

Non-Market Information and International Trade Theory

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Nicholas Kaldor (1972) has stated the case straightforwardly:

“...the basic assumptions of economic theory are either of a kind that are unverifiable — such as that producers “maximize” their profits or consumers “maximize” their utility — or of a kind which are directly contradicted by observation — for example, perfect competition, perfect divisibility, linear-homogenous and continuously differentiable production functions, wholly impersonal market relations, exclusive role of prices in information flows and perfect knowledge of all relevant prices by all agents and perfect foresight. There is also the requirement of a constant and unchanging set of products (goods) and of a constant and unchanging set of processes of production (or production functions) over time — though neither category, goods nor processes, is operationally defined: in other words, no attempt is made to show how these axiomatic concepts are to be defined or recognized in relation to empirical material.”

The concern is far more widespread. Joan Robinson (1977) has, in her characteristic way, suggested that Ricardian theory of comparative cost advantage for trade between England and Portugal was of questionable economic merit to Portugal. Economists who

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hardly share her stance and steadfastly restricted their investigations to the neo-classical framework of general equilibrium analysis have not failed to share the basic concern. Surveying the recent contributions on international trade theory, Harry G. Johnson (1958) writes:

“In the past few years, there has been a revival of interest in the Heckscher-Ohlin model of international trade, and a closer scrutiny of two propositions associated with its analysis of the principle of comparative costs. The first is that the cause of international trade is to be found largely in differences between the factor-endowments of different countries; the second that the effect of international trade is to tend to equalize factor prices as between countries, thus serving to some extent to serve as a substitute for mobility of factors. The result, very briefly, has been to show that neither proposition is generally true, the validity of both depending on certain *factual assumptions* about either the nature of technology or the range of variation of factor endowments which are additional to, and much more restrictive than, the assumptions of the Heckscher-Ohlin model itself.”

Harry G. Johnson continues to add:

“...the conclusions of the Heckscher-Ohlin model depend not only on the assumption of competition, absence of trade barriers, constant returns to scale, and so forth, but *also* on an empirical assumption about the nature of technology or the degree of variation in the factor endowments of countries.”

After having stated the case thus, the learned author proceeds to consolidate the works of previous theorists and extend them to new problems by “a common method” very much essentially within the neo-classical framework of general equilibrium analysis.

Given the context of the India-United States trade relations, Bhagwati and Srinivasan (1975) deserve special mention, and they state that in addition to the two basic pillars of the recent Government of India policy, namely: (i) industrial targeting and licensing and (ii) exchange control resulting in the licensing of imports of capital, intermediate and consumer goods, the “economic efficiency” of the “foreign trade regime” of India must have been constrained by “several other institutional features of the Indian economy: (1) a significant growth of public sector investment in

areas outside of infrastructure; (2) a (less) significant growth of Indian trade with the Soviet Bloc under bilateral agreements; (3) an increasing canalization of profitable imports, and partial handling-cum-subsidization of exports, by the government-owned State Trading Corporation; (4) a strict (ex ante) regulation on a case-by-case basis, of the inflow of private foreign capital and technology into the economy; and (5) in contrast to many LDC's, the availability of an efficient administrative service, entrepreneurial talent and educated, skilled personnel for manning the projected investments." The list of such institutional features are fairly long. Nevertheless, the readers are left to be satisfied with no analytic framework other than the well-known neo-classical one of general equilibrium.

In a recent article, Bhagwati and Wan (1979) state:

"The work of Findlay-Wellisz and Srinivasan-Bhagwati explicitly deploys the tools, insights and ideas of general equilibrium international trade theory. In particular, their analyses have been addressed to the question of deriving the shadow prices for primary factors for the purpose of project evaluation in the presence of distortions; Findlay-Wellisz considering product market and trade distortions, and Srinivasan-Bhagwati also extending their analysis to a number of factor-market distortions."

