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Article

The golden fetters in the mediterranean periphery: How Spain and Italy overcame business cycles between 1870 and 1913?

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Research Article

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The Golden Fetters in the Mediterranean Periphery. How Spain and Italy Overcame Business Cycles Between 1870 and 1913?

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Abstract: The gold standard was a monetary system based on fixed exchange rates, whereby domestic prices were pegged to the international price level and a high level of control had to be exercised over the money supply. This meant that fiscal discipline also had to be maintained for a country to remain on the gold standard. In times of crisis, countries had to leave the gold standard or use internal devaluation. This article seeks to gain an understanding of the role of the different economic policies in Italy and Spain at the end of the nineteenth century and the beginning of the twentieth century and how they were used in response to reductions in GDP. This article considers fiscal policy, monetary policy, and exchange rate policy estimating a VAR model. Results show how the exchange rate depreciation had positive effects on the Spanish economy during 1870–1913, while it only helped the Italian economy in specific periods to overcome crises. The expansive monetary policy was necessary for both countries to maintain public expenditure, which in turn allowed a smoothing of the GDP fluctuations. None of these policy options would have been available under the gold standard.

Keywords: exchange rate, monetary policy, monetary system, Spain, Italy

“When the fluctuations of the cycle are intense and unexpected, the reaction to maintain equilibrium must be rapid” (Keynes, 1931/1988).

1 Introduction

The gold standard was a monetary system based on fixed exchange rates, whereby domestic prices were pegged to

the international price level and a high level of control had to be exercised over the money supply. Both economists and economic historians have put their attention on the gold standard. The recent euro crisis and the debate about macroeconomic policies have aroused further interest in the study (Stiglitz, 2016, p. 12). In the study by Bordo and James (2014), both the gold standard and the euro are systems based on fixed exchange rates and monetary and fiscal orthodoxy; both limit government power by preventing the manipulation of the exchange rate and expansionary fiscal and monetary policies.¹ These golden fetters in times of the gold standard and today’s paper fetters affect the way we can react to economic crises. Because of this similarity, the study of the gold standard is of particular relevance today.

Much of the historiography has indicated that the gold standard brought benefits such as lower interest rates, lower fiscal deficits, lower inflation, better access to the capital market, trade channels, and lower transaction costs (Bordo & Rockoff, 1996, pp. 389–396; López-Córdova & Meissner, 2003, p. 344; Meissner, 2005). Being on the gold standard increased a country’s financial prestige and promoted trust (Keynes, 1931/1988, p. 176).² Unfortunately, the positive effects of stability and growth were generally limited to advanced economies: there was a marked contrast between the experience of core and peripheral countries (Bordo & Flandreau, 2003, p. 419; Eichengreen & Flandreau, 1997; Flandreau & Komlos, 2002).² The economies in the southern periphery of Europe failed to observe the rules of the classical gold standard

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¹ Another comparison between the euro and the gold standard can be found in Esteve, Navarro-Ibáñez, and Prats (2017).

² There are arguments for and against the gold standard. For discussions of its benefits and costs, see Bordo and Jonung (2001, p. 14), Bordo and Kydland (1995), Bordo and Rockoff (1996, pp. 389, 395, 396, 416), Clemens and Williamson (2000, pp. 6, 15), Flandreau and Maurel (2001), García Iglesias (2005, p. 15), López-Córdova and Meissner (2003), Mitchener and Weidenmier (2015) or Triffin (1964).

(Eichengreen, 2015, pp. 12, 13, 93).³ Italy suspended convertibility in 1894, Portugal in 1891, and Spain was never able to adopt the system.

The peripheral countries tried to follow the rules of the game, with varying degrees of success (Cesarano, Cifarelli, & Toniolo, 2012, p. 254).⁴ Bordo and Rockoff (1996, p. 394) state that adhering to the requirements of the gold standard was very difficult for the countries of southern Europe; their experiences were characterised by higher growth rates of the money supply, fiscal deficit, and higher inflation than other countries. Spain and Portugal let their currencies float, while others such as Italy, Greece, and Austro-Hungary shadowed gold (Flandreau & Zumer, 2004).⁵ At the beginning of the twentieth century, these countries fared better. Discoveries of gold and sustained growth helped to narrow the gap between the core and the periphery, and the differential interest rate was reduced (Obstfeld & Taylor, 2003).⁶

The weak point of the classical gold standard, in which the exchange rates between a country and the outside world were fixed and the level of domestic prices had to adjust to them, was its excessive slowness and lack of sensitivity. “The classical gold standard is not appropriate to overcome [such difficulties] in practice, simply because it cannot produce the readjustment of domestic prices quickly enough” (Keynes, 1931). We could say that Spain and Italy, which shared the same problems in the balance of payments, with constant public deficits and experiencing at least two relevant economic crises,

required a system that was much more flexible and adaptable to economic changes.

The adoption of a system of fixed exchange rates and free movement of capital eliminates monetary autonomy (Obstfeld, Shambaugh, & Taylor, 2005). Obstfeld et al. (2005, p. 424) define the gold standard as a period of high globalisation, basically with fixed exchange rates, capital mobility, and, therefore, limited monetary independence.⁷ Economies on the gold standard could not use monetary policy to overcome cycle fluctuations and could only resort to domestic fiscal policy or structural adjustments. In contrast, floating exchange rates allowed the preservation of national autonomy and the country’s independence (Johnson, 1969, p. 12). The vulnerability of the peripheral countries was largely due to their inability to implement orthodox, consistent fiscal, and monetary policy, and to create a healthy banking system (Bordo & Flandreau, 2003).⁸

Meanwhile, Eichengreen and Temin (2010) stress that severe crises need the stimulus of expansionary monetary and fiscal policy. However, the gold standard did not allow the use of expansionary monetary policy. Therefore, in the event of a crisis, the only response was internal devaluation. Countries such as Spain and Italy suffered crises during the gold standard era and needed to carry out expansionary monetary and/or fiscal policy to overcome them. Therefore, in some way, these two countries were unable to remain in the gold standard. Spain never adopted the gold standard even when it followed the rules of the game for some years, and Italy abandoned the gold standard in 1894. These two countries also suffered greatly during the Great Recession under the European Monetary Union rules.

Crises are a recurrent feature of the development of capitalism, so their study is important. This article focuses on the role played by different macroeconomic policies in overcoming business cycles because imposing strict monetary discipline to maintain the gold parity of their currencies could turn a normal slowdown in aggregate economic activity into a crisis of unprecedented dimensions. The study analyses the adjustment mechanisms that contributed to overcoming crises during the second half of the nineteenth century and the beginning of the twentieth century. That is, the effect of the

³ For more information on the differences between core and periphery, see Bernanke (2015, p. 26), Bordo and Jonung (2001, p. 14), Bordo and Macdonald (2005, p. 326), Bordo and Rockoff (1996, p. 416), Bordo and Flandreau (2003, pp. 419–420, 446), De Cecco (1974), Eichengreen (1995; 1996, pp. 46–49), Flandreau (1998, pp. 737, 761), Hallwood, MacDonald, & Marsh, (1996, p. 129), Mitchener, Shizume, and Weidenmier, (2010, p. 54), Morys (2013, p. 205), Temin (1995, p. 28), Triffin (1985, p. 128; 1997, p. 128). For the case of Italy, see Bordo (1999, p. 328), Cipolla (1995), Fratianni and Spinelli (1997, 2012), Tattara (2000, 2003) and Tattara and Volpe (1997).

⁴ More in Krugman (1991), McKinnon (1993), Morys (2007, pp. 50–52).

⁵ For more information on the differences between core and periphery, see Bernanke (2015, p. 26), Bordo and Jonung (2001, p. 14), Bordo and Macdonald (2005, p. 326), Bordo and Rockoff (1996, p. 416), Bordo and Flandreau (2003, pp. 419–420, 446), De Cecco (1974), Eichengreen (1996, pp. 46–49), Flandreau (1998, pp. 737, 761), Hallwood et al. (1996, p. 129), Mitchener et al. (2010, p. 54), Morys, (2013, p. 205), Temin (1995, p. 28) and Triffin (1985, p. 128).

⁶ Braga de Macedo (1996, p. 243), and Martín Aceña, Reis, and Llona (2000, p. 2). For additional information on the main characteristics of the gold standard, see Temin (1995, p. 25).

⁷ Domestic political and economic factors affecting the adoption of the new monetary system have been studied by Friedman (1990) and Gramm and Gramm (2004) for the United States and Flandreau (1996) for France.

⁸ Mundell (1997) for a comparison of different fixed exchange rate monetary systems and to know more about currency areas.

instruments used to overcome business cycle fluctuations, following studies such as Bahmani-Oskooee and Kandil (2010), Kamin and Rogers (2000), or Shibamoto and Shizume (2014).

Over time, Spain and Italy often used the depreciation of their currencies and expansionary policies until they entered the euro system. The history of Spain shows how the exchange rate was used recurrently to overcome the economic problems of the moment (Catalan & Sánchez, 2013; Sardà, 1987; Sudrià & Tirado, 2001). According to Tortella (1994, p. 178), monetary policy, though not appreciated by contemporaries, was the most successful instrument of the gold standard period. Initially, Italy was in a bimetallic system with convertibility (fixed exchange rate system); it later adopted a fiduciary system, and finally, it shadowed the gold standard. Hence, Cesarano et al. (2012) regard Italy as an interesting case for the study of monetary arrangements in a semiperipheral, developing, open economy during the first globalisation. According to Tattara (2000), the history of Italy is clearly different from that of the core countries, and these differences must not be ignored. However, when considering the stability of the exchange rate, one might be tempted to affirm that the Italian experience was like that of the countries that formally adhered to gold (Fratianni & Spinelli, 1997).⁹

This article aims to compare how Spain and Italy reacted to the fluctuations in the economic cycle that they experienced during the period of the classical gold standard. These are two peripheral countries that failed, in the case of Spain, to adopt the monetary system of fixed exchange rates and, in the case of Italy, to remain within the gold standard. The three main policies considered in this article are fiscal policy through government expenditure, monetary policy through M1, and exchange rate policy through the real exchange rate. To conduct the analysis, a VAR (vector autoregressive) model is constructed. VAR models have been used elsewhere to analyse monetary, fiscal, and exchange rate policies,¹⁰ but not in relation to the Mediterranean periphery. Results show how the exchange rate depreciation had positive effects on the Spanish economy during 1870–1913, while it only helped the Italian economy in specific periods to overcome crises. The expansive monetary policy was necessary for both countries to maintain public expenditure,

which in turn allowed a smoothing of the GDP fluctuations. None of these policy options would have been available under the gold standard.

This article is organised as follows. Following the introduction, Section 2 describes the evolution of the Spanish and Italian economies during the period. The data are explained in Section 3. Section 4 explores the theoretical framework, Section 5 presents the methodology, and Section 6 presents the results. The discussion in Section 5 focuses on the historical evidence and previous literature. This article ends with some conclusions.

2 The Spanish and Italian Economies During the Classical Gold Standard

2.1 Spanish Economy, 1870–1913

The gold standard's finest hour began in around 1870, when it was the predominant monetary system in Europe. Spain was the only Western country that never joined this fixed exchange rate monetary system.¹¹ The country had a de jure bimetallic system throughout the period, even though its currency convertibility is questioned (Bru & Ródenas, 2006). In 1874, the monopoly on issuing banknotes was granted to the Bank of Spain due to government's fiscal problems. From 1874 to 1881, the exchange rate was kept more or less stable (Figure 4), as Spain sought to control the public debt and not issuing too many banknotes. The collapse of the *Banque de Lyon et de la Loire* in 1882 exposed Spanish banks to large scale cash withdrawals and in some cases outright failures, causing a drainage of gold reserves (Bordo & Schwartz, 1999, p. 32; Martín Aceña, 1993, pp. 135, 137, 189; Sardà, 1987, p. 179; Tortella, 1994, pp. 139, 177, 480–481).¹² Spain went on to have a de facto fiduciary system in 1883, since the real value of silver was lower than its face value. The effect of Gresham's law left the Spanish economy without any gold and, indeed, between 1891 and 1892, gold disappeared entirely from circulation (Sardà, 1987, p. 183).

⁹ More on Spain's exchange rate stability in Aixala, Fabro and Gadea (2020), Gadea and Sabaté (2004), Sabaté, Gadea, and Serrano (2005).

¹⁰ Bernanke and Blinder (1992), Bernanke and Mihov (1998), and Blanchard and Perotti (2002) presented three important studies of fiscal and monetary policy within a VAR framework.

¹¹ García Iglesias (2005, p. 62), Martín Aceña (1981, p. 267; 1993, p. 135), Martínez-Ruiz and Nogues-Marco (2014, pp. 9, 19), Sabaté, Gadea and Escario (2006, p. 310), Sardà (1987), Serrano (2004, p. 155), and Tortella (1994, p. 323).

¹² This crisis can be also seen in Table 2.

Spain's monetary and fiscal policies were expansionary, and the exchange rate depreciated. According to Sardà (1987, pp. 181, 183), the increase in fiduciary circulation was linked to the pressure exerted by the Treasury to obtain resources.¹³ Increases in the money supply were made through extensions of the emission limit, the first dating to 1891 (Sardà, 1987, p. 180). The exchange rate started to fluctuate (mainly downwards) in around 1882 due to the financial crisis, and in 1891, it fell notably. Overall, the exchange rate depreciated by 2.15% between 1882 and 1890, and the money supply increased by 18.36% (Figures 3 and 4). In 1891, the peseta depreciated, coinciding with the application of the Cánovas protectionist tariff, which improved the economic situation (Carreras, Prados de la Escosura, & Rosés, 2005, p. 1341). The floating exchange rate seems to have exerted its role as an automatic stabilizer of the economy and allowed internal and external equilibrium to be maintained, despite the shocks that might have existed in aggregate demand.

