Bhagwati and Ramaswami:
Why it *is* a Classic

Arvind Panagariya*

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*Department of Economics, University of Maryland, College Park MD 20742. Email: panagari@econ.umd.edu

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1. Introduction

In a recent profile of James Meade, Max Corden (1996) writes,

> "Most students, and possibly many readers of this review, know the theory of internal and external balance through the Swan diagram and believe that Swan originated this theory or approach. They are also likely to believe that the 'theory of domestic distortions' originated with Bhagwati in various writings, especially Bhagwati and Ramaswami (1963), and with Johnson (1965). Furthermore, they may believe that the theory of the second-best originated with Lipsey and Lancaster (1956). Of course, all these authors and others made important and very influential contributions, reformulating problems, presenting essential points more clearly and neatly, and carrying the work forward. But the basic ideas can be found in Meade's two books. The theory of internal and external balance formed the centerpiece of the Balance of Payments. Swan just summed up many pages in one neat diagram. The theory of domestic divergences (as Meade called it) was *fully expounded* in two substantial chapters [emphasis added]. The theory of the second-best was quite central to Trade and Welfare (1955a), and indeed Meade invented the term 'second-best' which is now part of every economist's language, as well as exploring many of its implications in four chapters....From the point of view of history of economic thought, it is particularly worth rereading the chapter entitled, 'The Second-Best Argument for Trade Control: (3) Domestic Divergences'."

This is an extra-ordinary tribute to an extra-ordinary figure in the field of international economics. While appreciating it, most readers familiar with Corden's measured writing style will also detect in the tribute an indictment of post-Meade international economists. In Corden's judgement, international economists who followed Meade contributed little that was not already there in the latter's two books.[1] He makes this message more explicit later in the profile where he goes on to state,

> "While a graduate student I studied Meade's two books extremely carefully,... The result was the numerous later articles by various people containing supposedly new ideas, or even new wrinkles on old ideas, seemed obvious to me. This was especially true in the field of optimal trade policy, but also in public finance: I knew it all, and at first I found it difficult to see why the trumpets were blowing."

Corden's view contrasts sharply with that of Harry Johnson, his contemporary and himself an influential contributor to the theory of commercial policy in the presence of domestic distortions. In an article that set one of the main themes of Corden's (1974) important and widely read book, <u>Trade Policy and Economic Welfare</u>, Johnson (1965) described the contribution of Bhagwati and Ramaswami in these words,[2]

> "The organization of the argument around the two central propositions of the paper is, however, derived from discussions with Jagdish Bhagwati, and particularly from his brilliant joint article with V. K. Ramaswami...To these two authors belongs the credit for reducing a

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[1]The only exception he seems to grant in the paragraph following the one just quoted is Robert Mundell. But, as noted below, Mundell's well-known work on the substitutability of trade and capital mobility can also be subjected to Corden-type criticisms concerning Meade's "priority".

[2]To quote Corden (1974, p. 41), "This [Bhagwati and Ramaswami (1963)] was followed by the important article that really focused on the central issue, applied to various cases, and set one of the main themes of the present book, namely H.G. Johnson's 'Optimal Trade Interventions in the Presence of Domestic Distortions,'"

mass of *ad hoc* arguments concerning tariffs to a simple application of second-best welfare theory. The present paper extends their analysis to some arguments not considered by them, elaborates more fully on the infant industry argument, and adds to their results two propositions about non-economic arguments for protection."

Thus, Johnson (1965) saw the Bhagwati-Ramaswami paper as a breakthrough in thinking and did not attribute the results therein to Trade and Welfare with which he was at least familiar, since he referred to the book in his article.[3] How do we explain this divide between the views of two leaders in the field?[4] And is the Bhagwati-Ramaswami article unjustly celebrated? These are the key issues addressed in the present paper.

The paper contains five sections. In Section 2, following Corden's recommendation, I carefully review Meade's (1955a) chapter 14 entitled, "The Second-Best Argument for Trade Control: (3) Domestic Divergences." In Section 3, I discuss the Bhagwati and Ramaswami (1963) paper, focusing on the similarities and differences between it and chapter 14 of Meade (1955a). In Section 4, I turn to the central issues raised above: how do we explain the divide between the views of Corden and Johnson and is the central position enjoyed by Bhagwati and Ramaswami (1963) in

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[3]In his review of the Balance of Payments in the Economic Journal, Johnson had roundedly criticized the treatise for its taxonomic approach. This opens the door to speculation that Johnson may have been so put off by Meade's style that he did not read Trade and Welfare with any care. As we will see later, if true, Johnson was not alone in this regard. Research papers on the topics covered in Trade and Welfare, published during the following two decades, uniformly exhibited at most a passing familiarity with the latter.

