



Financial integration and the construction of historical financial data for the Euro Area[☆]

Heather M. Anderson^{a,*}, Mardi Dungey^{b,c}, Denise R. Osborn^d, Farshid Vahid^a

^a Department of Econometrics and Business Statistics, Monash University, VIC 3800, Australia

^b University of Tasmania, Australia

^c University of Cambridge, UK

^d University of Manchester, UK

ARTICLE INFO

Article history:

Accepted 5 February 2011

JEL classification:

C82
C43
E58

Keywords:

Data aggregation
Euro Area
Monetary integration
Financial market indicators
Historical decomposition

ABSTRACT

Time series analysis for the Euro Area requires the availability of sufficiently long historical data series, but the appropriate construction methodology has received little attention. The benchmark dataset, developed by the European Central Bank for use in its Area Wide Model (AWM), is based on fixed-weight aggregation across countries with historically distinct monetary policies and financial markets of varying international importance. This paper proposes a new methodology for producing back-dated financial series for the Euro Area, that is based on the time-varying distance of periphery countries from core countries with respect to monetary integration. Historical decompositions of the residuals of vector autoregressive models of the Euro Area economy are then used to explore and compare the monetary policy implications of using the new methodology versus the use of AWM fixed weight series.

© 2011 Elsevier B.V. All rights reserved.

1. Introduction

Analysis of the macroeconomic behaviour of the Euro Area is a key topic of interest not only for economists in Europe, but also for the global economy. No monetary union of this magnitude has previously occurred in the modern world, and the formation of the Euro Area raises many issues that need to be confronted in attempting to understand the economic characteristics of this coalition.

One key issue is historical analysis, which involves constructing appropriate data. The common euro currency has existed only since 1999 (with euro notes and coins becoming available in 2002), and the period since then does not provide sufficient observations to enable detailed empirical macroeconomic analyses to be undertaken.

Nevertheless, historical data is crucial for the contemporary development of economic policy, so that its construction is important for future economic progress; see, for example, the discussion of data formation in [European Central Bank \(2001, p. 35\)](#). There is also a broader need for historical Euro Area data as researchers attempt to analyse the impact of this monetary union on both Europe and the global economy, see for example [Rudebusch and Svensson \(2002\)](#) and [Dees et al. \(2007\)](#).

The issue of constructing appropriate historical Euro Area data is a deep one, involving the history of European monetary integration. Although there is no clear date that unambiguously marks the beginning of this integration, important milestones include the beginning of operation of the European Monetary System (EMS) in March 1979, initiation of stage one of the European Monetary Union in 1990, the signing of the Treaty on European Union (the “Maastricht Treaty”) in 1992 and the 1998 events of eleven countries¹ meeting the conditions for admission to the Euro Area and the establishment of the European Central Bank (ECB) ([Scheller, 2004](#)). This route has not always been smooth. For example, the EMS crises of 1992 and 1993 marked a period of considerable uncertainty about the prospects for continued movement towards monetary integration ([Ungerer, 1997, pp. 260–271](#)). Further, the countries participating in the European

[☆] This research is supported by ARC International Linkage Grant #LX0561266, and all authors are research associates of CAMA (the Center for Applied Macroeconomic Analysis at The Australian National University). All data and programs for this paper are available at <http://www.socialsciences.manchester.ac.uk/cgbcr/discussionpapers/> and <http://www.dungey.bigpondhosting.com>. We thank Taya Dumrongritikul for excellent research assistance and two referees for their helpful comments. An earlier version of this paper was circulated under the title “Constructing Historical Euro Area Data”.

* Corresponding author. Tel.: +61 3 99058462; fax: +61 3 99055474.

E-mail address: heather.anderson@monash.edu (H.M. Anderson).

¹ This excludes Greece, which became the twelfth member of the Euro Area in 2001.

Table 1
Summary of alternative data sources.

	Weighting methods			Sample	
	Real variables	Prices/inflation	Interest rates	Frequency	Period
AWM	Fixed weights based on PPP adjusted 1995 GDP applied to log-levels	Post-1990: quarterly average of HICP; historical values: growth rates applied with 1995 HICP weights to obtain price series	As for real variables, but applied to levels	Q	1970–
Eurostat	Transforms national data to Euros then aggregates	HICP: weights based on household final monetary consumption expenditure shares	Uses Euro yield curve (from 2004)	Varying M, Q, A	Varying, many from 1995
OECD	Now uses primarily Eurostat data, previously used fixed weights based on 1990 GDP	Now Eurostat HICP data	Not provided	Q, A	Varying
Beyer et al. (2001)	Time varying weights based on shares of GDP in prior period	Implicit price deflator, weighted as for real variables	Not provided	M, Q	1980–2001

Relevant websites: AWM: <http://www.eabcn.org/area-wide-model>.

Eurostat: <http://www.epp.eurostat.ec.europa.eu>. OECD: <http://www.stats.oecd.org>.

Exchange Rate Mechanism (ERM), which preceded the euro, changed over time and not always in the direction of continued integration.²

Indeed, the Euro Area is not fixed, with expansions of the European Union being reflected in additional Euro Area members as and when these countries meet the convergence requirements.³ The question of how to construct data appropriate for modelling the expanded Euro Area is an important topical problem, as this on-going process involves new member countries which typically have very different historical macroeconomic policies and characteristics from the original members. Further, at least hypothetically, there is also the possibility of countries leaving the monetary union at some future date. Therefore, the membership is dynamic. However, the recent literature that addresses historical aggregate Euro Area economic behaviour typically constructs data prior to 2001 based on the twelve members as at that date, with a variety of techniques used to construct cross-country aggregates for these earlier periods. The most common approach is to employ a constant pre-specified set of weights, manifested for example in an aggregate interest rate series constructed using constant (GDP) weights in the widely-used quarterly AWM database, which currently provides data from the first quarter of 1970 until the end of 2009, and is regularly updated. A prevalent alternative is to use German data pre-1999, and a Euro Area aggregate subsequently. The former assumes an economic and financial homogeneity across countries that did not exist over most of this historical period, and thus fails to reflect the ERM crises and the changing monetary policies of countries that are now members of the Euro Area. On the other hand, the latter assumes that Germany is representative of the Euro Area as a whole. Neither appears entirely appropriate to deal with the changing affiliations between these economies.

This paper proposes an alternative data aggregation method which we believe to be particularly appropriate for capturing the changing extent of monetary integration, and we apply this to monthly data from January 1970 until June 2008. In Section 2 we discuss the current methods of construction for historical Euro Area aggregates and outline their uses to date. Then, Section 3 sets out our alternative approach, based on the idea of quantifying convergence of periphery countries towards a set of core countries, such that the former have increasing weights as integration progresses. Section 3 implements this methodology using exchange rates, with interest rates and inflation being discussed in an associated appendix. We then explore the effects of using our constructed financial variables for studying the

Euro Area in Section 4, using historical decompositions of the residuals of vector autoregressive models to assess how innovations in interest rates have influenced prices and output over the period of monetary integration. Section 5 concludes.

2. Methods for constructing Euro Area data

As just noted, there are essentially two approaches used to construct historical data to represent the Euro Area. This section discusses these in more detail, together with extant comparisons of the impact of different choices on empirical results. The main features of the databases providing Euro Area aggregates are summarised in Table 1, which provides a brief description of the weighting methods used in aggregating real, price and interest rate data, as well as the sampling frequencies, sample starting points and a pointer to the relevant source website, where available.⁴

2.1. Current methodologies

2.1.1. Cross-country aggregation

2.1.1.1. AWM database. The most prominent example of historical Euro Area data obtained from cross-country aggregation is the Area Wide Model (AWM) database, which provides quarterly measures of many economic and some financial variables, backdated to 1970. Constructed by the European Central Bank (ECB) in the process of building a model for the Euro Area (see Fagan et al., 2001, 2005), this database is now “standard” when undertaking academic and central bank based research on the Euro Area (see Dieppe, 2005). It is updated approximately annually, and is available to researchers on the Euro Area Business Cycle Network website.⁵

Apart from serving its original purpose, AWM data has now been used in the study of New Keynesian models of the Euro Area (see, e.g., Gali et al., 2001), and in recent Dynamic Stochastic General Equilibrium (DSGE) models of Europe (see, e.g., Smets and Wouters, 2003). It has played a role in the development of coincident and leading indicators for Europe (see, e.g., Giannone and Reichlin, 2004), been used in studies of money demand and inflation (see, e.g., Gerlach and Svensson, 2003), and in estimating monetary policy reaction functions (Gali et al., 2001). Details regarding the construction of AWM data are provided in Fagan et al. (2001), with aggregation being over the twelve Euro Area countries that defined the area from 2001 to the end of 2006.⁶ For most series,

² For example, Spain joined the ERM in 1989, while Austria did not become a member until 1995 despite the fact that it had pegged its currency to the Deutschmark from the 1970s. Further, the UK (a Euro Area non-member) joined the ERM in 1990 but withdrew during the September 1992 EMS crisis, while Italy also withdrew from the ERM during this crisis and rejoined only in 1996 (Ungerer, 1997, pp. 301–306). More recently, problems in Greece (and, to a lesser extent, elsewhere) have raised concerns about the future direction and form that monetary integration in Europe might take.

³ Recently, Slovenia (2007), Cyprus and Malta (2008), and Slovakia (2009) have joined the Euro Area.

⁴ Golinelli and Pastorello (2002) provide a useful review of aggregation methods used in different papers investigating money demand in Europe.

⁵ See <http://www.eabcn.org/area-wide-model>.

⁶ The original AWM database, outlined in Fagan et al. (2001), aggregated the eleven original Euro Area members as of 1999. However, subsequent versions of the database include Greece, while the latest version (dated September 2009) covers 16 member countries.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات