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I

The classical infant-industry argument for protection has long been regarded by economists as the major “theoretically valid” exception to the case for worldwide free trade.¹ What controversy there is over the concept tends to center not on analytical issues but rather on empirical matters. Some writers—for example, Myrdal (1957, pp. 96–97) and Rosenstein-Rodan (1963)—maintain that the economic conditions on which the case is based apply to most manufacturing industries in less-developed countries, and they believe, therefore, that general protective measures are justified in these economies. Others—for example, Haberler (1936, pp. 281–85) and Meier (1964, pp. 302–3)—are much more skeptical about the pervasiveness of these conditions and stress the high costs of making incorrect decisions. Unfortunately, the views of both groups are based largely on casual empiricism. Careful, detailed investigations of the empirical issues involved in the infant-industry case have been rare.²

The purpose of this note is not to discuss these empirical matters but rather to suggest that economists have too readily accepted the theoretical arguments set forth for infant-industry protection. I will not deny that there are unique factors affecting new industries which may require market intervention by public authorities if a socially efficient allocation of resources is to be achieved. What I will question is the effectiveness of

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¹ This paper deals with the traditional “infant-industry” dogma associated with such writers as List, Hamilton, Bastable, and Mill in contrast to modern arguments for “infant-economy” protection based on the work of such writers as Rosenstein-Rodan, Scitovsky, and Dobb. See Grubel (1966) for a comprehensive analysis of the differences between the modern and traditional infant-industry arguments.

² Taussig’s (1915) work still stands as the classic but inconclusive empirical study of the subject.

tariffs in accomplishing this result. In particular, I will argue that for some of the main conditions cited as warranting temporary tariffs, protection may well either decrease social welfare or at least fail to achieve the socially optimal allocation of resources in new industries that is the purpose of the duty.

Other writers have also recently argued that the infant-industry dogma has less generality than commonly claimed. Kemp (1960) and Grubel (1966) have pointed out, for example, that where acquired skills and knowledge are "specific" to a firm, there is no need for tariff protection as a means of encouraging socially justifiable investment in human resources. Johnson (1965) has emphasized that infant-industry protection, like other protective measures designed to correct domestic distortions, causes a relative welfare loss to consumers by raising the domestic price of the imported good above its world level.³ The point stressed here relates to the production side. Not only is a consumption loss associated with protection but, as a general principle, one cannot be sure that a temporary tariff will result in the optimum increase in production, or, indeed, in any increase at all in the production possibility curve.

Four principal infant-industry cases will be considered in the following sections. Part II examines the case for protection based upon the point that the acquisition of knowledge involves costs, yet that knowledge is not appropriable by the individual firm. The familiar argument that infant-industry protection is needed because costs associated with on-the-job training cannot be recouped by the training firm is evaluated in Part III. The existence of static and reversible externalities as a justification for temporary protection is discussed in Part IV. This part also considers the argument for protection that imperfect information leads to systematic overestimates of investment risks or of the unpleasantness of working in particular industries. In all four cases I conclude that temporary protection by means of an import duty on the product of the industry is not likely to achieve the goal of a more efficient allocation of resources in production.

II

The essential point stressed by infant-industry proponents since Hamilton (1791) and List (1856) first wrote on the subject is that production costs for newly established industries within a country are likely to be initially higher than for well-established foreign producers of the same line, who have greater experience and higher skill levels. However, over a period of time new producers become "educated to the level of those with whom the processes are traditional" (Mill, 1909, p. 92); and their cost curves decline. The infant-industry argument states that during the temporary period

³ The consumption loss referred to by Johnson (1965) can be prevented by subsidizing domestic production rather than by taxing imports.

when domestic costs in an industry are above the product's import price, a tariff is a socially desirable method of financing the investment in human resources needed to compete with foreign producers.

