Foreign debt cycles and the 'Gibson Paradox': an interpretative hypothesis

by

Andrea Ginzburg*
Annamaria Simonazzi**

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* Università degli Studi di Modena
Dipartimento di Economia Politica
Via Berengario, 51
41100 Modena (Italia)
e-mail: ginzburg@unimo.it

** Università di Roma "La Sapienza"
Facoltà di Economia
Via del Castro Laurenziano, 9
00161 Roma (Italia)
e-mail: simon@dep.eco.uniroma1.it

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Andrea Ginzburg*
and
Annamaria Simonazzi°

Abstract

The paper attempts to provide a conceptual framework for a better understanding of the current real and financial crisis. Apparently originated two years ago in Thailand, it is now spreading from other Asian countries to Russia and Latin America. Should we interpret these crises as isolated phenomena, mainly due to mistaken, contingent domestic choices, or should we rather try to explain these episodes within a unifying interpretation (granting for the existence of country-specific features)? Favouring the latter hypothesis, we suggest that the current crisis should be analysed in a long-period perspective and interpreted as the outcome in the periphery of the 'Great Disinflation' which originated in the early '80s in the 'central' countries from strongly restrictive monetary policies. The paper starts out from two distinct sets of empirical observations: on the one hand, the long-run positive relationship between the long-term rate of interest and the level of wholesale prices (a relationship dubbed by Keynes the 'Gibson Paradox'), on the other, the long-run data on foreign debt crises in the periphery. Recently, a non-neoclassical interpretation of the Gibson Paradox was put forward by M. Pivetti, within the exogenous theory of distribution suggested by P. Sraffa as an extension of the classical political economy approach. In Pivetti's interpretation lasting changes in the rate of interest - being an element of normal costs - will influence prices directly. Following hints by Triffin and Keynes, we suggest that for the industrial countries another, more indirect route may be at work, also affecting normal costs of production, namely the influence that changes in the rate of interest have on the prices of imported commodities and industrial inputs. Attention is focused on two 'central' countries (respectively the UK in the 19th century and the U.S.A. in the 20th century) and two long disinflation periods, the 'Great Depression' (1873-96), and the "Great Disinflation" of the '80s of this century. In both periods, a terms of trade improvement in the Central countries, prompted by a tightening in their monetary policy, was obtained thanks to the higher flexibility of import prices with respect to export prices, which in turn opened the way to a series of debt deflation induced real and financial crisis in the periphery. Our conclusion emphasises the important drawbacks which may emerge in the long-run even to central countries from apparently successful anti-inflationary measures and points instead to the importance of measures apt to stabilise commodity and industrial inputs prices within a context of lower interest rates.

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* University of Modena, Facoltà di Economia, Via Berengario, 41100 Modena, Italy. e-mail: Ginzburg@unimo.it
° University of Rome "La Sapienza", Facoltà di Economia, Via del Castro laurenziano 9, 00161 Roma, Italy. e-mail: Simon@dep.eco.uniroma1.it

Introduction

This paper starts out from two distinct sets of empirical observations referring to long-term phenomena. Each has seen its own research tradition grow together with the heated dispute accompanying it. Here, in contrast, we set out to advance one interpretative hypothesis capable of embracing both.

The first set of observations refers to the long-run relationship between the rate of interest and the price level. A positive correlation between the long-term interest rate[1] and the price level had been noted in the UK as early as 1844 by the major exponent of the Banking School, Thomas Tooke, whose ideas were to prompt criticism from Fisher (1896, but see also his contributions of 1907 and 1930) and Wicksell (1898 and 1907). In the *Treatise on Money* (1930) Keynes noted that a series of articles by A.H. Gibson published in the "Bankers' Magazine" between 1923 and 1926 had repeatedly called attention to the - for the UK - "extraordinarily close correlation over a period of more than a hundred years between the rate of interest, as measured by the yield of consols, and the level of prices, as measured by the wholesale index number" (fig. 1) (Keynes CW VI, 177). Defining the positive correlation between these variables as the "Gibson Paradox" - a term that was then to enter into the tradition - Keynes added that this statistical regularity constituted "one of the most completely established facts within the whole field of quantitative economics, though theoretical economists have mostly ignored it (ibid., p.178)"[2]. Subsequent to this observation by Keynes, this relationship has been the subject of numerous theoretical and empirical researches. At the interpretative level the results appear far from conclusive, but on the whole they do seem to tally fairly well in confirming the solidity of the empirical relationship over the long period and in certain countries[3] (in particular those countries we define here as "central", such as the UK in the 19th century and the USA in the 20th).

The second set of empirical observations refers to the existence, over the past two centuries, of foreign debt cycles affecting a number of countries simultaneously, in

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[1] The correlation between the short-term interest rate and the price level, which we do not address here, was defined the "'Kitchin phenomenon' after Joseph Kitchin who noted it in 1923". Cf. Schiller and Siegel (1977, 893).

[2] In contrast, I. Fisher, author of a proposed explanation of the "paradox", wrote in the same year that "no problem has been more hotly debated" (Fisher 1930, 399).

[3] While Dwyer (1984), analysing the data for Belgium, France, the UK and the USA concludes that the "paradox" finds confirmation for a limited period and only in the UK, R. Ram (1987) extended inquiry to 44 countries over periods of about 30 years after the Second World War to find "a wide prevalence of the Gibson Paradox, at least for the periods studied." For the USA, cf. Sargent (1973), W.E. Gibson (1973) and L. Klein (1995). It is also worth recalling the

particular in the periphery and semi-periphery[4]. Three interdependent, consecutive phases have been identified in these cycles (Suter, 1992, 2 and bibliography contained therein): 1) expansion of foreign lending by the central countries; 2) outbreak of a debt crisis in the periphery; 3) negotiations between creditor and debtor countries for the rescheduling and repayment of the foreign debt. Fig. 2 (from Suter, 1992, 3) gives a rough idea of the long-run trend in foreign debt crises from 1823 to 1985[5]. A rapid perusal of the figure reveals that the time span saw basically four periods of global crisis: "from the early 1820s to the early 1840s, from the mid-1870s to the early 1880s, from the early 1930s to the late 1940s, and from the early 1980s to the present."

In this paper our aim is two-fold. In the first place we set out to propose an explanation of the Gibson relationship based on the influence of the rate of interest on production costs. Our second aim is to apply this explanation in order to bring out certain analogies marking two phases in the history of the "central" countries - the "Great Depression" of the 1880s-1890s and the "Great Disinflation" of the 1980s-1990s. These constitute the second and fourth world debt crises indicated by Suter, who points out that the burgeoning of critical situations in the periphery coincides with long phases of world growth and price depression (or in other words, as Suter has it, with the downward phases in Kondratieff's cycles).

Suter interprets the relationship between the global debt cycles and long waves of growth by twining together three theoretical lines: a theory of growth based on innovations (cf. Schumpeter, 1939, and Mensch, 1975), Rostow's theses (1975, 1978 and 1985) on the pro-cyclical movement of the ratio of final goods to raw materials prices in the long cycles and, finally, Vernon's product cycle theory (1966). Although some of the ingredients going into the interpretation adopted by Suter and the authors he draws upon may at first sight seem close to (or compatible with) those proposed here, the attention we dedicate to the long-run relationship between the nominal interest rate and the price level *for given methods of production* marks a departure from theories of growth and distribution founded

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observation by Friedman and Schwartz (1976, p.289) that the paradox "was alive and well until about 1970. But then it completely disappears in the 1970s."

[4] Suter (1990, p. 71) observes that, with a few exceptions, "the countries figuring among the more highly developed ones... are much less represented among defaulting countries than among the main recipients of international capital."

[5] The indicators measure "the proportion of countries in default or subject to a rescheduling agreement as a percentage of all sovereign nation-states on the one hand and the share of blocked credits relative to the total accumulated net investment abroad of principal creditor nations on the other." It is important to note that Suter's work, and thus the graph drawn from it, concern the *public* foreign debt alone.

solely on technological grounds. As will emerge from the following sections, study of the relationship raises two problems of theoretical and empirical significance that find no place in the "technological approach": the governability of interest rates by monetary policy and the influence of monetary policy on income distribution.

1. The Gibson Paradox and price levels

1.1. The marginalist theory. The phenomenon described as the "Gibson Paradox" clashes both with the quantity theory of money and, at least *prima facie*, with Fisher's interest rate theory. According to the quantity theory, in the long-run variations in the level of prices should reflect corresponding variations in the money stock. If the interest rate is determined by the "real" factors of productivity and thrift, it should not be correlated with price levels. Since, however, it is granted that increases in money supply tend to bring the interest rate down, increases in the money stock should be accompanied by falling interest rates and rising prices.

The conceptions of Wicksell and Fisher have given rise to two different explanations of (and research traditions in) the link between the rate of interest and the price level. Although the explanations of the natural rate of interest are identical, the cause triggering the co-movements of the nominal rate and the price level is different. While Fisher's explanation of the paradox rests on the representative agent behaviour, Wicksell's[6] derives from a "complete" model of interest rate determination where divergences between natural and market interest rates, and the consequent induced increases in money supply and prices, arise from variations in the demand for investment as against savings. It is, therefore, these variations, and not the quantity of money, that function as the *primum movens* in this latter case.

Wicksell's explanation stands as an attempt to overcome the contrast between empirical findings and the quantity theory of money: since prices and interest rates move in the same direction, the initial cause of price increases cannot be monetary, as this would give rise to an inverse relationship. Therefore, this initial cause must be real[7]. The source of

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[6] The solution to the "paradox" Keynes proposes in the *Treatise* is very close to Wicksell's (and critical of Fisher's); however, it seems somewhat far-fetched to speak of "a Wicksell-Keynes position" (cf. Cagan 1965; Schiller and Siegel 1977).

[7] In *Interest and Prices*, Wicksell (1936 [1898], p. 167) writes: the idea "that rising prices are due to an excess of money, falling prices to a scarcity - does not accord with actually observed movements of the rate of interest. If it were

price variations lies in the divergence between the natural rate and the market rate of interest prompted by a variation in the natural rate (and never by variations originating independently in the money market, natural rate remaining constant). However, the natural rate remains a non-observable magnitude, while the movements of the market rate, which is fixed by the banks, follow the movements of the natural rate. The quantity of money created (or destroyed) by the banking system to fill in the gap between investment and savings could, in this sense, be defined "endogenous" as a manifestation of the banking system (whose interest rate behaviour is *routinier*) adjusting to an exogenous variation in the financial requirements for investments. The direction of causality is: natural rate of interest - money - prices - market rate of interest.

In contrast, Fisher's explanation of the "paradox" fits in with the traditional money - price sequence, concentrating on the difference between real and nominal interest rate. What is known as Fisher's equation

$$i_t = r_t + \pi_t$$

states that the market interest rate, i_t, derives from the sum of the real interest rate, r_t, taken as constant and in any case independent of the other terms of the equation[8], and the expected rate of inflation, π_t[9]. According to Fisher, long-run changes in the interest rate depend on variations in the expected *rate of inflation*, although as he himself recognises (Fisher 1896, p. 56) "the relation of high or low prices to the rate of interest must not be confused with the relation of *rising* or *falling* prices to the rate of interest." In order to reconcile his explanation with the empirical evidence, Fisher has to demonstrate that the expected rate of inflation is positively correlated with the *level* of prices. To this end, anticipating Friedman, Fisher hypothesises that the process through which expectations are formed may be represented by a weighted average of the current and past rates of inflation.

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correct, we should expect that at a time of rising prices there would be a temporary reduction in the rate of interest, at a time of falling prices a temporary increase."

[8] As Patinkin (1995, p. 1327) points out, in his cycle theory Fisher admits the possibility of real interest rate variations, but they are always determined by inadequate adjustment of the nominal interest rate to price variations which are in turn traced back to variations in the quantity of money. Thus while in "The Purchasing Power of Money" Fisher admits that variations in the real interest rate can generate booms or crises, in "Our Unstable Dollar" he goes as far as denying the existence of the cycle. Cf. also Friedman and Schwartz (1982, p. 568, note 96).

[9] The equation states that the real rates of returns will not depend on the presence of fixed returns in nominal terms since, in a perfectly anticipated inflationary process, the nominal rates will be driven to adjust under the pressure of investors' competition in such a way as to equal fixed returns in both nominal and real terms.

Since, unlike Wicksell, he takes the real interest rate as a constant, the equation used by Fisher[10] to test the compatibility of his theory with the paradox becomes

$$i_t = a + \sum_{k=0}^{m} v_k \frac{\Delta P_{t-k}}{P_{t-k-1}}$$

where a can be interpreted as the equilibrium long-run real interest rate, v and m are parameters and P_t is the level of prices at time t. For very large k and very small values of v the second term of the right side (which should represent the expected rate of inflation) tends to the *level* of prices at time t. In order to approximate this result, however, it is necessary not only to exclude that new information can enter into the formation of expectations (Gordon 1973, p. 461) but also to assume very long lags (from ten to thirty years[11]) - so long, in fact, as to turn the "explanation" of the paradox into a virtually tautological reformulation[12].