The learned authors continue to point out:

"... it is shown that uniqueness and stationarity of the marginal variational shadow prices are not always guaranteed once the number of goods differs from that of factors."

The moot question is then (i) that our research framework needs to be redesigned, and (ii) that the framework of general equilibrium analyses has been found to be dangerously inadequate.

Econometric researchers in the area of international economics have been responsible for quite extensive literature of interest. It is not necessary for econometric research to be restricted to the framework of general equilibrium analyses, even though unnecessarily painful efforts have been made by some to do so. For our purpose, we shall consider these empirical researches on their own merit. Leamer and Stern (1970) summarized the literature on quantitative international economics towards the goal of filling up the important gap between pure theory and policy in

international economic relations. Leamer and Stern present the following table:

Table 1

EXPLANATORY VARIABLES USED IN IMPORT-DEMAND ANALYSIS

Total Imports	Imports of Finished Goods	Imports of Unfinished Goods
1. Real GNP; degree of capacity utilization	1. Real disposable income; real expenditure components; degree of capacity utilization	1. Industrial production; real change in inventories; degree of capacity utilization
2. Relative price of imports*	2. Relative price of imports*	2. Relative price of imports*
3. Dummy variables for unusual periods	3. Dummy variables for unusual periods	3. Dummy variables for unusual periods
4. Dummy variables for seasonal variation	4. Dummy variables for seasonal variation	4. Dummy variables for seasonal variation
5. Lagged variables	5. Lagged variables	5. Lagged variables
6. Foreign exchange reserves	6. Foreign exchange reserves	6. Foreign exchange reserves
7. Credit	7. Credit	7. Credit

* Measured as import price divided by the price of domestic goods in general or as import price divided by the price of close domestic substitutes. The specification will depend especially on the level of aggregation employed.

As to the econometrics of international capital flows, Leamer and Stern (1970) diligently catalogue the "fairly large number of problems" that must be solved before any progress with respect to measurement of a model of international capital flow can be successful. The problems enumerated are: "(i) choice of net worth variable, (ii) measuring expected returns and risk, (iii) choice of trade variables, (iv) handling of speculative activity, (v) capital controls and credit rationing, (vi) disaggregation schemes, (vii) lag structure, (viii) functional form, and (ix) simultaneity." Reviewing the available econometric models of foreign sectors of the United States, the learned authors sum up:

"The choice of variables and model structure is exceedingly difficult and has often been made more by chance than by design. While the only norm with which to assess a model is performance, this unfortunately provides little or no insight

into the problem of model-building....However, any model must begin sometime, and its initial form may greatly influence its evolutionary path. How, then, should the model begin?"

Many of us share the belief that important advances in this area have been realized since then. The "LINK Model" of Klein et. al. (1979) is a great step forward in this regard.

It is, of course, evident that econometric researchers have made efforts to broaden the horizon of research beyond the traditional limits of market equilibrium analysis. The appearance of variables other than price and income must be seen in their proper context. Perhaps, in the earlier days, econometric researchers (including the present author) were restrained from emphasizing the role of such "other" variables. It would be more convenient, and of course, more in conformity with the established doctrines, to report primarily on the price and income elasticities estimated, with passing references to "other" non-economic and/or extra-economic variables. The credit-crunch, the foreign exchange crunch, the unemployment crunch, the technology gap, the marketing gap, the two gap models, and the well-known technique of inclusion of binary dummy variables remain a very familiar terrain for econometric researchers engaged in modeling the foreign sector of an economy. We did not succeed to state what we should have fully stated at that time. We perceived that the general equilibrium analysis of free, perfect competitive market was inadequate, and could not fully explain the "behavior" of the market as "observed" strictly within that research framework. At the same time, we — were not able to offer the framework of economics of anti-equilibrium. We used the mathematics of marginal, smooth continuous variation, and often struggled to make extended uses thereof. We have still no knowledge of "quantum economics", even though we have been made aware of the marvel of "quantum physics" by our peers in physics. Those of us who were anxious to be realistic, and more operationally successful in the art of model-building, recognized that the market is not as "free" and "perfect" as we believed it were to be. We recognized that there were rigidities and restrictions in the market. We quickly constructed synthetic variables to incorporate the phenomenon of market pressure due to imperfect competition in the equation we specified. A classic example in foreign trade equations of the

