectations due, for example, to learning.

Recent empirical research has shown that inflation persistence is generally much lower than previously thought (e.g. Cecchetti and Debelle, 2006). This is mainly associated with two factors. First, inflation persistence did indeed decline in the 1990s as compared to the 1970s and 1980s (O'Reilly and Whelan, 2005). Second, greater care has been taken in econometric work. Levin and Piger (2004) find that inflation persistence falls considerably when structural breaks are accounted for. Next, the stability of the monetary policy regime and central bank credibility help to anchor long-run inflation expectations and reduce the extent of backward-looking behavior. Levin *et al.* (2004) find that the adoption of an explicit inflation target significantly reduces the extent to which economic agents use backward-looking information for inflation forecasting and thus puts downward pressure on the persistence of inflation.[2]

There are various reasons why it is vital to study inflation persistence at a disaggregated level. Disaggregated analysis generally uncovers smaller inflation persistence across the individual/sectoral price indexes compared to aggregate inflation. This suggests that inflation persistence observed at the aggregate level may arise, to a certain extent, due to aggregation bias (see Granger, 1980 and Zaffaroni, 2004) and due to the fact that idiosyncratic shocks will tend to disappear when a substantial number of series are aggregated (Altissimo, Mojon and Zaffaroni, 2007). Disaggregate analysis is also fruitful for understanding which components of various price indexes exhibit greater inflation persistence. In addition, the role of structural breaks in estimating inflation persistence can be tackled in a fuller manner.

Additionally, several studies have raised the issue of which factors lie behind the fact that the inflation process is relatively persistent. Cournede *et al.* (2005) argue that the lower responsiveness of aggregate inflation to output developments in the euro area in comparison to the U.S. is caused by more rigid structural policy settings and relate it to trade barriers in the European services sector. Analogously, the European Commission (2003) points out that low competition in services enhances the sector's inflation inertia as measured at the aggregated level. This stands in contrast with evidence based on disaggregated data. Lunnemann and Matha (2005) for several EU countries and Clark (2006) for the U.S. find little evidence that services display greater inflation persistence than goods. Similarly, Coricelli and Horvath (2006) report results for Slovakia indicating that inflation inertia in the services sector is even lower than for goods and put forward an explanation of why (labor

[2] See Kotlán and Navrátil (2003) on the design of the inflation targeting regime in the Czech Republic, and Jonas and Mishkin (2003) on the inflation targeting experience of transition countries in general.

intensive) services—where the degree of competition is typically lower as services are often not exposed to international competition—may in fact exhibit smaller persistence. The argument is based on Calvo (2000), who shows that greater competition in the market may actually slow down the adjustment to shocks, as the degree of strategic complementarity increases with higher competition. All these aforementioned issues give further impetus for an individual or sectoral level analysis of inflation persistence.

One interesting application of inflation persistence analysis at the disaggregate level is provided by Cutler (2001). Cutler constructs an alternative measure of core inflation—persistence-weighted core inflation. The measure is constructed to give larger weights to items exhibiting higher inflation persistence. Using UK data, Cutler finds that in terms of the ability to predict headline inflation this measure outperforms some other standard measures of core inflation, such as those using a trimmed mean or weighted median or those excluding food and energy prices.[3]

In addition, it is noteworthy that there is still very little evidence on price setting behavior in the new EU member states. Typically, the few available studies focus on aggregate inflation dynamics. More detailed evidence on price setting is provided by Ratfai (2006), who studies the linkages between individual price dynamics and aggregate inflation with Hungarian data. Additionally, Konieczny and Skrzypacz (2005) analyze the price dynamics of about 50 products in Poland. Among other things, they show that a more intense search is associated with smaller price dispersion. Coricelli and Horvath (2006) give evidence on the empirical stylized features of price setting behavior in Slovakia using a large micro-level dataset underlying the Slovak CPI. Recently, inflation persistence at the aggregate level for the new EU members has also been studied by Franta *et al.* (2007).

Therefore, a novel contribution of this study lies in exploring inflation persistence at the disaggregate level in the Czech Republic using rich data collected by the Czech Statistical Office, which cover about a thousand product categories over 1994–2005 (accounting also for structural breaks). Furthermore, our study goes beyond a simple statistical description of the data and makes an attempt to identify the determinants of inflation persistence. Of particular interest is the examination of the so-called "services inflation persistence puzzle", namely that

[3] Notice that in general the forecasting ability of persistence-weighted measures of inflation may depend on the monetary regime and the degree of inflation persistence. For a discussion, see Smith (2004, 2005).

more labor-intensive categories such as services often exhibit smaller persistence as compared to goods (see for example Altissimo, Mojon and Zaffaroni, 2007; Clark, 2006; Coricelli and Horvath, 2006). Finally, we construct "persistence-weighted" core inflation in line with Cutler (2001) and propose a "persistence expenditure-weighted" core inflation measure that combines information on the persistence of an individual product and its weight in the CPI basket, with the objective of assessing its predictive performance (ability to capture inflation trends) compared to other alternative approaches for core inflation measurement.

The paper is organized as follows. After this introduction to the subject and overview of the key literature, the second section describes how inflation persistence is measured in practice, formulates the research hypotheses and explains the estimation methodology. The third section presents the data set used in the study. The fourth section provides the results. The last section concludes and draws policy implications. An Appendix with additional results and sensitivity checking follows.

2. Estimating inflation persistence

The literature generally applies two statistical approaches to estimating inflation persistence – parametric and non-parametric. The parametric approach is more extensively applied in empirical studies (Cecchetti and Debelle, 2006; Clark, 2006; Levin and Piger, 2004; Levin, Natalucci and Piger, 2004). As advocated by Andrews and Chen (1994), the best scalar measure of persistence is the sum of autoregressive coefficients in the dynamic equation for inflation:

$$\pi_t = \mu + \sum_{j=1}^{K} \alpha_j \pi_{t-j} + \varepsilon_t, \qquad (1)$$

where π_t stands for the yearly inflation rate, μ and α_j are parameters, and ε_t is the white-noise disturbance. The lag length K is determined based on information criteria. Typically, $\sum_{j=1}^{K} \alpha_j$ is interpreted as the measure of inflation persistence. Specification (1) may be labeled as naïve, because it does not account for potential structural breaks. A number of recent studies apply various tests for structural breaks (e.g. Cecchetti and Debelle, 2006 and Levin and Piger, 2004).

A non-parametric approach has recently been put forward by Marquez (2004). This approach builds on the idea that less persistent inflation is more likely to cross the long-run mean of the inflation rate (or possibly the time-varying mean). Consequently, inflation persistence φ is measured as $\varphi = 1 - n/T$, where n is the number of times inflation crosses its equilibrium value and T is the number of observations. Dias and Marquez (2005) derive the finite sample and asymptotic properties of this non-parametric measure. They also conduct Monte Carlo simulations and find that the bias of the estimate of persistence based on the non-parametric approach is smaller for any sample size, as compared to the parametric measure from equation (1). In addition, they argue that the non-parametric measure is more robust to structural breaks. Nevertheless, the properties of this measure are investigated only for covariance stationary processes.

Despite the potential attractiveness of the approaches described above, in our case we find that most individual inflation rates follow an I(1) process (even if we control for structural breaks). For such a case, the properties of the non-parametric approach have not been investigated yet. Analogously, in the case of a parametric measure (e.g. the sum of autoregressive coefficients), it is well known that the non-stationarity of the variables would result in a spurious regression. Therefore, we do not report these measures and propose a different measure of the persistence of inflation.[4]

Given the non-stationarity of inflation series, we opt for an examination of the degree of inflation persistence using complementary unit root and stationarity tests. Specifically, we use the Augmented Dickey-Fuller test (Dickey and Fuller, 1981), Phillips-Perron test (Phillips and Perron, 1988) and KPSS test (Kwiatkowski *et al.*, 1992). Given that our data come from a former transition country, we test the robustness of the results by carrying out a unit root test with a structural break (Saikkonen and Lütkepohl, 2002 and Lanne *et al.*, 2002, labeled as the LLS test hereinafter).

For the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, the probability of rejecting the null hypothesis of a unit root will be reported. The probability can vary from 0 to 1. Higher values thus correspond to more persistence. For example, a

[4] A straightforward application of the non-parametric method to our data does not bring any meaningful insight: the degree of persistence across all sectors is found to be very similar.

probability higher than 0.10 means that the null of a unit root cannot be rejected at the 10% significance level. For the KPSS stationarity test, the t-statistic will be reported: higher t-statistic values increase the probability of rejecting the null hypothesis of stationarity and hence characterize more persistence in the underlying series.

The number of lags in the aforementioned tests for each product is determined according to the Akaike information criterion. We address the sensitivity of the results by estimating persistence first for the full sample and then for the restricted sample, i.e. using data only after the introduction of inflation targeting in 1998. Next, we also estimate inflation persistence based on two samples (before and after the adoption of inflation targeting) of identical size.

Next, we also run a unit root test with a structural break. Given the relatively short time series, we test for only one structural break on an unknown date (Lanne *et al.*, 2002). As we find that most of the time series exhibit a structural break around 1998–1999 (shortly after the adoption of inflation targeting), we decided to employ a unit root test where we impose the break (captured by the shift dummy) in 1998:1.[5] The rationale for imposing the break is to ensure that we subject each time series to an identical testing procedure and consequently to allow the cross-sectional comparability of our results. We take the t-value from this test as the measure of the persistence of the series, with a more negative value indicating less persistence (increasing the probability of rejecting the null hypothesis of a unit root process).

Furthermore, one can put forward a critique that p-values might not generally serve as a universal measure for the degree of inflation persistence.[6] Therefore, we also measure persistence by simply running the aforementioned stationarity and unit root tests and examining whether we can reject the corresponding null hypothesis at a reasonable level of significance.[7] We then code the degree of persistence as 1 if the series is found to contain a unit root and 0 if the series is stationary. Subsequently, we calculate the share of unit root processes for particular sectors. As a result, this exercise provides an additional sensitivity

[5] Therefore, we estimate the LLS test only for our full sample (1995–2005) and do not estimate the test for the restricted sample (1998–2005, i.e. the inflation targeting period), as we do for the ADF, PP and KPSS tests.
[6] Given that p-values are affected by the standard errors of the estimated coefficients, the distribution of p-values is also influenced by the sample size. Hence, p-values cannot be used to compare persistence between short and large samples, for example. Since in our case the sample size is the same for all products (about 100 observations), p-values can be informative in characterizing the non-stationarity properties of the underlying series.
[7] More specifically, we use the 5% and 10% significance levels.

check of our results. Obviously, the drawback of this measure is that it is not possible to evaluate the extent of aggregation bias.