The first point to note about this statement is that, as Meade (1955, p. 256) has noted, the existence during early stages of production experience of higher costs than those of foreign competitors is, by itself, insufficient justification for tariff protection on grounds of economic efficiency. If, after the learning period, unit costs in an industry are sufficiently lower than those during its early production stages to yield a discounted surplus of revenues over costs (and therefore indicate a comparative advantage for the country in the particular line), it would be possible for firms in the industry to raise sufficient funds in the capital market to cover their initial excess of outlays over receipts.⁴ These circumstances are no different from those in which firms go to the capital market for funds to cover the excess of expenditures over revenues incurred during their early stages because of the need to purchase indivisible units of physical capital.

As Meade (1955, p. 256) also pointed out, the key argument on which the infant-industry case must rest relates to the technological externalities frequently associated with the learning process. Consider the matter of acquiring the technological knowledge needed to compete effectively with foreign producers.⁵ An entrepreneur who incurs costs in order to discover the best way to produce a particular product may face the problem that this information becomes freely available to potential competitors who can utilize it at the same time as the initial firm does. Competition then either pushes up factor prices or drives the product's price down to a point where the initial firm is unable to recover its total costs, including the sum spent on obtaining the knowledge—assuming its other costs are the same as those for competing firms entering the field. Because of this type of response, individual entrepreneurs will be reluctant to invest in knowledge acquisition unless they are sure they can easily prevent others from obtaining the knowledge or can reap a sufficiently high reward during the time it takes others to copy them. Investments in knowledge that are profitable from a social point of view may, therefore, not be undertaken in the economy.

For many types of knowledge acquisition no externality problem exists, since entrepreneurs are able to keep their knowledge about production or markets from their competitors. Thus they are able to reap exclusively the profit benefits of their investments in securing knowledge. Similarly, in

⁴ The case in which the existence of imperfect capital markets prevents this type of response is considered in Part IV.

⁵ Although it may be possible to acquire the basic technology for a new industry from foreign producers at little cost, it usually is necessary to modify this technology somewhat before production under domestic conditions has a chance of competing successfully with foreign production.

industries where there are significant economies of scale in relation to the size of the market and therefore a small number of firms, interfirm negotiations are likely to result in arrangements that offset the externality problem (see Coase, 1960; Buchanan and Stubblebine, 1962). Nevertheless, cases in which the number of firms is large and knowledge acquired by one entrepreneur becomes freely available—or available at a nominal cost—to other entrepreneurs cannot be ruled out as unlikely to be numerous or significant. The instances where these conditions hold could result in a significant divergence between private and social benefits.

A protective duty is, however, no guarantee that individual entrepreneurs will undertake greater investments in acquiring technological knowledge. A duty raises the domestic price of a product and, from the viewpoint of the domestic industry as a whole, makes some investments in knowledge more profitable. But the individual entrepreneur still faces the same externality problem as before, namely, the risk that other firms in the same industry will copy, without cost to themselves, any new technology discovered by the firm and will then drive the product's price or factor prices to levels at which the initial firm will be unable to recover the costs of acquiring the knowledge. If there were always some technologically fixed time lag between the introduction of a new, cheaper production technique and the changes in product or factor prices caused by the entry of the firms who freely copied the new production method, a duty would operate to make investment in knowledge acquisition more profitable for an individual firm in an industry. But (to make a point too often ignored in such discussions) the speed with which firms respond to market opportunities is a function of the level of profit prospects. A duty will make it worthwhile for firms to incur the costs of acquiring the knowledge discovered by other firms (if it is not completely free) faster and also to move into production more rapidly and with greater output rates (see Alchian, 1959). Setting the duty so high that both initial current production costs and the direct costs of acquiring technological knowledge can be covered from current receipts also will be ineffective. Since production under existing socially inefficient technology will be made profitable, firms which make no attempt to discover better productive techniques will enter the industry and drive out of business any firms that spend extra sums on knowledge acquisition. Thus, unless the rate of entry of new firms is relatively unresponsive to the level of profit rates of existing producers, there is no reason to assume as a general rule that any single firm will be more successful in recouping its investment in knowledge with a high duty than with none at all. A duty tends merely to encourage socially inefficient production as long as the state is willing to provide protection. A production subsidy on an industry-wide basis will have the same effect. What is needed, of course, is a subsidy to the initial entrants into the industry for discovering better productive techniques.

