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## **Economics of Development and the Development of Economics**

Pranab Bardhan

**I**n his ethnographic account of the Econ tribe, Axel Leijonhufvud (1973) comments on how the status relationships in this tribe are determined by skills in manufacturing certain types of implements, called “modls:”

The priestly caste (the Math-Econ), for example, is a higher “field” than either Micro or Macro, while the Develops just as definitely rank lower . . . . The low rank of the Develops is due to the fact that this caste, in recent times, has not strictly enforced the taboos against association with the Polscis, Sociogs and other tribes. Other Econ look upon this with considerable apprehension as endangering the moral fiber of the tribe and suspect the Develops even of relinquishing modl-making.

Twenty years later, one can say that the situation has not basically changed, except that “modl-making” has increased even among the “Develops” and that intermixing with other tribes is now also common in some other, growing, fields (like institutional or industrial economics) which have moved away from pristine Walrasian economics (the latter described by Leijonhufvud as the making of “exquisite modls finely carved from bones of walras”). Leijonhufvud ends his story with a sad account of the decay of the Econ culture, marked particularly by the loss of a sense of history among the younger generations.

The vain purpose of this short paper is to try to restore some historical perspective with respect to the many contributions of development economics to *the rest of economics*, and to point to the younger generations, if they care to listen, how some of the glittering ideas they currently play with originally came

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from that now-neglected field, or how sometimes they have rediscovered, with great fanfare, insights that were well-known in the development literature, familiarity with which would have enriched their own work.

## **From the Center to the Periphery of Economics**

The classical economists of the 17th, 18th and early 19th century were, of course, all development economists, as they were writing about a developing country (in most cases, Britain) going through a process of industrial transformation. Then, in the 100 years before World War II, development economics primarily took the form of protectionist arguments for industrialization in the rest of the world (List in Germany, Manoilescu in Eastern Europe, Ranade in India and the like). In the third decade of this century it briefly flourished in the Soviet Union, dwelling on the problems of capital accumulation in a dual economy and of surplus mobilization from agriculture, and on the characteristics of the equilibrium of the family farm: the best products of this period, the dual economy model of Preobrazhenski (1926 [1965]), the two-sector planning model of Feldman (1928 [1964]) and the peasant economy model of Chayanov (1925 [1966]) came to be regarded as landmarks in the post-World War II literature, after these works were translated into English.

But it is only after 1940 that the subject really took off, beginning with the famous paper of Rosenstein-Rodan (1943) and the book by Mandelbaum (1945)—both, incidentally, written about the development problems of southeastern Europe—and then the works of Nurkse, Lewis, Mohalanobis, Hirschman, Scitovsky, Kuznets, Chenery and others.<sup>1</sup> Much of this literature originated in a clear perception of the limited usefulness, in understanding underdevelopment, of orthodox economics, particularly its standard Walrasian form with constant returns to scale, pure competition, perfect information, insignificant transaction costs and externalities, supposed institution-neutrality, price-sensitive adjustments in market clearing and so on. For many years development economics carried on its lonely and difficult struggle to escape the well-worn grooves of mainstream economics and got marginalized in the process. As is not uncommon in isolated marginal groups, some members turned to iconoclastic excesses (for example, indiscriminate state interventionism or autarkism and preoccupation with blanket market failures). As news of the failures and disasters of regulatory and autarkic states in developing countries reached academia and demoralization set in among this group,

<sup>1</sup>For an introduction to this formative period of development economics as well as a retrospective view by some of the pioneers themselves, see Meier and Seers (1984).

orthodox economists made successful inroads in partially recapturing this rebel territory and many a premature obituary of development economics was written.<sup>2</sup>

It is an irony of the recent history of economic thought that while this process of taming the unruly heretics and bringing them back to the orthodox faith was going on, the pillars of orthodox Walrasian economics were themselves crumbling at the onslaught of a whole generation of mainstream economists armed with their models of informational asymmetry, imperfect and incomplete markets, dynamic externalities and increasing returns to scale, multiple equilibria and self-reinforcing mechanisms of path dependence, models which development economists of yesteryear would have been comfortable with, even though some of these were beyond their own model-making capacity. While under the sponsorship of international agencies market fundamentalism was being rammed down the throat of the hapless debt-ridden countries in the so-called third (and now also the second) world, faith in it was being considerably shaken among mainstream economic theorists.