In 1893, although the earlier crisis had not fully abated, a new crisis broke out (Table 2). The preference for liquidity restricted credit. The Bank of Spain increased the cost of credit by raising the discount rate. This end-of-the-century crisis broadly affected the whole economy (Sardà, 1987, p. 223). Moreover, the agricultural depression compounded the financial slump and made the crisis the longest of the period. The depression was exacerbated by the closure of the French market and the phylloxera plague.

Fiscal deficits recurred between 1871 and 1899. As there was no trade surplus, insufficient amounts of gold entered to compensate the metal outflows for the payment of the debt. The situation was worsened by the war in Cuba, which, from 1895 onwards, pushed the debt up from 800 million to 3 billion pesetas. This debt was monetised, thus increasing the money supply in circulation. The Cuban insurrection caused the Ministry of Overseas Territories to resort to issuing notes (Sardà 1987, p. 90). Subsequently, in 1898, the issue limit was again increased, this time to 2.5 billion pesetas.¹⁴ The amount of money in circulation increased by 47.67%, government expenditure rose by 12.79%, and between 1891 and 1898, the depreciation of the peseta reached 34.53%, its highest

point in the period (Figures 3 and 4). However, the collapse of the Spanish economy after the conflict with Cuba was followed by a recovery in GDP.

Subsequently, to try to improve the budget and reduce the debt, the issue limit was reduced. The Budget Act of 1899–1900 helped to restore the situation of the Treasury until 1909. These measures achieved a budget surplus, and for a few years, the State did not need to issue banknotes to finance itself. So, during these years of currency appreciation and fiscal budget stability, Spain can be regarded as following the gold standard, without being a member. However, Spain never “shadowed” the gold standard in the same way and with the same commitment as Italy. The effects of these new policies can be considered as being positive, even though the economy showed symptoms of depression (Sardà, 1987, p. 207, Table 1). Between 1903 and 1905, Spain slowed down its economic growth (Table 2), when pc GDP fell as a consequence of swingeing budget adjustments.

2.2 Italian Economy, 1870–1913

Italy is an interesting case of a small open country with the exchange rate decoupled from gold for much of the period. Italy ran small deficits for much of the period. However, the most significant deficits occurred at specific moments and were limited in time. The largest deficits in Italy occurred between 1861–1870 and 1886–1891 (Tattara & Volpe, 1997). During much of the 1880s and 1890s, deficits were financed with the creation of public debt. In 1897, the public debt was 120 of the GDP (Tattara & Volpe, 1997). Between 1897 and 1904, it maintained a fiscal surplus. The main difference with Spain is that Spain maintained much larger fiscal deficits despite the fact that, like Italy, it reached a surplus in the early years of the twentieth century. The printing press resource was a government's way of financing fiscal deficits. The government moved quickly from a commodity standard to a paper standard when necessary: in 1866 with the Austro-Hungarian war and in the 1890s with the domestic credit crisis. Despite this, it did not digress from the behaviour of other European countries. When the problems of the 1890s were resolved, Italy acted in the same way as other countries that returned to the fixed exchange rate system, but remained outside. Therefore, its macroeconomic variables followed the rest of the European countries, maintaining fiscal and exchange rate stability. According to Tattara (2003), the public debt made it difficult for Italy to adopt gold, it mismanaged foreign debt, and it gained fiscal flexibility, but lost the benefits of the gold standard.

¹³ Moreover, Serrano (2004, p. 156) and Tortella (1994, p. 177). Escario, Sabaté, and Gadea (2011) note a strong causality between the budget and the changes in the monetary base between the years 1875 and 1998.

¹⁴ The Cuban uprising forced the Ministry of Overseas Territories to resort to the issue of banknotes, Sardà (1987, p. 190).

Italy maintained a very stable exchange rate throughout the period and kept the price level stable, which is why it is considered to have “shadowed” the gold standard despite having fiscal deficits. The exchange rate of the lira was never separated from the other currencies of the gold standard and the price level remained stable. The exchange rate depreciated in a limited way and always fluctuated within a band of $\pm 5\%$ (Figure 4). In reality, the gold standard worked through capital movements in an integrated financial market. Furthermore, a stable exchange rate was compatible with the state playing its role of spending on infrastructure. In Italy, the increase in the money supply by the Treasury did not create great pressure on prices. The excess supply of money was disposed of through purchases of foreign assets. Although the fiscal deficits were large, they were very short lived, so they had little impact on the interest rate and the exchange rate, since the long-term confidence of foreign investors was not altered. The case of Spain was different as the deficits were larger and sustained over time.

From 1861 to 1866, Italy had a bimetallic system (fixed exchange rate system). It joined the Latin Monetary Union in 1865 because of the importance of its trade with France. As with Spain, its monetary system was a copy of the French. After Italian unification, public spending skyrocketed and the state finances had to face new obligations. Income barely covered 50% of public spending (Tattara & Volpe, 1997). The deficits that were created were financed by increasing the amount of debt. In 1866, the *corso forzoso* was declared. With the suspension of its convertibility, the lira no longer had to maintain a stable exchange rate.

Debt increased considerably until 1870, reaching 80% of GDP. Taxes were raised in 1870 and again in 1887. From 1872 to 1874, the currency depreciated (Figure 4).¹⁵ In 1869, agreements were signed with the national bank to increase circulation and to finance the Treasury. In the 1870s, the government did not renew all the debt and monetised part of the debt because the cost was very high. As a result, the amount of money in circulation increased. Banknotes in circulation increased steadily until 1874 although metal reserves fell drastically and deficits were reduced. Hence, the money supply did not increase after the 1874–1888 period. In principle, banks could not print unlimited currency and had to adhere to rules regarding their gold and silver reserves. Tattara (2000, p. 18) identifies the low level of regulation of the money supply as an important problem. Thus, the problems of budget deficit, the plurality of

issuing banks, and the lack of regulation of the money supply also led to small fluctuations in the exchange rate (Tattara, 2000, p. 18).

Italy experienced some reductions in pc GDP during the 1870s and 1880s, as presented in Table 2. Despite this, Italy was able to control public consumption and exchange rate fluctuations and only use them when it was necessary. In 1880, a bill was introduced to allow the government to borrow abroad and obtain gold (Tattara, 2000, p. 23). Government expenditure increased; however, money in circulation fell and the lira appreciated to reach convertibility. The deficit remained limited between 1874 and 1885. Scholars consider that the authorities managed and supervised the exchange rate by controlling both the issuance of banknotes and the reserve accumulation process.¹⁶ Tattara and Volpe (1997) point out that capital flows allowed stability to be maintained in the Italian economy and helped to control the impact that the money supply had on the exchange rate.

Italy received a large loan in 1883 from Great Britain in gold with which to return to the gold standard (De Cecco, 1991). After the appreciation of the lira, parity was suddenly restored (and gold convertibility was possible). A lot of foreign capital entered the country in anticipation of the appreciation of the lira. After the declaration of convertibility in 1883, the lira was “*de iure*” convertible from 1884 until 1894. However, according to Tattara (2000, p. 24) and Tattara and Volpe (1997), convertibility never became effective. Banks stopped converting to gold within a few months (Di Nardi, 1954). Silver depreciated, and as banks could convert to silver or gold, they converted the notes into silver and kept the gold, thus discouraging people from requesting conversion.¹⁷

The public deficit increased and the government did not supervise the issuing of banknotes. With the support of the government, notes were issued above the legal limit to finance construction and other activities. The money supply increased by 10.73% between 1884 and 1889, and between 1888 and 1896, the lira depreciated by 6.19%. In 1892, the illegal dealings of the Banca Romana became known, finally causing a banking collapse. In 1893, the Banca Nazionale merged with other banks, and a year later, “*corso forzoso*” was declared once again. This and the inconsistency of country’s

¹⁵ It is important to remark that Italy never used a competitive devaluation (Cesarano et al., 2012; Tattara, 2000).

¹⁶ The studies by Barone (1918), Fanno (1908) and Pareto (1894) offer a good discussion of this subject.

¹⁷ Something similar occurred in Spain. See more in Bru and Rodenas (2006).

economic policies led to the biggest banking crisis yet, which forced the country off the gold standard in 1893.

Before the crisis, credit was abused and beliefs about the country's economic performance were overly optimistic. Public works, the railways, and other projects financed by the government were implemented, and there was a high level of speculation thanks to the availability of cheap capital. On the other hand, the growing needs for defence spending forced the government to accept expenses higher than its income levels (De Cecco, 1990, p. 782). Moreover, the Bank Act of 1893 was unclear with respect to the convertibility of the notes; Fratianni and Spinelli (1997, pp. 89–90) consider that monetary policy was unduly accommodating and bank regulation was lax.

The second period of inconvertibility (flexible exchange rate regime) was a period of economic growth (Table 1). After the international crisis of 1890 (Table 2), reserves increased again and brought the exchange rate back to parity. Surpluses were achieved, growth accelerated, and the surplus in the balance of payments led to an appreciation of the lira (Fanno, 1908, pp. 107–108; Supino, 1921, pp. 39–40). Investment rose,¹⁸ and Italy became a net exporter of capital. Italian policy was consistent with the rules of the game even though the country was not on the gold standard: in fact, in this period, it is considered that Italy shadowed the gold standard. The country's fiscal and monetary policies were expansionary. Money supply increased by 38.19% in 1900–1907 and by 28.2% in 1908–1913, and government expenditure also increased by 21.6% between 1900 and 1913. Nonetheless, the exchange rate remained stable because of the abundance of capital in Europe, the increase in tourism expenditure, and remittances. In fact, the Italian currency was stable from 1902 until the First World War, even during the 1907 financial crisis.

2.3 A Brief Comparison Between Spain and Italy, 1870–1913

Table 1 presents a summary of the years in which Spain and Italy had fixed exchange rate systems or fiduciary systems or followed the rules of the fixed exchange rate system without adopting it and what happened during those years. All explanations are presented in this article.

Table 2 presents the years in which Spain and Italy suffered decreases on their pc GDP. The years are shown in

white when they recover the level of pc GDP they had before the crisis and in orange when pc GDP decreases from the previous level. We can see the previously described crises.

Figure 1 shows the economic growth in Spain and Italy. It is observed that the economic cycle was smoother for Italy than for Spain. The Italian economy experienced much more stability than the Spanish one. The Spanish economy experiences greater falls in the economic growth, although, also, higher rates of positive growth than Italy.

Figure 2 shows the evolution of public spending as a percentage of GDP in Spain and Italy. Public spending in Spain and Italy was similar (Figure 2). However, in Spain, revenues were not able to cover public spending, and fiscal deficits were huge compared to Italy. In a context of fiscal dominance for Spain (Escario et al., 2011, pp. 271–272; Sabaté et al., 2006, pp. 310, 321, 328), monetary policy increased to accommodate to fiscal needs, especially in the late 1890s. It is something that did not happen in Italy was that money supply did not show big increases. Italian monetary policy was less expansionary (Figure 3).

Figure 4 shows the evolution of the exchange rate in Spain and Italy. It is observed that the nominal exchange rate was more stable in Italy than in Spain. This coincides with the evolution of the rest of the variables that we have seen. In Spain, the nominal exchange rate is more unstable and has a tendency to depreciate since the 1880s although this trend is accentuated in the 1890s. The real exchange rate in Italy tended to appreciate (see trend line, Figure 4). Prices in Italy were quite stable throughout the period with a slight deflationary trend until 1895. Once off the gold standard, prices in Italy remain stable, although with a slight trend towards inflation. The Italian–UK relative prices showed a downward trend. In Spain, the real exchange rate tended to depreciate (see trend line, Figure 4). Prices in Spain were generally less stable than in Italy and the UK and higher than in the UK for much of the period.

3 Data

This section describes the data used. Because quarterly data are not available for all the variables, the annual data for 1871–1913 are used as the sample.¹⁹ The end of the Franco-Prussian war is considered as the beginning of the hegemony of the gold standard. When the Latin

¹⁸ This also happened in Spain.

¹⁹ Cubel (2001) or Rota and Schettino (2011). There are examples of similar studies with comparable sample sizes.

Table 1: Summary of different monetary systems adopted by Spain and Italy

ITALY			SPAIN				
1870	Flexible exchange rate (fiduciary system, non convertibility)	Government allowed to borrow abroad to pay indebttness to the banks	Bimetallic system (Sardà, 1987; Martín Aceña, 1993) Shadowing the gold (Nogués-Marco, Martínez-Ruiz, 2014)	Non-convertibility Serrano (2004)	Monopoly of issuing Bank of Spain		
1871							
1872							
1873							
1874							
1875							
1876							
1877							
1878							
1879							
1880							
1881					Debt reestructuration (Minister Camacho)		
1882					Lyon stock exchange market + Currency crisis		
1883	Gold standard <i>de jure</i> . Not <i>de facto</i> (Tattara, 2000)	Currency depreciation	but....				
1884							
1885							
1886							
1887							
1888							
1889		Government legalize the currency in circulation in contravention of the law + currency depreciation	Flexible exchange rate (fiduciary system <i>de facto</i> , non convertibility)	Non-convertibility Serrano (2004)	Increase of money supply limit + currency depreciation		
1890							
1891							
1892		Banking collapse (Roman bank failure) Paper money in circulation was reduced			Currency crisis		
1893		Currency crisis					
1894	Flexible exchange rate (fiduciary system, non-convertibility)	<i>Corso forzoso</i> was declared	Bimetallic system <i>de jure</i> (Sardà, 1987; Martín-Aceña, 1981, 1993)	Non-convertibility Serrano (2004)	Crisis late-nineties		
1895		Change in economic policies					Issue limit was again increased + maximum currency depreciation + affidavit
1896							
1897							
1898							Change in economic policies + Issue limit decreased
1899							
1900	Gold shadowing (Cesarano et al., 2009) (non-convertibility)	Exchange rate fell within the gold points			Increase in reserves guarantee		
1901							
1902		Worldwide liquidity crunch of 1907	Shadowing the gold? Appreciation of the currency and more stability				
1903							
1904							
1905							
1906							
1907							
1908							
1909							
1910							
1911							
1912							
1913							

Monetary Union countries decided to adopt the gold standard following the two main economies of Europe (Germany and Great Britain), it became the main monetary system in Europe. Therefore, the analysis starts in 1871. All the variables have been converted into logarithms.