Only if during the period of knowledge acquisition there are no costs beyond those needed for efficient production under existing techniques would a tariff clearly accomplish its purpose—improving the long-run allocation of resources.⁶ Then any firm considering the possibility of initiating domestic production in the industry need not be concerned with competition from subsequent entrants into the field who do not have to incur learning costs. However, learning through experience does involve direct costs for any firm. Unless a firm experiments on a random basis—a procedure that will not bring about the consistent decline in costs postulated under the infant-industry argument—it will be necessary for management to devote resources to analyzing previous performance before evaluating new productive practices. These are resources that could have been used to increase output (and thus lower unit costs) under existing production techniques. Consequently, as long as these learning-by-experience costs are greater than what other firms must pay to acquire the knowledge, it cannot be assumed as a general rule that firms will be prepared to incur the initial direct-learning costs even if the government imposes a tariff on the product. On the other hand, if the costs of learning by experience are actually less than the costs of acquiring known technology in the industry, all firms will follow the learn-by-experience route. A duty is still not needed in this case, since firms can borrow funds to tide them over the period during which their costs are not competitive with those of well-established foreign firms.

In many instances, the relationship among the costs of learning, the ease with which potential competitors can take advantage of newly discovered knowledge, and the benefits from this knowledge may be such that individual firms need not be concerned with recovering their learning costs. The point is that when the technological spillover flows from one firm to other firms in the same industry, protection of the entire industry—including new entrants—cannot be counted upon to induce firms to incur the volume of learning costs needed either to achieve a social optimum or to gain the knowledge possessed by foreign competitors.⁷

Recent writers on externalities have emphasized the same point in more general terms. They have shown that in order to achieve optimality when technological externalities exist, it is not enough merely to place taxes or

⁶ In supporting the use of tariffs in the learning-by-experience case, Meade (1955, pp. 270–71) and Kemp (1960) both seem to be making this assumption. At one point in his analysis Meade (1955, pp. 256–57) does present an example in which knowledge acquisition involves costs beyond those needed for efficient current production, and at that point he states that a temporary subsidy to the *firm* may be socially desirable. But he does not distinguish between these cases in his summary of the arguments for temporary state intervention.

⁷ If, however, the technological spillover affected only firms in entirely different industries, then a tariff would be effective in inducing firms within the protected industry to incur learning costs.

subsidies on an industry's output. First, as Plott (1966) illustrates with the standard smoke-diseconomy case, this type of corrective effort may actually reduce welfare. What is needed is a tax on smoke output or on the resource input from which smoke is generated. This example corresponds to the case discussed above in which an infant-industry tariff reduces welfare by being ineffective in shifting a country's production possibility curve outward, yet causing a consumption loss due to the rise in the price of the imported good above its world level.⁸ Moreover, as Turvey (1963), Buchanan (1966), and Plott (1966) have noted, even if a tax is effective in raising welfare, it may not lead to the optimum set of production techniques. Specific taxes or subsidies directed toward particular types of inputs—for example, in the infant-industry case, toward research activities—may be necessary to achieve this goal. In the infant-industry context this means that a tariff is a second-best solution not only because of its consumption effects but also, even under the best of conditions, because of its effects on production.

III

Another frequently cited example of a technological spillover that creates a divergence between the private and social rates of return on investment concerns on-the-job training. If—so the argument goes—a firm could count on its workers to remain with it after they have been provided with on-the-job training, the firm could incur the costs of training and recoup them later by paying the workers wages just enough below their subsequently higher marginal productivity to cover these costs.⁹ However, workers in a free market economy are not slaves, and they will be bid away by new firms after their training period if they receive less than their marginal productivity. Because of this ownership “externality” (that is, a divorce of scarcity from effective ownership) it is argued that temporary protection is justified.

