Capítulo 2

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ABSOLUTE COST DIFFERENCE AND PERSISTENT TRADE IMBALANCES: THE HARRODIAN ADJUSTMENT PROCESS

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INTRODUCTION

The classical economists understood that international trade is conducted by profit-seeking export and import firms, not «nations». For instance, in his discussion of foreign trade Smith emphasizes that «private profit is the sole motive which determines the owner of any capital to employ it either in agriculture, in manufactures, or in some particular branch of the wholesale or retail trade» (Smith, 1973, p. 474). The classicals also emphasized that in any given industry, competition favors lower-cost firms because they are better able to lower prices and damage their higher-cost competitors. Smith extends this principle to the analysis of international trade, which implies that capitals located in nations with lower costs are likely to be more successful in the international arena (1973, p. 35). In other words, *absolute cost advantage*[1] applies equally well to competition within a nation as it does to competition between nations.

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[1] Absolute cost can be assessed by comparing all methods of production of a given commodity in one currency zone, which is in effect the principle used to analyze competition within a country (Shaikh, 1980a, footnote 3, p. 232).

Like Smith, Ricardo also aims to explain how national trade patterns arise from the actions of individual profit-seeking capitals in different countries. Indeed, Ricardo even begins from a Smithian vantage point by considering two nations, England and Portugal. Portuguese capitals are assumed to be more cost-efficient than English ones, so that at first Portugal ends up with a balance of trade surplus and England with a trade deficit. Following Hume, Ricardo notes that a positive trade balance in Portugal implies a net money inflow into the country: since its export firms are selling more abroad than its import firms are buying there, money is being drawn into Portugal. Conversely, with England having less cost-efficient producers, it will tend to run a balance of trade deficit with a resultant net outflow of funds. Furthermore, the net inflow of funds into Portugal due to the absolute cost efficiency of its producers will cause its *money supply to rise*. In England, whose capitals are less cost efficient, the money supply will fall.

Ricardo was a strong proponent of the Quantity Theory of Money, so from this theoretical vantage point an increase in the Portuguese money supply must raise Portuguese prices and costs while the decrease in the English money supply must lower English prices and costs. Hence Portugal's initial cost advantage will be progressively eroded and England's cost disadvantage progressively lessened. Since these effects are triggered by an imbalance in trade, they will continue to operate until trade is balanced. In other words, free trade will automatically make both countries *equally competitive in the international arena regardless of their initial differences in cost efficiencies* (Shaikh, 1980a, p. 204)[2].

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[2] Neoclassical theory adds the further assumption of automatic full employment, so that even any potential adjustment problems are made to disappear: workers displaced in the losing sectors simply find jobs in the winning sectors. One can see why the combination of assumed comparative cost advantage and assumed full employment is so attractive to the orthodoxy.

Ricardo's original argument was couched in terms of fixed exchange rates because he assumes a gold standard in which each country's currency was fixed in terms of gold and hence fixed relative to each other. But the logic of his argument applies equally well to flexible exchange rates (Emmanuel, 1972, pp. 240-243). An initial Portuguese trade surplus implies a net accumulation of English pounds in Portuguese hands because Portuguese exporters are selling more in England than Portuguese importers are buying there. In a flexible exchange rate system this excess supply of English currency on the foreign exchange market will drive down the value of the English pound relative to that of the Portuguese *Escudo* —i.e. cause the *Escudo* to appreciate. Hence Portuguese goods will appear more expensive to English buyers, which will erode the initial cost advantage of Portuguese producers. Conversely, English goods will appear cheaper, i.e. more competitive, to Portuguese buyers. The final result will be same as in the fixed exchange rate case: the terms of trade, the ratio of export prices to import prices in common currency, will rise in the trade surplus country and falls in the deficit one until trade ends up being balanced. In the end, the surviving Portuguese exporters will be those with the greatest initial cost advantage in international trade, while the surviving English exporters will be the ones with the least cost disadvantage. Hence the automatic operations of the free market driven by individual profit-seeking producers will supposedly convert the initial absolute cost advantages of Portuguese producers and disadvantages of English producers into comparative cost advantages for some set of producers in each country.

