

Lessons from Italian Monetary Unification

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This paper examines whether the states brought together in the Italian monetary union of the nineteenth century constituted an optimum monetary area, either before or after unification. Interest rate shocks indicate close relations between states in northern Italy but negative correlations between the North and the South before unification, suggesting some advantages of continued Southern monetary independence. The proportion of Southern Italian trade with the North was small, in contrast to intra-Northern trade, and therefore monetary independence imposed a light burden. Changes in the wheat market indicate that the South and North after unification (though not probably because of it) increasingly specialised according to their comparative advantages. Coupled with differences in economic behaviour of the Southern economy, this meant that monetary policies appropriate for the North were less so for the South. In the face of agricultural shocks originating in the New World and in France, the South would have gained from depreciating its exchange rate against the North or against the non-Italian world. As it was, nineteenth century Italian monetary union did not create the conditions for its own success, contrary to the findings of Frankel and Rose (1998) for the later twentieth century.

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Do monetary unions create their own conditions for success? Or by stimulating intra-union trade do they encourage regional specialisation that creates vulnerability to asymmetric shocks? The introduction of the Euro gave a special urgency for answers to these questions. Without independent monetary instruments, a condition for success is that regions should be linked only with others that require the same optimal monetary policy. Should all the Eurozone economies really retain membership? Are there others that should join?

Research in economic history responded to these policy problems by examining past currency unions- the Latin Monetary Union (Flandreau 1995, 2000; Einaudi 2000, 2001), Germany (Holtferich 1993), Scandinavia (Bergman, Gerlach and Jonung 1993; Henrikson and Kaergard 1995) and Austria-Hungary (Flandreau 2003; Einaudi 2003) – and provided integrative surveys (Foreman-Peck 1997; Einaudi 2000; Bordo and Jonung 2000, 2003), as well as econometric analysis (Flandreau and Maurel 2005). Italian monetary unification in the 1860s has so far not been considered in the light of the Euro. Yet along with free trade and fiscal unification, monetary union in Italy potentially offers evidence on two opposed fundamental positions.

Krugman (1993) maintains that unions create the seeds of their own sub-optimality through induced specialisation. On the other hand Frankel and Rose (1998) contend that monetary union may be simply a triumph of the political will, for member economies will acquire the characteristics necessary to sustain the zone, even if they lack them initially. By the end of the Second World War, the economic gap between Northern and Southern Italy was the largest intra-national divergence in Europe and a major justification for the creation of the European Investment Bank (Helg, Peri, and Viesti 2000). Could this disparity be attributable in some way to forces set in motion by earlier monetary unification, a confirmation of the specialisation thesis?

To address the contribution of Italian monetary union to the North-South gap, this paper considers the evidence for regions belonging to optimum or natural monetary areas and for regional characteristics changing in response to currency union membership. Section 1 outlines the economics and politics of Italy in the half century before unification and the North-South divide. As a possible explanation for the persistence of the disparity, section 2 discusses optimum currency area criteria pertinent to nineteenth century Italy. Section 3 turns to the trade criteria for an optimum currency area, first examining the direction of trade of the pre-unification South and one of the Northern states and then analysing the specialisation of the wheat markets in the North and the South both before and after unification.

Specialisation is one reason why monetary independence may be desirable, insofar as shocks are industry-specific. Another reason can be differences in regional or national

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economic structures that trigger different responses to similar shocks. Either case will result in inverse correlation of interest rate shocks. Section 4 therefore considers these associations among the pre-unification states with a view to identifying an optimum currency area.

In the face of severe negative shocks, such as stemmed from French punitive tariffs after unification, nominal and/or real exchange rate depreciation could be appropriate, especially for markets particularly affected by New World agricultural imports. Section 5 therefore assesses post-unification monetary policy and policy options, drawing attention to the massive real exchange rate appreciation of unified Italy and the likelihood of other, more beneficial, policies in a monetarily independent, counterfactual, South.

1. The Background to Unification

When the Rothschild brothers were sent one to each of the major cities of Europe, they went to London, to Paris, to Vienna, and to Naples. In 1800 Naples was bigger than Rome, Milan and Turin combined. It was the third largest city in Europe, not surprisingly since the Kingdom of the Two Sicilies, of which Naples was the capital, was the largest Italian Kingdom. With Italian unification, the new capital, Rome, would inevitably grow in importance, as Berlin did for Bismarck's Germany. But that should not have condemned Naples and the South to economic backwardness².

Throughout Italy the years before unification were traumatic, punctuated by agricultural shocks, revolt and repression. With the exception of Sardinia and Sicily, protected by the British navy, the Italian states fell to Napoleon, and incidentally adopted the lira linked with the French currency. With the return of the old order, only Parma and Piedmont retained their former money (Einaudi 2001 31). In 1820-1821 there were three major uprisings. In Naples, the restoration of King Ferdinand provoked an insurrection. In Sicily, where agricultural prices fell sharply with disastrous effect on the economy, revolutionaries demanded separation from Naples, rather than Italian unification. In Piedmont insurgents tried to oust the restored absolute monarchy of Emmanuel I, who had destroyed the French ('liberal') legal system, and who was backed until 1823 by an Austrian occupying army.

A decade later 1831 revolts in Modena and Parma were put down by Austria and another in the Papal States was defeated by Papal troops. Disastrous harvest failures of 1846-47 set the scene for the most widespread round of revolutions in 1848-1849 in Sicily, Naples, Tuscany, Piedmont, Modena, Parma, Venice, Milan and Rome. Refugees from other Italian states settled in Piedmont (some 200,000 in the principal cities of Turin and Genoa).

Piedmont – or the inappropriately named, Kingdom of Sardinia - was the most economically advanced independent state in Italy and was determined to wrest hegemony from the Austrians. Success was due primarily, as it turned out, to France. Piedmont pursued a liberal industrialisation strategy in which the role of the state was to provide infrastructure (Toniolo 1990 47). Piedmontese trade doubled between

² Although the city's ceasing to be a capital must have played a role in the departure from Naples of the Rothschilds in 1863.

1851-1858 and the public debt rose by more than three times over the decade of the fifties³ (Clough 1964 47). An eventual consequence was that unified Italy outside Piedmont bore a higher national debt per head than before without the benefit of the infrastructure that had been bought with it (Toniolo 1990 56). On the other hand, the North paid more in taxes than the South to service this debt.

In 1859 war with Austria gained Lombardy for Piedmont and the following year Piedmont invaded the Papal States. Ferdinand II, the cruel, absolutist ruler of the Kingdom of the Two Sicilies died the same year⁴. Shortly afterwards, Garibaldi's free enterprise 'expedition of the Thousand' stormed across Sicily and onwards into Naples. Ferdinand's territories were incorporated into the unified kingdom of Italy of 1861. Two more wars in 1866 and 1870 annexed Venetia and Rome respectively.