1.2. An alternative explanation of the "paradox". The debate that has continued throughout the 20th century, albeit with long periods of intermittence, to take on vigorous new life in the early '70s and again in the late '80s, has been dominated by the contrast between variants of the two major attempts made by Wicksell and Fisher to reconcile the "paradox" with marginalist theory[13]. As we have already recalled, the results of this theoretical and empirical research tend to bear out the existence of an empirical relation for long periods of time and for certain countries (especially the "central" countries), but they are by no means conclusive at the interpretative level, which led Friedman and Schwartz (1976, p. 288) to conclude that while "a very large array of statistical examinations of prices and interest rates" regarding the USA bear out that "the Gibson Paradox does exist," it "remains an empirical phenomenon without a theoretical explanation." The explicative shortcomings marking both the two major explanations of the "paradox" and the respective variants prompt some deeper-reaching theoretical revision.

The positive correlation between the long-run interest rate and the level of prices had been noted by Thomas Tooke as early as 1844, and indeed we may look to his contribution for a different explanation of the paradox. Tooke had in fact noted a contrast

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[10] Cf. Fisher (1925, p. 181). See also Fisher (1930, p. 416 ff.) and Sargent (1973, p. 387).
[11] Cf. Cagan (1965) and, for discussion, both Sargent (1973) and the comment by Gordon (1973).
[12] Cf. Sargent (1973, p. 387), Schiller and Siegel (1977, p. 897). Moreover, the same observation had already appeared in Macaulay (1938, p. 174).

(a paradox) between empirical observation and the opinions then prevalent which, well before the advent of marginalist economics, tended to associate a fall in interest rates with *an increase* in price level: "The theory," he peremptorily asserted, "is not only not true, but the reverse of truth." As has been noted (Pivetti 1991, p. 38), Tooke's idea that a fall in the rate of interest leads to a reduction in prices is closely bound up with his conception of the relation between money and prices - a point that was often to loom up in the background during the subsequent debate. In fact, Tooke maintained (taking up a concept of "endogenous money"[14] that had previously been proposed in the mercantilist sphere by Davenant, Steuart and others) that "the prices of the commodities do not depend on the quantity of money.... but that, on the contrary, the amount of the circulating medium is the consequence of prices[15]."

Having reversed the direct money-price link, Tooke also rejected the more indirect link based on the inverse relation between interest rate and demand for commodities upon which the prevalent opinion was founded: if it is true that an increase in banks' loans and discounts resolves into a lowering of interest rates and thus in increased "power for purchasing commodities", "the error," Tooke writes (1959, p. 79), "is in supposing the *disposition* or *will* to be co-extensive with the power." Denying the existence of a relation between interest rate and demand for commodities, Tooke states that a sufficiently persistent reduction in the rate of interest will, on the contrary, lead to a reduction in production costs which, by virtue of the competition between producers, will in turn emerge as a reduction in the prices of commodities. In short, Tooke argues that if we are to understand the evolution of the level of prices we must look to the circumstances affecting the cost of production, *among which*[16] feature the level of interest rates, the conditions governing the supply of commodities and the degree of competition between firms. He takes up an explicitly critical approach to those authors who claim that trends in price

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[13] Cf., e.g., Barsky and Summers (1988), Lee and Petruzzi (1986), Muscatelli and Spinelli (1996).

[14] In the idea of endogenous money we can distinguish a price effect, a quantity effect and a nominal income effect in which the two preceding effects are not distinguished. In the broader concept of "money activated by the extension of trade" the idea had already appeared in mercantilist writings, but Tooke turns the focus on the price-money link.

[15] Tooke observes that only the non-convertible paper money issued by the government to pay directly for goods and services (like the French *assegnats*) feeds demand directly and can bring about a causal link between the quantity of money issued and the level of prices. Cf. Tooke (1959, pp. 68-78) and Pivetti (1991, p. 77).

[16] In his writings of the 1823-1838 period Tooke gathers considerable evidence in support of the thesis that the fall in prices in the years following on 1819 did not derive from variations in the quantity of money or alterations in the system of the currency, but from variations in the costs of production or the circumstances affecting supply (seasonal factors,

levels can be gleaned from inflows and outflows of gold regardless of the limitations banks face in the control of the quantity of money actually in use or of the circumstances affecting the costs of production.

1.3. The rate of interest as determined 'from outside the system of production'. Subsequent to the criticisms launched by Fisher and Wicksell, Tooke's name came up in the ensuing debate on the "Gibson Paradox" solely as the discoverer of an empirical relation, with no reference to his interpretation. Salvaging Tooke's theory, Pivetti (1991, p. 47)[17] advances an explanation of the paradox within the framework of the theory of distribution formulated by Sraffa along the lines of the classical political economy. Having determined production prices and the uniform rate of profit given the methods of production and the real wage, Sraffa suggests reversing the wage-rate of profit relation, taking the latter as "given". The rate of profit "as a ratio, has a significance which is independent of any prices, and can well be 'given' before the prices are fixed. It is accordingly susceptible of being determined from outside the system of production, in particular by the level of the money rates of interest" (Sraffa 1960, p. 33). Taking up this suggestion, Pivetti argued that in this theoretical framework "there is nothing 'paradoxical' in a positive correlation between interest rates and prices... given money wages and production techniques, a rising (lowering) of prices as a result of a lasting rising (lowering) of interest rates would merely reflect the adaptation of prices to normal costs, caused by competition" (op. cit., p. 47). To Sraffa's scheme Pivetti adds the hypothesis that the money wages are given. When the rate of interest rises, the effect of the inverse relationship between the rate of profit and real wages (which Sraffa shows to be valid when wages are measured in terms of any commodity) means that the price of each commodity, and thus the *level* of prices, will increase for each given level of money wages. Price variations moving in the same direction as the money rate of interest are the tool by means of which the rate of profit will, in the long-run, adjust to the money interest rate and not vice-versa, as Wicksell, for example, has it.

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significant changes in the cost of imported commodities, the presence or absence of barriers to foreign sourcing, significant improvements in production processes or in production of cheaper substitutes). Cf. Pivetti (1991, p. 76).

[17] See also, by the same author, the entry "Tooke Thomas" in *The New Palgrave*, A Dictionary of Economics, edited by J. Eatwell, M. Milgate and P. Newman, London 1987.

A point that needs stressing here is that the idea that the interest rate is determined from outside the "system of production", i.e. by monetary factors, is from the point of view of long-period analysis[18] in general incompatible with the existence of a definite relation between interest rate and demand, and demand for investment in particular. It is, therefore, also incompatible with the concept of a "full employment interest rate".

1.4. The interest rate as a determinant of the costs of production: the direct way. If we accept the possibility that the authorities can control the long-term interest rate, can we - as Pivetti argues - go on to draw the conclusion that the statistical regularity noted by Tooke, Gibson, Keynes, Friedman, etc. offers direct evidence of the interest rate/price level link featuring in the theoretical scheme in question? One of the authors of this paper has on another occasion raised doubts about the matter, remarking that in the period and country where the link appears most evident (the age of the Gold Standard in the UK), the rate of profit was influenced by circumstances that make no appearance at all (e.g. the imported raw materials) at the level of abstraction set by the theoretical scheme, or are taken as given (methods of production, money wages and, we might add, the degree of competition as expressed by the uniformity of the rate of profit) (Ginzburg 1992).

Following the cost of production theory of prices, we may write the following price equation:

$$p = (1 + r)Ap + (1 + r)A_m ep^* + wl$$

where p, p^* and l are, respectively, vectors of domestic and foreign prices and labour coefficients; e is the diagonal matrix of effective exchange rates (weighted by the geographical origin of imported commodities); A is the matrix of technical coefficients of domestic inputs (here we disregard the use of fixed capital goods), A_m is the matrix of technical coefficients of imports and w the money wage; $(1 + r)$ is the diagonal matrix of the rates of profit. According to Pivetti (1991, p. 71), they can differ across industries since

[18] In the short-run a monetary theory of interest is compatible with the presence of an interest-elastic investment function, provided no particular hypotheses are given regarding the money market (e.g. an entirely exogenous money supply and a demand for money not influenced by income). In the neocalssical theory, with flexible wages and prices, the hypothesis of an investment function leads to the conclusion that, in the long-run, the rate of interest is influenced by real factors alone. In fact, "admitting an elastic investment demand schedule leads to maintaining, on the one hand, the existence of a full-employment level of the rate of interest and, on the other, the presence of inflation, or deflation and unemployment, when the actual rate of interest rate is not the full employment one; the idea that the market rate of interest tends to gravitate towards its full employment level then acquires plausibility." Cf. Garegnani (1979, p. 79). On

they derive from the sum of two parameters, the rate of interest i and n_k, which represents the firm's reward for the "risk and trouble" in industry k, expressed as a percentage of the capital invested, hence the generic $r_k = i + n_k$.

For the economy as a whole, the domestic inputs disappear from the price equation, which can then be set out according to the customary mark up or full cost formula. In this case:

$$P = \mu_1 \frac{w}{\pi} + \mu_2 \frac{i \cdot P_k \cdot K}{Q} + \mu_3 \frac{e \cdot P^* \cdot M}{Q}$$

where P, P_k and P^* are, respectively, the prices of the product *(Q)*, the capital goods *(K)* and imported goods *(M)*, e is the effective exchange rate, w and π are the money wages and labour productivity. The μ_i are the mark ups over each component of cost.

This reformulation of the cost of production theory of prices in terms of full cost helps us understand in what conditions we may expect the influence of interest rates variations *not* to emerge, empirically, in a positive correlation between interest rates and *level* of prices. In the first place, more powerful drives in the opposite direction deriving from other cost components may be at work or, as L. Klein suggested (1995), there may be variations in mark-ups. Klein recently proposed an explanation of the paradox along the same lines as Pivetti[19], but beginning with a Cobb Douglas production function to work his way through many more arbitrary hypotheses to the same price equation based on mark up set out above. Weighing up the validity of the "Gibson relationship" as compared with Fisher's (where the interest rate is taken in relation not to the level but to the rate of change of prices) on the evidence of USA data for the 1930-1994 period with various series of prices and interest rates, he concluded by pointing out that "as is often the case with economic data, the data support more than one hypothesis," although "on the whole, the weight of the empirical evidence [with particular reference to long-term interest rates] is on the side of the Gibson effect, but not definitively." The reason why "the empirical correlations will be high but not perfect," Klein remarks, is that the "mark up coefficients may not be constant. They may vary cyclically and are sensitive to aggregation; i.e. they depend on shifting factor weights, both across factors and across firms." The conclusion

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the difference between short and long period in the marginalist determination of the interest rate, cf. Hicks (1967, pp. 148-149).

[19] According to Klein, "upward changes in interest rates to reach high levels should induce some upward changes in output prices to reach high levels, and therein contribute to the Gibson relationship." Cf. Klein (1995, p. 172).

Klein comes to is that "The relationship is, however, strong enough so that the Gibson effect shows through. This is why economists tend to observe an empirical correlation between price level and interest rate, *a correlation which has not been broken down in the past six decades*" (Klein 1995, p. 172, italics in the text).

In the paper cited, Klein tends to identify the *empirical correlation* observed by Fisher with the *particular interpretation* Fisher offers for it - an identification that crops up very often in the literature, although there is absolutely no need for it: for Fisher's *correlation* we can in fact apply an *interpretation* coherent with Tooke's framework, based on the influence production costs have on price levels. A persistent pressure on unit costs, such as would derive from higher interest rates, for example, will set the price level moving upwards (Gibson correlation). If, however, the rise in price level leads in turn to an increase in money wages (other circumstances remaining equal), prices will be affected, raising their rate of increase (Fisher correlation). The reaction of money wages (or other cost components) to rising prices depends on what we might broadly speaking term historical-institutional factors. Thus we cannot expect regularity of behaviour over long periods, which constitutes another reason why one or the other correlation may prove "high but not perfect". (It is, moreover, precisely this lack of regularity that prompts placing these 'reactions' outside what has been defined the 'core', which includes only the more general and 'automatic' reactions.) (Cf. Garegnani 1987).

2. The influence of the rate of interest on import prices: the indirect way

The above formulation does not mean to say that the price level depends on the interest rate alone, to the exclusion of other costs. However, while taking them into account we should not rule out the possibility of individual cost components being not independent, thereby also opening the way to indirect influences of the interest rate on production costs, and so on prices. In this paper we suggest that there might, for the industrialised countries, be an *indirect* way running from the rate of interest to production costs through the relationship between interest rate and the prices of raw materials. Let us begin by assuming that the trend in imported raw materials is not an exogenous element for the industrialised countries as a whole, but that it is influenced by the relative growth of the "central"

industrialised countries[20]. Let us also assume that the monetary authorities of the central country use as a tool for direct intervention the short-term interest rate[21], in this or some other way successfully orienting prevalent opinions on the market in such a way as to control the long-term money interest[22]. In normal conditions it will be the demand for money that determines the quantity.

