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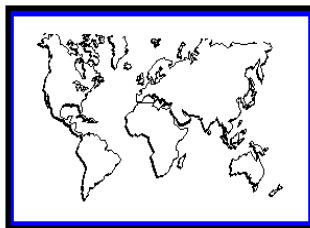
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The balance-of-payments constraint on economic growth in a long-term perspective: Spain, 1850-2000

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The balance-of-payments constraint on economic growth in a long-term perspective: Spain, 1850-2000[*]

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Abstract

The balance of payments can act as a constraint to the rate of growth of output, on setting a limit to the growth of the level of demand to which supply can adapt. In this paper, we examine this issue for the case of Spain, using time series data extending over one-and-a-half century, i.e., the period 1850-2000. Our results show that the foreign sector would have worked as a constraint to growth only during some periods of remarkably high growth in comparison with the Western European average, such as 1914-1935, and, especially, 1950-1975.

Key words: Economic growth, External deficit, Spanish economy

JEL Classification: F41, F43, N10

1. Introduction

The Spanish economy has experienced a steady process of growth since the beginning of industrialization at the start of the 19th century. However, though following a rather similar evolution to that of the rest of Western Europe, she underwent a relative retardation as compared to those countries. Specifically, the real GDP of Spain multiplied by 40 over the period 1850-2000, with an annual average rate of growth of 2.4 percent; in per capita terms, GDP multiplied by 15 over the same period, and the average rate of growth was 1.7 percent per year. But, despite the intense catching-up that took place in the last fifty years, per capita GDP of Spain at the end of the 20th century was still around three quarters of Western Europe's, roughly the same as one hundred years before (Prados de la Escosura, 2007).

The important modernizing role played by the foreign sector on the evolution of the whole economy, though limited by its small relative size, has been emphasized elsewhere (Prados de la Escosura, 1988). In fact, the Spanish economy would have experienced a higher growth over those periods characterized by a greater external openness (as in, e.g., the 1960s, or the years after 1986); and, likewise, she fell behind coinciding with periods of a greater isolation against the rest of the world (such as the years 1890-1913, or 1930-1950) (Prados de la Escosura, 2007). On the whole, the lower weight of foreign trade on GDP as compared to the "European norm" (Molinas and Prados de la Escosura, 1989) could explain the relative backwardness of the Spanish economy until the last third of the 20th century.

On the other hand, it has been also argued that the trade deficit had been a chronic problem of the Spanish economy, given the traditional weakness of exports, and the need for essential imports such as energy, raw materials, intermediate products, and equipment goods. This, in turn, would have been translated into a subordination of growth to the evolution of the trade balance; see, e.g., Segura and García-Viñuela (1978).

The recent availability of long time series for both GDP (Prados de la Escosura, 2003) and the foreign sector (Tena, 2005, 2007) invites to a re-examination of the relationship between growth and foreign trade for the case of the Spanish economy. In particular, we will analyze whether or not the balance of payments would have meant an

impediment to further GDP growth over the period 1850-2000. If the answer to this question was negative, then a greater exposure of the Spanish economy to international competition would have most probably led to a higher GDP growth and catching-up as regards the rest of Western Europe. The paper is organized as follows: section 2 offers a review of the literature on the relationship between international trade and economic growth, together with the available evidence for the Spanish case; the theoretical framework is discussed in section 3; the empirical results are presented in section 4; and section 5 concludes.

2. Review of the literature

The relationship between international trade (or, more generally, external openness) and economic growth is a widely discussed topic in economics, but still a controversial one.

According to the standard model of economic growth, a higher integration among countries, by removing the barriers to the mobility of goods and factors, would lead in the short run to an increased efficiency in the use of productive inputs. This in turn would translate into an increase in output from a given amount of inputs: these are the so-called static gains of integration. In the medium run, the increased level of production, by increasing savings and investment and then the capital stock, would lead to an additional increase in output. Finally, in the long run a permanent increase in the rate of growth might happen if the capital stock exhibits increasing returns to scale (directly in the production function, and by way of externalities); or, alternatively, if higher economic integration results in an increased rate of technological progress.

The above ideas, associated with the literature on endogenous growth, will allow for a greater role of the countries' external openness in the process of generation and transmission of technology, as compared to the traditional, Solow-type, growth models. Specifically, a stream of endogenous growth models try to formalize the process of technological innovation in a context of imperfect competition, developing ideas previously put forward by Schumpeter (1934). These new approaches emphasize that technological innovation appears in response to economic incentives, i.e., profit opportunities detected by firms; where the institutional, legal, and economic environments that determine the profitability of these investments also affect the pace and direction of technological change (Grossman and Helpman, 1994).