The data are drawn from secondary sources. The y_{pcr_t} is real pc GDP measured using GDP from Prados

de la Escosura (2003) and population from Nicolau (2005) deflated by the GDP deflator (Prados de la Escosura, 2003) for Spain and from Baffigi (2013) and Istat (1957) for Italy; g_t is the real public consumption obtained by Prados de la Escosura (2003) deflated by the GDP deflator (Prados de la Escosura, 2003) for Spain and from Baffigi (2013), respectively, for Italy; m_t is the money supply measured by Martín Aceña (2017) for Spain and by Barbiellini,

Table 2: Reductions in real pc GDP for Spain (in pesetas) and Italy (in liras)

	Italian pc GDP	Spanish pc GDP
1870	440.8	385.4
1871	431.0	414.9
1872	421.4	470.2
1873	419.3	510.7
1874	441.0	474.8
1875	443.2	486.8
1876	432.4	497.0
1877	435.2	545.3
1878	446.1	528.1
1879	447.3	497.3
1880	454.4	537.5
1881	468.1	546.0
1882	473.8	549.8
1883	478.1	558.5
1884	470.9	558.0
1885	477.8	542.6
1886	488.1	529.5
1887	500.7	521.6
1888	498.0	537.9
1889	482.9	540.4
1890	483.2	541.4
1891	489.6	552.6
1892	490.2	591.6
1893	497.9	573.5
1894	500.7	576.4
1895	504.7	568.2
1896	512.2	521.6
1897	513.1	541.0
1898	511.1	576.8
1899	516.7	584.8
1900	530.3	591.5
1901	539.1	627.6
1902	547.6	602.9
1903	552.6	598.1
1904	562.3	589.6
1905	573.8	580.0
1906	593.2	608.7
1907	603.8	622.3
1908	616.6	642.0
1909	621.5	648.3
1910	622.0	625.9
1911	628.8	663.4
1912	629.5	653.7
1913	659.0	680.4

Sources: Baffigi (2013) and Prados de la Escosura (2003).

De Bonis, Rocchelli, Salvio, and Stacchini (2016) for Italy; and e_t is the bilateral real exchange rate against the pound from Martín Aceña and Pons (2005) and Martinez-Ruiz and Nogues-Marco (2014) and GDP deflator and Prados de la Escosura (2003) for Spain, Ciocca and Ulizzi (1990) for Italy and GDP deflator from Baffigi (2013), and Mitchell (2013) for United Kingdom GDP deflator.

4 Theoretical Framework

I have used the empirical model from the reduced form of Kandil and Mirzaie's theoretical model (2002) and Bahmani-Oskooee and Kandil (2010)²⁰:

$$\ln y_t = a + b \ln g_t + c \ln m_t + c \ln e_t,$$

where \ln is the logarithm of the variables, and y_t is real output and varies with the three different kinds of policies. Fiscal policy, $\ln g_t$, is measured by real government expenditure. The logarithm of money supply is $\ln m_t$, and it approximates the monetary policy, and the real bilateral exchange rate is denoted by $\ln e_t$. An increase in the exchange rate means a depreciation. Therefore, if the exchange rate coefficient has a positive sign, depreciations have a positive impact on GDP. Otherwise, if the effect is contractionary, the sign will be negative.

Monetary policy is expected to positively affect the real GDP. The increase in output due to an increase in government expenditure is shown in the study by Blanchard and Perotti (2002). Moreover, a crowding-out effect can negatively affect the economy.²¹ Ricardian equivalence theory (Barro, 1974) suggests that, in the long run, deficit-financed government spending may have a neutral effect on output. A change in the exchange rate can have different effects. On the one hand, a depreciation improves national production due to the stimulation of exports. Domestic goods become more competitive, which improves the country's competitiveness. In this way, the current account balance tends to increase (Dornbusch, Krugman, & Cooper, 1976, p. 551) and demand increases. In the study by Krugman and Obstfeld (2006), the main cause of the internal instability experienced until 1914 with the classical gold standard was the subordination of economic policy to external objectives, although they point out differences according to the structural characteristics of the country. Appreciation of the exchange rate will produce a crisis in export companies and a fall in wages. The cost of living will decrease slightly and will serve as an argument for the reduction of wages. Credit restrictions will also need to be carried out. Unemployment will be added to lower wages. In contrast, a devaluation increases import prices, increases the cost of production, and reduces the aggregate supply.

²⁰ This approach is used today to understand the role of the exchange rate on developing economies. I believe that at the end of the nineteenth century, Spain could be considered as a developing country. The formal model and its development can be found in the study by Kandil and Mirzaie (2002).

²¹ Tattara (2003) underlines that there was no evidence of a crowding out effect in Italy.

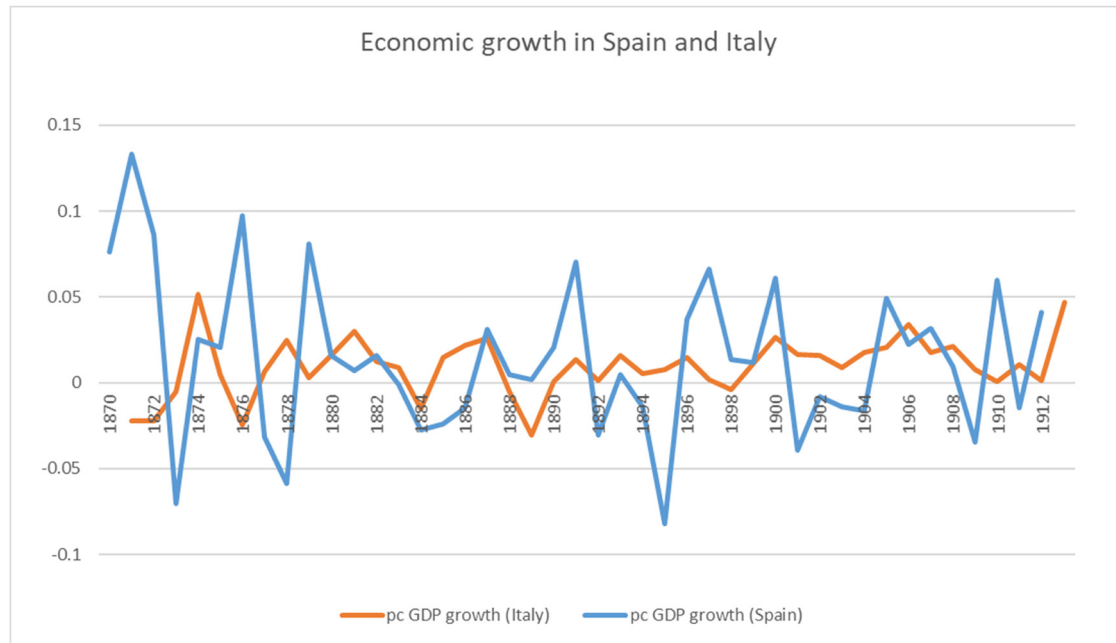


Figure 1: Economic growth in Spain and Italy. Source: Prados de la Escosura (2003) for Spain and Baffigi (2013) for Italy.

When there is a greater propensity to consume among workers than among producers, consumption can fall (Alexander, 1952). Edwards (1986) shows that the effect of a depreciation is negative in the first period, positive in the second period, and neutral in the long term.

5 Methodology

This section describes the econometric tools used to estimate the effects of monetary, fiscal, and exchange rate policy on real GDP. Therefore, considering that the main

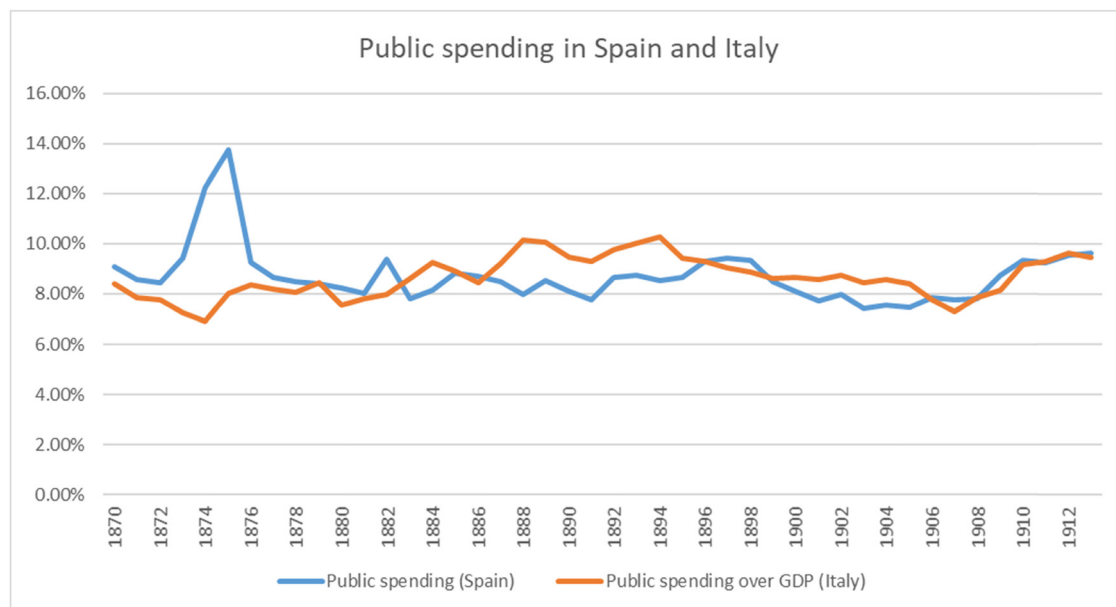


Figure 2: Public spending evolution in Spain and Italy. Sources: Prados de la Escosura (2003) for Spain and Baffigi (2013) for Italy.

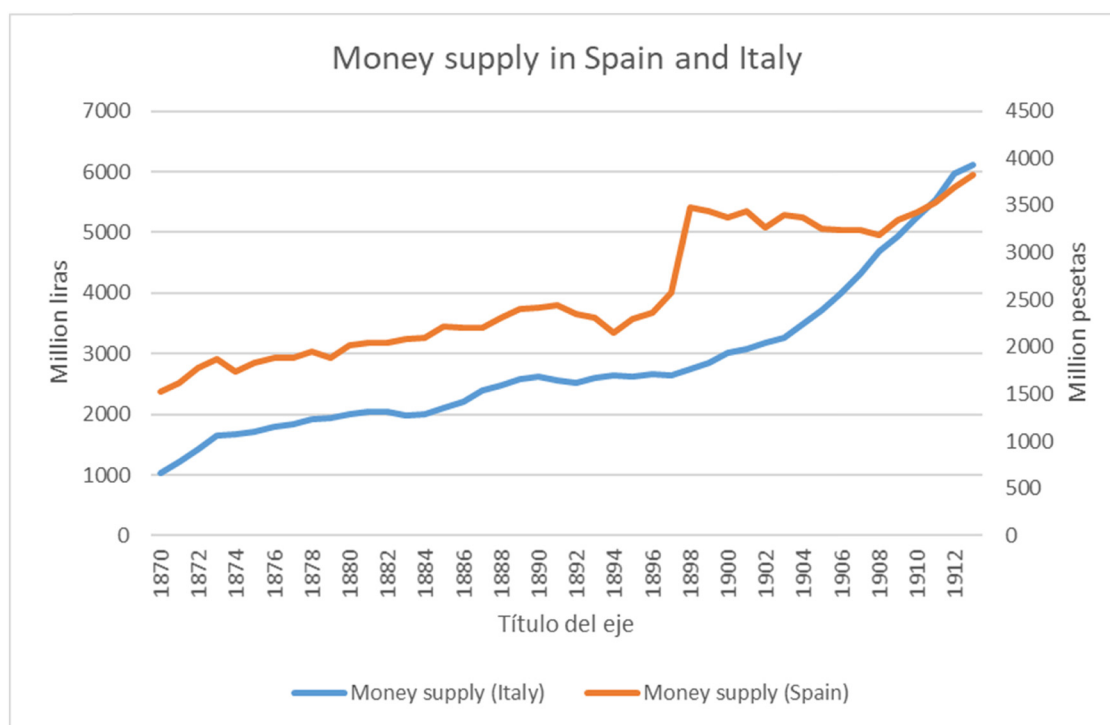


Figure 3: Money supply in Spain and Italy. Martín Aceña (2017) for Spain and by Barbiellini, De Bonis, Rocchelli, Salvio, and Stacchini (2016) for Italy.

goal of this article is to understand the relationship between different macroeconomic policies and GDP, a vector autoregressive model is estimated to calculate impulse responses and historical decomposition. The methodology has been used, with similar objectives, by Cha (2003), Gordon and Krenn (2010), Mattesini and Quintieri (1997), and Shibamoto and Shizume (2014) to capture the magnitudes of the effects of macroeconomic policies in Japan and Italy. For example, Shibamoto and Shizume (2014) study (estimating a VAR) how three macroeconomic policies (monetary, fiscal stimulus, and exchange rate adjustment) and expected inflation affected Japanese GDP during the Great Depression.²² All of these authors analyse the impact of macroeconomic policies on GDP. Furthermore, Bahmani-Oskooee and Kandil (2007) study the impact of money supply, public spending, and the real exchange rate on production in the case of Iran. Unlike the other studies, they use a theoretical model developed by Kandil and Mirzaie

(2002).²³ Their study is an innovative approach due to the previous lack of any estimation of the effects of fiscal, monetary, and exchange rate policy shocks on these economies. VAR is estimated with variables in levels. Moreover, Jordà (2005) compares impulse response functions with local projections developed as an alternative for smaller samples.²⁴

To analyse the dynamic relationship between macroeconomic variables, the following SVAR model is constructed using the variables of output (y_t), public spending (g_t), real exchange rate (e_t), and money stock (m_t):

$$B(L)X_t = b_0 + d_t + \varepsilon_t,$$

where $X_t = (y_t, g_t, m_t, e_t)$, d_t is a vector of linear time trend coefficients, b_0 is the vector of the constant, $B(L) = B_0 - B_1L_1 - \dots - B_pL^p$ is a p th order lag that forms a matrix $B_j = (j = 1, \dots, p)$ such that the diagonal elements of b_0 are equivalent to 1, and $\varepsilon_t = (\varepsilon_{yt}, \varepsilon_{gt}, \varepsilon_{mt}, \varepsilon_{et})$ is the five-by-one vector of serially uncorrelated structural

²² Several recent studies have tested whether the impact of exchange rate on the economy was positive or negative (Bahmani-Oskooee & Gelan, 2013; Bahmani-Oskooee & Kutun, 2008; Bahmani-Oskooee & Mohammadian, 2016; Kalyoncu et al., 2008).