We can distinguish two phases, each including a number of economic cycles. In the upward phase, faced with a gradual rise in the level of prices driven up from the costs side, the monetary authorities do not put economic growth in jeopardy: the nominal interest rates gradually mount, but not to the extent of having truly restrictive effects. It is only when imported inflation[23], possibly on top of internal pressures, reaches such heights as to bring about a worsening of the terms of trade and/or balance of payments of the "central" country that the central bank will intervene *drastically* (at the peak of the ascending phase) by raising rates[24]. Through demand, cost and exchange rates effects this will lead to an equally drastic drop in the prices of imported raw materials, thus exerting downward pressure on the level of prices. The descending phase then sets in: with (more) stable internal prices and flexible prices for imported raw materials, the terms of trade begin to improve[25]. With inflation curbed and the main reasons for the "squeeze" thus allayed, the interest rate can be *partially* left to fall. As Keynes pointed out in the *Treatise*, reduction is gradual and

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[20] A thesis advanced, for example, by Phelps Brown and Ozga (1955) for the British economy in the 19th century.

[21] Cf. Kaldor (1958, pp. 17-32): See also Pivetti (1991, p. 47-48) who refers to Sayers (1964, pp. 201 ff.) for the relation between short and long-term interest rates.

[22] A real interest rate can be calculated ex post, having selected the most suitable price index. Given the limitations encountered by monetary policy in controlling prices –owing also to the plurality of objectives, some definable in nominal rather than real terms – one can doubt that monetary authorities are in fact able to achieve a real interest rate target.

[23] For analysis of the effects of the rising prices of imported raw materials on internal prices as an indication of 'domestic capitalists' defence of the rate of profit, cf. A Birolo (1985), p. 162 and ff.

[24] One might question whether the drastic increase would not also mean mounting costs, and hence prices, thus barring the way to the following phase. Tooke himself had already offered an answer to this objection. He argued that to be transferred to prices there would only be changes "of such duration and permanence as to enter into the cost of production" - characteristics that cannot be attributed to hikes in rates introduced to stem a drain in reserves. Actually, "the greater the rise in the rate of interest from a forcible operation of the Bank on its securities, the less must be the probability of its duration." (cf. Tooke 1844[1959], pp. 123-24 and, for discussion, Pivetti, 1991, p. 81). In transition from one phase to the next a temporary increase in short-term rates is followed by a *reduction* in long-term rates. To quote Hicks: "Only if there were a *temporary* shift to a policy of drastic restriction, which stopped the inflation in its tracks, would it be possible for money to become really cheap later on. If such a dénouement were really to be expected, it would be rational for the long-term rate to come down." (Cf. Hicks 1967, p. 99, italics added).

[25] In the mid-1950s the relation between recession in the "core" country, falling prices of raw materials and improving terms of trade in the industrialised countries was considered so evident that W. Beckman wrote an article to explain the "apparent paradox" of the prices of raw materials holding in the face of an American recession. Among the circumstances responsible for this course of affairs he mentioned "the revival in European activity partly due to the post Korean fall in primary product prices." Cf. Beckman (1954, p. 262).

limited in the descending phase since monetary policy proves to be guided more by financial reasons (control of reserves, stability for the financial system, etc.) than by commitment to checking inflation[26]. Authors limiting the focus of their attention to the co-movement of interest rates and prices have neglected the fact that nominal rates do not fall as much as prices, thus disregarding the associated effects on income distribution.

With regard to the relations between what we term the "direct" and "indirect way", we can say that the latter tends to reinforce the positive correlation between interest rate and level of prices. In the ascending phase two sources of cost increases - interest rates and commodity prices - tend to cumulate. As this phase reaches its peak, drastic intervention by the monetary authorities tends to restore terms of trade and firms' profitability. In the subsequent disinflationary phase a lower interest rate (augmented by the firm's risk premium) fix the limit below which the rate of profit cannot fall. In conditions of perfect competition the falling prices of raw materials would deepen the reduction in prices (relative to wages) necessary to align the uniform rate of profit with a reduced interest rate. Under different market conditions (or when firms try to restore the rate of profit previously obtained), falling commodity prices with fixed or rising final prices are accompanied by increases in the degree of monopoly (higher price-wage ratios) and/or by redistribution of the surplus to privileged categories, with an increase in wage differentials and income inequality.

3. The relationship between commodity prices and inflation in the industrialised countries

The role played by commodity prices in creating inflation in the industrialised countries was stressed by Surrey (1989, p. 235), who demonstrated[27] that in both the USA and the UK "commodity prices are a far more powerful influence on domestic prices than is the money supply," concluding that "by comparison with the effects of changes in

[26] Asymmetries in the two phases are pointed out - for example - in a study on the Bundesbank reaction function in the years from 1975 to 1992. As Schachter and Stockman (1995, p. 485) observe: "inflation below its target value, however, has no significant downward effect on the discount rate."

[27] Surrey observes that "when commodity prices are added to money as explanatory variables [of inflation] their contribution is significant at the 99 percent confidence interval," while "when... money is added to commodity prices, the explanatory power fails in every case to be significant even at the 90 percent level of confidence." See also Labys and Maizels (1993).

commodity prices, money simply 'does not matter' for inflation in the open industrial economies of the United States and the United Kingdom."

Such findings leave the apparently solid monetary theory of inflation and disinflation somewhat dented but do not in themselves belie an interpretation like that of Bruno and Sachs, which has enjoyed considerable favour and is worth briefly recalling here. The Bruno and Sachs model is taken to be the prototype interpretation of stagflation based on the interaction of supply shocks (rising prices of imports) with the institutions governing wage determination[28], disinflation depends upon wage reductions, which are required to compensate for the higher commodity cost. Hence Bruno and Sachs postulate a relationship between interest rate and price level in which variation in the price of imported commodities takes on a significant role, but along different lines from the "indirect way" we hypothesised. It ascribes to real wages the task of making any exogenous shock compatible with the real rate of interest determined by the world demand and supply of savings. Any rise in commodity prices amounts to a *shift* in each country's Phillips curve, thus calling for a change in the distribution between wages and profits, as measured by the "real wage gap". Where wage flexibility does not obtain, deflationary demand policies are assigned the task of checking inflation, moving along the short-run Phillips curve. The disinflation of the '80s would thus be the result of each country's individual efforts to narrow the "real wage gap", recession eventually bringing about that wage flexibility that the trade-unions were so reluctant to concede at the outset, ultimately compelling them to accept those reductions in real wages that changed terms of trade had imposed. The individual countries' success in the disinflation process would reflect the specific features of its labour market or, as it is now fashionable to put it, the "credibility" of its central bank.

However, one might question whether the habit of crediting central bank's credibility with the merit for disinflation (measured by the '*sacrifice ratios*') might not be the result of gross "*misspecification*". Beginning with the analysis by Bruno and Sachs, the literature took for granted four hypotheses that so restrict the analysis of inflation in "open economies" as to actually amount to an analysis of closed economies, where labour is the

[28] Cf. Bruno and Sachs (1985) and the bibliography therein. The two authors write: "We believe that external shocks on a global scale and structural changes in the OECD economies were more important... in explaining the abrupt and universal onset of stagflation in the OECD. A clear and central villain of the piece is the historically unprecedented rise

only "factor of production" on which the entire adjustment process is concentrated. The four hypotheses in question are: 1) representation of the trend in commodity prices *as exogenous shock*, thus eradicating the problem of its partly endogenous determination (i.e., its dependence on interest rates); 2) the constancy of terms of trade after the shock: the terms of trade undergo *una tantum* change, *subsequently remaining unchanged*[29]; this hypothesis distracts from one of the major mechanisms that have brought about significant changes in income distribution in the industrialised countries, namely differentiated trends in import and export prices; 3) the "small country" hypothesis neglects, by definition, that a 'small' country will feel the effects of variations in the values of the "big countries" (as well as those of the other 'small' countries); 4) the (implicit) hypothesis that all countries have the same import and export propensity. Accepting these four hypotheses means in practice neglecting significant factors of interdependence and crucial asymmetries. To the extent that the Phillips curves used to estimate the "sacrifice ratios" of the various countries fail to take account of (for example) import prices[30], central banks will be credited with 'merits' (in the fight against inflation) they are far from possessing.

While there is in fact no discussion of the importance of import prices in accounting for the inflation of the 1970s, their role in the disinflation of the 1980s is far less clear. In order to ascertain this we must ask what is the relevant unit of analysis, and which are the major channels of disinflation. In fact, the question remains whether the easing of import prices for the OECD countries as from 1980 is simply the result of each country transferring to export prices the slackening in inflation caused by growing unemployment, - as is assumed in the vast literature founded on the NAIRU- or whether it does not rather (or mainly) derive from the plummeting prices of the commodities exported by the non-OECD countries. Showing far more awareness of the scale and systemic effects of the open economies than Bruno and Sachs (and their followers), Beckerman and Jenkinson (1986) account for the "great disinflation" of the '80s (and, we may add, the '90s too) as the result

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in commodity prices (mainly food and oil) in 1973-4 and again in 1979-80 that not coincidentally accompanied the two great bursts of stagflation...." (p. 7).

[29] It is inconsistent to attribute raw materials with an important role in creating inflation - as the two authors rightly do - and at the same time ignore this role in the disinflation phase. The inconsistency derives from embracing the - analytically misleading - idea of the 'exogenous shock' of terms of trade.

[30] Michael Bruno himself had drawn timely attention to the key role taken on by import prices in analysis of stagflation: in a graph relating the rate of inflation to an indicator of capacity utilisation in the six major industrialised countries, Bruno observes that "the two dimensional graph turns out to be a projection of a three dimensional framework in which the key missing third dimension, import prices, plays the leading role." Cf. Bruno (1980, p. 489, italics added).

of a reversal in the trend of commodity prices[31], confuting the hypothesis of the existence of a Phillips curve at the single country level. The results of their analysis bear out the existence of a close correlation between wages and domestic prices and thus, given the mark up formation of prices, between wages and import prices, while the unemployment coefficient does not appear to play a significant part in the wage equation. The authors conclude that "The results thus provide no support for the belief that inflation has been reduced through any direct impact on the labour market of the rise in unemployment" (p. 49): hence there is no individual Phillips curve, no consistent relationship between unemployment and wage inflation *at the single country level.* The fact remains, however, that the "great disinflation" of the '80s can be ascribed to the world recession, but along paths that traverse not the labour market, through reduction in nominal wages, but rather the product market, through variations in the relative prices between commodities and manufactured goods.

For the industrialised countries, therefore, adjustment is systemic, and not individual. We might say, in accord with Beckerman and Jenkinson, that a Phillips curve exists for the OECD countries *as a whole*, its position depending on core-periphery relations or in other words, given the price-elasticity of raw materials, on the rate of growth of demand in the industrial area. With a rise in the interest rate the Federal Reserve achieved the effect of shifting the "collective" Phillips curve back towards the origin. The room created with the falling price of raw materials has been used by firms to reconstitute their profit margins[32]. The main implication of this analysis is that while "it is not futile for the industrialised countries as a whole to deflate in order to reduce inflation," there is "relatively little scope for an individual country to reduce its inflation rates by directly operating on its rate of wage inflation" (Beckerman and Jenkinson, 1986, p. 51). The latter conclusion is in sharp contrast with the assertions of all recent macroeconomic literature. However, it should be noted that the two authors focus their analysis on the relationship

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[31] Beckerman and Jenkinson combine Hicks' distinction between fix-price and flex-price markets with Kaldor's hypothesis on the differentiated functioning of the markets for primary and manufactured products. Cf. Kaldor (1976 and 1983).

[32] The contribution offered by the fall in import prices - caused by soaring US rates - to a reduction in the "sacrifice ratio", i.e. "the increment in the rate of unemployment needed to reduce inflation by 1 per cent" received particular recognition from F. Modigliani (1988, pp. 404-407) arguing with supporters of the idea of a "short cut to disinflation". Attempting to reconcile the low sacrifice rate experienced by the United States in the '80s (a sharp fall in inflation with a relatively small rise in unemployment) with his previous, considerably higher, estimates of the "sacrifice ratio", the

between the prices of commodities and manufactures, and on the role played by recession, but fail to address the problem of what actually brought recession about. In other words, they do not examine the links between world recession (and the inversion of the price trend) and economic policies, and in the particular monetary policy, of the central country. It is these links we now turn our attention to.

4. The foreign debt cycle

4.1. Financial factors in interest rate determination. The idea that the interest rate may be considered an "independent variable" does not mean that it can take on any value, or that it may not depend on other variables, such as the rate of inflation. What is ruled out is that there can be an influence on the interest rate so systematic as to give rise to a *definite relationship*, as in fact was hypothesised by Fisher. This non-systematic nature of the influence is accounted for precisely by the fact that it is mediated by the actual policy and the institutional characteristics of the financial system. Thus the rate will be "independent" in terms of the particular problem to be addressed (in Sraffa's case, determination of prices and the rate of profit), but it will be *dependent* on the objectives (including, in certain circumstances, the rate of inflation) and restraints which the Central Bank sets itself (or comes up against) in the given situation. Indeed, a sufficiently restrictive monetary policy would obviously be able to wipe out any rate of inflation in any country. The fact that this does not normally happen must be ascribed to restraints of political feasibility and social tolerability, as well as the existence of conflicting objectives, such as the safeguard of banks' profits and, more generally, the stability of the financial system.

