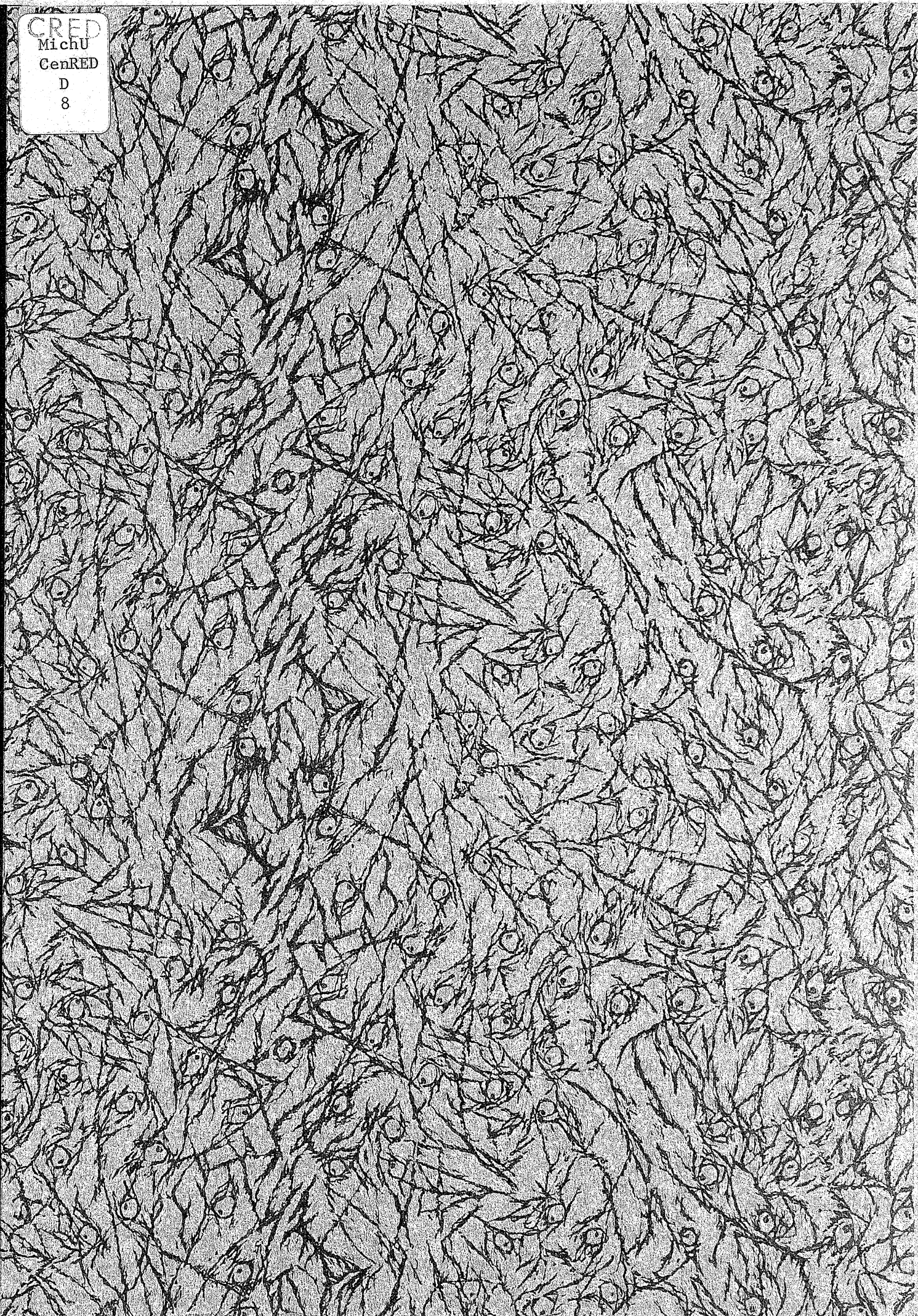


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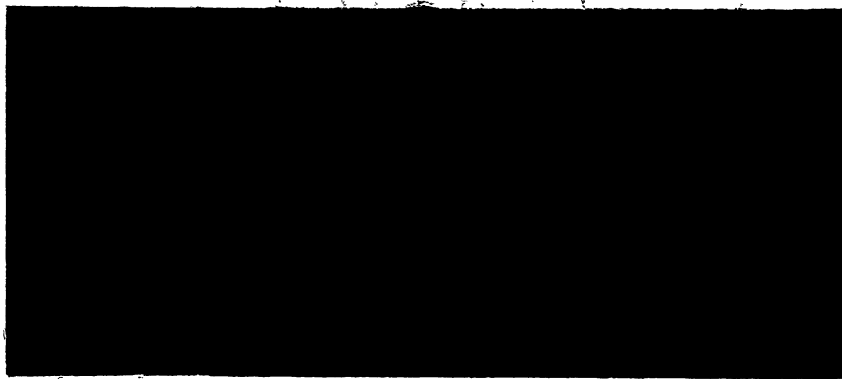


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The Effectiveness of
Tax Exemption in Colombia

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The Effectiveness of Tax Exemptions in Colombia*

Tax exemption in its various guises has been used in many underdeveloped countries to stimulate industrial expansion. Despite this accumulated experience, much disagreement still exists about its effectiveness. Traditional principles of public finance generally denigrate tax exemption; current practices in developing countries increasingly embrace it. Economists' opinions vary from quite negative (i.e., "...tax considerations are probably only infrequently of any significant consequence in a business decision..."¹) to quite positive (i.e., "I have taken pleasure in attempting to 'debunk'...those who seek to discredit such proved industrial incentives as tax exemption"²). In this paper, the operation of Colombian tax exemptions during the period 1960-1966, will be examined in an effort to add empirical evidence to the debate. The basic question here is, to what extent have Colombia's tax exemptions encouraged firms to enter (or to expand in) areas of industry they otherwise would not have chosen.

In the fundamental reform of tax laws in 1960, Colombia offered exemption (for up to the ten years, 1960-69) from the major corporate taxes to firms which entered certain "basic" sectors of industry (such firms are hereafter called básicas) or which produced goods "complementary" to the production of iron and steel (i.e., firms which used as intermediate goods the products of the government-sponsored steel firm; such firms are hereafter called complementarias). During the seven years, 1960-66, 100 different firms achieved this exemption, in one year or another, for a total of 288 firm-years of exemptions. Since there are approximately 12,000 manufacturing establishments in Colombia,³ the number of tax-exempt firms seem few. Nevertheless, the shareholder equity of these at-some-time-exempt firms is around 700 million pesos,⁴ which represents nearly 10% of the total equity of all manufacturing industry.

The organization of the paper is as follows. Section I offers some historical background to the 1960 tax-exemption statute. Section II then reviews the administrative procedures and problems of the law. Sections III-V contain the economic evidence. Finally, Section VI briefly summarizes the conclusions and implications of the paper.⁵

I. Background

There is a long history of the use of tax exemptions in Colombia as a stimulus to the growth of certain industries. Soon after independence was achieved, the proteccionista elements began granting exemptions from import duties and various internal taxes for the purpose of developing domestic manufactures. By the middle of the nineteenth century, such customs exemptions applied to approximately 5% of imports,⁶ and their use had become accepted as well by the librecambistas. The number and magnitude of exemptions continued to grow throughout the nineteenth century, and accelerated in the twentieth once the government became generally empowered to concede exemptions whenever these promised to lead to the initiation of new industries.⁷

Before 1940, however, all such exemptions tended to be granted on an ad hoc basis. Only in the last quarter century has exemption legislation attempted to define broad categories of industry in which firms qualify for exemptions, and to apply a uniform set of tax privileges to qualifying firms. Specific exemption legislation continues to exist today,⁸ but it has been superseded in importance by more general laws.

