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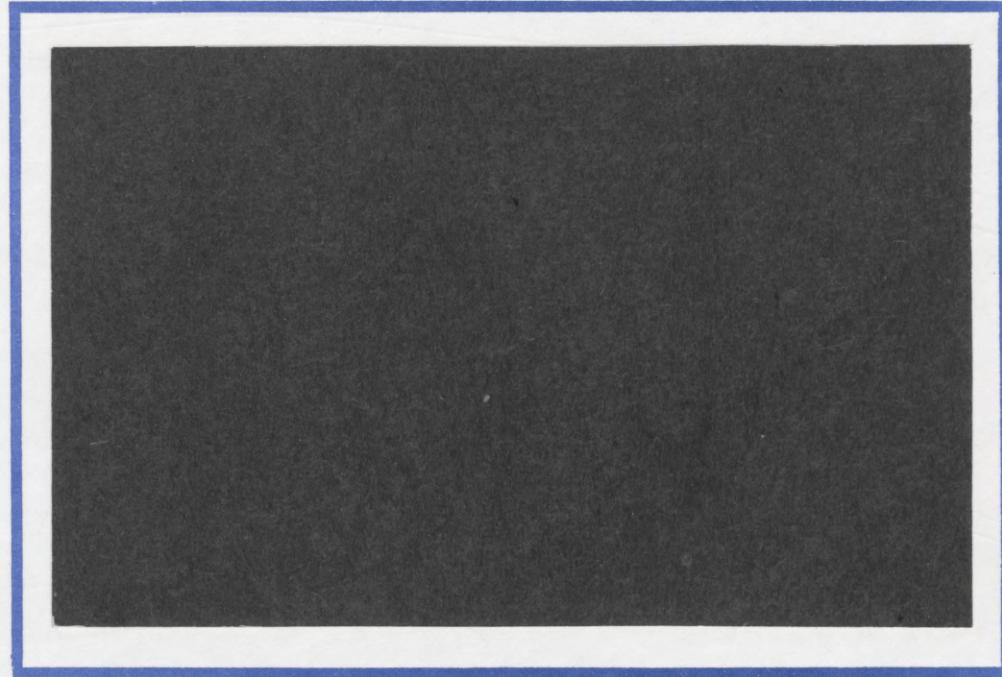
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THE BALANCE-OF-PAYMENTS ADJUSTMENT MECHANISM
THE DOCTRINE ACCORDING TO OHLIN

by

M June Flanders

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A THUMBNAIL HISTORY OF DOCTRINE

Doctrine in international monetary economics has followed, perforce, that of monetary and macro economics in general. The standard textbook discussion of 'the adjustment mechanism in international payments' usually began with a history of the theories on the subject and, until recently, divided the profession chronologically and intellectually into two categories, 'classical' and 'keynesian'.

The ultra-naive textbook version of the classical theory, which, as far as I can ascertain, never existed is: An imbalance in the basic balance of payments¹ leads to pressure on exchange rates until the gold shipping point is reached. Gold then flows, causing identical changes in the money supply in the case of a pure metallic currency, and proportional changes where there is a well-behaved fractional-reserve banking system. This leads to changes in price levels at home and abroad² causing appropriate changes in the trade balance, after which the specie flow stops. This mechanism is generally attributed to David Hume and labelled the 'classical', or the 'price-specie flow mechanism'.

The simple view of the 'keynesian' mechanism is one in which income effects predominate, prices are sticky, a change in the trade balance brought about by an exogenous shock affects national expenditure through the multiplier, and this effect is partly (but never completely) self-correcting because of the feedback of expenditure changes on the trade balance. The textbook variations of this are admirably spelled out in, for example, the several editions of Kindleberger's International Economics. (See for example Kindleberger (1968) 278ff.)

Less simplistic views of the adjustment mechanisms have more categories than the two aforementioned. Between classical and keynesian we often find 'neo-classical'.³ I contend that there are in fact at least four categories and a possible fifth, to be

revealed below), which I label: pure classical, neo-classical, late classical, and keynesian. This classification is useful for a discussion of the literature through the early post-World War II period. After about 1960, we need additional categories.

I. Pure Classical. The less-naive view of this theory is that the classicals recognized that commodity arbitrage prevents the prices of internationally traded goods from being different in different countries at the time.⁴ The naive story told above applies, with the important correction that the price level changes in the two countries result from changes in the prices of differentiated traded goods or close substitutes to traded goods.⁵ There may be changes in the prices of traded goods as well (hence the controversy about movements in the terms of trade) but the price of a given good will be everywhere the same at any given time (net of transport costs). The higher price of home goods in the gold-receiving country, however, leads to shifts in consumption and in production which bring about a decline in the trade surplus. The response in the gold-losing country is symmetrical. The process is stable and adjustment is always complete, since gold continues to flow as long as any imbalance remains.

An important feature in this view is that the disturbance in itself does not engender any adjusting response. The specie movements and subsequent monetary changes which result from the imbalance lead to the necessary equilibrating price changes.⁶

II. Neo-Classical. Here the classical interpretation is augmented by a) a modern banking system, not necessarily 'well-behaved' in terms of an unvarying money multiplier and, crucially, a central bank; and b) a rate of interest. These together modify the classical story and, importantly, induce international shifts in short-term financial capital positions. Commercial banks seeking profits, and the central bank, will engage in various forms of credit-tightening activity when specie, bullion, or international reserves flow out - but not before. In some versions this is associated with

prescriptive statements to central banks to behave in this manner,⁷ that is, to obey the famous 'rules of the game'. The neo-classical view is associated most frequently with non-academic economists, most notably Bagehot (1873), with Marshall (1926) in his testimony before the Gold and Silver Commission, not in his academic writings, and, more debatably, with Hawtrey (especially 1932).