As said above, the literature on endogenous growth gives an important role to the extent of external openness and economic integration across countries, in order to influence technological progress and productivity growth (Grossman and Helpman, 1990). In principle, a process of economic integration would mean an increase in the size of the market, leading to greater research incentives, and so to a higher growth (Romer, 1990). Also, integration would ease the diffusion of knowledge across countries and avoid any possible redundancy of the research activity. However, for a country with a comparative disadvantage in research-intensive activities, integration might result in a higher specialization in unskilled labour-intensive activities, which could eventually mean lower growth, on deviating resources away from the R&D-intensive activities (Grossman and Helpman, 1991). Further, integration across relatively similar economies would lead to a higher growth rate in the long run, on allowing the exploitation at the world level of the increasing returns to scale existing in the R&D sector (Rivera-Batiz and Romer, 1991).

All this, in turn, would be related to another less formalized approach, originated in the field of economic history, namely, the catch-up hypothesis. According to this hypothesis, technological differences would be the main source of the differences in productivity across countries (Gerschenkron, 1962). Therefore, a relatively backward country could, in principle, "catch up" those most technologically advanced countries and increase its productivity levels, through the imitation and learning of those countries' techniques. This process, though, would only occur if the backward country possesses the so-called "social capability", namely, the technical skills (assessed by the educational level of its population), as well as the political, commercial, industrial and financial institutions, which would allow it to realize its potential of technological catch-up as regards the advanced countries (Abramovitz, 1986). These arguments were formalized in an influential paper by Nelson and Phelps (1966), who assume that the rate of technological progress of a country depends upon both educational attainment, and the gap between the theoretical level of technology and the level of technology in practice.

Finally, we will also briefly refer to a large body of empirical literature based on the idea that international trade and, in general, a more open commercial policy, means

a major factor in order to explain economic growth. This line of research, indeed, has been given a renewed impulse with the development of endogenous growth theories, on giving it some more solid theoretical foundations. In particular, it has been emphasized that a more liberalized trade stance allows countries to enjoy a higher amount of intermediate inputs at a lower cost, and encourages technological progress; and all this would result in higher rates of growth. This literature, which is mostly concerned about the case of developing countries, is surveyed in Edwards (1992, 1993).

However, the evidence in favour of this hypothesis is far from being unambiguous, as shown in an influential paper by Rodríguez and Rodrik (2001). As these authors point out, the relationship between external openness and economic growth would be rather a contingent one, dependent on a host of particular characteristics, both country-specific and external; and, among them, the importance of institutions would be crucial.

Turning to the case of Spain, and as noticed elsewhere, higher growth periods have been usually related in a long-term perspective, to increases in the degree of external openness (see, e.g., Carreras and Tafunell, 2003, Chapter 11). So, during the second half of the 19th century, the Spanish foreign trade grew faster than in France or Britain (Tortella, 2000). The situation began to change in the 1890s, when a more protectionist policy stance was implemented. Accordingly, the degree of openness, which had increased steadily since 1850 (although at still lower levels than the European average), began to decrease after 1895, which was intensified after the Spanish Civil War, and reached its minimum in the 1940s (Tena, 2005). In fact, the latter period, characterized by the pursuit of "autarchy" by the new government issued from the Civil War, represents, not only the minimum in the ratio of openness, but also the lowest point in the process of convergence of the Spanish economy towards Western Europe. In Gabriel Tortella's words, "The Civil War and the first Franco period produced a radical regression within the Spanish economy, a kind of sudden jump backwards into self-sufficiency and primary production, a regression that did not begin to correct itself until the 1950s" (Tortella, 2000, p. 366). This trend was only reverted since the 1960s and, especially, after the Spanish integration into the now European Union (EU) in 1986, when the ratio of openness reached comparable figures to those of the rest of Western Europe.

On the other hand, since the classical work of Sardà (1948), the traditional vision of the Spanish foreign sector has been that of a chronic deficit in the trade balance, which was even aggravated in higher growth periods. From here, some authors have argued that such a chronic trade deficit would have hindered the economic growth prospects of the Spanish economy; in other words, the trade deficit would have worked as a constraint to economic growth.

The empirical evidence on this issue is not too abundant, though. Herranz-Loncán and Tirado-Fabregat (1996) estimate export and import functions for the period 1870-1913. Since, when looking at the estimated income elasticities for exports and imports, the former was found to be smaller than the latter, the authors conclude that the foreign sector would have meant a constraint to economic growth over the period.