²³ Other studies that use the same variables and model to capture the effect of flexible exchange rates in economies are Bahmani-Oskooee and Gelan (2013), Bahmani-Oskooee and Mohammadian (2017) and Kandil (2004).

²⁴ More in Jordà (2005).

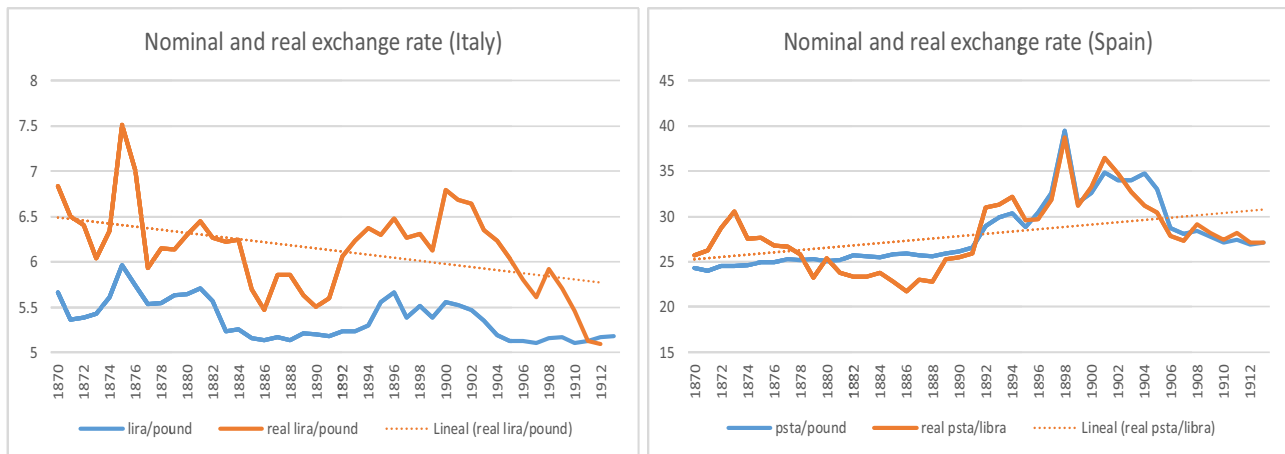


Figure 4: Nominal and real exchange rate evolution in Spain and Italy. Source: Martín Aceña and Pons (2005), Martínez-Ruiz and Nogues-Marco (2014), Prados de la Escosura (2003) for Spain and Ciocca and Ulizzi (1990) and Baffigi (2013) for Italy. Mitchell (2013) for United Kingdom prices.

disturbances with a mean zero and a covariance matrix Σ_ε . Following the order proposed by Shibamoto and Shizume (2014), the macroeconomic variables are put first (real GDP), and then, the policy tool variables are added (government expenditure, nominal effective exchange rate, and money stock). The structural model is as follows:

$$A(L)X_t = a_0 + d_t + u_t,$$

where a_0 is the vector of the constant, d_t is a vector of linear time trend coefficients, $A(L) = I - A_1L - \dots - A_pL^p$ is a p th order lag of matrix A_j ($j = 1, 2, \dots, p$), and $u_t = u_{yt}, u_{ft}, u_{et}, u_{mt}$ is the five-by-one vector of serially uncorrelated structural disturbances with a mean zero and a covariance matrix Σ_u .²⁵

6 Empirical Results

This section describes the results obtained from the VAR estimation comparing Spain and Italy.

6.1 Effects of Structural Shocks

In the study of business cycles, we should pay attention to the short-term effects because the long-run data are

not the most important source of information. Variables with no long-term effects on output may have great temporary impacts. Generalised impulse response functions are used to analyse the dynamic characteristics of our model. I have used these functions because they are invariant to the ordering of the variables in the VAR (Lutkepohl, 1991). Pesaran and Shin (1998) show the approach for a cointegrated VAR model and how the maximum likelihood structure of the generalised impulse response is T-consistent and asymptotically normally distributed. A shock to the i th variable not only directly affects the i th variable but also all the other endogenous variables by means of the VAR's dynamic structure (lag). The effect of one standard deviation shock on the current and future values of the endogenous variables is shown by the impulse response function (in green).²⁶ The red dotted bands show a standard deviation of 1.96 with a confidence interval of 90%.²⁷ The results of local projection functions (Jordà, 2005) are also presented (in blue). The findings show that the results of the local projections are very similar to the ones obtained by VAR generalised impulse response functions.

Figure 3 presents the impulse response functions for each variable following Pesaran and Shin (1998) in green and the local projections following Jordà (2005) in blue. The first row shows the responses of GDP to shocks in each variable, while the first column shows how shocks

²⁵ Because Ramey (2016, p. 87) notes that irrespective of whether time series are cointegrated a VAR in log levels will give consistent estimates, I have not run unit root tests.

²⁶ A shock is considered as a positive impact. Standard deviations are preferred because they offer the responses in the correct order of magnitude.

²⁷ Standard deviations are preferred because they offer the responses in the correct order of magnitude.

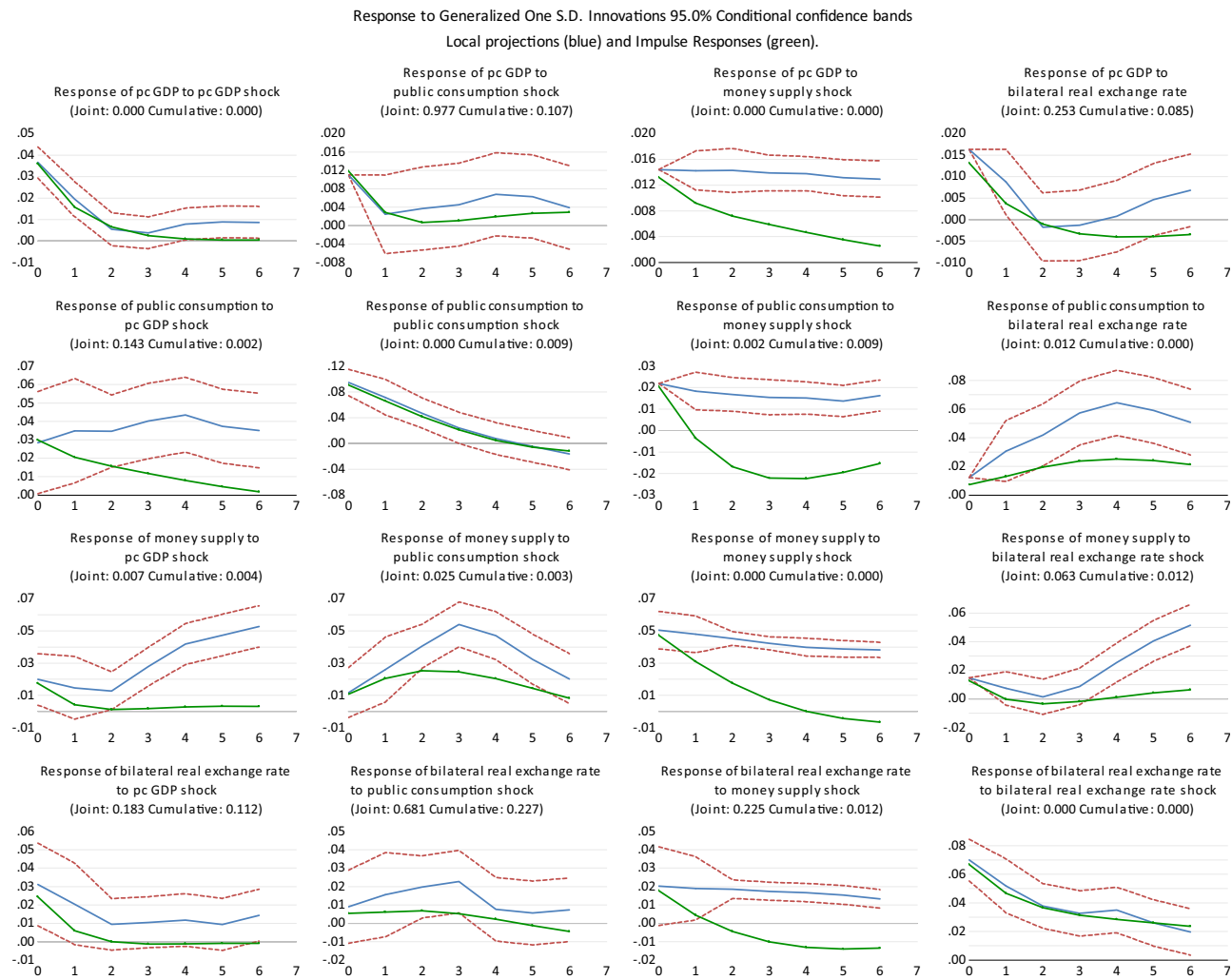


Figure 5: Impulse response function (Spain).

in output affect each variable. Conditional error bands are used instead of marginal error bands to help eliminate variability caused by serial correlation. Conditional error bands better show the importance of individual responses. The figures show the resulting p-values of two null hypotheses: (i) Joint indicates the null hypothesis that all the response coefficients are jointly zero and (ii) cumulative refers to the null hypothesis that the accumulated impulse response after six periods is zero.

Both the local projection and the impulse response (column 4, Figure 5) show that in Spain, an increase in the real exchange rate (depreciation) generated an increase in the gross domestic product. The opposite was the case for Italy (at least the first years), as shown in column 4 of Figure 6. We can observe at the top of Figure 4 that GDP had a significant negative response to a real exchange rate shock. Thus, real exchange rate

shocks influenced the real economy in a different way in Spain and Italy. Looking at Figures 5 and 6 (column 3), an increase in the money supply affected pc GDP positively in both Spain and Italy. The findings also show that an increase in government expenditure (Figures 5 and 4, column 2) had a positive impact on pc GDP in Spain but a negative impact in Italy.

The fourth column presents the responses to shocks in the real exchange rate. In the top chart, GDP immediately increased after a shock in the real exchange rate (depreciation) in Spain. Referring to the responses to innovation in the real exchange rate, we can see that a depreciation in the exchange rate caused an increase in public consumption, an endogenous response in both Spain and Italy. However, we can observe an upward trend in the money supply after depreciation in Spain but not in Italy, where the response of money supply to a real exchange rate depreciation was negative.

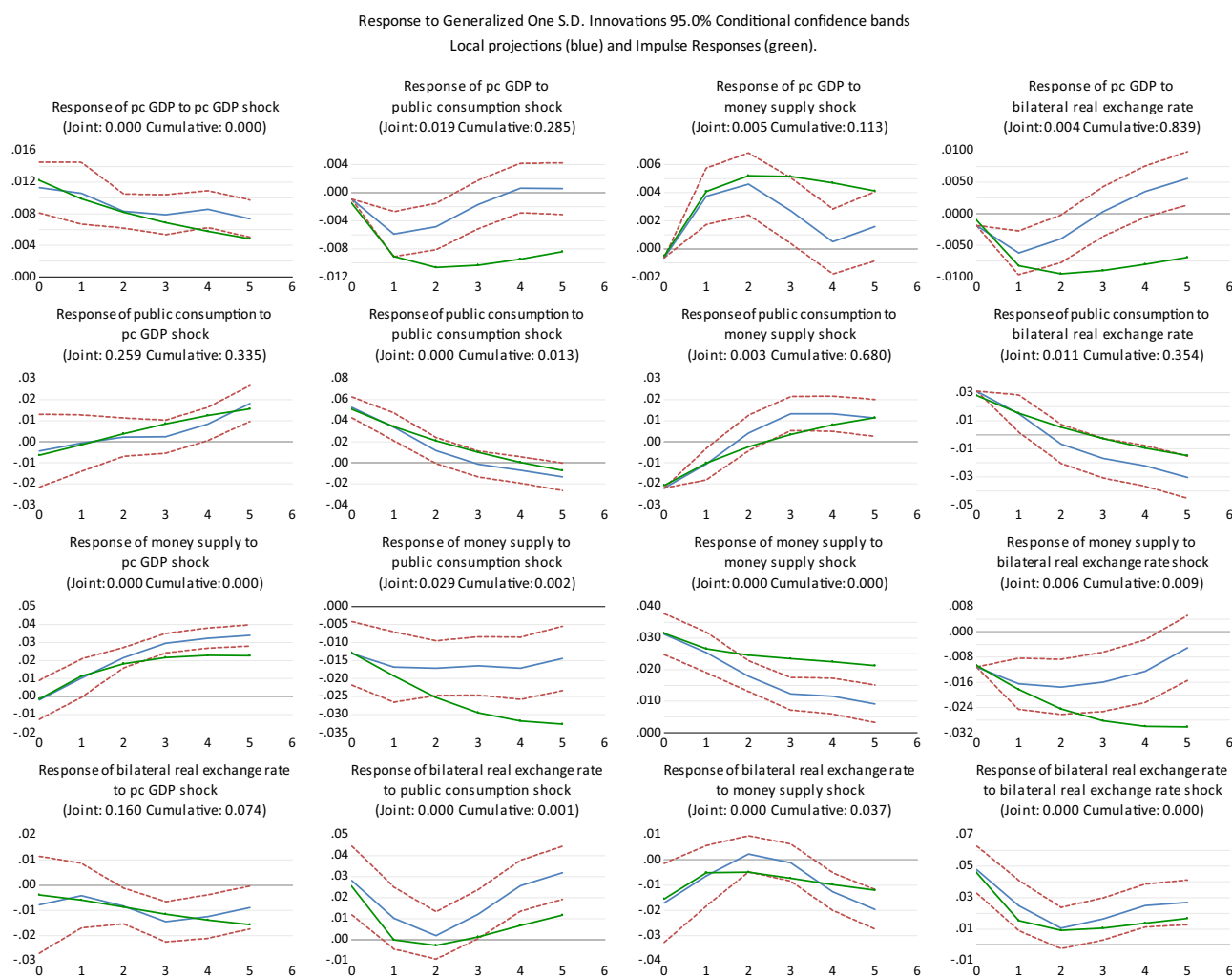


Figure 6: Impulse response function (Italy).