It is also vital to note that we use year-on-year inflation rates. Other possibilities, such as using month-on-month and quarter-on-quarter changes in the price level, are associated with seasonality, which may contaminate the true extent of persistence. In addition, these two changes are typically not monitored by economic agents such as households or unions. Most importantly, central banks set their inflation targets on year-on-year changes in the price level. In addition, Aron and Muellbauer (2006) claim that year-on-year inflation rates also capture the dynamics of month-on-month inflation.[8]

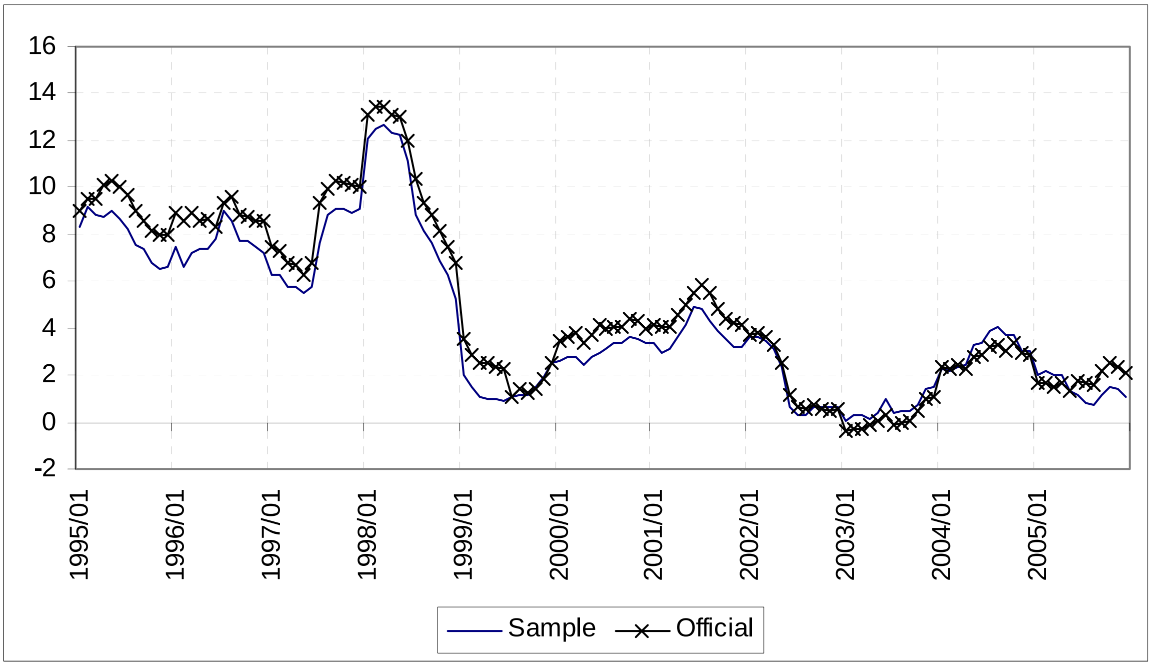
3. Data

The Czech Statistical Office included 1,022 narrowly defined products in the consumer basket between 1994 and 2005 on a monthly frequency. Nevertheless, the prices of many products were not tracked over the whole sample period. Typically, the whole consumer basket includes about 700 products on any given date. As a result, we were able to identify 412 individual products for which the price indexes are available for the whole period spanning 1994:M1 to 2005:M12. The selected 412 products represent 64% of the CPI basket for 2005.

As a benchmark, we construct sample inflation as a weighted average of 412 individual price indices (year-on-year percentage changes). Figure 1 shows the official CPI inflation and our sample inflation over 1995–2005 at a monthly frequency. The high similarity between the two series suggests that our sample of 412 products is fairly representative in terms of inflation dynamics. On average, annual CPI inflation in the Czech Republic was about 4.3% over the period 1994–2005. Prior to 1998, inflation fluctuated around 10%, while successful disinflation policy resulted in average inflation of around 3% during 1999–2005.

[8] Nevertheless, for the purposes of sensitivity checking, we replicate our analysis on month-on-month inflation rates (the results are available upon request). We find that in such case inflation exhibits less persistence compared to the yearly base. A similar observation was pointed out by Altissimo, Ehrmann and Smets (2006): the same series is found to be less persistent if considered in quarter-on-quarter changes compared to year-on-year changes.

Figure 1. Official CPI inflation and sample inflation, 1995–2005



To facilitate interpretation, the individual 412 products are further grouped into several broader categories according to their characteristics (in line with the Czech National Bank internal classification of products for reporting sectoral inflation rates). These are: tradables, non-tradables, durables, regulated goods and services, non-regulated services, raw goods and processed goods. Products are also classified by the statistical office into 12 main categories according to the classification of individual consumption by purpose (COICOP). These categories are food and non-alcoholic beverages; alcoholic beverages and tobacco; clothing and footwear; housing, water, gas, and electricity; furnishings and maintenance of a residence; health care expenses; transport; communications; leisure and culture; education; hotels, cafés, and restaurants; and miscellaneous goods and services.

4. Results

In the first part, we perform product-specific estimates of inflation persistence using the unit root (ADF, PP, LLS) and stationarity (KPSS) tests. Then we examine the effect of aggregation on inflation persistence and analyze whether inflation persistence changes over time. The second part is devoted to an assessment of the determinants of inflation persistence. Finally, we evaluate the predictive ability of persistence-weighted core inflation.

4.1 Inflation persistence estimates

The overall distribution of inflation persistence across product categories is summarized in Figure 2 below. The degree of persistence is depicted on the horizontal axis, while the vertical axis displays the kernel density. Several stylized facts follow from Figure 2.

All three tests suggest that aggregate inflation exhibits significantly higher persistence than the average inflation persistence as measured at the disaggregate level for the whole sample as well as for the 1998–2005 sub-period (the results of Altissimo, Mojon and Zaffaroni, 2007 and Clark, 2006, for example, also indicate this discrepancy).[9] Generally, there are two possible explanations for this phenomenon. First, Granger (1980) showed that cross-sectional aggregation of (even simple) time series may result in complex, often more persistent processes (i.e. aggregation bias). Typically, the aggregation bias is likely to be greater when there is large heterogeneity in the product-level inflation persistence. As a result, the estimated persistence of aggregate inflation may change due to changes in sectoral heterogeneity. Second, it may also reflect the fact that idiosyncratic shocks vanish due to aggregation. Next, we assess the robustness of these findings by running a LLS unit root test with a structural break (Saikkonen and Lütkepohl, 2002 and Lanne *et al.*, 2002). The break is captured by the shift dummy in 1998:M1. The results from this test confirm the presence of aggregation bias (see Figure A.2 in the Appendix).

One can also observe a noticeable reduction in overall CPI inflation persistence for the sub-period 1998–2005 (i.e. the inflation targeting period), while the sample aggregate inflation persistence has decreased rather marginally (see the lower part of Figure 2). We find that it was the persistence of tradables (especially durable goods) inflation rather than that of non-tradables that declined after the adoption of inflation targeting. This is further confirmed based on estimates in Appendix 2 with identical sample sizes before and after the introduction of inflation targeting.

Similar evidence of aggregation bias is observed when comparing inflation persistence for the aggregate CPI and the nine sectors (see Table 1 and Table 2; note that the results are obtained

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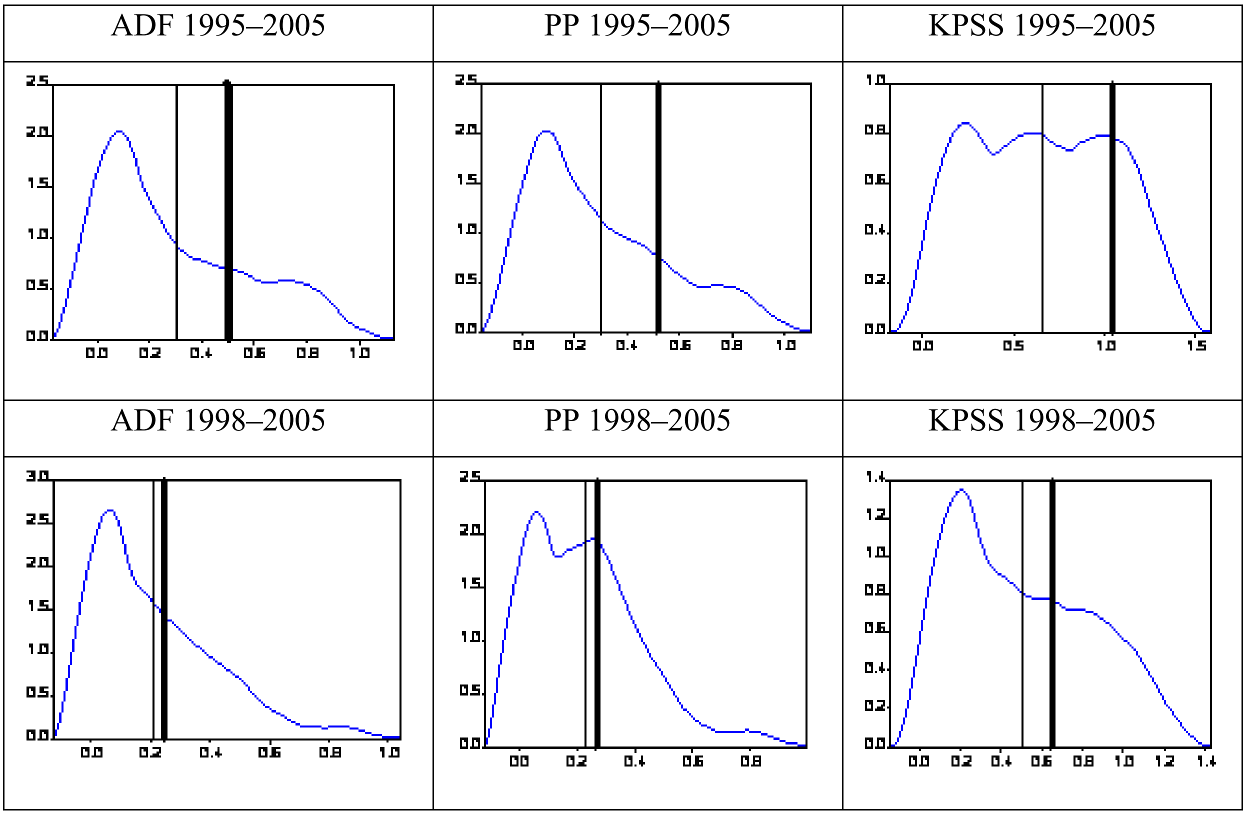
[9] The results are valid regardless of whether the sample aggregate inflation is constructed using the mean, weighted mean or median. The gap between aggregate inflation and the average inflation across the disaggregated components is different from zero at the 1% significance level, as suggested by the t-test. However, this significance may be overestimated since the conventional t-test is applied to the test statistics, not to the raw data.

by aggregating the product-specific estimates). Overall, the results in Tables 1 and 2 seem to indicate that inflation persistence in the Czech Republic is higher compared to euro area members. While for Western European countries there are relatively few cases of I(1) processes at sectoral and even aggregate levels (European Central Bank, 2005), and while the results of stationarity and unit root tests are often inconclusive (Gadea and Mayoral, 2006), the results for the Czech Republic are much more clear-cut.[10] Czech inflation follows a unit root process for most of the sectors. On the other hand, Franta *et al.* (2007) find that aggregate inflation persistence in the new EU member states tends to be lower than in the euro area when allowing for the time-varying inflation target.