Following a related line of analysis, Serrano-Sanz (1997) computes the balance of payments-constrained growth rate proposed by Thirlwall (1979) (see the next section) for the periods 1870-1891, 1892-1935, 1940-1959, and 1960-1985. With the only exception of the first period, in the rest of cases the actual growth rate was above its balance of payments-constrained counterpart, concluding again that the foreign sector would have played a limitative role on growth after 1892. Notice that these results would imply that the foreign sector began to restrict growth just when more protectionist policies were implemented; see below.

However, this same approach has been applied by Alonso (1999) to the more recent period 1960-1994. Since he finds a parallel evolution of both the actual and the balance of payments-constrained growth rates, the external constraint would have not been binding during that period.

Finally, in a recent paper, Prados de la Escosura (2010) builds series for the current account balance over the years 1850-1913. The results from the new series reveal the existence of two broad periods in the evolution of the current account: one of persistent deficits between 1850 and 1890; and other where surpluses prevailed, between 1891 and 1913 (with the exception of the years 1899-1904). Since periods of higher (lower) growth went together with current account deficits (surpluses), the author

concludes that the external constraint would have not worked during that period. According to Prados de la Escosura, economic growth at the end of the 19th century was encouraged by the high levels of foreign net capital inflows, which helped to finance current account deficits and complemented domestic savings. In turn, reversals of net capital inflows (in the form of "sudden stops", i.e., significantly and unexpectedly) after 1891 slowed down growth since investment had to rely just on domestic savings.

The central role of foreign capital inflows in the dissemination of ideas and innovations across borders has been often emphasized; e.g., Romer (1993). Regarding the Spanish case, foreign capital inflows played a central role in the evolution of the Spanish economy at the very beginning of industrialization (Nadal, 1975; Tortella, 2000); and, later on, in the process of openness and high growth initiated after 1959 (Muñoz, Roldán and Serrano, 1978b). Even more recently, foreign direct investment, acting as a channel of technology transfer and through its effects on enhancing productivity, seems to have been an important factor behind the outstanding rates of growth experienced by the Spanish economy after joining the EU (Bajo-Rubio, Díaz-Mora and Díaz-Roldán, 2010).

In the rest of this paper, we will analyze the role of the external constraint on Spanish economic growth for the period 1850-2000, by estimating export and import elasticities, and computing the balance of payments-constrained growth rate. As can be seen from above, the (scarce) available evidence on the subject does not look too clear-cut. Notice also that the results of some of the papers quoted before, concluding that the foreign sector would have restrained economic growth, are not free of problems, which could justify a further analysis of this issue. In particular, as noticed by Prados de la Escosura (2010), the estimates of the export and import elasticities in both Herranz-Loncán and Tirado-Fabregat (1996) and Serrano-Sanz (1997) are rather dubious, since they use data on exports, imports, and prices that do not correct for the errors present in official trade figures; see Prados de la Escosura (2010, notes 5 and 6) for details. Also, Serrano-Sanz (1997) makes use of different estimation methods for the first, and for the rest of subperiods he considers. Unlike these previous studies, we will draw on a generally accepted dataset for a more extended time period, examine different

alternative episodes within the whole period, and use a common estimation method for all subperiods.

3. Theoretical framework

The balance of payments can act as a constraint to the rate of growth of output, on setting a limit to the growth in the level of demand to which supply can adapt. So, an increase in domestic output, by increasing imports, can lead to a deficit in the balance of payments, which may require either a fall in demand or an exchange rate depreciation (i.e., a worsening of the terms of trade) in order to assure the sustainability of the foreign deficit. Accordingly, an unsustainable external deficit would require sooner or later a correction, which puts a brake on further output growth.

A customary way of analyzing this issue follows Thirlwall's approach to calculate the balance of payments-constrained growth rate, as the rate of growth of exports divided by the income elasticity of the demand for imports; see Thirlwall (1979) or Thirlwall and Hussain (1982). By comparing such a growth rate with that prevailing in a particular country, it would be possible to assess whether the balance of payments would have worked as a constraint to economic growth in the country analyzed. This approach, on the other hand, is equivalent to the well-known Krugman's (1989) result, so that countries growing faster face a higher income elasticity for their exports than for their imports.

Assume that the demands for exports and imports are described by the standard functions (see Goldstein and Khan, 1985):

$$X = X\left(Y^*, Q\right) \qquad\qquad \frac{\partial X}{\partial Y^*} > 0, \frac{\partial X}{\partial Q} < 0$$

$$M = M\left(Y, Q\right) \qquad\qquad \frac{\partial M}{\partial Y} > 0, \frac{\partial M}{\partial Q} > 0$$

where X and M stand for exports and imports volumes, and Y^* and Y for foreign and domestic real output, respectively; Q is the real exchange rate, measured as the price of domestic goods relative to foreign goods. To close the model, we add the equation for the balance of payments:

$$B = X - \frac{M}{Q} + F$$

where B and F denote, respectively, the balance of payments and net capital inflows in real terms, in terms of domestic goods.