Kemp (1960) has already noted an important qualification of this argument. If the learning process is internal or “specific” to the firm in the sense that the skills and experience acquired are not useful to other firms, then there are no economic-efficiency grounds for government intervention. Each firm can borrow funds to finance the costs of training and recoup these outlays by paying slightly less than the subsequent marginal productivity of the workers. The workers are still being paid at least as

⁸ Terms of trade effects are being ignored in this statement.

⁹ Training costs are the excess of current wage and other costs associated with the new workers over their current marginal productivity. As Haberler (1936, p. 284) has pointed out, in order for the establishment of the new industry to represent a socially desirable shift in resources, the discounted marginal productivity stream of the workers who transfer into the new industry must be higher than in the industries from which they are drawn.

much as they can earn in alternative employments, and they will not leave.

But what if the skills are not restricted to the particular firm providing the training but can be used by potential competitors in the industry? Without government intervention firms will still furnish on-the-job training, and thus a socially optimum resource allocation will be achieved. Although no firm will finance on-the-job training, the workers will. It is the workers who will benefit over their working lives from this on-the-job training, and it will be in their interest to pay for its cost. They can, for example, work during the training period at a wage rate sufficiently low that the firm's labor costs are not initially higher than foreign competitors (see Grubel, 1966; Becker, 1964). Alternatively, they can borrow on the capital market to tide them over this low-income period or even pay the firm with these borrowed funds to provide on-the-job training. This will be the rational course for workers to follow (and optimal for the economy) as long as the present value of their net income stream over their working life is greater with the training than under any other income alternatives.

If, for some reason, such as a lack of knowledge of earning opportunities, workers do not bear the costs of their own training, a protective tariff still cannot be counted upon to induce firms to pay for these training costs.¹⁰ Competition from existing firms in the industry as well as from potential entrants will force firms to pay workers their marginal productivity both during and after their training period. Consequently, no firm undertaking the costs of training will be able to recoup them. All that a tariff can do is to raise the price of the product high enough so that production is profitable without training the workers. This merely creates an inefficient industry in the country.

IV

Static externalities can also result in divergences between private and social returns. A traditional example of such spillover effects is the increase in honey production resulting from an increase in the production of apples (and apple blossoms) near the location of beehives. How significant these sorts of spillovers are in practice is not clear. Most writers (for example, Scitovsky, 1954) do not regard them as very important. In any event, they do not constitute grounds for infant-industry protection. The infant-industry argument is a case for temporary protection, whereas duties justified because of reversible static economies will be needed on a continuing basis.

¹⁰ If a monopoly price on capital funds prevented workers from borrowing to finance their training, a tariff would enable the industry to pay higher wages and thus could make it profitable for workers to pay the socially excessive interest charges. In this case a temporary duty would be socially beneficial.

Although static externalities are now generally treated as quite separate grounds for protection from those included under the infant-industry case, the same is not true for market imperfections. Popular usage suggests that the infant-industry case covers any grounds for *temporary* protection and not just those that are unique to infant industries. Thus, for example, monopolistic factor prices could make the establishment of a new industry privately unprofitable, although it would be socially beneficial. A temporary tariff can, under these conditions, move resources into the infant industry and thereby improve welfare levels in the country. Monopolistic factor markets can, of course, block socially desirable factor movements not only in new industries but also in well-established productive lines as an economy grows and taste patterns shift. Because this type of market distortion is by no means unique to new industries, it would seem more logical to consider the existence of monopolistic practices apart from the infant-industry argument for justifying tariff protection. However, if it is not treated separately, authors should at least note that the argument covers both new and old industries.

As Kafka (1962) pointed out, however, there is one type of market imperfection that tends to be particularly applicable to infant industries. In this situation a lack of knowledge about an industry causes investors to overestimate the risks of investing in the industry and causes workers to overrate the unpleasantness of moving into this line of production.¹¹ Whether a tariff will be effective in compensating for these imperfections depends upon (1) whether there are costs involved in knowledge acquisition other than those associated with current production, and (2) whether the knowledge that is acquired becomes freely available to others.