Figure 2. Distribution of inflation persistence across 412 products and aggregation bias



Notes: Vertical bold lines denote the persistence of aggregate CPI inflation; simple vertical lines represent the mean of disaggregate inflation persistence. The horizontal axis characterizes the level of inflation persistence (higher values mean more persistence). For all the measures of persistence displayed, higher values mean more persistent inflation. For the **ADF** and **PP** unit root tests, the probability of rejecting the null hypothesis of a unit root is reported. The probability can vary from 0 to 1. Higher values correspond to more persistence. For example, a probability higher than 0.10 means that the null of a unit root cannot be rejected at the 10% significance level. For the **KPSS** stationarity test, the t-statistic is reported. Higher t-statistic values increase the probability of rejecting the null hypothesis of stationarity and hence characterize more persistence in the underlying series.

[10] In other words, Gadea and Mayoral find that many sectoral inflation series are fractionally integrated, i.e. follow a process between I(0) and I(1).

Table 1. Inflation persistence, yearly inflation, 1995–2005 (132 obs.)

Sector	No. of products	Sample weights	Measures of persistence			
			ADF	**PP**	**KPSS**	**LLS**
Tradables	311	0.59	0.31 (0.29)	0.31 (0.27)	0.69** (0.39)	-2.35 (1.12)
Non-tradables	101	0.41	0.24 (0.21)	0.22 (0.20)	0.55** (0.30)	-2.32 (1.03)
Services	96	0.40	0.24 (0.21)	0.22 (0.20)	0.56** (0.30)	-2.30 (1.05)
Non-reg. serv.	74	0.30	0.24 (0.21)	0.21 (0.19)	0.56** (0.30)	-2.32 (1.00)
Regulated	27	0.11	0.23 (0.21)	0.24 (0.20)	0.53** (0.28)	-2.32 (1.13)
Durables	164	0.21	0.44 (0.29)	0.43 (0.28)	0.90*** (0.34)	-1.86 (0.92)
Non-durables	152	0.39	0.16 (0.20)	0.18 (0.18)	0.46* (0.31)	-2.88** (1.05)
Raw goods	42	0.11	0.07 (0.13)	0.09 (0.11)	0.24 (0.19)	-3.43** (1.13)
Processed goods	370	0.89	0.32 (0.28)	0.31 (0.26)	0.71** (0.36)	-2.22 (1.02)
Total prod. level	412	1.00	0.29 (0.28)	0.29 (0.26)	0.66** (0.38)	-2.35 (1.09)
Aggr. inflation	1	1	0.48	0.49	1.03***	-1.80

Notes: The pairs tradables and non-tradables and raw goods and processed goods make up a total of 412 products. Durables do not include regulated prices, while processed goods do. For all the measures of persistence displayed, higher values mean more persistent inflation. For the **ADF** and **PP** unit root tests, the probability of rejecting the null hypothesis of a unit root is reported. The probability can vary from 0 to 1. Higher values correspond to more persistence. For example, a probability higher than 0.10 means that the null of a unit root cannot be rejected at the 10% significance level. Standard deviations are shown in parentheses. For the **KPSS** stationarity test, the t-statistic is reported. Higher t-statistic values increase the probability of rejecting the null hypothesis of stationarity and hence characterize more persistence in the underlying series. *, **, and *** denote the 10%, 5% and 1% asymptotical significance levels for the rejection of the stationarity hypothesis. Standard deviations are shown in parentheses. For the **LLS** (Lanne *et al.*, 2002) unit root test in the presence of a structural break, the t-statistic is reported. More negative t-statistic values increase the probability of rejecting the null hypothesis of a unit root and thus characterize less persistence in the underlying series. *, **, and *** denote the 10%, 5% and 1% asymptotical significance levels for the rejection of the unit root hypothesis.

Table 2. Inflation persistence, yearly inflation, 1998–2005 (96 obs.)

Sector	No. of products	Sample weights	Measures of persistence		
			ADF	**PP**	**KPSS**
Tradables	311	0.59	0.21 (0.21)	0.23 (0.19)	0.52** (0.35)
Non-tradables	101	0.41	0.23 (0.19)	0.22 (0.17)	0.46* (0.28)
Services	96	0.40	0.24 (0.19)	0.22 (0.17)	0.47** (0.29)
Non-reg. serv.	74	0.30	0.27 (0.19)	0.25 (0.16)	0.46** (0.27)
Regulated	27	0.11	0.12 (0.17)	0.14 (0.16)	0.47* (0.31)
Durables	164	0.21	0.24 (0.24)	0.26 (0.23)	0.70** (0.32)
Non-durables	152	0.39	0.16 (0.15)	0.20 (0.14)	0.31 (0.25)
Raw goods	42	0.11	0.12 (0.14)	0.15 (0.13)	0.16 (0.12)
Processed goods	370	0.89	0.22 (0.21)	0.24 (0.19)	0.54** (0.33)
Total prod. level	412	1.00	0.21 (0.20)	0.23 (0.19)	0.50** (0.33)
Aggr. inflation	1	1	0.26	0.27	0.63**

Notes: Same as for Table 1.

Moreover, in the Czech case the results of the unit root and stationarity tests are quite similar at the sectoral level (the test performance at the product level is assessed in the next paragraph). For example, considering the period from 1995 to 2005 (Table 1), the results of the unit root and stationarity tests give the same picture: 8 out of the 9 sectors exhibit a unit root process at the 10% significance level; raw goods (line 8) are the only sector that is stationary at the 10% level, as supported by both the unit root (ADF/PP) and stationarity (KPSS) tests. This similarity between unit root tests and stationarity tests gives support for the I(1) behavior of sectoral inflation rates. Note that these results are obtained assuming no trend in inflation. The incorporation of a time trend in inflation dynamics or accounting for a time-varying inflation target could be investigated further.

In terms of ranking the persistence across sectors, we find that raw goods consistently exhibit the smallest inflation persistence. On the other hand, durables inflation seems to be the most inertial. Interestingly, services and regulated products do not display greater persistence. This finding is also robust to our alternative indicator of inflation persistence—the share of unit roots. The attendant results are available in Table A.1 in the Appendix.

In addition, our results suggest that inflation persistence has decreased in the post-1998 period, i.e. since inflation targeting was adopted. Vega and Winkelried (2005) find that inflation targeting helps in reducing the volatility of inflation; however, the effect on inflation persistence is rather ambiguous. On the other hand, the results of Levin *et al.* (2004) indicate that inflation targeters indeed exhibit smaller inflation persistence. Likewise, Yigit (2007) documents that the adoption of an inflation target provides a coordinating effect on the inflation expectations of economic agents and therefore puts downward pressure on inflation persistence.

In this regard, while we find that there are 314 categories out of 412 for which we cannot reject the null of a unit root based on the ADF test in the 1995–2005 sample at the 5% significance level, there are 256 such categories in 1998–2005 (note that for the PP test the figures are 339 and 322 categories, respectively).[11] In the case of the KPSS test, we reject the null of stationarity at the 5% significance level for 269 categories over 1995–2005 and 207 categories for 1998–2005. These results suggest that inflation persistence may be somewhat lower after the adoption of inflation targeting in 1998; however, this should be taken with

[11] We have also estimated the Im, Pesaran and Shin (2003) panel data unit root test. In a nutshell, this test is defined as the average t-statistic from the univariate ADF tests. We rejected the null hypothesis of a unit root despite the fact that the t-statistic for the majority of underlying individual series was not sufficiently high to reject the attendant null in case we would estimate the unit root separately, as is the case for the univariate ADF test.

caution, as the power of the tests may decrease for the shorter sample. Table A.1 presents the detailed results on the (both simple and consumption-weighted) share of unit root processes, including the LLS test.

We also find that the estimated inflation persistence falls when we control for structural breaks. This is evident from comparing the ADF and LLS results. The construction of the LLS test implies that it is essentially the ADF test "adjusted" for the structural break. The results presented in Table A.1 indicate that the share of unit root processes is indeed smaller for the LLS test as compared to the ADF test. The results thus comply with Levin and Piger (2004).

At the individual product level, the link between the various tests is illustrated in Figure A1 in the Appendix. The correlation of the LLS test with the ADF, PP and KPSS tests stands at 0.76, 0.75 and 0.5, respectively. The P-values of the ADF and PP tests are closely related: the corresponding correlation coefficient is 0.94 for 1995–2005 and 0.87 for 1998–2005. The correlation between the unit-root tests and the KPSS test for stationarity is fairly high for 1995–2005 (0.63 and 0.67, respectively), and much lower for 1998–2005 (0.31 and 0.31, respectively).

Such a difference over the two periods is likely to be due to the following reasons. First, as the number of observations decreases the tests lose their power to reject the null hypothesis—that of an I(1) process for the ADF/PP tests, and of an I(0) process in the case of the KPPS. Second, as inflation itself has decreased over time, it becomes more difficult to distinguish whether the series follow an I(0) or I(1) process; the series may become fractionally integrated, as is the case for disaggregate inflation in West European countries (see Gadea and Mayoral, 2006). In other words, the growing differences between the unit root and stationarity tests may capture the effect of structural changes in the Czech Republic and give further indirect support for our supposition that inflation persistence decreased after the adoption of inflation targeting.

4.2 Explaining cross-sectional variation in inflation persistence

Once the disaggregate estimates of inflation persistence are obtained, we test them for any significant determinants. In particular, we analyze the ability of product characteristics to explain the cross-sectional variation in persistence across 412 individual products. In addition, we investigate the so-called “service inflation persistence puzzle”: several studies have revealed that (labor-intensive) services, which are typically less subject to international competition, surprisingly display smaller persistence than goods (see, for example, Altissimo, Mojon and Zaffaroni, 2007; Clark, 2006; and Coricelli and Horvath, 2006). Thus, our results will add a piece of evidence to this “service inflation persistence puzzle”. More generally, we analyze the implications of the degree of competition for inflation persistence.

One hypothesis to explain the cross-sectional variation in inflation persistence is that it differs across sectors. Concerning the sectoral categories, raw goods indeed demonstrate the lowest inflation persistence (and the lowest dispersion) among the nine sectors considered. Non-durables have the second-lowest persistence and dispersion of inflation. Apart from aggregate inflation, the sector with the highest inflation persistence (and also dispersion) is durables, followed by processed goods and tradables.

It is interesting to note that services are less tradable and more labor-intensive, i.e. their prices are likely to be set in a less competitive environment than that for goods. Naturally, the incentives for price revision for services should then be weaker and thus the convergence to frictionless equilibrium slower. Consequently, one would expect services prices to display greater inertia. However, our results, like the empirical evidence, do not support this reasoning. We find that inflation in services exhibits lower persistence, although for the post-1998 period this difference diminishes and becomes sensitive to the choice of test. Similarly, Clark (2006) for the U.S. as well as Coricelli and Horvath (2006) for Slovakia report smaller inflation persistence in services than for manufacturing using micro level data. Lunnemann and Matha (2004) find that in about five out of 15 EU countries the persistence in services inflation is smaller than the persistence of the overall HICP.