In order to keep unchanged the balance of payments, it is required that:

$$\frac{dB}{dt} = X\left(\varepsilon_{X,Y^*}\hat{Y}^* - \varepsilon_{X,Q}\hat{Q}\right) - \frac{M}{Q}\left(\varepsilon_{M,Y}\hat{Y} + \varepsilon_{M,Q}\hat{Q} - \hat{Q}\right) + F\hat{F} = 0$$

where ε_{X,Y^*}, $\varepsilon_{M,Y}$, $\varepsilon_{X,Q}$, and $\varepsilon_{M,Q}$ are the (absolute values of the) income and price elasticities of exports and imports, respectively; and the symbol $\wedge$ over a variable denotes its growth rate. Assuming that initially $B = 0$, so that $X + F = \frac{M}{Q}$, in order to have the balance of payments in equilibrium we must have:

$$(1-\varphi)\varepsilon_{X,Y^*}\hat{Y}^* - \varepsilon_{M,Y}\hat{Y} - \left[(1-\varphi)\varepsilon_{X,Q} + \varepsilon_{M,Q} - 1\right]\hat{Q} + \varphi\hat{F} = 0$$

where $\varphi = \dfrac{F}{M/Q}$.

Assume for a moment there are no capital inflows, so that $\varphi = 0$ and

$$\varepsilon_{X,Y^*}\hat{Y}^* - \varepsilon_{M,Y}\hat{Y} - \left(\varepsilon_{X,Q} + \varepsilon_{M,Q} - 1\right)\hat{Q} = 0$$

As can be seen from the above equation, a country growing relatively faster (i.e., when $\hat{Y} > \hat{Y}^*$) should have, other things equal, a depreciating real exchange rate (provided that the Marshall-Lerner condition holds). However, as shown by Krugman (1989), in a context of imperfect competition those countries showing higher growth rates will increase their shares of world markets, not by reducing the relative prices of the goods they produce, but by raising instead the number of varieties. Accordingly, such countries will enjoy more favourable income elasticities (i.e., a higher ε_{X,Y^*} and a lower $\varepsilon_{M,Y}$) and would be able to experience relatively higher growth rates without the need of real exchange rate depreciation in the long run.

Hence, if there is no long-run trend in the real exchange rate, $\hat{Q} = 0$, we would have the following condition:

$$\frac{\varepsilon_{X,Y^*}}{\varepsilon_{M,Y}} = \frac{\hat{Y}}{\hat{Y}^*}$$

i.e., a country growing relatively faster should have a relatively higher income elasticity for exports than for imports; this is Krugman's (1989) "45-degree rule". From here, we can get a related result, by finding the balance of payments-constrained growth rate, $\hat{Y}_B$, i.e., the maximum growth rate a country can achieve while keeping in equilibrium the balance of payments, and provided that the real exchange rate remains unchanged:

$$\hat{Y}_B = \frac{\varepsilon_{X,Y^*}}{\varepsilon_{M,Y}}\hat{Y}^* \tag{1}$$

This rule, derived by Thirlwall (1979), is the dynamic analogue of the Harrod trade multiplier (Harrod, 1933), and implies that a country growing above $\hat{Y}_B$ will run an external deficit, which would harm its future growth prospects; conversely, a country growing below $\hat{Y}_B$ will run an external surplus.

Finally, if the real exchange rate were not constant over the long run, the balance of payments-constrained growth rate would be:

$$\hat{Y}_B = \frac{\varepsilon_{X,Y^*}\hat{Y}^* - \left(\varepsilon_{X,Q} + \varepsilon_{M,Q} - 1\right)\hat{Q}}{\varepsilon_{M,Y}} \tag{2}$$

which, in the most general case where capital movements are allowed, becomes (Thirlwall and Hussain, 1982):

$$\hat{Y}_B = \frac{(1-\varphi)\varepsilon_{X,Y^*}\hat{Y}^* - \left[(1-\varphi)\varepsilon_{X,Q} + \varepsilon_{M,Q} - 1\right]\hat{Q} + \varphi\hat{F}}{\varepsilon_{M,Y}} \tag{3}$$

In the next section, we will provide estimates of the balance of payments-constrained growth rate for the Spanish case over the period 1850-2000, in its three versions (1), (2) and (3).