Neither Cavour, the prime minister of Piedmont, nor Victor Emmanuel, the king, wanted a united Italy including the Kingdom of the Two Sicilies. A unified northern Italy would have suited them- and Napoleon III of France- for there were great economic and cultural differences. Illiteracy in the South was much higher (Table 1). No doubt this was a handicap for economic development, but it should not be forgotten that progressive Piedmont included Sardinia, where illiteracy was even higher than in Sicily⁵.

Table 1 The Italian Economies Before Unification

	Trade per head 1858/61(lire)	population (1861)	Agricultural productivity per hectare	Agricultural production per head c 1857	Illiteracy %
Two Sicilies	15.1	9.2	81	94.6	87
Piedmont +Liguria	60.3	3.6	169	143.3	54.2
Sardinia	33.3	0.6	23	80	89.7
Lombardy	38.5	3.3	238	131.8	53.7
Veneto	26.1	2.3	128	117.4	75
Parma-Modena	36.7	0.9	174	218.9	78
Papal states	19.7	3.2	*68	82.5	80
Tuscany	23.7	1.9	117	127.4	74
Piedmont+Liguria+Sardinia	56.4				

Note: Calculated from Zamagni 1993. *There is some doubt about this figure.

The South, as represented by the 'Two Sicilies', traded less per head of population than any other Italian state before unification, and the kingdom of Sardinia (Piedmont,

³ While debt service only doubled. This disproportion stemmed in part from a cheap British loan to Piedmont to finance a Piedmontese contingent supporting Britain and France in the Crimean War of 1854-5.

⁴ The future British Prime Minister W E Gladstone described Ferdinand's regime as 'the negation of God erected into a system of government'. Ferdinand's bombardment of Messina earned him the nickname 'King Bomba'.

⁵ A British consul in 1855 wrote from Sardinia '...even [agriculture] is so depressed and its produce so scanty and precarious, that it merely maintains itself in its wonted stated of proverbial imperfection, without supplying any of the elements of progress or enterprise. The malaria, the conscription and now the Asiatic cholera, are reducing the island's already scanty population.' But he was also obliged to note that clothing imports were growing because of 'the unprecedented amount of means placed at the disposal of many by the sale of their wine'. BPP 1856 LVII 1.

Liguria and Sardinia) traded more (Table 1). In view of the size of the states, as measured by population, the Sardinian kingdom is the outlier rather than the Two Sicilies. With more than twice the population and a much larger land area than the next largest state, the Two Sicilies should have been more self-sufficient than the rest.

Agricultural land productivity was low in the South. This might be interpreted as a consequence of relative land abundance, were it not that apparent labour productivity was also low. Assuming a constant returns Cobb-Douglas production function with 0.25 weight on land and 0.75 weight on labour then the indices imply that total factor productivity, or general efficiency, in agriculture in the Two Sicilies was only 60.9 percent of that in Piedmont plus Liguria⁶. Unless compensated by greater relative Southern productivity in services and/or manufacturing, this magnitude would have been reflected in relative incomes per head.

Historical and contemporary debate on economic backwardness in the South concentrated on the equity of the tax burden and the extent to which there was an income gap between North and South before unification. Occasionally the supposed harmful effects of free trade were mentioned, linked with proposals for a tariff barrier between North and South. The debts incurred for the wars of unification were costly for a poor country- in the 1860s some 70% of consumption spending was on food and drink alone⁷. However equitably distributed between regions, war debt service was an additional tax burden that was likely to hold back development. Yet this is no reason why retardation should be greater in one region than in another.

Probably pre-unification incomes in the South were lower than in the North. Eckaus (1961 300) judged that there was a 15-25 percent difference between incomes per head in the North and South of Italy. Tax data from 1871 can be interpreted consistently with this conclusion. The average incomes of those subject to tax were £35.12 in 'Upper and Central' Italy compared with £19.33 in 'Lower Italy' – the South (calculated from Kolb (1880)). Of course income distributions will have been skewed to the right, with the consequence that differences in the right tails of the distributions will be more extreme than in the means or medians. Supposing that income distributions were symmetrical in logarithms, then the mean difference between incomes in the South and the rest of Italy was 20 percent ($\ln 35.1 / \ln 19.33$), which falls neatly in the middle of Eckaus' range.

The South was certainly not homogenous. Naples and Campania was the most prosperous Southern area, with nominal and real builders' wages exceeding those of Milan in the first half of the nineteenth century (Allen 2001 Tables 1, 2 and 4). By contrast, during the 1850s Sicily was lacking in transport and communication infrastructure and constrained by anti-commercial policies (according to the British consul Mr Goodwin) (British Parliamentary Papers 1857). These last included 50 percent tariffs, ineffective temporary selective trade subsidies and prohibition of corn and grain exports during the previous year and in the first quarter of 1855. 'The

⁶ Relative populations are assumed to be the same as relative agricultural labour forces. Where the T subscript indicate the Two Sicilies and P , Piedmont, A the total factor productivity index, Q, agricultural output, L, land, and N, labour, $(A_T/A_P) = (Q_T/Q_P)(L_T/L_P)^{\alpha} (N_T/N_P)^{(1-\alpha)} = ((Q_T/L_T)/(Q_P/L_P))^{\alpha} ((Q_T/N_T)/(Q_P/N_P))^{(1-\alpha)} = 0.609 = ((81/169)^{0.25}) * ((94.6/143.3)^{0.75})$.

⁷ 52% of Italian consumers' expenditure was on food 1861-80, 17.2 on beverages and tobacco, and 5.8% on housing (Kuznets 1966 p266).

defects of locomotion and of postal intercourse... are great and manifold. ... For [carts] there are but two trunk roads... Communications with Naples is scanty by land and irregular by sea.'. Yet reforming British eyes may not have been entirely sympathetic to Sicilian circumstances⁸. Messina was a free port, the harbour at Catania had been improved by the construction of a new mole and water transport may have been more appropriate for the island than roads⁹. Trade, from about £1 per head of population, in the previous five years had grown by one quarter while population rose only by 5 percent. This was no stagnant economy.

By 1911 GDP per head in the South was 25 percent below the Italian average, and almost 40% below the North (Zamagni 1978 t58 pp198-9). Even so Schram (1997 p96) calculates regional inequalities at this date were lower than at any time in the twentieth century. At the end of the Second World War, income per capita in the South, was only one half of the northern Italian average. Southern Italy was the largest underdeveloped area of Western Europe, and rectification of this regional imbalance was a central motive for creating the European Investment Bank (Helg, Peri, and Viesti 2000). A century after Unification, Lutz (1962 4-5) described Italy as a dual economy in which the net income per head of the South was only about 45 per cent of the North.