In this Reformation that economic theory has been undergoing I believe the contributions of the main concerns of development economics, those faint rumblings from the periphery, have not been insignificant. Stiglitz (1989) reminds us:

A study of LDC's is to economics what the study of pathology is to medicine; by understanding what happens when things do not work well, we gain insight into how they work when they do function as designed. The difference is that in economics, pathology is the rule: less than a quarter of mankind lives in the developed economies.

One may add that orthodox Walrasian economics has not fared very well in the diagnosis and treatment of even relatively healthy economies, and in the current revamping of the main body of economic analysis insights garnered over the years from the pathological cases have turned out to be quite useful. In the following discussion I shall, somewhat schematically, refer to several of these insights.

### **Efficiency Wage Theory**

When in recent years high and persistent unemployment in developed countries became a focus of serious attention, macro and labor economists in search of micro-foundations of this disturbing phenomenon turned to issues which exercised many development economists in the 1950s and 1960s: how to explain the coexistence of a significant positive wage and massive unemployment and underemployment; the puzzle was particularly striking for densely populated agriculture of poor countries where trade unions are weak or

<sup>2</sup>For example, see Hirschman (1982), Little (1982) and Lal (1983).

non-existent and minimum wage legislation is hardly enforced. One of the theories—developed independently by Leibenstein (1957) and Mazumdar (1959)—built on the link between nutrition intake and work efficiency and explored the effects of this link on wages and involuntary unemployment: at too low a wage, the productivity of a worker may also be too low for the employer to be interested in hiring him or her. This is the now-famous efficiency wage theory, although its current interpretations have generalized the link between wage and efficiency in terms of incentives, morale and effort-intensity (see the papers in Akerlof and Yellen, 1986), and even this generalization was first recognized in the context of less developed countries by Stiglitz (1974).<sup>3</sup>

The models of Leibenstein and Mazumdar are, I believe, the first to illustrate the general principle that if the price of a factor or a good has functions other than simply the usual market-clearing one (for example, indicating something about the quality of the factor or the good), one essentially gets beyond the confines of the market-clearing Walrasian equilibrium, and, as Stiglitz has shown in several papers, many real-world phenomena like involuntary unemployment or credit rationing become analytically tractable as examples of this general principle. Another important corollary of the same models is that the usual separability of equity and efficiency of orthodox economics breaks down: a more egalitarian distribution of land, for example, by reducing the malnourishment of the currently unemployed, may lead to a rise in aggregate output in the economy (Dasgupta and Ray, 1986). The general principle involved here is now recognized in the literature on imperfect information and transaction costs: the terms and conditions of contracts in various transactions, which directly affect the efficiency of resource allocation, crucially depend on ownership structures and property relations. The idea that whether a market economy is or is not Pareto efficient depends on the distribution of wealth was generalized in Greenwald and Stiglitz (1986).

### **Dynamic Externalities**

Apart from non-clearing labor markets, the other major preoccupation of early development theory was the large impact of positive externalities on the development process. Three or four decades later, the so-called new growth theory is trying to formalize this idea of how externalities generated by investment can explain divergence in growth outcomes across countries or regions. The old literature classified two major types of such externalities: technological and pecuniary. This distinction, originally due to Viner, was popularized by Scitovsky (1954).

Technological externalities relate to the spillovers from one firm's investment on the productivity of other firms in the same or other sectors. The

<sup>3</sup>This paper influenced the subsequent literature in labor economics on the importance of labor turnover and the mechanisms (such as deferred compensation) intended to control it.

recent growth literature—which starts with Romer (1986, 1990) and Lucas (1988)—has increased the consciousness of the profession about the importance of these external effects (particularly those flowing from investment in human capital). However, it tends to overlook (and thus fails to learn from) the earlier development literature which abounds with many examples of (and sophisticated debates on) these effects through learning, skill-formation, machine user-supplier interaction, networks of technology diffusion, and so on.

