

Optimal Tax Policies in Foreign Direct Investment

(The case of the extractive industries in less developed countries)

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I. Introduction

The growth of foreign direct investment (F. D. I.) in the post World War II period raised multilevel issues concerning the economic and political effect of such investments upon its partakers. The subject of F. D. I. is vast in its issues, and the complexities it involves are enormous. It used to be thought of by economists as a phenomenon concerning international capital movement, but it is not precisely so, since F. D. I. is a phenomenon which is accompanied by varying degrees of control, plus technology and managements.¹ Later on, the issue has been approached differently, namely that F. D. I. belongs more to the theory of industrial organization than to the theory of international capital movements.²

It is clear that the main and most important condition for the existence of such F. D. I. is the imperfect structure of the international markets for technology, labour skills, management and other factors of production. If it were otherwise, domestic firms would find themselves in an advantageous position to multinational corporations (MNCs) and F. D. I. would not have

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1 For a comprehensive treatment of this point see : C. P. Kindleberger, "American Business Abroad," Ch. 1, (Yale University Press, 1969)

2 Stephan H. Hymer, "The International Operation of National Firms : A Study of Direct Investment" (Doctoral dissertation, Cambridge, Mass. M. I. T. 1960)

taken place. This basic condition for the existence of F. D. I. leads us directly to the issue this paper is to deal with.

The objective of the present paper is to bring up the major problems arising in the area of the taxation of MNCs and to discuss optimal tax policies so as to increase the host country's welfare without imposing a burden on the MNC to the extent that will cause it to withdraw from its endeavours.³

Since taxation is a phenomenon acting upon the behavioural aspect of any entity being taxed, it is first necessary to analyze the pattern of F. D. I. behaviour, namely the behaviour of MNCs operation and the behaviour of the relevant factors dealing with it. It is crucial to understand the underlying reasons for, the location of and the particular way of F. D. I. operation. Therefore, our analysis will first attempt to review the issues pointed out above. Specifically those issues related to the behaviour of F. D. I. in the less developed countries (LDCs) in the extractive industries,⁴ where reference will be given to the bauxite industry. When this important part is clear, it is much more useful to deal with the policies mentioned above.

II. Investment Decision-Making in The Mining Industry

It is highly complicated for any type of an organization to establish the profitability of a mine project even without facing problems of economic and political risks. It is in the nature of the extractive industry that the gap between initial exploration and actual output is very large⁵ a fact that makes the estimation of profitability via prices projection very difficult. This aspect is a crucial phenomenon which adds a great deal to the notion of risk, and has a great deal of influence upon the choice taken by governments in regards to tax policies or royalty systems. The notion of risk in this paper is the conventional notion of the variance of possible alternative outcomes of a prospective venture around the mean value of these outcomes,

³ A substantial decrease in the welfare of the investor may bring him down to a level where the investment becomes a matter of net burden and eventually will discourage him from further investment or even in total withdrawal from current investment affairs.

⁴ The present analysis concentrates on the extractive industries since, in this sector F. D. I. has had less beneficial consequences for the domestic sector. On this see D. C. North in his article: "International Capital Movements in the Historical Perspective" in "U. S. Investment Abroad", R. F. Mikesell (ed.) P. 34.

⁵ This makes the chosen discount rate very important.

⁶ See R. F. Mikesell, "Foreign Investment in Copper Mining" (The Johns Hopkins University Press 1975) P. 4.

i. e. expected value. The degree of risk is much higher in the extractive industries than in others since, as was indicated, the time gap between input and output is much longer than in other industries, and in addition to that there is considerable uncertainty as to the physical outcome of exploring and developing. "From a tabulation made of data supplied to the Royal Commission on taxation in Canada by a group of large mining companies, it appears that of the total of properties examined by them in the five years from 1958-1962, on only one half of 1% had a decision been made to proceed with the development."⁷

It should be noted here that unlike most other industries, the extractive industry has to bear a relatively large burden when price of output falls. This is due to the fact that contraction of output is often difficult as a result of high fixed costs associated with mining operations.⁸ Obviously, the larger the MNC and the more diversified it is, the easier it is for it to pool and contract its overall risks, though, the risks mine operations in LDCs introduce are so large so as to have this aspect a very crucial one in the decision process taken by MNCs in regard to F. D. I. in the extractive industries.

Governments tax policies lead to severe problems in the sense of adding to the notion of risk. "Persistent changes in the tax structure are a natural consequence of the government's desire to expand or contract investment in some or all sectors or regions of the economy in response to rapidly changing economic circumstances. Such changes can lead to diverse untoward effects via their influence on expectations and the level of uncertainty. Pure uncertainty is liable to lead to general lowering of investment in industrial capacity. Expectations about the impermanence of tax changes are liable to lead very sluggish investment responses with consequent official concern about why policies have not worked, and still further changes in the tax structure, thereby fulfilling the original expectations."⁹

Social and political cohesion based on xenophobic behaviour may be a utility increasing good which can be substituted for real income in the welfare function of a poor country¹⁰ and at the same time a utility decreasing good (or a "bad") in the welfare function

7 Bucovetsky, M. W., "The Taxation of Mineral Extraction", Studies of the Royal Commission on Taxation, 8, July 1964. P. 30.

8 Henry Steele, "Natural Resource Taxation—Resource Allocation and Distribution Implications", 1967 pp. 242-243.

9 Nickell, S. J., "The Influence of Uncertainty on Investment—Is it Important?" The Economic Journal, March 1977.

10 See Albert Breton, "The Economic of Nationalism", Journal of Political Economy, August 1964.

of the foreign investor. Such a utility increasing good (for the poor country) introduces a great risk of expropriation for the investor, hence, increasing the required expected rate of return from the particular investment. In addition such behaviour creates a very difficult bargaining situation where the bargaining power shifts from investor to host country after the investment has been made. It should be noted here that the phenomenon called nationalization may not be a "bad" in itself for the investing corporation, as long as this particular mining corporation receives a fair (or more than fair) compensation from the host country like in the cases of Chile and Congo. It might be in the interest of the investing corporation (in the long run) to be forced into joint mining ventures with the host country. The compensation may release capital funds and managerial skill needed for establishing new profitable mining ventures elsewhere.

Political uncertainties and fear of expropriation can introduce high motivation for the investors in mining operations to try and extract as much rent as possible and in the fastest manner and move elsewhere. This behaviour may introduce adverse or positive effects for the host LDC, depending on the host country's development objective. In the case where the host country is in a very low stage of development and its demand for exchange earnings is very urgent, it will desire a fast and rapid development of its resources, thus its objectives will coincide with those of the investor, however, this may not always be the objective of the host country.¹¹

It is not sufficient to evaluate the contribution (if it exists at all) of the foreign direct investment to the host country's overall G. N. P. This may happen, but at the same time it may not coincide with the desire of different segments of the local (host) population. A distinction between income obtained by local population and the one obtained by foreign factors (even if it is retained in the host country's geographical boundaries) and a distinction among the different local sectors in respect to income earned is essential. This problem will be dealt with in the section of the tax incidence.¹²

III. A General Approach To The Problem of Taxing Resource Projects

It is obvious that LDCs can increase their welfare through increased revenue via taxation of rent (or quasi-rent) accruing to MNCs operating in their domain (provided it is not

11 Helen Hughes, "Assessment of Policies, Toward Direct Foreign Investment in the Asian Pacific Area" p. 326 in "Direct Foreign Investment in Asia and the Pacific" by p. Drysdale (ed.) 1972

12 See W. M. Gordon : "The Theory of International Trade" in "Economic Analysis and the Multinational Enterprises" by J. H. Dunning (ed) 1974, p. 188

offset by subsidies). The problem however, is how to tax it optimally in the sense that maximum revenue for the host LDC is achieved subject to MNC's minimum required rate of return (after tax) of this particular investment.