In this regard, Coricelli and Horvath (2006) put forward an explanation for the finding that services inflation is often found to exhibit smaller persistence than goods. Typically, it is assumed that higher competition increases the incentives for price revisions and the market has a tendency to adjust faster. On the other hand, Calvo (2000) shows that a greater degree of competition may increase the inertia rather than decrease it. This is because when markets are highly competitive, it is more likely that individual prices will not diverge far from the average (firms "follow the pack"), otherwise the firm would be pushed out of the market.[12] In other words, the degree of strategic complementarity among price setters increases with higher competition and individual pricing decisions will be more affected by the average pricing strategy in the market. Consequently, greater competition reduces price dispersion, however, it does not have to decrease persistence.

We proxy the degree of market competition by price dispersion. A number of recent empirical studies document a negative relationship between price dispersion and the degree of market competition (Baye *et al.*, 2004; Caglayan *et al.*, 2008; Gerardi and Shapiro, 2007; Leiter and Warin, 2007). Consequently, this allows us to test the aforementioned supposition that the degree of competition may indeed be positively related to inflation persistence. We measure price dispersion as the standard deviation of price indexes within an individual COICOP category normalized to one in the initial period. The resulting COICOP-specific measure of price dispersion is obtained by averaging the standard deviations over time.

First, simple pair-wise correlations are illustrated in Table 3. Particularly strong correlations are detected for the categories of durables and raw goods. We also find a significantly negative correlation between our measure of price dispersion and inflation persistence. This is robust to the measure of inflation persistence as well as the sample period.

Table 3. Correlation matrix: Inflation persistence and product characteristics

	1995–2005				1998–2005		
	ADF	PP	KPSS	LLS	ADF	PP	KPSS
Price dispersion	-0.25	-0.28	-0.32	-0.18	-0.08	-0.09	-0.27
Durables	0.44	0.45	0.53	0.36	0.13	0.12	0.47
Goods	0.10	0.14	0.14	-0.01	-0.08	0.01	0.05
Non-durables	-0.37	-0.33	-0.42	-0.37	-0.20	-0.11	-0.43
Non-tradables	-0.11	-0.16	-0.16	0	0.06	-0.02	-0.07
Processed goods	0.28	0.27	0.37	0.34	0.08	0.07	0.34
Raw goods	-0.28	-0.27	-0.37	-0.34	-0.08	-0.07	-0.34
Regulated products	-0.05	-0.06	-0.09	0	-0.12	-0.14	-0.08
Services	-0.11	-0.13	-0.11	0.02	0.05	-0.01	-0.05
Services – non-regulated	-0.10	-0.12	-0.08	0.02	0.13	0.09	-0.02
Tradables	0.1	0.16	0.16	0	-0.06	0.02	0.07

Note: Correlation coefficients greater than 0.08 in absolute terms are significant at the 5% level.

[12] Note also that deviation from the price of competitors has been found to be one of the most important obstacles to price adjustment in surveys of euro area firms (see Fabiani *et al.*, 2006).

Next, we present our results on the determinants of inflation persistence using here the KPSS test-based estimates of persistence in Table 4. The results suggest that greater price dispersion, a measure of competition, is associated with smaller inflation persistence, implying that competition is not conducive to reducing persistence. This finding holds for both our estimation periods (the full sample, 1995–2005, and the inflation targeting-restricted sample, 1998–2005) when controlling for product characteristics and altering our estimation technique (OLS vs. GMM), and, on top of that, is largely unaffected by the measure of persistence (see Tables A.2, A.3 and A.4 in the Appendix for the results based on targeting-restricted ADF, PP and LLS test-based estimates of persistence). In addition, we present a logit estimation of the inflation persistence determinants, which further confirms our findings. Our dependent variable is coded one if the product inflation is found to follow an I(1) process at the 10% significance level,[13] and zero otherwise. The results are available in Table A.5 in the Appendix.

Table 4. Determinants of inflation persistence

	1995–2005			1998–2005		
	KPSS	KPSS	KPSS	KPSS	KPSS	KPSS
Price dispersion	-1.25***	-10.4***	-2.57***	-0.91***	-9.23***	-1.71***
	(0.18)	(3.85)	(0.18)	(0.17)	(3.53)	(0.53)
Non-durables			-0.17**			-0.17***
			(0.08)			(0.06)
Raw goods			-0.31***			-0.24***
			(0.10)			(0.07)
Adj. R-squared	0.11	---	---	0.07	---	---
Estimation method	OLS	GMM	GMM	OLS	GMM	GMM
Sargan test (p-value)	---	0.2 (0.15)	0.4 (0.40)	---	1.5 (0.23)	0.9 (0.33)
Observations	412	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. The list of instruments for price dispersion is as follows: non-regulated services, non-durables, raw goods and regulated prices dummies. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. The P-value is in brackets for the Sargan (overidentifying restrictions) test. The dependent variable is the degree of inflation persistence, as assessed by the KPSS test, for each product (the series is listed in Table A.7 in the Appendix).

We report both the OLS and GMM estimates to check the robustness of the results. While OLS may be subject to endogeneity bias, it is known that GMM may give biased results for a smaller sample. Next, we also control for product characteristics (two products with high correlation with inflation persistence) and present the results for the two sample periods. The Appendix also contains Table A.6, where we study the impact of product characteristics on

[13] The 5% significance level was used as the cut-off point for coding the dependent variable as well. The results remained largely unaffected.

inflation persistence. We find that raw goods as well as non-durables exhibit smaller inflation persistence. There is some evidence that inflation in the services sector exhibits smaller persistence.

To further support our results that competition is likely to be negatively related to inflation persistence, we present the determinants of price dispersion. Here we expect that non-tradables/services, as they are typically not subject to international competition, will exhibit greater price dispersion. Controlling for other product characteristics, the results in Table 5 indicate that the degree of the non-tradability of a product, as captured by the services dummy, is positively linked to price dispersion (see also Crucini *et al.*, 2005 on the effect of non-tradability on price dispersion).

Table 5. Determinants of price dispersion

	Price dispersion				
Services – non-regulated	0.06***	0.09***	0.07***	0.09***	0.11***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Non-durables		0.07***		0.07***	0.08***
		(0.01)		(0.01)	(0.01)
Raw goods			0.03***	-0.001***	-0.001
			(0.01)	(0.001)	(0.001)
Regulated					0.17***
					(0.02)
Adj. R-squared	0.06	0.15	0.06	0.15	0.15
Estimation method	OLS	OLS	OLS	OLS	OLS
Observations	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. The dependent variable is the degree of price dispersion for each product.

4.3 Predictive ability of persistence-weighted core inflation

In order to improve inflation forecasts, a number of core inflation measures have been developed to capture underlying inflation trends. Generally, the measures remove or reweight the most volatile categories of inflation, such as energy prices. Smith (2004) notes that core inflation measures typically exploit cross-sectional information, while time-series information has been much less noted. In line with this, we construct a measure of core inflation, I_t^{core}, based on product-level inflation rate persistence, giving a greater weight to categories exhibiting greater persistence, and examine its predictive ability by comparison with other measures of core inflation as well as various inflation forecasts.

The underlying idea is that the more persistent components of headline inflation may do a good job in capturing inflation trends. In this context, Cutler (2001) finds that in the case of UK data, persistence-weighted core inflation outperforms other core inflation measures. Cutler (2001) argues that the exclusion of certain products from the basket in the construction of core inflation can be arbitrary, and what is more, she finds that certain non-seasonal food prices (food prices are typically excluded from core inflation) exhibit relatively persistent inflation and thus their behavior may provide additional information for capturing trends in inflation series.

Our persistence-weighted core inflation, $\pi_t^{core,PW}$, is based on Cutler (2001) and is constructed as follows:

$$\pi_t^{core,PW} = \sum_{i=1}^{413} \theta_i \Delta p_{t,i},$$

where θ_i denotes the i-th product inflation persistence (normalized such that $\sum_{i=1}^{413} \theta_i = 1$) and $\Delta p_{t,i}$ is the i-th product yearly inflation rate at time t. As an alternative indicator, we combine information on the persistence of an individual product, θ_i, and the weight of that product in the CPI basket in the following way,

$$\pi_t^{core,PEW} = \sum_{i=1}^{413} \xi_i \Delta p_{t,i},$$

where ξ_i is the simple average of θ_i—the individual inflation persistence—and w_i is the sample weight of the i-th product in the CPI basket, where θ_i and w_i are normalized such that $\sum_{i=1}^{413} \theta_i = 1$ and $\sum_{i=1}^{413} w_i = 1$. Consequently, we label $\pi_t^{core,PEW}$ as the persistence expenditure-weighted core inflation.

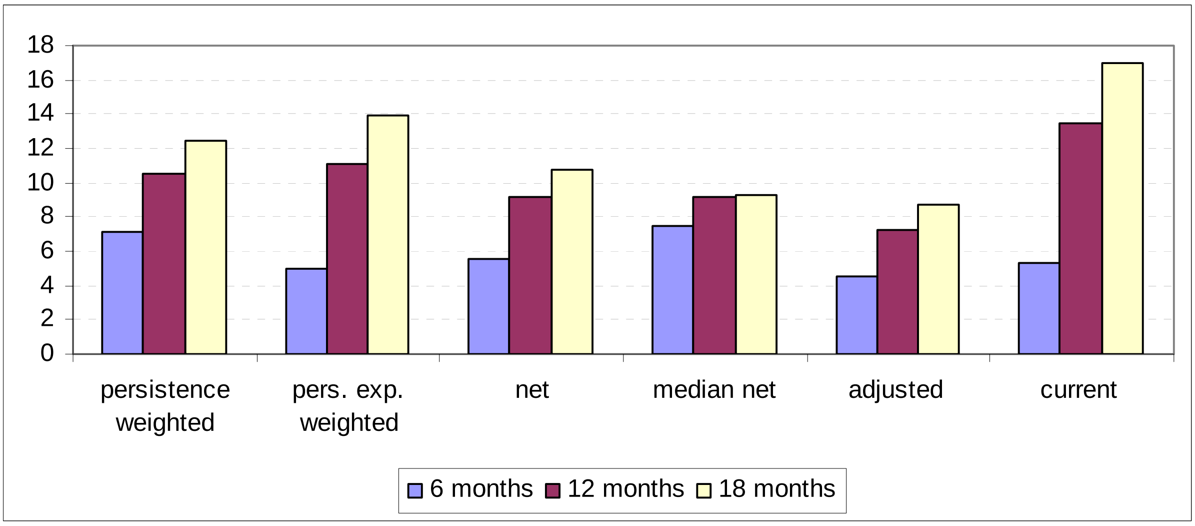
We undertake a simple exercise here to evaluate the predictive ability of persistence-weighted core inflation vis-à-vis other (core) inflation measures. Specifically, we compare it with net inflation, median net inflation (the median net individual inflation rate), and the so-called adjusted inflation (net inflation excluding food, beverages and tobacco) over the horizons of six, 12 and 18 months. The mean square error (MSE) will be used to measure the forecast quality:

$$MSE = 1/T\sum_{t=1}^{T}\left(\Pi_{t+h}^{CPI} - \Pi_{t}^{CORE,i}\right)^{2},$$

where T is the number of observations, h is the time horizon in months and $\Pi_t^{CORE,i}$ is the selected core inflation measure.