Formalization of dynamic externalities in the earlier literature was largely in the context of learning by doing, following Arrow's (1962) model. For example, the infant-industry argument,<sup>4</sup> the most popular argument for protection in developing countries, was modelled on those lines by Bardhan (1970) and Clemhout and Wan (1970). The acquired and sometimes policy-driven nature of dynamic comparative advantage, to which the East Asian challenge has awakened many developed-country trade theorists, has been a persistent theme in the trade and development literature for decades. In general, the literature on the microeconomics of technological progress has always emphasized the pervasiveness of externalities in the innovation process, in the transfer, absorption, development and adaptation of new technologies; and the problems posed by the catching-up process in the developing countries helped shape the directions of this literature.

Where the earlier development literature went astray—and in this respect the new aggregate endogenous growth models are not any more careful—is in underestimating the difficulty of identifying the few sectors and locations where the spillover effects may be large and particularly difficult to internalize.<sup>5</sup> Learning is often highly localized<sup>6</sup> and project-specific. Unique, gigantic, capital-intensive projects sometimes do not generate enough of diffuse externalities. The extent of spillovers also depends crucially on the nature of competition that the policy environment promotes and of the physical and social infrastructure, including the level of education in the general population.

Development economists of the 1940s and 1950s made an especially impressive contribution in the case of “pecuniary” external economies, in particular the case of what may be called economies of market coordination. The insight is originally due to Young (1928) and Rosenstein-Rodan (1943) and developed by many others, particularly Nurkse (1953), Scitovsky (1954) and

<sup>4</sup>For many years one major critique of the infant-industry argument has been that the “infant,” once protected, often refuses to grow into an adult and keeps on lobbying for prolongation of the “temporary” protection. The literature made clear that the commitment to remove the protection after some years was not binding. This is an early example in development economics of the issues of time consistency and credibility of policy, which now form the subject of a rapidly growing macroeconomic literature in the context of monetary and fiscal policy and business and electoral cycles. For a review of the latter literature, see Persson and Tabellini (1990).

<sup>5</sup>For a brief but balanced account of this issue see Shleifer (1991).

<sup>6</sup>Concern about “appropriate technology” in developing countries, about the applicability of improved methods of production localized around existing methods in developed countries, influenced the theory of localized technical progress by Atkinson and Stiglitz (1969).

Fleming (1955). When domestic markets are small (and foreign trade is costly), simultaneous expansion of many sectors can be self-sustaining through mutual demand support, even if by itself no sector can break even.<sup>7</sup> To capture the full flavor of the problem of strategic complementarity of industries in terms of market size, one needs a full-scale model of plant-level economies of scale in production which can be tapped with large demand spillovers. This formalization was done in a recent model by Murphy, Shleifer and Vishny (1989).<sup>8</sup>

The Rosenstein-Rodan idea must be one of the early examples in the flowering of the general literature on coordination failures in economics. As Krugman (1992) has pointed out, the basic idea has also been fruitful in generating examples of multiple equilibria in international trade (with increasing returns in the production of non-traded intermediate goods bringing about external economies at the level of final goods), and the presence or absence of agglomeration effects in regional economics and economic geography. Related ideas have been used in the growth theory of Kaldor (1966) and Shleifer (1986), and in the macroeconomics of unemployment in the models of Cooper and John (1988), Hart (1982), Kiyotaki (1988) and Weitzman (1982), based essentially on coordination failures in the face of demand interlinkages.

The idea of how plant-level economies of scale get translated into increasing returns at the aggregate level through “pecuniary” external economies, which was so central to the development economics of the 1950s, lost much of its intellectual force in the subsequent decades, not so much because it lacked, until recently, a firm anchoring in a formal model using tools of imperfect-markets equilibrium analysis, as Krugman (1992) suggests, but more because at the policy level the difficulties of aggregate coordination were underestimated (particularly at the existing levels of administrative capacity and political coherence in the developing countries) and the incentive and organizational issues of micro-management of capital were underappreciated. The resulting government failures diverted the profession’s attention from what nevertheless remains an important source of market failure discovered by early development economics.

### **Multiple Equilibria and Hysteresis**

Growth models with increasing returns, macroeconomic models of unemployment equilibrium with imperfect competition, and game-theoretic models have generated a plethora of cases of multiple equilibria in the recent literature in economics. The 1950s development theory started with a presumption of multiple equilibria and posed the essential problem as one of escaping a “low-level equilibrium trap” to a better higher-income equilibrium. There were

<sup>7</sup>This can be particularly important when jointly used infrastructure and other non-traded support services and inputs are indispensable for the production process.

