AN EFFECTIVE EXCHANGE RATE FOR

THE POUND IN THE 1930s

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Until comparatively recently the normal method of quoting exchange
rates has been to use a numeraire currency, usually the pound or the dollar.
In periods when the majority of countries have maintained fixed gold parities
this has proved an accurate method of expressing the exchange value of a
currency. Even if a country were to temporarily set its currency adrift,
as Canada did in the 1950s, so long as the rest of the world maintained
fixed exchange rates the use of a numeraire currency to indicate the value
of a floating currency was quite acceptable. However, the widespread
adoption of floating exchange rates in the 1970s has made the numeraire
currency method to some extent misleading and consequently a new method of
quoting exchange rate values has been developed which gives a better
indication of the overall value of a currency: this is provided by a
currency's "effective" exchange rate which is a weighted average of its
movements against all other currencies. No-one has yet, however, extended
this new method back to other periods of widespread floating exchange rates
and this is the object of the present study: to begin this process by
calculating an effective exchange rate for the pound in the 1930s.

The need for this is clear if one considers the example of the
period 1932-34 in which the pound appreciated 40 per cent against the dollar
while depreciating 15 per cent against the (French) franc. The general
heterogeneity of all exchange rate movement in this period is illustrated
by Figure 1, which plots the path of eight exchange rates[1] against the
pound from 1931III to 1935I inclusive (1929-30 = 100). When one also
considers that at the same time the currencies of Australia, Egypt, Finland
and India fluctuated less than 1 per cent against the pound, it becomes
rather dubious to express the pound in terms of any single numeraire currency.

FIG. 1

1. Brazil   5. U.S.A.
2. Argentina   6. Canada
3. Denmark   7. Spain
4. New Zealand 8. France
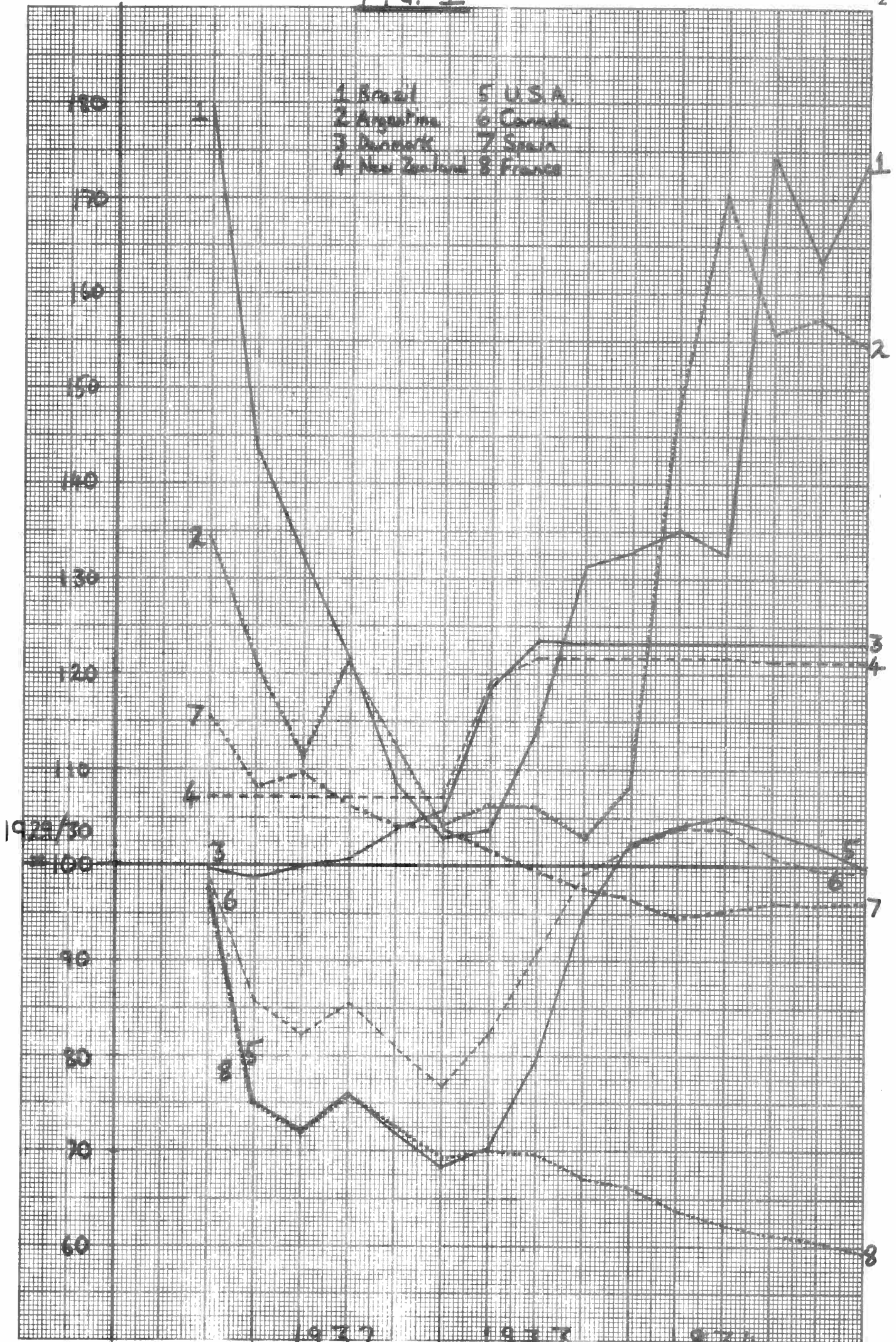
Moreover the inter-war years are especially interesting since the "evidence" of the volability of floating exchange rates in this period has long been used as one of the standard arguments against flexible rates initially by Nurkse {1944} and since then by numerous others. An effective exchange rate must surely provide a more suitable indication of the overall "stability" of a currency.