The tax should be such that (among other objectives) it will discourage transfer pricing on behalf of the MNC. If transfer pricing practices exist at all, potential revenue (via taxation) for the host LDC is reduced.¹³

It should be pointed out that the behaviour of firms in respect to transfer pricing may not be entirely a function of tax and tariff differentials. Thomas Horst¹⁴ (1971) developed an elegant theory of the firm's expected behaviour in the presence of tariff and corporate income tax. He states that if T_2 is the tariff rate confronting imports by a firm from its foreign affiliate and t_2 and t_1 are, respectively, the effective profit tax rates in its affiliates abroad, then the conclusions are: If $T_2 > [(t_2 - t_1)/(1 - t_2)]$, the corporation will be induced to minimize transfer prices in the pursuit of global after tax profit maximization. If $T_2 < [(t_2 - t_1)/(1 - t_2)]$, the corporation will maximize global after tax profits by increasing, within possible limits, transfer prices. Based on this theory transfer price differentials come about if effective tax differentials on declared profits (including dividend remission taxes) and indirect fiscal charges, like tariffs on the traded intermediate products among affiliates exist. The interesting point here is that effective profit tax rates in different countries generally concentrate around the 50% level and capital-exporting countries, like the United States give credit for taxes paid abroad; this implies (based on Horst's formulation) that MNCs should try to minimize transfer prices in order to reduce the tariff payments of the importing affiliates.¹⁵ However, empirical evidence depicts the contrary. If it is very unlikely for MNCs not to maximize profits, it is rather concluded that transfer pricing behaviour may be induced not only by tax differentials but, by factors as declared profits in place where they have highest opportunity cost of money for company generated funds, or where the affiliates have high expenditure requirements in comparison to the sales of such firms in

13 C. V. Vaitos, "Inter-affiliate Charges by Transnational Corporations and Intercountry Income Distribution" (unpublished PhD dissertation) p. 48.

14 T. Horst, "The Theory of the Multinational Firm, Optimal Behaviour Under Different Tariff and Tax Rates," *Journal of Political Economy*. Vol. 79, No. 5, Sept., Oct. 1971 pp. 1059-1072

15 See C. Vaitos, "International Income Distribution and Transnational Enterprise" (1974) p. 97

16 S. H. Hymer, "The International Operation of National Firms—A Study of Direct Foreign Investment" (PhD dissertation, M. I. T. 1960) p. 39 and also C. S. Shoup, p. 7 in Bibliography 19.

their home markets and non-affiliates abroad.¹⁷ The above phenomenon should be considered, if possible, by host country when formulating its tax policies.

The contribution of F. D. I. to the revenue of L. D. C.s depend on the structure of the tax system and of the host country's taxation agreements with capital exporting countries and with other host countries which potentially can offer similar service or resources as the country in question. These so-called exogenous differential tax constraints are a heavy burden on the host country¹⁸ in determining its tax structure and tax rate, and can be mitigated only by global tax harmonization which is probably not a feasible expectation for the near future.

If one is to encounter, the problem from an international resource allocation point of departure, one should treat it on a global taxation policy formulation, since a non neutral tax induces investment to be directed in response to tax differentials which in turn violates the condition needed for efficiency of international resource allocation.¹⁹ However, the present analysis does not attempt to encounter the tax problem with such an objective in mind. Rather, it attempts to discuss the optimal tax policies on behalf of the host countries only, while ignoring problems of optimization of tax policies on a global basis.

17 C. Vaitsos, op. cit p. 98

18 Helen Hughes claims that if taxes are higher than those in the home (capital exporting) countries, that is, generally above 45% or so, they appear to deter investors; on the other hand, if taxes in the host country are lower than they are in the investing country and if there are double tax arrangements, there will be a transfer of revenue from the host country to the investing country's revenue. This may also occur with income tax exemptions. Unless host LDCs have clear agreements with investing countries that the taxes exempted in the LDC will also be exempted from benefit the investor, but his country's revenue. Japan is the only country which as a matter of course, includes "tax sparing" arrangements and if it is not included in double taxation agreements, it will depend on case by case decision by the capital exporting country. If this is the case then a case by case tax determination, or a discriminating monopoly, is the optimum strategy for LDCs, but this is generally excluded by the nature of competition and the legal principle of non-discrimination. Cartels to prevent competitive tax concessions are hardly proof against the real divergence of interests of rival countries seeking a single investment. For a more comprehensive treatment of this, the reader is referred to H. Hughes in footnote 11 p. 332 and C. Kindleberger "Direct Foreign Investment and Economic Development" p. 84 in "Direct Foreign Investment in Asia and the Pacific" P. Drysdale (ed.) 1972.