The third column represents the impulse response functions to a monetary shock (an increase in the amount of money). At the top of Figure 3, we can observe that a monetary shock also raises the real output for both countries: thus, monetary policy had an impact on the real economy.²⁸ At the bottom, we can also see that a monetary shock was followed by the depreciation of the domestic currency in Spain but not in the same way as in Italy. In Italy, first, the exchange rate appreciated, but from the first year after a monetary shock, it tended to depreciate. It can be said that the real exchange rate was a monetary policy transmission mechanism for Spain. In Spain, an increase in the money supply caused not only

depreciation of the peseta but also an increase in government expenditure. However, in Italy, an increase in the money supply generated a decrease in public expenditure.

As we can observe in the second column, shocks in fiscal policy had a positive impact on the real economy. A shock in government expenditure was followed by an increase in GDP, and an increase in government expenditure generated an increase in the money supply for Spain. This shows how monetary policy responds to an increase in the fiscal policy, in accordance with previous analyses of fiscal dominance (Escario et al., 2011, pp. 271–272; Sabaté et al., 2006, pp. 310, 321, 328). However, in Italy, an increase in public consumption generated a negative response of pc GDP and the money supply. Finally, an increase in government expenditure generated a positive response of the exchange rate in both countries. However, the response in Spain was not significant for either local projection or impulse response results.

²⁸ Peripheral countries used depreciation recurrently to overcome crises. Morys (2013, p. 221) shows that these countries paid little attention to variations in the exchange rate and a great deal of attention to the bank coverage ratio.

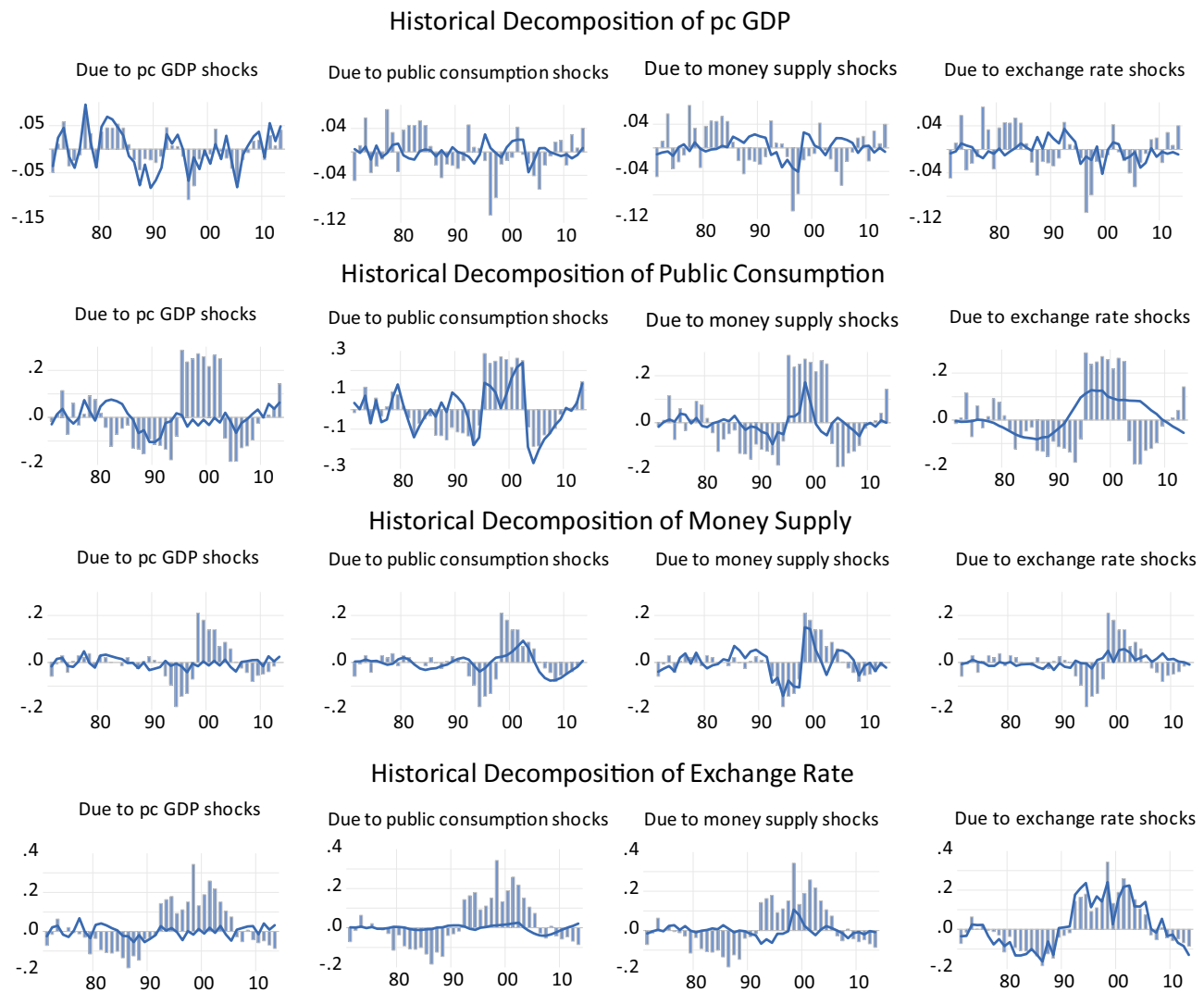


Figure 7: Historical decomposition (Spain).

6.2 Historical Decomposition of the Variables

Finally, a historical decomposition analysis shows how the variables chosen describe and interpret history. Historical decompositions measure the cumulative contribution of each variable in terms of structural shocks to the evolution of one variable over time. For example, how each of the four variables used in this study contributed to explaining the evolution of pc GDP. They are important, for instance, for understanding the origin of the declines or increases in a given variable. Each row represents the decomposition of a variable into four structural shocks (pc GDP shocks, government expenditure shocks, money supply shocks, and exchange rate shocks).

Figure 7 (first row) shows how the variables of interest shocks (the decomposed series) affected pc GDP fluctuations. The bar chart indicates the fluctuations in pc GDP, and the solid line shows how the different shocks contribute to explaining the pc GDP. As expected, shocks to pc GDP account for most of the fluctuations in pc GDP throughout the period. With respect to the fluctuations in pc GDP, we can observe the three crises explained in Section 2 during this period in Spain. In Italy, there are less business cycle fluctuations than in Spain, one important crisis in the 1890s, and some decreases in terms of pc GDP during the 1870s and 1880s.

In the last Figure, the first row (Figure 7) shows how the exchange rate helps to explain the increases in pc GDP during the 1880s. In fact, exchange rate shocks

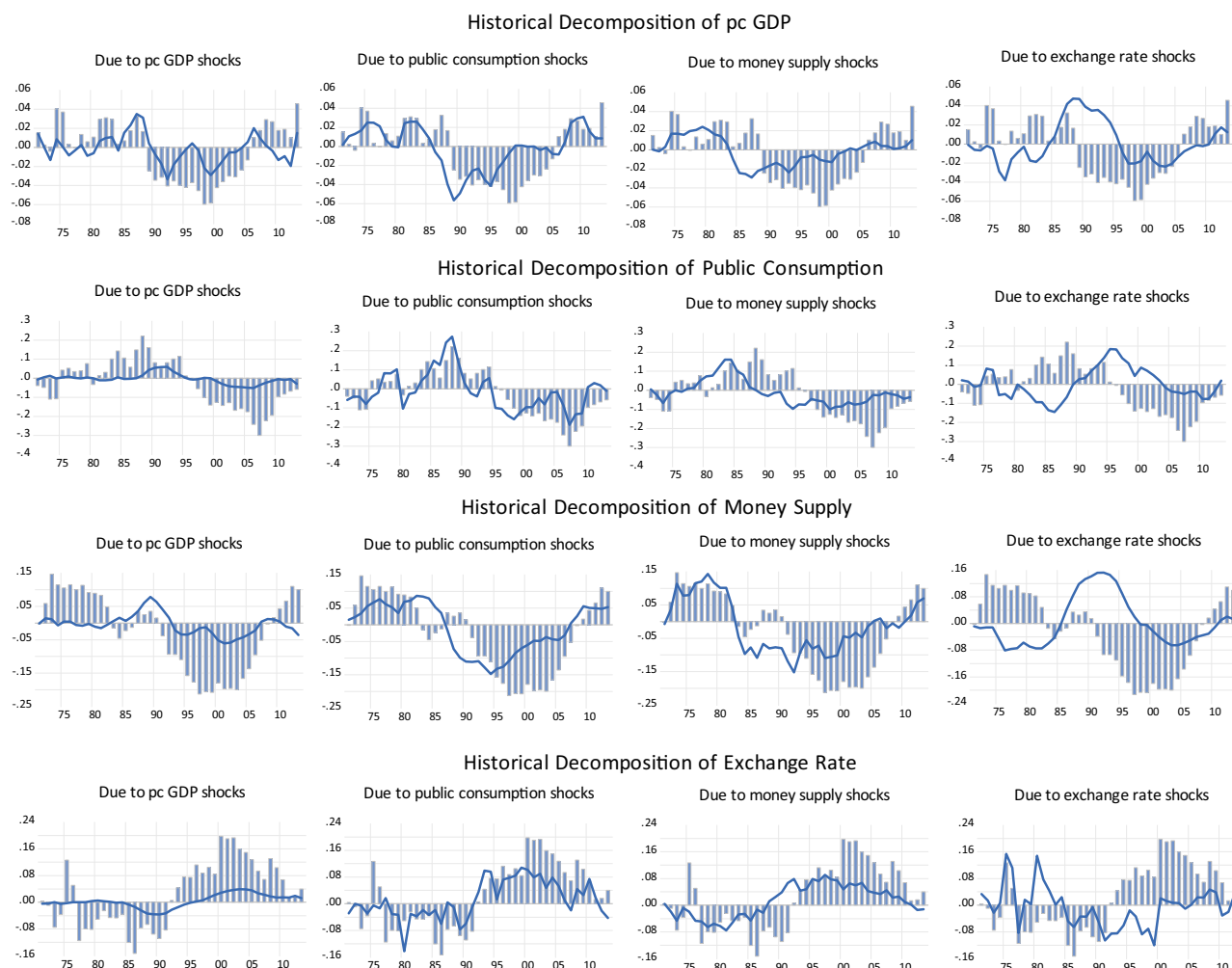


Figure 8: Historical decomposition (Italy).

seem to have contributed to Spain's economy recovery. It also shows how, in 1895–1899, the exchange rate assisted the recovery of the Spanish economy from the late 1890s crisis, especially in 1898.²⁹ Between 1895 and 1899, the exchange rate experienced both nominal and real depreciation. From 1900 onwards, the explanatory capacity diminishes with the change in economic policies and the appreciation of the peseta. Changes in the money stock further explain a significant proportion of the falls and rises in pc GDP. They seem to have particularly contributed to the recovery from the late 1880s crisis, the late 1890s crisis explaining the downturn before the loss of Cuba, and the recovery after this event and even the early twentieth-century crisis. Government expenditure helped

to explain the ups and downs of the Spanish economy over the whole period. During the 1890s crisis, it helped to explain the upswing in GDP, while the fall in government expenditure due to the restrictive policies during the early twentieth century contributed to explaining the fall in GDP.

Figure 8 (row 1) shows how something similar occurred in Italy. Output fluctuations are largely explained by output shocks. However, the pc GDP fluctuations could also be explained, similarly to Spain, by exogenous factors, public consumption shocks, monetary shocks, and exchange rate shocks. Exchange rate shocks contributed to the increase in pc GDP in the late 1880s. When Italy adopted the gold standard, the positive impact of the exchange rate began to fall. At the end of the 1890s, we can observe how the exchange rate contributed to the economic recovery. As in the case of Spain, exchange rate shocks helped economic recovery in the crisis of the late 1890s. At the beginning of the twentieth century, as in Spain, the exchange rate shocks

²⁹ The exchange rate helped to explain the recovery after the Cuban war coinciding with the findings of Catalan and Sánchez (2013) and Sardà (1987, p. 218).

lost explanatory importance as Italy attempted to follow the rules of the gold standard and maintain a stable exchange rate. Contrary to what occurred in Spain, it seems that monetary shocks did not allow a higher pc GDP since they pushed down pc GDP during the 1880s. Italy wanted to adopt the gold, and to do so, it needed to control the money supply to appreciate the currency. However, after abandoning the gold standard, monetary shocks contributed to the recovery from the late 1890s crisis and to small increases in pc GDP from the beginning of the twentieth century, similar to Spain. Shocks in public spending contributed to the decline in pc GDP from the mid-1880s. This coincides with the desire to adopt the gold standard and the need to maintain some fiscal discipline. Once it left the gold standard, public spending seems to have contributed to the economic recovery in the late 1890s as well as explaining the increases in pc GDP during the early years of the twentieth century.