I

There are a variety of problems associated with calculating indices of effective exchange rates[2] not least of these being the question of definition. An effective exchange rate is a weighted average of changes in all (or the majority of) other currencies against the pound expressed as an index with the weights calculated in such a way as to reflect the "relative importance" of each currency included. The choice of weights and hence definition of "relative importance" depends on the purpose for which the effective exchange rate index is being calculated. For example, if an indication of the competitiveness of British exports in world markets is the aim, then country shares of total world exports may provide suitable weights. In actual fact, most of the indices that have been calculated define "relative importance" in terms of the effects of exchange rate changes on the balance of payments (or more specifically their effects on the merchandise trade balance) and this practice will be followed here. The fact that trade in services and international capital flows are denied any role in determining the weights is a valid criticism but for the 1930s lack of accurate data means that they more or less have to be excluded. Thus, in accordance with the majority of other indices, a change in the (pound's) effective exchange rate in a given period is defined as the proportionate change in the value of the pound against all other currencies (expressed as an index) that would have the

same effect on the U.K. (merchandise) trade balance as all the changes that actually did take place.

Given this definition some system of weighting based on trade flows seems appropriate. There are basically two methods of doing this: the weights could be based on bi-lateral trade flows (shares of British imports and exports) or on global trade flows (country shares of total world trade). The problem with the former is that such a weighting system ignores third country effects; countries that trade very little with Britain may be major competitors in third markets[3/]. Global weights, on the other hand, ignore strong bi-lateral relationships which may exist such as those between Britain and the Commonwealth (especially after the 1932 Ottawa Agreement).

However the use of any simple trade share-weighted index will not accurately reflect changes in the trade balance following changes in exchange rates since various crucial factors are ignored. For instance no allowance is made for differences in price elasticities between different types of goods and hence between countries which specialise in different goods[4/]. Moreover changes in exchange rates induce changes in the prices of traded goods (and hence in trade flows) which will tend to offset partially the effects on the trade balance of the underlying changes in exchange rates. These and other difficulties have led to the development of an elaborate model to calculate effective exchange rates; this is the International Monetary Fund's multilateral exchange rate model (MERM).

The details and development of MERM have been outlined elsewhere[5][6].
Here it will suffice to simply consider the possibility of applying a MERM-
type model to the 1930s. The most obvious difficulty is the lack of adequate
data. Moreover MERM incorporates a number of basic parameters[7] on which
most of its equations depend and plausible estimates of these are not easily
(if at all) available for the 1930s. In any case despite its elaborateness
MERM still does not allow for international capital flows and trade in
services so even if the above problems were overcome the resulting effective
exchange rate would only be accurate in a limited sense.

II

The implication of the above comments is that it may not be
particularly worthwhile to use a MERM-type model to calculate an effective
exchange rate for the 1930s. A much simpler system of varying the weights
according to trade flows for different years was therefore adopted. This
has the advantage of being a relatively simple calculation while at the
same time permitting the use of a fairly wide range of weights for any given
country which can be viewed as a method of empirically approximating different
assumptions about the amount of trade in services and the size of international
capital flows. Thus bi-laterally- and globally-weighted versions of twelve
indices using weights based on combinations of trade flows in 1928, 1935 and
1938 were calculated from January 1931 to August 1939 inclusive, using the
average rates over 1929-30 - Britain's last two full years on the gold
standard - as a base[8]. Bi-lateral and global versions of an "average"
index (with weights based on trade flows from all three years) together with
the range of variation from the lowest to the highest of the twelve indices

calculated are presented graphically in Figure 2 [9].

The range of variation within the two "families" of indices is fairly small and a steady upward trend from the end of 1932 is discernible whichever weighting system is used. However there is an appreciable difference in absolute levels between the "average" global and "average" bi-lateral indices in the period 1932-36 in which the latter is significantly higher. The first possibility that comes to mind is that the bi-lateral index probably gives a larger weight to the U.S.A. which devalued its currency by approximately a third in 1933-4, but this does not seem to have been the case here since it is in fact the global index which gives the U.S.A. the larger weight. A more likely explanation is to be found in the fact that the bi-lateral system allocates higher weights to the Commonwealth countries three of which [10] substantially depreciated their currencies (against the pound) early in 1933. However this is only part of the story; to some extent the differences in the indices must reflect differences in the whole combination of weights and thus highlight the conflict between the two weighting systems which has somehow to be resolved.

At a more technical level the problem of having to exclude services and capital flows from the determination of the weights has only been partially resolved by varying the weights and finding it does not make too much difference. This solution remains at best an uneasy compromise. The indices above also ignore the possibility of different price elasticities (explicitly allowed for by MERM). Although the relative importance of this point is diminished if the effective exchange rate is envisaged not only in terms of effects on the merchandise trade balance (as it is by MERM) but in more general balance of payments terms, it nevertheless remains valid.