The "modern" era of exemptions had its beginnings in the 1930's, when the Constitution was amended and Congress gave the administration extensive powers in the field of economic policy.⁹ With these new powers, the government established¹⁰ the Instituto de Fomento Industrial (IFI) and called for the adoption of a development plan. The industrial part of this plan was supposed to identify

areas of basic importance in which national raw materials were utilized.¹¹ Among other forms of assistance, firms were to receive exemption from the wealth tax for five years.¹² Although no explicit general definition of "areas of basic importance" was at that time offered, the list of 22 industrial fields which qualified¹³ suggests that implicitly industries were considered basic when they filled up zero-entries in the Colombian input-output table. Decree 1157 had mentioned the need to develop exports, but the actual fields listed showed little recognition of this aspect.

Clearly, this program for industrial development was ill-starred; World War II made the necessary capital goods imports unavailable. Even after the war, the magnitude and duration of the tax exemption (as well as the conditions for receiving it) proved insufficiently attractive. Although the legislation continued in force until 1960, few firms availed themselves to it.¹⁴

Decree 1439 of 1940 had included iron and steel production as one of the 22 "basic" fields; in 1945, this industry was further exempted from all national taxes.¹⁵ But it quickly became clear that a much greater government effort was needed if an iron and steel industry was to be established. Accordingly, plans were made for the "Empresa Siderúrgica Nacional de Paz del Río"¹⁶ which was to receive such privileges as 20-year exemption from all taxes, plus government subsidies and compulsory financial contributions from private industry.

In addition, it was necessary to insure that there would be buyers for the products of Paz del Río. Toward this end, firms which purchased 80% of their raw materials from Paz del Río were exempted for a period up to ten years (over 1954-63) from income, wealth, and excess profits taxes and from duties on imported capital equipment.¹⁷ It is difficult to discover how many firms received such tax exemptions between 1954 and 1960 (when the decree was superseded), but there were surely several.

Also in the 1940's, the concept of a "new industry" (hereafter called nueva) developed independently of, but along with, the concepts of básica and complementaria. Any firm which produced something not previously produced in Colombia, with national raw materials, was eligible to receive 75% exemption from all national taxes¹⁸ for a ten-year period.¹⁹

In 1960, the entire income tax of Colombia was overhauled,²⁰ and a new system of tax exemptions was promulgated. Nevertheless, the benefited firms continued to be the básicas, complementarias, and nuevas. Firms which were deemed básicas were to enjoy exemption up to (and usually of) 100% of all income taxes, provided that 60% of the raw materials used were of Colombian origin. The same exemptions were offered complementarias, now defined as those firms which purchased at least 50% of their raw materials from Paz del Río.²¹ If a firm deemed básica or complementaria was also considered nueva, then the firm's shareholders were also exempt.²² The treatment of nuevas represented the only fundamental change in the system of exemptions. Firms or their shareholders were no longer granted special tax privileges solely because they produced something not previously produced. After 1960, the "new" product also had to be a socially desirable product, in the sense that the firm qualified as a básica or complementaria.

While the complementarias were clearly defined (i.e., by the requirement that 50% of their raw materials be purchased from Paz del Río), the básicas were, as with the 1940 law, not defined except in the form of a series of Planeación resolutions listing the specific industrial areas which qualified.²³ The 21 areas consisted broadly of extraction and processing of various ores, fishing, wool processing, and the production of various chemicals, petro-chemicals, paper products, fertilizers, artificial fibres, iron and steel, machines and machine tools, and tanning extracts. As most of these products were principally imported by Colombia at this time, the concept of básica appears to have become, by 1960, largely

synonymous with import-substituting manufacture.

Since the purpose of this paper is to assess the effectiveness of tax exemptions in stimulating certain areas of Colombian industry, discussions can be avoided of such questions as, what is really "basic" about these areas, or more broadly, has an import-substituting industrial strategy benefited Colombia. But it is hard to resist one comment: if import-substitution is what is intended, it would appear most sensible to offer tax exemption to any firm whose product replaces imports. The tortuous process of deciding (for example) that asbestos, coal, and sulfur were "basic", while mica, talc, and slate were not, was surely unnecessary.²⁴

II. Administration of Exemptions

First, the way in which the 1960 tax exemptions have been administered must be discussed because the administrative shortcomings are a prerequisite for an economic evaluation of the Colombian tax exemptions. This review of Colombian procedures is also valuable because the Colombian experience provides such clear lessons to others.

Firms which wish to enjoy exemption privileges must deal with three different agencies: the Ministry of Development (MinFomento), the Superintendency of Corporations (SuperAnónimas), and the Ministry of Finance (MinHacienda). The extent of the paperwork alone may, to many firms, partly or completely offset the value of the exemption, and the lack of clear definition of responsibilities and communication between the three agencies leads to further inefficiency and confusion. To some extent the problems follow from the troika structure, to some extent they are the result of carelessly or vaguely worded laws or decrees.

MinFomento must approve, initially and each year thereafter, a firm's status as básica. It has decided to do this by means of an annual resolution, but the

legal department of MinHacienda has publicly declared that this annual resolution is not necessary. The tax examiners of MinHacienda have rejected this legal opinion but still occasionally grant tax exemption in the absence of a MinFomento resolution.²⁵ The law says nothing about any MinFomento activity concerning complementarias, but MinFomento in fact issues annual resolutions here too. MinHacienda grants these exemptions without regard to a MinFomento resolution and without any real ability to verify the 50% Paz del Río purchase requirement. All básicas and complementarias must submit to the "vigilance" of SuperAnónimas, but this latter organization does not know who the exempt firms are.²⁶ The moral of all this is not that the troika is intrinsically unworkable (in Colombia, some such division of labor and power is perhaps inevitable and even desirable) but that a clear division of responsibility is necessary, and regular channels of interagency communication must be maintained.

MinFomento, by itself, has been responsible for a great deal of uncertainty in the interpretation of the law. While the loose wording of Law 81 and its subsequent regulating decrees²⁷ is indeed open to legal debate, the decision of MinFomento to re-appraise each year the status of each básica has had unfortunate economic results. In place of a prior, secure tax exemption, potential básicas in Colombia have had to act in the face of uncertain exemption and possible long delays before the final resolution of that uncertainty. The extent of this uncertainty is illustrated by a few statistics. Less than half the firms which had once qualified (during 1960-65) as básicas, maintained their exempt status in all subsequent years (through 1966); and only slightly over half received exempt status in over half the subsequent years. Overall, básica status, once gained, was renewed in only 66% of the subsequent years. While several factors contribute to this low renewal rate, MinFomento's procedures are not the least culpable. Even complementarias have been subject to this kind of uncertainty despite their

more precise definition and freedom from MinFomento resolution. There have been cases where Paz del Río was unable (or refused) to continue supplying the steel needs of a particular complementaria with the result that the firm lost its tax-exempt status.

The MinFomento handling of nueva applications has been even more capricious. Technically, a firm deserved such status if its product was not produced in Colombia before 1960, or was produced in "quantity notably inferior to that required by the nation." While the vagueness of the criterion inevitably makes nueva status somewhat arbitrary, MinFomento has rendered it uncertain as well by implicitly varying its selection criteria from year to year. Ironically, a belated effort to give precision to the definition of nueva²⁸ added to the uncertainty by reversing several previous MinFomento decisions.²⁹

The lesson of all this is not that the law should be so complete as to render all selection criteria precise; bureaucratic discretion must be permitted if laws are to be finite in length. Nor is the lesson that bureaucratic discretion must always be exercised explicitly and rationally; such would be a counsel of perfection (though the purpose of the system of exemptions is of course subverted to some extent by faulty implementation). The critical lesson is the need for consistency over time. A firm should be able to get a decision as to its status before it undertakes or expands operations, and that status should be essentially irrevocable for a fixed period of time, provided the firm continues to fulfill certain clearly specified conditions. That the Colombian system has extensively failed in this respect is witnessed by the fact that, of the more than twenty at-some-time-exempt firms with which I conversed or corresponded, nearly half complained of administrative uncertainties.