Nineteenth century GDP, productivity and income data are subject to wide margins of error. However for present purposes we need merely to claim that the North-South gap in 1860 was not greater (and was probably smaller) than in 1911. That is, unless the South was already losing ground before unification.

Indicators of relative economic activity in the pre-unification Italian states are not easy to come by, but imported goods are one measure of consumption and investment. Imports from Great Britain over the period 1840-1869 confirm the general picture that the Southern economy was relatively buoyant. The Kingdom of the Two Sicilies was certainly not declining relative to other Italian states (fig. 1)¹⁰. Piedmontese/Sardinian imports (presumably capital goods) jumped to a new relative high in the early 1850s and remained above the average for the 1840s during the 1860s. But there was no trend divergence (table 2). As to Tuscany and the Papal states, their imports declined on trend relative to Sicilies' over the whole period. There is no evidence that unification altered these tendencies. While the South does not seem to have been dropping behind the North, the North itself appears to have been in continuing long period decline to the mid century (A'Hearn 2004; Allen 2001 Table 4).

⁸ The UK government policy of allowing export of grain during the Irish famine a decade earlier has been criticised. Sicilian export prohibitions therefore might be welcomed by those critics.

⁹ Infrastructural shortcomings had not deterred John Woodhouse and Ben Ingham from investing in the Marsala wine industry in the eighteenth century. Their export success encouraged Vincenzo Florio in 1833 to develop his business that was eventually to absorb those of the British entrepreneurs in the twentieth century.

¹⁰ Lombardy, the most industrialised region, does not appear to be distinguished in the British trade statistics. 'Austrian territories' are listed as Illyria, Croatia, Dalmatia and Venetia. There is no trend in this series relative to the Two Sicilies. There does appear to be a significant negative unification effect on relative trade, which also leaves a small significant positive upward trend in 'Austrian'/Two Sicilies import ratio, but there is also significant autocorrelation.

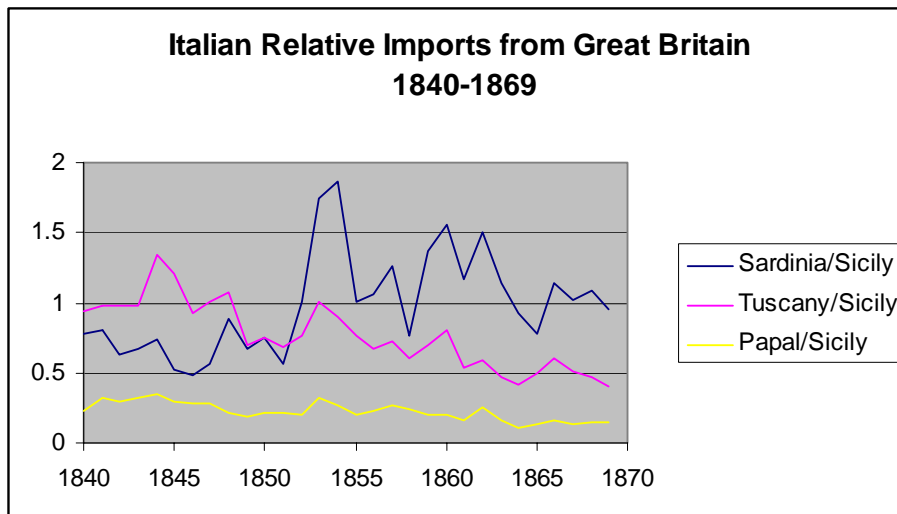
After unification, factor price equalisation and/or neoclassical ‘catch-up’ growth should have encouraged convergence within a newly created Italian free trade area, in the absence of major negative shocks and countervailing forces. An effective monetary policy is one means of offsetting any such shocks. Absence of an effective monetary policy might therefore prevent convergence.

Table 2 Relative Growth Rates of British Imports into Italian States 1840-1869

	Percentage growth	Dummy 1852	Unification dummy 1860+	
Sardinia/Sicilies	-0.7 (0.38)	0.35 (0.07)	-	
	-1.1 (0.58)	0.37 (0.07)	0.06 (0.07)	
Tuscany/Sicilies	-1.4 (0.14)	-	-	
	-1.2 (0.25)	-	-0.04 (0.05)	
Papal/Sicilies	-1.2 (0.17)	-	-	
	-0.8 (0.3)	-	-0.08 (0.05)	

Notes: Regression coefficients $\log(y_t/y_{sicily}) = a + b.time + c.dum$. SE in parentheses

Figure 1



2. Optimum Currency Areas

The theory of optimum currency areas (OCA) may contribute to an explanation for persistence in the North-South gap. If prices and wages were perfectly flexible and full information was available about all present and future opportunities there would be no reason to have more than one currency in the world economy. The optimum currency area would be the world. In practice there are rigidities and uncertainties that can make the costs of multiple currencies less than the benefits. Depending upon policy objectives a monetary union between countries may be optimal when

- trade is important between them and
- if wages are sufficiently flexible,
- if labour is sufficiently mobile,
- if shocks and cycles are similar or
- the monetary union budget is sufficiently large and redistributive.

This last has been the Italian approach – but also a persistent source of inter-regional friction.

Other things being equal, the greater is the volume of inter-regional trade within a common currency area, the higher is the benefit from the currency union (Masson and Taylor 1994 ch 1). Certainty about future prices and reduced transactions costs matter more the higher the ratio of external trade to GDP. On the cost side of a monetary union, without the independent interest rate and exchange rate instruments of monetary policy, a shock to one region not shared by another can be destabilising. The success of monetary unions in dealing with such shocks depends on high labour and capital mobility, wage and price flexibility, diversification and interdependence of the economies of member countries. In the absence of nominal exchange rate flexibility and mobility of labour and capital, shifts in demand in one region may cause unemployment. When wages and prices are ‘sticky’, adequate real exchange rate depreciation can only be obtained through changes in nominal exchange rates.

If an economy is diversified, that is, exports a wide variety of goods, the impact of any sector-specific shock to output in the whole economy will be weaker than the effect on individual industries. A diversified economy may not need to maintain nominal exchange rate flexibility to alleviate the effects of negative shocks. Conversely a regional economy, specializing in wheat, citrus or vines, and suddenly because of transport improvements or new investment facing cheaper foreign products, could perhaps benefit from exchange depreciation to encourage export sales.