The banking system exerts pressure on the money supply and the rate of interest, in this view, and the result will be a) an inflow of short-term capital and/or b) a reduction in the level of domestic expenditure. The short-term capital flow will finance the imbalance, buy time, and may even prevent final adjustment, since it retards or reverses the gold flow and may prevent the 'classical' adjustment from getting under way. To the extent that the level of expenditure at home is reduced as a result of the credit-tightening, however, it will generally lead to price reductions of non-traded goods and, in some versions, directly to reduced expenditures on traded goods. Thus, both directly and through substitution in consumption and production, it leads to improvement in the current account.⁸

Like the pure classical version, the system is symmetrical, treating deficit and surplus countries alike. Within the time framework discussed by some of the writers, however, it is not self-equilibrating; writers who stressed the impact of interest rate changes on short-term capital flows, rather than on domestic expenditure, often noted that the short-term capital flows constituted 'financing' but not adjustment. Whether this was a good thing depended on the writer and the particular events under discussion; much of the literature on this subject is an early version of the internal-external balance models of the 1950s and later. Among the neo-classical writers were those who argued that the authorities should interfere precisely in order that the full effect of an international disturbance be prevented from working itself out, at least too quickly.⁹ Bagehot (1873) as well as Keynes in some of his earlier writings can thus be interpreted; Hawtrey, on the other hand, argued that anything

borrowed thus today would have to be returned with interest tomorrow and was not worth the price.¹⁰ In the 1950s we get solutions to the assignment problem which involve perpetual disequilibrium since the authorities are advised to create a permanent current account imbalance, financed by capital flows induced by interest rate differentials.¹¹

III. Late Classical. This body of doctrine has been assigned many different names. It is not in fact generally agreed that all the writers I have placed here really belong in a homogeneous group or school. Some (Iversen (1935), Angell (1926)) call it a new theory and anticlassical. Others (Viner (1924), Taussig (1927), Ohlin (1933)) consider it to be simply the correct interpretation of the classical view. The major names encountered in the group are those of Taussig (1927) and some of his famous students, Viner (1924), White (1933), Williams (1920). (Ohlin dubbed them the Harvard School) and Angell (1926). According to Viner (1937) and Iversen (1935), Ricardo should be included in this list.¹² And Ohlin likewise can be classified at least partly as a member of this group - he himself at times seemed to think that he belonged here.

Apart from a few outliers, most notably Ricardo, this group is chronologically clustered between the classical and neo-classical writers on the one hand and the keynesians on the other. Much later, we find echoes of their analysis in the monetary approach to the balance of payments, though the differences are enormous.

The late classicals share, with the classicals and with one another, the concept of the adjustment mechanism as complete without the necessary intervention of the monetary authorities. They share also, both with the classicals and one another, the view of price changes as an integral, important, indeed essential, part of the mechanism. The only exception here is Ohlin and it is for that reason that I do not include him wholly in the group. It is precisely on this issue that Ohlin can be said to bridge the classical and the keynesian views. The important differences between him and the keynesians on this score is that in Ohlin's view, prices are free to change, but they

don't always have to. It is not a matter of prices being sticky, but rather that quantity adjustments make them unnecessary, which is a very different matter.¹³

What is important to the late classicals is that disequilibrium in the basic balance of payments, by creating an excess demand for foreign exchange, has immediate and direct effects, through the monetary system, on expenditures. An imbalance need not, and will not, persist until the specie shipping point has been reached and gold begins to flow. Specie movements are not essential to the adjustment, and in fact they often occur after the adjustment has been made, if at all.¹⁴

At the same time these writers are all classical in the sense that price changes (intersectoral price shifts, or changes in the real exchange rate) play an important, generally an essential, role. The final adjustment comes about because of a change in sectoral relative prices. (Once again, Ohlin is the important exception.) They are 'neo-classical' only in the sense that the banking system (though not the central bank) plays an important role, and any disturbance to the balance of payments results directly in a change in the domestic money supply. Whether this now affects prices more than quantities, purchases of domestic goods more than of foreign, of tradable more than non-tradable goods - the answers to these questions vary with the writer and the event being analyzed. But, to repeat, it is the emphasis on the direct impact of the foreign exchange market on monetary and other macro variables which characterizes this group.

III.' There is a group of writers whom I find it difficult to name (the Crisis School?) and even difficult to classify. They share with the late classicals the view that monetary changes are important and lead to changes in expenditure. They differ among themselves in their views of the precise effects of expenditure changes on prices and quantities. Like the late classicals they take the view that monetary changes are the counterparts of changes in the balance of payments and that specie flows or reserve movements are not important to the mechanism. They differ from the Harvard School,

however, in that they look outside the basic balance for the shocks to the system and are particularly concerned about the destabilizing effects of short-term capital movements or of domestic monetary shocks. And they worry, variously, about whether the authorities are performing the appropriate stabilizing role or, in fact, destabilizing and exacerbating disequilibria (if not actually initiating them) themselves. In this group I include Hawtrey (1932), (1933), Kindleberger (1937), Bloomfield (1950), Nurkse (1944), and, at the fringe, Hayek (1937).