<sup>8</sup>An earlier formalization of the idea of gains from coordination in the process of industrialization drawing upon Rosenstein-Rodan and Nurkse is presented in the development textbook of Basu (1984) in terms of conjectural demand on the lines of non-Walrasian equilibrium analysis.

two quite distinct mechanisms involved in the models of that decade: one worked through the economic-demographic interactions of income, savings and endogenous population growth, so the problem was to escape a Malthusian trap with a “critical minimum effort”—as in the models of Buttrick (1958), Nelson (1956) and Leibenstein (1957); the other was based on the kind of increasing returns which generate strategic complementarities among sectors, through a process of “cumulative causation” (Myrdal, 1957), requiring a coordinated “big push” (Rosenstein-Rodan, 1943) for industrialization.

In the literature on multiple equilibria with underdevelopment traps, one can discuss two different dynamic processes of how a particular equilibrium actually gets established. The economic-demographic models, as well as models of learning and international specialization (where a poor country gets trapped in an historical pattern of specialization) or of unequalizing spirals in North-South interaction (Krugman, 1981, 1987), focus on the decisive role of history or initial conditions. The task of development policy here is to compensate for an historical handicap. On the other hand, big-push models like that of Rosenstein-Rodan emphasize the role of expectations (about investment by other firms) and self-fulfilling prophecy. The task of development policy is to coordinate expectations around high investment. This “history versus expectations” dichotomy has been further analyzed by Krugman (1991) and Matsuyama (1991), and the relative importance of the past and expected future is shown to depend on some parameters of the economy (like the discount rate and the speed of adjustment).

The importance of hysteresis in a model of multiple equilibria with increasing returns has now been highlighted in the work on path-dependence in technological development and industrial location in developed countries (Arthur, 1989; David, 1985) and in models of unemployment (Blanchard and Summers, 1987). Expectation-driven multiple equilibria are now a prominent feature in models of network externalities in technology adoption (Farrell and Saloner, 1986) and in macroeconomic models of search (Diamond and Fudenberg, 1987; Howitt and McAfee, 1988). In all these models, the desirability of adopting a particular course depends on how many others are expected to do the same, a general point which Rosenstein-Rodan, Scitovsky and others tried to drive home in development economics decades back.

Multiplicity of equilibria also creates more intellectual space for cultural, sociological and political factors in influencing the process of economic adjustment to an equilibrium. Early recognition of this may partly explain why the “Develops” in Leijonhufvud’s *Econ tribe* were among the first to break the taboo against association with “Polscis,” “Sociogs” and other tribes.

### **Persistence of Dysfunctional Institutions**

The self-reinforcing mechanisms which bring about hysteresis and “lock-in” can also be used to explain the persistence of socially suboptimal institutions. Development economists, particularly those with a radical orientation, have

never tired of pointing to many long-lasting institutions in poor countries which block economic progress. The property-rights school and the “new” institutional economists often implicitly or explicitly deny this: their account of how more efficient institutions and governance structures evolve in response to new benefit-cost possibilities often displays a certain ahistorical functionalism and even a kind of vulgar Darwinism about the survival of the fittest institution. The more recent literature on institutional economics, however, validates the insight of development economists about suboptimal institutions.

Transaction costs, which form the base of the new institutional economics, themselves can reduce pressures from any social selection process by raising barriers to entry and exit. Then there are the self-reinforcing forces, like increasing returns from adopting a particular institution locking in what may turn out to be an inferior institution in the long run or like a mutually sustaining network of social sanctions on deviants. Akerlof (1984), drawing partly upon the example of the Indian caste system, has built models to show how economically unprofitable or socially unpleasant customs may persist as Nash equilibria when each individual conforms out of fear of loss of reputation from disobedience. These equilibria are difficult to disturb by small shocks.

