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Optimality of the current account of the Spanish economy, 1850-2015

Oscar Bajo-Rubio y Vicente Esteve

OPTIMALITY OF THE CURRENT ACCOUNT OF THE SPANISH ECONOMY, 1850-2015*

ABSTRACT

We analyse the possible optimality of the path followed by the current account of the Spanish economy over a very long period of more than 160 years (i.e., 1850-2015), according to the intertemporal approach to the current account and using a present-value model. In particular, from the estimation of a bivariate VAR model for the current account, we try to assess to which extent the latter has been used to smooth private consumption along time in the presence of temporary shocks that the economy might suffer. In general, the evidence does not seem to be particularly favourable to the validity of the model over the period of analysis.

Keywords: external imbalances, current account, intertemporal approach, Spanish economy.

JEL classification: F32, F41, F43, N10.

RESUMEN

Los factores que influyen en el tipo de cambio real son un tema crucial para la competitividad-precio de un país, y especialmente relevante para aquellos países que pertenecen a una unión monetaria. En este artículo, analizamos la relación entre la política fiscal y el tipo de cambio real para el caso de España. Con más detalle, analizamos cómo los cambios en el gasto público, diferenciando entre consumo e inversión, pueden afectar a la evolución a largo plazo del tipo de cambio real con la zona euro. La distinción entre dos definiciones alternativas del tipo de cambio real, basadas en índices de precios de consumo y los precios de exportación, respectivamente, también será una cuestión relevante para los resultados obtenidos.

Palabras clave: Tipo de cambio real, consume público, inversión pública**.**

Clasificación JEL: F32, F41, F43, N10.

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1. INTRODUCTION

External imbalances are a central component of the current economic and financial crisis (Obstfeld and Rogoff, 2010). Moreover, those imbalances are related to the state of public finances, as well as being able to influence the distribution between government deficit and debt.

The usual way of analysing current account imbalances makes use of the intertemporal approach to the current account. The starting point of this approach is the analysis of the national accounts. Accordingly, since the current account equals the difference between savings and investment and, given that the agents' decisions on savings and investment are based on intertemporal factors (such as their life cycle, the expected returns of investment projects, and the like), the current account is necessarily an intertemporal phenomenon. The intertemporal approach to the current account originates in the work of, among others, Sachs (1981), Obstfeld (1982) and Svensson and Razin (1983); the whole approach is surveyed in Obstfeld and Rogoff (1995) and Razin (1995).

An important contribution following this line of analysis is Blanchard and Giavazzi (2002). These authors argue that a greater economic integration leads to a higher external deficit in poorer countries, since this greater integration would mean, for these countries, higher investment and lower savings (through a higher consumption). This analysis has proven to be of a great interest given the further events in the Southern European countries members of the European Union (EU), which joined the Economic and Monetary Union (EMU) after 1999.

The optimal consumption models derive from the intertemporal approach to the current account, and are used to justify how a country can manage the current account balance in an optimal way (Sachs, 1982). On the one hand, by tilting consumption to either the present or the future as a function of the relative values of its subjective discount rate and the world interest rate; and, on the other hand, by smoothing consumption, i.e., stabilizing the level of consumption in front of shocks to output, investment or government spending. In addition, these models can be used to measure the degree of international capital mobility (Obstfeld, 1989). Specifically, in an optimal consumption model for an infinitely-lived representative agent, the latter will equal her marginal rate of substitution to the world interest rate. However, in the presence of perfect capital mobility, the marginal rates of substitution for a domestic

consumer and a foreign consumer should be equal, since they would benefit from the same interest rate.

The aim of this paper is to analyse the possible optimality of the path followed by the current account of the Spanish economy, according to the intertemporal approach to the current account and using a present-value model. There are several empirical studies available that provide estimations of the intertemporal model of the current account; a non-exhaustive list would include Cashin and McDermott (1998), Bergin and Sheffrin (2000), Otto (2003), Nason and Rogers (2006), Mercereau and Miniane (2008), Campa and Gavilán (2011), or Ca' Zorzi and Rubaszek (2012), among many others. However, our main contribution to the literature will be using a very long sample of more than 160 years, thanks to the recent availability of the national accounts' series for the Spanish economy over the period 1850-2015 of Prados de la Escosura (2016). As far as we know, there are no empirical tests available in the literature on the validity of the intertemporal model of the current account in a long-term perspective, for such a long period. In particular, we will estimate a bivariate vector autoregression (VAR) model for the current account, in order to assess to which extent the current account was used to smooth private consumption in front of any temporary shocks that the economy might have suffered during that period.