IV. Keynesian. The pure keynesian view, as we know, emphasizes the relationship between the level and balance of trade on the one hand and the level of expenditure on the other. A disturbance in the trade account engenders responses which lead to corrections, albeit only partial ones. All the keynesian models are fixprice models.¹⁵ In the later keynesian writings there may be policy actions to initiate short-term capital movements to finance a deficit (as in the Mundell-Fleming literature). Again, in the later models the quantity of money varies with the balance of payments and affects the level of total spending. In the pre-1950 literature there is little of that.¹⁶ In general, there is no serious discussion of specie flow or reserve changes, and if such do occur the central banks are likely to sterilize them. And even if money supply changes were uninhibited they would affect expenditure and trade only through interest rates and investments; they would not influence expenditures or prices directly.

Since adjustment is necessarily incomplete, and since there are no inter-sectoral relative price changes, the only way to achieve full adjustment is to change the exchange rate. And this, to my mind, explains (as much as the history of their time) the association of the early keynesian writers with the devaluation literature. The exchange rate is the only price left which is subject to change and which may have any impact on real variables.

Formally, if the law of one price holds and there is only one commodity, there is no room for any sort of price change under fixed exchange rates, and only income and expenditure changes can matter. This is obvious. But I would turn the statement around and argue that it was because they assumed a fixprice world that keynesian writers slipped into the assumption of a single good and ignored all inter-sectoral effects. Non-traded goods were rediscovered in the 1960s; they were crucial in all pre-keynesian theories, including, importantly, Ohlin's. How expenditure changes get allocated between home goods and foreign goods is important and interesting to the keynesians, but it is captured fully in the concept of the marginal propensity to import. Relative prices between sectors play no role here. Since income is generally regarded to be inside the production frontier, elasticities of substitution in production are very high in these models: in general, they are infinite, so output can be increased in any category of goods at constant marginal opportunity cost.

OHLIN

I. Ohlin: His Place on the Stage. I have classified Ohlin as a late classical (which, as noted, is where he put himself, though he did not use the term), but with many qualifications. In fact, I argue that one of his most salient characteristics is that he is difficult to classify. In a sense he has gotten a bad press, being widely regarded simply as a keynesian manque, with a naive, psuedo-income approach to the balance of payments. I try to avoid psychological analyses but I suggest that this characterization of Ohlin stems primarily from a tendency to read his controversy with Keynes over German reparations (1929), fit it into the matrix of pre-keynesian Stockholm economics, and let it go at that. The one-third of Interregional and International Trade (1933a) (less in the 1967 revision) devoted to

the monetary as distinct from the real theory of international trade seems to be widely neglected. It is on this, primarily, that I base my discussion.

A word about dates, to put the work into its historical perspective.

Interregional and International Trade (henceforth IIT) bears a 1933 copyright, but the Preface is signed January 20, 1931. Ohlin's Doctoral Dissertation at Stockholm (entitled Handelns Teori) was presented and published in May 1924. The Preface acknowledges the comments and interest of Taussig, Williams (Ohlin spent the year 1923 at Harvard) and Viner, and, judging from the table of contents, contains the basic ideas embodied in the later, English language, work.¹⁷

Economics is too young to indulge in scholarship for its own sake, but the dating of Ohlin's writing takes on added interest when we compare IIT with the 1933 paper "On the formulation of monetary theory," (1933b) translated only relatively recently from the Swedish, and probably constituting his first major contribution to macroeconomic theory. The discussions of the flows of income and expenditure, saving and investment, are highly reminiscent of the treatment in IIT of the concept of 'buying power'. It is indeed a macro article (as the second part of IIT is a macro treatment of international economics) but the emphasis is still on the causes of price changes, rather than on quantity adjustments. Shortly before he died, Ohlin compared himself and Keynes regarding their relative emphases on price and quantity changes, but mostly questioning whether Keynes was as exclusively quantity-oriented, to the total exclusion of price changes, as Patinkin argued he was and as later keynesians indeed were, according to Ohlin (1981, 206 ff). This is of course a major issue in the history of monetary theory and the debates in HOPE Volumes 10 and 13 are useful in that context. I am arguing, however, that in international monetary theory Ohlin was not yet a full-fledged keynesian or, for that matter, a mature Swede, when he prepared his thesis for 1933 publication. I must take the word of Swedish-reading experts that by 1934 his views were beginning

to change; but I find support in the apt comment of an anonymous referee, which I take the liberty of quoting: "A Keynesian Ohlin became in his macroeconomics in 1934, in his trade theory 1968." But the article of 1933 and the book, produced during the decade 1923-1933, are of a piece.

Ohlin's treatment is neither formal nor mathematical, but it is the most complex general equilibrium analysis of the subject of its day (with the possible exception of the ultra-formal treatments of Yntema (1932) and Mosak (1944). And thoroughly integrated as far as real and monetary analysis is concerned. The first part is in no way as 'purely' real or as simple as students might think who have been brought up on the Heckscher-Ohlin-Samuelson theory of international trade; nor is the second part as exclusively monetary as may be believed by those familiar only with the Economic Journal debate. This latter point is of crucial importance.

The treatment of capital movements (the 'adjustment mechanism' part of the book) includes: various types of disturbance to equilibrium, some real and some monetary; aspects of adjustment, some monetary and some real, mostly private but some relating to the behavior of the monetary authorities; expenditure changes, involving changes in total demand and in the balance of trade directly, at constant prices; changes in demand and supply involving shifts between sectors (tradables and non-tradables) at constant prices; and the effect on and of prices on and of demand and supply shifts between sectors. It is general, detailed, with constant reference to historical and institutional 'facts' both actual and stylized. A rich vein to be mined.