Consideration of purely financial factors led Keynes - in the *Treatise* - to take a somewhat different line from the explanation Wicksell had advanced for the Gibson Paradox, although it was not a perfectly clear or coherent line. For example, he pointed up the influence of interest rate determinants other than savings and investments. These are usually attributed with responsibility for a *lag* in the adjustment of the market interest rate to the natural rate but, since such influences are not necessarily of a purely temporary nature, they could in principle come into conflict with Wicksell's determination of the natural rate. According to Keynes, "the fact that in London bank lending is not conducted

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author invokes - without distinguishing between them - both the general effects of the fall in commodity prices resulting from diminished world demand and the specific effects on the United States of the dollar appreciation (pp. 406-7).

wholly on the principles of a free market may be relevant." Yet, the main cause of the lag is identified *in the policy the Central Bank adopts in the face of international disequilibrium*: in fact, in the section dealing with the 'Gibson Paradox' (vol. VI, p. 182), Keynes refers readers to a chapter - the twenty-first of Book IV - entitled 'Changes due to International Disequilibrium', where he examines the possibility that in a given country, B, price deflation emerges as a result of the financial policy followed by other countries' central banks, supposing e.g. that in country A the market rates have risen due to solely financial factors (i.e. not connected with an underlying rise in investment, which would mean a worsening in A's balance of trade and thus - with an increase in the natural interest rate - an automatic tendency towards re-equilibrium). If B's central bank has no intention of accommodating the increase in foreign lending but seeks to stem the gold drain by raising the interest rate above the natural rate[33], the result will be an excess of savings over investment together with price deflation and powerful pressure on money wages. Keynes concludes that the country "whose policy is *most independent* of the policy of the other, and keeps its market rate nearest to its natural rate throughout the transition, will suffer least absolute change in its rate of earnings" (p. 303, italics added)[34]. Thus Keynes adds to Wicksell's equilibrium condition of equality between market and natural interest rates the further condition of independence of monetary policy.

Recourse to the interest rate to check the "gold drain" is a theme that preoccupied (even to the point of obsession, as was the case with Bagehot, 1873) the leading 19th-century monetary economists in the UK. It was then the prevalent opinion that the drain of gold reserves depended solely on "exchanges", i.e. a worsening in the balance of trade fed by a relative abundance of money. Given this particular diagnosis, the idea was to check the "gold drain" by raising the interest rate, thus bringing prices down and replacing gold

[33] Keynes attributes the world deflation of 1890 to Great Britain's refusal "to lend abroad on the scale to which international economic relations had become adjusted." Cf. *Treatise*, V, p. 305, note.

[34] Keynes' position, outlined here, seems relevant for a number of reasons: 1) it describes the emergence of disequilibria whose cause is solely financial and, *for this very reason*, not self-equilibrating; in this independence of financial moves we can again make out a departure from the Gold Standard "rules of the game"; 2) the behaviour of the Central Banks comes in for criticism, blamed for being more concerned with maintaining stable exchange rates than stable prices (and incomes); this critical position shows a marked degree of continuity with the price stability/exchange rate stability alternative in the *Tract on Monetary Reform*, and thus with the theme of the independence of economic policy as compared with policies adopted elsewhere (the 1928-29 crisis is here explicitly attributed "more to financial factors in the United States, which were increasing the requirements of the financial circulation"); 3) central banks' interference with the rules of the game, in both creditor and debtor countries, offers grounds to refute the idea that "over longish periods the price level is governed by the supply of money.... and that this is governed by causes quite independent of the rate of interest" (vol. VI, p. 183).

exports with the export of goods. Against this view, Fullarton - another important exponent of the Banking School - argued that there were significant "classes of drain" in which the outflow of gold has nothing to do with money and prices[35]. In such cases it would prove impossible to replace gold with goods, even with a sharp reduction in prices[36]. The relevant point here is not so much the consequences for monetary policy that Fullarton draws from his detailed analysis of the different "classes of drain" (on which his "theory of terminability of drains"[37] is based) as the fact that careful distinction of the various circumstances that can bring about a "gold drain" give some idea (in Fullarton as also in Keynes) of just how far we are here from the full employment hypothesis[38] implicit in the premises of supporters of the quantity theory of money.

Financial factors continued to play a pre-eminent role also in the dollar standard, especially in the last decades: Volker's monetary squeeze was inspired not only by the will to check inflation, but also by the aim of restoring the dollar's hegemony as an international reserve currency.

4.2. The systemic character of the crisis. Keynes' and Triffin's analyses on the functioning of the gold standard suggest a way to link the core country's interest rate policy and the cumulative process leading to the debt crisis in the periphery. Both authors abandon the fiction of an international economic system consisting of countries of equal size and weight in order to take account of the asymmetries, or hierarchical differences existing between the various countries. These asymmetries mainly concern three crucial

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[35] Cf. Fullarton 1845, chap. VIII. Among the causes of the "gold drain" not connected with price inflation Fullarton mentions, together with changes in a foreign country's standard, credit crises abroad and exceptional grain imports to compensate for poor harvests. In these cases the drain would cease as soon as the disturbance causing it ceased.

[36] If, for example, "the King of Prussia.... has resolved on amassing a treasure of four or five millions at Berlin, you may reduce the prices of merchandise ever so low, without making it a competent substitute for the bullion, or procuring the least relief to your money market from the demand that is pressing on it" (p. 154). Curiously enough, as we shall have occasion to remark below, it was precisely the drain of gold towards Berlin in the aftermath of the Franco-Prussian War, and the policy the Bank of England adopted to deal with it, that constituted the immediate cause giving rise to the Great Depression in 1873. Fullarton concluded that however much a rise in the interest rate might stretch out times and costs for the transference of gold, "sovereign states are not to be diverted from objects which concern their power or independence, by considerations of a little more or less expense."

[37] Cf. Fullarton (1845, p. 153) and Morgan (1943, p. 127). As Morgan pointed out, p. 140, the Banking School exponents "were much more sensitive to the evils of contraction [resulting from restrictive monetary policies] than were their opponents." Thus they endeavoured to have as few restrictions as possible. For Keynes' judgement of Fullarton, cf. General Theory, CW VII, p. 364, fn.

[38] Actually, authors subscribing to the Banking School accounted for the rise in prices resulting from variations in circulation, somewhat vaguely, with the presence of speculation. With hindsight we may say that the limitation of this school of thought lay in ultimately embracing a theory of interest based, in embryonic form, on demand and supply (cf. Pivetti, 1981, p.86) precisely when Say's law was, in practice, being abandoned.

fields: monetary standards, financing and refinancing conditions and the relative price flexibility of commodities (which affects the debtors' real rate of interest). Taking these circumstances into account, the adjustment mechanism of the central countries' balance of trade proves very different both from the mechanism at work in the periphery and from the one envisaged in the gold standard theoretical framework. In the *Treatise* Keynes observes that the fall in prices can only be accounted for with the cumulative effects caused by the international scale of the crisis, with a consequent depression in international wholesale prices. Furthermore, he adds, "in the later stages the drain of gold caused by the cessation of foreign investment probably induced an income deflation abroad, as well as a profit deflation, which operated as a further depressing influence on international prices."

Triffin, too, stresses that "to a very large extent, increases in the London discount rate brought about a readjustment in the British balances of payments, not through their effects on the British economy, but through their effects on the outside world, and especially on the agricultural and raw material countries." However, Triffin saw the discount rate manoeuvre as acting along a dual channel[39]. Along with the fall in commodity import prices deriving from the direct and indirect effects of a decline in British demand, Triffin points out that thanks to the role played by London in financing the commodity trade an increase in the discount rate influenced financing conditions for stocks, encouraging dealers to sell them off[40]. The fall in the prices of commodities was accentuated by a 'defensive' spread of interest rates increases, and by the asymmetric positions of capital exporting and importing countries. By curbing the outflow of

[39] Cf. Triffin (1947, pp. 62-63); and Kenen (1960, pp. 59-62). Kenen points out that Triffin first analyses the effect of a rise in British interest rates on the economic activity of other countries: the result is a reduction not only in import prices but also in demand for British exports. It is only subsequently that he brings up what was to be called the "Triffin effect", i.e. the influence of financing cost on inventories, and thus on the prices of primary commodities. "The decline of these inventories," Kenen remarked, "need not have depressed production abroad and the demand for Britain's exports. It would have its sole sure impact on commodity prices." It is hardly surprising that this anti-Keynesian reading of the "Triffin effect" (prices effect, demand and income being equal) gained among the orthodox economists "much popularity since the 1951 rehabilitation of British monetary policy" as a way to the balance of payments adjustment (cf. Kenen, op. cit., note 72 and p. 61).

[40] For analysis of the cumulative interactions of real and financial components that set in during crises - interactions that the separation of 'effects' mentioned in the previous note tends to obscure - see also the interpretation Kalecki offered of the financial crisis which initially, in 1930, hit only the raw material producer countries of South America and Australia, beginning with a fall in export prices, a fall in the value of inventories, a rise in the degree of debt, difficulty in repaying or renewing loans, etc. He writes: "These storms on the fringes of the capitalist world met with relatively weak response from the centre: the losses borne by primary commodity producer countries were offset by the advantages accruing from the low prices of their products in comparison with the still only slightly lowered prices of manufactured products. It was only later, in the wake of the fall in prices of raw materials, that a fall in the prices of finished goods came about and the financial crisis involved Europe and the United States." Cf. H. Braun [M. Kalecki] (1993, p. 76).

investments abroad, the increase in the discount rate was particularly effective in evening up the balance of payments for the former. However, the consequences were disastrous for the latter countries, the rise in the central countries' discount rate drying up the flow of capital towards the periphery at the very time when a slump in the commodity market made it indispensable to sustain demand. In conclusion, the alleged stability of prices and exchange rates[41] in the gold standard was limited to the countries constituting the core of the system, and was in part obtained at the cost of sharp, simultaneous fluctuations in the periphery's exports, terms of trade and capital flows (cf. fig. 3).

What has been defined as the "Triffin effect", is however just one kind of a more general species. Analysing the disinflation of the '30s Keynes had argued that "a decline of money values so severe as that we are now experiencing threatens the solidarity of the whole financial structure." In fact, "a multitude of real assets in the world which constitute our capital wealth - buildings, stocks of commodities, goods in course of manufacture and of transport, and so forth" are supplied to the banking system as guarantees in exchange for the financing to purchase them. The fall in prices entails, to varying degrees, the "prices of various type of property": in the first place, the prices of raw materials, "very largely financed through the banks", then shares, securities and, finally, "real estate" (whose prices show rather less uniform trends in the different countries) and "loans and advances" based on business profits. The fall in prices of the "real assets" undermines the value of the collateral, driving the banks to bring in further restrictions on loans, which in turn contribute to feeding deflation. "If today a really conservative valuation were made of all doubtful assets, quite a significant proportion of the banks of the world[42] would be found to be insolvent." The greater the fall in prices and the size of the debt are, the greater will be the threat to financial stability, the rise in interest rates remaining equal. Hence during phases of what we might term "macro-deflation" – that is, a long phase of disinflation following upon a monetary policy that is sufficiently restrictive to have systemic effects - debt crises pile up, particularly in those countries where conditions favouring crisis tend to

[41] According to De Cecco (1979, 24-25), by contrasting the *stability* of the centre with the instability of the periphery Triffin ultimately reasserted - in an indirect, problematic way - the mythical image of a harmoniously functioning mechanism since his analysis fails to give due weight to the dark clouds of crisis that were gathering before the final debacle of 1914.

[42] Keynes adds "fortunately our own domestic British banks are probably at present - for various reasons - among the strongest. But there is a degree of deflation which no bank can stand." Cf. CW, IX, p. 157.

abound, i.e. the countries of the periphery, with possible indirect repercussions on the central countries.

In the next two sections we shall outline the ascending phase, the monetary squeeze and the long phase of disinflation of the two episodes we are concerned with here, highlighting certain recurrent aspects which account for the so-called 'contagion'[43] effect, i.e. the transmission of crisis to countries that had followed 'orthodox' economic policies. These aspects include: 1) a common external cause (e.g. the rise in the core country's interest rates); 2) price flexibility (of commodities and industrial inputs, exchange rates, real and financial assets) giving rise to the cumulative mechanism of debt deflation; 3) the trade and financial interdependence between countries; 4) effects of contagion spreading to countries not previously interdependent: in fact, the crisis affecting an area may prompt overall reconsideration of the risks (fleeing to quality) or forced sales of other countries' securities to offset losses.

Although crises tend to be clustered in time, their denouement may be very long, with contagion effects spreading across countries and through time, with sudden spurts and periods of apparent tranquillity, during which new pressure accumulates. In the long cycle covering the Great Depression, the debt crisis gathered in two waves. As for the latter crisis, it is interesting to report an authoritative opinion, according to which the current crisis in East Asia has a structural (systemic) rather than regional character. That is, it is closely bound up with the Latin American crisis of the early 1980s, and the Mexican crisis of 1994, and all of them were precipitated by the sudden change in US policy (Henry Kissinger, *La Repubblica*, 23 February, 1998).