The Spanish economy can be an interesting case of study, since she has experienced a steady process of growth following the first steps of industrialisation at the start of the 19th century. However, and despite following a rather similar evolution to that of the rest of Western Europe, she experienced a relative retardation; and the role that the external sector might have played in that evolution results of a particular interest. An account of the main developments of the Spanish foreign sector in the last two centuries is provided in Tortella (2000). The role of the external sector as an important modernising factor in the evolution of the Spanish economy, despite its small relative size, was emphasised in Prados de la Escosura (1988). In fact, the highest growth periods were those characterised by a greater external openness (as in, e.g., the 1960s, or the years after 1986), unlike those episodes where a greater isolation against the rest of the world prevailed (such as the years 1890-1913, or 1930-1950), in which the Spanish economy fell behind in relative terms (Prados de la Escosura, 2007). The welfare loss associated with the autarchic policies followed during the period 1940-1958 (i.e., the episode of greater isolation of the Spanish economy) has been estimated by Carrasco-Gallego (2012) as 8 per cent of the total GDP of that time; a figure that would reach 26 per cent of total GDP for the period 1947-1955, characterised by the exclusion of Spain from the Marshall Plan. On

the other hand, in Bajo-Rubio (2012) the role of the balance of payments as a possible constraint on the rate of growth of the Spanish economy was examined, using time series data for the period 1850-2000. Overall, the external deficit did not seem to have restrained growth over the long run, unless some shorter and specific subperiods, such as 1940-1959 and 1959-1974. In addition, the current account balance was found to be sustainable along the period of analysis, from the estimation of a long-run relationship between exports and imports of goods and services as ratios to GDP.

The rest of the paper is organised as follows: we present a brief exposition of the intertemporal model of the current account in section 2; the empirical model to be estimated is examined in section 3; the data and main results are discussed in section 4; and section 5 concludes.

2. THE INTERTEMPORAL MODEL OF THE CURRENT ACCOUNT

The starting point of an optimal consumption model [see, e.g., Ghosh (1995) or, for a broader view, Obstfeld and Rogoff (1996)] is an infinitely-lived representative agent whose optimization problem is:

$$\max \sum_{t=0}^{\infty} \beta^t E[U(c_t)] \qquad 0 < \beta < 1$$

subject to her budget constraint:

$$b_{t+1} = (1+r)b_t + q_t - c_t - i_t - g_t$$

and the no-Ponzi condition:

$$\lim_{t \to \infty} b_{t+1} = 0$$

where:
- β = discount factor
- E = expectations operator
- U = utility
- b = net foreign assets owned by the representative agent
- r = world interest rate
- q = level of output or GDP
- c = consumption

- i = investment
- g = government spending

For simplicity, we will henceforth assume that the subjective discount rate equals the world interest rate, which rules out the possibility of consumption tilting. Solving the above problem, we get the value of optimal consumption c^*:

$$c_t^* = r \left\{ b_t + \frac{1}{1+r} E_t \left[\sum_{i=0}^{\infty} \frac{(q_{t+i}-i_{t+i} - g_{t+i})}{(1+r)^i} \right] \right\} \qquad (1)$$

or, alternatively:

$$c_t^* = rW_t$$

where:

$$W_t = b_t + \frac{1}{1+r} E_t \left[\sum_{i=0}^{\infty} \frac{(q_{t+i}-i_{t+i} - g_{t+i})}{(1+r)^i} \right]$$

is the level of wealth.

On the other hand, the current account balance that smooths consumption, ca^*, is defined as:

$$ca_t^* = y_t - i_t - g_t - c_t^* \qquad (2)$$

where $y_t = q_t + rb_t$ is the national income or GNP (i.e., GDP plus net factor payments); which, replacing the value of c^*, becomes:

$$ca_t^* = -E_t \sum_{i=0}^{\infty} \frac{\Delta z_{t+i}}{(1+r)^i} \qquad (3)$$

where $z_t \equiv q_t - i_t - g_t$ denotes the so-called national cash flow.

The above equation shows the optimal current account balance as the discounted present expected value of changes in output, investment and government spending, according to the intertemporal approach to the current account. As can be seen, if the shocks to the national cash flow (i.e., output, investment, or government spending) are permanent, they will not affect ca^*, since their expected variation is zero; however, if the shocks are

transitory, they will affect ca^*, which will adjust in order to keep the present consumption unchanged. Specifically, if the agents expect that the national cash flow is going to rise in the future, they will increase their present consumption, which will lead to a current account deficit. On the contrary, if the agents anticipate a future fall in the national cash flow the current account will move to a surplus.