[4]In profiling Bhagwati, Irwin (1997) echoes Johnson's view. So do Srinivasan (1996) and Krugman (1996) in their contributions to the Bhagwati *festschrift*.

the history of the development of the theory of commercial policy in the presence of domestic distortions justified? In Section 5, I summarize the conclusions.

1. Meade on Domestic Distortions and Commercial Policy

In Panagariya (1997), I have closely examined Meade's contribution to preferential trading as expounded in another classic contribution, The Theory of Customs Unions [Meade (1955b)]. There, I began by noting that to appreciate fully Meade's contribution to the theory of customs unions, a reader must bear in mind that he studied customs unions exclusively from the viewpoint of world welfare and paid little attention to the welfare of either the union or non-members. This important point can escape even a careful reader since, having stated it on the second page of his book, Meade (1955b) rarely repeats it. A reader who skips the first few pages (as this one did during his first reading) is likely to confuse the world welfare with the union's welfare and be puzzled by some results and misinterpret others. This indeed happened in print when, in a recent survey of the economics of regional trade agreements, two leading trade theorists, Richard Baldwin and Anthony Venables (1995), incorrectly attributed the Kemp-Ohyama-Kemp-Wan theorem [Kemp (1964), Ohyama (1972) and Kemp and Wan (1976)] to Meade. As I explain carefully in Panagariya (1997, pp. 66-69), the result in Meade (1955b), identified by Baldwin and Venables as the Kemp-Ohyama-Kemp-Wan theorem, is quite distinct from the latter.

As in the Theory of Customs Unions, in Trade and Welfare, Meade sets the stage for the welfare analysis in the first chapter of the book thus,

> "In making this application of the criteria of economic welfare to problems of international economic policy, it is possible to take either a national or cosmopolitan point of view. That is to say, in a world made up of countries A, B, C, D, etc., one can take as one's criteria for economic policy either the sum of the welfares of the citizens of A, the citizens of B, C, or D, etc., counting for nothing, or the sum of the welfares of all the world citizens, each person in each country counting equally. The basic outlook of this volume will be the cosmopolitan

one, although the argument will be so presented that the nationalists should also be able to derive from it the analysis which is appropriate to his own case." (9)

The focus on the world, rather than national, welfare was a neat trick that allowed Meade to abstract entirely from the complications arising out of the changes in the terms of trade. For, though such changes redistribute income among countries and, thus, alter national welfares, they do not impact the world welfare.

In chapter 14, Meade considers the second-best argument for trade restrictions arising from domestic divergences. He lays out the objective and framework of the analysis thus,[5]

> "We turn now...to the case in which there is some initial and fixed divergence between marginal values and costs within the domestic economy of one of our trading countries. We assume that there are no other domestic divergences within any of the trading countries and that there are initially no import or export duties and subsidies or any other cause of divergence between marginal values and costs in international trade. Our purpose is to enquire whether in these circumstances the damage to economic welfare caused by the domestic divergence between marginal values and costs might not be in part offset by a departure from free trade,..." (226)

Meade identifies several possible source of the divergence between the marginal value and marginal cost:

> "There might be an element of monopoly in the production of the home product.... Alternatively, there might be some external economy involved in the domestic production.... Or the divergence might be due to the existence of some rate of tax levied on the domestic production which raised the price charged to the consumer above the net price received by

[5]To give the reader a flavor of Meade's rather unorthodox style--even for his times as we will see later--, I will quote extensively from Trade and Welfare in the present section.

the producers. Our analysis will be relevant for any divergence between marginal values and costs, no matter what the cause of it may be." (226)

From here on, Meade focuses on a product in a country assuming a constant *ad valorem* divergence between its marginal value and marginal cost. Specifically, he considers blankets in country A for which marginal value is assumed to exceed marginal cost by 10%. In the background, there are many other products and another country, B, with no divergences between marginal values and costs anywhere. He then proceeds to derive a number of results.

First, Meade shows that, in this setting, the introduction of a *small* tariff by A necessarily improves (world) welfare. His logic, derived from the mathematical supplement, published separately, is precise. The introduction of a small tariff restricts imports, but since there is no divergence initially between the marginal values of blankets between A and B and between marginal value and cost of blankets in B, the change entails no loss of welfare. On the other hand, the tariff increases the production of blankets in A and, given the 10% divergence, yields a gain. There is, thus, a net increase in welfare.