FIG. 6

FIG 2A: "Average" Brakhul index with range of variation
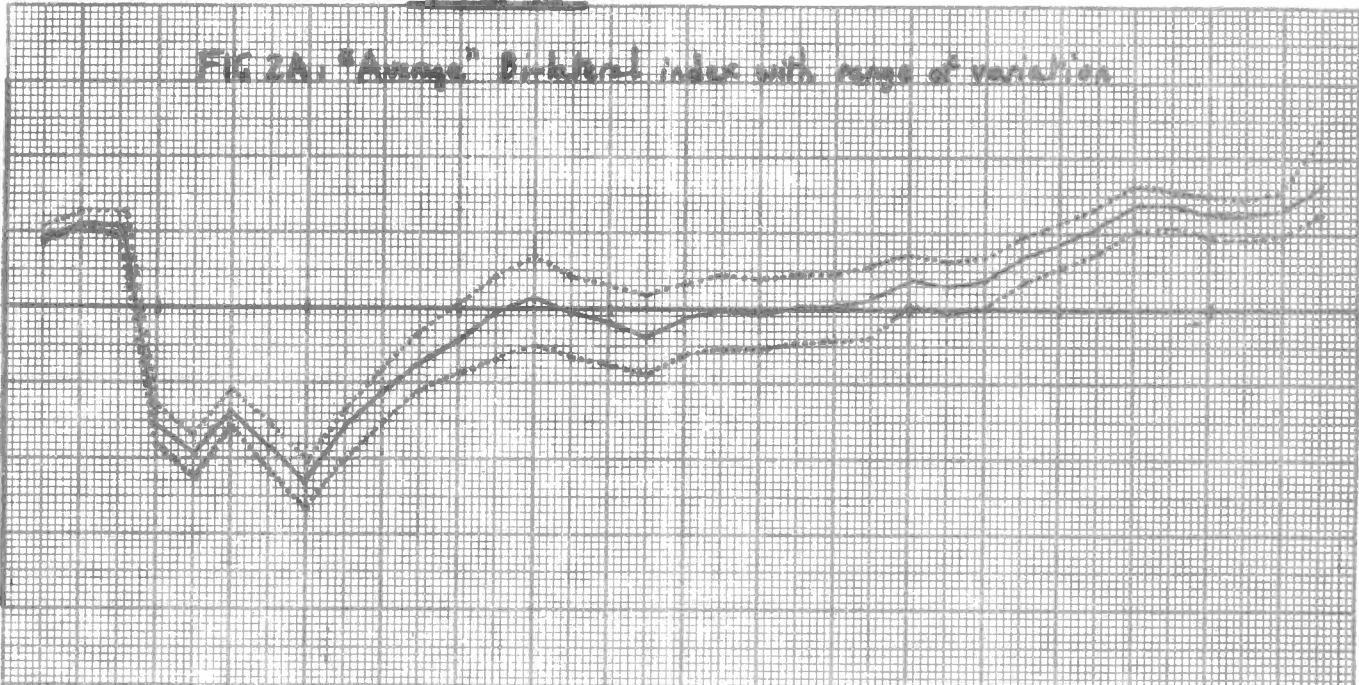
FIG 2B: "Average" Global index with range of variation
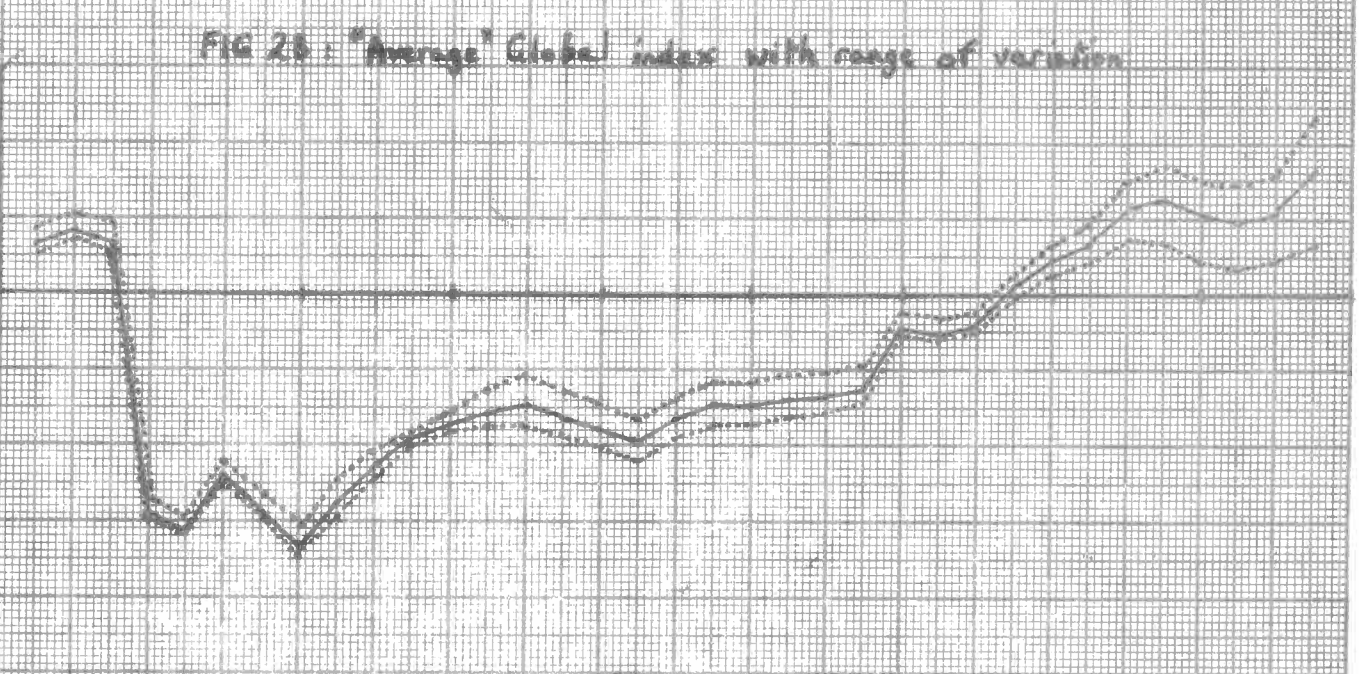
FIG 2C: "Average" Bi-lateral index (B) and "Average" Global index (G)
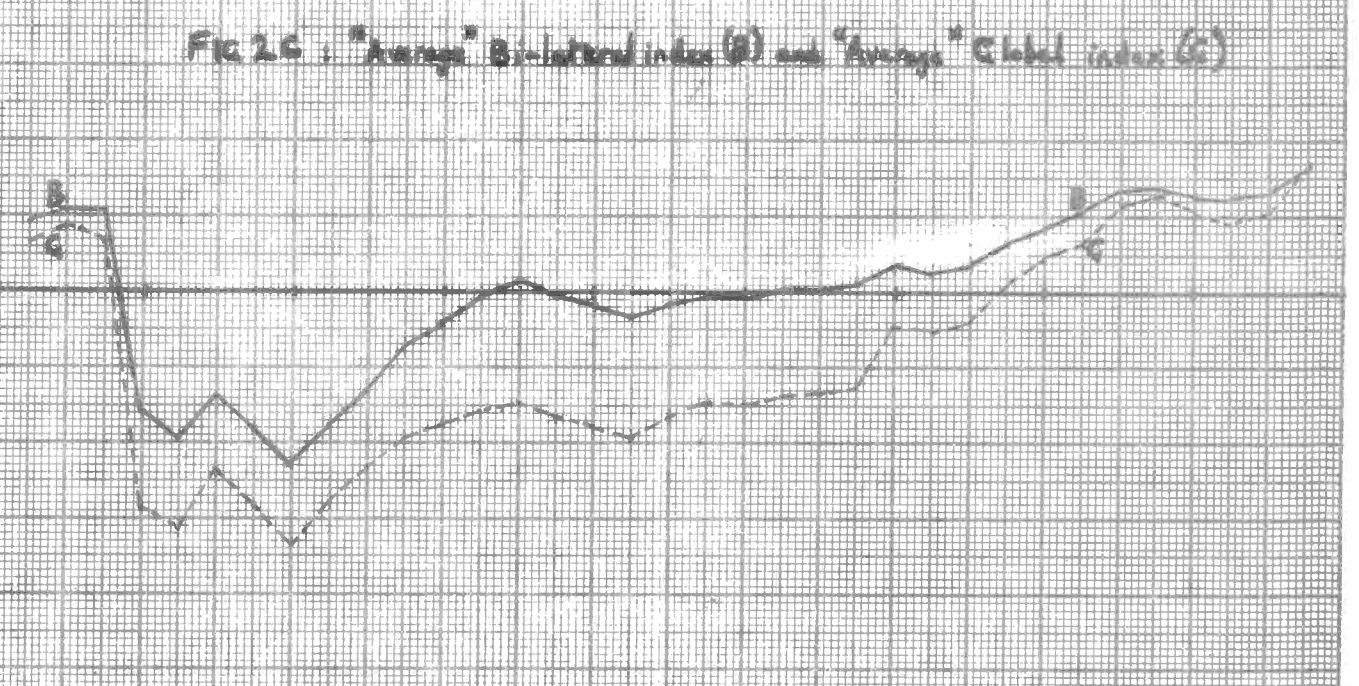
A further problem, peculiar to the 1930s, is that in times of wide-
spread protection and exchange controls, actual exchange rates quoted are not
aways the "real" exchange rate and it may be argued that the "true" effective
exchange rate of a currency should reflect this. If a country introduces a
tariff or exchange control then this is tantamount to a depreciation
However, even though it is concealed and the exchange rate quoted against the
pound will remain unchanged, it will nevertheless be reflected in the effective
exchange rate (as calculated above) in the following way: although the exchange
rate will not fall, trade flows (possibly both global and bi-lateral) will
decline and so the country's weight in the index will also fall; thus, in
spite of the quoted exchange rate remaining the same, the total contributed
to the effective exchange rate by the country introducing controls will fall,
thereby to a certain extent allowing for the controls[11/].