A further shortcoming in the handling of the exemptions is the timing of the law and its implementation. The exemptions were to last up to ten years

(1960-69 inclusive), but the law itself was not passed until 22 December 1960, and the various implementing decrees and resolutions were still being issued well into 1962. As a result, all the eventual exemptions for the early years assumed a windfall nature. Furthermore, few firms ever received exemptions for the first years.³⁰ Thus, if all the 71 firms that were exempt as básicas at some time during 1960-66 receive exemptions in each of 1967, 1968, and 1969, they will have enjoyed less than six years' exemption on the average. To call the Colombian law a ten-year tax exemption is therefore something of a euphemism.

All the exemptions of the 1960 statute are available only to firms that have as their "exclusive object" a tax-exempt activity. The inclusion of this condition was intended as an aid to the administration of the exemption, to make unnecessary the sorting out, in multi-product firms, of exempt from non-exempt profits. But the economic implications are unfortunate. Large firms which already produce a range of products similar to those qualifying as básica or complementaria would presumably have the greater efficiency--initially at least--in branching into these areas. Not only are such firms not encouraged by the present incentive system, they are positively discouraged. They know they are at a disadvantage in these fields should they find themselves in competition with a qualified básica or complementaria, even though the latter be less efficient. And in the case of Paz del Río customers, there is the additional disincentive to non-exempt firms that they must buy "overpriced" Paz del Río products.³¹

Thus, the implementation and administration of the Colombian tax-exemption system has been to varying degrees uncertain, arbitrary, dilatory, and uncoordinated. While we cannot quantify the impact of these administrative failings upon its effectiveness, there can be little doubt that this impact has been significantly negative, in the sense that the investment stimulated has surely been less than it could have been under more efficient administration.

III. Economic Assessment of Exemptions

An economic assessment of the effectiveness of tax exemptions is difficult. Ideally, we should like to know how differently the at-some-time-exempt firms would have acted if they had known (throughout the period, 1960-69) that they would not receive any exemptions. If the administration of the law had been such as to require prior binding commitments by the government, then this ideal could be closely approximated by examining the behavior of rejected firms: did they pursue their investment plans once their hopes for tax exemption were ended?³² This kind of analysis is, however, not possible for Colombia since the administrative process was such that firms had to make at least their initial investments before they could be sure whether or not they would be exempt.³³ Thus, any firm which was (ultimately) refused exempt status must have already committed itself to a particular line of production long before its exemption hopes had vanished.

One obvious approach is to ask the firms how the possibility (or hope) of exemption has affected their decisions. There are, however, two difficulties. One, what businessmen say and what they do may be at variance; and two, the sample of respondents to the question is almost certainly biased.³⁴ On the second difficulty, for example, I sought to converse or correspond with executives of nearly all³⁵ the 100 at-some-time-exempt firms, but the 20-odd with which I succeeded were clearly not a random sampling. Though this group was similar to the entire 100 in its external attributes,³⁶ it consisted, in almost equal parts, of extreme allies and extreme enemies of exemption. While this is not a surprising result,³⁷ it does induce skepticism about generalizing from the information offered.

Nevertheless, these conversations and letters do suggest that there have been two ways in which firms' decisions have been favorably affected by the exemption law. One, at least some firms initiated operations in response to the hope of exemptions; and two, at least some firms, which had already entered (or would have

entered) areas qualifying for exemptions, were able to reduce prices and/or expand more rapidly through reinvestment of profits once they began receiving exemption.³⁸ To attempt to quantify these effects on the basis of self-serving declarations³⁹ would be dangerous, unless a large sample of long and careful interviews could be obtained.⁴⁰

Another approach to the question, how did the hope of exemption affect investment decisions, lies in the analysis of the investment decision-making process. If we knew what factors "caused" investment, then knowledge of how exemption affects these factors would show how exemption affects investment. The principal difficulties encountered in this approach are 1) that it is not firmly established (even in the literature about the developed countries) what factors enter the investment-decision function and how they enter and 2) that some of the important factors are unobservable, chiefly because they refer to the *ex ante* expectations of the firm. These difficulties are compounded as far as the present paper is concerned by the near-total absence of accepted empirical information about investment determinants in Colombia⁴¹ and by the absence of pre-1960 profit-and-loss and balance-sheet data which might permit the use of past data as a proxy for expected values.⁴²

Nevertheless, some evidence along these lines is offered in the next two sections. Specifically, in the next section, the *ex post* profitability of the tax-exempt firms is examined on the assumptions that the *ex ante* profitability of an investment is an important factor in the investment decision and that the realized rate of profitability can give us some insight into the rate of profitability that had earlier been expected. In Section V, the potential influence of tax exemption on investment through the availability of internal funds is investigated. Clearly no strong conclusions can be reached. But the evidence of the next two sections is at least consistent with the hypothesis that little investment has

been stimulated in the sectors qualifying for exemption.

IV. Profitability of Exempt Firms

For 78 of the 100 at-some-time-exempt firms,⁴³ the average before-tax profit rate (on book value of shareholder equity) and the after-tax profit rate⁴⁴ have been calculated. The weighted (by 1966 equity of each firm) average before-tax rates of all firms in the sample is 21.12%, but there is a large variance, as Table 1 indicates; the weighted average after-tax profit rate is 11.68%. Thus, if all the at-some-time-exempt firms were exempt in all years, the exemption would have nearly doubled their average profit rates. Unfortunately, this says little about the effectiveness of exemption. In the first place, these profit rates mean little unless compared in some way with those of non-exempt firms. This is our first job. Later a theoretical framework will be developed to further the analysis of the effectiveness of exemption.

For non-exempt firms, the only comparable (before-tax) profit data which exist are for manufacturing sociedades anónimas.⁴⁵ For all manufacturing anónimas (including the tax-exempt), the before-tax profit data varied, during 1960-66, from 17.66% (in 1965) to 25.08% (in 1963), and averaged 20.12% over these seven years. This is almost exactly the same as the average before-tax profit rate (weighted by 1966 equity), 20.39%, of the 47 at-some-time-exempt anónimas.⁴⁶

This near-equality of ex post profit rates casts doubt on the usual belief that profit expectations in the exempt areas were too meager for entry to have occurred without special inducement.⁴⁷ This may be true for those exempt areas in which no or few firms have appeared, but for those exempt areas in which firms exist, the evidence is against it. Indeed, the exempt básicas have tended to enter largely in a few already established fields of production. While there are 21 different industries that qualify for básica exemption, 51 of the 71 at-some-time-

Table 1Distribution of Firms by Profit Rates

<u>Before-Tax Profit Rate</u>	<u>Number of Firms</u>
Negative	6
0 to 9.99%	13
10% to 19.99%	13
20% to 29.99%	14
30% to 39.99%	7
40% to 49.99%	11
50% to 99.99%	7
Greater than 100%	7

exempt básicas produced in only four of these (coal, iron and steel, machines and machine tools, and fishing),⁴⁸ and these four areas were the ones in which significant national production already existed in 1960.⁴⁹ All this strongly suggests that tax exemption may have been redundant in the established areas and inadequate in the not-yet-established.

Two comments are necessary about this conclusion. One, to the extent that the profits of exempt firms were reduced owing to the adjustments they had to make to meet the (usually 60%) national-content requirements for exemption, their before-tax profit rates would have been higher if they had not been exempt. And two, the profits of exempt firms may have been intentionally overstated, to the extent that such firms 1) are sure they will receive exemption, 2) have accounting leeway in their profit-and-loss statements, 3) wish to declare large profits during their exempt years in order to build up a large equity base for the later years in which they (if anónimas) will be subject to excess profits taxes, 4) can avoid having to pay out exaggerated dividends as a result of exaggerated profit statements, and 5) can weather complaints of shareholders whose wealth taxes rise as the firm's equity is inflated. Needless to say, it is almost impossible to guess to what extent such biases exist.