4. Empirical results

In order to apply the above theoretical framework, we rely on the foreign sector data of Tena (2007). The period of analysis is 1850-2000. Specifically, we use data on exports and imports, both in real terms (Table 3, series 9 and 10); real exchange rate, measured as the quotient of the price indices of exports and imports (Table 4, series 13); and (minus) the current account balance, as a proxy of capital inflows (Table 8, series 74). Notice, however, that the latter variable is available from a regular basis only after 1940; for the years before, we have relied on the series of Prados de la Escosura (2010),

only available from 1850 to 1913 (Appendix 1, column 12). The data on real GDP have been taken from Prados de la Escosura (2003). Finally, regarding foreign output, the series on real GDP of the EU built by Carreras and Tafunell (2004, 2005) has been used, as a proxy for the GDP of Western Europe. Notice that Western Europe was the main market for Spanish exports over the whole period, with a share on total exports always above 50 percent (Tena, 2007).

First of all, we have estimated the exports and imports elasticities using the method of Phillips and Hansen (1990). This method tries to eliminate the potential biases that could appear when estimating under ordinary least squares, by computing a class of Wald tests, modified by semiparametric corrections for serial correlation and endogeneity bias. The values of the estimated elasticities for the whole period appear in the first row of Table 1. Notice that the figures in parentheses are the Phillips and Hansen's fully-modified Wald test statistics, asymptotically distributed as a χ^2 with one degree of freedom; the critical values for these tests are 3.84 and 6.63 for the 5% and 1% significance levels, respectively. In addition, the first row of Table 2 shows, respectively, the annual average growth rates of the GDP of Spain and the EU, and the balance of payments-constrained growth rate according to equations (1), (2) and (3). Notice, however, that we cannot compute version (3) due to the lack of data for our proxy on capital inflows for the whole period of analysis.

[Table 1 here]

[Table 2 here]

As can be seen in Table 1, over the whole period 1850-2000 the estimated income elasticities for both exports and imports are small, and rather similar, so that, according to Krugman's argument, they should correspond to similar growth rates for the two economies, Spain and the EU. In turn, the real exchange rate elasticity was only significant (at the 5% level) for exports, but not for imports (and the coefficient is even estimated with the wrong sign). The above is indeed true since, as shown in Table 2, the annual average rate of growth of the Spanish GDP was only slightly above that of the EU for this 150-year period. Finally, the actual and balance of payments-constrained growth rates look also rather similar, even though somewhat higher for the former.

Accordingly, the foreign sector would have hardly worked as a constraint to the growth of the Spanish economy over the long run.

Table 1. Estimated exports and imports elasticities. Spain, 1850-2000

	ε_{X,Y^*}	$\varepsilon_{M,Y}$	$\varepsilon_{X,Q}$	$\varepsilon_{M,Q}$
1850-2000	1.10[a]	1.20[a]	−0.97[b]	−0.08
	(76.05)	(255.0)	(4.06)	(0.08)
1850-1950	0.87[a]	1.07[a]	−0.70	−0.54
	(21.09)	(47.16)	(2.18)	(2.54)
1951-1974	1.73[a]	1.57[a]	−1.87[a]	−0.07
	(73.54)	(1372.1)	(10.61)	(0.17)
1975-2000	4.18[a]	2.47[a]	−0.35	0.83[a]
	(224.3)	(593.8)	(1.18)	(24.94)
1850-1935	1.29[a]	1.40[a]	1.43[a]	0.90[a]
	(133.6)	(199.2)	(14.42)	(9.02)
1940-1959	0.71[a]	1.33[a]	−0.60[a]	−0.30[a]
	(28.44)	(110.4)	(66.47)	(23.69)
1960-2000	3.65[a]	2.10[a]	0.17	1.34[a]
	(874.3)	(1680.9)	(0.49)	(73.79)
1850-1891	2.30[a]	2.69[a]	0.41	−0.89
	(139.7)	(66.60)	(1.09)	(2.13)
1892-1913	0.73[a]	1.43[a]	0.67	−0.35
	(16.20)	(34.31)	(1.52)	(0.44)
1914-1935	0.69[a]	0.97[a]	−0.11	0.18
	(6.18)	(16.46)	(0.49)	(0.92)
1960-1974	2.54[a]	1.75[a]	−0.42	0.37[b]
	(106.2)	(1517.6)	(0.64)	(5.79)
1986-2000	4.59[a]	3.09[a]	0.08	0.25
	(49.76)	(223.4)	(0.01)	(0.36)

Note: [a] and [b] denote significance at the 1% and 5% levels, respectively.