However, the problem of reconciling the two different weighting systems
remains especially in view of the difference in absolute levels of the two
"average" indices illustrated by Figure 2C. Rhomberg {1976} calculated seven
indices for fiteen countries for the period January 1971 to May 1975 inclusive
(1970 = 100) and found that the MERM-weighted index fell between his equivalents
of the two "average" indices on nine occasions and in the other six cases when
it did assume the largest or smallest of any of the calculated index values it
did not deviate very much from the nearest simple trade weighted index. If
we accept that a MERM-type model gives the best approximation then, although
the evidence is far from conclusive, it does suggest that the true effective
exchange rate for the pound in the 1930s is likely to fall somewhere between
the two extremes. Thus some combination of the two methods of weighting seems

necessary, the choice of which is unfortunately rather arbitrary. There
are various possibilities but in the absence of any objective method of
deciding the relative importance of bi-lateral ties and third country effects
a simple average of the weights seems appropriate. An index based on such an
average 12/ (index A) is presented in Figure 3 together with indices of the
pound-dollar and pound-franc exchange rates for comparison. Three further
indices 13/ were also calculated - a Paasche (P) index and two indices (B and C)
in which the U.S. weight was raised to deal with the argument that the U.S.A.
should be given a higher weight than trade shares alone indicate because
they do not adequately reflect the American dollar's importance. The
Paasche index was very similar to the Laspeyres index (A) and although
increasing the U.S. weight had more effect, it did not alter the trend nor
did it change the absolute level of the effective exchange rate enough to
make the pound-dollar rate a suitable approximation. If index C (which gives
the largest weight to the U.S.A.) is accepted as being a little extreme, then
the "best" approximation of the effective exchange rate of the pound in the
1930s would seem to be either index A or B depending on your views on the
weighting of the U.S. dollar.

III

The most obvious implication of the effective exchange rate is
that the pound-dollar rate (and certainly the pound-franc rate) provide rather
unsatisfactory indicators of the value of the pound in the 1930s. This
much is clear from simple examination of Figure 3. Moreover use of a numeraire
currency has produced a sort of contradiction in discussions of the effects