19 Peggy B. Musgrave elaborates on this point in her: "The Impact of Multinational Corporations on Development and International Relations", Technical Papers—Taxation U. N. Dept. of Economics and Social Affairs N. Y. 1974, p. 44

If in the taxing country there is no potential for future natural resources projects, then the taxation problem would amount to charging the highest level possible (consistent with continuation of existing projects) of the Ricardian rent that accrues to the MNC. However, if there is a potential for future development of additional resources (which is assumed to require F. D. I.) and the profitability of such projects is subject to high degree of uncertainty, then "maximizing total government revenue involves balancing the possibility of revenue loss on highly profitable projects through an over-liberal approach against the possibility of setting rent charges so high that there is revenue loss through deterrence of projects which, *ex ante*, are not certainly intra-marginal".²⁰ Due to the risky nature of investment in natural resources, firms may abstain from investing under *ex ante* arrangements which will leave expected profits equal to or less than the minimum weighted average of possible outcomes of riskless investment. Since, as mentioned before, the first period of mining operation namely, the exploration, is very costly relative to later stages in the production, it would be logical to have the incidence of taxation occurring during the later stages of the mine operation. This is of course in order to reduce the degree of operation deterrence. Likewise it is desirable to have the incidence of taxation accruing mainly on profits representing high rate of return on the investment.

Where the efficiency aspect of taxation is considered, it should be noted that a very high marginal profit tax rates remove incentives to be collected through the tax policies. It is desirable to have a tax system such that no addition to uncertainty and to low returns are being introduced, and at the same time capturing a larger share for the government at times when returns are high.

It is very important to evaluate the problem of taxation policies in light of global economic conditions. It makes a big difference whether the taxing nation dominates the market for the resource at issue. The implications of this are: (a) whether the demand for the resource's output is elastic or not, (b) whether the country in question has a monopoly on such a resource, (c) the quality differential of the resource, (d) transportation relative cost. If a tax levied by a nondominant country exceeds differential rent resulting from differences occurring in (c) and (d)

20 R. Garnaut and A. Clunies Ross "Uncertainty, Risk Aversion and the Taxing of Natural Resources Projects".

above, further exploitation may become uneconomical.²¹

Another consideration involves the question of whether capital and labour are mobile or not. If capital is relatively mobile no quasi-rent (in the short run) will be earned and vice-versa.

The situation is similar in respect to labour with the addition that the mobility of labour should be looked upon in respect to the capacity to absorb labour in other sectors of the economy, i. e., labour mobility is a function of elasticities of factor substitution and relative factor intensities in the taxed industry and the rest of the economy.²² In general inputs and factors of production in the mineral industry in LDCs receive returns above their marginal productivity, or put differently, above their opportunity cost, in order to compensate them for operating in isolated areas. This is the most important factors earning rents in the operation,²³ and as such should be given considerable attention when tax policies emerge.

IV. Tax Incidence

A very interesting and important component of a tax structure is its incidence on the final destination of the burden and gains. If MNCs cannot shift the tax forward or backward, the rate of return to capital will decrease, and it may decrease to a level below which the MNC will not stay in the specific operation. It should be added here that a right use of the tax revenue by the host government in respect to expenditure policies may reduce production costs and hence partially or fully offset the negative aspect of the unshifted tax incidence. If incidence is shifted in its entirety forward on to consumers the rate of return will not decline and the stock of capital will not have any incentive to change. Of course in such a case real income of consumers will decline due to higher prices, but this problem should be solved in the usual manner of fiscal and/or monetary policies.