post-World War II generation of most countries is the inclusion of the explanatory variable of international liquidity, that is, the country's foreign exchange balance, in one or another form. The lag structure remained simplified by the rush of the appearance of the Koyck-type distributed lag specification, and we believed that our specifications became sufficiently dynamic. Discontinuity and binary dummy variables we taught ourselves to be almost synonymous. Still, we did not proclaim that the market of general equilibrium analysis ceased to exist. By default, we seemed to have upheld that the idealized market did exist and that the framework of the general equilibrium analysis remained valid, give or take a few noise-control variables.

Our attention remained diverted from the most important task of economic studies, "namely the realistic description, explanation, and formal modeling of the actual operation of the socialist and capitalist economies of the present era" as Janos Kornai (1971) would have exhorted.

Kornai, in his treatise on the economics of anti-equilibrium (1971), states the issues forcefully as follows:

"....the general equilibrium school has suggested two important and correct ideas: First, scarce resources should be used economically, and second, production should be adapted to needs in order to give the greatest possible satisfaction to the consumer. However, these conclusions stem from an analysis based on an unrealistic vision of the world. In reality, there are mammoth corporations and the role of the government is great. General equilibrium theory assumes atomized markets and "perfect" competition. In reality, there exist sharp conflicts of interest. General equilibrium theory sees peaceful harmony in the market. In reality there is concentration and rapid technical progress. General equilibrium theory "disregards" increasing returns to scale, one of the most significant aspects of technical progress and one of the fundamental explanations of concentration. In reality, the information structure is highly intricate and complex. General equilibrium theory describes a system governed in an entirely reliable manner by a single signal, namely prices."

Kornai has proposed that information may be divided into three major categories: (1) money flows, (2) price information, and (3) non-price information. And a given economic system determines its course by an interactive process between the "real" sector

and the "control" sector, Kornai argues. The production function analysis, the Leontief input-output models (1941), and the programming models which later followed, in general restrict its investigation to the "real" sector of an economy. The "control" sector governs itself by three types of information flows, as stated above. The monetarists believe that money alone matters, and they would want us to control the economy by controlling the money supply alone. The other two types of information that relate to the comprehensive "control" sector of a given modern economy they would prefer to leave uninvestigated. They offer no argument other than the traditional one that the "control" sector should be held to its minimum. Or, there will be the unending process of social control. It is important that they too believe that there exists the "control" sector in an economy even when it is believed to be "free". This is not the place to pose the question of treatment of money in the general equilibrium analysis framework — and the unending debates that followed.

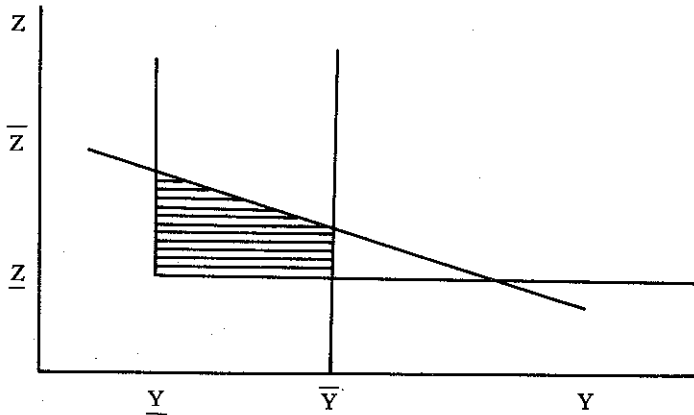
Amongst the non-Marxist economists, John Kenneth Galbraith (1967) has been quite outspoken on non-price information and its impact on economic analysis. Advocates of consumerism and environmental economics have also added significantly to the studies of non-price information component in the recent economic analysis. The question has been seriously raised — how much of the "control" sector remains based on the pure price information, as taught in the general equilibrium economics?