5. The Great Depression and the 1873-1896 foreign debt cycle

On the legitimacy of using the expression "Great Depression" for a comprehensive characterisation of the vicissitudes of the 1873-1896 period historians are somewhat divided (cf. Saul, 1969). However, they do agree in recognising that the period was characterised by a drop in the price level in the UK (after the growth phase that got under way in 1850), a slackening in the growth rate of industrial production, increasing

[43] The widespread use made of this epidemiological terminology implicitly suggests an analogy between propagation of crisis and the transmission of infection to 'healthy' countries (i.e. with the so-called 'fundamentals' in order). The recent Asian crisis has led some orthodox economists to question just how valid this idea of 'fundamentals' is. Actually, the use

unemployment and rising real wages, as money wages held in the face of falling prices[44]. At the world-wide level international trade shrank (cf. Ashworth, 1987)[45]. Opinions on the causes of the decline in prices vary widely. On the one hand we have explanations based on monetary factors: transition to the gold standard in many countries after 1871 leading to frenzied accumulation of reserves in order to maintain fixed exchange rates and allow for international flows of gold. Keynes himself asserted in the *Treatise* that monetary factors offer an explanation of price movements up to the late 1880s, although he added that the discovery of gold in Australia and South Africa suggested seeking an explanation elsewhere, at least after 1890. Attempts to seek a purely monetary interpretation[46] will, of course, find the 'Gibson Paradox' in their path. Referring to the paradox, Coppock (1961, p. 209) wrote: "the behaviour of interest rates is the crucial argument against the monetary theory of the price decline."

In diametrical opposition are explanations based on 'real' factors. Reference here is generally to reductions in costs brought about by a continuous flow of important technological innovations[47], including the revolution of transport on rails and by sea (which had its major influence on costs of long distance transport for low-value-added goods[48]). The effects of transatlantic competition were added to those of overproduction of agricultural produce and intensified exploitation of mining in the 'New World', which were associated with the 'second industrial revolution'. This, too, is an explanation that leaves many questions open[49]. Why should innovations have led to falling prices in the 19th century alone (and not in the following century)? And, above all, why after 1873, and not

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of medical terminology in this context dates back at least to the last century, the declining Ottoman Empire being described as "the sick man of Europe".

[44] In the UK unemployment "was very high in 1879 and for no other recorded period before 1921 did unemployment stay above 7.5% for four successive years as it did from 1884 to 1887." Cf. Saul (1969, p. 31). According to Coppock (1961), who cites an article by Phelps Brown and Hart (1951), "The behaviour of money wage rates in the Great Depression presumably reflects the growth of Trade Union strength in the period, in conjunction with a weak 'market environment'."

[45] Between 1873 and 1896 agricultural (and financial) crises were frequent and severe in Europe; in the more industrialised European countries average rates of growth in industrial output, although positive over the period as a whole, saw periods of decline in production levels. In the UK the average rate was 2% (but output dropped in 1877-79, 1884-86 and 1892-93), in France 1.7% (drops in 1877, 1879, 1883-85, 1890 and 1895) and 2.9% in Germany (just one fall in 1880). Data cited by G. Toniolo, 1988, p. 135, drawn from B. Mitchell, 197, p. 179.

[46] We shall be returning to the effects of a reduction in the price of silver later in this paper. For discussion of the principal explanations proposed, see Saul (1969).

[47] As well as Schumpeter, D.S. Landes (1966) also insisted on this point.

[48] According to Coppock (1961, p. 211), however, the fall in transport costs would at the most account for a sixth of the overall reduction of import prices in the period.

[49] Cf. Saul (1969), p. 13-14 and 21.

before? What innovations were concentrated in the 1873-96 period? In conclusion, although both the monetary and 'real' explanations offer significant points for analysis, they appear inadequate and, at any rate, partial.

Unlike the preceding analysis, Keynes' and Triffin's observations on the functioning of the gold standard in the period of the Great Depression, which have been analysed in the previous section, offer a way to overcome the dichotomy between monetary and real variables, which can be seen as interacting to give rise to cumulative processes.

During the period we are analysing here the debt crises gathered in two waves. The first, and more serious, had effect in the years from 1873 to 1882 and involved the Ottoman Empire, Egypt, Spain and, to a lesser extent, the ten cotton states in the south of the United States, Peru and Colombia. The second, coming after the Baring crisis (1890), affected Argentina, Portugal, Greece and Uruguay. Let us briefly outline the three phases of the crisis: a) a marked expansion of loans towards the periphery; b) a drastic increase in the central countries' interest rates (followed by defensive increases in the other countries); c) a fall in the price of raw materials forcing down the prices of the central countries' commodities as, in the periphery, a crisis of insolvency (and refinancing) set in.

The first phase covers the years from 1850 to 1873. In contrast with the preceding literature, which focused solely on the reasons for the central countries' capital exports, Marichal stressed the active role played by the élites of Latin America in helping shape the course of events, for better and for worse. In this period the locomotive for the Latin American economies and foreign loans was the formation of export economies, exports of "guano from Peru, copper and wheat from Chile, wool from Argentina, coffee from Brazil, sugar and tobacco from Cuba, silver from Mexico" growing "dramatically"[50]. Increased income created a boom in imports of manufactured goods from Europe, and consumption goods in particular. By virtue of the mechanism Hirschman defined as "fiscal linkage", tax receipts on foreign trade prompted - albeit in various ways according to the governments in power - the launch of ambitious public works projects, particularly in railways. On the one hand the higher prices of raw materials led to greater demand for loans while, on the other hand, by offering a sort of collateral and the prospects of substantial gains, stimulated their supply. (But in 1865, following on the war between Argentina and Brazil on one side and Paraguay on the other, the raw materials/railways association gave way to one of war

loans/railways, which was far more onerous for Argentina and Brazil to bear.) In the 1850-73 period the governments of Latin America negotiated no fewer than fifty important foreign loans, most with the issue of securities on the London market.

The American Civil War also brought about deep-reaching and to some extent irreversible changes in international specialisation and the flows of international loans. Blocked cotton imports from the United States (which had satisfied five sixths of Europe's needs in 1860, and 80% of the UK's[51]) forced the British textile industries to seek emergency supplies in India and Egypt. With speculation also driving it up, the price of cotton quadrupled from 1861 to 1862. There was a proliferation of investments financed by British loans which were later - many years after the 'cotton famine' - to prove over-investments, wreaking havoc on the financing banks[52]. Between 1854 and 1865 Egypt shot up from fifteenth to third place among exporters to the United Kingdom (after France and India), thanks also to the quality of its fibre, which was finer and longer than the Indian product.

Extension of trade towards the Indian Ocean and the eastern Mediterranean together with the launch of the Suez Canal project showed up just how backward the local banking systems were, and finance companies in London and Paris promptly responded to the appeal of fast, handsome gains: not infrequently high bank fees together with the low issue prices of loans would eventually more than halve the nominal sum received by the debtor. In the case of the Ottoman Empire an initial loan guaranteed by the UK and France to finance the Crimean War was followed by increasingly frequent and costly renewal[53], largely used to finance luxury consumption and renew the previous debts. The facility the Ottoman Empire enjoyed in renewing loans[54] up to 1875 - the year it suspended payment of

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[50] Cf. Marichal (1979), p. 68-69.

[51] Cf. Landes (1990), p. 74 and note.

[52] Giffen accounts thus for the bankruptcy of the City of Glasgow Bank in October 1878. Cf. Clapham (1967, vol. 2), p. 383.

[53] According to evidence gathered at Constantinople, Mr. Palmer who was in charge of the mighty London company Dent, Palmer & Co. "was sufficiently powerful to cause the downfall of one grand vizier who refused to succumb to Mr. Palmer's contention that the Imperial Treasury was in need of another loan. The succeeding prime minister was more amenable, and Mr. Palmer floated his loan." Cf. Blaisdell (1929), p. 29, note 6.

[54] Note that "as the condition of Ottoman finances deteriorated, net receipts of the Ottoman Treasury as a fraction of the nominal value of new issues dropped below 50%. For this reason, the effective rate of interest on external borrowing rarely fell below 10% after 1860: at times it exceeded 12%." Cf. Pamuk (1987), p. 59.

debt service - was however also due to the politically strategic role attributed to the Ottoman Empire, considered "as a sort of outpost of Europe[55]" in the face of Russia.

The 1873 international crisis put an end to what had been defined as the "Victorian boom" - a boom powered by railways, wars, raw materials and speculation. While the end of the boom and fall in prices struck contemporaries as "inevitable and was anticipated"[56], a fall in prices lasting twenty years had no precedent for the generation that found itself going through the experience[57]. An important role in triggering off the sequence of events that gave rise to the long-lived crisis was played by the payment of the equivalent of about two hundred million pounds by France to Germany as war indemnity[58]. Since the transfer of funds was conducted through the London money market, where a large proportion of the funds had been raised, every outflow of gold connected with the payment of indemnities drove the Bank of England to raise the bank rate yet higher. In 1873, due in part to the financial crisis that hit - first - Austria (with Turkish, Egyptian and Russian securities plummeting) and then the United States, pushing foreign interest rates up, the bank rate was raised no fewer than twenty-four times, to reach 9% by December. "At this moment," wrote Morgan[59], "the German government, whether from charity or desire for profit, suspended its gold withdrawals, and gold came in from abroad."

In the countries of Latin America and the Near East, the Great Depression emerged with all the features of the "debt crisis, because the overriding cause of the economic turmoil there stemmed from an excessive accumulation of foreign debts by governments[60]." All three aspects normally characterising debt crises were there, although combining in different ways in the different countries: diminishing export receipts due to falling demand and/or prices, with consequent limitations to import capacity (also due to the stability or increase in import prices); inefficient, unproductive use of the loans obtained; tougher conditions and/or a halt in financial inflows. While most commentators tend to point at the second aspect alone as the culprit when financial crises have broken out, we shall here stress the point that - without disregarding the others - it is above all the

[55] Cf. Blaisdell (1929), p. 40-41.
[56] Clapham (1967, vol 2), p. 383.
[57] For an account of the French economists' perception of the "Great Depression", see Breton (1993).
[58] The analogy with the results of the Treaty of Versailles was pointed out by Newbold (1932), p. 427, in a periodical edited by Keynes.
[59] Morgan (1965), p. 185.
[60] Cf. also Marichal (1989), p. 102.

first that accounts both for financial insolvency and downward trend in the central countries' prices. In the case of exports, those from Latin America to the UK dropped by 37% from 1872 to 1878. With the prices of commodities (sugar, coffee, wool, copper, steel) plummeting, bankruptcy hit firms and banks while public revenues ebbed drastically. Despite the gravity of the crisis, Argentina, Chile and Brazil escaped insolvency "because of a relatively high level of exports earnings", but neither the Ottoman Empire nor Egypt (where the UK acted as a sort of financial controller, in the first case officially through the Ottoman Public Debt Administration) nor Peru was spared. In the case of the Ottoman Empire, the prices of exports to the industrialised countries fell by 41% from 1873 to 1896 while the debt/exports ratio rose from the 10% of the early 1860s to 50% by the mid-1870s[61], while Peru's declaration of insolvency came with a slump in commodity prices (guano in the first place, but also sugar and nitrates)[62].

On top of the falling prices of primary products came the effects of devaluation in countries on the silver standard. Among these we find, in Europe, after 1880, Russia (until 1896) and Austria-Hungary (until 1892) and, in Asia, China, India (until 1893) and Japan (until 1897). In fact, as from 1872 the price of silver against gold began a descent that was to last two decades, and the countries on the silver standard tended to keep pace by devaluing their currencies. The fall in silver price was in part due to increased production, but above all to a trend towards silver demonetisation: in 1871 Germany opted for the gold standard, to be followed one after another by the major western countries. As de Cecco[63] pointed out, the countries staying on the silver standard were exporters of agricultural produce or, in general, primary products: "only with progressive devaluation... could the competition be tackled... that came from the United States' highly productive areas of cultivation" or in general from falling prices. Thus on the one hand devaluation also played a part in bringing down the prices of primary products on the markets of the central countries (as far as they were in competition with products from countries on the gold standard), while on the other hand it made it more difficult for western products to find their way to the eastern markets. Furthermore, the instability of the monetary standard

[61] Cf. Pamuk (1987), p. 62 and 59.
[62] Cf. Marichal (1989), p. 108 and Suter (1990), p. 127.
[63] Cf. de Cecco (1979), p. 72 and 87.

probably discouraged financial penetration, and thus prevented debt cycles from getting under way[64].

With regard to the influence of these events on the British economy, Blake (1992) shows that in the period of the Great Depression fluctuations in the implicit GDP deflator were entirely accounted for by movements in import prices, particularly raw materials. During the long period of deflation, improved terms of trade together with the inflow of net earnings from abroad thus sustained the 'central' country's income and consumption during a phase marked by a sharp decline in investment.

6. The Great Disinflation of 1980 and 1990

In the 'Great Disinflation' of 1980 and 1990 we find, albeit in decidedly different historical circumstances, mechanisms similar to those we saw at work in the last quarter of the 19th century. This viewpoint contradicts interpretations stressing the novelty of the situation (the so-called globalisation) and it also affords the opportunity to propose an explanation of the present phase departing from the traditionally accepted accounts.