Second, Meade shows that the optimal tariff in this situation is less than 10%. He reasons that with a small tariff duty now present, as we increase the rate of duty, there is a loss in welfare from a further reduction in imports that counteracts the gain due to the expansion of output. After presenting a lengthy argument, he concludes,

> "Since the reduction in the volume of import trade is at each successive rise of import duty greater than the accompanying increase of home output, the loss of welfare on the lost import trade will just counterbalance the gain on the new home production when the rate of duty on imports (which will operate on a relatively large decrease in the volume of imports) is lower than the rate of divergence on the volume of production (which will operate on a relatively small increase in home production)." (228-9)

Meade also identifies the role of the elasticities of demand for and supply of blankets in A in determining the actual value of the optimal tariff. The reasoning is long winding but the conclusion is sharply stated,

> "The best rate of duty [what later came to be called the second-best optimum tariff] will approach the rate of divergence on home production the more nearly, the smaller is the elasticity of A's demand for and the greater the elasticity of A's supply of the product in question." (230)

Third, Meade argues that a tariff should not be used if a production subsidy can be employed instead. The process of reasoning is involved and tests the reader's patience.

> "If one starts with the moderate duty on imports, the position can be improved if out of the revenue raised by the duty on imports a small subsidy is paid on home production. This would encourage the home production on which there is still a 10 per cent divergence between marginal value and cost at the expense of a smaller reduction of imports[6] on which in any case the divergence is less than 10 per cent because *ex hypothesi* the duty is less than 10 per cent. A still better situation could be achieved by still further reducing the rate of duty on imports and increasing the rate of subsidy on home production in such a way that there was some simultaneous increase in the amount produced at home (on which there is now a rate of divergence equal to 10 per cent less the rate of subsidy on home production) and in the amount imported (on which there is a divergence equal to the remaining amount of duty). Clearly this series of adjustments can be continued with a continuing favorable effect upon economic welfare until the rate of duty has been eliminated and a rate of subsidy is being paid on home production equal to the initial 10 per cent divergence between marginal value

[6]The reduction in imports would be smaller than the increase in home production since the subsidy in home production would end to lower the price of the product in A and so to increase the total amount consumed in A. [Footnote in the original.]

and cost." (230)

In another paragraph that is three times as long, Meade goes on to address the issue of raising revenue to finance the subsidy. He then concludes as follows:

> "To summarize, if revenue can be raised (e.g., by progressive lump-sum taxation) in such a way as to cause no divergences elsewhere, then the expansion of the blanket industry in A should be brought about by a subsidy which totally offsets the initial divergence between marginal value and cost in the industry. But if revenue cannot be raised in this harmless way, then a somewhat lower rate of subsidy should be paid, leaving some of the initial divergence uncompensated. Since some divergence would still remain, it is still desirable to encourage the production of blankets in A. This means that in searching for suitable sources of revenue to meet the subsidy, there is a special case for taxing rather more heavily than would otherwise be done those goods and services which in consumption or production compete most closely with A's home-produced blankets. Since imported blankets compete in consumption very closely with home-produced blankets, there is an argument for some degree of protective duty as a means of promoting blanket production in A." (231-2)

Finally, Meade argues that the case for a tariff may be considerably weaker if the divergence between marginal value and cost of blankets results from an external economy associated with the *employment* of a particular factor of production in that industry. "The thing which it is desirable to encourage in this case is not an expansion of the output of blankets in A but an expansion of the employment of labor in A's blanket industry." (232) Meade explains carefully why in this case a subsidy to the employment of labor in blanket industry, financed in part (if there is a revenue-raising problem) by a special tax on the employment of other factors in the same industry is a superior instrument.

In the remainder of chapter 14, Meade elaborates on the monopoly case and applies the above ideas briefly to divergences in consumption. In the former case, he argues that the case for a tariff is weaker due to the fact that trade itself increases the elasticity of demand facing the firm and, thus, undercuts the monopoly power. In the latter case, he considers, for example, cases in which it may be desirable to promote the consumption of a specific product. He argues that if the product is imported, the appropriate commercial policy is an import subsidy and if it is exported, it is export tax.