A parenthetical comment about the general equilibriumness of Ohlin's analysis: As indicated above, he is actively, constantly and explicitly aware of the interactions between various markets for goods and services, at home and abroad. That 'everything depends on everything else' is perfectly clear. What is less explicit is the existence of feedbacks, so that 'everything also depends on

itself'. There are hints here and there which leave no doubt that Ohlin was aware of feedbacks (see for example the comment cited below about "secondary" changes in capital movements) but they tend to get left out of the discussion. Thus a change in demand for a country's export commodity will affect the prices of factors of production in a way that depends on myriads of elasticities and cross-elasticities of substitution in supply and demand; but the "final" effect on factor prices, at home and abroad, doesn't then feed back into the world demand for the commodity.¹⁸ And it was only by dealing with feedbacks that Metzler (1973, ch.2) was able to tidy up the Keynes-Ohlin debate on the transfer problem.

II. Ohlin the Late- and Neo-Classical. Most of the disturbances he analyses are real, the major exception being a brief discussion of "monetary variations" in which a credit expansion and price rise in one country is the proximate cause of imbalance. For the rest, he deals with the transfer problem (primarily long-term capital movements, in response to interest rate differentials, but also unilateral transfers such as reparations); changes in world demand for a country's export good; changes in technology, including changes in transport costs. Each is discussed in great detail, difficult to summarize; I shall try to convey the main thread and flavor of his argument.

Ohlin shares the view frequently attributed to Keynes that in general commodity trade adjusts to long-term capital movements, rather than the converse.¹⁹ In a general equilibrium framework the question is meaningless, of course. It is, however, a sensible empirical question specifically involving the size of the several parameters of the system. In Ohlin's words, long-term international capital movements

are due to differences in long-term interest rates and other comparatively permanent circumstances, and these circumstances are not often much affected by changes in the volume of imports and exports of goods and services. [Italics added] (384-4. All page references to Ohlin not otherwise identified are to IIT (1933a)).

Capital movements necessarily involve changes in the trade balance if capital is in fact to move. Changes in underlying conditions may lead to changes in both commodity trade and capital movements. However:

The point is that basic changes which primarily affect imports and exports seldom call forth secondary readjustments with regard to long-term lending, while the reverse always happens. (384)
[Italics added]

Changes in trade or in long-term capital movements lead to expenditure (and hence commodity trade) changes directly and also indirectly through short-term capital movements and monetary effects. The latter are discussed in a manner akin to what I have described as the 'neo-classical' approach. It has indeed much in common with many of the neo-classical theories. What is important here is that gold movements play only an occasional and minor role in this process.

A detailed discussion describes the foreign exchange market and short-term capital movements, involving the relationship between interest rates, short-term financial indebtedness, and exchange rates. Short-term capital movements smooth out seasonal variations in payments and prevent exchange rate movements. For other disturbances ("less regular") there is likely to be a change in interest rates and money market tightness. Often this is integral to the cause of the disturbance itself: a crop failure, for example, leads to an increase in the trade deficit. But it also leads to a credit tightness since "...farmers are unable to save as usual and instead have to ask for temporary loans to cover their expenses." (388) The resulting rise in interest rates encourages short-term capital inflow and prevents exchange rate changes. Merchants, traders, exporters, respond to higher interest rates by seeking credit abroad, discounting their bills in the destination country. Higher interest rates lower the yield on securities and raise the cost of holding them, inducing international portfolio shifts.

If these market forces are insufficient, the authorities will raise the discount rate and/or sell securities in the open market. Foreign exchange variations within the gold points call forth movements of short-term capital but not of gold. The resulting credit tightness will "... reduce the volume of credit and buying power." (392) Imports fall, because traders buy less when credit is tight, and perhaps consumers buy less because their income is reduced. In a fascinating sentence which may well be considered a prelude to The General Theory, Ohlin says: "Consumers use their income, while traders use their capital or credit." (392) Exports may rise as domestic spending on exportables decreases.

Ohlin criticizes the "classical view of gold movements", aligning himself with "Angell, Feis, Graham, Hawtrey, Keynes, Viner and others." (396n) Gold movements are not essential to adjustment, if they occur they may be sterilized (citing Federal Reserve policy), and finally when they do occur it is not as a cause of central bank action but to restore the reserve position of the central bank which has been affected by the adjustment.

A word about transport costs (which include tariffs and other impediments to trade). Ohlin argues that if there were perfect commodity arbitrage there would be no transfer problem. A transfer of purchasing power would shift the distribution of spending on the world's goods from the payer to the receiver. This might or might not lead to a change in the relative prices of the two countries' goods, depending on the taste pattern of the receivers as compared with that of the payers (compare the Jones (1970)-Samuelson (1971) debate on this issue), but there is no a priori presumption in either direction. The contemporary reader is somewhat discomfited by a theory based on the existence of impediments to trade, but the point is that it is precisely these which create the distinction between traded and non-traded goods, and it is the intersectoral shifts in demand and supply which are crucially important in his view of the adjustment mechanism. He classified goods as follows:

international goods, subject to international trade, competing home market goods, in more or less close competition with international goods, and non-competing home market goods, a large group with a less direct connection with other goods. International goods may be either import or export goods, consequently competing home market goods may compete with either the former or the latter. (247)

