Some Reflections on the World Trade of the XVIIth and XVIIIth Century: A Comment on the Findings of Professor Chaudhuri

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Professor K. N. Chaudhuri in a recent article in this Journal on " The Economic and Monetary Problem of European Trade with Asia during the Seventeenth and Eighteenth Century" [1] has advanced our knowledge of numerous important facts of this important topic in European economic development and he has also raised some new questions. This piece may be viewed as a companion piece of "Treasure and Trade Balances: The East India Company's Export Trade, 1660-1720".[2]

In Chaudhuri I we are presented with long series of the East India Company's exports of both goods and treasure with the latter again broken down further into gold and silver and also into bars and coins of various denominations. Between the 1660's and 1720's, the precious metals apparently accounted for seventy to ninety percent of the total exports of the company. In the same article we are also presented with the divergent London and India gold-silver ratios. These data show for the period under consideration that initially silver (relative to gold) was valued less in India than in Western Europe, but by the end of the period the situation was reversed, and silver was valued more highly in India than in London. The Indian gold-silver ratio as a percentage of the London mint-ratio stood at 107.2 in 1661 but fell to 84.6 by 1720.[3] The explanations offered for

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1 Fall 1975, 323-58 (Hereafter Chaudhuri II).

2 *The Economic History Review,* December 1968, pp. 486-497 (Hereafter Chaudhuri I).

3 Chaudhuri I, pp. 486-488, 499-500.

these complex movements appear to a large extent quite firm, while at the same time some must remain conjectural. The explanations are of broad scope, taking into consideration developments in India proper but also trade relations between India and China.

In Chaudhuri I we are presented with secular price trends (1660-1760) for Indian textiles and saltpetre, two important Oriental exports. While textiles and saltpetre are subject to secular price increases, their trend values nevertheless appear quite modest. For example, for the secular trend Bengal textiles show an annual price increase of £ .0026 (with an intercept of £ .497), which would represent a percentage change ranging from 0.523 in 1665 to 0.349 percent in 1760. For saltepetre the corresponding figures are: £ 0.007 (with an intercept of £ .490) representing an annual percentage change from 1.403 in 1665 to 0.601 in 1760.[4] However, these modestly rising trend values appear to have little meaning. All of the graphs in the appendix pertaining to Indian exports show cyclical fluctuations of very great amplitude — some extreme values move right off the graphs — but no explanation is offered in the analysis for these fluctuations.

For approximately one half of this period, namely from 1712-1760, Chaudhuri is also able to show a rising trend of the price of rice in Bengal. We thus get the tentative picture that rising prices were not confined to exportable commodities, carried by some bottlenecks impeding the expansion of the export industries but rather constituted a more general phenomenon.[5]

Chaudhuri disavows some traditional explanations of the chronic European deficit in trade with the Orient: 1) He is critical of "theory which relies on the rigidity of consumer taste or unsuitable climate in the Indies [for European goods]".[6] 2) He also discounts the notion that the frequently alleged pronounced Indian and/or Chinese hoarding habits have any explanatory power in this context.[7] It is argued "...that a high liquidity preference — the modern terminology for the practice of another age — is common to *all* [italics added] societies which make use of metallic currency".[8]

We are asked instead to consider the possible transaction demands for money in Asia and to compare more carefully differences in international price levels. We are also reminded of Ricardo's exposition of the cause of movements "by variations in the ratio of gold and silver, on the one hand, and the ratio of precious metals to productive goods and services on the other".[9] But the latter is really the same phenomenon as the difference in international price levels already cited.

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4 Chaudhuri II, pp. 354-355.
5 Chaudhuri II, pp. 353-357.
6 Chaudhuri II, p. 326.
7 *Ibid.*
8 Chaudhuri II, p. 327.
9 Chaudhuri II, *Ibid.*

It must be realized that comparative costs alone without due consideration of respective demands for the goods cannot explain balance of trade surpluses or deficits.[10] We believe that Chaudhuri has dismissed the traditional arguments concerning consumers' tastes and also the hoarding propenities too cavalierly. These phenomena are not facets outside of the framework we are asked to consider, but rather important variables of this very framework.