3. Bhagwati and Ramaswami

In considering the Bhagwati and Ramaswami (1963) article, it may be noted at the outset that there is no indication in it that the authors were actually familiar with the contents of chapter 14 of Trade and Welfare. Indeed, Jagdish Bhagwati confirms that they were not. This fact explains why, despite taking great pains to distinguish their results from those of Haberler (1950) and Hagen (1958), Bhagwati and Ramaswami did not even mention Meade.[7] Hagen (1958), which, being the

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[7]This is consistent with at least two facts. First, whereas Meade had consistently used the term "divergence" to describe a second-best situation, Bhagwati and Ramaswami did not exhibit any familiarity with this terms and, instead, used the term "distortion" throughout the paper. Second, in profiling Bhagwati, Irwin (1997, p. 509) traces the origins of the Bhagwati and Ramaswami paper to the 1961 conference of the International Economic Association in 1961 in Brissago, Switzerland, where Bhagwati presented a survey of recent developments in the pure theory of international trade. To quote Irwin, "Of great interest, however, is Harrod's observation [in his Introduction to the conference volume] that Bhagwati's policy conclusions were 'chillingly agnostic.' Following the earlier work of Gottfried Haberler (1950), Bhagwati had noted that the ranking of free trade and autarky becomes problematic in the presence of market failures, a proposition that many in the audience found unsettling. Bhagwati's major breakthrough, which was soon to come and which radically reoriented our thinking on commercial policy, came from wrestling with precisely this

last major contribution on the problem, presumably defined the state of the literature, is also silent on Meade and, instead, takes Haberler (1950) as its starting point. The general lack of awareness of full contents of Trade and Welfare among contemporary scholars is a curious phenomenon in itself to which I will return in the next section. But for now, it is important to bear in mind that even though some of the results in Bhagwati and Ramaswami resemble those in Meade, the authors arrived at them independently of the latter.

By way of background, it is useful to begin by summarizing the contributions of Haberler (1950) and Hagen (1958). Haberler focused exclusively on whether the gains-from-trade proposition was valid in the presence of distortions. At the time he wrote, there was much confusion about the role played by free inter-sectoral mobility of factors and factor-price flexibility in ensuring the gains from trade.[8] Relying on two-good, small-country model and using the construct of production possibilities curve, Haberler demonstrated conclusively that the case for free trade did not rest on the assumption of complete inter-sectoral mobility of factors though the rigidity of factor prices, which gives rise to unemployment, can undermine the gains-from-trade proposition. He also considered the case of external economies in which the tangency between the price line and the production possibilities curve breaks down and demonstrated that this could lead to free trade being inferior to autarky. The implication was that in these cases, a move from free trade to autarky would improve welfare.

Hagen (1958) addressed the issue of second-best intervention by formalizing within the two-good, two-factor, small-country model the much-discussed Manoilescu argument for protection. He demonstrated that a constant *ad valorem* wage differential between the two sectors causes the

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difficulty and trying to say something more definitive on the merits of free trade."

[8]See Irwin (1996, chapter 10) for an excellent summary.

economy to operate on an inferior production curve and the tangency between it and the price line to break down. He went on to use this construction to present a case in which free trade was inferior to autarky and concluded that protection that eliminated trade could improve welfare. He also noted, however, that a wage subsidy could be used to eliminate the divergence and move the economy, under free trade, to the most preferred equilibrium.

Let us now turn to Bhagwati and Ramaswami (1963). These authors make three principal contributions. First, recall that in Trade and Welfare, Meade's entire analysis was based on the maximization of the *world* welfare as the objective. Bhagwati and Ramaswami, on the other hand, took the more prevalent and policy-relevant perspective, looking at policy interventions from the *national* viewpoint. This immediately led them to the conclusion that the equalization of marginal rates of substitution and transformation for each pair of goods across each pair of countries, central to Meade's analysis, was no longer the valid optimality condition. Instead, as these authors noted in Section I entitled "General Theory," optimality required that for each pair of goods, the domestic rate of substitution (DRS) and domestic rate of transformation (DRT) be equated to foreign rate of transformation (FRT).

This equality,[9] DRS = DRT = FRT, was an important innovation which subsequently became a powerful unifying principle for a variety of problems relating to second-best policies in an open economy in the presence of domestic distortions and non-economic objectives [see Bhagwati (1971)]. This way of looking at the problem made immediately clear that whereas, given Meade's welfare criterion, it was sufficient to correct the domestic divergence to attain the full optimum, given the national welfare criterion, the correction of the divergence must be complemented by the optimum tariff.[10]

[9]Their formulation assumed an interior solution.