Figure 3 depicts the predictive ability of the aforementioned core inflation measures. Here we used the persistence measure based on the ADF test on the 1995–2005 data.[14] The results indicate that adjusted inflation exhibits the smallest MSE and thus is the best predictor of the core inflation measures considered. Net inflation, median net inflation and persistence-weighted core inflation, $\pi_t^{core,PW}$, do not perform particularly well. Current inflation and persistence-weighted core inflation, $\pi_t^{core,PW}$, are relatively good predictors of inflation six months ahead, but their predictive ability worsens substantially over longer time periods.

Figure 3. Predictive ability of core inflation measures, 1995–2005



Note: The mean square error is plotted on the vertical axis.

[14] The results based on other persistence measures (the PP, KPPS and LLS test-based measures for the full and restricted samples) are similar and available upon request.

5. Conclusions

In this paper, we have presented evidence on disaggregate inflation persistence in the Czech Republic, exploring data from 412 individual narrowly defined products and 9 broader sectors from 1995:M1 to 2005:M12. The results suggest that inflation persistence decreased after the adoption of inflation targeting. A somewhat similar observation of falling rather than rising inflation persistence in the euro area countries over the past decade is reported by the Eurosystem Inflation Persistence Network (IPN).[15] However, inflation persistence in the Czech Republic still remains relatively high compared to that in the euro area countries.

The results unambiguously point to the presence of aggregation bias, that is, aggregate inflation is more persistent than the mean of its underlying disaggregated components. This result is robust to the choice of disaggregation level (412 components or nine sectors) and weighting scheme (simple mean, median, or weighted mean), to the choice of estimation technique (unit root ADF, PP, LLS, or stationarity KPSS tests), and to the choice of period (full sample versus post-1998 inflation targeting period).

We identify that the sectoral structure explains the estimated cross-sectional variation in inflation persistence to a certain extent. In particular, products belonging to the raw goods category exhibit smaller-than-sample-average persistence, while durables have higher-than-average persistence. Concerning the "services inflation persistence puzzle", there is evidence that (labor-intensive) services are characterized by smaller persistence than goods for our 1995–2005 sample. However, the results are sensitive to the choice of estimation technique and period, i.e. using a shorter sample over 1998–2005 we do not find robust differences in terms of the persistence of goods and services. Nevertheless, the regression results show that the services dummy is negatively associated with inflation persistence.

We find that competition is not conducive to reducing inflation persistence. Price dispersion, as a proxy for the degree of competition, is negatively related to inflation persistence. This finding confirms the results of Calvo (2000), who shows that as the level of competition increases, the firm's pricing strategy is influenced more by the average pricing strategy in the market. The costs of charging a different price for identical products increase with higher

[15] A summary of the IPN's findings is provided by Altissimo, Ehrmann and Smets (2006).

competition. As a result, there can be a more inertial response to shocks in a more competitive environment.

Lastly, we construct a persistence-weighted core inflation measure and evaluate its predictive ability in comparison with other available measures of core inflation over the period 1995–2005. Generally, we find that adjusted inflation (headline inflation excluding regulated prices, fuel and food prices and changes in indirect taxes) is the best predictor of future inflation trends in our set of core inflation measures over horizons of six, 12 and 18 months. Our proposed measure—persistence expenditure-weighted core inflation—may be viewed as an equally good predictor as adjusted inflation for the six-month horizon, but its predictive ability worsens over longer time periods.

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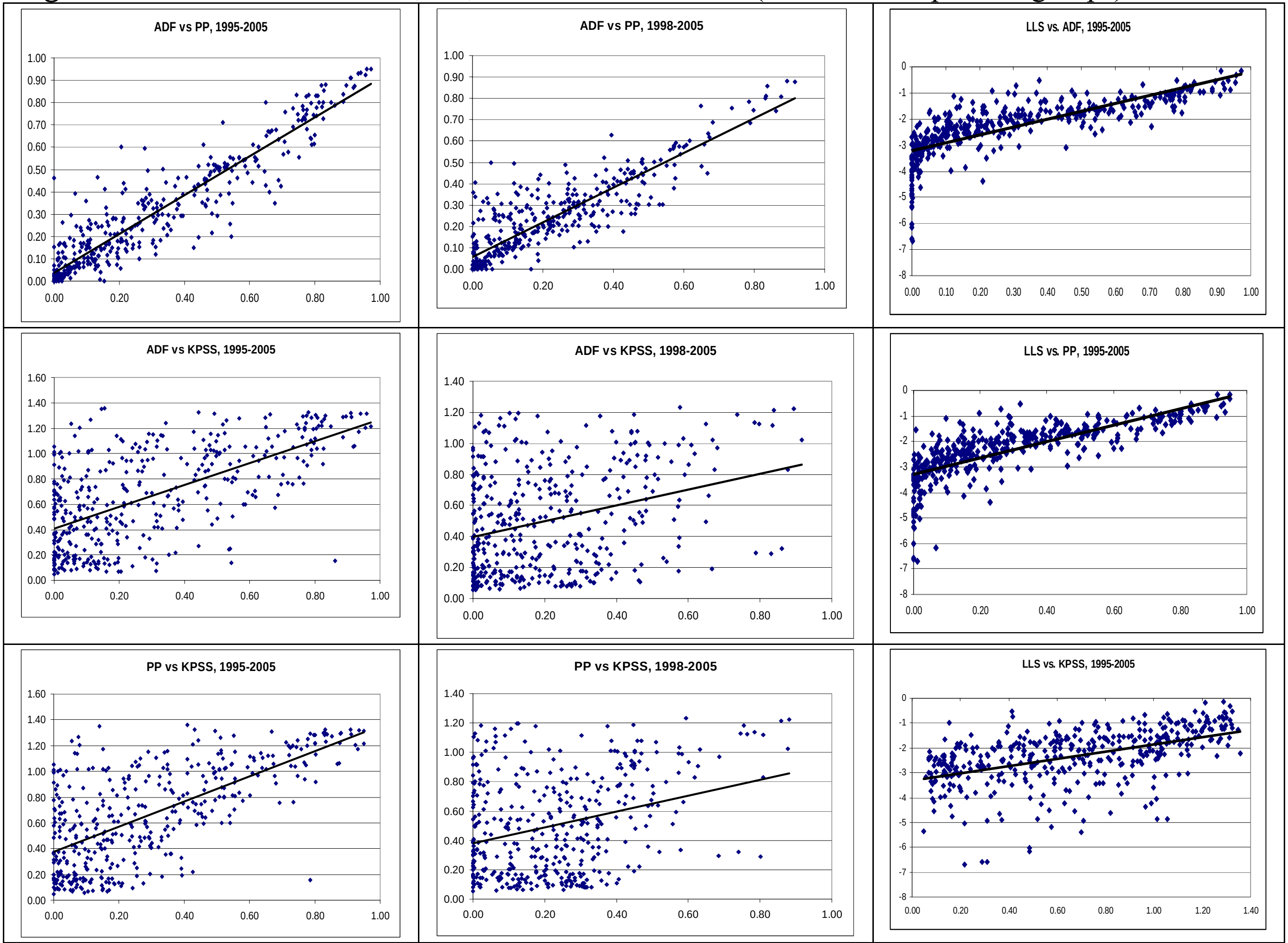
APPENDIX

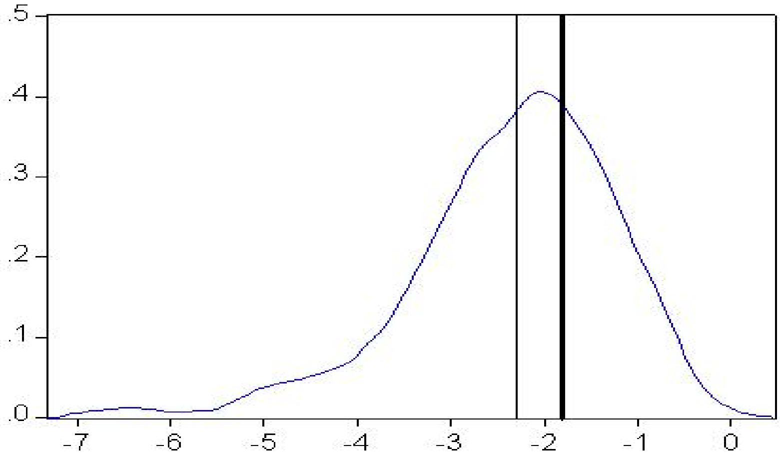
Figure A.1. Link between ADF, PP, KPSS and LLS tests (based on 412 product groups)



1995-2005		1998-2005		1995-2005	
corr(adf,pp)	0.94	corr(adf,pp)	0.87	corr(lls,adf)	0.76
corr(adf,kpss)	0.63	corr(adf,kpss)	0.31	corr(lls,pp)	0.76
corr(pp,kpss)	0.67	corr(pp,kpss)	0.31	corr(lls,kpss)	0.50

Notes: For the **ADF** and **PP** tests, the probability of rejecting the null hypothesis of a unit root is employed. The probability can vary from 0 to 1. Higher values correspond to more persistence. For example, a probability higher than 0.10 means that the null of a unit root cannot be rejected at the 10% significance level. For the **KPSS** stationarity test, the t-statistic is used (shown on the vertical axes). Higher t-statistic values increase the probability of rejecting the null hypothesis of stationarity and hence characterize more persistence in the underlying series. **LLS** test stands for the Lanne *et al.* (2002) unit root test with a structural break; the t-statistic is used in the Figure.

Figure A.2. Distribution of inflation persistence across 412 products and aggregation bias; Results from Lanne *et al*. (2002) unit root test with structural break



Notes: The bold vertical line denotes the persistence of aggregate CPI inflation; the simple vertical line represents the mean of the disaggregated inflation persistence. The horizontal axis characterizes the level of inflation persistence (more negative values mean more persistence). Thus, the results are indicative of aggregation bias.