An important point to be made here is the effect of the tax incidence on the host country's balance of payments. If the tax policy in consideration is geared toward a new mining

21 Hughes, H., "The Distribution of Gains from Foreign Direct Investment in Mineral Development", Southeast Asia Development Advisory Group, Asia Society, SEADAG Papers on Problems of Development in Southeast Asia, 74-10, N. Y. 1974

22 For a more elaborated discussion on this subject see: Malcolm Gillis and Charles E. McLure Jr., "Taxation of Natural Resources with Special Reference to Bauxite" American Economic Review, May 1975

23 See H. Hughes, "Economic Rents, the Distribution of Gains from Mineral Exploitation, and Mineral Development Policy in World Development, Nov-Dec 1975.

venture (i. e., a new tax) it might cause problems in regard to the balance of payments via inflationary pressures. Again such problems should be dealt with using fiscal and/or monetary policies (depending on the relevant situation) e. g. currency depreciation. Similarly, a backward shift of the tax incidence (i. e., onto suppliers in the form of lower purchase prices) no balance of payments problems may come about. In this case, labour is the burdened factor since its money income decreases. In both cases, the one where tax incidence is completely born by MNC and the use of its revenue benefits consumers, or as in the second case where the tax incidence is shifted and its revenue use is made to benefit production, transfers will occur. In the first, income is transferred from capital to labour and in the second income is transferred from labour to capital. If income is transferred from capital to labour there will be a tendency for capital to flow out thereby lowering the country's average productivity of capital. If on the other hand there is a transfer of income from labour to capital it will attract more capital, excess investment will occur and real productivity of marginal investment will decrease. In addition, since capital is assumed to be imported throughout our analysis, the increased incomes to capital owners will probably be repatriated and net welfare gain to host LDC is questionable. The problems economists face with such an analysis is the ambiguous results as to the final incidence of the corporate income tax, making the effort for neutrality almost impossible. In any case, most countries, where the exploitation of natural resources is undertaken by foreign ownership, can shift a great portion of the taxes on the resources abroad. This is so because (1) a great deal of the creditable taxes are paid by foreign countries, (2) these countries to a large extent have a monopoly on natural resources, (3) since capital by and large is immobile, the reduction of its quasi-rent (in the short run) involves tax exporting (4) the rent accrues to non-residents.²⁴

To illustrate few of the above interrelations, it is observed that the tax increase on bauxite extraction activities in Jamaica (1974) did not discourage F. D. I. in this industry and this is due to specific economic conditions existing in this industry. Namely, since Jamaica is a low cost producer, the bauxite it supplies will be cheaper than that from marginal high cost sources, even after the addition of the new taxes.²⁵ Additional factors which allowed Jamaica to increase its tax on bauxite production is the fact that the world price elasticity of demand for bauxite is highly inelastic :- 0.16 for the short run and -0.08 for the long run. In addition the price elasticity

24 M. Gillis and C. E. McLure Jr., op. cit.

25 Marian Radetzki, "The Potential for Monopolistic Commodity Pricing by Developing Countries" in "A World Divided" G. K. Helleiner (ed.)

of demand for aluminum²⁶ is -0.2 and -1.0 for the short and long run respectively.²⁷ There are several other alternative processes for the production of aluminum.²⁸ If these processes are going to be employed in the near future, it would be suggested that Jamaica increase its tax to the highest level, since future extraction of its bauxite resources are unlikely. However, these other processes require the use of large amounts of natural gas (i. e. energy), and the current increase in the price of natural gas only contributes to the inelastic region of the demand for bauxite, and the above suggestion is reversed.

Jamaica did not impose an income tax on profits of MNCs, due to the difficulty in determining arm's-length price for bauxite and the difficulty in assessable profits. The tax in that case was in a sense a lump sum tax imposed on production or more precisely on a level of production below the one determined to be desirable by Jamaica. By this tactic Jamaica succeeded in preventing the operating MNC from shifting capital to potentially desirable places.

As seen from the above analysis, risk and uncertainty are crucial contributors to the problem of taxation in the extractive industry in LDCs. Uncertainty as to cost per unit of output, quality of the resource, cost of infrastructure, and in addition immobility of factors of production all contribute to the fact the ex ante tax rate on profits based upon price system is not optimal in the sense that the potential rent cannot be taxed optimally in regard to government revenue maximization subject to MNC's minimum required rate of return.

