



What is the globalisation of inflation?



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ABSTRACT

This paper studies the globalisation of CPI inflation by analysing core, energy and food components, testing for structural breaks in the relationships between domestic inflation and a corresponding country-specific foreign inflation series at the monthly frequency for OECD countries. The iterative methodology employed separates coefficient and variance breaks, while also taking account of outliers. We find that the overall pattern of globalisation in aggregate inflation is largely driven by convergence of the mean levels of the core component from the early 1990s, compatible with the introduction of inflation targeting in many countries of our sample. There is less evidence of increased synchronisation of shortrun movements in core than aggregate inflation, but an increased role for shortrun foreign energy inflation often contributes to the globalisation effect.

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1. Introduction

Over recent years policymakers and researchers have documented and discussed the globalisation of inflation, namely the apparently strong international comovement of inflation seen over the last two decades or more. Papers which document such a link between domestic and international inflation include Ciccarelli and Mojon (2010), Neely and Rapach (2011), Mumtaz and Surico (2012), Eichmeier and Pijenburg (2013), Bataa et al. (2013), and Förster and Tillmann (2014). Based on this evidence, and even in the context of the large economies of the US and Euro area, Bernanke (2007) and Trichet (2008), respectively, emphasise the need for central banks to monitor carefully international price developments and analyse their implications for the domestic economy. Nevertheless, the nature of this apparent globalisation is not well understood because analyses of international inflation almost invariably employ headline or aggregate inflation.

Many heterogeneous goods and services contribute to consumer price index (CPI) inflation, but these can be usefully divided into core, energy and food. Energy and food are volatile components, with the former subject to international demand and supply shocks and the latter to the vagaries of the weather, whose effects may not persist over time. Consequently monetary policymakers often focus on inflation measures that exclude these components, conveniently referred to as core inflation; see, for example, the discussions in Mishkin (2007) and Bullard (2011). Although Neely and Rapach (2011) and Mumtaz and Surico (2012) argue that monetary policy plays an important role in explaining international inflation

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linkages, both studies focus on aggregate CPI inflation, which may disguise the effects of monetary policy changes. Further, while energy inflation has a strong international dimension, its nature may have changed since the oil price shocks of the 1970s. There have also been large changes in food supply for developed economies over the last 40 years, in many cases moving from predominantly domestic production to largely imported, pointing to the possibility of increased international comovement for food inflation.

It is evident that the characteristics of aggregate inflation in developed countries has changed over the last four decades from the high levels and high volatility seen in the 1970s to low and relatively constant inflation experienced more recently. If these changes are associated with globalisation, or the process of greater integration of the world's economies, then the response of a country's domestic inflation to inflation developments in other countries must have changed at one or more points of time to make these rates more closely aligned. [Bataa et al. \(2013\)](#) examine changes in short-run inflation linkages, but they consider only aggregate CPI inflation linkages for G7 countries (excluding Japan).

The present paper not only examines the role of foreign inflation for aggregate domestic CPI inflation in a range of OECD countries, but sheds new light on the nature of change by examining the three key CPI components of core, energy and food inflation.¹ The sample period extends from 1970 to 2013, with the starting date chosen to include the high inflation experience of the 1970s, which was driven at least partly by large oil price increases. To focus on comovement we employ data at the highest available frequency, namely monthly. Our sample then covers the 13 OECD countries for which aggregate and the relevant component CPI inflation data are available at the monthly frequency from 1970.

Our study is related to previous analyses, including [Ciccarelli and Mojon \(2010\)](#), [Neely and Rapach \(2011\)](#) and [Mumtaz and Surico \(2012\)](#), all of which examine inflation comovements in similar samples of countries to ours. [Ciccarelli and Mojon \(2010\)](#) document the importance of global inflation by showing that such a measure explains most of the quarterly movement in year-on-year CPI inflation since the 1960s. Employing a dynamic factor model, [Neely and Rapach \(2011\)](#) reinforce the importance of world and regional factors for domestic inflation, while [Mumtaz and Surico \(2012\)](#) extend this framework through the use of a continuously time-varying dynamic factor model. Although all of these studies discuss temporal change, their methodologies are not designed to provide formal tests for structural change in the domestic–foreign inflation relationship, which is one purpose of our analysis. [Bataa et al. \(2013\)](#) is, to our knowledge, the only previous analysis of structural breaks in international inflation relationships, but their system approach limits the number of economies to be considered to three or four and also effectively assumes that breaks are coincident across countries. We use a similar methodology, but avoid the limitations of their analysis by examining each country in relation to a country-specific foreign series. Further, rather than focusing only on aggregate inflation as in almost all previous studies, we examine the roles of aggregate, core, energy and food inflation in this international context.

Domestic–foreign inflation links are first studied separately for the four measures of interest, namely the three components and aggregate CPI inflation. More formally, we test for structural breaks in a dynamic model for domestic monthly inflation in relation to the corresponding foreign series, with the latter constructed as the bilateral trade-weighted average of the relevant inflation series in the other countries of our sample. The structural breaks uncovered point to the globalisation of aggregate CPI inflation, which (for most countries in our sample) is marked by an increased contemporaneous response of domestic to foreign inflation from the 1980s. Further analysis points to a key role played by energy inflation in this increased short-run comovement and by core inflation for the apparent convergence of the level and volatility of aggregate inflation across these economies.

The results also indicate that all economies in our sample that introduced inflation targeting in the early 1990s, experienced a decline in core or aggregate domestic inflation during that period; most of them also experienced a decline in core and aggregate inflation persistence. However, we find no clear evidence of a positive and increasing short-run comovement in core inflation among the economies examined. This indicates that the observed convergence in aggregate and core inflation may be the product of many economies sharing a similar inflation target concurrently, rather than due to a global transmission factor.

The rest of the paper is organised as follows. [Section 2](#) describes our data, while [Section 3](#) discusses the methodology we employ. Substantive results are reported and discussed in the following two sections, with the nature of change documented for individual (aggregate and component) series in [Section 4](#) and breaks in aggregate inflation decomposed in terms of foreign core, energy and food inflation series in [Section 5](#). Finally, [Section 6](#) concludes.

2. Data

As just discussed, the inflation data we study comprise monthly CPI aggregate inflation, together with the corresponding core, energy and food component series, for the OECD countries for which such data are available to the beginning of the 1970s. To be specific, our sample period extends from January 1970 to September 2013, thereby extending from prior to the oil price shocks of the 1970s to the post-GFC (global financial crisis) era. All data are sourced from the OECD Main Economic Indicators database. The sample includes six member countries of the Euro area (Austria, Finland, France, Germany, Italy,

¹ [Förster and Tillmann \(2014\)](#) also study core, energy and food inflation across a similar group of countries to ours. However they consider only the post-1996 period and do not analyse structural breaks.

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