Although there is no single criterion by which to appraise the desirability of currency union, the symmetry or asymmetry of shocks to regional economies is a central consideration. If countries have similar industrial structures, then symmetric shocks will be more likely. Institutional differences between regions or countries, such as land tenure and labour mobility, may however promote different responses to similar shocks. Divergent institutions between the North and the South after unification could therefore have been a source of vulnerability in the common monetary zone (Conte et al 2003). The duration of shocks is another vital matter. While financing may ‘smooth’ temporary shocks, permanent ones require adjustment. A third element is whether disturbances are mainly nominal or real, domestic or foreign. Nominal exchange rate flexibility will be more effective in protecting the (domestic) economy from nominal and external shocks.

Monetary union will facilitate trade by removing exchange rate uncertainty. Real convergence then should be a consequence of this closer economic integration. In an economy not subject to exchange rate risk, the free movement of goods and services should stimulate factor price equalization and, probably, convergence of per capita outputs. But in a world of uncertainty such convergence, associated with specialization, may be an ambiguous blessing.

Possibly monetary unions create the conditions for their own success rather than requiring these conditions in advance (Frankel and Rose 1998). The gains from monetary union membership may depend upon trade intensity, but trade intensity will increase with monetary union. Closer trade ties could lead to greater asynchronicity because of inter-industry specialisation, and therefore monetary union becomes less appropriate (Krugman 1993). But if demand shocks or intra-industry trade

predominate, cycles will become better synchronised and union is more desirable. Frankel and Rose (1998) attempt to test which effect dominates with an identity; output growth depends upon trend growth- justified by appeal to a neoclassical growth model- and deviations from trend and an industrial growth deviation composition term that must in the identity always sum to zero.

Inter-industry specialization, which prevailed in nineteenth century international trade, means a negative cross-industry correlation emerges between a given sector share in a pair of countries. A country specialising in one sector, which will be large because of exports, will trade with a country where that sector is small. By contrast intra-industry specialisation will have little impact on relative sector shares and therefore trade for this reason will not affect cycles and shocks. Greater trade integration will simply increase spillovers between countries; demand shocks are likely to transmit rapidly. Frankel and Rose (1998) construct a bilateral trade and business cycle panel spanning 30 years for 20 industrial countries to show that closer trade links do yield closer correlations of output cycles. They estimate regressions on 210 bilateral country pair (ij) correlations ($\text{corr}(y_{ij})$). In the equation below, the specialisation effect dominates if $b < 0$ ¹¹.

$$\text{corr}(y_{ij}) = a + b \text{Trade}_{ij} + \text{exchange rate link dummy}.$$

Frankel and Rose (1998) therefore conclude that the historical record prior to membership of a union could be misleading as to suitability for membership. Their test for the endogeneity of OCA criteria has encouraged a number of developments with different specifications (Gruben, Koo and Millis, 2002, Fidrmuc 2004, Flandreau and Maurel 2005). Flandreau and Maurel (2005) show the sign on Frankel and Rose's equation for nineteenth century Europe depends on specification and the instrumenting. They demonstrate that, for the predominantly inter-industry trade of the period, the correctly estimated coefficient is negative on bilateral trade in the cyclical correlation equation. That is, the more bilateral trade, the less is cyclical synchronisation, and the greater therefore is the need for a suitable monetary policy. The vital difference from Frankel and Rose's specification is that cyclical association influences GDP-weighted bilateral trade in the Flandreau-Maurel system¹². Unfortunately direct implementation of this test is impossible for Italian monetary union because the data on trade of pre-unification states is no longer available in the united Italy.

3. *Optimum Currency Area Trade Criteria: Evidence*

Using what data is available the union can be appraised against the static theory criterion; members of an optimal currency area should trade more with each other

¹¹ They instrument because of reverse causation – with geographical adjacency and common language dummies.

¹² The three equations they estimate are;

$\text{Trade}_{ij} = f(\text{gdp}, \text{distance}, \text{Monetary Union})$

$\text{Inte} = \text{Trade}_{ij} / \text{GDP}_{ij} = g(\text{corr}, \text{trade 'frictions', such as tariffs})$

$\text{Corr}_{ij} = h(\text{inte}, \text{Monetary Union})$

Exogeneity of monetary union in the trade gravity equations cannot be rejected. Cyclical association, 'Corr', is endogenous to GDP-weighted bilateral trade flows ('inte'). Cyclical coordination encouraged trade intensity and trade intensity discouraged cyclical synchronisation. Monetary union is exogenous to cyclical synchronisation, 'corr'. Monetary unions were not created to take advantage of trade intensity but they did encourage it. Monetary union also stimulated cyclical coordination once trade intensity is controlled.

than with non-currency area members. The pre-unification Italian South does not satisfy this principle, whereas the state driving, or free-riding on, (northern) Italian unification, Piedmont/Sardinia, did. The different role of the rest of Italy in Piedmontese/Sardinian trade from that of the Two Sicilies is apparent in table 3. All trade with Austria is identified as with Austrian Italy, perhaps slightly upward biasing the ‘rest of Italy’ share. Especially when transit trade was included, the rest of Italy mattered to Sardinia/Piedmont, and France, sharing a common border, mattered as much as well. Indeed after unification, some of the Kingdom became France, when Nice was handed over. Before unification Sardinia was in a monetary union with France, as the trade patterns suggest was sensible; common coins circulated. However after unification fiscal, political and monetary mismanagement disrupted this connection.

Table 3

<i>Trade Partners of the Kingdom of Sardinia, (percentage of total exports plus imports)</i>		
	1852	1856
Rest of Italy	30.0	28.6
France	32.1	28.8
Great Britain	9.6	9.3

<i>Trade Partners of the Kingdom of the Two Sicilies (percentage of total exports plus imports)</i>			
	Combined island and mainland	Island (1852)	Continental (1853)
Rest of Italy	12.9	7.7	16
France	19.6	16.4	21.4
Great Britain	31.8	38.4	27.1

Source: calculated from British Parliamentary Papers 1857-8 LVIII cmnd 2447.

If a united Italy had maintained the monetary union with France then on trade grounds there would be an argument for the Two Sicilies joining (though not Sicily itself) However since the united Italy in fact abandoned the French connection in 1866, the Two Sicilies would have been better with monetary independence simply on trade grounds. Unless, as Frankel and Rose (1998) maintain, the OCA criteria are endogenous; that trade did develop and shocks became symmetrical under monetary union.

Lombardy's trade in the 1850s showed the opposite pattern to that of the Two Sicilies, Lombardy sold only 30% of exports to other Italian states and 70% to Switzerland. Three quarters of imports on the other hand apparently came from Italian states. In the 1830s and 1840s raw silk exports went mainly to London and Lyons. Taking trade as a whole, the case for Lombard membership of an Italian monetary union is much stronger than for the South.