### **Principal-Agent Models and Missing Markets**

Many of the existing suboptimal institutions may, nevertheless, be serving some real economic function under a set of informational constraints and missing markets (particularly of credit and insurance in the case of poor countries). In the 1970s and 1980s, when economic theory was going through a major overhaul to accommodate imperfect and asymmetric information and incomplete markets and jettisoning some of its fundamental theorems on the way, development economics was often at the forefront in this change-over, since those information problems are particularly acute in the context of development. Stiglitz provided the leadership to a whole group of development economists probing the microeconomic rationale of the formation of agrarian institutions in poor countries in an environment of pervasive risks, information asymmetry and moral hazard.<sup>9</sup> Stiglitz’s (1974) model of share-cropping—viewing this ancient institution as a compromise between risk and work incentive effects—is one of the first fully worked out principal-agent models in economics; in this paper he explicitly points out that the agency problem of sharecropping is in some respects essentially the same as the problem of management within a corporation.<sup>10</sup> Some other problems in developing countries inspired work on adverse selection models: for example, Akerlof’s famous “lemons” paper (1970) was motivated to a large extent by his experience in

<sup>9</sup>For an overview of this literature, see Bardhan (1984), Bardhan (1989) and Stiglitz (1988).

<sup>10</sup>Even ignoring risk and incentive effects, the idea of share-cropping, where the marginal cost of employing labor is less than the average cost, thus lending an inherent bias toward expanding employment and output, influenced Weitzman’s famous work on the share-economy (1984) in the context of macroeconomic stagflation.

India (it says in its first paragraph: “This paper presents a struggling attempt to give structure to the statement, ‘Business in underdeveloped countries is difficult’ ”); and Stiglitz’s (1975) paper on education as a screening device—one of the early papers on screening and signalling—was explicitly in response to questions posed to him in Kenya about the role of higher education.

Development economists have always emphasized the crushing effects of capital market imperfections (or even non-existence), in terms of dictating smaller scale in production and risk-taking and of adoption of myopic policies. These problems are now better appreciated in the literature on credit rationing under imperfect information and imperfect enforcement, particularly as the agency costs in the credit market rise when the borrowers are poorer. The development literature has also pointed our attention to the conflict between the risk-pooling advantages of a large formal credit market and the monitoring advantages of local, informal, sometimes non-market, lending. Studies of successful schemes of traditional rotating credit associations and also group loans (as in the widely noted case of Grameen Bank in Bangladesh) in poor countries have focussed attention on the important idea of peer monitoring, which as Arnott and Stiglitz (1991) have argued, can be an important mechanism for controlling moral hazard in credit markets, labor markets and insurance markets in both developed and less-developed countries.

### **The Enforcement Problem in International Loan Contracts**

A particularly important macroeconomic extension of the issues of credit market imperfections is in the international field. The debt crisis of the developing countries in the 1980s gave rise to a burgeoning literature on an analysis of the implications and consequences of “sovereign risk,” the various deterrents to default and the credibility of sanctions—the leading references here are those of Eaton and Gersovitz (1981), Eaton, Gersovitz and Stiglitz (1986), Kletzer (1984), and Bulow and Rogoff (1989). (One might also look up the symposium in the Winter 1990 issue of this journal.) This has not merely filled a major lacuna in the field of international finance, but also opened up a significant line of research emphasizing the importance of enforcement problems in economic relationships, apart from providing an early formulation of the reputation model the idea of which subsequently received extensive application elsewhere.

### **Targeting in the Theory of Economic Policy**

Various arguments indiscriminately used in support of protection in developing countries gave rise, in reaction, to the theory of economic policy under what are called “domestic distortions” in the literature on international trade theory. For example, popular arguments for protection (or even banning of some imports) with a view to curbing luxury consumption of the rich in poor countries, were countered quite early in the trade and development literature by the argument that a trade restriction is not the first-best policy for achieving

this or other purely domestic objectives. For example, if curbing luxury consumption is the objective, the first-best policy is to have a consumption tax on luxuries; if reducing economic inequality is the objective, progressive income and wealth taxation may be better than tariffs on luxury imports.