[10]An example of the principle had by then already appeared in the important paper by Corden

The second and the central contribution of Bhagwati and Ramaswami was to show that in the small, open economy context, explicitly assumed by Haberler (1950) and Hagen (1958), the case for the optimality of free trade was restored once an appropriate policy was adopted to eliminate the existing domestic distortion. In the Haberler case, based on the existence of external economies, the initial situation is characterized by FRT = DRS $\neq$ DRT. An appropriate output subsidy eliminates the distortion, yielding FRT = DRS = DRT. While Meade had made this same point from the viewpoint of world welfare via a long winded argument (see the previous section), in Bhagwati and Ramaswami, it came across frontally, indeed with total transparency. The point was further illustrated with the help of Figure 1 (Figure 1c in Bhagwati and Ramaswami) whereby an output subsidy moved production from P to P' and consumption from F to F'.

As in the Haberler case of external economies, in the Hagen (1958) case of inter-sectoral wage differential, the distortion took the form of FRT = DRS $\neq$ DRT. But here, the output subsidy was insufficient to deliver the optimal outcome. Figure 2 (Figure 2c in Bhagwati and Ramaswami) illustrates why. In a two-factor model, a wage differential causes the Pareto efficiency condition in production to breakdown with the result that the production curve shifts in. In terms of Figure 2, in the absence of the distortion, the frontier is AQB but in its presence it is APB. An output subsidy moves the economy along APB and, thus, prevents the equalization of FRT and DRS to the "social" DRT which lies along AQB. A wage subsidy that eliminates the existing distortion pushes the economy to the socially optimal frontier AQB and, under free trade, leads to the attainment of the full optimum. As Bhagwati and Ramaswami note, this result was recognized by Hagen.

Finally, Bhagwati and Ramaswami introduced the idea of policy ranking. Previous authors,

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(1957). In this paper, Corden analyzed the problem of optimum intervention to achieve a pre-specified level of output of the import-competing product. Using the Baldwin (1952) technique, he demonstrated that this required an output subsidy complemented by the optimum tariff.

including Meade, had limited themselves to only tariffs as the second-best policy instrument. In the context of the wage-distortion model, Bhagwati and Ramaswami distinguished three instruments: wage subsidy, output subsidy and tariffs and ranked them according to their ability to improve welfare. Referring to Figure 2, they stated,

> "Note that in contrast to the case of external economies, the optimum tax-cum-subsidy on domestic production, while superior to protection or trade subsidy, does not yield the *optimum optimorum* in the wage differential case. The reason is straightforward. The wage differential causes *not merely* a domestic distortion but *also* a restriction of the production possibility curve. A tax-cum-subsidy on domestic production measure will, therefore, merely eliminate the domestic distortion but not restore the economy to the Paretian production possibility curve (AQB). It will thus achieve the equality of FRT and DRS with DRT along *the restricted production possibility curve* (APB) and hence constitute the optimal solution when the wage differential cannot be directly eliminated. Where, however, a direct attack on the wage differential is permitted, the full optimal, 'first-best' solution can be achieved by a policy of tax-cum-subsidy on factor use." (238)

In addition to these three principal results, Bhagwati and Ramaswami (1963) pushed the case for free trade further by noting that in the Haberler case of external economies involving specialization in the wrong good, it is possible for the free-trade outcome to be superior to the autarky outcome. This is shown in Figure 3 [Figure 2b in Bhagwati and Ramaswami (1963)] where S represents the autarky equilibrium and PF the world price ratio. Comparing the DRT along the production frontier at S and the world price, the good of comparative advantage for this economy is manufacturing, measured on the horizontal axis. But the externality takes the economy to point P where specialization is in the wrong good but welfare, nevertheless, rises.

From this case and in view of the fact that free trade is characterized by FRT = DRS □ DRT and a tariff-ridden equilibrium by either FRT = DRT □ DRS or FRT □ DRT □ DRS, Bhagwati and

Ramaswami (1963) went on to infer (erroneously) that a tariff that improves upon the free-trade equilibrium may not exist at all. Indeed, Meade's argument in the previous section, even though developed with world welfare as the objective, can be brought to bear on this question. The introduction of a small tariff will produce no loss in consumption (since FRT = DRS at the free-trade equilibrium) but it will produce gains in production by expanding the manufacturing sector (since FRT = DRS > DRT at the free-trade equilibrium).