Openness is another criterion that needs to be considered. If the south of Italy traded more intensely than the north east there may have been gains from an Italian monetary union even so. But the reverse was the case. Trade per head of the population was low in the South compared with the North, possibly because it was a larger area with a greater population than the northern states and provinces.

Working in the same direction as political and monetary unification, the railway and the telegraph at about the same time were reducing transport and communication costs and integrating Italian markets (Federico 2005), promoting trade and specialisation. Institutional change operated to the same end (Toniolo et al 2004, Conte et 2004). Market integration and inter-industry specialisation are related to OCA trade criterion because with little trade, there will most likely be minimal market integration, low price correlation and a large spatial coefficient of price variation.

The coefficient of variation approach does not however distinguish between prices that rise with integration and those that fall. Nor is a distinction made between arbitrage across markets subject to different shocks- spatial variations in the weather in agricultural markets for example- and increasing specialisation, whereby one self-sufficient region becomes an importer (and prices fall) and another becomes an exporter (and prices rise). Vulnerability to asymmetric shocks increases with one type of convergence (specialisation) but not the other.

Regional or international specialisation should be apparent in the relative composition of output or employment, since intra-regional flows of goods information is unavailable. Unfortunately such data are less reliable than prices. Fenoaltea (2003) uses employment to infer regional industrial production assuming national productivity applies everywhere. The artefactual industrial output data show that in 1871 the less industrial half of Italy was the east rather than the south and only Lombardy was clearly above the rest. Although total production grew in every region from 1871 to 1911, the fastest growth was in the northwest. Piedmont, Lombardy and Liguria, the industrial triangle, was pre-eminent in 1911. The North was also the centre of silk production, a high value-added agricultural industry. Italy increased its share of world silk exports between 1870 and the first decade of the twentieth century, when other European and Italian agricultural sectors, particularly wheat, were hit by New World competition (Federico 1996). The South accounted for a declining share of industry. After 1881 divergence accelerated, consistent with greater specialisation and/or the income effects of a negative agricultural sector shock.

Prices can be employed to supplement the production data. If lower transport costs boosted trade and increased specialisation then prices of exports should tend to rise in exporting regions, and import prices should fall in importing areas. Population density and especially population density in relation to agricultural land was lower in the South than in the North so that greater trade was likely to increase the agricultural specialisation of the South. Wheat prices should therefore rise in the South and fall in the North. Along with this trend should emerge an increased likelihood of asymmetric shocks- such as the New World cheap wheat imports in the 1880s and 1890s. Without monetary unification shocks could be offset by nominal exchange rate adjustments, as Spain did. With monetary unification greater real exchange rate changes would be required for a given shock because nominal adjustment was no longer possible. If relative prices did not alter sufficiently then the level of economic activity would - agricultural underemployment would increase.

The wheat price (P) in the Sicilian ports of Catania or Palermo may be taken as indicative of Italian regional wheat export markets and compared with those in the booming industrial areas of Turin or Milan, as wheat importers. Assume an upward sloping supply function in Catania and a downward sloping demand function in Turin.

Falling transport costs increase the supply of Catania wheat in Turin, bringing prices in the two areas closer together. The shift raises export prices relatively more the more inelastic is supply. It also pushes import prices relatively higher according to the elasticity of demand.

If wheat of Turin and of Catania are imperfect substitutes in a free trade zone then

$$P_{\text{turin}} = T + \alpha P_{\text{catania}}$$

where T is unit transport costs and α reflects quality differences (if any) of the two products. So if nominal transport costs are falling over time (t), and a, b and c are parameters, the following relationships will obtain;

$$P(t)_{\text{turin}} = a + bP(t)_{\text{catania}} - ct \quad \dots(1)$$

and

$$P(t)_{\text{catania}} = (P(t)_{\text{turin}} - a + ct)/b \quad \dots(2)$$

Comparing wheat price trends in the industrial northern centres of Milan and Turin with those of the agricultural areas of the South at Palermo and Catania, two phases are apparent in figure 2, plotting the North/South price ratios. Until the 1840s there is

[Figure 2 about here]

Table 4 Wheat Price AR1 Regressions: Pre-unification

Dependent variable	Milan 1807-1841	Milan 1801-1850	Turin 1815-1846	Turin 1815-1841
Constant	-125.59 (-0.25)	-128.72 (-0.37)	-25.30 (-0.46)	-29.46 (-0.37)
Palermo	0.06 (2.58)	-	-	0.01 (3.27)
Time	0.08 (0.31)	-0.06 (0.30)	0.02 (0.05)	0.02 (0.41)
Catania	-	0.13 (3.74)	0.01 (3.01)	-
ρ	0.57 (4.01)	0.63 (5.72)	0.67 (5.00)	0.74 (5.63)
DW	1.66	1.51	1.47	1.77
LL	-119.13	-167.78	-26.57	-21.47
RLL	-132.62	-191.44	-45.06	-39.96
N	35	50	32	27

Post-unification

Dependent variable	Milan 1869-1888	Milan 1873-1890	Turin 1873-1890	Turin 1869-1888
Constant	789.31 (3.66)	482.95 (1.99)	396.9 (3.11)	685.15 (2.62)
Palermo	0.05 (2.63)	-	-	0.05 (2.65)
Time	-0.41 (-3.59)	-0.25 (-1.96)	-0.19 (-2.62)	-0.36 (-2.57)
Catania	-	0.06 (5.48)	0.06 (7.04)	-
P	0.36 (1.68)	0.66 (3.67)	0.22 (0.95)	0.54 (2.78)
DW	1.29	1.82	1.76	1.71
LL	-41.29	-26.18	-22.65	-40.27
RLL	-53.14	-48.40	-48.09	-53.21
N	20	18	18	20

Notes: Two step iterative Prais and Winsten algorithm, in which the first observation is not discarded. Other estimators yield qualitatively similar results. t ratios in parentheses. Data source: IRI(1956-)

a rising tendency and thereafter a decline. When the ratio rises this may be due either to a fall in the Southern price, a rise in the Northern price or both. The pattern is consistent with demand for wheat rising faster than supply in the North, in the pre-unification, pre-railway age, a consequence of population pressure perhaps. Apparently any improvement in transport facilities and trade barrier reductions were insufficient to offset this dominant tendency. Thereafter the trend was downwards, as would be expected with nominal unit transport declining and increasing specialisation between North and South.

According to Table 4, each year the wheat price in Milan and Turin fell on average about one to two percent relative to wheat prices in Palermo and Catania from the end of the 1860s¹³. The narrowing of the price differential thereby encouraged Southern specialisation in agriculture and more Northern specialisation in industry¹⁴. This will have raised Southern agricultural wages relative to those in the North, the convergence result with full employment. But increasing specialisation rendered more probable that industry, and sector-specific shocks became region-specific shocks.