Chaudhuri observes that the theory of the rigidity of consumer taste and drastic climatic differences "runs into difficulty when one raises the question why consumers in Europe should have developed liking for Indian cotton textiles in a cold climate".[11] The correct answer to this question is quite straightforward. In cold climates the lighter textiles (cotton) can be worn in layers — and indeed are so used — with cotton usually forming the layer (s) closest to the body (for reasons to be discussed). Therefore, the relative adaptability of light textiles to cold climates and heavy textiles (supposedly wool) to warm climates is in a sense asymmetrical. Secondly, much of Europe has climatic conditions making light textiles desirable for a substantial part of the year. For these and other reasons, yet to be covered, a traditional demand for silk and linens has prevailed over time in Western Europe. Thirdly, some woollens, and woollens mixed with silk can be woven sufficiently light to generate a demand for these materials even in tropical climates.

However, the eventual conquest of all of Europe by cotton textiles is, at any rate, not so much explained by its light weight but rather by its singular *combination of two qualities,* namely absorbency and ease of washability which — as we will see — to this very day no other textile possesses to the same degree, altough it may possess one or the other of these qualities. Another important quality dimension in this context is comfort to the skin. While this is obviously a somewhat subjective quality dimension compared to the more objective ones discussed above, it is at the same time clear that cotton must score highly in this respect with the overwhelming majority of mankind: this is evidenced by its widespread use for underwear and other garments worn in close proximity to the skin, such as shirts.

But let us return briefly to the more objective quality dimensions of absorbency and washability. In respect to these joint quality dimensions cotton textiles hold a truly unique position. Even today with the widespread substitution of synthetic fibres for natural fibres, cotton still dominates in all those uses, where absorbency is at a premium as is the case with towels,

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10 Consider the simple case of Country A having a comparative advantage in good X and Country B in good Y. Nevertheless, no trade will take place if A's population has no desire for good X and B's no taste for good Y.

11 Chandhuri II, p. 326.

bathrobes, undershirts, surgical gauze and diapers.[12] Even "wash and wear" shirts made mainly from synthetic fibres contain a substantial proportion of cotton in order to assure some degree of absorbency.

If one compares some of the traditional textiles with cotton textiles, the following observations appear warranted. Silk and linen are easily washable but much less absorbent than cotton textiles and at the same time more expensive. The very smoothness of silk, which makes it feel so "luxuriant", makes for little absorbency, quite apart from its price it is not as well suited for garments for persons engaged in physicial exertion. Wool, on the other hand, is very absorbent but much more difficult to wash.

As will be discussed briefly below, the unique qualities of cotton textiles became more important with increasing industrialization and urbanization. To put this somewhat more technically: in the changing environment the tastes must have changed substantially in favour of cotton textiles. Moreover, the income elasticity for cotton textiles must have been high. Charles Wilson succinctly put the general problem: "The problem of keeping clean in a world growing ever dirtier was common to all classes, and with the advance in education and general prosperity in the second half of the [nineteenth] century all classes came to share to a greater or lesser degree in the desire to solve the problem".[13] Wilson deals with a later period than the one here under consideration and the problems alluded to in the above quotation were less pronounced earlier. At the same time there can be little doubt but that secularly cotton textiles and soap had a stronger complementary relationship than is true for other textiles.

As far as the cost side is concerned the chronic trade deficits of Europe vis-à-vis the Orient during the XVIIth and XVIIIth Century appear to be grounded primarily in climatic conditions of raw material production, an observation which holds for cotton but *a fortiori* for the spice trade. Relatively low wages in the Orient may have further increased this comparative advantage, but were not the prime cause of it. At any rate, the European-Oriental wage differential could hardly have been very dramatic at that time.