Table A.1. Inflation persistence, Share of unit root processes

1995–2005

10% significance level			Share of unit roots				Share of unit roots (weighted)			
	no_prod	sample_w	ADF	PP	KPPS	LLS	ADF_w	PP_w	KPPS_w	LLS_w
Tradables	311	0.59	0.66	0.72	0.73	0.63	0.62	0.71	0.67	0.63
Non-tradables	101	0.41	0.68	0.67	0.76	0.65	0.83	0.79	0.90	0.76
Services	96	0.40	0.70	0.66	0.77	0.67	0.83	0.79	0.90	0.76
Non-reg. serv.	74	0.30	0.70	0.66	0.77	0.68	0.81	0.74	0.90	0.72
Regulated	27	0.11	0.63	0.70	0.74	0.59	0.89	0.94	0.91	0.85
Durables	164	0.21	0.85	0.86	0.90	0.82	0.89	0.89	0.80	0.86
Non-durables	152	0.39	0.45	0.57	0.55	0.42	0.47	0.61	0.60	0.51
Raw goods	42	0.11	0.21	0.29	0.26	0.21	0.29	0.31	0.13	0.33
Processed	370	0.89	0.72	0.75	0.79	0.68	0.75	0.79	0.84	0.73
Total prod. level	412	1.00	0.67	0.71	0.74	0.64	0.70	0.74	0.76	0.68

5% significance level			Share of unit roots				Share of unit roots (weighted)			
	no_prod	sample_w	ADF	PP	KPPS	LLS	ADF_w	PP_w	KPPS_w	LLS_w
Tradables	311	0.59	0.76	0.82	0.67	0.73	0.76	0.84	0.62	0.75
Non-tradables	101	0.41	0.76	0.80	0.60	0.76	0.86	0.88	0.54	0.82
Services	96	0.40	0.77	0.79	0.60	0.77	0.87	0.88	0.54	0.82
Non-reg. serv.	74	0.30	0.74	0.78	0.61	0.76	0.82	0.85	0.59	0.76
Regulated	27	0.11	0.81	0.85	0.59	0.78	0.97	0.98	0.40	0.97
Durables	164	0.21	0.90	0.92	0.87	0.86	0.92	0.94	0.78	0.89
Non-durables	152	0.39	0.59	0.72	0.45	0.59	0.67	0.78	0.53	0.67
Raw goods	42	0.11	0.36	0.50	0.14	0.38	0.43	0.62	0.09	0.44
Processed	370	0.89	0.80	0.85	0.71	0.78	0.85	0.88	0.65	0.82
Total prod. level	412	1.00	0.76	0.82	0.65	0.74	0.80	0.86	0.59	0.78

1998–2005

10% significance level			Share of unit roots			Share of unit roots (weighted)		
	no_prod	sample_w	ADF	PP	KPPS	ADF_w	PP_w	KPPS_w
Tradables	311	0.59	0.59	0.70	0.60	0.62	0.73	0.55
Non-tradables	101	0.41	0.69	0.77	0.53	0.82	0.84	0.72
Services	96	0.40	0.73	0.78	0.55	0.83	0.84	0.73
Non-reg. serv.	74	0.30	0.82	0.88	0.54	0.94	0.95	0.68
Regulated	27	0.11	0.33	0.48	0.52	0.52	0.56	0.84
Durables	164	0.21	0.63	0.66	0.81	0.62	0.64	0.73
Non-durables	152	0.39	0.54	0.73	0.36	0.61	0.79	0.45
Raw goods	42	0.11	0.38	0.57	0.07	0.45	0.70	0.02
Processed	370	0.89	0.65	0.73	0.64	0.73	0.79	0.69
Total prod. level	412	1.00	0.62	0.72	0.58	0.70	0.78	0.62

5% significance level			Share of unit roots			Share of unit roots (w.)		
	no_prod	sample_w	ADF	PP	KPPS	ADF_w	PP_w	KPPS_w
Tradables	311	0.59	0.70	0.77	0.52	0.73	0.82	0.47
Non-tradables	101	0.41	0.77	0.79	0.44	0.84	0.85	0.70
Services	96	0.40	0.79	0.80	0.46	0.84	0.85	0.70
Non reg. serv.	74	0.30	0.91	0.91	0.46	0.96	0.96	0.66
Regulated	27	0.11	0.41	0.48	0.37	0.53	0.56	0.80
Durables	164	0.21	0.71	0.74	0.75	0.70	0.74	0.69
Non-durables	152	0.39	0.68	0.80	0.26	0.74	0.86	0.35
Raw goods	42	0.11	0.52	0.67	0.05	0.55	0.75	0.01
Processed	370	0.89	0.74	0.79	0.55	0.80	0.84	0.63
Total prod. level	412	1.00	0.72	0.78	0.50	0.77	0.83	0.56

Table A.2. Determinants of inflation persistence, ADF test

	1995–2005			1998–2005		
	ADF	ADF	ADF	ADF	ADF	ADF
Price dispersion	-0.73***	-6.66***	-1.63***	-0.17*	-2.08**	-0.58***
	(0.14)	(2.49)	(0.46)	(0.1)	(1.04)	(0.16)
Non-durables			-0.10**			-0.05*
			(0.05)			(0.02)
Raw goods			-0.16***			-0.002
			(0.04)			(0.04)
Adj. R-squared	0.07	---	---	0.01	---	---
Estimation method	OLS	GMM	GMM	OLS	GMM	GMM
Sargan test (p-value)	---	1.8 (0.19)	1.5 (0.22)	---	0.1 (0.7)	5.2 (0.02)
Observations	412	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. P-values are in brackets for the Sargan (overidentifying restrictions) test. The list of instruments for price dispersion is as follows: non-regulated services, non-durables, raw goods and regulated prices dummies. The dependent variable is the degree of inflation persistence, as assessed by the ADF test, for each product (the series is listed in Table A.7 in the Appendix).

Table A.3. Determinants of inflation persistence, PP test

	1995–2005			1998–2005		
	PP	PP	PP	PP	PP	PP
Price dispersion	-0.73***	-5.66***	-1.51***	-0.17*	-0.87***	-0.49***
	(0.14)	(2.13)	(0.42)	(0.1)	(0.30)	(0.18)
Non-durables			-0.08*			-0.01
			(0.04)			(0.02)
Raw goods			-0.16***			-0.04
			(0.04)			(0.03)
Adj. R-squared	0.08	---	---	0.01	---	---
Estimation method	OLS	GMM	GMM	OLS	GMM	GMM
Sargan test (p-value)	---	1.9 (0.17)	5.5 (0.02)	---	0.4 (0.82)	5.5 (0.02)
Observations	412	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. P-values are in brackets for the Sargan (overidentifying restrictions) test. The list of instruments for price dispersion is as follows: non-regulated services, non-durables, raw goods and regulated prices dummies. The dependent variable is the degree of inflation persistence, as assessed by the PP test, for each product (the series is listed in Table A.7 in the Appendix).

Table A.4. Determinants of inflation persistence, LLS test

	1995–2005		
	LLS	LLS	LLS
Price dispersion	-1.99***	-27.7***	-2.69**
	(0.49)	(11.1)	(1.24)
Non-durables			-0.57***
			(0.15)
Raw goods			-0.84***
			(0.21)
Adj. R-squared	0.03	---	---
Estimation method	OLS	GMM	GMM
Sargan test (p-value)	---	2.5 (0.11)	0.6 (0.46)
Observations	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. P-values are in brackets for the Sargan (overidentifying restrictions) test. The LLS test is a unit root test with a structural break on an unknown date. The test was carried out only for the full sample, 1995–2005; see the main text for explanations. The list of instruments for price dispersion is as follows: non-regulated services, non-durables, raw goods and regulated prices dummies. The dependent variable is the degree of inflation persistence for each product (the series is listed in Table A.7 in the Appendix).

Table A.5. Determinants of inflation persistence, Logit estimates

	1995–2005				1998–2005		
	ADF	PP	KPSS	LLS	ADF	PP	KPSS
Price dispersion	-3.68***	-2.90**	-2.59**	-3.45***	-1.37	-0.97	-3.11***
	(1.16)	(1.15)	(1.17)	(1.12)	(1.11)	(1.16)	(1.06)
Non-durables	-1.13***	-0.49*	-1.06***	-1.07***	-0.26	0.41	-1.04***
	(0.24)	(0.25)	(0.26)	(0.24)	(0.23)	(0.26)	(0.24)
Raw goods	-1.64***	-1.74***	-1.82***	-1.48***	-0.91***	-0.95***	-2.61***
	(0.41)	(0.37)	(0.42)	(0.40)	(0.57)	(0.37)	(0.63)
Pseudo R-squared	0.15	0.10	0.15	0.13	0.03	0.06	0.16
Estimation method	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Observations	412	412	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively. The LLS test is a unit root test with a structural break on an unknown date. The test was carried out only for the full sample, 1995–2005; see the main text for explanations.

Table A.6. Determinants of inflation persistence, product characteristics

	1995–2005				1998–2005		
	ADF	PP	KPSS	LLS	ADF	PP	KPSS
Non-durables	-0.24***	-0.20***	-0.34***	-0.79***	-0.08***	-0.04**	-0.32***
	(0.03)	(0.03)	(0.03)	(0.11)	(0.02)	(0.02)	(0.03)
Raw goods	-0.16***	-0.16***	-0.34***	-0.86***	-0.01	-0.02	-0.24***
	(0.02)	(0.02)	(0.05)	(0.16)	(0.03)	(0.03)	(0.04)
Services – non-regulated	-0.21***	-0.20***	-0.30***	-0.45***	0.02	0.01	-0.21***
	(0.03)	(0.03)	(0.04)	(0.14)	(0.03)	(0.03)	(0.04)
Regulated	-0.17***	0.17***	-0.33***	-0.38***	-0.011***	-0.11***	-0.25***
	(0.04)	(0.03)	(0.06)	(0.13)	(0.03)	(0.03)	(0.05)
Adj. R-squared	0.24	0.22	0.33	0.21	0.06	0.04	0.29
Estimation method	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Observations	412	412	412	412	412	412	412

Note: Heteroscedasticity robust standard errors are shown in parentheses. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively.

Table A.7. Detailed product-specific results

Products	Units	ADF95	ADF98	KP95	KP98	LLS	PP95	PP98	Weights
Bread, white	1 kg	0.07	0.36	0.41	0.19	-2.08	0.24	0.20	113.43
Bread, whole meal	1 kg	0.30	0.30	0.17	0.40	-2.36	0.17	0.26	94.57
Baguettes (white)	1 kg	0.01	0.33	0.31	0.11	-2.31	0.16	0.13	14.48
Pastry, cake	1 kg	0.19	0.08	0.49	0.09	-2.49	0.28	0.22	19.72
Puff pastry	1 kg	0.40	0.13	0.62	0.07	-1.70	0.39	0.12	5.78
Sponge cake	1 kg	0.47	0.13	0.99	0.38	-1.62	0.41	0.12	6.96
Biscuit dry	1 kg	0.16	0.41	0.49	0.65	-2.38	0.33	0.35	20.20
Biscuit with filling	1 kg	0.00	0.00	0.78	0.33	-3.42	0.00	0.00	20.20
Wafers	1 kg	0.03	0.01	0.79	0.70	-3.42	0.02	0.00	20.20
Wheat flour (impalpable powder)	1 kg	0.11	0.01	0.08	0.19	-2.35	0.15	0.34	7.91
Wheat flour	1 kg	0.13	0.38	0.09	0.22	-2.51	0.24	0.46	13.79
Spaghetti, without eggs	1 kg	0.11	0.46	0.19	0.56	-1.84	0.25	0.28	4.55
Pasta, with eggs	1 kg	0.28	0.39	0.18	0.55	-2.02	0.33	0.35	11.93
Bread dumpling, powder	1 kg	0.01	0.01	0.26	0.09	-3.82	0.10	0.13	8.47
Pudding (powder)	10 pcs	0.46	0.00	0.86	0.23	-2.02	0.34	0.00	5.24
Rice, long-grain	1 kg	0.06	0.32	0.16	0.45	-2.88	0.10	0.26	13.25
Center loin pork roast	1 kg	0.08	0.27	0.17	0.08	-2.47	0.08	0.32	38.69
Boneless sirloin roast	1 kg	0.04	0.26	0.18	0.08	-2.86	0.04	0.31	38.39
Sirloin chop	1 kg	0.04	0.23	0.21	0.08	-2.74	0.06	0.31	24.34
Boneless blade roast	1 kg	0.07	0.30	0.27	0.08	-2.70	0.06	0.31	24.97
Belly-pork	1 kg	0.07	0.25	0.09	0.09	-2.71	0.09	0.30	21.86
Boneless rump roast	1 kg	0.00	0.00	0.49	0.13	-6.01	0.00	0.07	36.27
Boneless shoulder pot-roast	1 kg	0.00	0.05	0.58	0.14	-5.17	0.00	0.13	22.12
Fore shank	1 kg	0.00	0.08	0.37	0.13	-4.90	0.00	0.14	10.68
Minced meat	1 kg	0.00	0.27	0.34	0.08	-3.79	0.01	0.33	14.67
Liver, Pork	1 kg	0.00	0.16	0.13	0.09	-3.53	0.01	0.30	14.49
Rabbit	1 kg	0.13	0.42	0.73	0.36	-2.61	0.26	0.26	5.03
Veal leg	1 kg	0.02	0.19	0.82	0.52	-4.62	0.01	0.04	2.52