Grain tariff protection was introduced in 1887, but more generally, excluding sugar, nominal protection was modest, certainly not at a rate sufficient to offset the real exchange rate rise (see below) (Federico and Tena 1998). Italian (and therefore presumably especially Southern) agricultural exports were then damaged by tariff retaliation from the later 1880s in the French market (Foreman-Peck 1994 114). This is an example of a shock for which an independent monetary policy may be beneficial. The ability to depreciate against sterling, if not against the franc, would have been helpful in finding alternative markets for Italian or Southern produce.

4. Pre-unification Monetary Systems and Optimum Currency Area Criteria

Pre-unification states were less specialised and their shocks were more likely to be domestic in origin – harvest failures because of drought or blight for instance. All states aspired to metallic anchors for their monetary systems but some were more successful in maintaining them than others.

Immediately before unification there were several different currencies in the various Italian states. The Tuscan lira formally was worth 0.84 of the Piedmontese lira (PL), the Austrian florin valued at 2.47 PL circulated in Lombardy and Venetia, the Ducat of the Two Sicilies had a par value of 4.25 PL and the Scudo Romano of the Papal States exchanged for 5.32PL. The Piedmontese currency itself was bimetallic, but the Two Sicilies, Tuscany and the Austrian provinces formally were on a silver standard (De Mattia 1959 prospetto 1 p10). Actual rates of exchange between monetary areas frequently differed from par values. Italian monetary transactions before unification were further enlivened by a multiplicity of regional weights and measures.

¹³ Increasing market integration should introduce heteroscedasticity into the wheat price regression but a multiplicative heteroscedasticity model proved unstable.

¹⁴ As expected, given the common currency and weights in Turin and Milan in the second period, and the greater market integration, the equation parameters are very similar. The corollary of a falling price in the North consequent upon declining transport costs is a rising price in the South so long as supply is less than perfectly elastic. In no case is there a significant trend increase in the southern relative wheat price, although the coefficient on time is always positive (not reported), possibly because supply was nearly perfectly elastic.

Inflationary tendencies were limited by commitments to metallic currency links (when they were maintained) and because only some states had true banks of issue: Sardinia, Tuscany and the Vatican (Fratianni and Spinelli 1997 61). Banks differed primarily in their policies for protecting their metal reserves and convertibility of notes. Notes issued by the Tuscan bank were always convertible into precious metal, unlike those of the Kingdom of Sardinia and the Roman banks. These banks also created money through the deposit multiplier.

The Banca di Genova, the ancestor of the Banca Nazionale (BN) and the Banca D'Italia, was established in 1844. Like the others, it was both a commercial bank and a bank of issue. The total value of current account deposits and notes in circulation could not exceed three times the value of metal reserves held. However bank notes issued to meet the financial requirements of the government were exempt from normal regulations - setting the scene for post-unification finance and BN's key role in it. Until June 1857, a usury law prevented the Bank from raising discount rates above 6%. From that date the law was abolished, thanks to a financial crisis originating in the international market. The discount rate was raised to 10% just for one month, then held to between 4.5 and 5%, a stability the BN favoured after unification as well. Between April and October 1859 (a political crisis) BN's paper money was inconvertible- a harbinger of future policy.

With the North specialised in exporting silk (Federico 1996) and the South specialised in citrus, both supply and demand side industry-specific shocks can be expected to differ between the regions. Regional interest rates, and perhaps exchange rates, will have reflected such shocks. Evidence on the symmetry of shocks in Italian states, or the responses to them, before unification – and therefore the appropriateness of these states for monetary union - can be gleaned from international bill rates.

The bill was the principal medium of international financial transactions throughout the nineteenth century. A London bill was for an immediate payment in London to receive the equivalent abroad in three months (Clare 1890 82-3)¹⁵. Bill prices quoted in London reflected the interest rates prevailing in the foreign centres. Common shocks therefore encouraged positive correlations of bill rates and asymmetric shocks imply zero or negative correlations. A panic in Palermo, raising interest rates, triggered a flight of capital, selling ducats and demanding sterling. The ducat exchange rate depreciated, but high interest rates and confidence in the metallic link (when present) encouraged foreign short-term credit inflows to lend at high interest rates. (Lending takes place when bills are bought at a discount). Inverse movements in spot exchange rates and interest rates supported bill price stability, even with asymmetric shocks. If confidence in the maintenance of the metallic anchor was broken then the inverse movement and the bill price stability disappeared. This is monetary autonomy with regional differences in interest rates.

Close economic and political links reinforced by membership of a common currency area might be expected to create close movements in bill rates. But in practice

¹⁵ Paying with a three month bill would obtain a better rate than with a cheque because of the interest charge prevailing in the foreign centre. The foreign recipient who would not receive the payment for three months would discount the bill by the local interest charge.

divergences could be noticeable. Palermo and Naples were part of the same political monetary area (correlation 0.95 Table 5). Even closer was the link between the common currency and political zones of Vienna and Trieste, Vienna's port on the Adriatic (0.99).

Table 5 Correlations of Bill Rates on London 1847-1862*

	Palermo	Genoa	Livorno	Trieste	Vienna	Marseille
Naples	0.95	-0.37	-0.56	-0.28		-0.28
Palermo		-0.39	-0.60			-0.23
Genoa			0.54	-0.31		0.62
Livorno						0.44
Trieste					0.99	-0.10

Notes : Livorno's currency changed in 1861 so the correlation period is restricted to 1847-1860.

Data source: *The Economist* . Average of two observation per year (first Friday of January and last Friday of June).

Contrast with these the correlations of the independent monetary and political areas of Genoa and the free port of Livorno (Leghorn). The positive association is 0.54. The big divergence was between southern and northern Italy. The negative covariation of bill rates between Livorno and Naples is -0.56 and Genoa's negative correlation with Naples is -0.37. In short the correlations suggest that the South was subject to different shocks from the North because of the negative correlation of their bill rates. This in turn indicates an advantage for Southern monetary independence.

5. Monetary Policy after Unification

Monetary integration began after the 1859 war with Austria-Hungary. However since the coin circulation was perhaps nine times the note circulation, only with the suspension of the gold standard in 1866 did the new currency become widely accepted among a conservative peasantry (Toniolo 1990 58). The old silver piastre from the Kingdom of Naples was still being withdrawn at the beginning of the 1890's, through tax and customs payments¹⁶. Piastres had been issued in very large amounts and hoarded in substantial quantities. Coins declined from 65 percent of the monetary base to 37 percent in 1870 when the value of paper money exceeded metallic money (calculated from De Mattia 1990 App T7).