Further evidence about the effectiveness of exemption is offered by the division of the sample into anónimas and limitadas.⁵⁰ The differential impact of tax exemption on the two groups is shown by the figures for before-tax and after-tax profit rates; taxes would have reduced the weighted average profit rate of anónimas from 20.39% to 10.70%, and that of limitadas from 39.05% to 35.82%. Thus, exemption in all years would have doubled the profit rate of anónimas (on the average) but increased that of limitadas by less than one tenth. While the fact that the limitadas in exempt areas were going to turn out profitably may not have been fully recognized beforehand by their owners, they knew well that exemption from corporate income taxes could never benefit them much.⁵¹

In sum, ex post profit rate averages suggest that the tax-exemption system had least effect in inducing investment 1) in untried areas of production and 2) by limitadas.

But aggregates of several firms may hide interesting intra-group differences. In the remainder of this section, we will look at the 78 firms in the sample individually in an effort to say something about their division into two groups: 1) those that would still have been established (or expanded substantially as much) in the absence of exemptions, and 2) those that would not. In what follows, it will be assumed that the vital factor in the investment decision function is the expected profitability of an investment (or, what ordinarily gives the same results, the anticipated present value of the investment). Theoretically, then, the critical distinction lies in the division between investments whose anticipated present value is 1) negative in the absence of tax exemption but positive with exemption, and 2) positive even in the absence of tax exemption (though of course greater with exemption).

To develop this distinction, let us consider a firm (or investment) in which one peso is invested in the year zero. Each year thereafter (at least up to the

horizon of the investor) the depreciated part of this capital is replaced so that the real capital investment of one peso is maintained.⁵² The anticipated real net cash inflow (hereafter called profit) on this investment is p pesos each year (again, at least up to the horizon of the investor).

This profit is to be tax-free for the first a years of the investment and thereafter will be taxed at a rate i . The investor calculates his present (real) value using a discount rate r , and his horizon is assumed to be b years.⁵³ The present value of this investment (with a years of initial tax exemption), written V_a , is:

$$(1) \quad V_a = -1 + p \int_0^a e^{-rt} dt + p(1 - i) \int_a^b e^{-rt} dt$$

where t is time.⁵⁴ After integration, V_a can be written:

$$(2) \quad V_a = \frac{1}{r} \left[(p - r) - pie^{-ra} - p(1 - i)e^{-rb} \right]$$

For some tax-exemption period of a years ($0 \leq a \leq b$) to be effective--in the sense of inducing an investment that would not otherwise be made--it is necessary that the anticipated present value be negative if no exemption were offered (i.e., if $a = 0$) and be positive if exemption were offered throughout the anticipated life of the investment (i.e., if $a = b$).⁵⁵ If V_0 (i.e., the present value without any tax exemption) is positive, the investor would undertake the investment in the absence of exemption. If V_b (i.e., the present value with "life-long" exemption of b years) is negative, the investor would not undertake the project even if he were granted complete tax exemption over the entire perceived economic life of the investment. The present value without exemption is:

$$(3) \quad V_0 = \frac{1}{r} \left[-r + p(1 - i)(1 - e^{-rb}) \right]$$

And the present value with "life-long" exemption is:

$$(4) \quad v_b = \frac{1}{r} \left[-r + p(1 - e^{-rb}) \right]$$

It is necessary to find the conditions in which:

$$(5) \quad v_o < 0 < v_b$$

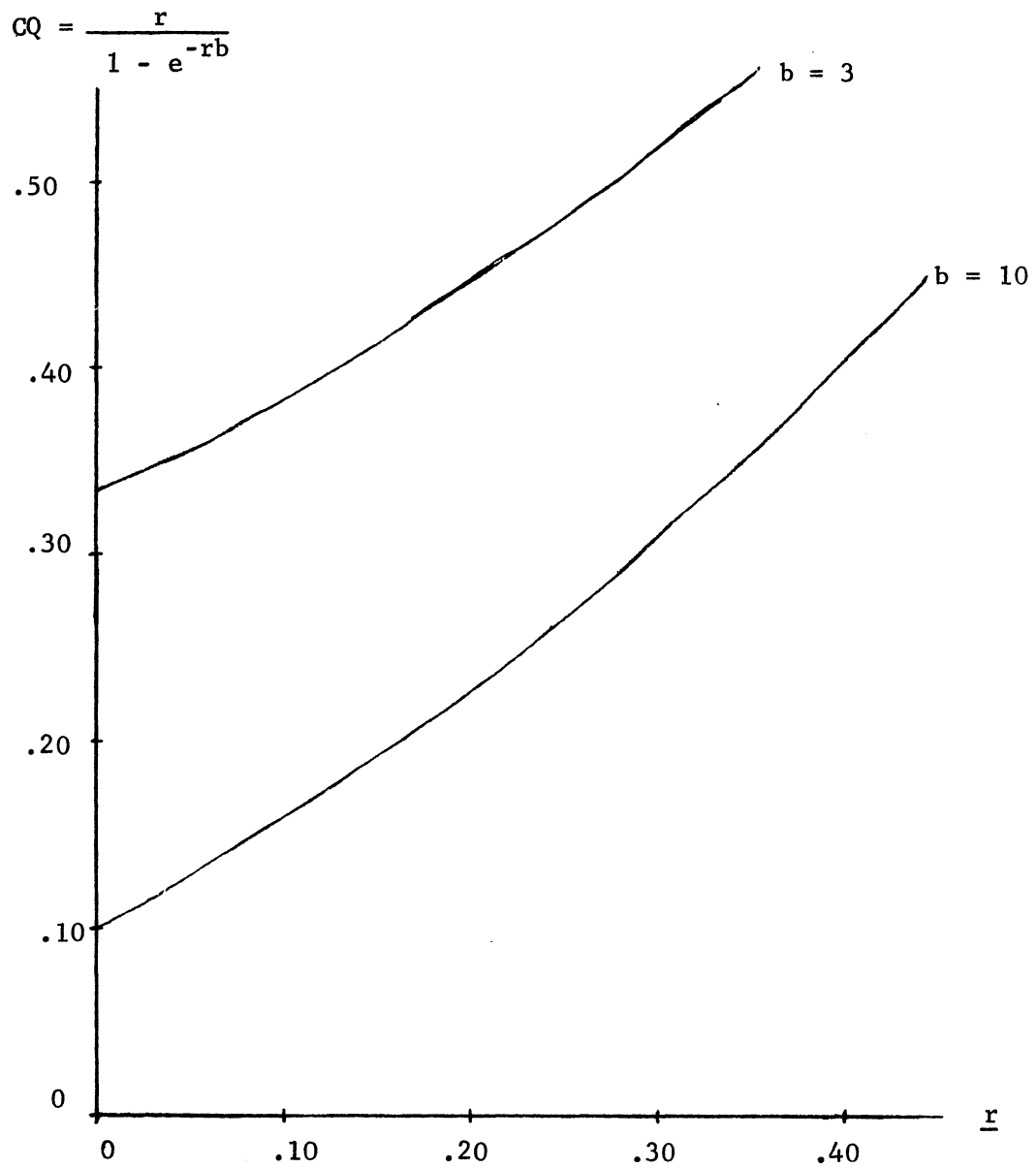
These conditions are:

$$(6) \quad p(1 - i) < \frac{r}{1 - e^{-rb}} < p$$

In words, these two conditions require that the after-tax profit rate be less than a certain quantity and that the before-tax profit rate be greater than that same quantity. That critical quantity, hereafter called CQ, is plotted in Figure 1 for various values of \underline{r} and for \underline{b} equal to 3 and 10 years.