In the XIXth Century, however, England and subsequently Western Europe achieved comparative advantages in many product lines as the result of rapid technological advance, both of the embodied and disembodied variety, the former being embodied largely in a great variety of models of the factory system. How eventually Manchester reconquered not only the

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[12] Only within the last few years have cotton diapers been replaced by throwaway diapers whose main absorbent material is cellulose, which in turn is produced from purified wood pulp.

[13] CHARLES WILSON, *The History of Unilever* (London: Cassell and Company, 1954), pp. 5-6. Also see DAVID S. LANDES, *The Unbound Prometheus* (Cambridge: The University Press, 1969), pp. 83-84.

English but also the Indian cotton market — in spite of low Indian wages — is a well-known story, which need not be recapitulated here. However, two aspects of this story deserve special emphasis, illustrating clearly that Europe was exporting in the XIXth Century essentially embodied technological progress. The prototype of the modern factory system was in cotton textiles, thus in a line of production for which England had no comparative advantage in the raw material and where, moreover, a bulky raw material had to be imported from far distant sources. It is clear that in the case of the technological advances in spinning and weaving there took place a prompt response to demand pull.[14] This is in contrast to a very lagged response in the iron and steel industry in spite of the fact that England and Western Europe, in general, had an ample resource endowment for these industries. In contrast to the ill-understood chemistry and metallurgy besetting iron and steel, the advances in spinning and weaving were based on simple mechanical concepts.[15] Furthermore, the practical execution of the innovative ideas for spinning and weaving industry did not face the kind of bottlenecks in the engineering industry as was the case with the execution of mechanical advances pertaining to the steam engine. At least until advent of the power loom the existing base of tool making was adequate for executing the new inventions in the textile industry.

All this raises an important question. Since the mechanical inventions in cotton textiles were conceptually simple and easily executable, and the Orient had both a raw material advantage and a long tradition in these industries, why did the Orient fail to generate similar inventions at an even earlier period? Raising this question illustrates once more that the West possessed and was possessed by a unique scientific outlook which it exported — so to speak — on a large scale in an embodied form after the Industrial Revolution. The earlier comparative advantage of the Orient in cotton textiles was grounded primarily in its proximity to the raw material, just like the comparative advantage of the Western European wool industry was largely grounded on the relatively advantageous endowment of that region for sheep raising. After all, to the extent the Orient consumed European woollen cloth, it was exported in finished form. If wage differentials should have been of a decisive influence, we should be able to observe the export of raw wool from Europe and the subsequent production of the wool in cloth (with cheaper labour) in Asia.

We believe Chaudhuri failed to appreciate some important variables

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[14] E.g., NATHAN ROSENBERG, "Science, Invention and Economic Growth", *The Economic Journal*, March 1974, pp. 100-103. It is also true that cotton fibres lent themselves much more easily to mechanization than wool fibres.

[15] E.g., DAVID LANDES, *op. cit.*, pp. 41-123. For an excellent schematic presentation of the problems and fundamental technological advances in cotton textiles, see STANLEY BAKER "YARNS", *The Scientific American*, December 1972, pp. 47-56.

which explain the early comparative advantage of the Orient in cotton textiles. The role of the spice trade in the European trade deficit is not mentioned at all. Yet most of the observations made in regard to textiles hold *a fortiori* in regard to spices. As is well known the term, "spice trade", constitutes somewhat of a portmanteau concept.[16] It pertains not only to spices proper, but also to medicinals, dyestuffs, coffee, tea, sugar, etc. Spices were an ideal commodity for the long distance trade of early times, as they constituted high value in relation to volume. While in the textile category there was a limited reciprocation of woollens for cotton and silk, within the food category Europe had nothing at all to offer in return for spices.

We discussed earlier how and why the taste for cotton textiles was increasing over time. How Europe developed a "sweet tooth" and became addicted to cocoa, coffee (these being originally Latin-American products), tea and sugar is all too well known.[17] What we have to visualize then is that over time the demand schedule for these commodities shifted dramatically to the right.

Taking the comparative advantage of the Orient in spice production, it is clear that it was of the most extreme kind. Europe could have only produced spices (in a broad sense) in a glass house and consequently the lower Oriental wages contribute little — in this area — to the explanation of the balance of advantage.