With unification the money supply radically increased, primarily as a consequence of greater government spending and borrowing. Italy effectively abandoned the financial probity of metallic standards maintained by some states before unification most of the time. The BN followed a lax monetary policy before and after unification; it should have curbed the creation of money by raising the discount rate. Unwilling to do so, thereby curtailing the loss of specie and maintaining convertibility, the BN instead imported precious metal, amounting to 49 million lire in 1860, 118 million in 1862, and 151 million in 1864 (Fратиanni and Spinelli 1997 72).

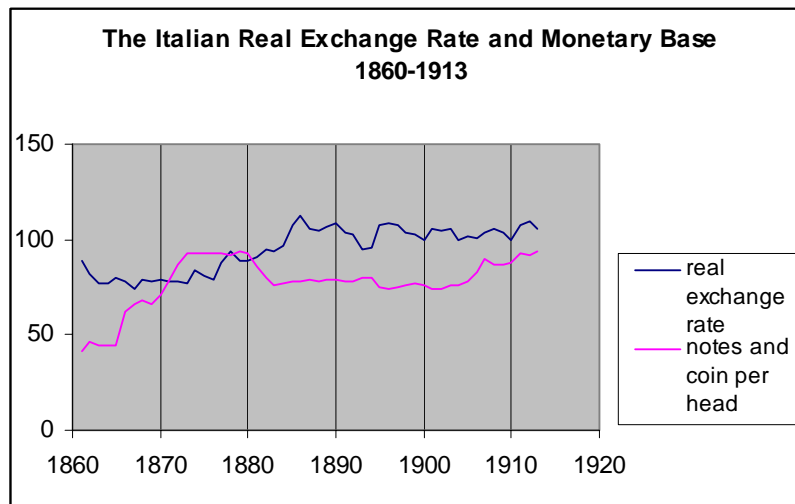
Monetary policy failed to follow the traditional rules of the gold or bimetallic standards and therefore maintaining the convertibility of bank notes became increasingly difficult. Italy formally adopted the French bimetallic standard in 1862 but continued to spend double what was available from taxes until 1866 when

¹⁶ I owe this point to a referee.

convertibility was abandoned. Between 1865 and 1866 the monetary base per head increased by 40 percent (calculated from de Mattia 1990 app T7). The reason for the money growth was finance for another war with Austria-Hungary and the acquisition of Venetia. Prices began to rise quickly and the lira exchange rate fell. Base money per head continued to grow, by almost one half between 1866 and 1873 (Figure 3).

Einaudi (2001 92) observes that historians now unanimously consider the issue of inconvertible paper money in these years as a contributor to ‘modernisation’ of payment system – perhaps exploiting the fortuitous ambiguity of the term ‘modernisation’. But the ensuing inflation was unlikely to have been welcome to many at the time. The cost of living index rose by nearly 40 percent over the years 1866 to 1874 (Mitchell 2003 p864). Between 1866 and 1882 bond prices fell by as much as 30 per cent and the real effective exchange rate rose by one third over the same period (Ciocca and Uizzi 1990 table 5)¹⁷. On average the real exchange rate after 1885-1913 was one third higher than in the years 1862-1876 (Figure 3). The income effect made Italy better off but the substitution effect had the opposite impact. Those Italian goods that could continue to be sold abroad would earn more imports in exchange. But their higher prices in terms of foreign goods reduced the total demand for them (and therefore for the work of those who made them).

Figure 3



Relative inflation was not reflected in the exchange rate; Italian competitiveness decreased to 1886 because the nominal exchange rate did not permanently depreciate. This nominal exchange rate target (Fратиanni and Spinelli 1997 104) in turn was a consequence of increasing government debt denominated in gold and a governmental desire to minimize the tax costs of debt service (Tattara 2003). Under a properly functioning metallic standard Italy should have lost specie and deflated. However the monetary authorities did not follow the ‘rules of the game’ to the disadvantage of producers, particularly those hit by foreign agricultural competition¹⁸.

¹⁷ Thanks to Giovanni Federico for this reference.

¹⁸ Einaudi (2001 197 fn1) remarks ‘In 1865 it would have made no sense to enquire into the appropriate level of the exchange rate between France and Italy since both countries had a currency whose value depended on the gold or silver weight of its national coins.’ It certainly makes sense now, when

Once the world price of silver in terms of gold began declining, as it did from 1873, any member state of France's bimetallic club, the Latin Monetary Union, could gain a financial advantage by issuing silver coins. The coins were then exported to neighbouring member states whose central banks were obliged to exchange the depreciated money for gold at the legal rate. Whereas France in 1874 agreed to limit her issue of silver coins that circulated with a higher face value than the metallic content warranted, for fiscal reasons Italy could not be persuaded to cease minting them. As late as the 1878 International Monetary Conference Italy was still announcing her intention to continue coining silver.

France wanted the Latin Monetary Union to survive and so was willing to absorb Italian silver and subsidiary coin at par. The Latin Monetary Union (LMU) therefore paid for some of the Italian budget deficit, and reduced the necessary adjustment of the economy. The transfers buoyed up the exchange rate and Italian prices. Meanwhile Italy operated with three currencies with different market values (Einaudi 2001 91-2). The first consisted of gold coins, French banknotes, and silver 5 franc coins, all at par until 1870. The second was silver coinage with a bullion value less than face the value. This was worth more than paper money but less than the full value. The third category was the banknotes not included in the LMU's definition of money, and therefore circulating at discount of 3-20 percent between 1866 and 1882¹⁹.

Italian gold convertibility was restored in 1884 but the public finances once more deteriorated. Ten years later the lire was again inconvertible, yet fiscal and monetary policies were tighter in the years 1894 to 1913, without a legal metallic link, than in any previous period. They imposed a stability of prices and the exchange rate closely approximating that of countries formally on the gold standard.

With a fixed exchange rate (*de facto* or *de jure*) an external shock causes price declines, unemployment and/or migration from the weak region, instead of exchange rate appreciation (Khoudour-Casteras 2002). The big shock to European agriculture in this period was cheap New World imports, especially wheat. Italian annual emigration rose from 5 per 1000 in 1880 to 25 per 1000 in 1913 (Hatton and Williamson 1998). A time series econometric study of Spain and Italy for these years shows that, had the Spanish peseta not depreciated between 1892 and 1905, Spanish emigration rates would have been 30 percent higher, similar to the rates Italy actually achieved with a *de facto* fixed nominal exchange rate (Sanchez-Alonso 2000).

