The Decline of Spanish Industry and the Price Revolution: A Neoclassical Analysis *

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Spanish industrial decline, coinciding with the discovery of vast American treasure, remains one of the great paradoxes in European economic history. Beginning with the *arbitristas'* writings of the XVIIth century, silver, inflation and war have been advanced as the principal explanation of Spanish economic decline. However, the discovery of natural resources can be expected to increase the wealth and income generating powers of the economy, and the usual presumption is that an economy should emerge stronger, not weaker, as a consequence of its good fortune. Why then was the XVIth and XVIIth centuries with the inflow of gold and silver a period of Spanish decline? Spanish historiography has been surprisingly consistent in its analysis of Spanish economic stagnation: American treasure, by creating an illusion of prosperity, was responsible for endless foreign wars, extravagance and luxury which led to economic decadence.[1] The cause of economic decline was silver induced price inflation. In contrast, while we accept the role of monetary changes in facilitating the development which took place, we argue that these were but one means by which more fundamental changes were effected. The discovery of significant natural resources required substantial structural adjustment in the Spanish economy.

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[1] See for example Hamilton (1938), p. 224; Vicens Vives (1969), p. 444; Lynch (1965), pp. 54, 134, 314; Davis (1973), pp. 144-5; Braudel and Spooner (1967), p. 404; Wilson (1977), p. 29; Elliott (1961), pp. 61-3.

One aspect of this was the decline of manufacturing and other trading industries. The decline can be interpreted in terms of neoclassical trade theory, and not solely in terms of the monetary approach.

Although the role of money as the cause of Spanish industrial decline can be traced to the *arbitristas*, the modern framer of the monetary explanation was the American economic historian, Earl Hamilton. (1928, 1929, 1934, 1938). In the traditional explanation, imports of American gold and silver were equivalent to an expansion of the money supply.[2] While the actual production of goods and services was constant, or only growing slowly, the familiar situation of " too much money chasing too few goods " was observed. The consequence was a price rise. Spanish manufactures were increasingly less competitive compared to overseas tradeable goods due to domestic inflation, and were priced out of colonial and international markets by 1560 and the domestic market by 1600.[3] The gild documents, the *arbitristas*, and merchants' petitions to the Crown were unanimous in blaming foreign manufactured imports for the destruction of Spanish industry. By the middle of the XVIIth century, the industrial base was so eroded that little remained of the specialised branches of Spanish industry.[4]

Hamilton's thesis of Spanish inflation was a major contribution to the broader debate on the rise of capitalism in Europe. The influx of gold and silver, first to Spain but spreading throughout Europe, raised European prices above costs, creating profits which entrepreneurs invested in capital formation and industrial expansion. According to Hamilton (1929), in Spain, unlike the rest of Europe, wages did not lag sufficiently behind prices to afford the extraordinary profits needed to kick off capitalist growth. The monetary explanation has been subject to rigorous criticism.[5] For example, Spanish and European price rises do not coincide. According to Braudel and Spooner (1967, pp. 446-7), the Spanish inflation in both silver and nominal terms began later than the rest of Europe but Spanish silver inflation broke in the 1590's, earlier than the rest of Europe, while inflation in nominal prices continued later than the rest of Europe, at least until 1680, due to the copper inflation. Doubts have also been raised over whether American treasure was sufficient to significantly increase the stock of money in Europe as a prerequisite for triggering European inflation.[6] Finally,

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[2] The impact of gold and silver on the money supply was influenced by the mercantilist prohibitions on the flow of treasure. Hamilton (1938), p. 224; Lynch (1965), p. 122; Vicens Vives (1965), p. 444.

[3] See Lynch (1965), p. 120; Vicens Vices (1969), p. 443; Davies (1961), p. 71; Sella (1977), p. 362; Weisser (1973), p. 637; Elliott (1970), p. 63.

[4] Davis (1973), pp. 153-4; Vicens Vives (1969), pp. 357, 428-30; Sella (1977), pp. 417-8.

[5] Hammarstrom (1957); Braudel and Spooner (1967), pp. 442-56.