However, since the behaviour of the series might be quite different along such a long period, we have repeated the above exercise across a set of different subperiods.

A first option would be looking at the evolution of the GDP series, and trying to detect any possible structural changes in economic growth. We will rely here on the three phases identified by Prados de la Escosura (2003), who performs unit root tests including several possible exogenous breaks, and selects those that maximize the *t*-

statistic of the coefficient on lagged GDP. His results show two structural changes in the trend of the GDP series dated at 1951 and 1975, together with a break in the level at 1936. Accordingly, we have estimated exports and imports elasticities, and calculated the actual and balance of payments-constrained growth rates, for the three subperiods 1850-1950, 1951-1974, and 1975-2000. The results appear in rows two, three and four of Tables 1 and 2.

Table 2. Actual and balance of payments-constrained growth rates. Spain, 1850-2000

	$\hat{Y}$	$\hat{Y}^*$	$\hat{Y}_{B1}$	$\hat{Y}_{B2}$	$\hat{Y}_{B3}$
1850-2000	2.55	2.36	2.17	2.14	–
1850-1950	1.41	1.82	1.48	1.32	–
1951-1974	6.23	4.45	4.93	5.06	6.13
1975-2000	3.02	2.25	3.82	3.79	3.78
1850-1935	1.62	1.76	1.61	1.54	–
1940-1959	3.00	2.73	1.45	1.48	1.70
1960-2000	4.71	2.97	5.16	5.33	5.83
1850-1891	1.47	1.83	1.56	1.65	0.91
1892-1913	1.28	2.29	1.17	0.99	1.10
1914-1935	2.03	1.21	0.86	−0.59	–
1960-1974	7.49	4.23	6.14	4.67	4.48
1986-2000	3.39	2.19	3.24	3.50	4.07

Beginning with 1850-1950, the picture does not look too different as compared to the whole period. First, we found now very low, and even smaller than before, income elasticities, at the same time that the real exchange rate elasticities were not statistically significant. Overall, this would reflect the predominance of agricultural products in the Spanish foreign trade over that period. In addition, the rate of GDP growth would be somewhat below that of the EU; and, since the actual and balance of payments-constrained growth rates would be now quite similar, the foreign sector would not appear to have restricted GDP growth. As pointed out elsewhere (e.g., Tena, 1995, 2007), the Spanish economy was a relatively closed one along those years. In particular, she was characterized by a protectionist stance reinforced in some particular events (such as the end of the 19th century, or the years immediately after the Spanish

Civil War), and with a revealed comparative advantage in agricultural products, leading to an erratic and even unpredictable foreign trade.

Things seem to change after the 1950s. The estimated income elasticities turn to be more favourable according to Krugman's terminology, showing a remarkable increase and becoming higher for exports than for imports; the real exchange rate elasticity was only significant for exports. This relates in turn to an average annual rate of GDP growth significantly higher than of the EU (and despite the strong increase experienced by the latter). These results would follow after a process of increasing external openness and structural change, especially intense during the 1960s, where manufactures began to take the leading role within the structure of the Spanish foreign trade. However, the fact that the actual growth rate was well above the balance of payments-constrained one (although not so much when capital movements are taken into account), means that the foreign sector would have worked as a constraint to the growth of the Spanish economy along this period. This evidence is consistent with the appearance of situations of "stop-and-go" during that time: when the economy grew too fast the balance of payments deteriorated, putting pressure on the exchange rate so foreign reserves fell, and a period of slower growth followed in order to correct the external disequilibrium. Such a state of affairs would have been also related to the structural transformations of the 1960s, with an increase in the needs of imported intermediates due to a change in both the composition of exports and the whole productive structure (Fanjul and Segura, 1977).

Finally, the last quarter of the 20th century has contemplated a new process of external openness of the Spanish economy, especially after joining the EU in 1986. The estimated income elasticities strongly increased, even more in the case of exports; and now the real exchange rate elasticity was only significant for imports. On the other hand, despite the deceleration in growth rates as compared to the previous period, the rate of GDP growth was still higher than the EU's. In turn, the actual growth rate was slightly below its balance of payments-constrained counterpart in each of its three versions, suggesting that the foreign sector would have not restrained GDP growth during those years.