As non-price information contents become increasingly significant, the "control" sector of the economy must lend itself to manipulations by various agents of non-price informations, known in nations' capitals in democracies as lobbyists of various special interest groups, and to money type informations, more so, in international economic transactions. And then, of course, it must respond to what remains of the price type information. Pure price information is found to be inadequate. Total disregard of price type information is unwarranted, as long as the allocation of scarce resources, and the Pareto-optimality remain our norms.

"Formation of a compromise within the institution is an important type of control process," Kornai continues to argue, and it is much more so, when non-price information is taken into important consideration. The "invisible hands" have been at least partially replaced by the "visible hands" of various pressure groups, and

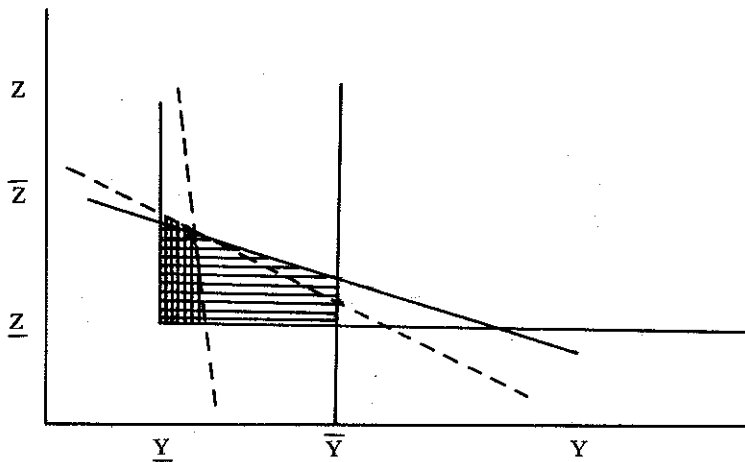
that is how a contemporary democratic market system must be expected to function. These compromises reflect realism and much more meaningful interaction between the "real" sector and the "control" sector of a modern economy. Or, we shall continue to treat an economy as a "black box" which "abstracts from its internal conflicts and describes only the final compromises."

Following Kornai, we present below a three-fold compromise in an idealized economy. The first set of information sets the two lower bounds on acceptance, $Y \geq \underline{Y}$ and $Z \geq \underline{Z}$. The second set of non-price information sets an upper bound on acceptance, namely, $Y \leq \bar{Y}$, and the third set of such information sets the restriction that $Z + 1/2 Y \leq \bar{Z}$. The intersection of the three sets is the shaded polygon defining the acceptable compromises. It is further argued that the acceptable set can very well be an empty set, resulting in further modifications of the bounds until an acceptable compromise can be found.



The belief in the anonymity of the market relations as taught by the general equilibrium economics remains challenged. Instead, we find contracting "parties are linked with one another by information networks."

For a moment, we may refer to the shaded polygon of our diagram above and impose on the area two broken lines. The broken lines are constraints of "peril points" such as the rate of unemployment above normally accepted tolerance level, or the challenge of an international cartel. In any case, the area of the