[6] Braudel and Spooner (1967), pp. 442-7; Flynn (1978), pp. 393-6.

real economic factors have increasingly gained acceptability as the cause of the European price inflation.[7]

Weisser (1973, p. 615) has argued that the Hamilton thesis has been less critically examined in terms of the decline of Castile and Spain. The impact of silver and gold on the money supply has been supplemented with demographic factors, plague, the expulsion of the Moriscos, the hidalgo mentality, gild restrictions, taxes and state mercantilism and the aversion to manual labour,[8] but never replaced as major cause of Spanish decline. For example, Ralph Davis (1973, pp. 145–6) argued that " the pressure on real resources " pushed up prices in the XVIth century while war and the financial needs of war, were a major cause of the price rise in the XVIIth century. Manpower losses in Castile, population decline and the hidalgo mentality were contributing, but secondary, causes of XVIIth century decline for Davis (1973, pp. 147–52). In spite of the contributory factors, the old monetary nexus is appealed to by Davis when, (1973, p. 145) for example, he argues that " in the sixteenth century [prices] had kept pace fairly closely with the rising import of silver ". This monetary explanation of the decline of Spain is made all the more plausible by the identification of silver with money. If, say, wool had been the natural resource windfall, valued at the same amount as the American gold and silver actually discovered, the transmission mechanism from natural resource windfalls to inflation would have been much less clear. Secondly, underlying the monetary thesis is the strong presumption that better government economic management could have avoided the inflationary consequences of American treasure and the decline of industry. This view is explicit in the writing of both the *arbitristas* and much of the recent economic historiography.[9] If the Spanish had, in current parlance, " sterilized " the monetary inflow, inflation could have been avoided and the industrial base preserved. Spain's stroke of good fortune in discovering natural resources had, as its accidental by-product, the decline of Spanish industry.

We argue that the Spanish experience is just one example of a pattern common to all countries where structural changes in industry accompany the discovery of a valuable resource. Currently a number of countries are undergoing structural change as a result of a resources boom. The most prominent case is that of the United Kingdom, where the adjustment problems resulting from the discovery, and increase in value of, North Sea oil are severe.[10] Other coun-

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[7] Outhwaite (1969), Flynn (1978), pp. 388–90; Wilson (1977), pp. 30–2.

[8] Vicens Vives (1969), pp. 412–25, 433–44; Davis (1973), pp. 146–54; Cipolla (1976), pp. 233–5.

[9] The implication of Spain's ' extravagance, luxury spending and foreign wars ' is that the Crown wasted the natural resource windfall. For example, Lynch (1963, p. 54) suggested that the correct policy for Charles I was ' peace and economy '. For similar comments see Vicens Vives (1969), p. 463 and footnote 1.

[10] Forsyth and Kay (1980).

tries participating in the North Sea resources, such as Holland and Norway, have had similar adjustment problems. In Australia the structural problems enforced by the mineral boom have received more attention by economists than elsewhere.[11] This paper applies a model resources-induced structural change to explain the decline of Spanish industry and to contribute to the inflation debate in European economic history.

2. *Mineral development and the necessity for structural change*

When a country discovers a new resource, or develops a new export, the *only* way in which it can achieve its desired consumption pattern, or convert the resources into consumables is through a change in *both* its trading patterns and its structure of production. Normally the real income of a country will rise, as the new resource will be valued internationally at an amount greater than the value of the resources used to obtain it.[12]

Suppose a country discovers a valuable new resource. It is very unlikely that it will wish to consume directly all of it, even if it is a resource which, like silver, can directly be used for consumption. It must be converted into the goods and services normally consumed in the economy. As the new resource will usually be only of limited use as an input into the production of normal goods and services, additional consumption depends on trade. The resources are exported, and the consumption goods are imported. However it is not possible to obtain the desired pattern of consumption *solely* through trade. This is because of the existence of non-tradeables, such as many services. If real income rises, it is likely that the demand for both tradeable and non-tradeable commodities will increase, according to the appropriate income elasticities. Since the non-tradeable goods must be domestically produced, home factors must be directed to their production, at the expense of the tradeable goods. Thus, even with an output increase, to convert the resource increase into the required consumption commodities, the production of tradeables *must* fall.[13]

If there is no income increase, but a new export develops, the matter is simple. There will be no consumption pattern change [14] but there will still be a need to change the trade and industrial structure. Factors will flow to the

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[11] Gregory (1976); Snape (1977); Cordon (1978).

[12] This income rise is not essential to our argument. For example, it could be that a new export industry develops and resources for it are provided by the reduction of other activities in the economy.

[13] We neglect improbable or extreme cases such as when the demand for non-tradeables in aggregate have a negative income elasticity.

[14] The exception is income distribution changes which can shift consumption patterns.

new export industry, out of industries which are being replaced by imports. These imports will be paid for by new exports.

The change required could be achieved through central government direction – though they will normally come about through the price mechanism. The prices of home produced tradeables will need to rise relatively to those of foreign produced tradeables, to stimulate the trade flow. Factor prices in the non-tradeable industries will need to rise relative to those in the tradeable industries in order to stimulate the factor flows. If markets function efficiently, there need be no unemployment of factors. However, there will be changes in factor rewards. Those factors used relatively intensively in the tradeables sector will be subject to declines in real rewards, whereas other factors will experience rises.