FIG. 3

I = Index A
S = S — % index
F = F — Power index
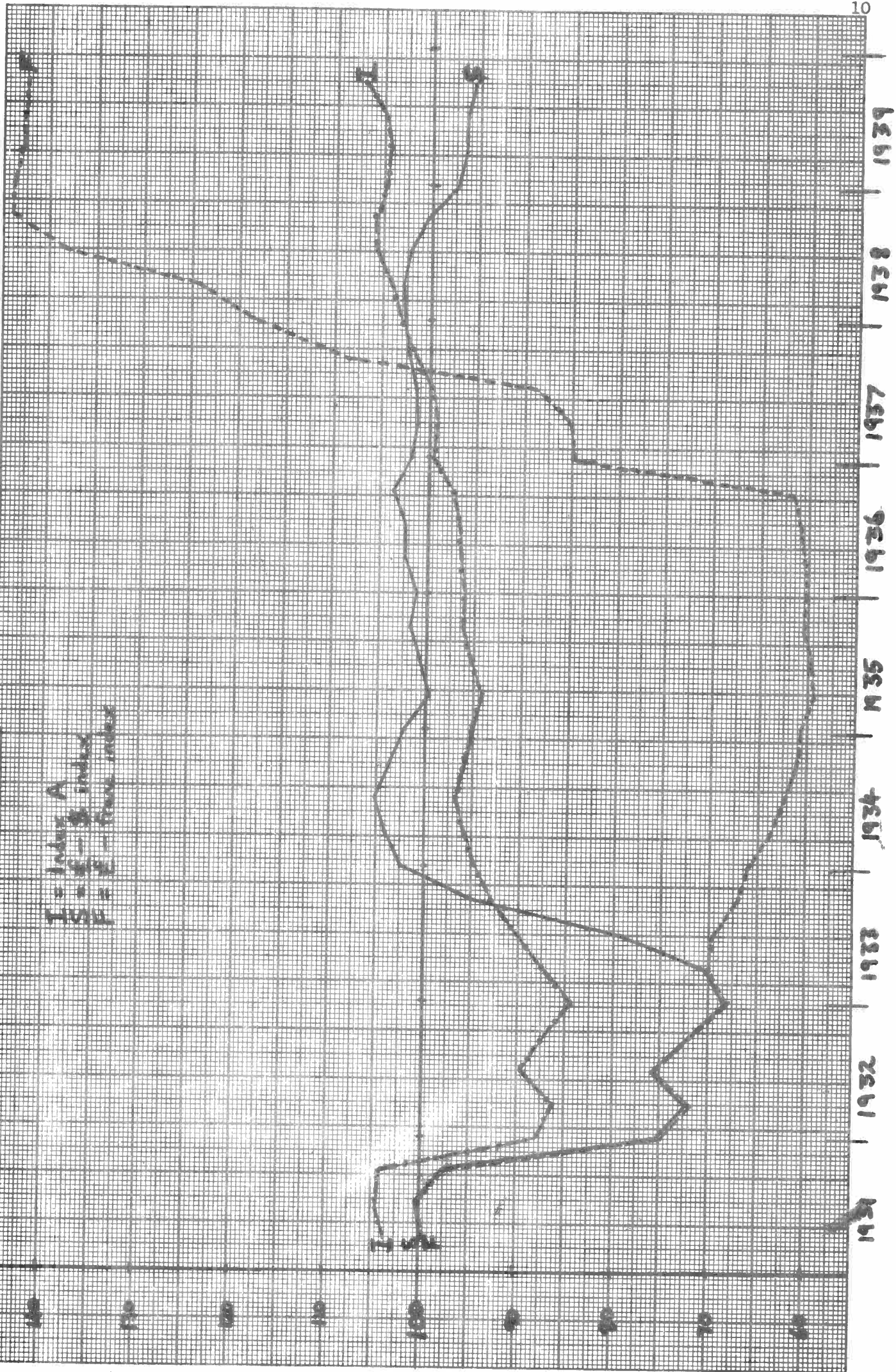
of the 1931 devaluation in much of the literature: while the existence of
the gold bloc and the deflation required by its members to maintain the
gold standard is acknowledged, the potential effects on British trade and
the balance of payments and the general exchange rate implications of these
countries maintaining their currencies at the old gold parities are not
brought out; the effects of the British devaluation are usually dismissed
as being over by 1933 14/ . However the effective exchange rate (index A)
suggests that the pound remained 4-5 per cent below its 1929-30 level and
8 per cent below its level in August 1931 until well into 1936. Thus it
would seem that concentration on the pound-dollar exchange has led to the
benefits of freeing the exchange rate and their role in Britain's recovery
being overplayed in the period 1931-33 and underplayed in 1934-36.

        Another issue on which an effective exchange rate may shed some
light is the question of the stability 15/ of the pound in the 1930s. Ever
since Nurkse's study {1944} there has been a tendency to point to the inter-
war period as a good example of the folly of using flexible exchange rates.
Insofar as there was instability it has only been examined in terms of
numeraire currencies but in periods of floating exchange rates surely it is
instability in the effective exchange rate of a currency that should be
looked for rather than instability in any particular cross-rate. Taking
the mean of the lowest and highest values of various exchange rates in the
1930s and expressing the two extreme values as deviations from this mean
yields the following results: bi-laterally weighted index, $\pm$ 10.05 per cent;
globally weighted index, $\pm$ 13.03 per cent; index A, $\pm$ 11.92 per cent; pound-
dollar rate, $\pm$ 21.33 per cent; pound-franc rate, $\pm$ 41.66 per cent. This
clearly suggests that if the pound is expressed against either of the two
most popular numeraire currencies, the degree of instability, in the

sterling exchange rate[16/] in the 1930s is considerably overstated. Further-
more in terms of trends once the initial shock of devaluation had worked
itself out by late 1932, the effective exchange rate shows a steady upward
trend undisturbed by sharp deviations or breaks. It appears therefore that
in overall terms the pound displayed a fair amount of stability in what were
rather unstable and uncertain times.

This steady upward trend is intriguing especially in view of the
widely held belief that the Exchange Equilisation Account was holding the
pound down[17/]. Moreover, although there may be disagreement on the actual
level of the effective exchange rate at certain times among some of the indices
calculated, without exception they all exhibit this persistently rising trend.
On the one hand, this could be taken as an indication that the E.E.A. was
simply doing its job and smoothing out the external value of the pound;
on the other hand, it could suggest that had not the E.E.A. intervened the
pound would have very quickly risen to its old level or above.

The motive for holding down the pound is clear : in addition to the
obvious boost to exports (and hence domestic employment) provided by a
depreciated pound, it has been suggested that a further and much more important
motive for managing the pound (and indeed for the creation of the E.E.A.) was
the desire to stimulate recovery by the adoption of a "cheap money" policy
and to do this Bank Rate had to be freed from its external responsibilities[18/].