A formal correction of this error did not appear, however, until six years later when Kemp and Negishi (1969) demonstrated that given the situation in Figure 3, a tariff could always be found that improves welfare relative to free trade. Kemp and Negishi's result was, in turn, generalized and extended by Bhagwati, Ramaswami and Srinivasan (1969).[11] These authors demonstrated that when the initial equilibrium is characterized by the breakdown of one of the two equalities embedded in FRT = DRT = DRS and the policy measure restoring both of them is not available, some policy measure exists that raises welfare above the laissez welfare level. More importantly, they showed that if neither of the equalities holds initially and policy instruments that could restore *both* equalities are not available, no policy measure leading to an improvement over the initial equilibrium may exist. The implication of this result was that in free-trading large, economy with an external economy in the production of the export good, there may not exist a trade intervention that improves welfare. Since Meade limited himself to one initial distortion at a time, this type of problem was entirely absent from his analysis in Chapter 14 of Trade and Welfare.

4. Explaining the Divide

In the introduction, I noted that there is a divide between the views of Corden and Johnson regarding the place of the Bhagwati and Ramaswami paper in the history of the theory of

[11]The three authors were all in New Delhi at the time. Srinivasan then went on to collaborate with Bhagwati on several papers on the theory of distortions.

commercial policy in the presence of domestic distortions. I now turn to an explanation of this divide. So as not to keep the suspense any longer, let me note that I will argue a position that is closer to Johnson's than that of Corden: even though a central result in Bhagwati and Ramaswami is closely related to that in Meade (1955), the celebration of the Bhagwati-Ramaswami paper by Johnson and others as a breakthrough is essentially justified. There are three reasons for this conclusion.

First, several of the results in Bhagwati and Ramaswami (1963) are both original and important. Specifically, the following remarks are in order.

(i) Looking at the problem from the national-welfare standpoint, Bhagwati and Ramaswami were able to summarize the optimality conditions in the simple statement DRS = DRT = FRT. This simple statement proved a powerful instrument of unifying a variety of second-best problems that appeared in the literature subsequently. To a large extent, Johnson's (1965) enthusiasm for the paper resulted from the unifying power of this statement as illustrated by his own use of it in stating the second of his two propositions.

(ii) The idea of ranking policies was also entirely new. Other than the policy instrument yielding the optimum optimorum, Meade's discussion was limited to the role of commercial policy in improving welfare. By adding output subsidy to the bag of policy instruments in considering the wage-differential problem, Bhagwati and Ramaswami made the issue of policy ranking a substantive one and launched a new area of research that flourished subsequently.

(iii) By demonstrating that even in the presence of domestic divergence, free trade could be superior to autarky, the authors pushed the debate on the desirability of trade in the pro-free-trade direction. They also went on to note that, in such a situation, a tariff that improves welfare may not exist. Though this was eventually proved incorrect in the small-country case considered by them, it paved the way for the correct result by Bhagwati, Ramaswami and Srinivasan (1969) according to which the conclusion is true in the large-country case.

(iv) The central result of the paper that once the distortion is corrected at the source, free trade is optimal did exist in Meade but the context in which it was derived was different. Meade worked with world welfare as the objective whereas Bhagwati and Ramaswami worked with a small-country model. This distinction makes a substantive difference once we step out of the small-country case. While in Meade's framework, fixing the domestic distortion does the trick, in the national-welfare context, one must complement that correction by the optimum tariff to obtain FRT = DRS = DRT.

The second reason why the celebration of the Bhagwati and Ramaswami paper is justified is that it played a key role in advancing the field as well as educating future scholars. After a reader has understood the theory of distortions as developed during 1960s and 1970s and exposited in Corden's Trade Policy and Economic Welfare, he is bound to be awe-struck by the breadth and depth of Meade's Trade and Welfare. Yet, for a scholar unfamiliar with the subject, it is a painful source from which to learn and advance the field. Indeed, it is hard to imagine that without Bhagwati and Ramaswami there would have been Johnson (1965) and that without the latter, Trade Policy and Economic Welfare would have been what it is.

There is ample evidence supporting this thesis. Recall the involved steps in Meade's reasoning to arrive at the conclusion that, given a 10 percent divergence between marginal value and cost, a 10 percent output subsidy and no intervention in trade is the best policy. While from the viewpoint of history of thought, this reasoning makes an excellent reading, as a tool of learning, it puts a reader's patience to test. By contrast, Bhagwati and Ramaswami made the point in a few crisp sentences and a simple rule DRS = DRT = FRT and then complemented it by a simple diagram.