These price changes can come about in several ways. In modern economies, the resource boom will lead to rise in the country's exchange rate, and this will induce the required changes. In earlier times, and with countries with fixed exchange rates, the mechanism will be through inflation. It is possible for the resource rich country to maintain, for a period, a higher inflation rate than that of its trading partners, and to balance its payments with resource exports paying for the extra imports. This is especially easy when the resource is accepted as money, as were gold and silver.

There are several possible complications to this story, however, we shall mention only the most important. This the effect on income distribution. This will come about either through differential access to the increase in real income (which is equal to the rent on the resources) or through the changes in demands for factors. If the resource rents are large, the former will be the main effect. It is quite possible that those who receive the rents (perhaps governments) may have quite different consumption patterns from the rest of the consumers. If this is so, the requirement for structural change in the economy's production may be correspondingly greater.

3. *American treasure and Spanish structural change*

The discovery of gold and silver increased the real wealth of Spain. With yearly increases in national income both the state and private individuals demanded more of the same types of goods and services at a time when the productive capacity of Spain's existing industry did not increase.[15] Availability of non-tradeable goods was increased by directing more resources to their production at the expense of tradeable goods. The reduction in domestically produced tradeable goods was offset by the purchase of foreign produced goods using the surplus of gold and silver. At least one industry in the tradeable

[15] For example, Spooner (1968, p. 34) calls Spain a 'traditional and relatively unchanging economy'.

sector must contract absolutely. In Spain in the XVIth and XVIIth centuries, many industrial sectors contracted, but particularly manufacturing, since manufacturing output was most easily replaced by imports.

Spanish economic historians have long accepted the hypothesis that the flow of gold and silver " fanned the flows of Hapsburg imperialism " drawing Spain into endless wars on all fronts.[16] With about 26% of American treasure accruing to the Crown,[17] there was a change in income distribution towards the state. American treasure, although never the dominant element in Crown revenues and never able to cover the full cost of Spain's aggressive foreign policy, accounted for about 11% of total state revenues in 1554 and 20% in 1590.[18] In economic terms, the Spanish Crown had an income elastic demand for war in the XVIth and XVIIth centuries. There was rarely a year when Spanish armies were not committed to war in Algeria (1540), France (1543-44, 1551-59, 1590-8), Granada (1569-70), England (1586-94), with the Turks (1570-77), or, from 1560, to the repression of discontent in the Netherlands. Private treasure was sequestered for war spending when necessary, and with the precarious state of Crown finances, the Crown increasingly relied on private sequestration. Moreover, the Crown's future American treasure was committed as collatoral for " private " loans[19] to support current military spending. The scale of Crown spending, where perhaps 70% was for war,[20] was illustrated in the four fold increase in debt under Philip II from 20 million ducats in 1562 to 80 million ducats twenty years later.[21] Since the Crown's increased demand included non-tradeables such as manpower,[22] this exacerbated the decline in Spanish industry. Although some Crown expenditure occurred outside Spain, obviating the need for any adjustment on the part of Spanish industry, a significant proportion of military spending occurred within Spain on both tradeable and non-tradeable goods. War was just one form of increased Crown expenditure. Braudel (1966, pp. 449-50) saw the XVIth century state as the economy's principal entrepreneur with public works second only to war in Castilian expenditure. Extravagant building and entertainment and state spending on the civil service led Davis (1961, pp. 92, 103, 107) to claim that " Spain became a paradise for civil

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[16] See Hamilton (1934), p. 144; Lynch (1965), p. 134; Elliott (1970), p. 29 and footnote 1.

[17] Flynn (1978), p. 396; Hamilton (1934), p. 32.

[18] Lynch (1965), p. 129.

[19] The most common was juros, a loan from individuals in exchange for a fixed annual repayment. See Flynn (1978).

[20] Flynn (1978), p. 396.

[21] Braudel (1968), p. 533.

[22] Although foreign troops were recruited for the army, Spanish, and particularly native Castilians, formed the corps d'elite of the Spanish army and, with a yearly demand under Philip II approaching eight thousand soldiers, was a drain on the home economy. Lynch (1965), p. 131.

servants ". All the signs indicate that the " windfall " gold and silver fed an increasing level of Crown expenditure, different from the services consumption by the rest of the economy, which induced structural adjustment in the form of the decline in Spanish industry.

It should be understood, however, that Crown extravagance is not an essential part of our explanation. Even if consumption patterns in Spain had remained approximately the same, structural adjustment and the decline of manufacturing would have been necessary. Increases in liquidity made it easy for the Crown to shift the distribution of income towards itself, and the goods and services that it spent the bullion on made the structural changes called for even greater.