It is clear from Figure 1 that the CQ is very sensitive to the investor's rate of discount, \underline{r} , and, to a lesser extent, sensitive to his horizon \underline{b} . We would like to know both for particular firms, but this is impossible. Since nominal interest rates in Colombia vary from .15 to .35, real interest rates must lie in the range, .05 to .25 (with the roughly 10% per year inflation of the early 1960's). Moreover, it seems reasonable to place investor horizons in the range, 3 to 10 years. Under these suppositions, the CQ may lie anywhere from about .10 (with r low and b high) to .40 (with r high and b low). Thus, for exemptions to be effective, the after-tax profit rate must be less than some CQ in the range, .10 to .40, and the before-tax profit rate must be above that CQ. It is effectiveness, in this sense and in this range, that we now explore.

While the theory developed in the preceding paragraphs is simple, its application to the present problem is made tenuous by several considerations. One,

Figure 1

the theoretical framework is at best a naive approximation to the complex process by which firms decide to enter (or expand their commitment in) a particular line of production. While no one would deny that expected profitability is an important ingredient in that decision, it is certainly not the only ingredient nor necessarily the most important. Two, any actually calculated profit rates must be based upon the firm's own accounts, which for various (obvious and not so obvious) reasons may not be accurate reflections of economic reality.⁵⁶ Attempts to adjust the accounts to correct distortions quickly enter the realm of the arbitrary. Three, the calculated profit rates are ex post, whereas the firms' decisions must have been motivated by their possibly very different ex ante profit expectations. And four, the time shape of the profitability of an investment is not usually uniform over its life, as the above model assumes. While the theory could be readily extended to consider varying time shapes, such a course would not meet the real problem that it cannot be known from what part of a varying profit flow the data for particular years derive. With these considerations in mind, it should be clear that the utmost caution must be used in drawing conclusions about the effectiveness of exemptions from ex post profit data.

The conclusion of the theoretical framework is, that in the absence of precise information about firms' horizons and discount rates, we must accept the possibility that tax exemption was effective if there is any CQ value between .10 and .40 that is both greater than the after-tax profit rate and less than the before-tax profit rate. For nearly half the firms in the sample there is no such CQ: both the before-tax and after-tax profit rates are above .40 for 16 firms, and both the before-tax and after-tax profit rates are below .10 for 19 firms. It is interesting to examine these two groups more carefully.

The 16 firms whose profit rates in the 1960's would have been above .40 even if they had paid taxes consisted almost entirely of small⁵⁷ limitadas that were

established in the 1960's. While it is tempting to conclude that these high ex post profitability rates must have been to some extent anticipated and hence tax-exempt status to a corresponding extent unnecessary to stimulate the firms' investments, this may not follow for several reasons. One, small limitadas are most likely to have high CQs, relative to either big firms which would presumably have longer horizons or anónimas for whom the appropriate discount rate is surely lower. Two, small limitadas are neither required, able, nor anxious to keep as careful accounts, and the possibility that their "true" profitability is much lower cannot be rejected. Three, it is plausible that the variance of the distribution of ex post profit rates around ex ante rates is especially high for such firms as these, in which case these 16 firms may represent no more than the extreme draws from a high-variance distribution with a much lower mean.⁵⁸ And four, while limitadas cannot expect to benefit greatly from--and hence cannot be much stimulated by--básica or complementaria status, many of the firms anticipated nueva status as well,⁵⁹ and this may have made it easier for them to extract their initial capital from wary potential stockholders.

At the other end of the profit rate distribution, there were 19 at-some-time-exempt firms whose before-tax profit rates were less than .10. In composition, this group is quite similar to the entirety of at-some-time-exempt firms, their sole differentiating characteristic being that they have clearly not (yet) benefited much, if at all, from tax exemption. To the extent that these firms entered (or expanded) with full recognition that their operations would probably not become profitable until the late 1960's, the promise of tax exemption cannot have provided much stimulus. On the other hand, to the extent that these firms represent the low end of a high-variance distribution around ex ante profit expectations, the hope of tax exemption may have been important in their decision.

V. Liquidity of Exempt Firms

In Colombia, there is a frequent complaint that even highly profitable firms have difficulty expanding because of the costliness and/or scarcity of external funds for investment purposes. Because of this, it is argued that one important impact of tax exemption is to augment a firm's internal funds so that it can expand more rapidly. If one sees availability of internal funds simply as one of the variables in the investment decision function, then tax exemption will always stimulate investment somewhat since it always increases a firm's liquidity position somewhat.⁶⁰ The stricter view will be taken here, that internal funds affect the investment decision only as a constraint. Under this view, if a firm's investment is less than the volume of internal funds it would have controlled if it had paid taxes, then the additional liquidity bestowed upon it by tax exemption is deemed redundant.⁶¹

To make this test, it is convenient to define an "internal-funds-use" coefficient (z) as follows:

$$(7) \quad z = \frac{(\text{Investment}) - (\text{After-Tax Internal Funds})}{(\text{Tax Liabilities})}$$

where, for firms which were in fact tax-exempt, "after-tax internal funds" and "tax liabilities" are of course hypothetical calculations. When this z -coefficient is negative, it means that investment has been less than after-tax (if paid) internal funds, and we presume that the additional liquidity due to the exemption has been largely necessary. When z is positive, investment exceeds after-tax internal funds, and we presume that the additional liquidity has, at least marginally, made that investment possible.

Three different measures of z will be developed and analyzed. In the first,

\underline{z}_1 , it is assumed that the after-tax internal funds of each firm consist of its average⁶² after-tax profits and additions to (depreciation and other) reserves; the investment of each firm is assumed to consist of the average change in its fixed capital. In the second, \underline{z}_2 , it is assumed that half the after-tax profits must be paid out in dividends and hence are not available as internal funds. And in the third, \underline{z}_3 , it is further assumed that the total investment of each firm is twice its investment in fixed capital (to allow for a complementary expansion of working capital and accounts receivable).

The distribution of these three \underline{z} -coefficients for the 78 firms in the sample are shown in Table 2. The critical distinction is between positive and negative,

Table 2
Distribution of Firms by z-Coefficients

Value of z-Coefficient	Number of Firms With		
	\underline{z}_1	\underline{z}_2	\underline{z}_3
-10 or less	25	17	10
between 0 and -10	36	39	25
between 0 and +10	9	13	23
+10 or more	8	9	20

since for the latter, the firm is not investing even as much as the internal funds it would have had if it had paid taxes. Then, any additional liquidity due to tax exemption did not stimulate (or would not have stimulated) additional investment for 78% of the firms (using \underline{z}_1), for 72% of the firms (using \underline{z}_2), or for 45% of the firms (using \underline{z}_3). If the appropriate liquidity and investment measures lie somewhere in the ranges covered by \underline{z}_1 , \underline{z}_2 , and \underline{z}_3 , then 45-78% of the firms would not have been constrained in their investment plans by a shortage of internal funds, whether or not they received tax exemption.

Examination of the data indicates that the distribution of z -coefficients is not very different between firms established before and after 1960, or between basicás and complementarias. However, there are noticeable differences between anónimas and limitadas, as Table 3 shows. Thus, if the appropriate liquidity

Table 3

Negative z-Coefficients by Corporate Form

Type of Firm	<u>Percentage of Firms with Negative z-Coefficients</u>		
	z_1	z_2	z_3
<u>Anónima</u>	79%	68%	36%
<u>Limitada</u>	81%	77%	58%

measure lies in the range of z_1 , z_2 , and z_3 , between 36% and 77% of the anónimas did not need the liquidity assistance of tax exemption, while 58% to 81% of the limitadas did not need it. While no confident statement can be made about the anónimas, it seems that well over half the limitadas had sufficient internal funds without tax exemption to make their desired fixed investments. This last result is surprising and requires explanation. Since small firms--and limitadas are typically much smaller than anónimas--have greater difficulty in acquiring external finance, one would expect their investments would be more closely attuned to the availability of internal funds. There appear to be two reasons why this does not show up in the z -coefficients. One, at-some-time-exempt limitadas were, as a whole, quite profitable relative to the anónimas, which means that for given investment rates their internal resources were more nearly adequate. And two, precisely because of their less facile access to capital markets, limitadas are more likely than anónimas to divert internal funds to the finance of working capital or the building up of precautionary balances. This latter suggests a possible liquidity

value of exemption to limitadas that the z-coefficients neglect. Nevertheless, the overall pattern of the z-coefficients is sufficiently striking that it is difficult to avoid the conclusion that a great many firms--limitadas and anónimas--did not expand their fixed investment in the 1960's as a result of the liquidity influence of any tax exemptions they received.