Here too we find the three phases in the build-up of the crisis which have been outlined in the previous section. In the early stage, during the '70s, the recycling of petrodollars guaranteed sizeable flows of investments at low interest rates for the peripheral countries, thus allowing them to pursue policies of growth. In fact, the rising prices of raw materials had triggered an inflationary process in the industrial countries, but improved terms of trade in the periphery had provided the basis (the collateral) for heavy borrowing for the countries producing primary goods. The turning point came with the

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[64] In 1897 Japan "chose the Gold Standard partly to be able to borrow more heavily from the West. In fact the Ministry of Finance was the leader for the Gold Standard supporters." For discussion of the effects of devaluation on the Asian markets, see K. Sugihara (1986), p. 725. For the effects of the Great Depression on India and the debate then in progress regarding the exchange rate, in which payment in gold of Home Charges had a crucial influence, cf. A.K. Bagchi (1979) and (1997). He rightly observes (1979, p. 198 and 211) that terms of trade "throw little light on the gains made or losses suffered by people in the colonies".. "in a situation in which the export trade and import trade and all the other operations connected with them were controlled by foreigners." Commenting on a finding by S. Sen (1976) that Indian terms of trade showed a substantial stability in the period, Bagchi points out that this could have derived from the "drastic fall in freight rates over the period. To the extent that India and other colonial countries exported low-value raw materials and food and imported in turn high-value manufactured goods, their exports may have benefited more from the decline in freight rates than their imports, assuming that freight rates had a closer relation to bulk than value." This explanation is not entirely convincing, such stability being matched in no other country showing a similar foreign trade pattern. On the basis of our interpretative hypothesis we might question whether this stability is not in fact to be accounted for with the absence in India of certain conditions present in other countries of the periphery, where they gave rise to foreign debt cycles: namely, financial openness and reliance on the production of a single commodity. In fact, the period saw the formation of a complex pattern of intra-Asian trade flows based on cotton as well as opium. Cf. K. Suhihara (1986).

credit squeeze introduced in the United States in 1979, which set US interest rates soaring. Subsequently, all the effects Triffin had illustrated for the gold standard period came into force: "defensive" rises in the interest rates on the part of the other industrial countries brought recession to the entire OECD area, reversing the flow of capital from the periphery to the centre. Coming on top of the direct effects the recession had on receipts from the developing countries' exports, this reversal set forth an increasing divergence in growth rates within the periphery.

The so-called "Triffin effect", too, was still alive and kicking in the 1980s. D. Humphreys (1988, p. 252) writes: "In the 1980s, metal producers were faced with a totally different interest rate environment. With real interest rates at unprecedented levels and expectations of prices subdued, the cost of holding stocks became penal." Having sold off stocks, the expectation would be, "according to the conventional inverse relationship between stocks and prices", that prices should again start to rise in 1986. "When at first they did not (both prices and stocks fell between 1984 and 1986) some analysts even began to question the continuing validity of the relationship. In retrospect, it appears that high real interest rates coupled with developments in stockholding technology had effectively reduced the level at which stocks began to bite on prices. It was not the stocks-price relationship that had broken down; it was simply that the relationship had been redefined by the economic environment in which it was operating." Some authors (e.g. Dornbusch, 1985) have argued that the fall in the dollar price of raw materials reflected an appreciation in the exchange rate prompted by the higher interest rate. This interpretation would imply, at the most, a unitary (in absolute value) long-period elasticity of raw material prices vis-à-vis the dollar, while numerous empirical studies suggest a considerably higher degree of elasticity[65]. Moreover, with devaluation of the dollar one would expect to see a matching rise in the dollar price of raw materials, but no such rise occurred (cf. fig. 4).

In the industrial countries the slump in commodity prices was passed on to industrial prices, but to a far lesser degree, thus opening the way to a marked overall improvement in their terms of trade (cf. figs. 5 and 6 for the USA). On the contrary, the deterioration experienced by the various geographical areas forming the increasingly heterogeneous aggregate of the 'developing countries' proved highly differentiated (fig. 7).

[65] Cf. Dornbusch (1985, p. 333), C..L. Gilbert (1989, p. 775), S. Sen (1993) and, more generally, A. Maizels (1992, pp. 17-18).

Thus, while the countries producing raw materials, with scant diversification in their production structures, found their growth thwarted, the peripheral countries utilising primary products (in particular the newly industrialising countries of eastern Asia) initially found in the falling prices further stimulation for their own growth[66]. The debt crisis sweeping through the countries of Latin America and Africa led to their (temporary, in the case of certain Latin American countries) exclusion from the international capital circuit. Thus the financial flows found their way to the newly industrialising countries of eastern Asia, where they contributed both to financing new productive capacity, above all in chemical (plastic) and electronic products (which was to prove excessive in the subsequent crisis), and to driving up the prices of financial and real estate operations. The stage was set for the second wave of the crisis.

In 1989 another credit squeeze, in Japan this time, set off a sequence of events that as from 1997 was to mean for southern Asia a new cycle of slumps in terms of trade, with debt deflation and financial crises. Subsequent to the Plaza agreements (September 1985) the yen began to appreciate against the dollar. In order to ease the pressure off the yen and tackle the domestic deflationary effects of appreciation, the Bank of Japan followed two courses: a gradual reduction in interest rates (from 5% to 2.5% by early 1987, keeping them to this level up to May 1989) while speeding up the financial deregulation process launched in the '70s. Financial liberalisation gave the major firms the opportunity to obtain financing directly overseas. Bank investments now turned mainly to the small and medium-size firms, and towards real estate and the Stock Exchange, thus fuelling a speculative boom. In four years (from late 1985 to late 1989) the Nikkei index value tripled (Fries 1993).

Concern over the speculative bubble swelling on real and financial activities (and over inflation, with the yen relatively weak) led to the May 1989 monetary squeeze. The interest rate was progressively raised to peak at 6% in August 1990 and sink back to 2.5% by February 1993. The monetary squeeze, dampening expectations of further rises, caused a turnabout in the Stock Exchange listings (early 1990). The rapid switch from expansive to restrictive monetary policy together with financial deregulation brought about (Wade and Veneruso, 1998) or brought out into the open (IMF and World Bank, 1998) a serious bank crisis: following a process Keynes had described in clear detail as early as 1931, the

[66] For data on the "diverging performance of the developing countries in the 1980s" cf., e.g., World Bank, *World Development Report 1990*. In the 1980-1989 period per capita GDP fell by 2.2% and 6% a year respectively in the Sub-

slump in the Japanese Stock Exchange and real estate market set collateral values plummeting, leaving banks with no asset against bad debts. In order to save the banking system, the Japanese Central Bank resorted to a policy of credit rationing while slashing interest rates for the financing of Japanese multinationals and, more generally, foreign investments.

The outcome of this monetary policy - by now both expansive and restrictive at the same time - was, paradoxically, much like that of Volcker's monetary squeeze of 1979-80. It undermined the yen strength, which had been a premise of a successful deployment of the "flying geese model". In fact, as far as it contributed to keeping terms of trade high even in the NIE countries producing industrial goods in competition with Japan and low in the ASEAN countries supplying raw materials, the upward trend of the yen favoured orderly, hierarchical deployment of the "flying geese model" (cf. Kwan, 1992). The yen depreciation led to decline in the NIE countries' terms of trade (cf. IMF, 1998, p. 176), current accounts deficits, rises in the dollar value of debts, successive waves of declines in Stock Exchange values and currencies depreciations (and all this, let it be noted, when measures had been just agreed on for the liberalisation of capital flows). Together with this chain of negative repercussions on terms of trade associated with the influence of monetary and exchange rate policy, a further point to consider is the negative influence of proliferating bids to replicate the Japanese industrial development model, in the ASEAN countries, and in Malaysia and Thailand in particular (favoured by the foreign investments Japan itself was making at the expense of the NIEs, also because of the lower costs of labour[67]). From this emerged phenomena of over-investment[68] that were particularly severe in the light of the slackening in Japanese growth and weakening of the yen (1995). Between late 1995 and late 1996 the price of memory chips plunged from 50 to 10 dollars. "Production overcapacity that reflected rapid expansion by Korean chipmakers contributed

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Saharan countries of Africa and Latin America.

[67] In Japan a "structural break" was observed in the relationship between internal and direct investments: prior to that date they were positively correlated, while subsequently the correlation proved negative (cf. UNCTAD, 1966, p. 98). After 1992 investments in southern Asia were looked to as a substitute for internal investments.

[68] The possibility of a "fallacy of composition" was pointed out in UNCTAD (1996, p. 149). Having pointed out the presence in the developing countries of a long-run trend towards declining terms of trade for manufactured products (intra-area differentiation appearing due more to differences in the unit values of exports than in those of imports), the report states: "The above findings suggest that either income and price elasticities ... are low or that demand for these exports is constrained by protection in the advanced economies. They also raise the possibility that the prices of labour intensive manufactured exports could come under significant pressure if supply increases much faster as a result of a widespread attempt to replicate the successful experience of first-tier NIEs" (p. 149).

to the price drop, along with slowdown in demand among computers companies that are the chips' main consumers." (Burton, 1997). Since semiconductor exports account for almost 25% of Korea's total exports (but also play a major role in the exports of the other countries of Eastern Asia[69], cf. table 1), the result was an unprecedented fall in these countries' current accounts. On top of this negative influence came devaluation of the yen against the dollar (amounting to 53% in the April 1995-February 1997 period), while most of the currencies in the area had been pursuing a policy of pegging to the dollar (cf. Kwan, 1992).

The fact that the trend in the prices of memory chips exported from the countries of the periphery can be accounted for with mechanisms not unlike those we saw at work in the latter half of the 19th century (excess supply for a one-buyer market, debt deflation and devaluation) demonstrates that the similarities between the mechanisms is not so much a matter of the type of goods exported (raw materials versus industrial products) as of the pressures for forced selling induced either by the interest rates (Triffin effect) or by crisis resulting from debt deflation. The falling export prices did not reflect improbable conditions of competition so much as margins for downward cost flexibility. As we read in UNCTAD (1996, p. 149): "Sharp drops in real wages in manufacturing that were associated with rising exports most probably contributed to declines in the terms of trade by allowing export prices of these products to be reduced without affecting profitability."

Conclusions

The long-run relationship between interest rate and price level is generally explained along Wicksellian or Fisherian lines. However, we can also account for this relationship in a completely different way, starting from the cost of production theory of prices suggested by Tooke. From this viewpoint, two not mutually incompatible ways depart. The first, which we call the "direct" way, looks to the interest rate as an element of normal costs and accounts for the positive correlation between prices and interest rate with the adjustment of prices to variations in normal production costs induced by lasting variations in the interest rates. By focusing on the internal variables of distribution this way disregards other circumstances that can affect production costs and distribution: e.g., in an

[69] For nearly 50% of Singapore's exports, 25% of Malaysia's, and 10-15% of the exports of Taiwan, Thailand and the Philippines (cf. UNCTAD 1997, p. 15).

open economy, changes in the terms of trade. Thus the possibility opens up for an "indirect", but no less important, way which proceeds through the influence of import prices (and in particular the prices of raw materials) on the domestic prices of the industrial countries: the positive correlation between interest rate and price level is accounted for with the influence of the interest rate of the "central" countries on the price of imports from the "periphery". Transmission of the variation in interest rates from the leader country to the entire area of industrialised countries is guaranteed by central banks' defensive behaviour, accentuated by the interrelation between financial markets. We therefore stress the fact that the process of adjustment is systemic and not individual: the price of the commodities depends on world demand, so that adjustment proceeds through the variation of the relative prices between commodities and manufactured products, and not on the labour market of each country. This does not rule out the possibility that the "direct" way may be at work, or in other words that the generalisation of credit conditions produced by the international transmission of interest rates can allow firms to transfer their heavier financial burdens on to the prices of manufactured products. If, however, the workers defend their real wages, a change in the distribution of income (technologies remaining equal) can come about only through the "indirect" way, or in other words through the action of the interest rate on import prices. To put it the other way round: the greater the influence the interest rate has on import prices, so much less will the need be to restrain real wages or raise prices in order to increase the rate of profit. The interest rate policy of the monetary authorities of the "central" countries can be regarded as the instrument to regain control over foreign constraint and income distribution (both internal and international)[70].

Unlike the canonical interpretations of the "paradox" advanced so far, ours by its very nature does *not* assume that it is present in all countries[71] and in all periods: in fact,

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[70] In the *Treatise* Keynes contemplated a much more drastic alternative than the one considered in the text. Arguing that in disinflation "the level at which prices will ultimately settle down will depend on whether a fall in the rate of interest or a successful assault on the earnings of the factors of production comes first", he stated that "the risk ahead of us is ... to experience the operation of the "Gibson Paradox", that is to say, of a market rate of interest which is falling but never fast enough to catch up the natural rate of interest, so that there is a recurrent profit deflation leading to a recurrent income deflation and a sagging price level." Keynes concluded with these words: "if this occurs, our present régime of capitalistic individualism will assuredly be replaced by a far-reaching socialism." (cf. CW, VI, p. 346)

[71] Marx, too, denied the general validity of the positive relationship between interest rate and price level postulated in an article by J. Wilson published in 1847 in the *Economist* (while admitting that "fall in prices=fall in interest" "can occur one beside the other " as the expression of an inverse ratio between profit and interest, since "profit increases with the diminution of the elements of constant and variable capital, and interest [the industrial capitalist having less need of

the indirect way being only one of the forces acting on costs, the paradox does not arise in periods when other, independent forces driving up prices are prevalent. Furthermore, since it works its effects through the terms of trade, its validity in the "central" countries importing from the "periphery", implies that it clearly can not occur in the countries of the "periphery" exporting towards the "centre". Albeit with all these qualifications, our interpretation - like all those based on production costs - suggests that a positive relationship between rate of interest and level (or rate of increase) of prices has nothing paradoxical about it. It does, however, afford some light on certain aspects that the now prevalent analyses of the long disinflation of the last fifteen years tend to ignore. In the first place, while researchers have focused mainly on co-movements between interest rates and prices, scant attention has been paid to the fact that, in phases of disinflation, both do in fact tend to fall, but *not at the same pace*. Moreover, a flaw in historical perspective has led observers to overrate the importance of the fall in nominal rates while neglecting the fact that the real rates are even now, on average, at a level twice that of the '60s, with the average rate of growth in income *halved*.

