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### **Searching for additional sources of inflation persistence: the micro-price panel data approach**

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In recent years, economists have devised a class of monetary micro-founded business cycle models (the New-Keynesian Models - NKMs) that are potentially able to explain the behaviour of many real (GDP, investment, consumption) as well as nominal (prices, inflation, nominal wages) economic variables. While undeniably successful in many aspects, these models generally do not easily cope with reproducing the stylised facts on the dynamic properties of output and inflation. In particular, the baseline NKM, which relies on the notion of infrequent price adjustment as the sole source of persistence in the modelled economy, cannot account for the high degree of inertia and sluggishness that appears to characterise inflation in the real world.

Three explanations can be offered as a solution to this puzzle. The first one relies on the observation that the degree of sluggishness of the aggregate inflation index depends on the dynamic properties of factors that affect individual prices. Since the properties of these factors are not yet widely recognised, it may well be that the assumptions concerning their dynamics that are typically imposed in NKM are not correct. In particular, assuming a suitably high degree of persistence of the nominal marginal cost process in the model can result in producing the desired behaviour of aggregate inflation in the artificial economy. Since the process governing the marginal cost is usually exogenously given in the model, this explanation may be referred to as the extrinsic persistence hypothesis.

Alternatively, the disparity between the stylised facts and the results produced by NKM may be an outcome of the assumptions about the optimising behaviour of price setters used in the model. If, contrary to the implications of the rational expectations theory on which standard NKM fully relies, price setters do not always optimise when changing their prices, choosing instead to use some form of indexation or other simple rules-of-thumb, their behaviour will constitute an additional intrinsic source of inflation persistence. In recent years, many economists' research work has relied on this mechanism in an attempt to improve the dynamic properties of their models.

Thirdly, since current econometric measurement techniques are far from perfect, it may also be that the degree of persistence of aggregate inflation has been initially biased upwards in the empirical studies.

Much empirical work has been done with a view to confirming or refuting this latter hypothesis, even though the final verdict is still out. On the other hand, there are not many empirical findings that could shed some light on the dynamic properties of the nominal marginal cost, and, to our knowledge, the rule-of-thumb price-setting hypothesis has never been rigorously tested on micro data. This paper is the first attempt to fill this gap: It examines whether some additional persistence could be detected in the data on micro prices, beyond that implied by infrequent price adjustment. The dataset chosen for this purpose is a panel of micro prices underlying the Belgian CPI. These data are collected on a monthly basis by the Federal Public Service Economy, SMEs, Self-employed and Energy.

Two distinct sets of assumptions that are consistent with the existence of an intrinsic (rule-of-thumb) or extrinsic source of sluggishness have been considered in the paper. On the basis of these assumptions, two alternative models have been built and estimated. The following results stand out from the analysis of the outcome of their estimation. It has been shown that, in the case of certain product categories, particularly food, there is evidence of less sluggishness than might be implied by the standard assumptions underlying the New-Keynesian model. In contrast, some support for the existence of an additional source of sluggishness has been found for some industrial goods and services. Importantly, however, the results are sensitive to the choice of model. On the basis of these observations, the paper concludes that the baseline

New-Keynesian assumptions are unlikely to fully reflect the complexity of price behaviour. Yet, it is too early to assess the extent of inconsistencies or their impact on the validity of results drawn within the standard framework. Therefore, at the current stage, it would be premature to discard the baseline version of the New-Keynesian model based on evidence from micro data. Similarly, the micro support for any of the hypotheses that calls for introducing an extra source of inflation sluggishness to macro-models is still relatively weak.