Suppose, for example, that a potential entrant into a new industry, if he could provide potential investors with a detailed market analysis of the industry, could borrow funds from investors at a rate that would make the project socially profitable. However, should this information become freely available to other investors and potential competitors, the initial firm might not be able to recoup the cost of making the market study. As in the earlier cases dealing with acquiring technological knowledge or training labor, under these circumstances the firm will not finance the cost of the study, and a socially beneficial industry will not be established. Suppose also that, in the absence of this market information, investors will insist upon such high interest charges that the investment will not be privately profitable. A tariff on the industry's product can overcome this unprofitability and enable firms to pay the high interest rates demanded by investors.

¹¹ Lack of perfect knowledge is also one of the major grounds used to support the modern "infant-economy" argument. For a critical view of this argument, see Haberler (1964), Baldwin (1965), and Grubel (1966).

If this high return over a period of time is all that is needed for investors to acquire sufficient knowledge about the industry for the lending rate to be bid down to a rate reflecting actual risk levels in the industry, then a temporary tariff may be socially desirable. However, while some information about earning prospects is likely to be conveyed to investors by their payments experience, it is doubtful if the full information that is socially profitable in terms of investment in knowledge acquisition will ever be conveyed to them simply by this sort of costless experience. The mere fact of tariff protection will make it difficult for investors to infer from their payments experience that they are overestimating investment risks in the industry. If this is so and the spillover problem also exists when outlays to obtain information are made, a temporary tariff cannot be relied upon to move production in the infant industry to a socially optimal level.¹² Direct subsidies to pay for the costs of knowledge acquisition will be needed. The same general point holds for providing information about working conditions to employees in a new industry. It is a gross oversimplification of the nature of the learning process to assume that all the information that is socially justifiable in terms of the return on knowledge-producing investment will eventually be provided simply by experience. Consequently, it cannot be assumed as a general rule that a tariff will be an effective device in enabling investors or workers to obtain the information needed for a socially efficient use of their factor services.

V

If the infant-industry argument for tariff protection is worthy of its reputation as the major exception to the free-trade case, it should be possible to present a clear analytical case, based upon well-known and generally accepted empirical relationships unique to infant industries, for the general desirability and effectiveness of protective duties in these industries. The contention of this paper is that such a case cannot be made.

The infant-industry case rests on the notion that a freely functioning price system will—in the absence of temporary duties—fail to bring about socially optimal levels of training, knowledge, and factor endowment in new industries. The main difficulty usually cited is the existence of technological spillover effects associated with the learning process. Learning involves costs; yet the knowledge acquired frequently becomes freely available to those who are potential competitors. The importance of these spillovers is not denied here: What is argued is that a duty cannot be relied upon to correct for these externalities and to achieve an optimal learning

¹² It will be necessary to maintain the duty on a permanent basis if investors do not revise their risk evaluation as they accumulate payments experience. The tariff improves the efficiency of resource allocation, but this case for protection is quite different from the argument for temporary protection of infant industries.

level. When learning involves costs other than those needed for efficient production with existing techniques and skills, as in the case of acquiring technological knowledge or training labor, a tariff may not compensate for the spillover problem at all. More generally, even though some knowledge can be obtained by production experience alone, it is highly unlikely that the socially optimal knowledge and training levels are acquired without some direct outlays for knowledge acquisition. However, when the technological spillover problem is present, imposing tariffs is no guarantee that these socially desirable kinds of expenditures will be made. What is needed is a direct subsidy devoted to knowledge acquisition.