III. Ohlin as Pre-Keynesian: The Concept of "Buying Power". The prime mover in the adjustment process is a change in "purchasing power" or "buying power". It is here that Ohlin can be classified, as he ranks himself, with some of the late classicals, the "Harvard School", particularly Viner and Angell. He goes further than these writers, in that changes in purchasing power need not lead to changes in prices, though they may do so. (But, as noted previously, not so far as Keynes: when prices remain unchanged, this is the result of substitutions in demand and supply, which render price changes unnecessary, not of keynesian-type fixprice quantity adjustments.) As an example of this distinction between Ohlin and the late classicals, read in its entirety his citation of Angell, and his own comment. He quotes Angell as saying that the

'key to the problem of international equilibrium ... lies in the effect upon the volume of purchasing power in circulation, and through it upon the general level of prices.' I should like only to add: 'and upon imports and exports.' (544n)

I know of no other writer who has used this concept. In fact, in the macro part of the analysis, I would view it as his most important single contribution to the theory. Ohlin refers back to Bastable (writing in 1889) and claims him as the originator of the notion (of buying power). But, he adds,

the concept 'aggregate of money incomes' is more useful than those used in its place: 'The height of money wages' (Taussig), 'The rate of efficiency earnings' (Keynes). (378n) [Italics added]

It is somewhat puzzling to find Ohlin's "buying power" suggested as an alternative to "efficiency earnings" or "money wages", which emphasize the cost

rather than the income aspect of the flows. In full employment equilibrium, of course, the distinction between costs and income vanishes. But the emphasis on demand and expenditures, here and in the 1933 article, is what distinguishes him from the late classicals. And yet one foot at least was still firmly in the classical camp, as we see in the following citation from the 1933 paper:

Above all let us recall that in a study of prices what we are trying to explain by the generation of income among other things, are changes in the supply of and demand for various goods and services. (1933b, 356)

In the 1967 Revision of IIT, he was, not surprisingly, expressing more conventionally keynesian views: "The basic concepts and approach used here are well suited for a study of the influence of employment variations." (1967, 235) Ohlin's definition of 'buying power' follows:

the aggregate of money incomes and the flow of liquid capital during a certain period of time, increased by (1) the income drawn from the ownership in productive factors abroad, (2) new borrowings abroad, and (3) credit inflation; and reduced by (1) the incomes which people living abroad draw from productive factors in this country, (2) new lendings to other countries, and (3) credit deflation. (378)

A footnote warns: "That part of the flow of income which is saved and thus becomes liquid capital must not, of course, be counted twice." (378n)

The "flow of liquid capital" has been earlier defined as follows:

Individuals may acquire buying power in terms of money in two other ways than by earning or borrowing it. In the course of the process of production a part of the capital, which has been invested, is made 'free', i.e. liquid. This is a normal and important source of buying power. [The term 'invested' is here used in a wide sense. Every sale of a commodity means that the monetary capital, invested in that commodity, is made liquid.] (376) [Brackets Ohlin's]

This is precisely the framework of the 1933 article, where we read:

Part of ...[gross revenue] is spent on demand for consumers' goods, another part - freed capital plus new saving - goes into reinvestment and new investment, i.e., constitutes investment demand." (1933b, 356)

My interpretation of the definition of "buying power" is the flow of potential expenditure. The income he has defined, plus ownership of factors abroad, minus foreign ownership of factors at home, is net domestic product. The "flow of liquid capital" is clearly depreciation allowances (since new savings must not be included here, to avoid double counting). To the total, gross domestic product, he adds net foreign borrowing and the increase in the money supply. In the Revised Edition of ITT this interpretation is supported:

By 'buying power' I have meant not only variations in the national income of the different countries but also variations in the ability to make purchases that are directly associated with international capital transfers and with an inflationary or deflationary credit policy. (1967, 317)

I used the term 'potential expenditure' to define buying power. It is not entirely clear whether Ohlin views expenditure as equal to buying power (which is most probable), or a function of it, with a coefficient less than or equal to unity. What is clear, however, is that total expenditure is not, in general, equal to total "demand for goods and services, produced in this country." An increase in buying power may be spent on foreign goods or home produced exportables and affect, not the level of money income at home, but the balance of trade. At the same time, Ohlin takes pains to note (citing the debate with Keynes) that an increase in purchases due to increased buying power may cause an increase in money income, in which case it would be misleading to attribute the increase in demand to the increase in income - the reverse, rather is true. (407n)

Like Viner (1926) in his Canada study, Ohlin speaks of a "primary" and a "secondary" credit expansion pursuant to a transfer. When borrowers convert their

foreign currency into domestic money and spend it, we have a primary expansion. The extension of bank credit based on the excess reserves thus created, and elicited by the demand for increased credit as home spending rises, constitutes the "secondary" expansion. Since the central bank acquires foreign exchange reserves in this process it is likely to ease its credit policy, thus engendering a "tertiary" expansion. As a result of these increases in "buying power", there will be a rise in money incomes, the extent of which is unknown; there will necessarily be leakages into imports, but it is impossible to say in general by how much. (Here is where the later, keynesian, contributions of Metzler and others become relevant.) Ohlin saw the problem of the relationship between expenditure and income: it is possible, he says, that most of the new spending takes place in securities and real estate markets (and he cites the U.S. in 1928 and 1929 as exemplifying this). The "stage in the business cycle" determines both the direction and responsiveness of demand shifts and the mobility of factors of production between sectors (407), since resource shifts are easier during an expansion than a contraction. Furthermore, it makes a difference not only how much unemployment there is, but whether the unemployed resources are in the traded or non-traded goods sector. (424n)

IV. Ohlin Un-Classified: Inter-sectoral Price and Quantity Changes. Discussion of commodity markets starts with the simplifying assumption that, following a transfer from B to A, world demand for each country's international goods is unchanged. The only change is that the demand for non-traded goods rises in A and falls in B. This in turn influences the supply of exportables in each country and therefore their price, to an extent which depends on the demand elasticity in each country (since it is that which determines the rise in price of the non-traded goods). Demand elasticity depends on the "elasticity of wants" (which I take to be the partial equilibrium price elasticity of demand), the elasticity of supply from other sources

(from other countries, apparently), the "reaction of buying power" - the income effect of the changed factor prices resulting from the change in demand for non-traded goods.