Products	Units	ADF95	ADF98	KP95	KP98	LLS	PP95	PP98	Weights
Small sausage	1 kg	0.04	0.29	0.14	0.09	-3.04	0.05	0.30	26.16
Sausage	1 kg	0.06	0.06	0.16	0.11	-2.71	0.06	0.25	26.16
Salami, Gothaj	1 kg	0.05	0.13	0.38	0.13	-2.46	0.06	0.27	26.16
Ring of Lyoner sausage	1 kg	0.06	0.17	0.15	0.13	-2.79	0.06	0.28	26.16
Salami (ham)	1 kg	0.01	0.00	0.31	0.13	-3.45	0.02	0.36	26.16
Sausage (pepper)	1 kg	0.01	0.02	0.54	0.08	-3.90	0.05	0.27	24.37
Salami, Polican	1 kg	0.09	0.01	0.24	0.14	-2.62	0.10	0.41	24.37
Ham (pork)	1 kg	0.01	0.21	0.19	0.11	-3.06	0.01	0.31	15.44
Sliced bacon	1 kg	0.01	0.11	0.68	0.17	-3.37	0.03	0.31	14.95
Liver pâté	1 kg	0.00	0.34	0.53	0.10	-4.28	0.02	0.25	9.62
Sausage (pork)	1 kg	0.09	0.25	0.59	0.08	-3.44	0.08	0.21	9.16
Sausage (poultry)	1 kg	0.08	0.06	0.56	0.11	-3.01	0.06	0.28	17.87
Luncheon meat	1 kg	0.21	0.32	0.52	0.13	-2.59	0.19	0.32	21.28
Beef (canned meat)	1 kg	0.00	0.18	0.52	0.10	-4.87	0.00	0.37	15.69
Chicken	1 kg	0.01	0.07	0.06	0.06	-3.16	0.09	0.25	67.93
Duck, without heart, liver and gizzard	1 kg	0.03	0.06	0.38	0.17	-3.34	0.11	0.13	7.47
Carp chilled, frozen	1 kg	0.72	0.27	0.77	0.73	-1.16	0.58	0.26	22.72
Salted herring	125 g	0.06	0.28	0.17	0.57	-3.06	0.09	0.28	19.53
Fresh chicken eggs	10 pcs	0.05	0.00	0.08	0.07	-3.34	0.06	0.16	47.16
Milk pasteurized (fat content 1.5%)	1 l	0.18	0.11	0.61	0.12	-2.00	0.28	0.26	22.25
Milk, long life (fat content 1.5%)	1 l	0.04	0.05	0.16	0.06	-3.12	0.07	0.14	66.77
Milk condensed, not sweetened	500 g	0.69	0.30	0.67	0.23	-1.53	0.45	0.20	5.46
Powdered milk, for babies	400 g	0.05	0.04	0.81	0.54	-2.41	0.19	0.15	9.08
Camembert cheese	1 kg	0.59	0.05	1.06	0.55	-1.63	0.55	0.06	12.21
Processed cheese (not flavored)	1 kg	0.71	0.18	0.97	0.25	-2.29	0.63	0.24	39.56
Fresh cheese (brand Lucina)	1 kg	0.28	0.08	0.90	0.48	-1.57	0.32	0.18	5.33
Fermented milk products, liquid	1 l	0.56	0.12	0.86	0.14	-2.42	0.46	0.11	10.58
Long life cream	1 l	0.43	0.22	0.79	0.20	-1.93	0.38	0.20	28.88
Natural yoghurt, fat content low	150 g	0.62	0.31	0.66	0.18	-1.87	0.54	0.24	44.65
Fruit yoghurt	150 g	0.24	0.08	0.94	0.18	-2.12	0.23	0.08	66.97
Ice-cream	1 l	0.26	0.12	0.25	0.11	-2.19	0.17	0.40	24.86
Butter, unsalted	1 kg	0.10	0.29	0.17	0.32	-2.21	0.18	0.37	39.91
Pure lard	1 kg	0.00	0.27	0.08	0.09	-3.45	0.00	0.29	6.44
Olive oil	1 l	0.16	0.57	0.41	0.33	-2.36	0.30	0.58	2.19
Sunflower oil	1 l	0.07	0.07	0.69	0.53	-2.38	0.07	0.35	16.28
Margarine, type Hera	1 kg	0.08	0.12	0.59	0.29	-1.96	0.13	0.17	14.67
Margarine, type Planta	1 kg	0.27	0.59	0.94	0.80	-2.53	0.23	0.54	5.70
Fresh apples	1 kg	0.01	0.01	0.19	0.08	-3.10	0.05	0.10	32.28
Fresh peaches, nectarines	1 kg	0.00	0.00	0.17	0.25	-3.51	0.00	0.00	18.70
Fresh grapes	1 kg	0.00	0.00	0.15	0.08	-3.71	0.01	0.00	21.22
Fresh watermelon	1 kg	0.02	0.06	0.10	0.16	-3.33	0.00	0.00	11.09
Fresh oranges	1 kg	0.00	0.00	0.22	0.13	-3.98	0.02	0.04	41.74
Fresh lemons	1 kg	0.00	0.02	0.20	0.15	-3.73	0.01	0.01	11.08
Fresh bananas	1 kg	0.00	0.04	0.20	0.24	-3.54	0.00	0.00	41.40
Fresh kiwis	1 kg	0.00	0.00	0.08	0.14	-3.16	0.02	0.08	6.21
Dried raisins	1 kg	0.09	0.07	0.11	0.29	-2.63	0.21	0.23	6.72
Potatoes	1 kg	0.00	0.02	0.22	0.11	-6.69	0.01	0.01	30.29
Frozen sliced potatoes	1 kg	0.00	0.00	0.09	0.28	-4.15	0.15	0.03	12.75

Products	Units	ADF95	ADF98	KP95	KP98	LLS	PP95	PP98	Weights
Potato dumpling (powder)	1 kg	0.00	0.36	0.77	0.39	-2.98	0.46	0.32	3.00
Fresh white cabbage	1 kg	0.00	0.00	0.08	0.08	-3.75	0.05	0.08	8.28
Fresh cucumbers	1 kg	0.00	0.00	0.17	0.11	-4.74	0.00	0.00	15.18
Fresh green peppers	1 kg	0.00	0.00	0.14	0.14	-3.93	0.00	0.00	22.46
Fresh tomatoes	1 kg	0.00	0.00	0.05	0.06	-5.35	0.00	0.00	23.74
Fresh cauliflower	1 kg	0.00	0.00	0.16	0.17	-4.34	0.00	0.00	10.04
Fresh carrots	1 kg	0.00	0.00	0.09	0.08	-4.53	0.01	0.02	5.42
Fresh celery root	1 kg	0.00	0.00	0.12	0.17	-3.99	0.03	0.12	7.62
Fresh cultivated mushrooms	1 kg	0.33	0.10	0.41	0.14	-1.99	0.30	0.08	3.90
Garlic (dry)	1 kg	0.10	0.12	0.49	0.15	-2.29	0.10	0.28	10.32
Cabbage, jar	1 kg	0.03	0.15	0.20	0.47	-2.98	0.02	0.23	6.07
Pickled gherkins	1 kg	0.00	0.06	0.36	0.09	-4.65	0.00	0.26	4.97
Dried lentils	1 kg	0.10	0.27	0.14	0.19	-2.71	0.16	0.35	4.20
Jam, strawberry	1 kg	0.00	0.37	0.48	0.77	-6.16	0.07	0.41	0.40
Granulated sugar	1 kg	0.03	0.04	0.08	0.11	-3.04	0.17	0.15	31.13
Confectioner’s sugar	1 kg	0.11	0.20	0.13	0.15	-3.09	0.19	0.27	8.68
Chocolate, milk	100 g	0.02	0.13	0.97	0.57	-2.18	0.03	0.17	34.97
Chocolate dessert	250 g	0.24	0.13	1.04	0.41	-2.27	0.24	0.17	32.68
Chocolate bar	100 g	0.15	0.04	0.13	0.10	-2.52	0.00	0.02	13.23
Fruit drops	100 g	0.29	0.05	1.16	0.73	-1.86	0.35	0.07	10.18
Chewing gum	1 pack	0.05	0.53	0.30	0.26	-2.78	0.04	0.30	10.39
Cake from egg yolk	10 pcs	0.54	0.32	0.91	0.17	-2.55	0.55	0.28	16.81
Sherbet	1 l	0.35	0.24	0.20	0.68	-1.81	0.29	0.24	10.92
Honey	1 kg	0.29	0.00	0.33	0.12	-2.01	0.39	0.00	0.97
Meat extract	100 g	0.05	0.22	0.43	0.67	-3.07	0.06	0.34	15.35
Mayonnaise salad	1 kg	0.00	0.07	0.64	0.23	-3.70	0.00	0.11	9.31
Table salt	1 kg	0.59	0.14	0.70	0.29	-1.70	0.49	0.16	13.29
Black pepper	100 g	0.03	0.03	0.47	0.36	-3.02	0.17	0.23	9.39
Tomato ketchup	1 kg	0.20	0.13	0.14	0.11	-3.13	0.11	0.13	11.48
Mustard	1 kg	0.37	0.37	0.22	0.32	-1.89	0.43	0.52	13.05
Yeast	1 kg	0.27	0.00	0.35	0.30	-1.94	0.34	0.00	10.78
Roasted coffee beans	100 g	0.00	0.57	0.29	0.18	-6.60	0.00	0.38	20.56
Instant coffee	100 g	0.00	0.00	0.70	0.55	-5.40	0.00	0.22	22.11
Black tea bags	100 g	0.08	0.00	0.49	0.71	-2.77	0.24	0.01	19.39
Green tea bags	100 g	0.17	0.00	0.37	0.54	-1.93	0.25	0.00	9.44
Coffee substitute	100 g	0.21	0.01	0.58	0.36	-1.74	0.44	0.00	8.85
Fruit syrup	1 kg	0.07	0.15	0.19	0.85	-1.98	0.39	0.15	24.41
Orange juice	1 l	0.14	0.06	0.22	0.18	-2.08	0.15	0.06	27.11
Spring water	1 l	0.05	0.19	0.28	0.15	-2.80	0.01	0.07	43.21
Mineral water (fizzy)	1 l	0.10	0.03	0.87	0.21	-2.66	0.09	0.00	59.40
Coca-cola (Pepsi-cola)	1 l	0.00	0.00	0.08	0.15	-4.04	0.03	0.00	11.80
Rum (domestic)	1 l	0.20	0.29	0.07	0.24	-3.00	0.06	0.10	39.33
Vodka (fine)	1 l	0.05	0.12	0.41	0.45	-3.50	0.07	0.19	31.05
Fernet stock (liqueur)	1 l	0.54	0.54	0.14	0.24	-1.64	0.20	0.30	70.74
Becher’s (Carlsbad) liqueur	1 l	0.15	0.13	0.28	0.28	-2.32	0.25	0.19	42.80
Scotch whisky	1 l	0.61	0.32	0.67	0.85	-1.25	0.44	0.32	13.89
White wine (high quality)	1 l	0.61	0.00	0.98	0.41	-1.99	0.61	0.00	74.11
Red wine (high quality)	1 l	0.78	0.06	0.91	0.43	-1.51	0.68	0.23	69.88
Sparkling wine semi-dry	0,75 l	0.03	0.01	0.53	0.06	-3.09	0.16	0.07	38.17
Italian vermouth	1 l	0.30	0.09	0.96	0.38	-2.31	0.32	0.11	11.76
Bottled light beer	0,5 l	0.27	0.14	0.86	0.67	-1.72	0.36	0.19	232.41