3. EMPIRICAL MODEL

We proceed in this section to estimate equation (3) following the approach in Otto (2003), which is based in turn on the work of Campbell (1987) and Campbell and Shiller (1987). In particular, estimation will proceed in two steps:

(i) First, we will test whether the actual current account balance incorporates the agents' expectations on the future movements of the national cash flow. This can be done by estimating the following equation:

$$\Delta z_t = \pi + \theta \Delta z_{t-1} + \alpha ca_{t-1} + \varepsilon_t$$

and then test whether the coefficient α is negative and statistically significant. From a technical point of view, we would be testing whether the current account Granger-causes variations in the national cash flow. The Granger-causality test, however, does not test all the restrictions that the present-value model imposes on the data; a formal test of the present-value model can be obtained as follows (see Otto, 2003, for details). Starting for the *t+1* term of equation (3), taking expectations in both sides, assuming rational expectations and operating, we get:

$$ca_{t+1} - \Delta z_{t+1} - (1 + r)ca_t = \omega_{t+1}$$

where ω is an error term. Under the present-value model, the left-hand side of this equation should be uncorrelated with any variable dated at *t* or earlier. Accordingly, the model can be tested through the estimation of:

$$x_t = \pi + \theta_1 \Delta z_{t-1} + \theta_2 ca_{t-1} + v_t \qquad (4)$$

where $x_t \equiv ca_{t+1} - \Delta z_{t+1} - (1 + r)ca_t$,
and then testing $\theta_1 = \theta_2 = 0$.

(ii) Second, we will estimate the optimal current account balance, using a first-order VAR model for the variables Δz_t and ca_t:

$$\begin{bmatrix} \Delta z_{t+1} \\ ca_{t+1} \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \begin{bmatrix} \Delta z_t \\ ca_t \end{bmatrix} + \begin{bmatrix} v_{1t+1} \\ v_{2t+1} \end{bmatrix}$$

so that, solving the model forward, taking expectations and using the vector [1 0] to collect the forecast of Δz_t, we re-write the present-value model (3) as:

$$ca_t^* = -\phi[1\ 0] \begin{bmatrix} \tilde{a}_{11} & \tilde{a}_{12} \\ \tilde{a}_{21} & \tilde{a}_{22} \end{bmatrix} \begin{bmatrix} \Delta z_t \\ ca_t \end{bmatrix}$$

or, more simply:

$$ca_t^* = -\phi(\tilde{a}_{11}\Delta z_t + \tilde{a}_{12}ca_t) \qquad (5)$$

where $\phi = (1 + r)^{-1}$ and $\begin{bmatrix} \tilde{a}_{11} & \tilde{a}_{12} \\ \tilde{a}_{21} & \tilde{a}_{22} \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \left(I - \phi \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \right)^{-1}$,

being I the 2x2 identity matrix.

The variable ca_t^* is the optimal current account balance, i.e., an estimate of the current account, consistent with the VAR (1) model and with the constraints derived from the intertemporal model. In the end, a graphical comparison of the actual current account balance, ca_t, and its optimal value, ca_t^*, will allow us to assess the validity of equation (3). Notice, finally, that, for the optimal current account to equal the actual current account, two constraints from (5) must hold:

$$w_{\Delta z} \equiv -\phi\tilde{a}_{11} = 0$$

$$w_{ca} \equiv -\phi\tilde{a}_{12} = 1$$

4. DATA AND EMPIRICAL RESULTS

O ur data source is the new set of historical national accounts for the period 1850-2015, recently provided by Prados de la Escosura (2016). In particular, our two variables of interest, z and ca, are computed, respectively, as:

- GDP minus gross fixed capital formation, minus changes in inventories, minus government consumption.
- GDP minus private consumption, minus gross fixed capital formation, minus changes in inventories, minus government consumption, plus net primary income from the rest of the world, plus net current transfers from the rest of the world.

The two variables were converted into real terms using the deflator of the GDP (2010=100). Finally, since the model is based on a representative agent, both *z* and *ca* are computed in per capita terms by dividing by total population. The GDP deflator and total population have been taken, respectively, from Table 7 and Table 3 from Prados de la Escosura (2016); net primary income and net current transfers from the rest of the world, from Table 2; and the rest of variables, from Table 1. The final variables are measured in 2010 € per person.

In order to have a first glimpse of the data, we show in Figure 1 the evolution of the Spanish current account as a share of GDP, over the period 1850-2015.