As mentioned earlier, Professor Chaudhuri discounts the frequently advanced conjectures of other scholars — and it really is not more than that — that hoarding practices in India and China may have been more pronounced than in Western Europe and may have had, in turn, repercussions on the balance of payments.[18] In a world considered unsafe, the premium is always on liquidity and this, in turn, will slow down the velocity of money. Chaudhuri undoubtedly correct in pointing out that hoarding was by no means exclusively an Oriental phenomenon. In support of

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16 RUDOLPH C. BLITZ, "Mercantilist Policies and the Pattern of World Trade, 1500-1750", *The Journal of Economic History*, Vol. X, March 1967, p. 44.

17 E.g., tea has been described as constituting at the beginning of the XVIIIth Century "...a fashionable luxury enjoyed by comparatively few. By the end, according to... family budgets... it was in common use even in the households of the labouring poor, and the annual sales were sufficient to provide two-thirds of the population with a half pint of tea every day". W.A. COLE, "Trends in Eighteenth Century Smuggling", first published in *The Economic History Review*, 2nd series, Vol. X, (1958), reprinted in *The Growth of the English Overseas Trade*, W.E. MINCHINTON (ed.) (London: Methuen and Co., 1969), pp. 132-133.

For similar observations about the increase in demand for tobacco, sugar, calicoes due to change in taste during the XVIIth Century see RALPH DAVIS, "English Foreign Trade 1660-1700", first published in *The Economic History Review*, Vol. VI (1954), reprinted in *op. cit.*, pp. 80-82.

18 Chaudhuri II, pp. 325-327.

the notion of European hoarding propensities, one may observe that watch chains with coins attached to them are standard regalia of peasant costumes in various parts of Western Europe.[19] However, the relevant question is really not whether hoarding was widely practised throughout the world, but whether there are plausible reasons to assume that it was more pronounced in the Orient than in Western Europe.

A higher propensity to hoard in the Orient could be due to either of two factors: 1) a desire for greater risk aversion than the one prevailing in Western Europe; or 2) a similar attitude towards risks in both parts of the world, but a substantially more risky milieu in many parts of the Orient.

Thus, while greater hoarding propensities in the Orient do not require any peculiar personality traits, it is at the same time quite conceivable that people who have been exposed perennially to great risks may develop certain defensive personality traits which are only surrendered slowly when conditions have become more secure. It surely would go beyond the framework of this paper and the competence of this writer to attempt a careful comparison of social economic stability over a period of two hundred years. At the same time a plethora of general and specialized studies have brought out the fact that greater orderliness in such areas as public finance, impartiality in regard to contract enforcement, and in regard to the rule of law in general, are all important ingredients in the growth of Western capitalism.

Since the alleged high savings propensities of the Orient could be explained as essentially rational responses to the prevailing environment — in other words they are not "paradoxical: — it does not appear wise to discard these notions as simple myth just because the hard empirical evidence is not available. General impressions of observers, who have received high marks for their perspicacity of social processes, should not be discarded in a perfunctory way.[20]

Hardly anyone would disagree with the notion that more rigorous testing of the above ideas would be desirable. Unfortunately, the data are not available for such research. While Professor Chaudhuri initially presents an equation which would allow a quantitative testing of some of his main hypotheses, provided the data are available, the equation is never

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[19] While there are no reliable statistics on European hoarding of earlier periods, there appears to be widespread consensus that it took place on a very substantial scale. E.g., FERNAND BRAUDEL, *Capitalism and Material Life* (New York: Harper and Row, 1973), p. 350.

[20] E.g., JOHN MAYNARD KEYNES, *Indian Currency and Finance* (London: Macmillan, 1913). For a vivid and detailed account of modern gold smuggling into India, see "The Gold Hustlers: *The Wall Street Journal* (Feb. 26, 1968), pp. 1 and 12. The article estimates that from the State of Dubai on the Persian Gulf approximately $ 150 millions are annually shipped by sea to India 1200 miles away.

put to use subsequently whether for continuous empirical values or approximate estimates within certain limits.