Products	Units	ADF95	ADF98	KP95	KP98	LLS	PP95	PP98	Weights
Bottled light lager	0,5 l	0.08	0.15	0.80	0.82	-3.07	0.23	0.29	57.37
PETRA (filter tipped cigarettes)	1 package	0.10	0.35	0.82	0.56	-2.50	0.14	0.44	221.14
SPARTA LIGHT (filter tipped cigarettes)	1 package	0.11	0.27	0.71	0.56	-2.62	0.17	0.40	147.43
START (filter tipped cigarettes)	1 package	0.10	0.22	1.01	0.77	-2.48	0.16	0.40	73.71
MARLBORO (filter tipped cigarettes)	1 package	0.01	0.09	0.76	0.50	-3.45	0.03	0.25	81.47
Clothing materials for business suit (wool)	1 m^2	0.46	0.48	0.74	0.56	-2.09	0.43	0.49	5.11
Briefs (for men)	1 pc	0.66	0.09	0.81	0.96	-1.20	0.40	0.09	13.02
Men’s pajamas (cotton)	1 pc	0.95	0.59	1.20	1.03	-0.62	0.92	0.57	5.87
Men’s shirt (classic)	1 pc	0.92	0.19	1.06	0.71	-0.62	0.87	0.20	20.53
Men’s waistcoat	1 pc	0.96	0.92	1.31	1.02	-0.33	0.95	0.88	10.65
Men’s sweatshirt	1 pc	0.82	0.12	1.22	1.02	-0.75	0.88	0.21	17.20
Panty made of cotton (ladies underwear)	1 pc	0.68	0.21	0.96	1.07	-0.68	0.68	0.14	13.22
Bra	1 pc	0.89	0.01	1.13	0.80	-0.93	0.80	0.01	19.68
Nightdress	1 pc	0.81	0.39	1.28	1.08	-0.74	0.83	0.39	7.38
Swimsuit	1 pc	0.57	0.53	1.28	1.00	-1.63	0.55	0.51	8.21
Ladies pullover – long-sleeved	1 pc	0.94	0.67	1.32	1.02	-0.87	0.93	0.63	16.23
Ladies tracksuit	1 pc	0.91	0.32	1.29	1.11	-0.15	0.91	0.30	5.83
Panty made of cotton (girl’s underwear)	1 pc	0.62	0.68	0.70	0.97	-0.97	0.55	0.69	5.44
Children’s pajamas (cotton)	1 pc	0.83	0.25	1.04	1.01	-0.77	0.73	0.24	6.02
Tracksuit	1 pc	0.90	0.61	1.29	0.99	-0.56	0.88	0.58	14.49
Children’s sweatshirt (cotton)	1 pc	0.91	0.74	1.32	1.18	-1.07	0.91	0.75	13.69
Men’s suit	1 pc	0.81	0.04	1.22	1.01	-0.84	0.80	0.04	7.87
Men’s jacket (for summer)	1 pc	0.79	0.58	1.28	1.23	-1.11	0.80	0.59	6.93
Men’s jacket (for winter)	1 pc	0.65	0.03	1.01	0.32	-1.52	0.65	0.03	18.67
Men’s trousers	1 pc	0.80	0.01	1.20	1.10	-1.33	0.78	0.00	21.25
Men’s jacket (leather)	1 pc	0.50	0.46	1.14	0.92	-2.28	0.51	0.45	5.42
Ladies overcoat	1 pc	0.05	0.26	1.23	0.88	-1.70	0.05	0.25	8.75
Ladies winter coat	1 pc	0.50	0.13	1.10	0.55	-1.41	0.52	0.13	17.42
Ladies windbreaker (for winter)	1 pc	0.71	0.12	1.17	0.63	-1.35	0.76	0.14	18.41
Two-piece suit	1 pc	0.65	0.01	1.21	0.80	-1.14	0.43	0.04	22.86
Ladies jacket (for summer)	1 pc	0.11	0.01	1.27	0.92	-1.77	0.08	0.01	13.40
Ladies trousers (wool)	1 pc	0.93	0.36	1.17	0.77	-0.52	0.93	0.36	17.34
Dress (for summer)	1 pc	0.32	0.03	1.10	0.61	-3.05	0.31	0.03	21.72
Smock	1 pc	0.44	0.08	1.32	1.16	-1.21	0.43	0.06	31.14
Skirt	1 pc	0.14	0.02	1.35	1.13	-1.27	0.14	0.01	13.21
Dress (for girls)	1 pc	0.78	0.89	1.32	1.22	-0.53	0.83	0.88	5.73
Children’s trousers (cotton)	1 pc	0.66	0.84	1.31	1.21	-1.89	0.67	0.86	18.22
Men’s socks (cotton)	1 pair	0.73	0.09	1.05	0.48	-1.16	0.77	0.13	12.90
Ladies socks (cotton)	1 pair	0.54	0.08	0.78	0.15	-1.57	0.49	0.07	6.61
Ladies tights	1 pc	0.44	0.42	0.88	0.79	-1.55	0.52	0.41	14.86
Children’s tights	1 pc	0.76	0.03	0.94	0.78	-0.99	0.77	0.02	5.38
Ladies neckerchief	1 pc	0.00	0.45	0.99	1.01	-4.23	0.00	0.45	4.53
Handkerchief	1 pc	0.47	0.34	0.65	0.29	-1.61	0.46	0.34	1.29
Men’s leather gloves	1 pair	0.58	0.08	0.60	0.30	-1.76	0.54	0.03	5.25
Thread, sewing	500 m	0.02	0.05	0.36	0.64	-3.30	0.00	0.50	1.24
Knitting yarn	100 g	0.20	0.13	0.46	0.73	-2.10	0.18	0.35	2.84

Products	Units	ADF95	ADF98	KP95	KP98	LLS	PP95	PP98	Weights
Zip fastener	1 pc	0.26	0.11	1.05	0.62	-3.10	0.26	0.24	2.61
Cleaning of overcoat	1 pc	0.35	0.14	0.67	0.08	-2.44	0.25	0.11	8.80
Shortening or elongation of coat	1 repair	0.05	0.12	1.00	0.32	-3.17	0.04	0.10	4.34
Men's everyday footwear (leather)	1 pair	0.49	0.15	1.31	1.00	-1.57	0.50	0.16	21.31
Men's everyday summer footwear (leather)	1 pair	0.77	0.09	1.30	1.11	-1.10	0.83	0.06	8.09
Men's everyday winter footwear (leather)	1 pair	0.77	0.28	1.20	0.82	-1.24	0.73	0.27	13.15
Ladies everyday footwear (leather)	1 pair	0.83	0.04	1.27	1.07	-0.77	0.85	0.06	33.56
Ladies everyday summer footwear (leather)	1 pair	0.76	0.03	1.29	1.08	-1.23	0.79	0.01	23.05
Ladies home footwear (textile)	1 pair	0.66	0.02	1.12	0.58	-1.72	0.67	0.02	6.47
Children's everyday footwear (leather)	1 pair	0.83	0.18	1.30	1.18	-0.61	0.88	0.17	6.25
Children's everyday summer footwear (leather)	1 pair	0.16	0.10	1.36	1.20	-2.20	0.41	0.12	6.07
Children's leisure footwear (leather)	1 pair	0.75	0.17	1.20	0.73	-1.31	0.72	0.17	7.17
Children's leisure footwear (textile)	1 pair	0.34	0.02	0.83	0.14	-2.19	0.37	0.02	7.17
Children's home footwear (textile)	1 pair	0.22	0.00	0.85	0.26	-3.49	0.18	0.00	4.60
Children's winer footwear (plastic)	1 pair	0.50	0.19	0.98	0.28	-1.88	0.36	0.19	5.84
Repair of ladies heel (replace old with new heels promptly)	1 pair	0.56	0.02	0.80	0.92	-1.61	0.52	0.01	100.55
Actual rent paid by tenants, first category – 3 rooms, rent regulated by the government	monthly	0.52	0.03	0.80	0.91	-1.62	0.51	0.01	118.25
Actual rent paid by tenants, first category – 4 rooms, rent regulated by the government	monthly	0.53	0.03	0.80	0.91	-1.58	0.52	0.01	48.57
Actual rent paid by tenants, second category – 2 rooms, rent regulated by the government	monthly	0.46	0.04	0.74	0.87	-1.71	0.45	0.02	20.07
Actual rent paid by tenants, first category – 2 rooms, cooperative flat	monthly	0.12	0.30	0.40	0.80	-1.11	0.10	0.25	79.91
Actual rent paid by tenants, first category – 3 rooms, cooperative flat	monthly	0.31	0.51	0.42	0.91	-0.74	0.26	0.44	105.21
Actual rent paid by tenants, first category – 4 rooms, cooperative flat	monthly	0.18	0.44	0.39	0.89	-1.36	0.15	0.40	26.76
Imputed rent of owner-occupied flat – 2 rooms	monthly	0.24	0.49	0.61	1.01	-0.91	0.20	0.40	157.25
Imputed rent of owner-occupied flat – 3 rooms	monthly	0.38	0.62	0.41	0.93	-0.53	0.32	0.60	393.47
Imputed rent of owner-occupied flat – 4 rooms	monthly	0.40	0.66	0.48	0.66	-1.33	0.29	0.59	717.89
Tiles	1 m^2	0.62	0.55	1.05	0.88	-1.43	0.54	0.49	17.69
Washbasin	1 pc	0.44	0.00	0.69	0.79	-1.28	0.43	0.00	13.54
Mixer tap	1 pc	0.38	0.08	0.60	0.54	-1.37	0.46	0.08	15.06
Decorator	1 m^2	0.47	0.18	0.55	0.33	-1.60	0.37	0.18	13.15

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