Assuming, for the nonce, that all goods are produced with identical bundles of factors (in fixed proportions), the rise in demand for (and price) of non-traded goods, demand for traded goods remaining fixed, will raise factor prices, hence costs of production of traded goods. This will shift some goods out of the exportable category (the reverse, of course, is going on in the paying country), and will further limit the required movement in the relative prices of traded goods, that is, in the terms of trade. (419)

Dropping the assumption of fixed bundles of factors, Ohlin undertakes a detailed analysis of relative factor prices, involving such elements as heterogeneity of factors (assumed to be non-existent in the conventional, real, Heckscher-Ohlin trade model, by the way),²⁰ alternative uses of factors, long-versus short-run elasticities of substitution, increasing returns, institutional frictions. It is all there, and again, not surprisingly, qualitative results are not derived.

In discussing the possible course of relative prices, Ohlin is similarly general-equilibrium, detailed, and 'empirical'. Adjustments vary with the extent of excess capacity in the several industries and the level of unemployed resources; frictions in the form of labor union demands make their impact felt; the ratio of profits to factor costs varies between sectors; different stages in the adjustment process look different. (424-30)

We note recurrent emphasis on the difference between short- and long-run effects, on the time needed for various adjustments to work themselves out, on the different kinds of effects at different stages of the borrowing process. "A complete analysis of the effect of international capital movements upon the price system must be an account of a time-using process." (426)

Both in my summary and in Ohlin's original, there is more emphasis placed on the adjustment in the receiving than in the paying country. He asserts that the effects are analytically symmetrical, but he argues that in fact the lending country will have a harder time of it, because contraction is always more painful than expansion. Continuing crisis in the paying country may, in fact, eventually force the country off the gold standard, or, perhaps, alternatively, cause a breakdown in union resistance to wage cuts. However it is done, "... B may well lose much more from unemployment and other disturbances than from less favorable terms of exchange in international trade." (428) Finally,

the size of the capital movements in comparison with other aspects of economic life in the countries concerned has an important bearing on the dimensions of the changes in the price system. ... It is much easier to bring about a relative increase of imports and reduction of exports by 5 percent than by 50 percent. (426-7)

Having listed all the possible results following a transfer, on the assumption that all the change in effective demand is concentrated on non-traded goods, Ohlin drops that admittedly "unrealistic" assumption and permits variations in the demand for each country's traded goods. He devotes little space to this case, however, since it is even more difficult than previously to get precise qualitative results.

Further "complications" which Ohlin examines in some detail include the existence of third countries and the dependence of the precise nature of the transfer process on the trade and payments relations of the paying and receiving countries with the "third countries"; for example, when French and German capital exports to third countries slowed down, or stopped, after World War I, Britain's capital goods exports were adversely affected, hence her income and her own capital exports declined. (456) Long-run growth is also dealt with, with emphasis on feedbacks from trade to terms of trade to income to savings to capital transfers, and back to trade again.

V. Coda. Summarizing, Ohlin enumerates three mechanisms of adjustment, though we would be inclined to classify them slightly differently today. The first is changes in buying power, which shift the demand for traded goods. This is a combination of keynesian income effects and a version of the monetary approach to the balance of payments. His second and third are substitution effects between traded and non-traded goods in demand and in production. Additional help is to be expected from short-term capital movements, and from the fact that often capital movements are correlated directly with commodity movements, as when loans are extended to finance exports. (On this latter point, he comes very close to having a view of endogenous capital movements, at least for short-term capital.) Adjustment seems to work, and rather well - he cites Taussig and Viner and their empirical studies as support. Usually, he notes, (a point he emphasized heavily and repeatedly in his Economic Journal debate with Keynes) transfers are effected with no discussion and little fuss; the transfer 'problem', it is suggested, is well-nigh unique to the German Reparations controversy.

Many writers express the opinion that the readjustment has come about surprisingly quickly in some well-known cases of international capital movements. Such surprise is justified in the light of the classical description of the mechanism, where everything centres around the assertion that the lending country must offer its goods on cheaper terms of exchange in order to induce the borrowing country to buy a greater quantity of them and thus create an export surplus corresponding to the capital exports. The mechanism outlined above makes it much more understandable how the adjustment is brought about so smoothly. (432)²¹

The important thing to Ohlin (again, citing Taussig for support and Keynes as the butt of his argument) is that

in most cases the monetary transfer precedes both the real transfer and the price changes. ... changes in buying power are the ever-present causa efficiens, while the character of the price

variations varies from case to case. Changes in buying power affect the balance of payments directly in several ways, even in the quite conceivable case where owing to great mobility and fluidity there are no relative price changes at all. It is true that in most cases price changes occur ... but they hold a secondary position relative to the primary changes in buying power. (432-3)

which is indeed very like the monetary approach to the balance of payments.