Figure 1
Current account as a share of GDP: Spain, 1850-2015
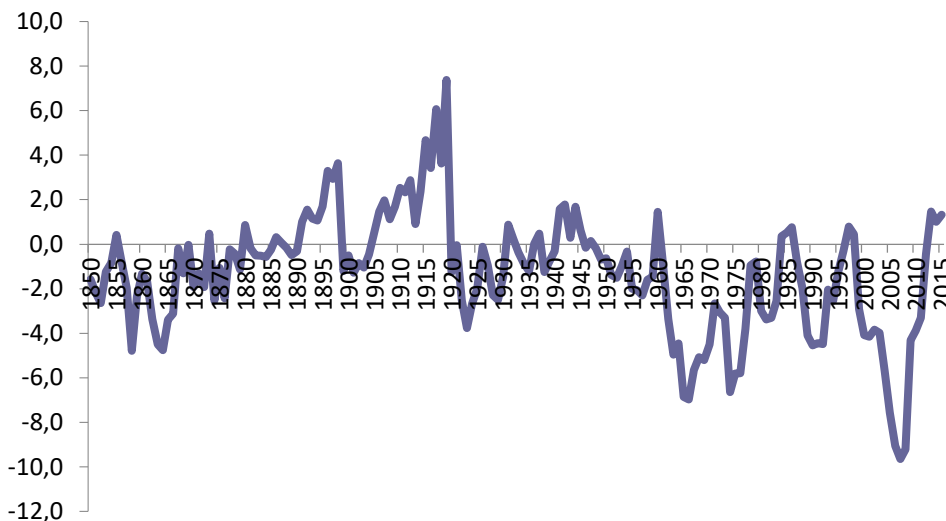
For the period before the First World War, Prados de la Escosura (2010) characterised two main periods in the evolution of the current account: one of persistent deficits between 1850 and 1890; and another where surpluses prevailed, between 1891 and 1913 (with the exception of the years 1899-1904). According to this author, economic growth at the end of the 19th century was stimulated by high amounts of foreign 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 broad pattern detected by Prados de la Escosura (2010), i.e., current account deficits in periods of higher growth, and surpluses in periods of lower growth, remains roughly valid in subsequent years. So, current account deficits reappeared along the booming 1920s, after the highest surplus of all the series: 7.4% of GDP in 1919, coinciding with the acute crisis after the end of the First World War. Next, the current account balance stayed at low levels during the turbulences of the central years of the 20th century: the sequels of the Great Depression in the 1930s, and the autarchic policy stance imposed by the Franco regime at the end of the Spanish Civil War during the 1940s and 1950s. The increased openness of the economy

following the Stabilisation Plan of 1959 paved the way for the high-growth period of the 1960s and first 1970s, which contemplated the re-emergence of large current account deficits, reaching a then maximum of 7% of GDP in 1966. After some years of economic stagnation, growth and large current account deficits returned in the second half of the 1980s, following membership into the EU; and even more after joining EMU in 1999, reaching the highest current account deficit ever: 9.6% of GDP in 2007. Finally, these huge deficits faded away, and even turned into surpluses, once the current crisis started. Overall, current account deficits, by making possible the arrival of foreign capital inflows, would have eased the possibility of higher economic growth; and, in this, sense, the external sector would not seem to have worked as a constraint on the growth of the Spanish economy over the long run (Bajo-Rubio, 2012).

We now turn to the empirical results. In Table 1 we present the estimation of a VAR (1) for Δz_t and ca_t over the whole period 1850-2015. The estimation method is OLS with the White correction of standard errors for heteroscedasticity (White, 1980). We can see that the current account would help to predict future changes in the national cash flow, as predicted by the present-value model. This is shown by the negative and statistically significant coefficient on ca_{t-1} in the first column of the table, even though this coefficient is quantitatively very small.

Table 1
Estimation of a VAR (1) for Δz_t and ca_t: Spain, 1850-2015

	Δz_t	ca_t
intercept	44.60	−15.01
	(3.21)	(−1.61)
Δz_{t-1}	0.29	0.04
	(4.08)	(0.54)
ca_{t-1}	−0.06	0.92
	(−2.62)	(9.33)
$\bar{R}^2$	0.12	0.84
$\hat{w}_{\Delta z}$	−0.337 [−0.593, −0.084]	
$\hat{w}_{ca}$	0.827 [0.114, 1.431]	

Note: *t*-statistics in parentheses, and 95% confidence intervals in square brackets.

Next, we proceed to test for the orthogonality condition, from the estimation of equation (4); the results are shown in Table 2. The real interest rate used to compute the dependent variable x_t (see above) is 2% (from an average over the period of 4.8% for the UK bank rate and 2.9% for the inflation rate; see Hills, Thomas and Dimsdale, 2015). Since the *p*-value of an *F*-test on the joint significance of the lagged values of Δz and ca is 0.03, we can reject the null hypothesis that the latter are uncorrelated with the dependent variable $x_t \equiv ca_{t+1} - \Delta z_{t+1} - (1+r)ca_t$. Hence, according to this test, the present-value model of the current account would be rejected by the data.

Table 2

Estimation of the orthogonality condition: Spain, 1850-2015

$$x_t = -59.70 - 0.24\,\Delta z_{t-1} - 0.03\,ca_{t-1} + \hat{v}_t$$
$$(-3.59)\ (-2.52)\qquad (-0.36)$$

Joint significance of lags *p*-value = 0.03

Note: *t*-statistics in parentheses.

Finally, Figure 2 shows the optimal current account, as a share of GDP, computed from equation (5), and compares it with the actual values, shown in Figure 1. The values of the weights of Δz and ca used to compute the optimal current account according to equation (5) are −0.337 and 0.827, respectively; these values, together with 95% confidence intervals, appear in Table 1 and have been computed from the estimation of the VAR. Notice that both values are not too close to the theoretical values 0 and 1, respectively, that are needed for the present-value model to be a valid characterisation of the path followed by the current account. As can be seen in the figure, the optimal current account does not fit perfectly the movements of the actual current account. More specifically, two broad periods can be detected, before and after the first 1960s (i.e., the years where a significant change took place in the performance of the Spanish external sector), so that in the first period the optimal current account overpredicts the actual current account, unlike the second period, where it underpredicts it. In fact, after 1960 the Spanish foreign trade becomes "mature" in the terminology of Serrano-Sanz, Sabaté-Sort and Gadea-Rivas (2008), i.e., characterised by the predominance of manufactures and services, unlike the period before the 1930s, characterised by the predominance of primary products.

Figure 2
**Actual and optimal current account as a share of GDP:
Spain, 1850-2015**
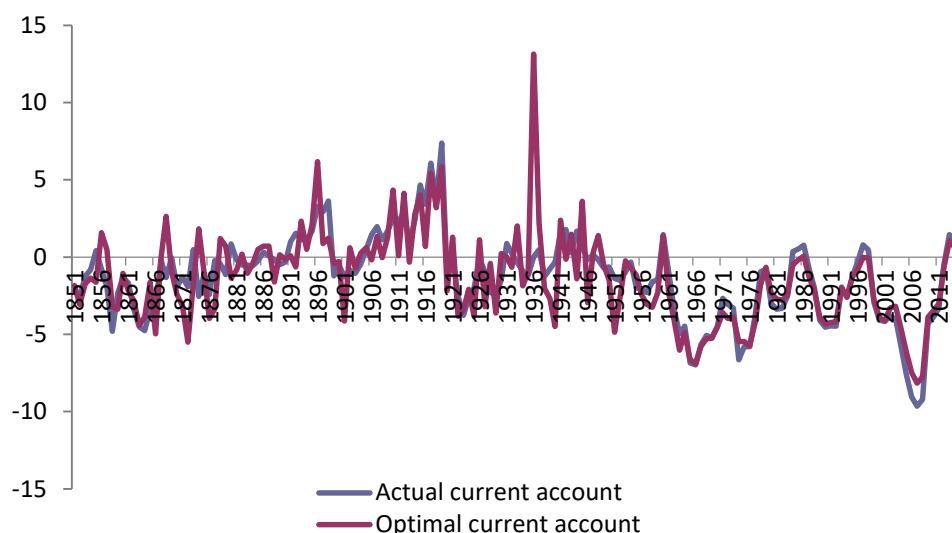
Due to the length of our sample period (i.e., 166 years), we have also allowed for the possibility of a differentiated behaviour of the relevant variables across subperiods. In particular, two possible breaking points have been considered, dated at 1891 and 1959[1]. The first break can be related to the inward-looking policy stance adopted at the end of the 19th century, which can be described as a mix of protectionism, preservation of the domestic market to domestic production (through a strong government interventionism), and economic nationalism (i.e., replacing foreign capital for domestic capital as the main driving force of growth). As a turning point of this policy orientation, the approval of a new and extremely protectionist tariff in December 1891 stands out; a discussion of protectionist policies in Spain in the final years of the 19th century and the start of the 20th can be found in Tena-Junguito (2006). On the other hand, the second break is

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[1] We have also applied a formal test of structural change to the current account series ca_t, namely, the test of Bai and Perron (1998), which estimated two breaks at 1918 and 1960. Even though allowing for a break at 1959-1960 is generally accepted in empirical studies of the Spanish economy, a break at 1918 seems to be more difficult to justify from an economic point of view, unlike the break at 1891-1892. For this reason, and since the results (available from the authors upon request) are rather similar, we have preferred to consider as breakpoints 1891 and 1959.

justified by the approval of the Stabilisation Plan of 1959 that ended the policy of autarky implemented at the end of the Spanish Civil War, and made possible the very high growth rates of the next fifteen years (the so-called Spanish miracle). It is only after the 1959 Stabilisation Plan that the timid liberalizing measures implemented some years before were in fact able to operate (Tortella, 2000)[2]. Broadly speaking, we can characterise 1850-1891 and 1960-2015 as periods of external openness, and 1892-1959 as a period in which the Spanish economy was rather closed, which culminated in the autarky promoted by Franco's regime at the end of the Spanish Civil War.