Schelling (1956), who reviewed Trade and Welfare for the American Economic Review and showered highest praises on it, using such superlatives as "stupendous exercise in international price and distribution theory" and "monumental," also found it exasperating. To quote him,

> The exasperation comes from the author's impeccably patient and unrelieved thoroughness of presentation, from his use of arithmetical examples that are unsurpassable

> for lucidity but terribly slow for those who think they know what he is getting at, from his refusal to make contact with other literature, and from his failure to mark out or signal in advance the many original results that populate the book and make it impossible to do much skipping. All conclusions, the familiar and the surprising, are ground out in indiscriminate and nonclimactic fashion."

Roy Harrod, who reviewed Trade and Welfare in the Economic Journal, made much the same point but was more blunt.

> "One might deem it an almost miraculous achievement to have set forth such an elaborate and complex body of a theory in terms so pellucid, that anyone in the least competent to study economics should be able *with patience* to grasp it [italics added]. But in this wicked world nothing seems to go quite right. It has to be admitted that this notable work is in certain respects unsatisfactory. For the sophisticated reader it is undoubtedly laborious. Everything is set out very fully. Complicated arithmetical examples, however intelligible, require some considerable effort of attention. The mature economist will be inclined to say: 'Yes, we can see at once where that argument leads; spare us almost painfully explicit elaboration of it.' To read the text without skipping is exceedingly exhausting, but, owing to its smooth, continuous nature, to skip is dangerous. On the other hand, for the student there are none of those quips and cranks and wanton wiles by which those versed in the arts of popular exposition strive to lure on their readers. The result is that not nearly so many as it deserves will read this book diligently from cover to cover."

If one goes by the subsequent events, Harrod could not have been more right in his prophecy. Based on contemporary writings, outside of Meade's own students who included such stars as Richard Cooper, Max Corden, Robert Mundell and Robert Lipsey, one finds little evidence that scholars had shown the necessary patience to read Trade and Welfare carefully. As noted earlier, Hagen makes no mention of Meade. The same is true of Kafka (1962) who commented on

Hagen. Johnson (1965) mentions Meade (1955a) but in a way that does not reveal his familiarity with chapter 14 in it.

It is interesting and noteworthy that even Mundell (1957), which is to substitutability of trade and factor mobility what Bhagwati and Ramaswami is to the theory of commercial policy in the presence of domestic distortions, barely mentions Trade and Welfare in a footnote, notwithstanding the fact that Meade's classic contains as many as four full chapters whose primary title is "Trade as a Substitute for Factor Movements." Bertrand and Vanek (1971) who provide the first formal proof of the concertina theorem of trade reform for a small, open economy also make no mention of its detailed exposition by Meade in chapter 13 of his classic from the viewpoint of world welfare.[12]

The difficulty in gleaning path-breaking results from Trade and Welfare is further illustrated by the inability of both Schelling and Harrod to report them in their reviews. Schelling, for example, raves about the book's accomplishments noting, "Meade has gathered up most of the contents of the dozens or so best-known articles on the gains from trade, the terms of trade, and the effects of trade on factor earnings; and he has gone on to anticipate the next dozen, simultaneously precluding tens

[12]The lack of awareness of Meade's work seemed to extend to his Balance of Payments. Thus, in his profile of Meade, Corden writes, "I obtained an insight when I took up a one-semester visiting assistant professorship at Berkeley in 1965, my first teaching post in the US. I found that the students in international economics were all thoroughly familiar with an article of mine on the theory of internal and external balance which expounded geometrically a whole lot of ideas that were mostly (though, I hasten to add for the sake of my own reputation, not all) in the Balance of Payments. Yet nobody (apart from the professors) seemed to have read, or even perused the great book itself. The general point is that Johnson (1978) noted, namely, that Meade's impact was made, to a great extent, through other more succinct writers, including all the students and visitors to the LSE I mentioned earlier."

of dissertations, notes and minor controversies that would have eventually appeared in the journals if Meade had not disposed of them." But beyond this general statement, Schelling gives no clue to even a single revolutionary result. The same goes for Harrod's review.

As far as the theory of domestic divergences is concerned, it receives less than half of a sentence between the two reviews of Schelling and Harrod. Schelling does not mention it at all and Harrod notes, "A good deal of attention is given to "second-best" type of argument, including the case for a revenue tariff, anti-dumping duties, the partial freeing of trade and interferences designed to offset the effect of domestic divergencies between marginal cost and marginal revenue." Thus, to the extent that there is a message in Harrod's review, it reads clearly as one of *confirmation* by Meade of the arguments for protection in the presence of domestic divergences rather than their *refutation*, the key theme of Bhagwati and Ramaswami's contribution.