Economic policies may depend on other policies. To understand this, rows 2–4 are useful. The second row (Figure 7) shows the historical decomposition of fluctuations in public consumption. Following the historical decomposition results, fluctuations in government expenditure in Spain could be explained by government expenditure shocks. Moreover, until 1895, pc GDP figures are highly relevant for explaining public consumption fluctuations. Monetary shocks and real exchange rate shocks were also important, especially during the 1890s. The shocks in public consumption in Italy explain most of the movements in public consumption (Figure 8, row 2). Periodically, variations may be observed, which can be explained by shocks in the money supply that justify the ups and downs during the whole period and by real exchange rate shocks to explain the increase in public consumption during the late 1890s and the decrease at the beginning of the twentieth century. Unlike Spain, pc GDP shocks are not important for explaining fluctuations in public spending.³⁰

The third row presents the historical decomposition of the money stock. The shocks in the public consumption played an important part throughout the period, especially in the upward trend during the late 1890s. The real exchange rate shocks helped to explain money supply fluctuations during the late 1890s and the beginning of the twentieth century. The same was the case in Italy, where the fluctuations in money supply are largely explained not only by money supply shocks but also by

exchange rate shocks particularly when explaining the decreases after adopting the gold standard and pc GDP shocks. Public consumption shocks strongly contributed to explaining the fluctuations in money supply during the whole period.

The fourth row shows the historical decomposition of fluctuations in the real exchange rate. Shocks in the money supply largely explain the movements in the value of the currency during the whole period (Figure 7, row 4). They made a major contribution to explaining the ups and downs in the real exchange rate apart from the real exchange rate shocks. The same occurred in Italy (Figure 8, row 4). Moreover, fluctuations in the real exchange rate were mainly due to the real exchange rate shocks and public consumption shocks that help us to understand the appreciation before adopting the gold standard and the later depreciation during and after the abandonment of the gold standard.

In Spain, pc GDP is important most of all to explain public spending behaviour. Then, the rest of the variables were adapted to the fiscal situation. In Italy, this fact is not so clear, since it tried to maintain fiscal discipline and therefore disconnect economic policies from the country's economic situation.

7 Discussion

A natural way to perform a joint test of a structural and data model is to compare historical decomposition with external evidence (Kilian & Lee, 2014). This analysis is coherent with both Spanish and Italian history and shows how they are not as similar as once thought, at least in the past. The first conclusion that we can draw when observing the fluctuations of the pc GDP of the two countries is that the economic cycle was more stable in Italy than in Spain. Italy suffered declines in pc GDP in the 1870s and 1880s but to a much lesser degree than Spain, especially in the 1880s when Spain suffered more than Italy (see Figure 1). Following historical decomposition analysis, in both cases, the exchange rate seems to have contributed to the economic recovery of the early 1890s crisis in Italy and late 1880s and the late 1890s in Spain. Both Spain and Italy suffered a fairly negative impact from the crisis of the 1890s, which they overcame in a fairly similar way according to historical decomposition results. The exchange rate and money supply shocks seem to have helped both countries in 1890s recovery in terms of pc GDP.

Therefore, the historical decomposition results show that the depreciation of the currencies helps to explain pc

³⁰ It should be noted that Italy attempted to maintain a certain level of fiscal discipline.

GDP recoveries from different crises in Spain in accordance with the literature (Sardà, 1987; Sudrià & Tirado, 2001; Tortella, 1994). Depreciation of the currency in Italy appears important especially during early 1890s crisis according to historical decomposition analysis and according to Cesarano et al. (2012) and Tattara (2003). This would corroborate the role of the flexible exchange rate as a stabilizer of the economy, thanks to its ability to react to changes in the output. This is also highly supported by impulse response and local projection results for Spain, where a positive response of pc GDP to an increase in the exchange rate (depreciation) is found. In Italy, the first year pc GDP response to an increase in the exchange rate was negative; however, after 3 years, the response became positive. Therefore, for Italy, Edwards's findings (Edwards, 1985) regarding the behaviour of the exchange rate can be corroborated following impulse response results (Figure 6). The effect of depreciation was negative in the first years, but positive later.³¹

This difference could be due to the exchange rate being much more stable in Italy than in Spain, smoother fluctuations of the cycle, and the greater commitment to the norms of the gold standard. The lira only remained anchored to its metallic value for 5 years between the unification and the first war (Tattara & Volpe, 1997). The lira depreciated on a limited basis (it was flexible on a limited basis) and only when necessary. This was preferred to a strict adherence to the gold standard that would have meant greater restrictions on monetary circulation. In Italy, the money supply was less restricted and was used to monetise part of the deficits when necessary, while the exchange rate remained stable and was barely affected by changes in the money supply thanks to the equilibrium provided by the capital market. The inflow of foreign capital tended to appreciate the exchange rate, which gave greater stability (Tattara, 2003).

It may also be observed that the money supply in Italy slowed down in response to an increase in the exchange rate (devaluation) according to impulse response results, so it seems that an attempt was made to control the situation and not abuse the monetary expansion. When the exchange rate depreciated to a greater extent in the late 1880s and early 1890s, this depreciation was linked to the decline in the inflow of foreign capital that allowed the currency to be maintained without depreciation. For this reason, in the

impulse response and local projection results, we can observe a negative response of the money supply to depreciation, because when the exchange rate depreciated, it was not linked to a growth in the money supply but to lower foreign capital inflows.³² The results obtained are in accordance to Tattara (2003).

Monetary policy played an important role in overcoming the two crises experienced by Spain in the 1880s and 1890s. According to Sardà (1987, p. 218), the fiduciary expansion brought about by pressure from the Spanish treasury was able to sustain the country's economic progress. The historical decomposition analysis reveals that an upward swing in output in the Spanish crises of the late 1880s and late 1890s was explained by monetary shocks. In Italy, it was monetary policy that sustained growth during the period after abandoning the gold standard. On the contrary, controlling the monetary policy before adopting the gold standard in Italy prevented the country from reaching a higher pc GDP according to historical decomposition analysis. In Italy, an increase in money supply generated a decrease in public expenditure. In front of the domestic problem that generated an increase in the money supply, the Italian government responded by controlling the situation and the fiscal deficits to shadow the gold standard.

In both Spain and Italy, we can observe that the exchange rate shocks help to explain the increases and decreases in the money supply according to historical decomposition analysis. Monetary policy accommodated other policies such as exchange rate and fiscal policy, especially in Spain. In Italy, pc GDP shocks seemed more relevant for explaining money supply fluctuations than in Spain considering historical decomposition results. Therefore, we can say that the money supply in Italy responded more to economic conditions. In Spain, the money supply responded to fiscal policy due to a clear monetisation of debt (Escario et al., 2011, pp. 271–272; Sabaté et al., 2006, pp. 310, 321, 328).³³ The impulse response function and the historical decomposition of the variables show that this policy accommodated the state's fiscal needs in Spain. As studied by Sabaté et al. (2006), Spanish monetary policy was not independent in this period.

Why, then, did monetary policy respond more to economic conditions in Italy than in Spain? Because in Italy,

³¹ Connolly and Taylor (1976) explained how devaluation can be useful for developing countries, which could be the case for Spain and Italy during the late nineteenth century when they were experiencing a first industrialisation process.

³² It could not be related to an increase in prices because according to Baffigi (2013) prices measured through GDP deflator were quite stable.

³³ The treasury was in need of money, which it obtained by monetising public debt (Sardà, 1987, pp. 186, 190, 199).

it was the only policy, as government expenditure and the exchange rate were under control. A good explanation can be found in the study by Tattara and Volpe (1997). Different elements explain the lack of regulation of the money supply. The plurality of issuing banks and a large amount of public debt led to solidarity between the banks and the government to maintain or lower the interest rate and not use it to maintain metal reserves. The situation was complicated because the issuing banks were focused on corporate financing activities, a large part of their assets in industry and commercial activities, and restrictions on circulation could have generated a liquidity crisis for the entire financial system. The lack of control over the money supply together with the continued monetisation of the debt did not generate inflation or exchange rate instability. The lira was stable throughout the period and did not differ significantly from the stability of the currencies of other countries of the gold standard, and we can say that it was in the shadow of gold throughout the whole period. However, the money supply grew a lot in the late 1860s and early 1870s. The “surplus” money went to foreign markets and was used to buy Italian debt in the hands of foreigners. This is the reason why there was no inflation in the 1870s either.

Around the 1880s, state financing in Italy had been generated through public debt via foreign capital markets with the purchase of public debt (*rendita*) and through the import of capital. Foreign capital did not greatly increase the money supply. In the 1890s, foreign capital left the country due to the crisis related to the housing bubble and did not return in the form of emigrant remittances until the situation improved. The money supply in the small open economy was endogenous. The study by Tattara and Volpe (1997) explains the relationship between the money supply and the movement of capital. According to Tattara and Volpe (1997), it was international capital mobility that made it possible to follow the behaviour of the gold standard countries and that being in the shadows worked for Italy much more than adjusting the currency to a ratio between metal and paper (Dick & Floyd, 1992).

The exchange rate in Spain responded to monetary policy, taking into account both the results of impulse response and local projection and of historical decomposition. We can say that it acted as a transmission mechanism for monetary policy. However, in Italy, as we have seen, this positive relationship between money supply and the exchange rate did not exist.

The exchange rate lost importance in explaining fluctuations in GDP around the first decade of the twentieth century progressed in both countries according to historical

Table 3: Fiscal balance over GDP in Italy and Spain (%)

	Fiscal balance	
	Italy	Spain
1874	−0.11	−1.47
1880	0.27	−1.71
1885	−0.26	−1.36
1890	−0.69	−0.57
1895	−0.64	−4.39
1900	0.59	−2.91
1905	0.56	0.64
1910	0.18	−0.05

Source: Prados de la Escosura (2003), Baffigi (2013), and Fratianni and Spinelli (2012).

decomposition results. Public consumption also lost its ability to explain the evolution of pc GDP in Spain from the twentieth century onwards. This is explained by a policy change beginning at the turn of the century that brought with it a small recession in the early years of the twentieth century.³⁴ Spain reduced debt and carried out a tax reform to end the country’s poor fiscal situation. During the same years, Italy also made efforts to improve its economy and stay in the shadow of the gold standard, which meant it was trying to keep its exchange rate stable.

In Italy, in view of the results of historical decomposition, it seems that public spending does not help to explain the fluctuations in pc GDP. This could be due to the fact that it followed the rules of the gold standard. Most of the time, public spending did not respond to shocks in pc GDP. Rather, an attempt was made to control, except for the small increase linked to the speculative bubble. According to Tattara and Volpe (1997), the deficits in Italy were never explosive, and their duration was limited in time, although their number was large compared to other countries or Europeans but not to Spain (see Figure 5 and Table 3). Italy had a lower fiscal deficit. The liberal attitude and training of politicians on both the left and the right limited the amount of public spending that was made. As soon as fiscal discipline decreased, Italian politicians made efforts to regain it by reducing public spending (Tattara & Volpe, 1997). As we can see in Table 3, the deficits in Spain were much higher than those experienced by Italy. In Spain, there was no such control of public spending or shadowing of gold as in Italy until the twentieth century when slightly more fiscal discipline was exercised. The seigniorage that

³⁴ Sardà (1948) underlines the downturn trend in GDP due to the restrictive policies of the early twentieth century.

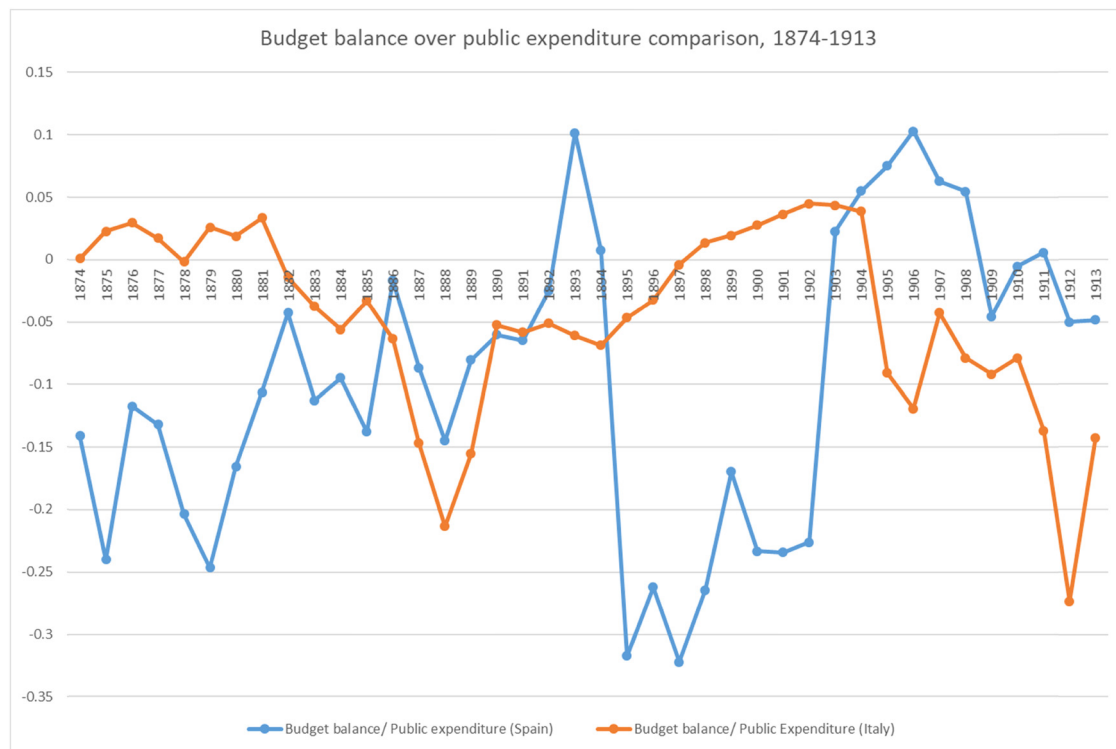


Figure 9: Spanish and Italian fiscal balance over public expenditure. Source: Comin (2017) and Frattiani and Spinelli (2012).

was carried out in Italy was small compared to Spain, where large increases in the money supply can be observed. An attempt was made to ensure that there was no excess liquidity in the economy (Barbiellini, De Bonis, Rocchelli, Salvio, & Stacchini, 2016).