VI. Lessons

All of the preceding analysis adds up quite clearly to one conclusion--the Colombian tax-exemption program has not been very effective. Its administration alone, which has been responsible for converting the exemptions into delayed, uncertain windfalls, would probably have insured its failure. Moreover, the economic analysis suggests that, even well-administered, the program might not have been very effective.

Lessons can be drawn from the Colombian experience at two levels: one where a government has decided upon some kind of tax exemption program, and seeks to operate it as effectively as possible; and two, where a government is willing to examine alternative policies to exemption for achieving the same objectives. On the first level, the chances for success of a tax-exemption program (similar to the present Colombian program) can probably be increased with the following changes:

1. The exemption system must be organized to provide prior and certain tax exemption to qualifying firms. The law must be issued before the period of exemption begins, and it must spell out carefully who can qualify, and how. Firms should be able to get government commitments as to their tax status and the conditions which they must fulfill to maintain this status; and they must be able to get this before they begin (or expand) operations. Any subsequent annual examinations of the firm should be intended solely to check fulfillment of the conditions, and there must be a general guarantee that neither the law nor its interpretation will be unfavorably altered during the period in which it is in force.

2. While the prospect of additional profits due to tax exemption may be critical in a firm's decisions for low and medium ranges of profits, the impact of exemptions in the high profit range must diminish, from both a profitability and a liquidity view. Thus a government which wishes to apply exemptions for maximum stimulus may be wise to place some kind of ceiling on the amount of exemption. In Colombia, for example, anónimas should not have been exempted from the excess profits tax.⁶³ Elsewhere, only income up to some fraction of shareholder equity might be exempt and the rest subject to the usual taxation.

3. The taxation of limitadas is already so light that exemption from taxes seems to influence their entry or expansion decisions very marginally, if at all. It should be recognized that exemption is really only a potential inducement to anónimas; other devices must be found for limitadas.

4. The "exclusive object" provisions have many disadvantages. Exemption administration should permit, and learn to administer (without caprice), partial exemption of multi-product firms (in the case of básicas; under the present law, this would be impossible with complementarias).

5. If by básica, the government means "import-saving", then such a definition should be put in the law, and firms should receive exempt status on the basis of their ability to prove net import savings. The autarkic bias of such exemption should be offset by explicitly recognizing exports as negative imports.

6. The present exemption system has largely failed to encourage entry in thoroughly new and untried areas. Exemption alone will often be inadequate in such areas, and the government must seek other stimuli, either in addition to or in place of exemption.

7. Since tax exemption is presumably a reward for doing something, the recipient firm should be subjected to conditions beyond type of product and national raw material content. For example, it might be required to prove that its

production (or import saving, or employment) had risen by a certain percentage over the previous year; further, it might be required to prove that its unpaid taxes had been used for investment. Of course, these proofs must be decided on at the start and not altered later.

In short, "tax holidays" are not, as some seem to think, a substitute for the careful preparation of an industrialization strategy. For tax exemption to be effective, the critical determinants of the investment decision must be known (at least implicitly) and the details of the exemption system tailored to this knowledge. Tax exemption is a violation of the equal-treatment principle of taxation, and it is very difficult to know what the real costs of such a program are; it is therefore especially important for a country to know how exemptions are going to help achieve its industrialization goals.

It is also important that the goals themselves be clear. Once the goals are made explicit however, it is likely that tax exemption will no longer appear so uniquely best for achieving them. For example, in Colombia, the chief purpose of exemptions appear to be 1) to encourage investment in general, 2) to induce an increase in output in specific fields, and 3) to enable investment to occur in certain fields. Various policies are available that directly attack each of these objectives; some illustrations are given below:

1. To encourage investment in general, accelerated depreciation or investment tax credits can be applied without extensive administrative problems and without discrimination between firms.

2. To induce an increase in output in specific sectors (whose growth would not otherwise occur), direct output subsidies can be offered. These have the benefit of rewarding, not existence and profits, but production; furthermore, they offer rewards to low profit firms where exemption does not, and offer ever smaller rewards (after taxes) as firms become more profitable. Where the

government or businessmen prefer to avoid such open subsidies, output can be rewarded with certificates (preferably taxable themselves) that can be used to pay taxes.

3. To enable investment to occur in certain areas, the facilities of public (or private, subsidized) development banks can be used. These organizations can try to ascertain that normal sources of finance are not available and that the funds are really used for desirable investments. With tax exemption, no such effort is even made.

There are many advantages to indirect industrial policies, not the least of which is that they use, rather than obstruct, the workings of markets and that they usually require fewer scarce administrative resources. Tax exemptions, however, are a form of direct policy, and in this realm, indirectness is no virtue. The fewer the tenuous links such policy relies on, the less likely it is to fail.⁶⁴ Where the links between tax exemption and industrial goals cannot be tightly forged, other policies should be sought that offer inducement nearer the point where reaction is sought.

Appendix A: The Data

All corporations (both anónimas and limitadas) which enjoy exemptions as básicas or complementarias are required to submit to the "vigilance" of SuperAnónimas.⁶⁵ In practice this has meant no more than that the exempt firms must annually file balance sheets and profit-and-loss statements with SuperAnónimas. This represents no additional burden to anónimas since they must file such information whether exempt or not.

In fact, not all anónimas do file every year. For example, for the 53 anónimas which were, at one time or another, básicas or complementarias (according to MinFomento resolutions), there should be on file 288 anónima-years of balance sheets and income statements during the years, 1960-66. Seventy-five of these--more than one fourth--were not locatable in the archives of SuperAnónimas; while some were presumably lost, a large number were probably never filed.

The exempt limitadas were slightly more responsible in fulfilling their obligation to file in any year in which they received exemption. For the 113 limitada-years in which they were exempt (according to MinFomento resolution), they filed in 87. In fact, the 45 at-some-time-exempt limitadas filed 35 times when they were not exempt (according to MinFomento resolution). In the case of complementarias, this largely reflects the fact that many firms receive this exemption without MinFomento resolution. In the case of básicas, this reflects the delay⁶⁶ and uncertainty involved in getting exempted. At-some-time-exempt básica limitadas filed with SuperAnónimas 69 times but (eventually) received básica resolutions only 49 times, or 71% of the time. This lends support to the .66 figure in the text as an estimate of the probability of re-exemption.

The information which is filed is amazingly detailed, probably so much so that the finest breakdowns are largely arbitrary. The submissions are generally believed to be not always truthful⁶⁷ and fraught with legal distortions of economic

reality. To correct these lies and distortions would be to some extent impossible and in any case difficult. Accordingly, it was decided to make no changes in the information submitted by the firms (except that reclassifications of items by SuperAnónimas were usually accepted).