Accordingly, we have re-estimated the model for the periods 1850-1891, 1892-1959, and 1960-2015. From the estimation of a VAR (1) for Δz_t and ca_t, we can see in Table 3 that now the current account does not help to predict future changes in the national cash flow in the second and third subperiods, unlike the first one, where it does. In turn, from the results of the test on the orthogonality condition shown in Table 4, we cannot reject the null hypothesis that the lagged values of Δz and ca are uncorrelated with the dependent variable of equation (4). In other words, the present-value model of the current account would not be rejected by the data according to both tests for 1850-1891, and only according to the orthogonality test for 1892-1959 and 1960-2015.

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[2] The choice of 1959-1960 as a breakpoint instead of, e.g., 1950-1951, can be questionable given the first attempts of liberalisation that took place in the first 1950s. So, for instance, Prados de la Escosura, Rosés and Sanz-Villarroya (2012) have stressed the continuity between the policy stance in the 1950s and 1960s, with the gradual liberalization during the 1950s being a precondition for the Stabilisation Plan of 1959. However, as discussed by the same authors, the higher growth of the 1950s, compared with the extremely poor performance of the post-war years, proved to be unsustainable over the long run; see Prados de la Escosura, Rosés and Sanz-Villarroya (2012).

Table 3

Estimation of a VAR (1) for Δz_t and ca_t: subperiods

	1850-1891		1892-1959		1960-2015	
	Δz_t	ca_t	Δz_t	ca_t	Δz_t	ca_t
intercept	-13.66	-9.98	21.49	-0.02	99.49	-162.95
	(-0.69)	(-2.33)	(0.94)	(-0.01)	(2.65)	(-2.23)
Δz_{t-1}	0.07	0.01	-0.10	-0.01	0.52	0.50
	(0.43)	(0.17)	(-0.81)	(-0.16)	(3.54)	(2.09)
ca_{t-1}	-1.24	0.50	-0.10	0.70	0.01	0.85
	(-1.96)	(3.49)	(-0.35)	(4.31)	(0.57)	(7.42)
$\bar{R}^2$	0.11	0.24	0.01	0.49	0.30	0.78
$\hat{w}_{\Delta z}$	-0.052 [-0.341, 0.186]		0.096 [-1.210, 1.356]		-1.259 [-2.108, -0.304]	
$\hat{w}_{ca}$	2.557 [2.134, 2.764]		0.314 [-0.051, 0.523]		-0.188 [-1.230, -0.210]	

Note: t-statistics in parentheses, and 95% confidence intervals in square brackets.

Table 4

Estimation of the orthogonality condition: subperiods

1850-1891	1892-1959	1960-2015
$x_t = -3.67\ \text{-0.06}\ \Delta z_{t-1} + 0.73\ ca_{t-1} + \hat{v}_t$	$x_t = -21.51\ \text{-0.10}\ \Delta z_{t-1} -0.20\ ca_{t-1} + \hat{v}_t$	$x_t = -262.44\ -0.02\ \Delta z_{t-1} -0.19\ ca_{t-1} + \hat{v}_t$
$\quad(-0.20)(-0.43)\qquad(1.26)$	$\quad(-0.89)(-0.75)\qquad(-0.52)$	$\quad(-3.86)\ (-0.11)\qquad(-1.74)$
Joint significance of lags p-value = 0.42	Joint significance of lags p-value = 0.59	Joint significance of lags p-value = 0.21

Note: t-statistics in parentheses.

We have also computed the optimal current account from equation (5) for the three subperiods, and compared it with the actual values; the results are shown in Figure 3. Again, the fit between both series is anything but good, and no clear pattern emerges. While for the first subperiod the optimal current account generally overpredicts the actual current account as in Figure 2, for the second subperiod this only happens at some phases characterised by a certain economic growth, such as the 1920s and the 1950s; on the contrary, the optimal current account underpredicts the actual one over most of the first years of the second subperiod, being this result particularly stronger during the years of the First World War. Finally, and unlike the results in Figure 2, for the third subperiod the optimal current account overpredicts the actual current account most of the time, especially on the eve of the current economic and financial crisis.