Similarly, private treasure was used to consume more goods and services. In the XVIth century some treasure was consumed directly in the form of gold and silver ornaments and some, perhaps one half, used to purchase return cargoes to the Americas.[23] The demand from the Spanish colonies was biased in favour of a wide range of manufactured goods and contributed to the support of industry in Spain before 1560.[24] After the XVIth century economic historians have made legend of Spanish " wasteful ", conspicuous and extravagant consumption.[25] The inflow of gold and silver made possible increased consumption of all goods and services, but the increase in non-tradeable output required resources to be shifted out of the tradeable goods sector. The shift of resources out of tradeable goods production was synonymous with a decline in Spanish industry. The structural decline in Spanish manufacturing after 1570 was reflected in the unfavourable balance of trade and the increased dominance of foreign manufactures in the cargoes to the Indies.[26] Spain increasingly acted as a " funnel " for European goods which was observed by contemporaries, such as Bodin, and by economic historians.[27] Perhaps the most obvious sign of declining industry was the demographic and commercial decline of the urban centres after 1580 noted by Weisser (1973, pp. 615-21). Although rural and semirural industry existed in the XVIth century,[28] urban centers were the home of the textile, glass, sugar, leather, and copper industries. Urban decline in Spain was a proxy for industrial decline.

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[23] Sella (1977), p. 362.

[24] Sella (1977), p. 362; Vicens Vives (1969), p. 339. The rise of industry is consistent with the rise, before 1550, of a merchant class.

[25] Elliott (1970), p. 77; Weisser (1973), p. 617; Braudel and Spooner (1967), p. 404; Lynch (1965), p. 119.

[26] As early as 1558 Luis Ortiz noted the outflow of gold and silver in exchange for manufactures. Spooner (1968), p. 26.

[27] Sella (1977), pp. 362-3.

[28] Braudel (1966), pp. 427-32.

4. *Monetary changes and inflation: cause or transmission mechanism?*

Gold and silver inflows which allowed Spain to increase her consumption of both tradeable and non-tradeable goods required the economy to adjust its industrial and trading structure. The price system brought about the adjustments. Firstly, rising prices in the non-tradeable goods sector attracted resources from the traded goods sector. Secondly, the contraction of tradeable goods sector resulted in a shortage of domestically produced traded goods which caused prices to rise attracting imports. The Spanish inflation was not the cause of the decline of Spanish manufacturing industry as has been suggested in recent historical work. Rather, the structural changes in the Spanish economy, which required the decline of industry, was a necessary consequence of the American mineral discoveries. Inflation was simply one mechanism through which the structural changes necessitated by the gold and silver discoveries was effected. Once the natural resource was discovered, the only way in which the resource could be converted into consumption was through trade and an increase in the production of non-traded goods at the expense of a contraction of traded goods productiou. Viewed in this way, it is clear that the monetary explanation of price rises and Spanish industrial decline is a highly plausible explanation of the *transmission mechanism* bringing about structural change. However, the decline was not *caused* by the monetary changes; the decline was a necessary consequence of the Spanish economy's increase in exportable resources, and would have taken place even if the inflation had been halted.[29]

The fact that Spain squandered its real income increase does not alter the judgement that the adjustment process was efficient. This does not imply, of course, that it was a sensible economic policy to allow consumption of all the increase in income of a resource with a distinctly finite duration. But even if Spain had adopted an optimal economic policy, which spread out over a greater number of years through investment the income increase, structural adjustment involving industrial decline could not have been avoided. At best, the structural adjustment and the monetary changes with the subsequent investment would have been smaller.

Perhaps the more difficult question to answer is not why Spanish manufacturing industry declined, but rather why it failed to revive after the treasure flows had been exhausted. For the most part, while the treasure flows were of finite duration, Spain failed to convert them into long lasting assets which would yield income flows after the exhaustion of the treasure. Trade theory would predict a shift back into manufacturing when the treasure flows fell off and Spain's industry became more competitive again. The answer may lie in

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[29] If market forces rather than government was relied on for the structural change some other mechanism for changing relative prices would be required in place of inflation.

that it is more difficult to create a manufacturing section than eliminate it. The physical stock of capital goods used for production would have deteriorated, and substantial investment would have been required to restore the industry to its former level. In addition, and possibly more important, human capital, in the form of skills, would have been dissipated over the long period of treasure inflows. These skills would have taken a long time to acquire again, as they would not have been passed on from one generation to another. Even though the conditions for a revival of manufacturing industry may have been present, the entrepreneurial skills needed to turn it into an actuality had been lost.

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