From each firm's submission for each year, five pieces of information were taken:

E. Shareholders' equity (at the end of the year, excluding retained earnings of that year).

K. Fixed, depreciable assets (at the end of the year, valued at cost of acquisition and undepreciated).

P. Profits (after depreciation, net of provisions for corporate income taxes).

T. Provisions for that year's corporate income taxes. The sum of P and T, labeled P', is therefore before-tax profits.⁶⁸

D. Depreciation and other additions to reserves (i.e., cash inflows not counted as profits).

The empirical work is based on a sample of 78 of the 100 at-some-time-exempt firms (as básicas or complementarias, according to MinFomento resolution). The remaining 22 firms, for which SuperAnónimas did not have usable records for two or more years during 1960-66, were excluded from the sample.⁶⁹ The number of observations (i.e., years) per firm in the sample therefore ranges from two to seven, and averages about four. The distribution of these firms among anonimas and limitadas and among basicas and complementarias is shown in Table A-1.

For the profitability analysis of Section IV, two profit rates are calculated: 1) the before-tax profit rate⁷⁰ on equity, P'/E , and 2) the after-tax profit rate on equity, $(P' - H)/E$, where H is the amount of corporate taxes the firm must pay.⁷¹

Table A-1Distribution of Sample Firms by Type of Exemption and Corporate Form

	<u>Number of Firms in Sample that Are</u>	
	<u>Básica</u>	<u>Complementaria</u>
<u>Anónima</u>	34	13
<u>Limitada</u>	17	14

Note: Two firms were at various times básica and complementaria. They are treated throughout as básicas.

To simplify the task of calculating H, it was assumed that P' is the correct income on which to base the income tax and that E is the correct wealth on which to base the excess profits tax. These assumptions probably lead to an overestimate of H. Further, only the two principal corporate taxes (i.e., income tax and excess profit tax) were calculated; since there are several other minor corporate taxes, this leads to an underestimate of H. These biases are both probably small, and they fortunately cancel each other to some extent.

To calculate the before-tax and after-tax profit rates referred to in the text, the (between two and seven) observations of P'/E and $(P' - H)/E$ are simply averaged for each firm. It is these average profit rates that are used in the analysis of the text.

In the liquidity analysis of Section V, use is made of D as well as P' and H to form estimates of the internal funds available to the firm; and estimates of the firm's investment are made on the basis of changes in K. For the years in which there are data, a simple average of the values of D, P', and H is calculated. The firm's average change in K, written \dot{K} , is simply the difference between K in the last year (for which there are data) and K in the first year (for which there are data) divided by the number of years between the two observations. It is these averages of D, P', H, and \dot{K} that are used to calculate the z values

in the text. The formulas are:

$$(A-1) \quad z_1 = \frac{\dot{K} - P' - D}{H} + 1$$

$$(A-2) \quad z_2 = \frac{\dot{K} - 1/2 P' - D}{H} + 1/2$$

$$(A-3) \quad z_3 = \frac{2 \dot{K} - 1/2 P' - D}{H} + 1/2$$

There are three obvious objections to this procedure for calculating the z 's. One, any comparison of a firm's internal funds and its investment presupposes a consistent theory concerning the timing with which funds are used for investment. The above procedure is not consistent on this score, but is used on the grounds that any inconsistency would generally be of small quantitative importance and that any loss of observations about P' , D , and H would be more serious.

Two, the simple averaging of P' , D , and H observations (or, in the case of \dot{K} , differencing) takes no account of inflation during the period. Indeed it does not, but it is not clear what account one wishes to take or even if account should be taken. The z -coefficients do tell us something about the destination (fixed investment or not) of the average peso (not the average real peso) of internal funds.

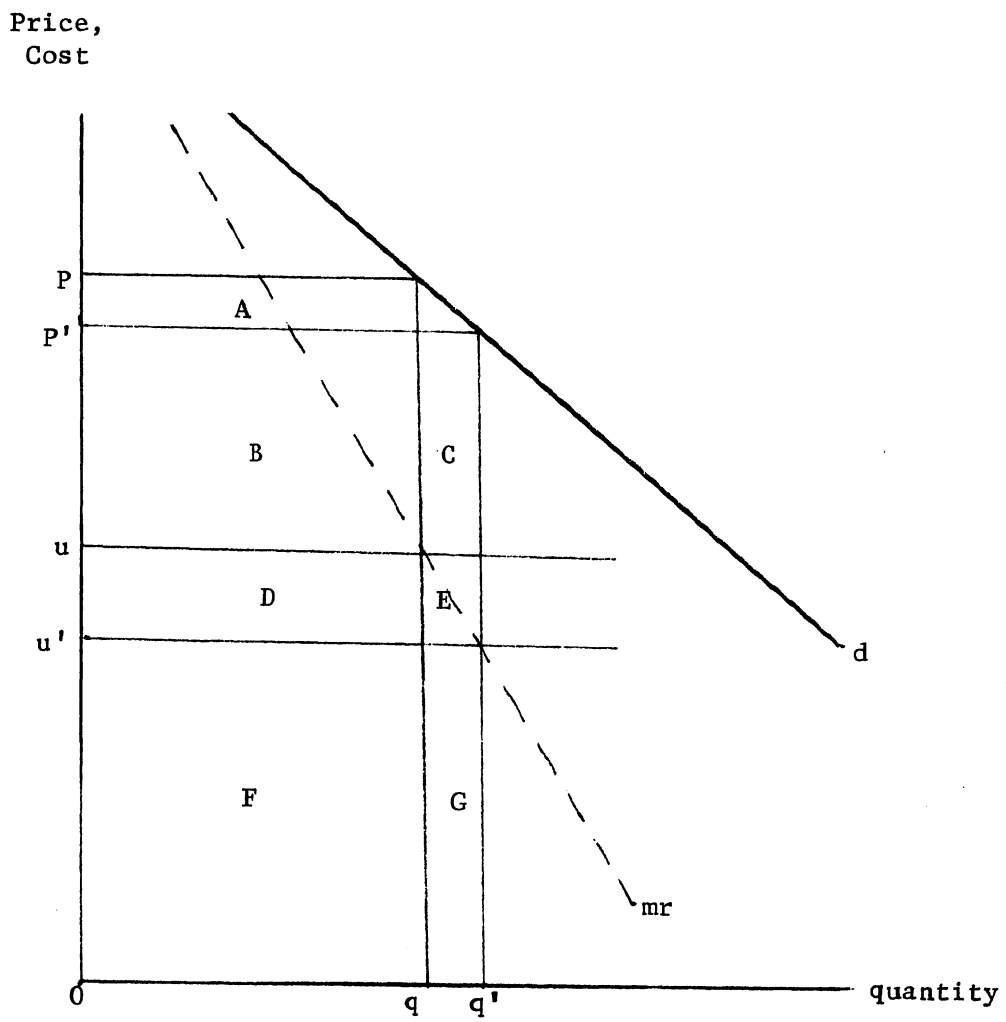
And three, all calculations are constructed from the data of years in which the firm reported to SuperAnónimas. It is necessarily assumed that there are no biases introduced by the absence of data for other years (or by the absence of firms for which there were insufficient records).

Appendix B: Complementaria Exemption Versus Paz del Rio Subsidy

The tax exemption of básicas can be so readily compared to alternatives (e.g., subsidized credit or straight subsidies based on output) that no special analysis is needed. This is not so in the case of complementaria exemption, for such exemptions are offered only partly to stimulate complementaria growth--their purpose is also to stimulate the profitable (or less-unprofitable) operation of Paz del Río. In fact, since there appeared to be little interest in developing a steel-using industry in Colombia until Paz del Río came into existence, the entire complementaria exemption is best viewed as a disguised subsidy to Paz del Río operations.⁷²

In this section, we will compare the advantages of tax exemption of complementarias to those of a hypothetical direct (additional) subsidy to Paz del Río. In order to hold as many factors constant as possible, we shall assume throughout that 1) the hypothetical Paz del Río subsidy is equal to the additional taxes that would be collected if complementarias were not exempt, and 2) Paz del Río uses this subsidy to lower its prices to just such an extent that its profits (after all adjustments) are not reduced (or its losses not increased). These two assumptions imply that both the government budget position and the Paz del Rio profit position are exactly the same under the two systems being compared.