Figure 3
Actual and optimal current account as a share of GDP: subperiods

Figure 3A: 1850-1891

Figure 3B: 1892-1959

Figure 3C: 1960-2015
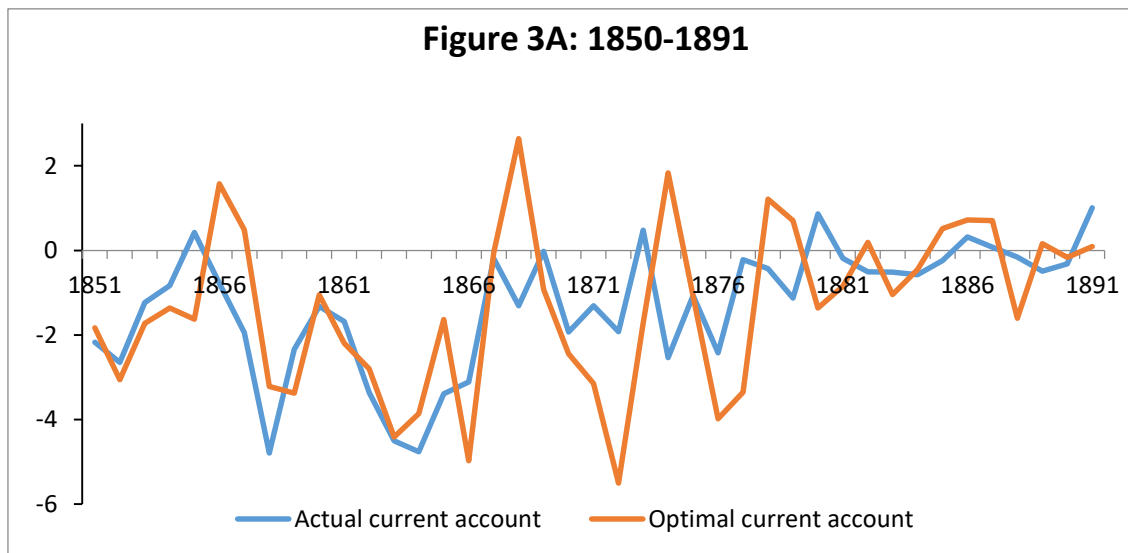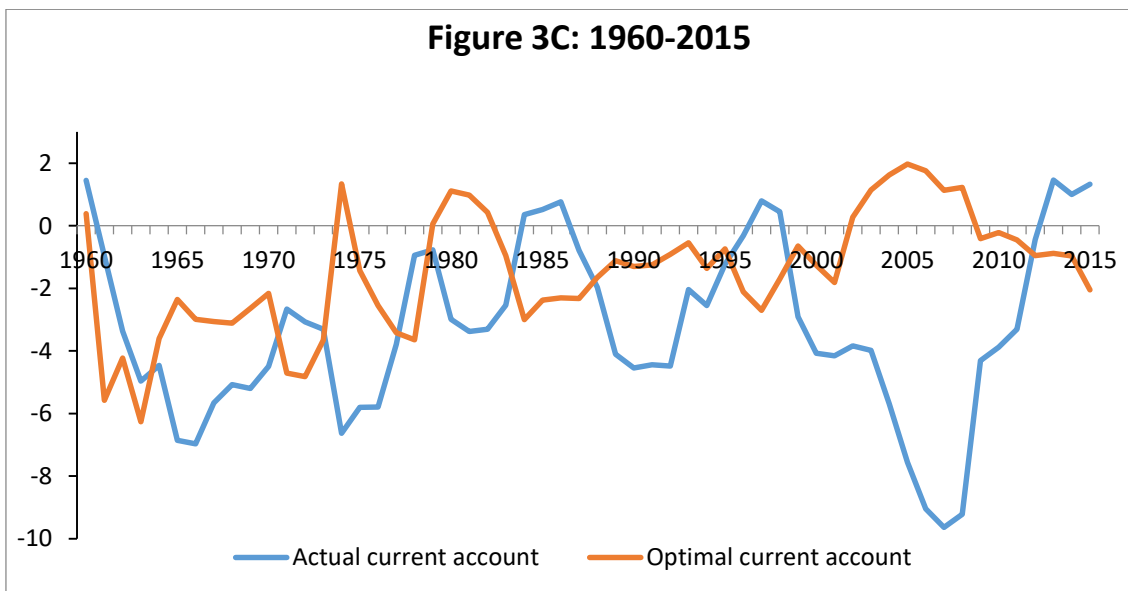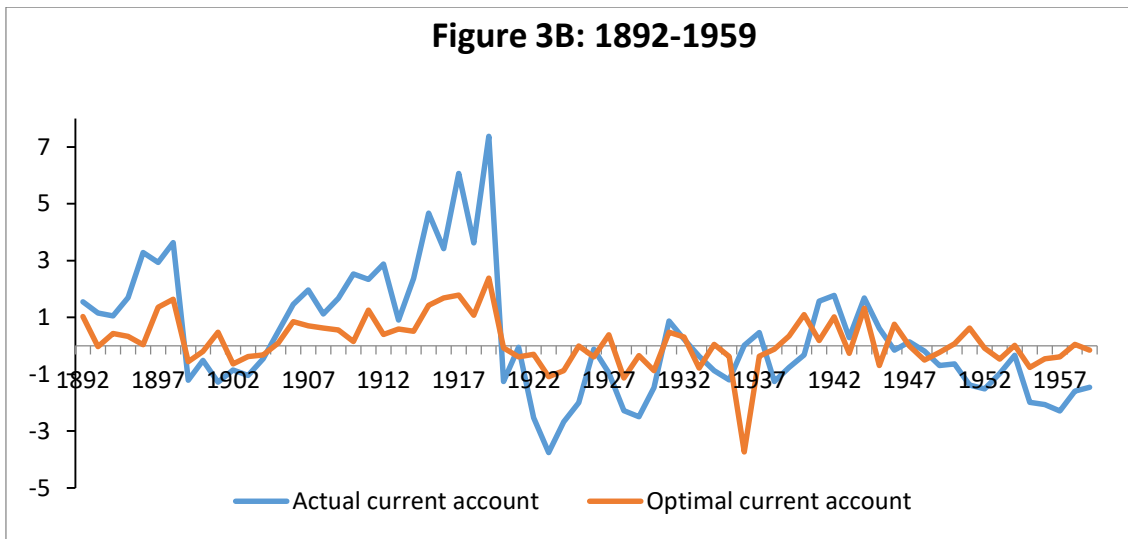
Source: Prados de la Escosura (2016) and own elaboration.