V. The Resource Rent Tax (RRT):

If the above case is the real world situation then it is believed that a feasible tax system which will come closer to optimum is the one which is based on both cost of production and prices considered export. The suggestion as to such kind of a tax system is offered by Garnaut and Clunies (1975).²⁹ The tax offered by them, called the Resource Rent Tax (RRT), and is defined as a tax on profits begins to be collected when a certain threshold internal rate of return

26. Bauxite is the major component in aluminum production

27. Robert S. Pindyck, "Cartel Pricing and the Structure of Thee World Bauxite Market" The Bell Journal of Economics, Autum 1977

28. These processes are bauxite saving type of operations

29. See footnote 20

on total cash flow has been realized. It is not in the purpose of this paper to get into the mechanics of any specific tax system. However, a short description of the RRT is presented below in order to demonstrate the main principles this tax system entails. Keeping in mind the problems of taxation of natural resources can highlight the advantages of the RRT.

The use of the RRT will probably increase government's revenue due to the reduction of risk for both the MNC and the government. Under this system, "the tax is introduced and its rate increased when certain threshold internal rates of return have been realized. Assessment under this system requires the accumulation at specified interest rates of all payments and receipts in respect to the establishment and operation of the project.³⁰" There are two important characteristics this tax entails: (1) for the purpose of determining the tax payable in any period, net losses and expenditure on investment in previous period may be accumulated at a specific "threshold interest rate" and offset against the net assessable income in current period. This provides opportunity for a "tax holiday", but one whose duration is inversely related to the historical profitability of the project; (2) Separate taxes may be levied at more than one threshold interest rate. These characteristics of the RRT may induce MNCs to take over risky operations like mine exploration and operation since it reduces initial high risk by allowing MNCs to avoid paying taxes in early years (which usually are associated with extremely high expenditures). Simultaneously it assures host governments that if profits are very high it can extract a high proportion of the rent via this tax without scaring F. D. I. away from existing and potential future endeavours. It should be added here that during periods of unstable economic conditions like the one faced currently, where price fluctuations prevail, such tax is extremely helpful since the process of accumulation at specified interest rates ensures that the internal rate of return at which RRT becomes payable is not affected. It should be added here that although this tax sounds favourable in light of the above problems, it does not escape drawbacks like the difficulty in determining the allocation of depreciation charges.

VI. Concluding Remarks

In the previous pages the problems associated with the taxation of mineral resources in less developing countries was presented. The special environment permitting such operation was prescribed and analysed. The notion of risk and uncertainty has been brought up as one of the crucial factors determining investment in LDCs especially in the natural resource industries.

It has been argued that in order to discuss optimal tax policies one should concentrate on the tax incidence since this will show us the real benefits or lack of benefits from F. D. I. It is very important to know how a certain country is affected by the operation of the MNCs which are subject to a particular tax, how different segments of the population in the host country are affected as a result of the tax policies. The analysis should take place in a general equilibrium setting so as to show how policy variables affect all the important parameters simultaneously. Global economic conditions are an important part in the analysis since they affect the LDC's vulnerability or power to negotiate with the MNCs, and the determination of the tax structure and especially the tax rate when structure had already been set. Factor mobility will determine return to themselves as tax is imposed.

The Jamaican example gives some light to the above arguments in that, the Jamaican internal economic structure and in its global relative economic position (transportation cost differentials, resource quality differential, global elasticities of demand and prices, inflationary world market etc.) had a crucial effect in its success to impose higher taxes thereby extracting higher portion of rent and at the same time not driving F. D. I. out.

The RRT has been introduced in order to show an alternative tax to the existing price-based corporated income tax. This tax if correctly employed is capable of overcoming several conventional problems of determining "arms-length" prices and other problems introduced throughout the paper.

Last but not least, taxation problems as have been approached here should be resolved on a global basis in the scope of global tax harmonization in order to overcome adverse effects of global tax differentials, however, this is not likely to be undertaken in the near future.