Some additional evidence is provided by an examination of the capital
inflow into Britain in the 1930s. In the period 1931-7 official gold holdings
increased by approximately £600 million, sterling balances increased by

£350 million and there was in aggregate a (net) current account deficit of
£270 million; this implies a capital inflow of the order of £520 million[19].
At the same time there was a total increase in new overseas issues of about
£400 million[20] which indicates a gross capital inflow of nearer £900 million.
Although some of this capital inflow was undoubtedly simply short term capital
seeking security and was to leave for much the same reason in 1938-39 this
cannot have been the case with all of it.   This large capital inflow and the
consequent improvement in the international quick asset-liability ratio does,
therefore, lend some support to the hypothesis that the pound was being
deliberately held down.   The effective exchange rate does not actually prove
anything in this respect : however, it does indicate that while the E.E.A.
was dealing in the few main currencies in which it operated, the pound on
average, was appreciating against all other currencies; thus there was a
much stronger motive for holding the pound down than is indicated by simply
examining the pound-dollar exchange rate.

Although an effective exchange rate remains a somewhat elusive
construct and any conclusions derived from it must be fairly tentative, in a
period such as the 1930s when movements in individual cross-rates were sometimes
rather diverse and erratic it seems a useful method of indicating the overall
movement of a currency.   At any rate, it at least provides a method of
quantifying the exchange rate effects on the pound of the gold bloc and the
sterling area.   An attempt has been made in this last section to indicate
some of the areas in which an effective exchange rate may shed some light.
In particular it is hoped that the potential inadequacy (and in this case
actual inadequacy) of using a single numeraire currency in periods of general
floating has been highlighted.

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FOOTNOTES

1/   In this period the French franc serves as a very good proxy for the
      currencies of Belgium, Italy, Switzerland, Germany, the Netherlands,
      Poland and Russia.

2/   See Rhomberg {1976}.

3/   An example of the converse is provided by Eire which accounted for a
      comparatively large proportion of British trade in the 1930s but
      traded very little with anyone else. Thus the average bi-lateral
      weight for Eire in the indices calculated here was 4.423 while the
      average global weight was 1.129. Hence bi-lateral weighting would
      seem to overstate the importance of Eire.

4/   This is one reason why primary producing countries are usually
      excluded from simple trade-share-weighted indices. The assumption
      of equal price elasticities (implied by using weights derived from
      trade shares) makes more sense when only manufacturing countries
      are included in the calculation.

5/   See Artus and Rhomberg {1973}, and Rhomberg {1976}. For some of the
      earlier work underlying MERM see Armington {1969a, 1969b} and Hirsch
      and Higgins {1970 }.

6/   Basically MERM is a general equilibrium model which considers the
      simultaneous interaction among prices, incomes and spending of the
      countries (and their trading partners) where exchange rates have
      been changed.

7/   These are mainly price, supply and expenditure elasticities. Because
      of the size of MERM these are not actually estimated but are assigned
      values based mainly on estimates already made elsewhere. For the
      1930s these basic parameters would either have to be actually estimated
      (if data were available) or wide-ranging assumptions about their
      "probable" values would have to be made and it only makes sense to use
      an elaborate model if its parameters are reasonably accurate.

8/   The 28 countries in the index were chosen so as to include as many
      countries as possible subject to the constraint that reliable data
      on exchange rate movements and trade flows were available. The
      "average" index covered 73.89% of world trade globally and 86.02%
      of bi-lateral trade. The lowest proportion of total trade covered
      by any index was 66.91% (global) and 83.68% (bi-lateral).

9/   Details of the calculation, the countries included in the calculation,
      the range of weights used and data sources are given in the appendix.
      This also gives the numerical values of all the indices presented
      graphically including the indices of the pound-dollar and pound-franc
      exchange rates.

10/   South Africa, Canada and New Zealand.

11/   In any case a numeraire currency is subject to similar problems.
         Even before WW1 the U.S.A. had protected its industry behind a
         tariff wall and in 1930 the Hawley-Smoot Act raised tariffs higher
         than ever; thus, in a sense, the pound-dollar exchange rate quoted
         was in fact only an approximation of the "true" rate of exchange
         between the two countries.

12/   Geometrically averaged weights were used and as they yielded a total
         a total of less than a hundred, the residual was arbitrarily
         assigned to the U.S.A.

13/   Details are given in the appendix.

14/   For example, see W.A.Lewis : "Economic Survey, 1919-39" {1949}
         p.82 and D.H.Aldcroft : "The Inter-War Economy : Britain, 1919-39"
         {1970} p.281.

15/   "Instability" and "fluctuation" are taken to be the same thing here
         (as they often seem to be by critics of flexible rates); in fact a
         fluctuating exchange rate need not be an unstable one in the sense
         that it may be fluctuating for good reasons such as changes in relative
         prices; "genuine" instability would require exchange rates to be
         fluctuating for "bad" reasons such as speculation.

16/   By "sterling exchange rate" we mean the overall rate facing the U.K.
         and not the rate facing the rest of the world.   The sterling exchange
         rate facing individual countries (and hence its stability) varies from
         country to country; in any case, it is not in itself important in this
         respect, because when considering the "stability" of their currencies
         other countries should look at their effective exchange rates and not
         just use the pound as a numeraire currency.

17/   See, among others, C.P.Kindleberger : "The World in Depression, 1929-
         39" {1973} p.180, S.Pollard : "The Development of the British
         Economy, 1914-67" (2nd ed., 1969), p.230 and, for a contemporary
         expression of this opinion, S.E.Harris : "Exchange Depreciation"
         {1936} p.401.

18/   S.Howson: "Domestic Monetary Management in Britain, 1919-38" {1975}.

19/   These figures are calculated from Table N in the L.C.E.S.'s "The
         British Economy Key Statistics, 1900-1970".