An alternative way of characterizing different subperiods would be looking at the evolution of the foreign trade series. Serrano-Sanz, Sabaté-Sort and Gadea-Rivas (2008) apply the Bai and Perron (1998) tests for the presence of multiple endogenous structural changes, to the Spanish foreign sector series over the period 1869-1999, finding a break at some point in the 1940s. Hence, they identify two stages in the evolution of the Spanish foreign sector: a first one before 1935, which they call of "unpredictable trade" (characterized by the predominance of primary products), and a second one after 1960, which they call of "mature trade" (characterized by the predominance of manufactures and services); with the 1940s and 1950s being a transition period. In this way, we have repeated our previous exercise for the three subperiods 1850-1935, 1940-1959, and 1960-2000; and the results are shown in rows five, six and seven of Tables 1 and 2[1].

As can be seen in the tables, for the period 1850-1935 income elasticities are low, and the exchange rate elasticity of exports is wrongly signed; whereas the actual growth rate was roughly the same than the balance of payments-constrained one. Next, in 1940-1959, income elasticities are even smaller, the exchange rate elasticity of imports is now wrongly signed, and the actual growth rate was quite above the balance of payments-constrained one. Finally, in 1960-2000, income elasticities are quite higher (especially that of exports), the exchange rate elasticity of exports is not significantly different from zero, and the actual growth rate (quite above that of the EU) was slightly below its balance of payments-constrained counterpart. Accordingly, only during 1940-1959, i.e., the "autarchy" period, the foreign sector would have proved to be a constraint to GDP growth. This result would match the abrupt end of the short-lived growth period of the 1950s, which led to a high inflation and an increasing external deficit. The latter, in turn, translated into the almost total depletion of foreign exchange reserves by mid-1959, which forced General Franco's regime to a complete reorientation of economic policies following the advice of the major international economic organizations (Sardà, 1970).

We have tested some more subperiods. First, within the period before the Spanish Civil War, 1850-1935 (the "unpredictable trade" period of Serrano-Sanz et al.,

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[1] Notice that, in a paper aimed to find structural changes in the evolution of the Spanish GDP over the period 1870-1994, Pons-Novell and Tirado-Fabregat (2006) obtain three breaks at the same dates, i.e., 1935, 1940 and 1960.

2008), two possible break points have been allowed for, i.e., in 1891 and 1913. The first one relates to the inward-looking stance adopted at the end of the 19th century (Muñoz, Roldán and Serrano, 1978a). This was characterized by a combination of protectionism of the domestic industry, the preservation of the domestic market to domestic production (helped by a strong government interventionism), and economic nationalism (in the sense of replacing foreign capital for domestic capital as the main driving force of growth). The changing point of this new policy stance can be dated at the approval of a new and extremely protectionist tariff in December 1891. On the other hand, the second one relates to the outbreak of World War I, which, by stopping the arrival of imports from the countries at war, and raising the demand for some Spanish exports, meant the consolidation of the previous policy strategy and led to a period of relatively high growth. In fact, the period 1914-1935 has been termed by Carreras and Tafunell (2003) as the "Silver Age" of the Spanish economy. The results for the three subperiods 1850-1891, 1892-1913, and 1914-1935 appear in rows eight, nine and ten of Tables 1 and 2.

As shown in Table 1, income elasticities for the period 1850-1891 are much higher than for the other two subperiods, well above two. This would imply that the low values of these elasticities found previously for 1850-1950 or 1850-1935 are rather the result of the protectionist and nationalistic policies pursued after 1891. The exchange rate elasticities, in turn, were not significantly different from zero. As a consequence, and unless the other two subperiods, only in 1914-1935 (i.e., the highest-growth period) the actual growth rate was above the balance-of-payments constrained one, so the foreign sector would have constrained growth[2].

Finally, we have also tried two possible break dates within the period 1960-2000 (the "mature trade" period of Serrano-Sanz et al., 2008), i.e., 1974 and 1985. The results here should be taken with care, however, given the shortness of the subperiods analyzed: just 15 observations for 1960-1974 and 1986-2000; for this reason, we have not studied the (less interesting) subperiod 1975-1985, including just 11 observations. In particular, the years 1960-1974 (the "Golden Age" of the Spanish economy, as termed by Carreras and Tafunell, 2003) did contemplate the highest growth rates in modern

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[2] Notice that the calculated value of the balance-of-payments constrained growth rate including the exchange rate elasticities was negative in this case, due to the very small income elasticities coupled with also very small exchange rate elasticities (not significantly different from zero).

Spain. The increased openness of the economy, following the Stabilization Plan of 1959 that ended the autarchic trends dominating since the end of the Spanish Civil War, has been deemed as being at the root of these developments (e.g., Donges, 1971, 1976). The early 1970s meant the end of the expansionary phase experienced by the Western economies after World War II, so, after some years of economic stagnation (that coincided with the years of transition to a democratic regime), growth soared again after 1986, the year in which Spain joined the EU. The nature and effects of trade liberalization policies during those years have been analysed in De la Dehesa, Ruiz and Torres (1991) for the 1960s and early 1970s; and in Bajo-Rubio and Torres (1992) for the period following Spain's entry into the EU. The results for the subperiods 1960-1974 and 1986-2000 are shown in the last two rows of Tables 1 and 2.