The discussion of capital transfers is followed by less complete, but equally general equilibrium, analyses of the effects of other disturbances to international trade and payments: import duties (distinguishing between those levied primarily for revenue and those intended to be protective; there is also a second-best defense of their use to facilitate a transfer (487)), exogenous shifts in demand, changes in technology, and, finally, monetary shocks. The story he tells is not, of course, the same in each case, but the analytical approach is. Thus, for example, credit expansion in one country will bring about price changes in the rest of the world, even without the "classical" influence of gold flows which affect the quantity of money abroad. Here the classical explanation

is to a certain extent correct, for if nothing else happened before all these reactions they would come into play. As a matter of fact, however, there are other reactions which in most cases bring about the price adjustment in a quicker and smoother way. (541)

Finally, Ohlin ends with a discussion of flexible exchange rates and a critique of Cassel.

Changes in monetary policy, like the other variations, alter the supply and demand schedules in the foreign exchange market, and thereby, and only thereby, the exchange rates. Commodity prices are of course altered also; but it is uncertain whether the trade balance, the international movement of capital, or the price level is affected first. Changes in the volume of credit often affect the volume of imports or the size of capital transfers much more quickly than the height of home market prices. Experience does not justify making changes in the price level the first step, and changes in the balance of payments the consequences of price variations (550) [Italics added]

To conclude, a few words on the earlier classification of Ohlin. Names are not important, in themselves, but how we classify something says much about how we assess its significance.

Ohlin's own characterization of himself as being in the Late Classical (Harvard) tradition is consistent with what I have noted earlier, and consistent with Metzler's view in which he traces a line from Ricardo through Wheatley, Longfield, Bastable and to Ohlin, a line characterized by the notion that shifts in 'purchasing power' and the direction of spending can effect a transfer and restore balance without any prior movements of gold. But, says, Metzler, these writers all

lacked a theory of employment or income, and were therefore unable to explain just how far the adjusting process could go. Some of the earlier explanations were vague and ambiguous as to the extent of income movements, while the later ones were frequently erroneous. There was a strong tendency ... to cling to the assumption that full employment prevails at all times, ... (1973, ch.10, p.10) [Italics added]

Metzler is correct in his comment, and none of the writers referred to, including Ohlin, spell out determinants of the 'mix' of price and quantity changes. Ohlin was aware of this and by no means apologetic about it: Keynes's neglect of price changes he viewed as a fault. (Vide, e.g. 1981, 230)

If we must summarize, Ohlin parted company with the classicals in that he did not assume full employment; in this, and in his interest in the determinants of expenditure, he was keynesian. In his emphasis on the monetary mechanism he was classical. And (while the reader may on occasion wish he had had a greater penchant for simplification and abstraction) in his awareness of the complexity of the general-equilibrium system and the importance of intersectoral adjustments he was unique.

NOTES

1. I use the term 'basic balance' as it used to be used by the U.S. and by the IMF: the current account, unilateral transfers, and long-term capital movements. This implies a view of the world in which short-term capital movements are taken to be accommodating, or financing.
2. These are usually two-country models.
3. The term neo-classical is misleading, but it has been used often enough to have become ingrained in these discussions. It has nothing in common with what today is known as 'the neoclassical paradigm' except the chronology; both have their roots in the last third of the nineteenth century. On the other hand, many writers include what I have here labelled neo-classical in the 'classical' rubric. Ford (1962) in a concise and useful survey has only two and a half categories: classical, including all of nineteenth century doctrine and both the Cunliffe and Macmillan Reports, as well as the Bullion Committee, on the one hand, and the post-General theory 'income effect' group, on the other; wedged in without elaboration are the "Harvard neo-classicals".

The classical school ... all held the same views on this point: after allowance for transportation costs, the market prices of identical transportable commodities must everywhere be equal or tend to be equal when expressed in or converted to a common currency. When, therefore, critics of the classical theory have taken it to task on the ground that it explained the adjustment of international balances by the influence on the course of trade of divergent market prices in different markets of identical transportable commodities, or when followers of the classical theory have attempted to defend it although themselves giving it such an interpretation, they have misinterpreted the classical doctrine. (316-317. See also 313-315).

5. Oppenheimer (1974) is mistaken in attributing the discovery of the notion of non-traded goods) to Ohlin. It is a commonplace feature of the classical literature.

6. The price-specie flow mechanism is, of course, in many respects identical to the monetary theory of the balance of payments of the 1960s and 1970s. But in one of its versions, that theory lost its right to be labelled 'classical' in my opinion: when a small country with no non-traded goods gets adjustment through monetary flows as a result of expenditure changes, the formal model which Hume generated has been preserved, but the classical insistence on the importance of price changes has been eroded.
7. It is frequently unclear whether this view is to be interpreted as normative, positive, or historical.
8. The Cunliffe Committee Report (1918) is a good statement of this position.
9. This view was echoed in the late 1950s and 1960s discussions of international liquidity and the argument that the world needed more 'international money' so that countries could 'buy time' and carry out required adjustments gradually. Opposing this view were those who alleged that 'gradually' really meant 'later; and if we're lucky, not at all'.
10. Hawtrey (1932, 183-5) noted that short-term capital movements would get reversed as basic adjustment took place, so the relief would be only temporary. The harm done in the interim by the tight money policy which induced the capital inflow was, on the other hand, more serious.