Cross-section regression analysis of Italian provincial emigration rates in 1902 and 1912 support the conclusion that limited opportunities in southern agriculture led to emigration from the South (Hatton and Williamson 1998)²⁰. If the South had been less

general price indices can be calculated, even though it may have made no sense in 1865. The value of a currency is everything that can be bought with it, and not simply precious metal.

¹⁹ Paper money was held for increasingly shorter periods during the early inflationary period 1860-1864 as well (Fratiani and Spinelli 1997 72). The discount has been described as an effective devaluation of the currency, compensating for low tariff of 1863. But this conflates the internal and the external value of the currency (Einaudi 2001 92).

²⁰ Statistically significant and positive coefficients on share of owner occupation in agriculture and sharecropping, as well as on the share in agriculture multiplied by a Southern dummy variable were found. The coefficient on the share of labour force in agriculture was negative (Hatton and Williamson 1998 Table 6.6).

'remote' from the European core, according to Hatton and Williamson (1998), migration would have been much stronger. The share of the labour force in agriculture and the proportion of urban population raised Southern emigration rates relative to the North.

The South was different, but 'remoteness' was probably not so much locational as social and economic. Family structure may well have differed on average between southern and northern Italy. The northern European 'simple' family may have been more responsive to market signals by migration and more pervasive on average in the North of Italy than in the South, where multiple and extended families could have been more prevalent (Wall 1983 16-21; Laslett 1983 533 548 559). Certainly the mean age at first marriage of women in Catania, Sicily at 20.4 did not conform to the 'Western European Marriage Pattern' (Rettarolli 1992).

Moreover urbanisation was not associated with industrialisation in the South and therefore offered no alternative employment to agriculture (Malanima 2005). Even in the North there was very little internal migration, and certainly not between North and South²¹ (Federico 1985). A symmetrical shock affecting agriculture in both the North and the South has a stronger effect in the South because of the characteristics of the society, giving rise to a greater determination to stay rather than emigrate.

A monetarily independent, agriculturally based Southern Italy should have depreciated its currency like Spain, recovering international competitiveness²². By contrast a sometimes discussed North-South tariff barrier would not have had the same positive effects. Moreover the Two Sicilies would have been unable to pursue the same inflationary policies as the national government, because its credit rating was likely to have been poorer. Hence the South could have avoided some of the inflationary and exchange rate effects of the early excessive Kingdom of Italy government spending²³.

How much of the failure of the South to catch up was due to monetary unification rather than to adverse fiscal policies? The counterfactual of no monetary unification could have allowed exchange rate adjustment to compensate for poor fiscal policies, though better Kingdom of Italy fiscal and monetary policies would have reduced the advantages of monetary independence. A Kingdom of the Two Sicilies with a separate currency did not necessarily need real depreciation. Simply avoiding the 30 percent real appreciation of the lire between 1873 and 1885 would have been helpful. For example if Sicily could have depreciated nominally against sterling, Marsala exports would probably have increased, substituting for Spanish fortified wines, that instead had the advantage of depreciation in the British market.

²¹ In 1911 people born in other regions (including other regions of the North) accounted for 5.4% of population in the eight most industrialized "circondiari" in Piedmont, 5.41% in 13 in Lombardy and on average 4.7% for the 30 most industrialized circondiari all over Italy.

²² It might be contended that if more of the Spanish agricultural labour force had migrated (as the Italians did) Spanish productivity would have been higher, because of the resulting more favourable land-labour ratio. By analogy a lower Italian real exchange rate would have restrained Italian agricultural productivity. But major advances in agricultural productivity, rather than a higher land-labour ratio require reducing underemployment and improving methods, both of which may have been stimulated by a stronger demand stemming from a lack of real exchange rate appreciation.

²³ In fact the Banca di Sicilia and the Banca di Napoli remained banks of issue until 1926. But the nominal exchange rate target limited their scope for action.

6. Conclusion

At unification the South was more illiterate and probably poorer than the North. Despite internal free trade and improved transport and communications, income and productivity gaps between North and South did not narrow after unification and may have widened. Trade links between North and South were not strong enough to warrant monetary union on static OCA grounds in view of the costs of foregoing an independent monetary policy, (assuming that policy was optimally conducted). Shocks recorded in financial markets also suggested that the South either had a different economic structure or was subject to different unanticipated changes from the North.

With the formation of a monetary union, trade flows and industrial structure did not reconfigure so as to create the conditions for convergence. Two pieces of evidence have been advanced for this interpretation of Italian monetary union. First changes in the wheat market indicate that the South and North after unification (though not necessarily or probably because of it) increasingly specialised according to their comparative advantages. The South exported more wheat and the North imported more, helped by declining transport costs that allowed Northern prices to fall while Southern prices did not. Although such specialisation raised relative agricultural wages in the South, it also increased the likelihood of asymmetric shocks affecting the regions of the unified monetary zone. Flandreau and Maurel (2005) have shown that for the predominantly inter-industry trade of the nineteenth century this was generally the case.

The second piece of evidence is that in the 1880s and 1890s the South was hit by a shock that was of less significance to the North, and to which it would have been helpful if the South could have adjusted by depreciating its exchange rate against the North. The 30 percent real exchange rate appreciation was the opposite direction of change needed for the South to respond to cheap New World agricultural exports. The tariff was too low to compensate. To the extent that the agricultural shock was common, the Southern economy was subject to greater persistent underemployment than the North because the safety valve of migration was less available (as Hatton and Williamson 1998 demonstrated).

Continued monetary independence would have meant a different monetary policy for the South. Had unified monetary policy been satisfactory the returns to independence would have been lower. Even the North would have been better off with a different monetary policy but the North had more opportunities; the economy was more resilient as revealed by the analysis of migration patterns. A monetarily independent South would have lacked the credit rating to pursue the irresponsible fiscal and monetary policy of the Piedmont-based kingdom. Prices would not have risen so much, the nominal exchange rate could have fallen in response to New World agricultural imports and, in conjunction with enlightened infrastructure policies, convergence with the North would have been encouraged. For the nineteenth century Italian South, the view that monetary union contains the seeds of its own discomfort is more appropriate than that union create the conditions for success.

What then are the lessons of the monetary union of the north and south of Italy? The first is that accident and individuals play a vital role in shaping history. If Garibaldi had been killed before leading his Thousand to Sicily, or had turned his attention elsewhere, the Two Sicilies might have been given another generation or more to adapt before joining the Italian state, and this could have made a substantial difference. A second lesson is that economics will generally play second fiddle to politics; money as a symbol of national unity matters much more than as a possible instrument of economic policy. Third, once a political structure has been created, questions of economic optimality, if they were ever considered, are likely to be buried by concerns to maintain the status quo, largely regardless of expense.

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Figure 2. North-South Relative Wheat Price Trends