Yet another fact, suggesting a general lack of awareness of the contents of chapter 14 of Trade and Welfare, is that a correction to the error in the Bhagwati and Ramaswami (1963) paper had to wait six years. It is curious that no one, including Meade's own students, reacted immediately to the error by applying his argument to it, even though the Bhagwati and Ramaswami (1963) had already received wide attention. Recall that Meade had argued in Chapter 14 there that, given a higher marginal value than marginal cost in an import-competing product, the introduction of a small tariff is necessarily welfare improving. Instead, the correction took six years and came from Kemp and Negishi (1969), complemented by the authors of the original article themselves [Bhagwati, Ramaswami and Srinivasan (1969)].

The third and final reason why the credit given Bhagwati and Ramaswami is fully justified is that they arrived at all the results in the paper independently of Meade. In economics, "priority" is taken less seriously than in mathematics and the natural sciences. It is not unusual for two or more economists to arrive independently at the same results and be given fulsome credit even when their discoveries are separated by several years. Moreover, the theorems and insights arrived at independently are usually different in important nuances and contexts within which they are fitted. This was true, for example, of Roy Harrod (1936, 1939) and Evsey Domar (1946). Even a casual look at Domar (1946) shows that he was unaware of Harrod (1939) and the author's book [Harrod (1936, ch. 2)] on which the article built. While Domar refers to Marx, Keynes, and Keynes's followers among those who studied the problem of capital accumulation and employment, he makes no mention of Harrod's two contributions. As for differences in nuances, though both share what is now called the "Harrod-Domar" equation, Harrod's contribution is set within the context of capitalist economies and aimed at devising a "dynamic" method of analysis as opposed to the then dominant "static" method whereas Domar's work is more in a planning framework and focuses centrally on the relationship among investment, rate of growth and employment.

In this context, it is interesting to reproduce an excerpt from Bhagwati (1998, ch. 40). Writing on the influence the Harrod-Domar model had on thinking on development policy, he states:

> "The model that nearly everyone actively planning for development in the early postwar decades happened to use was attributed to the British economist Sir Roy Harrod and the American economist Evsey Domar. It is called, quite properly, the Harrod-Domar model, even though Domar wrote independently about it only several years after Harrod, in contrast to the fiercely cruel practice in the natural sciences where, as James Watson reminded us in his vivid account of the contest for the Nobel Prize in The Double Helix, if you beat your rival to a discovery by an epsilon moment, you have reduced her to the disappointment of oblivion. Contrary to their subject matter that builds on man's basest, not his noblest, instincts to show how the pursuit of private interest can be harnessed to produce public good, economists can be quite generous indeed!"

The Bhagwati and Ramaswami (1963) and Meade (1955a) contributions fully fit the tests of independent discoveries and differences in nuances. As discussed above, beyond doubt, Bhagwati and Ramaswami wrote independently of Meade. Virtually all contemporary contributors in the field--Harry Johnson, Murray Kemp and T.N. Srinivasan, to name just a few--credited these authors with having made a seminal contribution that would dominate the theory of commercial policy, as it did. Moreover, as detailed in this paper, there were major differences of nuances so that even ascribing the Bhagwati and Ramaswami contribution to Meade is inaccurate.

5. Conclusion: Bhagwati and Ramaswami *is* a Classic

Patinkin (1982), in arguing that we ought to reject the claims of priority over Keynes made on behalf of Kalecki (by Lawrence Klein and Joan Robinson) and the Stockholm School of Swedish economists (by Gunnar Myrdal and Otto Steiger), speaks of the importance of a "central message" in assigning credit for scientific findings. Patinkin adopts as his "basic view...that a scientist can properly be said to have made a discovery only if it is part of his central message."[13] Based on his definition of the central message of Keynes, Patinkin rejects the claims made on behalf of Kalecki and the Stockholm School of economics.

The credit given to Bhagwati and Ramaswami over Meade would seem to pass this Patinkin criterion. Meade does not seem to make an effort to convey a central message in the book as a whole or in Chapter 14 specifically. Not surprisingly, despite their adulation, Schelling (1956) and Harrod (1957) were unable to identify for the readers the central messages of the book. Harry Johnson, Murray Kemp and others, among the most influential trade economists of the time, were not cognizant of the findings of chapter 14 in Meade (1955a) and were clearly unaware of a specific message on commercial policy under market failures. By contrast, Bhagwati and Ramaswami convey a central message, namely, fixing a (domestic) distortion at source restores the case for free trade, and make the specific findings a part of this message. The explosion of the literature that followed their work settles the case in their favor.

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[13] As quoted in Howson (1983).

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