Similarly, if an infant industry cannot get off the ground on account of an inability to raise credit to cover initial losses in an imperfect credit market, then the optimum policy may be to subsidize credit, not protection. In several papers in the 1960s by Ramaswami, Bhagwati, Srinivasan and Johnson, all synthesized later in a paper by Bhagwati (1971), the general principle of targeting in economic policy was developed: “distortions” or departures from the usual marginal conditions of Pareto-efficiency are best tackled by using policy instruments that act most directly on the relevant margin. Not merely is this the most general result available to this day in the theory of trade policy, it allowed liberal economists the leeway, in departure from the practice of classical economists, to be an interventionist on matters of domestic policy and at the same time to be a free-trader in the international arena.

One extension of this literature originating in the concerns of development policy came in the form of the well-known Diamond-Mirrlees (1971) result in the theory of public finance on the desirability of aggregate production efficiency, under certain conditions, even when the first-best optimum is not achievable (in the absence of lump-sum taxes to adjust consumer incomes). Again, intervention is to be directed as closely as possible to the source of the distortion, to be applied to the prices the consumers (not the producers) face.

### **Cost-Benefit Analysis**

This part of applied welfare economics, which dates back to Dupuit (1844 [1952]), received a major impetus from the project evaluation literature in development economics in the 1960s and early 1970s. The most influential works in this field have been those of Tinbergen (1967), Little and Mirrlees (1974), and Dasgupta, Marglin and Sen for the UNIDO (1972). The analytical insights of this literature, particularly on the key shadow prices of labor, investment and foreign exchange—which combine ideas from trade theory, general-equilibrium public finance theory and development planning—have now become part of mainstream economics on the general principles of evaluation of public investment.

### **Beyond Utilitarianism**

The literature on the economics of destitution and deprivation and peoples’ ways of coping with such severe misfortunes and inequities made development economists more aware of the limitations of the metric of utilities. To quote Sen (1984): “Judging importance by the mental metric of happiness or desire-fulfillment can take a deeply biased form due to the fact that the mental reactions often reflect defeatist compromises with harsh reality induced by hopelessness. The insecure sharecropper, the exploited landless laborer, the

overworked domestic servant, the subordinate housewife, may all come to terms with their respective predicaments in such a way that grievance and discontent are submerged in cheerful endurance by the necessity of uneventful survival." This, among other things, has induced a whole group of economists and economic philosophers led by Sen to challenge the foundations of welfare economics and to suggest new measures of well-being, for example in terms of basic capabilities and functionings in human life.<sup>11</sup>

### Other Spillovers from Development Economics

There are many other examples of how the results of the study of developing countries have spilled over the confines of its own field and enriched the general body of economics. The study of rent-seeking—as in Krueger (1974)—in connection with trade restrictions in developing countries has contributed to the general theory of public choice. The theory of commodity price stabilization has contributed to the more general literature on risk and saving. The dual economy models of development, based on the traditional-modern or formal-informal distinction, have been extended to the case of dualism between “primary” and “secondary” job markets in the labor economics of developed countries. The theory of interlinked contracts in land, labor, credit or output markets between the same parties in poor countries—see Bardhan (1989) for an overview of this literature—has added new dimensions to the general industrial economics literature on nonlinear pricing and tie-in sales, and the general theory of vertical relations based upon moral hazard.

This paper has identified several areas where ideas which have had considerable influence in both microeconomics and macroeconomics, were first developed in the context of development economics. Sometimes recent theorists were driven by their own intellectual agenda to these ideas, oblivious of the pre-existing and quite rich development literature. In particular, as economic theory has turned more toward the study of information-based market failures, coordination failures, multiple roles of prices and the general idea of the potential complexity of market interactions, it has inevitably turned to questions that have long exercised development economists. The latter in turn are nowadays more aware of the healthy disciplining effects of market rivalry (even when markets work highly imperfectly) and of the pitfalls of reflexive interventionism.

There is, of course, no doubt that over the years development economics has benefitted a great deal from the concepts and tools pioneered in other fields. But it has not been a one-way traffic. While the problems of the world's poor remain as overwhelming as ever, studying them has generated enough analytical ideas and thrown up enough challenges to the dominant paradigm to

<sup>11</sup>The interested reader might begin with Sen (1985, 1987); see also Anand and Ravallion in the Winter 1993 issue of this journal.

make all of us in the profession somewhat wiser, and at least somewhat more conscious of the possibilities and limitations of our existing methods of analysis.

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