In Spain, an increase in public spending generated a positive response from pc GDP in accordance with impulse response results (Figure 9). Public consumption contributed to the economic growth. However, this was not the case in Italy. An increase in spending generated imbalances that would have prevented the adoption of the fixed exchange rate system in the 1880s and that would not have allowed it to be in the shadow of gold during the early twentieth century. If we observe the fluctuations in public spending (Figure 7, row 3), we can only see a significant increase in spending after 1887, coinciding with the real estate bubble that burst later. During the rest of the period, public spending seems to have been kept under control.

It could be considered that the Italians had the better formula. In the same period, the exchange rate in Italy remained stable while public spending increased without incurring large fiscal deficits, and a growing money supply was maintained achieving sustained economic growth. Italy received more investment, enjoyed greater confidence from foreign investors, and was better able to manage its public

Table 4: Economic growth in Spain and Italy

Comparison between Spain and Italy		
	Spain (%)	Italy (%)
pc GDP annual growth	1.33	0.94
Total growth	76.52	49.52

Sources: See data section for pc GDP.

debt. However, as shown in Table 4, Spain grew more in both total and annual growth. Spain came from a more backward position, which would explain the large increase in pc GDP between 1870 and 1913. However, the annual growth of Spain is also higher than that of Italy in terms of pc GDP. The freedom of not being tied to gold and being able to use the economic policy instruments necessary to face the fluctuations of the economic cycle could also help to explain this higher annual growth of pc GDP. We can also observe how exports in Spain increase more than in Italy thanks to currency devaluation. As we have seen, an increase in the exchange rate generated an increase in pc GDP (impulse response results). In Spain, the exchange rate was a key, since it helped improve the terms of trade and promoted exports. This could also explain the difference in economic growth between Spain and Italy. Despite having

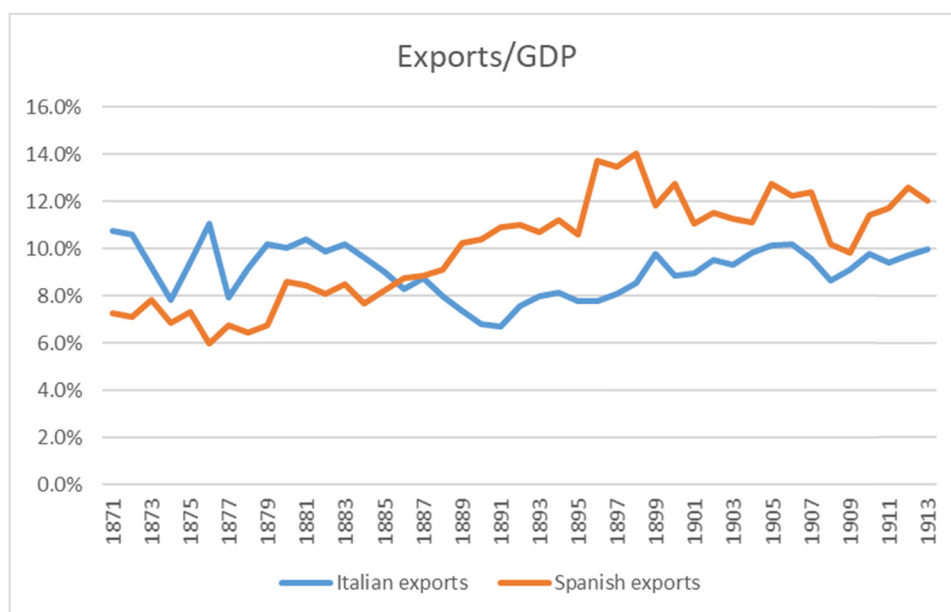


Figure 10: Exports over GDP in Spain and Italy. Sources: Baffigi (2013) and Prados de la Escosura (2017).

higher cycle fluctuations, Spain performed better in terms of economic growth (Figure 10).

8 Conclusion

This article presents an overview of macroeconomic policy instruments and their effects on the Spanish and Italian economies between 1871 and 1913. The Spanish case is relevant because it is the only Western country that was not on the gold standard. Italy tried to remain in the fixed exchange rate monetary system, but it was not able to do so.

These are two countries with difficulties to stay in a monetary system of fixed exchange rates. They both had public debt problems that made their adherence to a monetary system of fixed exchange rates very difficult. The two countries avoided using internal devaluation as a way to overcome the various fluctuations in the business cycle they faced. Outside the gold standard, both Italy and Spain were able to use the different economic policy instruments available for the recovery of their economies when necessary. Italy's use of policy instruments was more moderate than in Spain, always seeking to stay close to the gold standard countries and therefore trying to keep the exchange rate stable and a certain level of fiscal discipline. Spain took this path at the beginning of the twentieth century when Fernández Villaverde's policies showed concern about keeping the budget balance under control and managed to keep its exchange rate more stable than it had in the past.

This study confirms that adjustments in the exchange rate played a prominent role in the recovery from the crisis of the 1890s in both peripheral countries according to historical decomposition results. Having a flexible exchange rate proved crucial for sustaining economic growth and for overcoming fluctuations in the cycle by promoting exports especially in the Spanish case. An increase in government expenditure, the money supply, and the exchange rate generated an increase in per capita GDP in the Spanish case, while in Italy, only the money supply generated an increase in pc GDP according to impulse response results. The impact of using monetary policy was different in accordance to impulse response results. In Spain, monetary policy generated exchange rate depreciation but did not in Italy. Italy was able to balance its economy through capital flow and keep its exchange rate stable because it received a lot of foreign capital via both investment and remittances from its emigrants, which helped to balance the accounts and maintain the stability of the exchange rate. Whether Italy received greater investment due to its effort to stay close to the norms of the monetary system of fixed exchange rates or because the material conditions of the country made it conducive (high mountains for the production of electricity, among other factors) is a question that remains for future study.

According to both impulse response and historical decomposition analysis, public consumption seems to have contributed to the Spanish economy at least before the change in economic policies during the first years

of the twentieth century. However, the same cannot be observed in the case of Italy. There is no positive response for Italian per capita GDP to an increase in public spending. Even more, an increase in government expenditure generated a decrease in pc GDP. Italy wanted to shadow the gold standard, and it controlled government expenditure and only experienced fiscal deficits when necessary. The Italian politicians were highly committed to the fiscal discipline linked to the fixed exchange rate monetary system.

These policies were effective, but were not independent of other factors; indeed, they responded to the economic conditions of the moment. In Italy, the money supply responded to the economic situation; however, in Spain, it was fiscal policy that responded to economic conditions and the money supply responded to fiscal policy. At the same time, the exchange rate responded to the evolution of the money supply. This chain did not occur in Italy, where the exchange rate remained stable for most of the period.

Spain suffered from more crises and was less committed to the gold standard. Italy experienced just one important crisis and was more committed to the gold standard (it adopted it without success but followed the rules of the game for most of the period). However, both countries experienced higher economic growth during the beginning of the twentieth century while trying to keep the exchange rate stable and shadow the gold standard. Despite having more fluctuations in the economic cycle, Spain grew more than Italy in this period. It is true that Spain came from a more backward position, but external devaluation also played an important role. This allowed a further increase in exports, generating higher growth for Spain.

It is interesting to observe how both countries maintained their public debt problems, but within the framework of the single European currency, they did agree to internal devaluation as a way to overcome the great recession. Within the European Monetary Union, monetary policy is in the hands of the ECB and fiscal policy is restricted by the union's own rules. Spanish and Italian monetary and policy makers did a better job over one century ago than during the great recession and the sovereign debt crisis. They managed to expand their margin of manoeuvre more during the classical gold standard period than during the EMU.

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References

- Aixalá, J., Fabro, G., & Gadea, M. D. (2020). Exchange rates and prices in Spain during the gold standard (1868–1914). A test of purchasing power parity. *Applied Economics Letters*, 27(12), 1028–1032. doi: 10.1080/13504851.2019.1659484.
- Alexander, S. S. (1952). Effects of a devaluation on a trade balance. *Staff Papers-International Monetary Fund*, 2(2), 263–278. <https://www.elibrary.imf.org/view/journals/024/1952/001/article-A003-en.xml>.
- Baffigi, A. (2013). National Accounts, 1861–2011. In Gianni Toniolo (ed.), *The Oxford handbook of the Italian economy since unification*. New York.
- Bahmani-Oskooee, M., & Kandil, M. (2007). Exchange rate fluctuations and output in oil-producing countries: the case of Iran. Available at SSRN 995617.
- Bahmani-Oskooee, M., Kutan, A. M., & Zhou, S. (2008). Do real exchange rates follow a nonlinear mean reverting process in developing countries?. *Southern Economic Journal*, 74(4), 1049–1062.
- Bahmani-Oskooee, M., & Kandil, M. (2010). Exchange rate fluctuations and output in oil-producing countries: The case of Iran. *Emerging Markets Finance and Trade*, 46(3), 23–45. doi: 10.2753/REE1540-496X460302.
- Bahmani-Oskooee, M., & Gelan, A. (2013). Are devaluations contractionary in Africa?. *Global Economic Review*, 42(1), 1–14. doi: 10.1080/1226508X.2013.769798.
- Bahmani-Oskooee, M., & Mohammadian, A. (2017). Asymmetry effects of exchange rate changes on domestic production in Japan. *International Review of Applied Economics*, 31(6), 774–790. doi: 10.1080/02692171.2017.1324410.
- Barbiellini, F., De Bonis, R., Rocchelli, M., Salvio, A. & Stacchini, M. (2016). La moneta in Italia dal 1861: Evidenze da un nuovo

- dataset. *Questioni di economia e finanza (Occasional papers)*. Banca d'Italia, 328.
- Barone, E. (1918). *Il mercato internazionale della moneta e del risparmio: (sinossi per uso esclusivo degli studenti)*. Tipografia Licinio Cappelli.
- Barro, R. J. (1974). Are government bonds net wealth?. *Journal of Political Economy*, 82(6), 1095–1117.
- Bernanke, B. (2015). *Mis años en la Reserva Federal*. Deusto, Madrid.
- Bernanke, B., & Blinder, A. S. (1992). The federal funds rate and the channels of monetary transmission. *American Economic Review*, 82, 901–921.
- Bernanke, B. S., & Mihov, I. (1998). Measuring monetary policy. *The Quarterly Journal of Economics*, 113(3), 869–902.
- Blanchard, O., & Perotti, R. (2002). An empirical characterization of the dynamic effects of changes in government spending and taxes on output. *The Quarterly Journal of Economics*, 117(4), 1329–1368.
- Bordo, M. D. (1999). *The gold standard and related regimes*. New York: Cambridge University Press.
- Bordo, M. D., & Kydland, F. E. (1995). The gold standard as a rule: An essay in exploration. *Explorations in Economic History*, 32(4), 423–464.
- Bordo, M., & Rockoff, H. (1996). The gold standard as a “good housekeeping seal of approval.” *Journal of Economic History*, 56(2), 389–428.
- Bordo, M. D., & Schwartz, A. J. (1999). Monetary policy regimes and economic performance: the historical record *Handbook of macroeconomics*, 1, 149–234.
- Bordo, M. D., & Jonung, L. (2001). A return to the convertibility principle? Monetary and fiscal regimes in historical perspective. Monetary theory as a basis for monetary policy (pp. 225–283). London: MacMillan.
- Bordo, M. D., & Flandreau, M. (2003). Core, periphery, exchange rate regimes, and globalization. *Globalization in historical perspective* (417–472). Chicago: University of Chicago Press.
- Bordo, M. D., & Macdonald, R. (2005). Interest rate interactions in the classical gold standard, 1880–1914: Was there any monetary independence? *Journal of Monetary Economics*, 52(2), 307–327. doi: 10.1016/j.jmoneco.2004.05.008.
- Bordo, J., & James, H. (2014) The European crisis in the context of the history of previous financial crises. *Journal of Macroeconomics*, 39, 275–284. doi: 10.1016/j.jmacro.2013.08.013.
- Braga De Macedo, J. B. (1982). Exchange rate behavior with currency inconvertibility. *Journal of International Economics*, 12(1–2), 65–81.
- Catalan, J., & Sánchez, A. (2013). Cinco cisnes negros. Grandes depresiones en la industrialización moderna y contemporánea, 1500–2012. In F. Comín & M. Hernández (Eds.), *Crisis económicas en España, 1300–2012* (pp. 95–100). Madrid: Alianza.
- Carreras, A., Prados de la Escosura, L., & Rosés, J. R. (2005). Renta y riqueza. In A. Carreras & X. Tafunell (Eds.), *Estadísticas históricas de España*. Bilbao: Fundación BBVA.
- Cecco, M. D. (1990). The EMS and Other International Monetary Regimes Compared. In *Prospects for the European Monetary System* (pp. 25–35). Palgrave Macmillan, London.
- Cesarano, F., Cifarelli, G., & Toniolo, G. (2012). Exchange rate regimes and reserve policy: The Italian Lira, 1883–1911. *Open Economies Review*, 23(2), 253–275.
- Cha, M. S. (2003). Did Takahashi Korekiyo rescue Japan from the great depression? *The Journal of Economic History*, 63(1), 127–144.
- Ciocca, P., & Ulizzi, A. (1990). Tassi di Cambio Nominali e Reali dell'Italia, dall'Unità Nazionale al Sistema Monetario Europeo, Ricerche per la storia della Banca d'Italia vol. I. *Collana Storica della Banca d'Italia-Contributi*, Laterza, Bari.
- Cipolla, M. C. (1995). *Storia economica dell'Europa pre-industriale*. Bologna: Il Mulino.
- Clemens, M., & Williamson, J. G. (2000). Where did British foreign capital go? Fundamentals, failures and the Lucas paradox: 1870–1913.
- Connolly, M., & Taylor, D. (1976). Testing the monetary approach to devaluation in developing countries. *Journal of Political Economy*, 84(4, Part 1), 849–859.
- Cubel, A. (2001). Estabilidad e inestabilidad macroeconómica en España, 1880–1913: El coste del abandono de la convertibilidad. In C. Sudrià & D. Tirado (Eds.), *Peseta y protección. Comercio exterior, moneda y crecimiento económico en la España de la Restauración* (pp. 177–196). Barcelona: Edicions Universitat de Barcelona.
- De Cecco, M. (1974). *Money and empire*. Oxford: Blackwell and London.
- de Cecco, M. (2002). The gold standard. In *Monetary standards and exchange rates* (pp. 76–92). London: Routledge.
- Di Nardi, G. (1954). L'economia Politica Scienza Del Benessere Collettivo. *Giornale Degli Economisti e Annali di Economia*, 387–401.
- Dick, T. J., & Floyd, J. E. (1992). *Canada and the gold standard: Balance of payments adjustment under fixed exchange rates, 1871–1913*. Cambridge University Press.
- Dornbusch, R., Krugman, P., & Cooper, R. N. (1976). Flexible exchange rates in the short run. *Brookings Papers on Economic Activity*, 1976(3), 537–584.
- Edwards, S. (1985) Are devaluations contractionary? (No. w1676). *National Bureau of Economic Research*.
- Eichengreen, B. J. (1995) Golden fetters: the gold standard and the Great Depression, 1919–1939. *NBER series on long-term factors in economic development*.
- Eichengreen, B. (1996) *Globalizing capital: A history of the international monetary system*. Princeton: Princeton University Press.
- Eichengreen, B. (2015) *Hall of mirrors: The great depression, the great recession, and the uses-and misuses-of history*. Oxford: Oxford University Press.
- Eichengreen, B. J., & Flandreau, M. (Eds.). (1997). *The gold standard in theory and history* (Vol. 2). London: Routledge.
- Eichengreen, B., & Temin, P., (2010). Fetters of gold and paper. *Oxford Review of Economic Policy*, 26(3), 370–384.
- Escario, R., Sabaté, M., & Gadea, M. D. (2011). La sombra monetaria del déficit en la España de la peseta. *Investigaciones de Historia Económica*, 7(1), 151–181.
- Esteve, V., Navarro-Ibáñez, M., & Prats, M. A. (2017). The gold standard and the euro: A reflection from a reading of a tract on monetary reform. *Cuadernos de Economía*, 40(114), 247–255.
- Fanno, M. (1908). *La moneta: Le correnti monetarie ed il riordinamento della circolazione nei paesi a finanze dissestate*. Torino: Bocca.
- Flandreau, M. (1996). The French crime of 1873: An essay on the emergence of the international gold standard, 1870–1880. *The Journal of Economic History*, 56(4), 862–897.