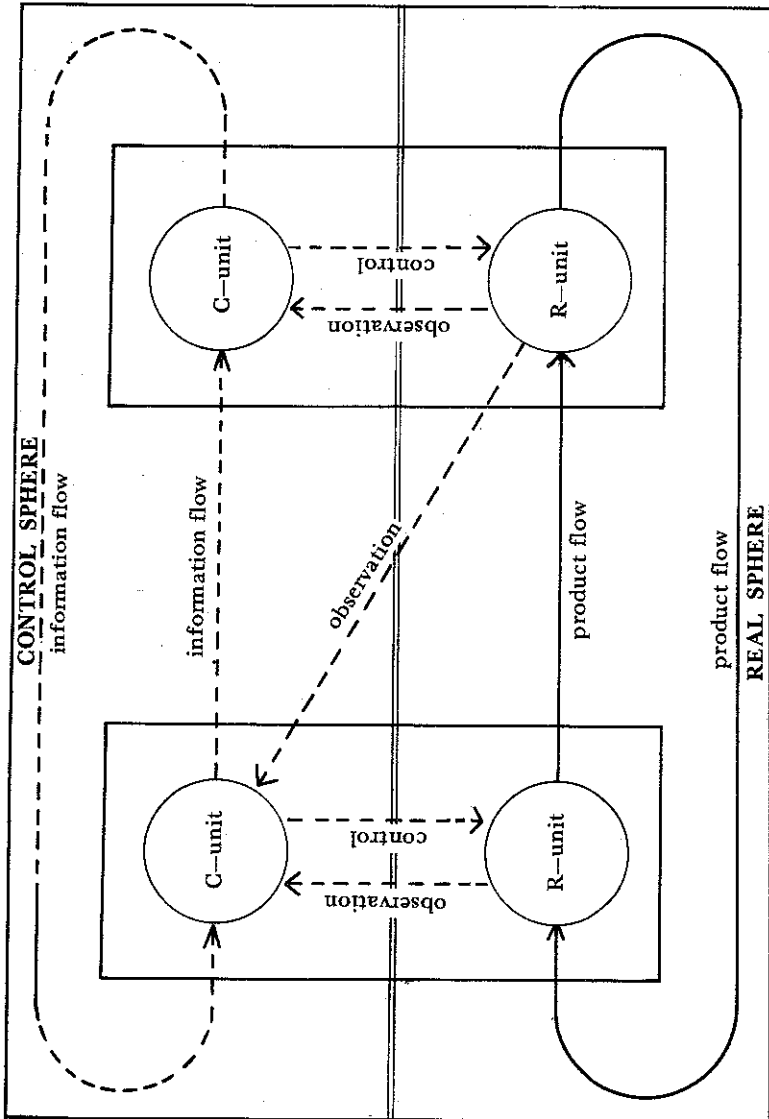


non-empty set has been drastically reduced to the solid dark area within the polygon. These new constraints are “non-market” responses to the “market” failure. Others would argue that if the “market” was allowed to be left to itself, the market would stabilize in the general equilibrium framework. It is at best an idle exercise to trace the path of history when and how the first act of “non-market” interference occurred, and how best to retrieve the “market” by designed “actions” of law and order. It is more realistic to accept the fractured state of the economic market, and continue to work with both “market” and “non-market” information. Econometricians can be proud of the fact that the foreign trade equations they specified and estimated statistically did take into consideration “non-market” information, and as such, they remain more adequately prepared to respond to developing the role of “non-market” information further, and extending these investigations away from the realm of general equilibrium framework to the challenges of anti-equilibrium economics.

The above analysis can be more meaningfully related to the field of international trade, much more so, to the economic transactions between a leading developing country such as India, and a leading developed country such as the United States. I have adopted from Kornai the simple diagrammatic presentation to demonstrate the international economic transactions between India and the United States, where the two countries are represented by the two rectangular boxes with their respective “control” and “real” sectors. One way to read the diagram is to identify the left-

hand rectangular box as the United States and the right-hand one as India. Happenings in the "real" sector in the Indian economy are seen to be observed and noted in the "control" sector of the USA. This can be so partly because the United States in the recent decades, as the most leading economy of the world, has elected to study global economies carefully, and partly because the United States has more efficient and automated instruments to make quick global economic studies and develop analyses thereof, often before the Indian "control" sector could have completed its analyses of the happenings of its own "real" sector. There will then be sharing of information between the "control" sectors of the two countries. Facts will be re-evaluated and rounds of negotiations will ensue until a non-empty set of acceptable compromises emerge. Then follow actions in the "real" sectors of both countries, and the process goes on. Of course, India has unrestricted flow of information between its own "control" and "real" sectors. The same is undoubtedly true for the United States.