20/   This is calculated from data given in H.W.Richardson : "Economic
         Recovery in Britain, 1932-39" {1967} p.58.   D.H.Aldcroft (op.cit.
         p.264) suggests a similar figure while A.J.Youngson ("Britain's
         Economic Growth, 1920-66" {2nd ed., 1968} p.124) gives data for
         1932-36 which would suggest a lower figure, probably around £250
         million.

APPENDIX

The twelve original indices were calculated using weights based on trade flows in 1928, 1935 and 1938; six indices simply used either imports or exports only (for each year) as the basis for the weights; three further indices added imports and exports for each year and derived new weights from these totals; two more indices added imports and exports respectively for all three years and derived new weights. The "average" index used weights which are derived by averaging the weights used in the three imports-plus-exports indices [1]. (Simply totalling trade flows used in the three imports-plus-exports indices would bias the weights in favour of the years with the largest trade flows).

The four additional indices calculated - A, B and C and the Paasche index (P) - used weights derived as follows:

A: this takes a geometric average of the weights used in the
    "average" bi-lateral and "average" global indices and as
    the total is less than a hundred the residual is allocated
    to the U.S.A. which has a weight of 20.063.

B: this takes nine-tenths of the weights used in A and allocates
    the residual to the U.S.A. which has a weight of 28.056.

C: this takes nine-tenths of the weights used in B (i.e. nine-
    tenths of nine-tenths of the A weights) and allocates the
    rest to the U.S.A. which has a weight of 35.251.

P: this is based on the imports-plus-exports indices' weights;
    the 1928 weights are used for 1931-32, the 1935 weights for 1933-
    36 and the 1938 weights for for 1937-39.

1/ This is a geometric average i.e. √1928 weights x 1935 x 1938 weights.
   The residual (as always) is arbitrarily assigned to the U.S.A.

The "average" bi-lateral and global indices are presented quarterly in Table 1 together with the lowest and highest values for the twelve indices calculated. Indices of the pound-dollar and pound-franc rates are given for comparison. Similarly the weights used for the two "average" indices and their range of variation are given in Table 2. The weights used in the first composite index (A) are also presented. In Table 3 the three composite indices (A, B, C) and the Paasche index (P) are given annually. Data sources are listed in Table 4.

All the indices were calculated according to the simple formula:

$$\text{Index in time period } i = \frac{\frac{1}{n}\Sigma\, w\, \frac{R^i}{R^o}}{\frac{1}{n}\Sigma w}$$

where n = the number of countries (28)

R = a simple index for an exchange rate (R^o = 100)

R^i = the index for an exchange rate in time period i

w = a weight

There were a few problems with individual exchange rates: the series for Spain, for example, was interrupted by the Civil War and rather than exclude Spain from the index altogether the simple expedient of assuming that the exchange rate moved evenly from the last quote before the war to the first quote after it (which were not too dissimilar anyway) was adopted. Similarly there is a two month gap in the Italian rate during the invasion

of Ethiopia and there are also one or two other small gaps in a few rates

for various reasons; these were all filled by the same method. Another

problem was caused by the fact that the Austrian exchange rate (and indeed

Austria) disappeared in 1938; it was therefore assumed that the last quote

given for Austria prevailed until the beginning of the war. (The Austrian

exchange rate had been unchanged for some time anyway and so this is not an

entirely unrealistic assumption). Finally because quotes for Austria cease

in 1938 and quotes for a few other countries cease in the first half of 1939,

the results for 1939 (the index is calculated up to August) should be treated

with caution.

1929/30	Average Bi-Lateral 100	Range of Variation -	Average Global 100	Range of Variation -	£ - $ 100	£ - Franc 100
1931 I	104.65	104.30 – 105.40	103.39	102.76 – 104.32	99.94	99.74
II	105.46	105.04 – 106.47	104.23	103.59 – 105.20	100.07	100.28
III	105.37	104.91 – 106.41	103.48	102.80 – 104.54	97.78	97.72
IV	92.07	90.80 – 93.41	85.64	85.49 – 86.32	75.16	75.15
1932 I	90.21	88.70 – 91.65	84.23	84.20 – 85.10	72.18	71.90
II	93.18	92.01 – 94.65	88.04	87.69 – 88.90	75.98	75.56
III	90.90	89.45 – 92.46	85.78	85.36 – 86.91	72.04	72.06
IV	88.41	86.69 – 89.94	83.25	82.72 – 84.54	68.26	68.35
1933 I	92.05	89.99 – 93.36	86.07	85.29 – 87.78	70.17	70.11
II	94.44	92.56 – 95.93	88.37	87.97 – 89.63	79.47	69.62
III	96.32	94.61 – 98.44	90.11	89.90 – 90.82	94.70	67.09
IV	97.76	95.59 – 100.10	91.34	90.82 – 92.39	102.35	66.15
1934 I	99.62	96.69 – 102.02	92.07	91.03 – 93.63	104.01	63.72
II	100.78	97.53 – 103.47	92.67	91.38 – 94.58	105.07	62.28
III	99.60	96.83 – 102.06	91.87	90.57 – 93.59	103.61	61.16
IV	99.05	96.32 – 101.54	91.08	89.91 – 92.77	102.05	60.52
1935 I	98.18	95.53 – 100.67	90.04	88.85 – 91.60	99.77	59.27
II	99.31	96.79 – 101.65	91.68	90.39 – 93.04	100.56	59.74
III	99.91	97.37 – 102.21	92.64	91.33 – 94.05	101.93	60.41
IV	99.68	97.26 – 101.92	92.55	91.46 – 94.02	101.26	60.23
1936 I	100.03	97.55 – 102.25	93.03	91.95 – 94.57	102.39	60.41
II	100.19	97.73 – 102.39	93.31	92.25 – 94.83	102.44	60.94
III	100.61	98.09 – 102.84	93.83	92.81 – 95.37	103.52	61.57
IV	101.97	100.11 – 103.67	97.68	97.27 – 98.63	100.80	84.82
1937 I	101.40	99.65 – 103.00	97.26	96.85 – 98.10	100.40	85.08
II	101.84	100.07 – 103.41	97.90	97.42 – 98.74	101.45	88.87
III	103.33	101.68 – 104.73	100.50	99.61 – 101.47	102.27	108.53
IV	104.31	102.67 – 105.60	102.24	101.17 – 103.39	102.52	118.96
1938 I	105.43	103.63 – 106.83	103.36	102.12 – 104.57	102.91	124.35
II	106.87	105.09 – 108.11	105.61	103.66 – 107.38	102.23	138.29
III	106.91	105.23 – 107.95	106.14	103.47 – 108.47	100.26	143.91
IV	106.26	104.72 – 107.37	105.01	102.11 – 107.50	97.06	143.85
1939 I	106.11	104.59 – 107.28	104.64	101.75 – 107.12	96.32	142.89
II	106.49	104.96 – 107.93	105.29	102.24 – 107.82	96.36	142.59
III 1/	108.17	106.34 – 111.24	108.19	103.25 – 111.79	95.59	142.44