5. CONCLUSIONS

External openness seems to have played an important role in the growth of the Spanish economy over the last century and a half, with the highest growth periods corresponding to those of greater external openness (Prados de la Escosura, 2007). External openness, on the other hand, did not seem to act as a constraint on economic growth during this time, and the current account balance of the Spanish economy proved to be sustainable over the long run (Bajo-Rubio, 2012).

In this paper, we have tried to go further into this line of analysis, and examined the possible optimality of the path followed by the current account of the Spanish economy over a very long period of more than 160 years (namely, 1850-2015), according to the intertemporal approach to the current account and using a present-value model.

First, from the estimation of a VAR (1) for the change in the national cash flow (i.e., GDP, minus investment and government spending), z, and the current account, ca, we found a negative and statistically significant effect from the latter (although with a very small coefficient), which in principle would agree with the predictions of the present-value model. However, when testing from for the orthogonality condition, so that the variable $x_t \equiv ca_{t+1} - \Delta z_{t+1} - (1+r) \, ca_t$ should be uncorrelated with the lagged values of Δz and ca, the null hypothesis was rejected. Furthermore, when computing the optimal current account from the observed values of Δz and ca, the estimated weights for the latter variables were not too close to the theoretical values needed for the present-value model to be valid (i.e., 0 and 1, respectively). Accordingly, the optimal current account did not fit perfectly the actual current account, overpredicting it before the first 1960s, and underpredicting it after that date.

Due to the length of our sample period (i.e., 166 years), the previous analysis was complemented with an estimation over the three subperiods 1850-1891, 1892-1959 and 1960-2015 where, broadly speaking, the first and the third would correspond to episodes of external openness, and the second to

a rather closed economy. The results, however, were anything but clear-cut. While the results for the first subperiod were not too bad for the validity of the model, for the other two subperiods the results were difficult to interpret, and even to reconcile with those for the whole period (especially in the last subperiod).

To conclude, our evidence is not particularly favourable to the validity of the present-value model of the current account for the case of Spain in a long-term perspective, over the period 1850-2015. The evidence shows that, in periods characterised by greater external openness, current account deficits were financed by entries of foreign capital that contributed to foster growth. And the more recent events following the launching of EMU cannot be thought as a process of consumption smoothing either, since they would be the result of what Blanchard and Giavazzi (2002) have termed an increasing decoupling of saving and investment, with poorer euro area members investing more, saving less, and running larger current account deficits.

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