When the Ricardian process comes to rest it will appear *as if* «Portugal» had chosen to specialize in producing the goods in which it had a «comparative cost advantage», exchanging them for commodities of equal money value (since trade is now balanced) consisting of goods in which «England» had a comparative cost advantage (Ricardo, 1951, pp. 134-136; Shaikh, 1980a, p. 216). But of course, it is Portuguese and English firms responding to profit incentives that are the real actors in this familiar tale.

Marx's and Harrod's critique of comparative cost theory

Ricardo implicitly reduces the balance of *payments* to the balance of *trade*. The former is the sum of net inflows into the country: exports minus imports (the trade balance) *plus* net direct foreign net investment *plus* short term capital inflows such as net loans made by foreigners to domestic agents. Ricardo ignores both long term and short term capital flows. Net international money flows do play a critical role in his story, but only as a medium of circulation. This is odd because the export and import of financial capital (international borrowing and lending) is intrinsically linked to the flow of funds arising from the export and import of commodities. To put it differently, the funds inflow into a trade surplus country will show up as an increase of liquidity in its short term financial markets, while the funds outflow in a trade deficit country will show up as a tightening in corresponding financial markets. Marx, who was strongly critical of the quantity theory, focuses on exactly this point (Shaikh, 1980b, p. 34):

> It is indeed an old humbug that changes in the existing quantity of gold in a particular country must raise or lower commodity prices within this country by increasing or decreasing the quantity of the medium of circulation. If gold is exported, then, according to the Currency Theory, commodity-prices must rise in the country importing this gold, and decrease in the country exporting it.
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> But, in fact, a decrease in the quantity of gold lowers the interest rate; and if not for the fact that the fluctuations in the interest rate enter into the determination of cost-prices, or in the determination of demand and supply, commodity-prices would be wholly unaffected by them (Marx, 1967, p. 551).

Harrod arrives at the same conclusion almost a century later (Harrod, 1957, chapter IV, section 5 and chapters VII-VIII). The money flows induced by a surplus in the balance of payments will reduce liquidity in the country, rather than raising its price level. This will tend to reduce

interest rates in the country[3] and stimulate a capital outflow without necessarily affecting the trade balance. To the extent that investment is responsive to the interest rate this may stimulate the level of output and increase imports through the Keynesian channel. The latter effect may reduce the trade surplus but it will not eliminate it (1957, pp. 130, 131-133, 135, 139). Insofar as central banks in countries with balance of payments deficits act to protect their foreign reserves by raising interest rates so as to induce the capital inflows needed to cover the deficit, they would then be doing *what the market would have done* (pp. 85-86). Finally, the short term capital flows induced by a payments imbalance will tend to eliminate the interest rate differentials that stimulate these, so international interest rates will tend to be equalized (p. 116).

The upshot of the Harrodian argument is that free trade will *reflect* competitive cost advantages and disadvantages not negate them. Countries whose producers enjoy absolute cost advantages will tend to have balance of trade surpluses which their financial markets will recycle as international loans, while countries whose producers suffer absolute cost disadvantages will end up with balance of trade deficits and international debts (Harrod, 1957, pp. 85-86). *Trade imbalances are self-covering, not self-correcting.*

An alternate theory of adjustment to trade imbalances

Let *e* = the nominal exchange rate, *bop* = the balance of payments relative to GDP, *bot* = the balance of trade relative to GDP, *idiff* = the interest differential (domestic interest rate *minus* foreign rate) and *kf* = net capital outflow. A dot over a variable signifies its time rate of change. Then the preceding arguments can be summarized in terms of the following propositions with corresponding general-form equations.

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[3] A gold inflow makes the country more liquid. «If the banks fully offset the inflow, their position becomes progressively more liquid, and if they do not, that of the public becomes more liquid». Even if the banks remain indifferent to their increasing liquidity, as «gold is concentrated in the central bank» it will eventually hold nothing but gold in its reserves, thereby having «no means of earning its livelihood» (Harrod, 1957, p. 131).