Finally, it has also been demonstrated that the monetary policies of the central countries have long term effects that appear particularly devastating for the countries of the periphery. If we allow that monetary policy has acted mainly through the indirect way of the influence on import prices, we must then also admit that successes in the fight against inflation have been accompanied by significant and not easily reversible deflationary effects on the periphery, which have in turn rebounded onto the industrial countries themselves.

We have made a comparison between two phases in the history of the central countries, at the end of this and the last century, in order to show that in both cases a long phase of disinflation follows upon a monetary policy that is sufficiently restrictive and widespread to have systemic effects: we might define them as - not historically very frequent - cases of macro-deflation. Such phases are characterised by decline in the prices of raw materials through mechanisms involving both income effects and the forced selling off of inventory due to worsening financing conditions. The fall in prices may entail the

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bank credit] diminishes."). He writes: "in any case, the general principle of the *Economist* is wrong. Low monetary price of commodities and low interest rate do not necessarily go hand in hand. Were it so, the poorest countries, where the monetary prices of products are lowest, would also have the lowest interest rates, and the richest countries, where the

prices of a multitude of assets, undermining the value of the collateral. The greater the fall in prices and the size of the debt are, the greater the likelihood of debt crises threatening financial stability. In conditions of macro-deflation, restrictive policies designed to take a firm hold on price stability come into conflict with expansive policies aiming at financial stability by acting as a lender of last resort. Decisions whether or not to intervene and in which conditions are left to discretionary powers, reflecting the asymmetries marking the field of monetary standard and interest rate setting.

It seems somewhat paradoxical that, precisely when the systemic effects of the *power* of tight money policies are beginning to be recognised, in mainstream economics nominal long-run interest rates are made to depend on inflation expectations alone, thus in practice sanctioning the *impotence* of monetary policy. It is in fact these theories, frail as they are acknowledged to be[72], that offer grounds to relieve the monetary authorities of the responsibility of taking more determined, independent steps to bring the rates down from levels that - in comparison with the income growth rate - have few precedents[73] in the history of capitalism.

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monetary prices of agricultural produce are highest, would also have the highest interest rate." Cf. *Capital*, III, 2, pp. 294-296.

[72] Cf., e.g., R.B. Barsky (1992, p. 854) and P: Howitt (1992, vol. 2, p. 124).

[73] According to Ciocca and Nardozzi (1993, p. 4), in 1993 the average of long-term nominal rates in the UK, United States, Germany and France stood at around 6 per cent, "over one percentage point higher than the highest ten-year average levels reached between the early 19th century and 1970." "In the very same economies," they add, the real interest rate was "only one or one and a half points lower than the highest average levels - 4.5-5 per cent - reached in the two decades of price deflation, 1871-1880 and 1931-1940."

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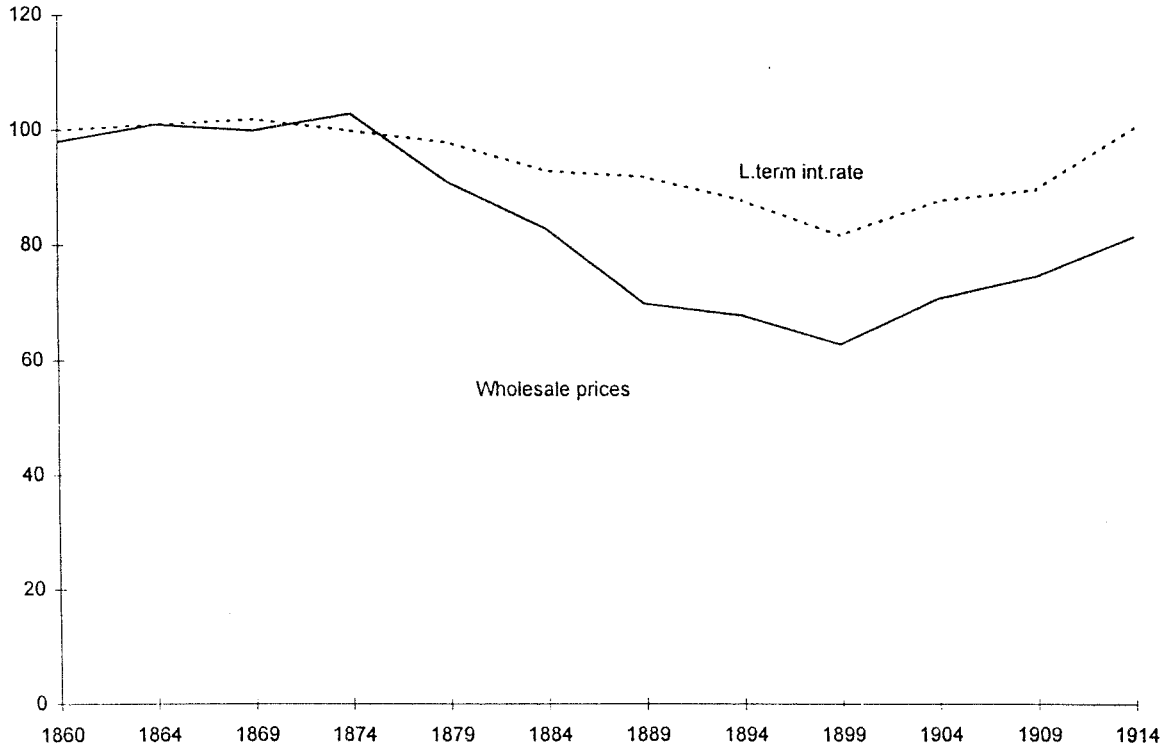
Figure 1. The Gibson Paradox and the Gold Standard



Source: J.M. Keynes, Treatise on Money.

Figure 2. Countries in default and involved in multilateral reschedulings (% on total reporting countries)

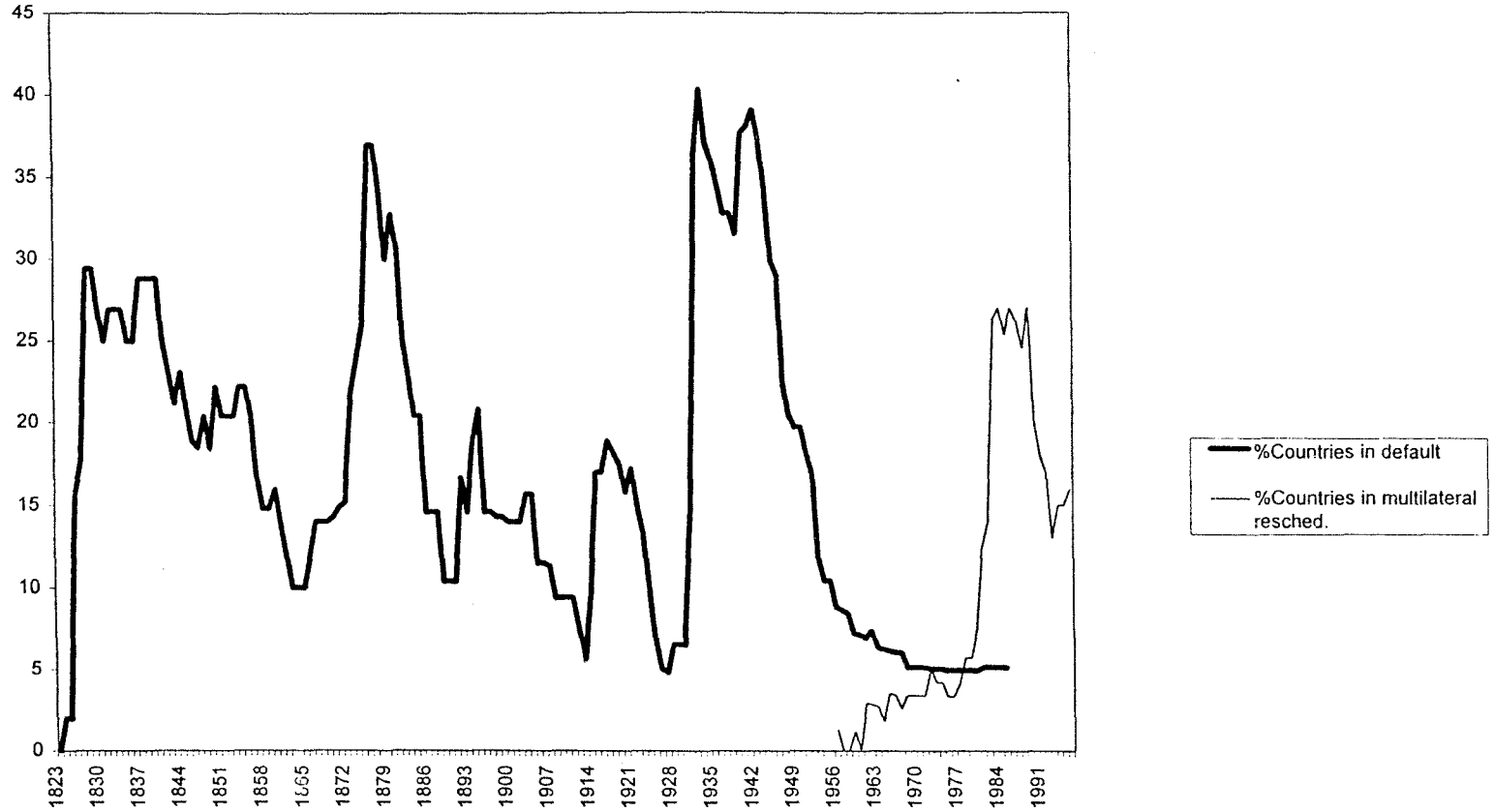
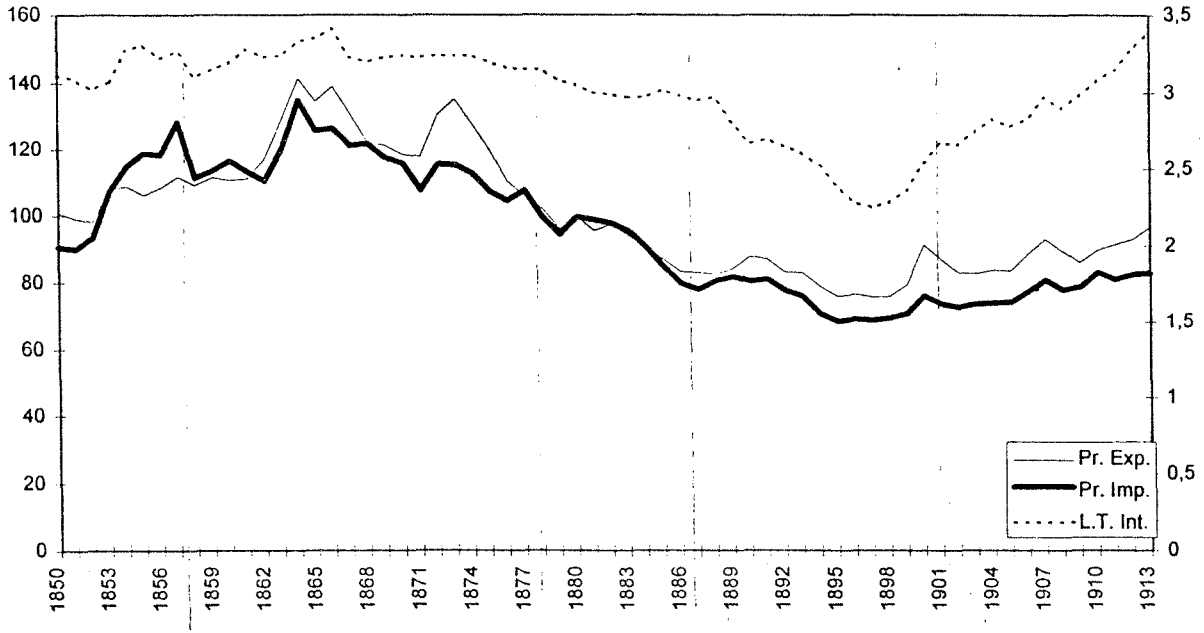
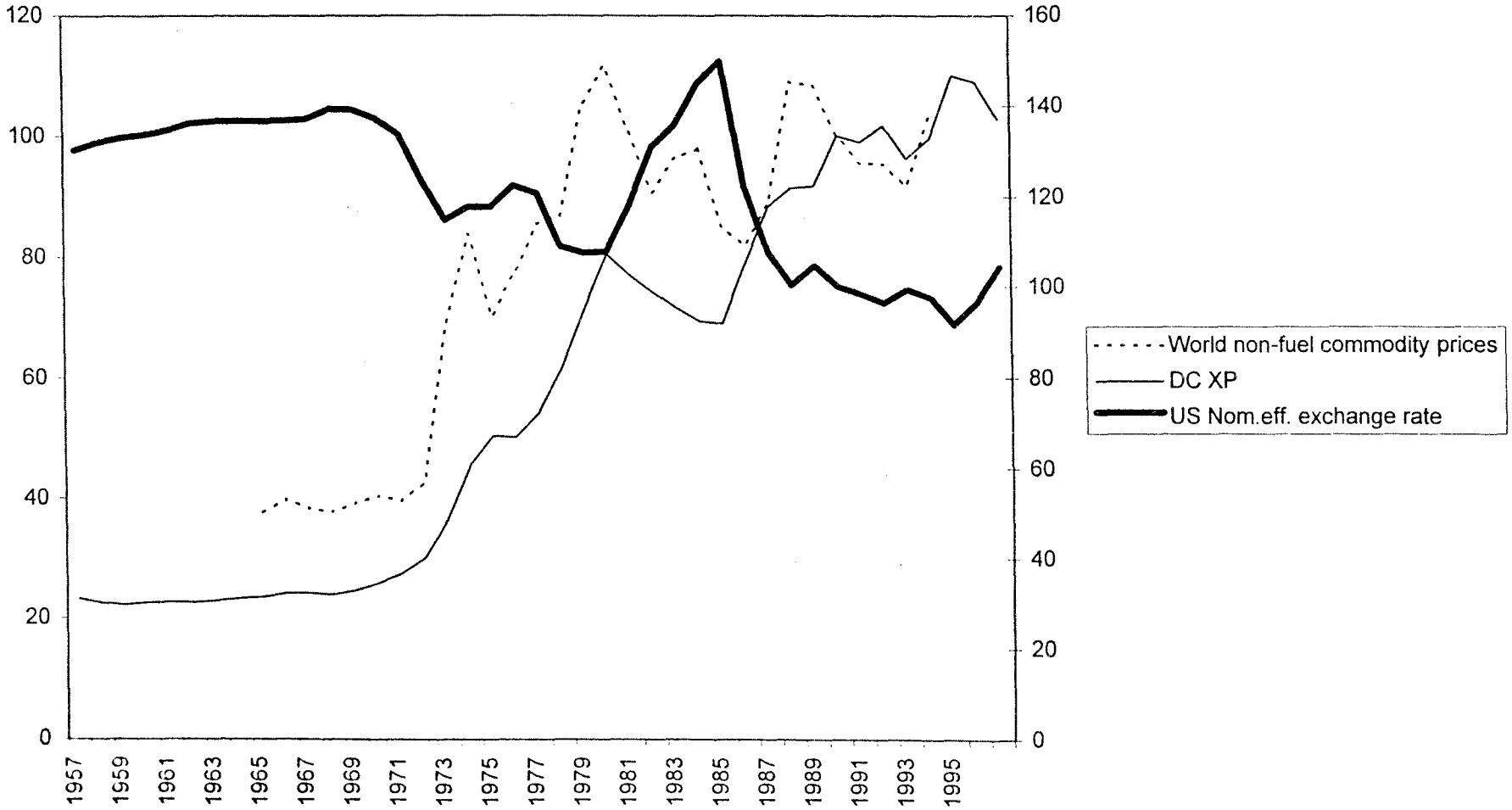