1/ 1 July – Aug. only

TABLE 2

	Average Bi-lateral	Range of Variation	Average Global	Range of Variation	A Index
Egypt	1.933	1.509 – 2.532	1.045	0.863 – 1.250	1.421
S.Africa	4.079	1.879 – 9.150	1.708	0.904 – 3.224	2.640
Canada	6.970	5.083 – 10.164	5.164	4.084 – 5.899	5.999
U.S.A.	13.782	6.549 – 18.133	15.923	10.338 – 19.105	20.063
Brazil	1.146	0.456 – 2.250	1.943	1.669 – 2.112	1.492
Argentina	5.516	3.905 – 7.386	3.300	2.487 – 4.337	4.266
India	9.181	7.538 – 12.583	4.553	3.868 – 5.366	6.465
British Malaya	1.760	1.202 – 2.555	1.956	1.597 – 2.476	1.856
Japan	1.120	0.464 – 1.983	4.272	3.416 – 5.101	2.187
China	1.159	0.821 – 2.250	1.859	0.689 – 3.017	1.468
Russia	2.395	0.650 – 3.948	1.748	1.383 – 2.315	2.046
Austria	0.299	0.212 – 0.450	1.213	0.968 – 1.566	0.602
Belgium-Luxembourg	3.099	2.488 – 4.224	4.177	3.472 – 4.913	3.598
Czechoslovakia	0.646	0.317 – 0.900	1.972	1.700 – 2.208	1.129
France	5.209	3.891 – 7.000	10.836	8.797 – 13.468	7.513
Germany	5.751	3.917 – 9.250	11.501	10.083 – 12.789	8.133
Italy	1.439	0.900 – 2.267	3.334	2.542 – 4.472	2.190
Netherlands	4.638	4.108 – 5.193	6.337	5.831 – 7.055	5.421
Sweden	2.485	1.517 – 3.176	2.564	1.779 – 3.685	2.524
Switzerland	1.092	0.854 – 1.389	2.184	1.672 – 2.948	1.544
Denmark	4.143	1.417 – 5.099	2.192	1.904 – 2.557	3.013
Finland	1.558	0.567 – 2.488	1.069	0.863 – 1.304	1.291
Norway	1.377	1.150 – 1.775	1.301	0.742 – 2.044	1.338
Poland	1.042	0.560 – 1.719	1.375	1.142 – 1.605	1.197
Spain	1.293	0.741 – 1.762	1.343	0.637 – 2.169	1.318
Ireland	4.423	2.941 – 6.288	1.129	0.790 – 1.438	2.235
Australia	7.772	5.239 – 9.317	2.718	2.772 – 3.605	4.596
New Zealand	4.693	2.750 – 6.061	1.284	0.925 – 1.638	2.455

TABLE 3

	P	A	B	C
1939/30	100	100	100	100
1931	100.56	100.08	99.40	98.78
1932	86.73	86.75	85.29	83.97
1933	92.07	91.28	90.82	90.40
1934	96.36	95.92	96.70	97.39
1935	95.91	95.44	95.99	96.48
1936	97.98	97.51	97.99	98.42
1937	100.88	100.75	100.84	100.92
1938	104.57	105.05	104.61	104.21
1939[1]	104.43	105.35	104.43	103.60

[1] 1 Jan. - August only

TABLE 4 : DATA SOURCES

(a) EXCHANGE RATES : These came from 3 main sources:

(1) L.C.E.S. (London and Cambridge Economic Service) Bulletin : U.S.A., BRAZIL, ARGENTINA, INDIA, JAPAN, CZECHOSLOVAKIA, FRANCE, GERMANY, ITALY, NETHERLANDS, SWEDEN, SWITZERLAND;

(2) The Economist: EGYPT, RUSSIA, AUSTRIA, POLAND.

(3) The Bank of England Statistical Summary: SOUTH AFRICA[1], CANADA[2], CHINA[3], BELGIUM-LUXEMBOURG[3], DENMARK[4], FINLAND[4], NORWAY[4], SPAIN[3], AUSTRALIA[1], NEW ZEALAND[1].

In addition BRITISH MALAYA is taken from the "Network of World Trade" (p.172) and the Irish pound then (as now) exchanged on a one-to-one basis with the British pound.

(b) TRADE FLOWS : These were taken from the League of Nations' "Network of World Trade"; the figures for exports include re-exports. Where appropriate (i.e. where the same currency was used) some countries' trade flows were augmented by the addition of those of others. Thus the following countries were grouped together: India (Burma and Ceylon); Japan (Korea and Formosa); France (Algeria, Tunis, French Morocco, French Equatorial and West Africa, Other French Africa and French Indo-China); the Netherlands (and the Netherlands Indies); Poland (and Danzig). In most cases, however, these extra countries experienced fairly small trade flows so this exercise was simply a minor adjustment.

[1] except for 1931 - taken from the League of Nations Monthly Bulletin of Statistics
[2] except for Jan-June 1931 - from the Economist
[3] except for 1931 - from the Economist
[4] except for Jan 1929-Feb 1932 - from the Economist