The balance of payments is the sum of the balance of trade and net foreign capital inflows; equivalently, it is the difference between the trade balance and net capital outflows. The exchange appreciates when there is a balance of payment surplus because the net accumulation of foreign currency in the hands of domestic producers will depreciate the foreign currency and hence appreciate the domestic one. An appreciation of the domestic currency will tend to discourage exports and encourage imports so that the balance of trade will tend to deteriorate. At the same time, a surplus in the balance of payments will enhance domestic liquidity and reduce the differential between domestic and foreign interest rates. This in turn will provoke an outflow in short term capital.

(1.1) $bop \equiv bot - kf$ (balance of payments $\equiv$ trade balance $-$ net capital outflows)

(1.2) $\dot{e} = f(bop), f(0) = 0, f' > 0$ (exchange rate responds positively to a balance of payment surplus)

(1.3) $bot = h(e), h' < 0$ (balance of trade responds negatively to currency appreciation)

(1.4) $i\dot{d}iff = j(bop), j(0) = 0, j' < 0$ (interest rates fall due to enhanced liquidity from a bop surplus)

(1.5) $\dot{k}f = k(idiff), k(0) = 0, k' < 0$ (capital outflow when the domestic interest rate is below the foreign)

It is striking that a simple linear form of the preceding general model yields is globally stable and yields balance of payments equilibria in both countries at some equilibrium exchange rate and some common interest rate. Yet there remain persistent trade imbalances covered by corresponding international capital flows —just as Harrod argues and just as we so often observe in practice. Let a, b_0, b_1, c, d be positive parameters of the linear equivalents of the general functional forms in equations $(1.1) - (1.5)$:

(1.6) $bop \equiv bot - kf$

(1.7) $\dot{e} = a \cdot bop$

(1.8) $bot = b_0 - b_1 \cdot e$

(1.9) $\dot{idiff} = -c \cdot bop$

(1.10) $\dot{kf} = -d \cdot idiff$

Combining equations (1.6) – (1.8), taking the derivative, and substituting equation (1.10) for $\dot{kf}$ gives (1.11) below. Taken with equation (1.9) this gives us a 2 x 2 differential equation systems which is globally stable around $bop = 0$ and $idiff = 0$.

(1.11) $\dot{bop} = \dot{bot} - \dot{kf} = -b_1 \dot{e} + d \cdot idiff = -b_1 a \cdot bop + d \cdot idiff$

(1.9) $\dot{idiff} = -c \cdot bop$

The system has a unique equilibrium around $bop = 0$ from equation (1.9) and hence $idiff = 0$ from equation (1.11). Stability can be derived from the system's Jacobian $J = \begin{pmatrix} -b_1 a & d \\ -c & 0 \end{pmatrix}$, which is globally stable because $Tr(J) = -b_1 a < 0$ and $Det(J) = cd > 0$. The adjustment path is either monotonic or cyclical according to the value of the discriminant $\Delta \equiv (Tr(J))^2 - 4Det(J)$, where $\Delta < 0$ is the condition for a cyclical adjustment (Hirsch & Smale, 1974, p. 96). The following equilibria obtain:

i. balance of payments equilibrium ($bop = 0$)
ii. equalization of international interest rates ($idiff = 0$)
iii. net capital flows offsets trade imbalances ($kf = bot$ from equation [1.6])
iv. the nominal exchange rate is in equilibrium ($\dot{e} = 0$ from equation [1.7])
v. the net foreign capital outflow is in equilibrium ($\dot{kf} = 0$ from equation [1.10])
vi. the trade balance is in equilibrium (an equilibrium e yields an equilibrium bot from equation [1.8])

Ricardo's own starting point is a trade surplus in Portugal (and trade deficit in England) and zero international capital flows. Yet in this system the end result is Harrodian, not Ricardian: trade remains persistently imbalanced and payments are balanced because capital flows are induced to cover the trade imbalances. It should be said that these patterns are not only consistent with the arguments in Marx and Harrod, but also with the empirical evidence even in the developed world (Shaikh & Antonopoulos, 2012, pp. 203-204).

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