Figure 3. UK. Long term interest rate, export and import prices



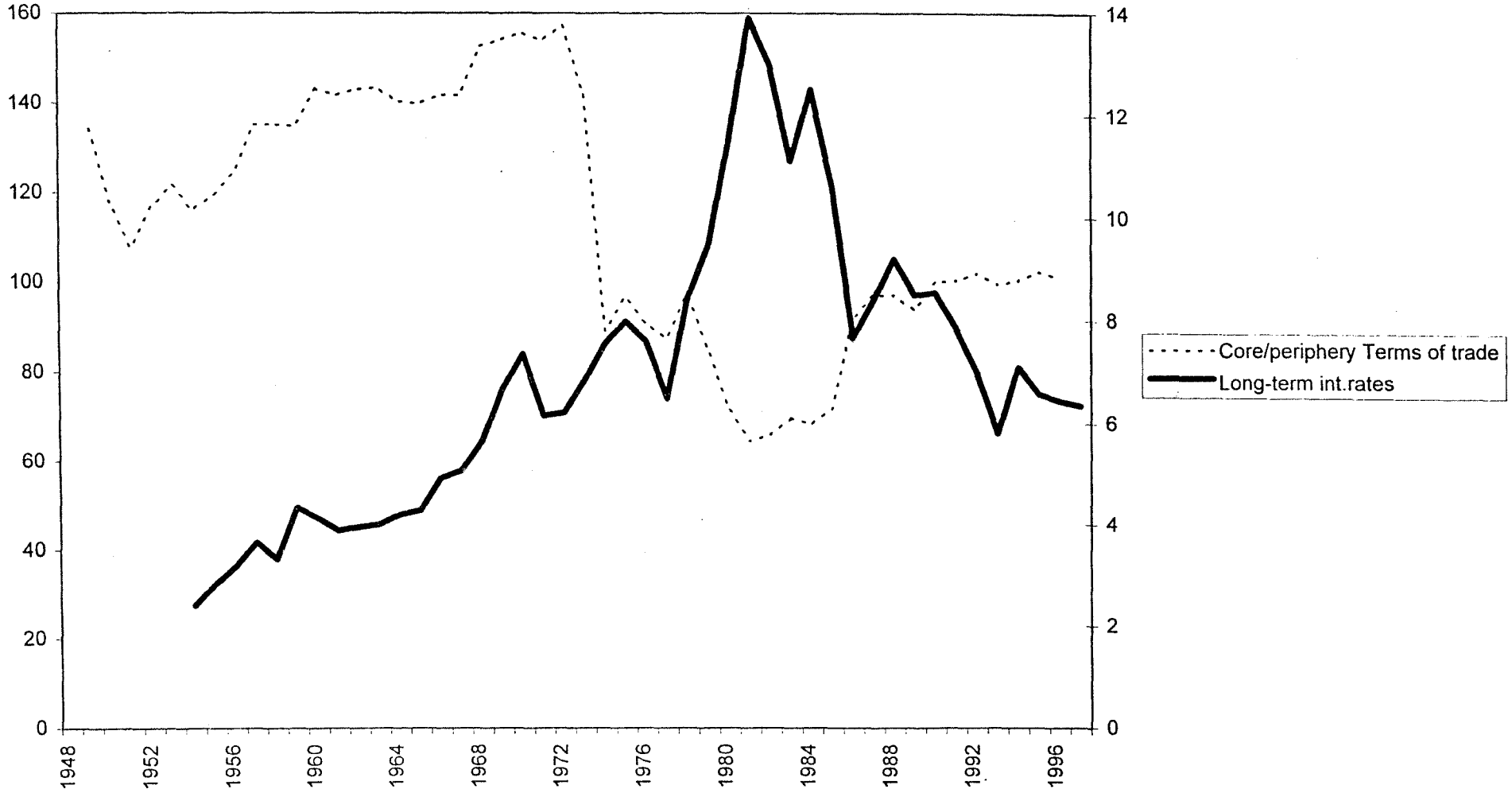
Source: Interest rate: S.HOmer, R.Sylla, Storia dei tassi di interesse.
Prices: B.R. Mitchell, P.Deane, Abstract of British Historical Statistics (da Imlah).

Figure 4. Non-oil commodity prices, Industrial countries' Export unit values and US$ nominal effective exchange rate. 1990=100



Source: IMF, International Financial Statistics.
US Eschanhe rate: right-hand scale.

Figure 5. Terms of trade core/periphery and US long-term interest rates



Source: IMF, International Financial Statistics. Interest rates: right-hand scale.

Figure 6. Long-term interest rate and terms of trade, USA

Source: IMF, International Financial Statistics. Interest rates: right-hand scale.

Figure 7. Terms of trade, 1980=100

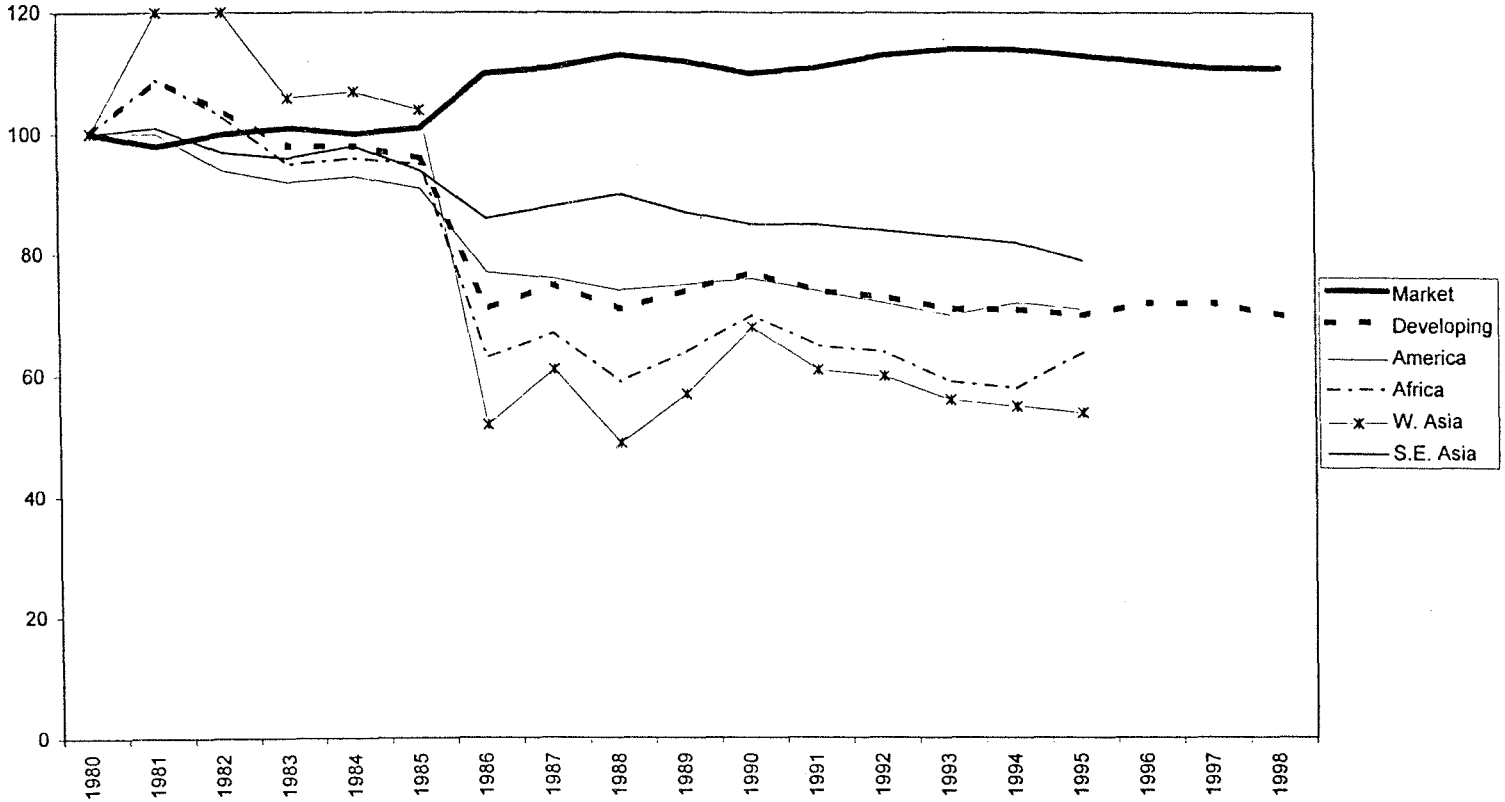


Table 1

Commodity	Price declines	Countries depending on Commodity exports		
	June 1997-Jan. 1998 in %, prices in SDRs	50% or more	20-49%	10-19 %
Natural Rubber	37			
Copper	33	Zambia	Chile Mongolia	Congo, Kazakhstan, Papua, New Guinea, Peru
Timber	24		Eq. Guinea Lao. Solomon Isl.	Cambodia, Centr. Africa Rep., Gabon, Ghana Indonesia, Latvia, Myanmar, N. Zealand Papua, New Guinea, Swaziland
Wool	23			
Nickel	20			
Zinc	16			
Hides	15			
Crude petroleum	13	Angola Bahrain Congo Gabon Iraq Iran Kuwait Libya Nigeria Oman Qatar Saudi Arabia Venezuela Yemen	Azerbaijan Brunei Cameroon Ecuador Equatorial Guinea Norway Papua N. Guinea Russia Syria Trinidad Tobago United Arab Emirates	Algeria Colombia Congo Egypt Indonesia Kazakhstan Mexico Vietnam
Semi-conductors	70	Singapore	S.Korea Malaysia	Taiwan, Thailand, Philippines
Mem. Chips 16 megabit	90* 47**			

* Nov.'95-Dec.97,yen prices
**Nov.96-Dec-'97, yen prices

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