Given the need for a fuller appreciation of the production functions in the "real" sector of the two economies, pertinent to India-United States trade discussion, we shall briefly discuss one more issue. In the anti-equilibrium framework of investigation, as suggested above following Kornai's exposition, a new and direct emphasis is given on the "real" sector of the economy. The role of the "control" sector is recognized, and the question is to evaluate the role of three distinct types of information – market, non-market and money-type in the "control" sector, as opposed on the traditional reliance exclusively on the market-type information – the "invisible hands" of free market. The immediate issue on which we wish to concentrate is the production system in the "real" sector. In the general-equilibrium analysis the supply-and-production analysis remains far less specific than what it should be. In econometric studies, more specific considerations have been given to the specification of production relationships at least insofar as elaborating the time lag structure is concerned. Even so, it is not made clear if and how such specifications relate to neo-classical formulations of general equilibrium analyses. It is important to note that there is a growing concern for an expanded study of the supply side. Lawrence Klein (1978) articulated this concern forcefully in his presidential address at the American Economic Association, when he called for linking the Leontief model to the Keynesian model.



The works of Piero Sraffa (1960) and of Wassily Leontief (1941) in relation to production analysis certainly open up a new emphasis on the need for studying the "real" sector. Paul Samuelson's passing reference (1971) to what he called "this age of Leontief and Sraffa" is a reference in this direction. Luigi Pasinetti (1974) develops the Sraffa-scheme, and demonstrates that the system in $(n-1)$ equations and $(n+1)$ unknowns, can be mathematically tractable. Given either the rate of profit or of wage in the Sraffa model exogenously, and setting the price of an arbitrarily chosen commodity as the numeraire, the system of prices of commodities are solved. Of course, the technology is defined. It is as simple as that. Indeed, given the mark-up theory of profit and contractual wage-determination, and the money-information, exogenously, the realism of the analytic framework may not be as foreign as it might otherwise seem to some.

In addition to the basic emphasis on the "real" sector, i.e., on the production-supply nexus, the anti-equilibrium framework of research is further appealing for its scope to analyze the laws of increasing returns to scale in the "real" sector. The general equilibrium analysis is known to be vulnerable under such a situation and restricts itself generally to the convenient assumption of constant returns to scale in the production system. This specific assumption, though convenient, is far too unreal, and more so, in discussing developing economies. It is no less so in the mature developed economies, as some have argued. If highly advanced technology has been held to be responsible for a state of increasing returns to scale in the United States, the growing social investment in a newly industrialized economy like India can be expected to contribute to such a state in her "real" sector. We might pause a moment to suggest that often over-aggregative macro production functions of the Cobb-Douglas type have been found to conceal such real state of affairs. Otherwise, the Indian exporters' concern for their limited ability to compete with the giant-size high-technology United States corporations, and the United States exporters' concern for the restrictive effect on their ability to compete with the Indian industrial corporations who share "externalities" subsidized by India's governmental development programs, have been known to all researchers. Indeed, the true state of affairs relates to the state of increasing returns to scale and how they operate in the "real" sectors of the two competing economies. The neo-classical framework of general equilibrium economics cannot

enable the concerned researcher to undertake investigation into the true structure.