Technological externalities, however, may not be the source of the difficulty in obtaining an optimal allocation of resources (including resources devoted to knowledge acquisition); a lack of knowledge or monopolistic prices for inputs may be the cause of the economic inefficiency. Undoubtedly a tariff-induced move of productive factors into new industries is sometimes sufficient for these factors to acquire the knowledge which will make the duty unnecessary at a later date. But there would also seem to be many cases where the knowledge that must be acquired to make the tariff subsequently unnecessary involves outlays in addition to current production costs and also becomes freely available to others. Under these circumstances, protective duties are likely either to fail completely in achieving their purpose or else to fail in directing sufficient resources into infant industries to achieve a social optimum. As far as monopolistic factor markets are concerned, it appears that these are as important impediments to efficient resource allocation in established industries as in infant industries. It would seem more logical, therefore, from a pedagogical point of view, to consider this as a protectionist argument separate from the infant-industry case.

In short, not only do infant-industry duties distort consumption—as do all duties—but they may fail to achieve a socially efficient allocation of productive resources in new industries and may even result in a decrease in social welfare. What is required to handle the special problems of infant industries is a much more direct and selective policy measure than non-discriminatory import duties.

References

- Alchian, A. "Costs and Outputs," in M. Abramovitz (ed.). *The Allocation of Economic Resources*. Stanford, Calif.: Stanford Univ. Press, 1959.
- Baldwin, R. E. "Investment Policy in Underdeveloped Countries," in E. F. Jackson (ed.). *Economic Development in Africa*. Oxford: Blackwell, 1965.
- Becker, G. S. *Human Capital*. New York: Nat. Bur. of Econ. Res., 1964.
- Buchanan, J. M. "Joint Supply, Externality, and Optimality," *Economica*, XXXIII (November, 1966), 404–15.
- Buchanan, J. M., and Stubblebine, W. C. "Externality," *Economica*, XXIX (November, 1962), 371–84.

- Coase, R. H. "The Problem of Social Cost," *J. Law and Econ.*, III (October, 1960), 1-44.
- Grubel, H. G. "The Anatomy of Classical and Modern Infant Industry Arguments," *Weltwirtschaftliches Archiv*, XCVII (December, 1966), 325-42.
- Haberler, G. *The Theory of International Trade*. London: Hodge, 1936.
- . "An Assessment of the Current Relevance of the Theory of Comparative Advantage to Agricultural Production and Trade," *Internat. J. Agrarian Affairs*, IV (May, 1964).
- Hamilton, A. *Report on Manufactures (1791)*. Reprinted in U.S. Senate Documents, Vol. XXII, No. 172. Washington: Congress, 1913.
- Johnson, H. G. "Optimal Trade Intervention in the Presence of Domestic Distortions," in *Trade, Growth, and the Balance of Payments*. (Essays in Honor of Gottfried Haberler.) Chicago: Rand McNally, 1965.
- Kafka, A. "A New Argument for Protection?" *Q.J.E.*, LXXVI (February, 1962), 163-66.
- Kemp, M. C. "The Mill-Bastable Infant Industry Dogma," *J.P.E.*, LXVIII (February, 1960), 65-67.
- List, F. *National System of Political Economy*. Translated by G. A. Matile. Philadelphia: Lippincott, 1856.
- Meade, J. E. *Trade and Welfare*. New York: Oxford Univ. Press, 1955.
- Meier, G. M. *Leading Issues in Development Economics*. New York: Oxford Univ. Press, 1964.
- Mill, J. S. *The Principles of Political Economy*. London: Longmans, Green, 1909.
- Myrdal, G. *Rich Lands and Poor*. New York: Harper, 1957.
- Plott, C. R. "Externalities and Corrective Taxes," *Economica*, XXXIII (February, 1966), 84-87.
- Rosenstein-Rodan, P. N. "Notes on the Theory of the 'Big Push,'" in T. Morgan, G. W. Betz, and N. K. Choudry (eds.). *Readings in Economic Development*. San Francisco: Wadsworth, 1963.
- Scitovsky, T. "Two Concepts of External Economies," *J.P.E.*, LXII (April, 1954), 145.
- Taussig, F. W. *Some Aspects of the Tariff Question*. Cambridge, Mass.: Harvard Univ. Press, 1915.
- Turvey, R. "On Divergences Between Social Cost and Private Cost," *Economica*, XXX (August, 1963), 309-13.