We begin with a very simplified analysis of the two alternatives. Let us consider as a "representative" customer of Paz del Río a firm that 1) buys all its raw material from Paz del Río, 2) processes this material costlessly into some final product, and 3) sells this product with monopoly power.⁷³ In Figure 2, these assumptions are illustrated. The firm buys q units of iron and steel raw materials from Paz del Río at a price of u per unit (where one "unit" of steel is defined as the quantity needed to produce one "unit" of the final product). This raw material is then costlessly processed into q units of final product which

Figure 2

are sold at price p . The demand curve for the product is labeled d and the marginal revenue curve mr ; the complementaria is maximizing its profits. Since the firm is tax-exempt, its final profits are represented by the area of the two rectangles, labeled A and B; the total revenue of Paz del Río (from its sales to this complementaria) is represented by the area of the two rectangles labeled D and F.

Now consider the situation if 1) this firm and the other similar complementarias were taxed on their profits, 2) the tax revenues were completely transferred to Paz del Río, and 3) Paz del Río lowered its prices to the level at which its profits were same as before. Would this "representative" firm be better off or worse off? Under these assumptions, the price of Paz del Río materials would drop to some new level, say u' , and the complementaria would now produce q' units of its product and sell them at a price p' . Its before-tax profits are now represented by the areas of the rectangles, $(B + C + D + E)$, and after-tax profits by $(1 - t)$ times these rectangles (where t is its average corporate tax rate).

In order to know whether the firm's profits after taxes are greater or smaller, we must first examine what prices Paz del Río must set so as to earn the same profits as before. Under the tax-exemption system, Paz del Río earned revenue of $(D + F)$ from this complementaria. If the costs of Paz del Río are entirely fixed costs, it will be no worse off if its revenue under the tax-and-subsidy system is also $(D + F)$. On the other hand, if the costs of Paz del Río are entirely variable costs (and for simplicity let us assume constant average variable costs and that previously Paz del Río was exactly covering these costs), then Paz del Río must receive a total revenue of $(D + E + F + G)$ for the q' units it sells under the tax-and-subsidy system if it is to be no worse off. We will now examine each case.

The government, under either the tax-exemption or the tax-and-subsidy system, receives no net revenues (taxes minus subsidies). Therefore the entire revenue

from final sales⁷⁴ is always divided up into 1) the after-tax profits of the complementaria and 2) the revenue of Paz del Río. We are now in a position to deduce this division in each of the above situations:

1. Exemption system. Paz del Río receives $(D + F)$, and the complementaria $(A + B)$.

2. Tax-and-subsidy system, with Paz del Río costs all fixed. Paz del Río receives $(D + F)$, and the complementaria $(B + C + E + G)$.

3. Tax-and-subsidy system, with Paz del Río costs all variable. Paz del Río receives $(D + E + F + G)$, and the complementaria $(B + C)$.

The exemption system yields the complementaria greater or smaller profits than the tax-and-subsidy system according as:

$$(8) \quad A + B \geq \begin{cases} B + C + E + G, & \text{if Paz del Río costs are fixed.} \\ B + C, & \text{if Paz del Río costs are variable.} \end{cases}$$

Inspection of Figure 2 shows 1) that (A) is less than $(C + E + G)$ since demand is elastic in that region, and 2) that $(A + B)$ is greater than $(B + C)$ since the (p, q) price-quantity choice is more profitable than the (p', q') choice when steel costs u per unit.

Thus, the complementaria gains from the exemption system if Paz del Río costs are variable and gains from a tax-and-subsidy system if they are fixed. The preference of the complementaria between the tax-exemption and tax-subsidy systems cannot be unambiguously known without more information about Paz del Río costs. Social preference between the two systems may differ from complementaria preference owing to recognition 1) of divergence between social and private valuations, or 2) of the loss of consumer welfare due to the monopoly pricing of the complementaria. Nothing can be said a priori about the direction of the effect of the first, but the second clearly pushes the social preference toward the tax-and-subsidy system.⁷⁵

It is now time to drop the assumption that the entire costs of complementarias are their purchases from Paz del Río. Once this is done, exact analysis becomes more complex, but some broad conclusions are easily reached.

Firms which buy less than half their raw materials from Paz del Río do not qualify for tax exemption as complementarias and hence, under all circumstances they are better off under the tax-and-subsidy system in which Paz del Río prices are (at least somewhat) lower. Similarly, complementarias 1) that are not very profitable and/or 2) whose costs are very largely composed of their Paz del Río purchases will prefer the tax-and-subsidy system since, in the first case, loss of tax exemption costs them little and in the second, lower Paz del Río prices are more important. Thus, the only firms that would prefer the present tax-exemption program are those that 1) are very profitable and/or 2) buy just over half their raw materials from Paz del Río.⁷⁶ We cannot, without precise theory, state under what conditions the sum of all steel-using firms would be better or worse off with a change from the present tax-exemption system to a tax-and-subsidy system. We do know, however, that such a switch would benefit most those who need it most because they are now less profitable and/or "deserve" it most because they are good Paz del Río customers.

There is one basic aspect of the tax-and-subsidy system which argues strongly for it--that Paz del Río prices could be reduced under this system. The present exemption program offers incentives only to firms that can reach the magic 50%-Paz-del-Río-purchase level, and then it offers no incentive to exceed that level. A tax-and-subsidy system stimulates all firms to begin to use, and use more, Paz del Río products. To the extent that lower Paz del Río prices can 1) increase the low social cost output of Paz del Río, 2) induce substitution of domestic for undervalued foreign steel inputs, or 3) aid in the achievement of Colombia's non-economic industrial growth objectives--to that extent, a tax-and-subsidy system has clear advantages over the complementaria tax-exemption system.

FOOTNOTES

* I have benefited greatly from the cooperation of many Colombian businessmen and government officials, from comments on earlier drafts by colleagues in the Colombian Planning Agency (Planeación) and the University of Michigan, and from criticism by participants in the 1968 Harvard Development Advisory Service Conference at Sorrento. This paper in no way represents an official position, and errors that remain are mine.

¹ S. G. Ross and J. B. Christensen, Tax Incentives for Industry in Mexico, Cambridge, 1959, p. ix.

² M. D. Bryce, Policies and Methods for Industrial Development, New York, 1965, pp. v-vi.

³ In 1965, according to Departamento Administrativo Nacional de Estadística, Boletín Mensual de Estadística, August 1967, p. 27.

⁴ One peso was worth around .11 U.S. dollars in 1965.

⁵ The data used in Sections IV and V are discussed in Appendix A. The efficiency implications of complementaria exemption (as compared to a subsidy system) are analysed in Appendix B.

⁶ Luis Ospina Vásquez, Industria y Protección en Colombia, 1810-1930, Medellín (Colombia), 1955, p. 214. This book is the principal source for statements in this paragraph.

⁷ Law 22 and Decree 1143 of 1908.

⁸ E.g., for Colombian airlines, tourist hotels, and auto assembly.

⁹ Article 32 of the Constitution and Law 54 of 1939.

¹⁰Decree 1157 of 1940.

¹¹Ibid., Article 2.

¹²Ibid., Article 46. The wealth tax was based on corporate equity and was removed in 1960. (For details concerning the tax laws of Colombia, see Harvard University International Program in Taxation, Taxation in Colombia, Chicago, 1964.)

¹³In Decree 1439 of 1940, Art. 1.

¹⁴Only two firms according to Alberto Silva and Tito Luis Caldas, Régimen Legal de la Industria en Colombia, Bogotá, 1956, p. 34n.

¹⁵Law 14 of 1945, Art. 2.

¹⁶Later "Acerías Paz del Río"; hereafter referred to simply as "Paz del Río". For a history of the financing and operation of Paz del Río, see John A. King, Jr., