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BACK TO GOLD: STERLING IN 1925

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Abstract

Expectations of Sterling returning to Gold have been disregarded in empirical work on the US dollar – Sterling exchange rate in the early 1920s. We incorporate such considerations in a PPP model of the exchange rate, letting the probability of a return to gold follow a logistic function. We draw several conclusions: (i) the PPP model works well from spring 1919 to spring 1925; (ii) wholesale prices outperform consumer prices; (iii) allowing for a return to gold leads to a higher speed of adjustment of the exchange rate to PPP; (iv) interest rate differentials and the relative monetary base are crucial determinants of the expected return to gold; (v) the probability of a return to Gold peaked at about 72% in late 1924 and but fell to about 60% in early 1925; and (vi) our preferred model does not support the Keynes' view that Sterling was overvalued after the return to gold.

Key words: Gold Standard, Sterling, exchange rate, PPP, expectations.
JEL numbers: E5, F31, N1

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1. INTRODUCTION

In the Budget speech on 28 April 1925, Winston Churchill, the Chancellor of the Exchequer, informed the House of Commons of the British Government's decision to return to Gold immediately. As Churchill noted (as quoted in *the Times*, 29 April 1925):

> *"A return to an effective gold standard has long been the settled and declared policy of this country. Every expert Conference since the war – Brussels, Genoa – every expert Committee in this country has urged the principle of a return to the gold standard. No respectable authority has advocated any other standard. No British Government – and every party has held office – no political party, no previous holder of the office of Chancellor of the Exchequer has challenged, or, as far as I am aware, is now challenging the principle of a reversion to the gold standard in international matters at the earliest possible moment. It has always been taken as a matter of course that we should return to it, and the only question open has been the difficult and the very delicate question of how and when."*

While it had been assumed, if not taken for granted, since the end of the First World War that the British Government would aim to return to Gold at the pre-war parity of 4.86 $ per £ at some future date, it was not clear precisely when such a policy change might occur (Hodgson (1972)). However, the expiration of the legal prohibition of the export of gold at the end of 1925 must have suggested that a restoration of the gold was likely before that date.[1] Nevertheless, it was not generally expected that Churchill would announce the return to Gold in his speech. For instance, in an article published on the day of the Budget speech, *the Times* speculated about what Churchill might say but did not mention the possibility of a return to the Gold Standard.[2]

The fact that a return to Gold was expected in the early 1920s must have affected the dollar-sterling exchange rate in advance of Churchill's announcement. Smith and Smith (1990) and Miller and Sutherland (1994) study the impact of expectations of a return to Gold on the market exchange rate in theoretical models of exchange rate dynamics. Surprisingly, no empirical estimates of the

[1] While Gold exports had been permitted during the War, the cost of transportation and the inability to obtain insurance covered had in in practice prohibited exports. Furthermore, the Bank of England had controlled the exchange rate at the level of 4.77 $ per £. The difference between the exchange rate and the Gold parity meant that large gold flows were likely once the end of the War it because possible to transport gold again. After the exchange support ended on 20 March 1919, the British authorities prohibited the export of gold from 1 April onward. These regulations were consolidated in the Gold and Silver (Export Control) Act that was due to expire on 31 December, 1925. See Moggridge (1972, p. 23) or Sawyer (1976, Appendix 6, pp. 55-56.)

[2] Interestingly, Churchill was sceptical about returning to gold but let himself be persuaded by his advisors who were strongly in favour. For instance, Jenkins (2001, p. 399) states on February 21, 1925, he wrote to Sir Otto Niemeyer, the Treasury Controller of Finance: "The treasury has never … faced the profound significance of what Mr. Keynes calls 'the paradox of unemployment amid dearth'. The Governor shows himself perfectly happy in the spectacle of Britain possessing the finest credit in the world simultaneously with a million and a quarter unemployed." Similarly, Gilbert (1991, p. 469) asserts that Churchill told his staff in January 1925 that returning to gold "favoured the special interest of finance at the expense of the interests of production."

probability of a return to gold and how it evolved over time have been presented in the literature. In this paper we take a first step in this direction by providing such estimates.

We start by assuming that the market exchange rate at any point in time is a weighted average of an unknown fundamental exchange rate, given by PPP, and the pre-war parity of 4.86 $ per £, with the weights being the likelihood that Sterling would be fixed at the old parity. Since the market was below the old parity in the early 1920s, expectations of a return to gold will have appreciated the exchange rate. Estimates of the fundamental exchange rate that disregard the possibility of a return to gold may therefore be biased.

We go on by estimating the probability of a return to Gold and how it evolved over time in response to macroeconomic factors. We also estimate the fundamental exchange rate and its determinants, in particular relative prices.

The paper is organized as follows. In the Section 2 we present the standard error correction model for the flexible exchange rate based on the long run validity of PPP. Then we extend this econometric model taking into account that markets expected that there could be a return to the old gold parity in the future. To this end we formulate a logistic probability model for the return to gold with economic and political variables as determinants of the probability of a reintroduction of the gold parity. In Section 3 we show first the results for the standard EC model and turn then to the extended model allowing for an estimate of the probability to return to gold. Section 4 concludes.

2. THE ECONOMETRIC MODEL

Given the very long literature on the UK's decision to return to Gold in 1925 and on the behaviour of the USD/Sterling exchange in the early 1920s, in the interest of brevity we turn directly to the econometric model and the data.[3] The model has two components: a fundamental exchange rate model that governs the behaviour of the exchange rate when it floats freely, and a model of the probability that it will be fixed at the pre-war gold parity. We discuss each in turn.

2.1 MODELLING THE FUNDAMENTAL EXCHANGE RATE

We start by proposing the simplest possible model for the exchange rate under floating. Let e_t denote the logarithm of the USD/Sterling exchange rate and p_t the relative price level between the

[3] For good overviews, See Moggridge (1972) and Sayers (1976). Tsiang (1959) reviews exchange rate experiences in a number of economies with low inflation in the aftermath of the First World War.

US and the UK. These variable are assumed to be non-stationary but integrated of order 1, I(1). If Purchasing Power Parity (PPP) held in the long run, the two time series would be cointegrated.

Taylor (1992) summarized concisely the empirical evidence in favour of PPP obtained by the application of unit root and cointegration methods, focussing on the apparent different degrees of integration of the US and UK wholesale price levels and the implications for the exchange rate under PPP. Briefly, the UK Wholesale Price Index appears to be trend stationary and the exchange rate and the US WPI difference stationary with a drift.

Taylor (1992) proceeded with a bivariate cointegration analysis of the exchange rate and the US WPI including a deterministic trend in the cointegrating relationship representing the UK WPI. However, we may consider directly the relative WPI of the two countries despite the apparently different unit root properties. The relative (logarithm of the) WPI series will be I(1) if either WPI is I(1). Moreover, the drift of this series is the difference between the slope of the deterministic trend function and the drift in the I(1) series.

Thus, we assume that

$$e_t = p_t + u_t \tag{1}$$

where u_t is a stationary and auto-correlated deviation from long run PPP.

The short run dynamics of the variables is represented by an Error Correction (EC) model that involves solely stationary variables

$$\Delta e_t = \gamma_1(e_{t-1} - p_{t-1}) + a_{11}\Delta e_{t-1} + a_{12}\Delta p_{t-1} + \varepsilon_{1t} \tag{2}$$

$$\Delta p_t = \gamma_2(e_{t-1} - p_{t-1}) + a_{21}\Delta e_{t-1} + a_{22}\Delta p_{t-1} + \varepsilon_{2t}$$

Equation 2, in which we have omitted constant term and added one lagged difference term, is our model of the exchange rate and says that over time the exchange rate and relative price level moved to restore PPP.[4]

Before proceeding it is worth noting that a number of authors have studied empirically the determination of the USD-Sterling exchange rate in the period before the return to Gold, typically also focussing on the behaviour of relative prices using different econometric techniques (e.g.,

[4] Of course there could be more than one of these lags but this specification turns out to be appropriate empirically.

Hodgson (1972), Clements and Frenkel (1980), Redmond (1984), Matthews (1986) and Taylor (1992)). Although expectations of a return to Gold must have impacted on the market exchange rate, that literature does not seek to establish how important that effect might have been. By disregarding the potential importance of such expectations, the empirical analysis is subject to an omitted variables problem of unknown importance.

Below we discuss how these expectations are determined and how they can be taken into account in the econometric modeling.

2.2 MODELLING THE PROBABILITY OF A RETURN TO GOLD

Next we assume that in period *t-1* the expected future exchange rate change is a weighted average, $0 \leq \pi_t \leq 1$, of a change of the current log exchange rate to the log of the pre-war Gold Parity $\bar{e} = 1.58$ and change in the exchange rate according to the EC model (2). Assuming rational expectations and using $\Delta e_t \equiv E_{t-1} \Delta e_t + \varphi_{1t}$, we obtain:

$$(3) \qquad \Delta e_t = \pi_t(1.58 - e_{t-1}) + (1 - \pi_t)(\gamma_1(e_{t-1} - p_{t-1}) + a_{11}\Delta e_{t-1} + a_{12}\Delta p_{t-1}) + \varphi_{1t} .$$

To close the model we assume that π_t follows the logistic function:

$$(4) \qquad \pi_t = \frac{1}{1 - exp\left(\sum_{j=0}^{m} \beta_j z_{jt-1}\right)},$$

where the z_{jt} are the determinants of the probability that the exchange rate is returned to the pre-war gold parity next period and the β_j the associated regression parameters.

Combining equations (3) and (4) we obtain the full model which can be fitted using non-linear least squares. This gives us estimates of the fundamental exchange rate equation given in (2), the probability that the Gold Standard is restored next period, π_t, and the effects of the determinants of that probability in the expression $\sum_{j=0}^{m} \beta_j z_j$.

Before proceeding we make three observations. First, the direct estimates of (2) are biased if π_t is nonzero. This bias is the stronger the stronger the correlation of the variables right-hand side of (2) with π_t. Therefore, it is interesting to compare the direct estimates of the EC-model (2) with the "expected parity augmented" model of this section.

Second, note that our estimates of the parameters are naturally subject to some uncertainty. Since π_t is a non-linear function of the β_j: s, the mean of π_t at any point in time depends on the higher-

order moments of the estimated β_j: s. To characterise the uncertainty about π_t, we therefore present the median and the 10th and 90th percentiles of a bootstrap, with 500 replications[5], of the model. We also present a deterministic estimate of π_t computed by simply using the estimated $\beta_j s$ in order to demonstrate that the estimates are biased if the non-linearity is disregarded.

Third, while p_t affects the exchange rate by influencing the fundamental exchange rate, z_{jt} does so by influencing the probability that Sterling is returned on Gold. Thus, we should include all other variables relevant for the decision of the UK government to restore the pre-war gold parity. In the empirical work below we included both "domestic" variables (such as dummy for whether the Conservative party is in power; the occurrence of strikes and the level of unemployment in the UK) and also "international" variables (such as the US-UK interest rate differential, the relative monetary base and relative industrial production).

3. EMPIRICAL RESULTS

3.1 UNIT ROOT PROPERTIES OF EXCHANGE RATE AND RELATIVE WPI AND CPI

In this section we show the monthly data for our analysis and provide the unit root analysis for the exchange rate and the relative price level. Besides the wholesale price indices (WPIs) we consider the consumer price indices (CPIs) as alternative measure of prices in the UK and the US. Figure 1 shows the logarithms of the three series from January 1919 to April 1925. Until March 20 1919 the pound was pegged at an overvalued rate of 4.76 and this policy was supported by restrictions on international money, capital and gold movements. The official support of the exchange rate ceased and the restrictions were lifted during the following months (Moggridge, 1969, p. 14). Accordingly we see a strong initial depreciation of the pound despite an increase of the relative price level in the second quarter of 1919. Subsequently, we see a long run co-movement of the exchange rate and relative prices onwards, which seems to be more pronounced for the WPI than the CPI. We note a period of a slightly lower US inflation rate until the end of 1920 which was then followed by four years with considerably lower British trend inflation.

*** Figure 1 here ***

[5] We used the estimates of equation (3) to calculate an expected value of Δe_t and added error terms drawn from the empirical residuals with replacement in order to get a bootstrap replication of the time series for Δe_t. These data were then used to re-estimate the model and these estimates were used to calculate a draw of the probability time series

Given the end of the official support for the exchange rate in April 1919, we consider the sample from April 1919 early summer to April 1925. Table 1 contains the results of the Phillips-Perron unit root test and Kwiatkowski-Phillips-Schmidt-Shin stationarity test without and with deterministic trend.

*** Table 1 here ***

Table 1 indicates that the three series are I(1). In most cases the unit root hypothesis cannot be rejected at the 10% level and the stationarity hypothesis is always rejected at least at the 10% level without and with deterministic trend. The only exception is the relative CPI where we cannot reject the stationarity hypothesis without trend. However, given the visible trend in the relative CPI we should rely on the unambiguous results of the test including a deterministic trend. We include in Table 1 the test for the real exchange rate using the relative WPI and CPI. These tests indicate that the real exchange rate is stationary. We have only a weak rejection of the stationary hypothesis for the WPI real exchange rate including a deterministic trend. However, the results without trend, which seems to be appropriate according to the plot of this series provided in Figure 2, clearly reject the I(1) hypothesis, but does not reject the stationarity hypothesis. Thus, this provides a first indication that PPP is valid for our data.

*** Figure 2 here ***

3.2 EC MODEL ESTIMATES

In this section we first present the estimates of the standard EC-model in equation (2). We consider both relative prices measured by WPIs and CPIs series at the same time in our cointegration analysis, which aims to determine what price index is best able to account for movements in the exchange rate empirically. Table 2, where pw_t denotes relative wholesale prices and pc_t relative consumer prices, provides the estimation and test results of the Johansen multivariate model as well as Fully Modified OLS estimates of the cointegrating vector and tests.

*** Table 2 here ***

There is a clear message from the results presented in Table 2: the hypothesis that the series are not cointegrated is clearly rejected by both tests. Moreover, there appears only one cointegrating

relationship in the multivariate test and the estimates of the cointegration vector clearly indicate that the relative WPI is the relevant price variable (with a coefficient not statistically different from 1) whereas the coefficient of the relative CPI is close to zero and statistically insignificant. Therefore, we estimate our EC model using WPI as price variable. The findings of this exercise are reported in Table 3.[6]

*** Table 3 here ***

The results given in Table 3 suggests that the adjustment to PPP is symmetric as both EC coefficients have the signs suggested by theory and are statistically significantly different from zero at the 5% level. Even the absolute amount of equilibrium correction is equal for both variables and is approximately equal to 12.5% per month.

As mentioned in Section 2.2, the logistic probability model includes as "domestic" determinants of the probability of a return to gold the unemployment rate (ur_t) and dummy variables for conservative governments (Dc_t) and strikes in Britain (Ds_t), respectively. The "international" variables are the absolute value of the short term US-UK interest rate differential (id_t), the log values of relative US and UK industrial production (yr_t, interpolated from quarterly data for the UK[7]) and base money (mr_t).

These data series are plotted in Figure 3. We see that in US industrial production was mostly (except some months at the turn of the year 1920/21) relatively high compared to in the UK until early 1923. From then onwards we note an improvement of the UK production index relative to the US. The monetary base of the US was declining relative to the British one until mid-1921; afterwards we see a clear reversal of this trend. The interest rate differential is always positive in favour of the US until mid-1924 when we note a convergence of the interest rate levels. The UK unemployment rate increased dramatically in 1921 during the strong deflation after WW I and decreased then to around 10% in 1925. This development was accompanied by two strike episodes of several months in 1921 and 1922 and short one month strike in 1924. Until late 1922 David Loyd George led his "wartime" cabinet which was replaced by a conservative government led by Andrew

[6] All usual criteria for VAR lag length determination (information criteria of Akaike, Schwarz and Hannan-Quinn) as well as a sequential likelihood ratio test indicate that a lag length of 1 is optimal for the difference terms in system (2).

[7] For the UK quarterly data for industrial production is only available from 1920 onwards. Therefore, we have to omit the data of 1920 when estimating the augmented error correction model.

Bonar Law which was in power from November 1922 to November 1923. After an interlude of a labour-led government under Ramsey McDonald a conservative government led by Stanley Baldwin was established. In conclusion the data suggest that the economic and political circumstances were not very favourable for a return to gold until 1924.

Table 4 contains the estimation results for the "expectation augmented" EC model in equation (3). The "fundamental" EC equation for the exchange rate was simplified by dropping the statistically insignificant lagged first difference term of the relative price level. The absolute value of the interest rate differential was taken as it works slightly better empirically than the "normal" differential and we would expect that either large positive or negative interest rate differences between the US (a country under gold standard) and UK do not favour a return to gold of the pound. The model was estimated for the reduced sample period April 1920 to April 1925. Interestingly, omitting the first months of 1920 leads to a considerable improvement of the fit of our model. However, the parameter estimates are not essentially different when we use all data from 1920. We conjecture that before spring 1920 there was no serious expectations about a return to gold, given the difficult economic conditions immediately after WW I.

Table 4 suggests several interesting results.

*** Table 4 here ***

First, we note that the fit of the model is improved considerably by augmenting the EC model by the expectations part: in Table 1 we have an adjusted R^2 of approximately 0.16 for the change in the log exchange rate whereas for the extended model it is slightly above 0.40. This indicates that expectations of a return to gold were an important determinant of exchange rate changes during the sample period we study.

Second, we see a much faster adjustment to PPP compared to the standard EC model as the corresponding EC coefficient estimate increases (in absolute value) from 0.13 to 0.38. The fact that the exchange rate adjust much faster than prices is of course expected under a regime of flexible exchange rates.

Third, most of the included determinants of probability of a return to gold are statistically significant and have the expected sign (note that a positive logistic regression coefficient indicates that the corresponding variable has a negative influence on the probability of a return to the gold parity). The effect of a conservative government on the probability of a return to gold is positive

and the effect of the occurrence of strikes in the UK is negative. However, a higher UK unemployment rate has a positive albeit statistically insignificant effect on the probability to return to gold. An increase in the absolute value interest rate differential reduces the probability of a return to gold. This effect is highly plausible and statistically significant. A looser US monetary policy compared to the UK is associated with an increase in the probability of a return to gold of the £. The same pattern is found for a rise in relative US industrial production. Both effects are in line with our a priori expectations.

*** Figure 3 here ***

Finally, we performed several robustness analyses.

First, we used consumer rather than wholesale prices. This check is motivated by the fact that the real exchange rate computed using the CPI also appears to be stationary. While we obtain similar estimates, they are of lower statistical significance. This result is compatible with our earlier finding that the joint estimates are better when wholesale prices are used. The same applies to the logistic probability model where the R-squared drops from nearly 50% to approximately 30% when consumer prices are used instead of wholesale prices in equation (3).

Second, we varied the specification of the probability model by omitting the interest rate differential as it may be considered as an indicator for expected future exchange rate changes. This leads most parameter estimates to become statistically insignificant and the unemployment rate coefficient to be highly significant but with "wrong" sign. Note, however, that we used the absolute value of the interest rate differential and it is subject to the logistic transformation. Moreover, there is considerable empirical evidence that UIP does not work with monthly or quarterly data.

We are therefore doubtful that the significance of the interest rate differential is because it acts as a predictor of future exchange rate changes. Indeed, regressing the change in the exchange rate on a constant and the lagged interest rate differences over the sample period leads to a negative slope coefficient of -4.4 with a standard error of 2.4. It is thus significantly different from the UIP value of 1 at the 5% level (t-value = -2.)[8] Moreover, the R-squared of this regression is 0.04, to nearly no predictive power of the interest rate differential for exchange rate changes.

[8] Because our interest rates are three months rates we have to consider quarterly exchange rate changes. This leads by definition to autocorrelated residuals with monthly data. This is corrected by the use of Newey-West autocorrelation and heteroscedasticity corrected standard errors.

The final robustness we performed focussed on the negative sign of unemployment in the probability function which is difficult to rationalise. To this end we interacted unemployment with dummy variable for conservative governments, under the hypothesis that they were less concerned by unemployment than a liberal/labour administration. However this extension did not change the results.

3.3 THE PROBABILITY OF A RETURN TO GOLD

We used the estimates presented in Table 2 in order to calculate the probability of a return to gold for our sample period from spring 1920 to spring 1925. As we noted above, simply inserting the values of the explanatory variables does not provide the expected value for the probability. In order to calculate the expected value of the probability we have to take into account the non-linear character of the probability function. Therefore, we run 500 bootstrap replications, which allow us in addition to show a confidence interval. Figure 2 displays the median and a 90% confidence band.[9]

The (asymmetric) confidence bounds increase with the estimated probability and are sometimes rather large, about 45%.From 1920 to 1924 the probability of a return to gold is estimated to be relatively low, between 0.05 to 0.3, with two peaks in early 1921 and 1923. During 1924 the probability increases sharply and reaches a peak of approximately 0.7 before slightly falling in early 1925.

*** Figure 4 here ***

3.3 COINTEGRATION ESTIMATE OF THE PPP $/£ EXCHANGE RATE

In this sub-section we turn to the controversial question of whether the return to gold in 1925 led to an overvaluation of Sterling. For many years Keynes' views in 1925 that the pound was at least 10% overvalued was generally accepted (Moggridge, 1969, p. 69-80). Nevertheless, Taylor (1992) notes that this view was doubted by some authors, even shortly after the return to gold. Taylor goes on to use an equilibrium calculation based on his trend adjusted cointegration model described in Section 2 and arrived at the conclusion of a 5% undervaluation of Sterling in late 1925. Therefore, it

[9] We calculated the mean of the bootstrap replications as well as a deterministic probability of a return to gold by simply inserting the point estimates of the parameters. The mean and median are close for all observations, whereas these two measures deviate from the deterministic value by up to 2 – 3 %.

is interesting to see whether our model estimates has to say about the valuation of Sterling after the return to gold.

To this end we used the FMOLS-regression framework which does not rely on a dynamic model as Johansen's method and is therefore not distorted by neglecting the time-varying expectations of a return to gold. The PPP estimates we get from this model, setting the WHP-coefficient to 1 and the CPI-coefficient to zero, are displayed in Figure 5. Moreover, given Keynes' critique of using WPIs for this assessment we also performed the calculations using CPIs, and with the unrestricted estimates of the PPP elasticity, which lower than 1 (ca. 0.8) but not significantly different from 1.

*** Figure 5 here ***

Figure 5 indicates that the $/£ exchange rate was relatively close to PPP from mid-1919 to mid-1922. This period was followed by two years of undervaluation of Sterling, which turned into a overvaluation until in May 1925 the PPP level was reached at 4.86. Interestingly, our model suggests an overvaluation of Sterling in late 1925 of approximately 6%. This is very close to the result obtained by Taylor (1992) using a different PPP model. Thus, the use of cointegration and error correction analysis provide evidence against the often accepted Keynes view of 1925.

However, this finding is not robust: using CPI suggests a slight overvaluation of Sterling in late 1925. The PPP exchange rate value is lowered when the "PPP elasticity" is not restricted to unity: the results using WPIs suggest essentially no undervaluation of Sterling, and using CPI leads to the conclusion of an overvaluation of about 6%.

4. Summary and Conclusions

Many authors have noted that expectations that Sterling would be returned to gold influenced the market exchange before that decision was taken in April 1925. Nevertheless, empirical work on the US dollar – Sterling exchange rate in the early 1920s has disregarded this possibility and has studied solely the role of fundamentals, typically defined as relative price levels.

We propose a model that takes into account effects of an expected return to gold on exchange rate dynamics. Our analysis is based on a fundamental PPP model of the exchange rate. After showing by cointegration analysis the appropriateness long run PPP hypothesis we model the exchange rate change in an augmented EC framework taking into account the probability of a return to gold. This probability is modelled using a logistic distribution function and depends on political and economic indicators.

We draw the following conclusion. First, the standard long run PPP model works well for the $/£ exchange rate from spring 1919 to spring 1925. The adherence to PPP is clearly better when WPIs are used than CPIs as price indicators. Second, neglecting the possibility of a return to gold has a large effect on the estimated error-correction parameter: in the augmented EC model we estimate a nearly 40% monthly exchange rate adjustment to PPP, whereas it is only around 12% when we neglect the possibility of a return to gold. Third, our estimates of the logistic probability function indicate that the interest rate differential and the relative monetary base of the UK to the US are the most important determinants of the expected return to gold. Moreover, our point estimates suggests that the expected probability of a return to Gold peaked at about 72% in late 1924 and declined to about 60% in early 1925. Fourth, our preferred cointegration PPP estimates do not support the Keynes view of a clear overvaluation at 4.86$ and indicate an approximately 6% undervaluation of the pound in late 1925. However this result is not robust with respect to the use of CPI and unrestricted cointegration coefficient estimates, respectively.

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Table 1: Unit Root and Stationarity Tests for Log $/£ Rate, Log Relative WPI and CPI, 1919/04-1925/04

Series	PP	PP with trend	KPSS	KPSS with trend
$/£	-1.590	-2.750	0.609**	0.124*
Relative WPI	-1.106	-1.660	0.660**	0.128*
Relative CPI	-1.143	0.5877	0.206	0.141*
Real exchange rate, WPI	-3.984***	-3.702**	0.281	0.132*
Real exchange rate, CPI	-3.810***	-3.334*	0.301	0.077

Notes: Lag length for the nonparametric autocorrelation correction selected automatically according to Newey-West and Bartlett kernel. *, **, *** indicates significance at the 10, 5 and 1% level, respectively.

Table 2: Cointegration Estimates and Tests for $/£, Relative WPI and CPI, 1919/04-1925/04

$$e_t = b_0 + b_1 pw_t + b_2 pc_t + u_t$$

Method	b_1	b_2	R^2	DW	Philipps Ouliaris τ-Test	Johansen Test (max EV)
Johansen	0.857*** (0.201)	-0.0203 (0.220)	-	-	-	22.003** (r=0) 6.782 (r<=1) 0.660 (r<=2)
FMOLS[1)]	0.797*** (0.170)	-0.0207 (0.187)	0.754	0.397	-4.042**	-

Notes: Newey-West standard errors in parentheses. *, **, *** indicates significance at the 10, 5 and 1% level, respectively.

Table 3: EC Model Estimates for log $/£, 1919/04-1925/04

$$\Delta e_t = \gamma_1(e_{t-1} - b_0 - pw_{t-1}) + a_{11}\Delta e_{t-1} + a_{12}\Delta pw_{t-1} + \varepsilon_{1t}$$

$$\Delta pw_t = \gamma_2(e_{t-1} - b_0 - pw_{t-1}) + a_{21}\Delta e_{t-1} + a_{22}\Delta pw_{t-1} + \varepsilon_{2t}$$

γ_1	γ_2	a_{11}	a_{12}	a_{21}	a_{22}	Adj R2, Δe	Adj R2, Δpw
-0.126 (0.0576)	0.124 (0.042)	0.410 (0.116)	-0.169 (0.142)	0.155 (0.088)	0.289 (0.106)	0.161	0.194

Notes: Standard errors are given in parentheses. A cointegration coefficient of 1 is imposed. This restriction cannot be rejected at the 10 % level (χ^2 (1) = 1.698).

Table 4: Determinants of the Expected probability of the Return to the Gold Parity, $/£, 1920/02-1925/4, Nonlinear Least Squares

$$\Delta e_t = \alpha_{10} + \pi_t(1.58 - e_{t-1}) + (1 - \pi_t)(\gamma_1((e_{t-1} - p_{t-1})) + a_{11}\Delta e_{t-1}) + \varphi_{1t}$$

$$\pi_t = \frac{1}{1 + \exp(\beta_0 + \beta_1 ur_{t-1} + \beta_2 Ds_{t-1} + \beta_3 Dc_{t-1} + \beta_4 abs(id_{t-1}) + \beta_5 yr_{t-1} + \beta_6 mr_{t-1})}$$

	Estimates	t-Values
γ_1	-0.379	-3.131
a_{11}	0.595	4.552
β_1	-0.098	-1.289
β_2	0.690	1.381
β_3	-0.602	-2.378
β_4	1.261	3.095
β_5	-2.070	-1.402
β_6	-7.584	-2.323
Adjusted R2	0.407	
Durbin-Watson	2.110	
Standard Error of Residuals	0.018	

Figure 1: $/£ Exchange Rate and relative WPI and CPI, 1919/01-1925/04

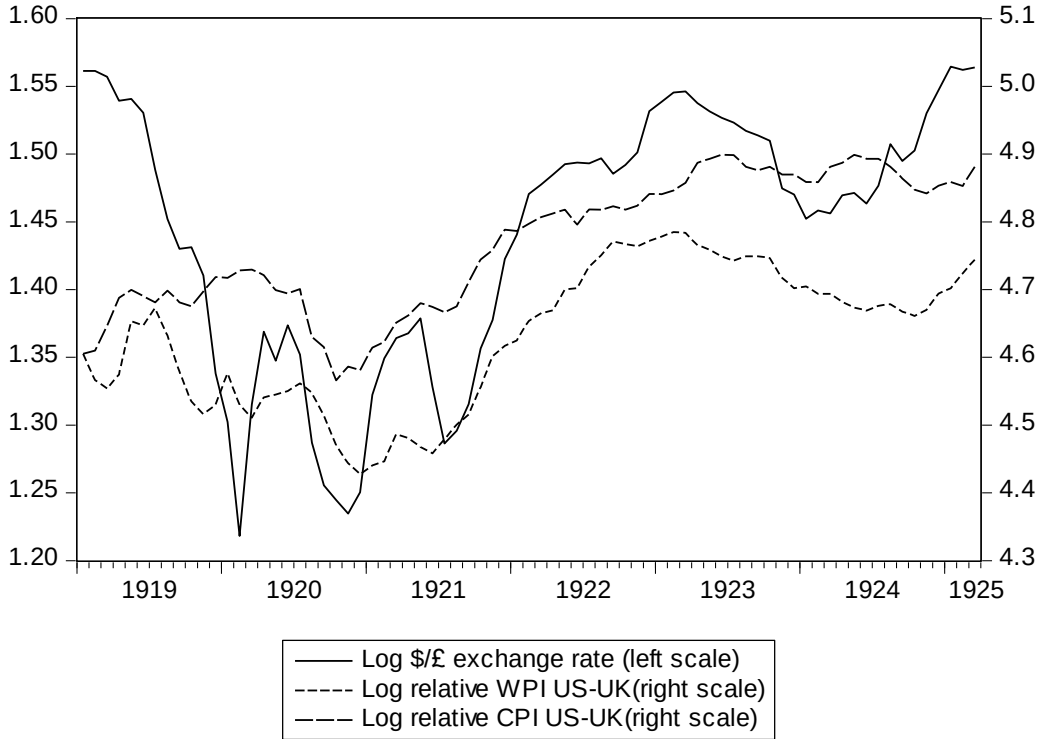


Figure 2: Real $/£ Exchange Rates, 1919/01-1925/04

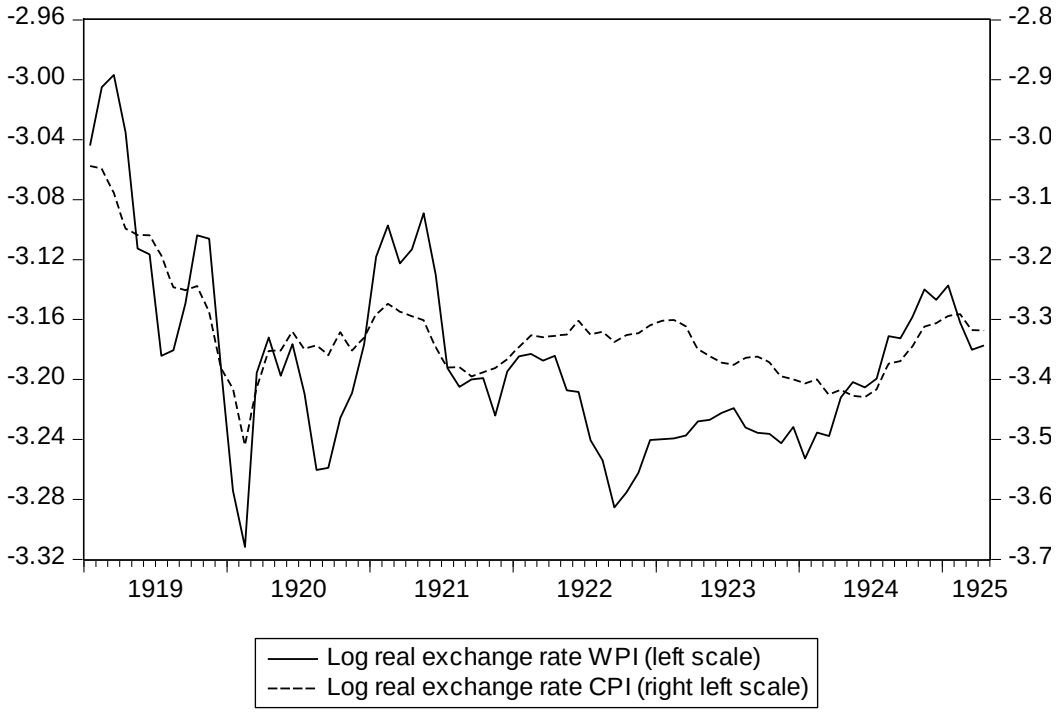


Figure 3: Explanatory Variables for the Logistic Probability Model for the £'s Return to Gold , 1919/04-1925/04

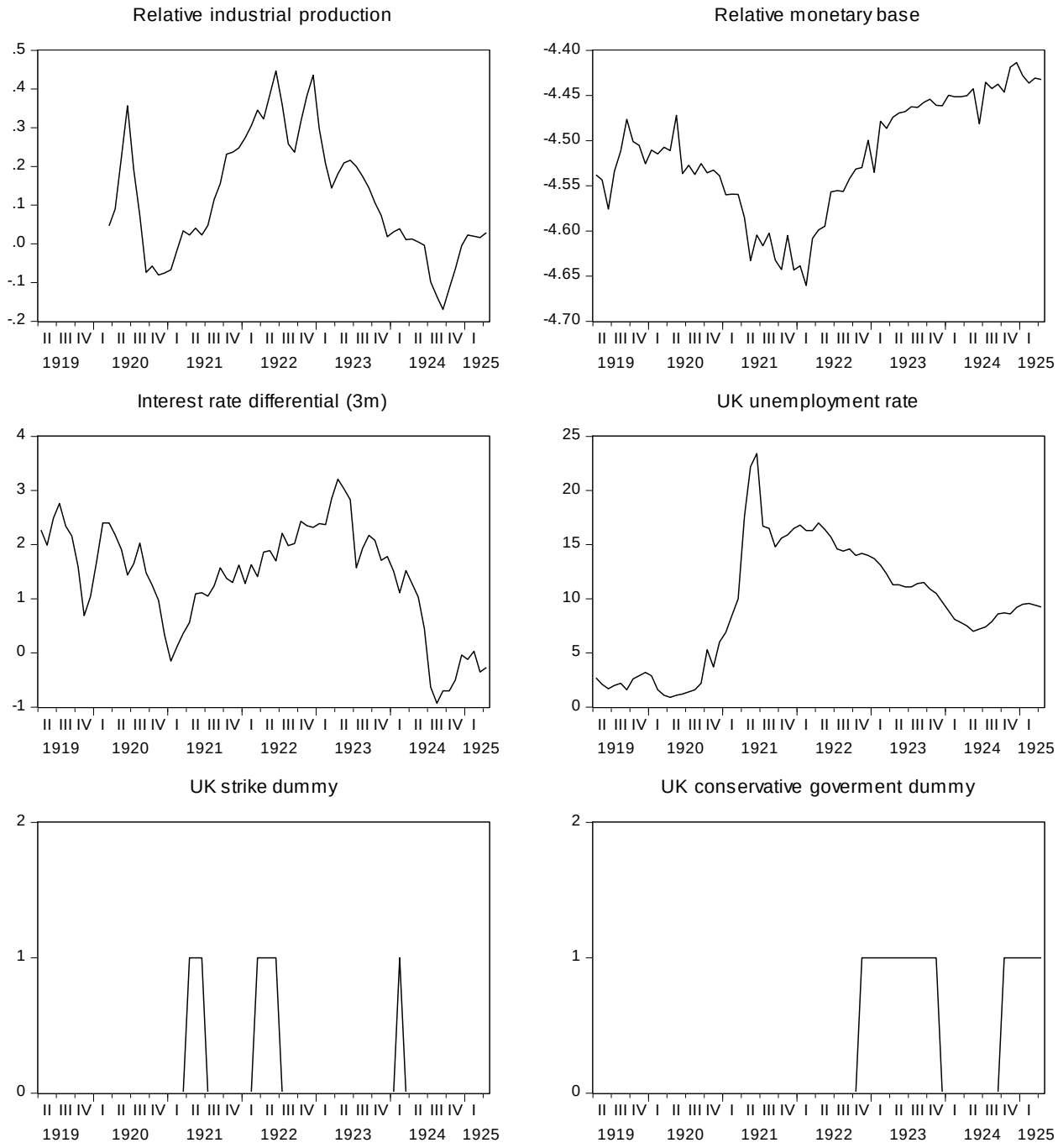


Figure 4: Estimated Expected Probability of the Return to the Gold Parity, $/£,

1920/03-1925/4, 500 Bootstrap Replications

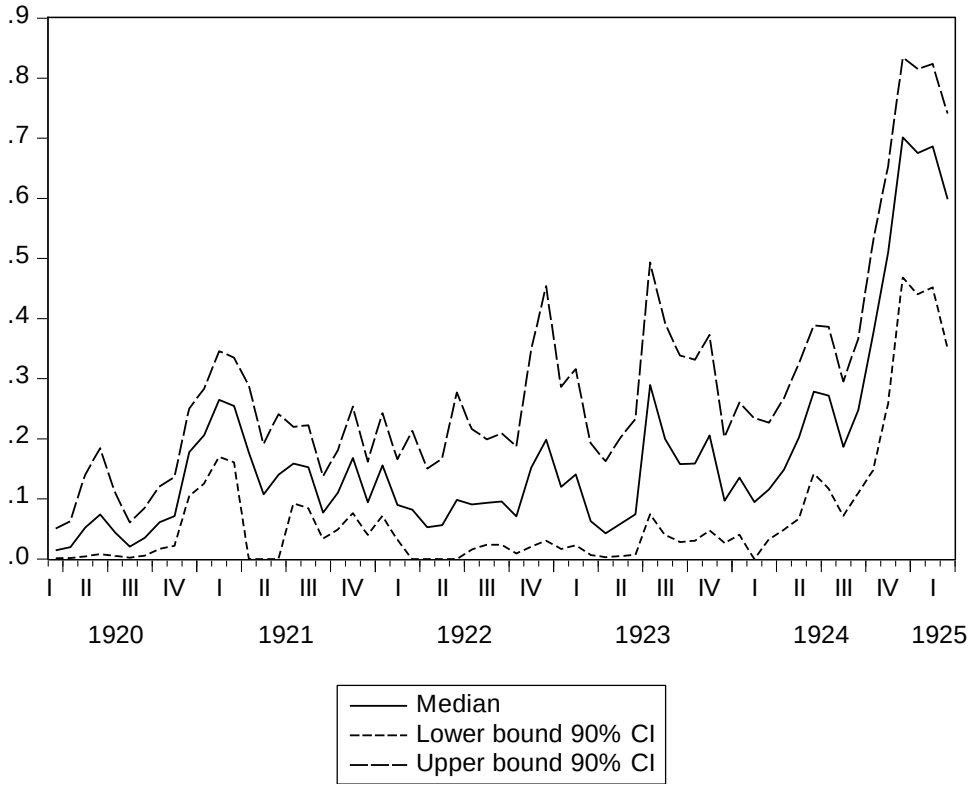
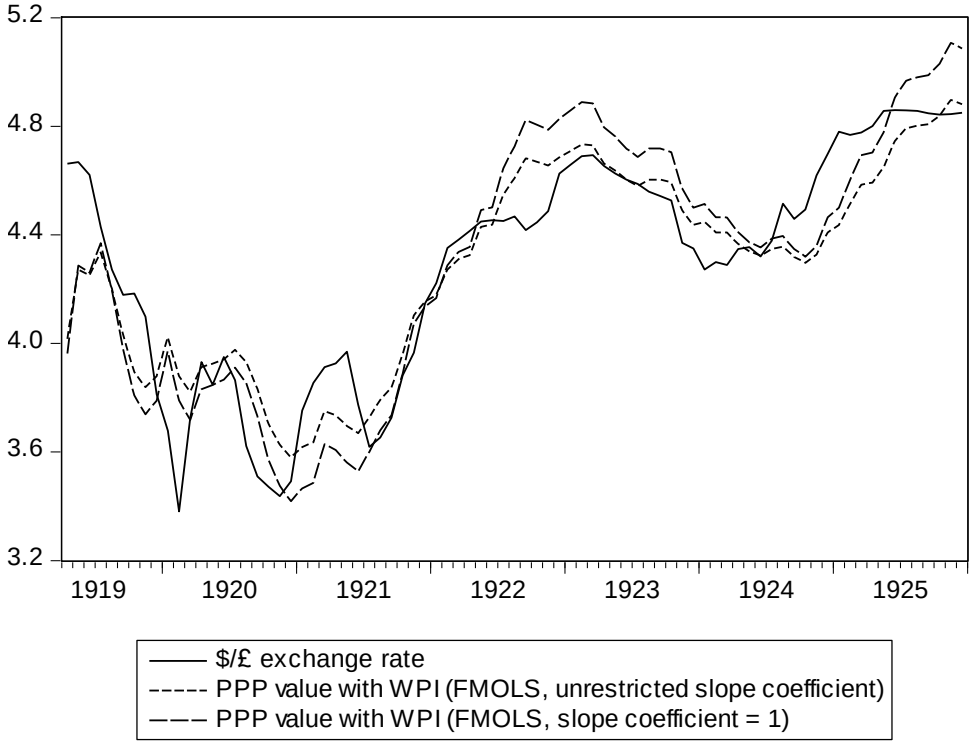
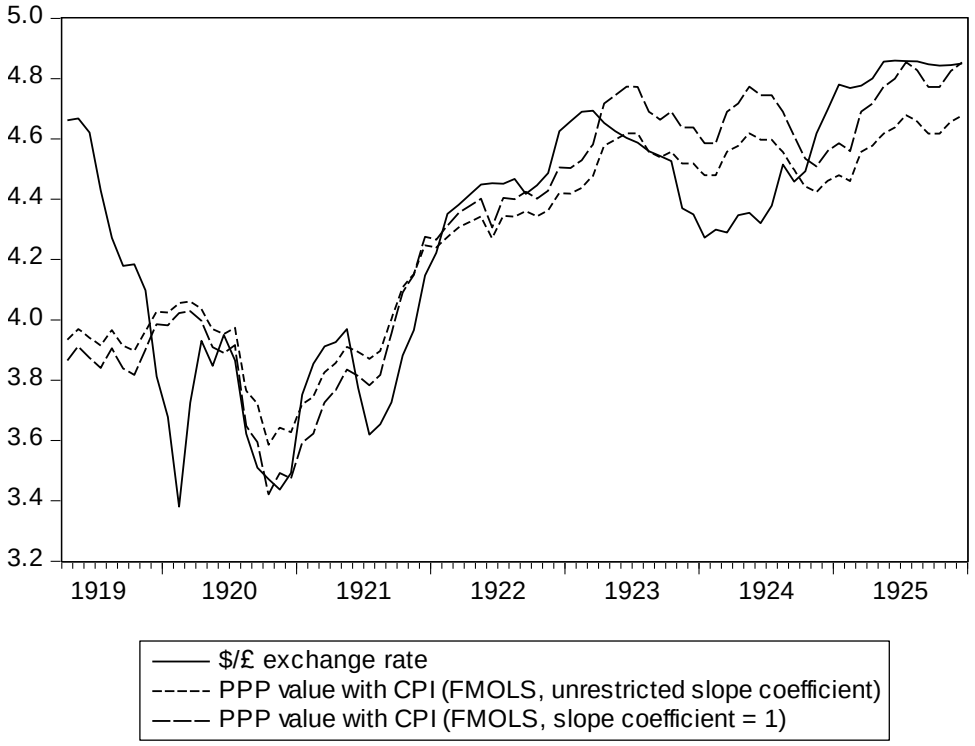


Figure 5: Actual and PPP Exchange Rates for $/£, WPI and CPI,1919/04-1925/12





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