Two of the basic assumptions of international trade theory in the general equilibrium framework are (i) that the technology is given, and (ii) that the taste remains unchanged. Both these assumptions are unrealistic. First, the technology in the two trading countries can and do change. The United States can be expected to maintain its competitive edge if and only if its research and development result in continuously broadening its technological frontiers over time. India, as a developing economy, has made "technology" its catch-word, more so when its human capital in terms of research and development are found to be competitive. If the home market cannot generate enough savings to provide the capital base for the new technology in her industrial production system, India's declared and determined goal is to seek American investment with new technology. Transfer of technology has become the new slogan when the term "Economic Aid" has become politically unacceptable. Both the United States and India must also take into consideration technological competitiveness over time from (n-2) other countries in the world economic order. Even if one is allowed to abstract from such considerations for simplicity of present exposition, the nature of the contemporary global situation pushes both the United States and India to continuously search for technological progress — the United States to maintain her global competitive leadership for her vast economy, and India to raise the economic condition of her vast population. Neither country has any great option. The United States realizes that her vast economy can be vulnerable if she cannot continue to lead in innovative new technologies. India recognizes that for her vast population, to supply the volume of production of goods and services sufficient to ensure their economic betterment, the new technology is the route. It is difficult for either country to take refuge in total isolation and develop their indigenous economic growth path independent of such international competition. The experience of China is very recent, and her new policy to open the Chinese economy to international economic transaction is a great "leap" forward in the learning experience. To that extent, basic doctrine of classical economics, namely allocation of scarce resources and the norm of "second best" in allocation remain valid. What is challenged here is the simplistic assumption that technology can and shall remain constant in the economies of the

trading partners. They change due to their respective internal economic pressures. In addition, trade also induces further technological innovations.

The classical Ricardian framework of international trade was limited to product mobility and factor immobility. Factor endowment theory of Heckscher-Ohlin formulation, and Kravis (1956) reformulation in terms of factor availability for long remained the corner-stones of the traditional trade theory, based on product mobility and factor immobility. In the contemporary trade framework capital, both physical and human, are "mobile" across national economic frontiers. Without any extensive discussion of alternative hypotheses in this relation, it can be argued that the world as a whole would be a "poorer" place to live in — poorer in terms of goods and services produced, if factor mobility, both in terms of men and machine, failed to take place. The exploration of oil and/or platinum in the distant lands of the Middle East and Africa, cultivation of tea and/or coffee in Asia and in South America, would have remained non-happenings if capital as a factor of production had failed to go beyond national frontiers. Much more can be said of the international mobility of human capital. The bogey of "brain drain" is at best an empty slogan. We have been reminded that coal had to be carried to New Castle before this coal became an economic input. Idle supply of an input seldom makes it an economic resource, Adam Smith himself taught us. Traditional trade theory must then be broadened to encompass the facet of factor mobility. Once that premise is accepted, the neo-classical market of general equilibrium economics with constant returns to scale in production and given taste shall become an unreal entity.

Constantly changing taste pattern is yet another facet totally ignored in the traditional trade theory. Tastes change over time, and new products must meet the changing demand. In addition, new products come in and further act as a catalyst to change the existing taste pattern. Kornai (1971) offers an analysis to show that free enterprise capitalist economies in the world have introduced many more "new products" than the socialist controlled-type economies have done. We all are aware of daily exhortations, "do not buy Ajax — but buy new improved Ajax." Galbraith has written extensively on this issue. Much has also been written on the "demonstration effect" at home and from abroad insofar as the

changing taste pattern is concerned. Both India and the United States have had their share of new products contributing to changing taste patterns. Tastes do change for exogenous information too. The demand for health and educational services and growing consumerism and environmentalism in both the United States and India point to this pattern. Exogenous non-market information remain strong contributing factors.

Finally, "tastes" in bilateral economic relations between India and the United States are no less subject to other nonmarket information of socio-political nature. The two nations have different social-religious backgrounds and their respective culture patterns dominate their respective taste patterns. This is true even when one recognizes prevalent pluralistic orders both in India and the United States. Many American economists would have solved India's food crisis by prescribing beef-eating for the Indians. On the other hand, many Indian economists would have found a solution for America's urban blight by prescribing cremation for the American dead, as for them, the dead in American cities occupy much valuable real estate for no earthly reasons.

But there is more to non-market information of the political type in international trade. This is true even when the two opposing nations subscribe to the same religion or to the same culture or to the same political philosophy. The Arabs in the Middle East have now boycotted the Arabs in trade, the Germans have had a state of non-trade with the Germans, the Chinese have had the same with the Chinese. The Russian communists seldom trade with the Chinese communists. Hans Linnemann (1966) developed this point at a great length, and it has become fashionable to suggest that international economic relations have remained a "handmaiden" of international political relationships between the two trading nations. In the India-United States situation, this has been no less so. The corner-stone of the U.S. foreign political policy in the recent decade is rooted in the Soviet-American super-power confrontation, and the corner-stone of India's foreign political relationship has remained in her desire to remain positively "neutral" and be a leader of the "third world." The result has been at best a "fractured" political relationship between the two nations, and as a result, the economic relationship between the two nations has remained fractured, as some of us would see it. Perhaps the new era has dawned? Can the U.S.S.R. lead the Communist Bloc? Can the

U.S.A. lead the free-market capitalist nations? Can India be an effective leader in the "Third World"? Maybe a new perception is imminent, and a new era of economic dialogue can begin.

In conclusion, we suggest that the neo-classical international trade theory based on general equilibrium analyses can no longer be adequate as a research framework. It is much more so for economic relationship between India and the United States. It is so for India because of her challenge to improve the economic condition of her vast population with reasonable speed. It is so for the United States because her vast economy must continue to accept the challenges as she remains an "open" economy. The anti-equilibrium thesis seeks to incorporate a synthesis of three independent types of information — market, money and non-market, in its "control" sector and then to relate the "control" and "real" sectors of a given economy in a more realistic framework. A new design of research is called for as the old design of research is found inadequate. Exclusive reliance on the market-type information in general equilibrium economics is what we cannot continue to accept.

One can paraphrase the familiar statement of economists' debate to say that the market works, but the market ALONE does not work.

References

- Bhagwati, J. N. and Henry Wan, Jr., "The Stationarity of Shadow Prices of Factors in Project Evaluation," *American Economic Review* 69 (3) June 1979, pp. 261-273.
- Bhagwati, J. N. and T. N. Srinivasan, *Foreign Trade Regimes and Economic Development*, New York, National Bureau of Economic Research, 1975.
- Galbraith, John Kenneth, *The New Industrial State*, Boston, Houghton-Mifflin Co., 1967.
- Johnson, Harry G., *International Trade and Economic Growth*, London, Unwin University Books, 1958.
- Kaldor, Nicholas, "The Irrelevance of Equilibrium Economics" *Economic Journal*, December 1972, pp. 1237-1255.
- Klein, Lawrence R., *Invited Lecture for the Conference on the New Perspective of India-United States Economic Cooperation*, New Delhi, India, August 20, 1979.

- , "The Supply Side," *American Economic Review*, March 1978, pp. 1-7.
- Kornai, Janos, *Anti-Equilibrium*, Amsterdam, North-Holland Publishing Company, 1971.
- Kravis, Irving B., "Availability and Other Influences on the Commodity of Trade," *Journal of Political Economy*, LXIV, April 1956.
- Leamer, Edward E. and Robert M. Stern, *Quantitative International Economics*, Boston, Allyn & Bacon Publishing Co., 1970.
- Leontief, Wassily W., *The Structure of American Economy*, New York, Oxford University Press, 1941.
- Linnemann, Hans, *An Econometric Study of International Trade Flows*, Amsterdam, North-Holland Publishing Company, 1966.
- Pasinetti, L., *Lectures on the Theory of Production*, New York, Columbia University Press, 1974.
- Robinson, Joan, "What Are the Questions?" *Journal of Economic Literature*, December 1977, pp. 1318-1339.
- Samuelson, Paul A., "Understanding the Marxian Notion of Exploitation: A Summary of the So-called Transformation Problems Between Marxian Values and Competitive Prices," *Journal of Economic Literature*, June 1971, pp. 399-431.
- Sraffa, Piero, *Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory*, New York, Cambridge University Press, 1960.