Credit restriction was constantly advocated for the purpose of attracting foreign money for short-term investment. ... It is hardly necessary to repeat that the support gained for the foreign exchange position by attracting foreign money is utterly precarious and delusive. And when credit is restricted for that purpose, the deadly effects of deflation are not the less operative because they are not designed. (219)

Keynes, as always the pragmatist, argued in Indian Currency and Finance that short-term capital movements were an efficient way of regulating gold flows, but primarily for a country such as Britain, a net creditor; the same policy was wrongly applied by debtor countries. (1913, 18). In the Tract on Monetary

Reform he contrasts the use of bank rate and short-term capital flows before the war (under fixed exchange rates) with the post-war, flexible rate case in which, he says, it is much less effective. But even before the war, capital flows were desirable only under certain circumstances:

Where the disequilibrium was purely seasonal ... it was much better that foreign funds should ebb and flow between the slack and the busy seasons than that prices should go up and down. But where it was due to more permanent causes ... the stimulus to foreign loans, whilst restoring the balance for the time being, might obscure the real seriousness of the situation, and enable a country to live beyond its resources for a considerable time at the risk of ultimate default. (1923, 160).

11. See Mundell (1960), for example.
12. An excellent discussion of the debate between Ricardo and his contemporaries on the issue of whether gold movements are an essential part of the adjustment process is to be found in Iversen (1935, 199 ff., especially 212-217). Briefer mention of the argument is in Metzler (1973, Ch.10). Viner (1937) intertwines this issue with consideration of a slightly different point: whether price changes were a necessary part of the adjustment process. Viner argues that some of the classicals, especially Ricardo, anticipated an 'income approach' to the adjustment mechanism. His evidence, in my view, points more to an anticipation of Ohlin than to the keynesian type of income approach (see 293-304). A quotation from Ricardo (295-6) shows a clear statement of rational expectations: Ricardo argued that a crop shortage would not lead to gold exports because, seeing it as a temporary disturbance, the market would anticipate the reversal of any gold flow and thus prevent it.

Is it conceivable that money should be sent abroad for the purpose merely of rendering it dear in this country and cheap in another, and by such means to ensure its return to us? (Ricardo, High Price of Bullion, appendix, Works, 292. Cited by Viner (1937, 296).)

13. That Ohlin was still classical in the sense of his concentration on price changes is corroborated by Patinkin in his interpretation of Ohlin's 1933 article. "For like Keynes of the Treatise, Ohlin in his article is primarily concerned with changes in prices, and discusses changes in output only as derivative from them." (1978, 414) The 1933 article was about general macroeconomic theory, not international, but the position is suggestive. The position then was more Wicksellian than keynesian. Ohlin's comment, written in 1979, corroborates this. "From 1932 the writings in Stockholm took the changes in output into account more fully than they had done before. One difference from Keynes' reasoning was that we did not use an equilibrium construction in this sequence analysis. In my opinion Keynes' underemployment theory gets the character of an equilibrium only because he rules out secondary investment reactions." (1981, 229) [Italics Ohlin's]
14. Taussig was less emphatic on this point than his students, but I include him as a Late Classical rather than a late Classical because he was the founder of the Harvard School and because his own agonizing doubts about the correctness of the classical view were presumably a major source of inspiration to his students.
15. The use of the term 'Keynesian' to apply to all models with fixed prices is much debated see Coddington (1976) and I wish to avoid that particular argument. Furthermore, except for a few hints in the "Notes on Mercantilism", (1936, chapter 23), Keynes himself nowhere, to my knowledge, spelled out what became known as the Keynesian model of the international mechanism. Machlup (1943), Metzler (1973, ch.10) and others were essentially responsible for that.
16. See Harrod (1933) for a prescient exception.
17. Dr. Harry Flam has been kind enough to provide me with a detailed summary of Chapters IX through XIII of Handelns Teori. As far as I can tell, it is essentially an outline of the treatment in Interregional and International

Trade. The detailed general-equilibrium analysis of the changes in commodity prices and factor prices, the effects of internal factor mobility and factor substitution - these are not, apparently, spelled out. But the later work is rather an elaboration and extension of the earlier than an alteration.

18. For a discussion of feedbacks (or lack thereof) in Stockholm School macroeconomics in general, see Hansen (1981), especially pages 267-8.
19. There is a brief treatment of capital movements as endogenous, particularly when he is discussing very long-run trends. One example among many, which demonstrates the extent of what one may call Ohlin's general-equilibriumness, is the statement (511) that an increase in the world demand for a country's exports may raise income and hence saving and, if labor from abroad is not available, a fall in the rate of interest and a capital outflow. He suggests that this is the post World War I story of Sweden, facing an increased world demand for its exports of both pulp and machinery.

Keynes, in the Treatise on Money, does seem to have been concerned with the possible difficulty and strains involved in adjustment to an (exogenous) shift in foreign borrowing. This is the subject of section (iv) of chapter 21 of the Treatise, for example, titled "The Awkwardness of Changes due to International factors." (1930 Volume I, 346-50)

20. Ohlin's view of the determinants of trade was a much broader one than what has come down to trade theorists as the Heckscher-Ohlin-Samuelson model, or even than what di Marchi (1976) has labelled the Ohlin-Samuelson research program. In a brilliant survey of the post-Leontief pure trade theory literature, di Marchi shows that instead of naive falsification, the Leontief results led to a restructuring, by Samuelson, and others, of the Heckscher-Ohlin factor proportions theory of trade. But I would argue that Ohlin saw a unity between real and monetary trade theory which has fallen somewhat by the wayside. Samuelson in his obituary appreciation of Ohlin (1982) ignores the monetary

section of IIT and cites only the debate with Keynes as the locus of Ohlin's monetary views. The Ohlin-Samuelson program concerns itself with explanations and predictions of the direction of real trade flows. I am concerned here with Ohlin as contributor to the literature on the adjustment mechanism.

21. One is reminded here of Taussig's soul-searching and worry about the excessive ease with which the major capital transfers of the 19th century apparently were effected. (1927, 260-2)

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