Looking at Table 1, we can see that income elasticities show greater values than in previous periods, always higher for exports, and roughly twice in 1986-2000 as compared to 1960-1974; exchange rate elasticities, however, were not significantly different from zero, except for imports in 1960-1974. Accordingly, the actual growth rate was higher than the balance-of-payments constrained one, and the foreign sector would have restrained growth, in 1960-1974, but not in 1986-2000.

5. Conclusions

The Spanish economy has experienced a steady process of growth through the period 1850-2000, following a similar evolution to that of the rest of Western Europe. However, only in the second half of the 20th century Spain could catch-up with these countries, offsetting, at least partially, her relative retardation dating back to the start of industrialization. Although the periods of higher growth have been related to increases in the degree of external openness, some concerns have been also raised about whether a more open foreign sector could become a constraint to further growth via unsustainable trade deficits. This argument would be justified given the structural problems underwent by the Spanish economy, as shown in the weakness of exports, and the need for some essential imports.

In this paper, we have analyzed whether or not the balance of payments would have meant an impediment to further GDP growth vis-à-vis Western Europe, over the period 1850-2000. To this end, we have followed a simple approach, calculating the so-

called balance of payments-constrained growth rate from estimated income and real exchange rate elasticities for exports and imports, also taking into account the role of capital inflows. Then, this balance of payments-constrained growth rate is compared with the actual GDP growth rate. For the whole period 1850-2000, the Spanish rate of GDP growth was only slightly above both the EU's growth rate, and the balance of payments-constrained growth rate, so that the foreign sector would have hardly worked as a constraint to the growth of the Spanish economy over the long run.

Next, since the behaviour of the series might be quite different during such a long period, we have repeated the main exercise across a set of different subperiods. Several alternative periods have been examined. First, the three phases identified by Prados de la Escosura (2003), by looking at the evolution of the GDP series, i.e., 1850-1950, 1951-1974, and 1975-2000. Second, the periods 1850-1935, 1940-1959, and 1960-2000, identified by Serrano-Sanz, Sabaté-Sort and Gadea-Rivas (2008) according to the evolution of the foreign trade series. Finally, some additional subperiods were also examined within the latter ones, according to some particular events, i.e., the adoption of an inward-looking policy stance in 1891, the outbreak of World War I in 1914, the end of the expansionary phase experienced by the Western economies after World War II in 1974, and the Spanish integration into the EU in 1986. As a general conclusion, we can state that the foreign sector would have worked as a constraint to growth only during some periods of remarkably high growth in comparison with the Western European average, namely, 1914-1935, and, especially, the 1950s and 1960s.

The above results would point to some degree of continuity, for the conclusions of the paper, before and after the implementation of the Stabilization Plan in 1959, since the external constraint to growth would have operated both before and after that year[3]. On the other hand, the income elasticities for exports and imports seem to have reached some more favourable values, according to Krugman's (1989) terminology, since the 1960s and, especially, the mid-1970s. In other words, the increased external openness, coupled with the structural transformations operated in the Spanish foreign trade over the last thirty years, seem to have faded out the role of the external constraint to growth.

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[3]   In a recent paper, Prados de la Escosura, Rosés and Sanz-Villarroya (2010) stress this continuity between the policy stance in the 1950s and 1960s, so that the gradual liberalization operated during the 1950s would appear as a prerequisite for the implementation of the Stabilization Plan in 1959.

In addition, once Spain joined the Economic and Monetary Union of the EU after 1999, the disappearance of the exchange rate risk made easier to borrow in international markets, due to both an increase in the supply of funds available and a decrease in its cost. In other words, the allowable external deficit would be higher in a monetary union (Blanchard and Giavazzi, 2002). Although this argument should not mean neglecting the size of the external deficit, it certainly softens the practical significance of the external constraint to growth for a country belonging to a monetary union.

Overall, the evidence in this paper would suggest than an increased external openness had proved to be a relevant factor in the growth of the Spanish economy, since growth rates were higher in those periods of greater foreign trade liberalization. The potential restrictive role on growth of an increased external openness, through a potentially unsustainable trade deficit, would have showed only in periods of remarkably high growth rates in comparison with the Western European average, such as 1914-1935, and, especially, 1950-1975. In addition, such a restriction seems to be no longer binding in last years, in particular following the integration into the EU.

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