The equation developed by the late Harry G. Johnson to explain the rate of change of a country's trade balance (with the limiting assumption of two traded goods) reads as follows:[21]

$$RT_1 = (N_1 + N_2 - 1)(rP_2 - rP_1) + E_2R_2 - E_1R_1, \text{ where}$$

RT_1 = rate of change of the trade balance of Country 1,

N_1 and N_2 = the respective price elasticities of demand of each of the two countries,

E_1 and E_2 = respective income elasticities of demand,

R_1 and R_2 = respective changes in incomes,

rP_1 and rP_2 = respective rate of exchange in export prices.[22]

Chaudhuri observes: "The two pairs of elasticities, N and E, are constants in the equation, while the price and income changes are variables. If we *assign* [italics added] definite values to the constants, we can determine precisely from the above relationship what is the effect on Country I's trade balance of a given change in the price of its exports and imports or a shift in income levels".[23] Whether the equation can actually elucidate important aspects of the European-Asian trade for a period of two centuries, essentially boils down to the following issues: 1) what precisely do we know about the "constants"? How constant were they for a period of two hundred years? If they were not constant, what was the approximate frequency and direction of change? 2) What were the magnitudes of price and income changes? 3) Are there other variables relevant to the problem not included in the equation?

It can be stated with considerable confidence that during the period under consideration the rate of change of income was greater in Western Europe than in the Orient. Clearly, prior to any "take-off" into economic development the difference in the per capita income level between Western Europe and and the rest of the world, must have been substantially less compared to what it was subsequently.[24] Chaudhuri also presents new and somewhat startling evidence, that prices of Oriental exports *may* have risen more rapidly than their European counterparts. However, as

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21 Chaudhuri II, p. 328.

22 In the article the symbol is inadequately explained as merely "rate of change of prices" (p. 328). However, the mathematical proof (p. 358) makes clear that this must mean export prices.

23 Chaudhuri II, p. 328.

24 E.g., Simon Kuznets, *Modern Economic Growth* (New Haven: Yale University Press, 1966), pp. 391-394.

mentioned already, the secular trend of prices of these Indian exports show only a very mild rise. As also mentioned earlier, the cyclical fluctuations around the trend appear very drastic. Neither the causes of these fluctuations nor their effects on the balance of payments are explored, even though for the balance of payments short-run fluctuations may be much more important than long-run trends covering one hundred and twenty years.

A glance at the equation makes clear that the results will depend crucially on whether the sum of the price elasticities will be greater or less than one.[25] Chaudhuri does not present us with any estimates of the price elasticities and their possible changes over time. At another place I ventured a strong conjecture that the elasticities for European imports from the Orient was low.[26] At the same time I did not dare to offer a conjecture as to the elasticity of Oriental imports from Europe. As little as we appear to know about the price elasticities, we seem to know even less about the income elasticities. We are not offered by Chaudhuri even tentative information as to their magnitude. We may, however, console ourselves about our ignorance: the income elasticities enter the equation only additatively, while the price elasticities enter the equation multiplicatively and hence affect the outcome more drastically.

As was argued earlier, the period was characterized by dramatic changes in taste in favour of Oriental imports. The equation does not contain a variable to capture this phenomenon. In the absence of an appropriate independent variable, such changes in taste would be captured mistakenly by E_1 and E_2 but in our present state of ignorance, it would be premature to attempt to deal with this specification problem.

It must thus be sadly apparent that it is impossible to breathe life into the key variables of the above equation. And, indeed, while the equation is presented early in the article, it is subsequently ignored and we are nowhere told what the results of this equation may be.

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[25] Consequently, we would not be adequately served with an approximately accurate determination that each elasticity was less than one as they could still sum to more than one.

[26] Rudolph C. Blitz, "Mercantilist Policies and the Pattern of World Trade, 1500-1750", *The Journal of Economic History* (March 1967), pp. 45-46.