- Flandreau, M. (1998). The burden of intervention: externalities in multilateral Exchange rates arrangements. *Journal of International Economics*, 45(1), 137–171.
- Flandreau, M., & Maurel, M. (2001). Monetary union, trade integration, and business cycles in 19th century europe: Just do it. Trade integration, and business cycles in 19th Century Europe: Just do it (November 2001).
- Flandreau, M., & Komlos, J. (2002). Core or periphery? The credibility of the Austro-Hungarian currency 1867–1913. *Journal of European Economic History*, 31(2), 293–293.
- Flandreau, M., & Zumer, F. (2004). *The making of global finance*. Paris: OECD.
- Fratianni, M., & Spinelli, F. (1997). *A monetary history of Italy*. Cambridge: Cambridge Books.
- Friedman, M. (1990). Bimetallism revisited. *Journal of Economic Perspectives*, 4(4), 85–104.
- Fratianni, M., & Spinelli, F. (2012). *Storia monetaria d'Italia*. Milan: ETAS libri.
- Gadea, M. D., & Sabaté, M. (2004). The European periphery in the era of the gold standard: The case of the Spanish Peseta and the pound sterling from 1883 to 1931. *Open Economies Review*, 15(1), 63–85.
- García Iglesias, M. C. (2005). *Ventajas y riesgos del patrón oro para la economía española (1850–1913)*. n. 47, Banco de España, Madrid: Estudios de Historia Económica.
- Gramm, M., & Gramm, P. (2004). The free silver movement in America: A reinterpretation. *The Journal of Economic History*, 64(4), 1108–1129.
- Gordon, R. J., & Krenn, R. (2010). *The end of the great depression 1939–1941: Policy contributions and fiscal multipliers* (No. w16380). National Bureau of Economic Research.
- Hallwood, C. P., MacDonald, R., & Marsh, I. W. (1996). Credibility and fundamentals: Were the classical and interwar gold standards well-behaved target zones? In T. Bayoumi, B. Eichengreen, & M. P. Taylor (Eds.), *Modern perspectives on the gold standard* (pp. 129–161). Cambridge: Cambridge University Press.
- ISTAT 1957. *Indagine statistica sullo sviluppo del reddito nazionale dell'Italia dal 1861 al 1956, in Annali di statistica, serie VIII* (vol. 9).
- Johnson, H. G. (1969). The case for flexible exchange rates, 1969. Review, Federal Reserve Bank of St. Louis (pp. 12–24).
- Jordà, Ò. (2005). Estimation and inference of impulse responses by local projections. *American Economic Review*, 95(1), 161–182.
- Kalyoncu, H., Artan, S., Tezekici, S., & Ozturk, I. (2008). Currency devaluation and output growth: an empirical evidence from OECD countries. *International Research Journal of Finance and Economics*, 14(2), 232–238.
- Kamin, S. B., & Rogers, J. H. (2000). Output and the real exchange rate in developing countries: An application to Mexico. *Journal of development economics*, 61(1), 85–109.
- Kandil, M. (2004). Exchange rate fluctuations and economic activity in developing countries: Theory and evidence. *Journal of Economic Development*, 29, 85–108.
- Kandil, M., & Mirzaie, A. (2002). Exchange rate fluctuations and disaggregated economic activity in the US: Theory and evidence. *Journal of International Money and Finance*, 21, 1–31.
- Keynes, J. M. (1931/1988). *Ensayos de persuasión*, Critica Editorial, Barcelona, Spain.
- Keynes, J. M. (1988). *Ensayos de persuasión*. Barcelona, Spain: Critica Editorial
- Kilian, L., & Lee, T. K. (2014). Quantifying the speculative component in the real price of oil: The role of global oil inventories. *Journal of International Money and Finance*, 42, 71–87.
- Krugman, P. (1991). Target zones and exchange rate dynamics. *The Quarterly Journal of Economics*, 106(3), 669–682.
- Krugman, P. R., & Obstfeld, M. (2006). *Economía internacional*. Madrid: Pearson Educación.
- López-Córdova, J. E., & Meissner, C. M. (2003). Exchange-rate regimes and international trade: Evidence from the classical gold standard era. *American Economic Review*, 93, 344–353.
- Lütkepohl, H. (1991). VAR processes with parameter constraints. In *Introduction to multiple time series analysis* (pp. 167–214). Berlin, Heidelberg: Springer.
- Martín Aceña, P. (1981). España y el patrón oro, 1880–1913. *Hacienda Pública Española*, 69, 267–290.
- Martín Aceña, P. (1993). Spain during the classical gold standard years, 1880–1914. In M. D. Bordo & F. Capie (Eds.), *Monetary regimes in transition* (pp. 135–172). Cambridge: Cambridge University Press.
- Martín Aceña, P. (2017). *The Banco de España, 1782–2017. The history of a central bank*. Banco de España, Madrid: Estudios de Historia Económica, 73.
- Martín Aceña, P., Reis, J., & Llona, A. (2000). The Gold Standard in the periphery. In P. Martín Aceña & J. Reis (Eds.), *Monetary standards in the periphery: Paper, silver, and gold, 1854–1933* (pp. 1–17). Houndmills: Palgrave Macmillan.
- Martín Aceña, P., & Pons, M. A. (2005). Sistema monetario y financiero. In A. Carreras & X. Tafunell (Eds.), *Estadísticas históricas de España: Siglo XIX–XX* (pp. 645–670). Bilbao: Fundación BBVA.
- Martínez-Ruiz, E., & Nogues-Marco, P. (2014). *Crisis cambiarias y políticas de intervención en España, 1880–1975*. Madrid: Estudios de Historia Económica, 66, Banco de España.
- Mattesini, F., & Quintieri, B. (1997). Italy and the great depression: An analysis of the Italian economy, 1929–1936. *Explorations in Economic History*, 34(3), 265–294.
- McKinnon, R. I. (1991). *The order of economic liberalization: Financial control in the transition to a market economy*. Baltimore, Maryland: Johns Hopkins University Press.
- Meissner, C. M. (2005). A new world order: Explaining the international diffusion of the gold standard, 1870–1913. *Journal of International Economics*, 66(2), 385–406.
- Mitchell. (2013). *International historical statistics 1750–2010* (Revised edition). Basingstoke: Palgrave Macmillan.
- Mitchener, K. J., Shizume, M., & Weidenmier, M. D. (2010). Why did countries adopt the gold standard? Lessons from Japan. *The Journal of Economic History*, 70(1), 27–56.
- Mitchener, K. J., & Weidenmier, M. D. (2015). Was the classical gold standard credible on the periphery? Evidence from currency risk. *The Journal of Economic History*, 75(2), 479–511.
- Morys, M. (2007). Adjustment under the Classical Gold Standard (1870s–1914): How Costly did the External Constraint Come to the European Periphery? In *The Experience of Exchange Rate Regimes in South-Eastern Europe in Historical and Comparative Perspective, Conference Proceedings of the 2nd Meeting of the South-Eastern European Monetary History Network on 12th and 13th April 2007 in Vienna, ed. by Austrian National Bank* (pp. 50–79).

- Morys, M. (2013). Discount rate policy under the classical gold standard: Core versus periphery (1870s–1914). *Explorations in Economic History*, 50, 205–226.
- Mundell, R. A. (1997). Currency areas, common currencies, and EMU. *The American Economic Review*, 87(2), 214–216.
- Nicolau, R. (2005). Población, salud y actividad. In *Estadísticas históricas de España (siglos XIX i XX)* (pp. 77–154). Fundación BBVA, Bilbao.
- Obstfeld, M., & Taylor, A. M. (2003). Sovereign risk, credibility and the gold standard: 1870–1913 versus 1925–31. *The Economic Journal*, 113(487), 241–275.
- Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2005). The Trilemma in history: Tradeoffs among exchange rates, monetary policies, and capital mobility. *Review of Economics and Statistics*, 87, 423–438.
- Pareto, V. (1894). Teoria matematica dei cambi forestieri. *Giornale degli Economisti*, 142–173.
- Pesaran, M. H., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models a, b. *Economics Letters*, 58, 17–29.
- Prados de la Escosura, L. (2003). *El progreso económico de España (1850–2000)*. Madrid: Fundación BBVA.
- Ramey, V. A. (2016). Macroeconomic shocks and their propagation. *Handbook of Macroeconomics*, 2, 71–162.
- Ródenas, C., & Bru, S. (2006). La convertibilidad de la peseta en el siglo XIX. *Revista de Historia Económica-Journal of Iberian and Latin American Economic History*, 24(3), 555–578.
- Rota, M., & Schettino, F. (2011). The long-run determinants of British capital exports, 1870–1913. *Financial History Review*, 18(1), 47–69.
- Sabaté, M., Gadea, M. D., & Serrano, J. M. (2005). The Spanish peseta versus the pound sterling, the French franc and the US dollar (1870–1935). A long floating experience. *Applied Financial Economics Letters*, 1(2), 95–99. doi: 10.1080/17446540500079851.
- Sabaté, M., Gadea, M. D., & Escario, R. (2006). Does fiscal policy influence monetary policy? The case of Spain, 1874–1935. *Explorations in Economic History*, 43(2), 309–331.
- Sardà, J. (1948). *La política monetaria y las fluctuaciones de la economía española en el siglo XIX*. Madrid: CSIC (reedited in Barcelona: Ariel, 1970; in Madrid: Banco de España, 1987; and in Barcelona: Alta Fulla, 1998).
- Sardà, J. (1987). *Escritos (1948–1980)*. Madrid: Banco de España.
- Serrano, J. M. (2004). *El oro en la Restauración*. Madrid: Real Academia de Ciencias Morales y Políticas.
- Shibamoto, M., & Shizume, M. (2014). Exchange rate adjustment, monetary policy and fiscal stimulus in Japan's escape from the Great Depression. *Explorations in Economic History*, 53, 1–18.
- Stiglitz, J. E. (2016). *The euro: How a common currency threatens the future of Europe*. New York: WW Norton & Company.
- Sudrià, C., & Tirado, D. (2001). *Peseta y protección: comercio exterior, moneda y crecimiento económico en la España de la Restauración*. Edicions Universitat Barcelona.
- Supino, C. (1921). *La carta moneta in Italia*. Bologna: Zanichelli.
- Tattara, G. (2000). Was Italy ever on gold?. *MPRA paper 37160*. Germany: University Library of Munich.
- Tattara, G. (2003). Paper money but a gold debt: Italy on the gold standard. *Explorations in Economic History*, 40(2), 122–142.
- Tattara, G., & Volpe, M. (1997). *Italy, the fiscal dominance model, and the gold standard age*. Germany: University Library of Munich.
- Taylor, J. B. (1995). The monetary transmission mechanism: An empirical framework. *Journal of Economic Perspectives*, 9(4), 11–26.
- Temin, P. (1995). *Lecciones de la gran depresión*. Madrid: Alianza Editorial.
- Tortella, G. (1994). *El desarrollo de la España contemporánea. Historia económica de los Siglos XIX y XX*. Madrid: Alianza.
- Triffin, R. (1964). *The evolution of the international monetary system: Historical reappraisal and future perspectives* (No. 48). International Finance Section, Department of Economics, Princeton University.
- Triffin, R. (1985). The myth and realities of the so-called gold standard. In B. Eichengreen (Ed.), *The gold standard in theory and history*. London: Methuen & Co. Ltd.
- Triffin, R. (1997). The myth and realities of the so-called. *The Gold Standard in Theory and History*, 140.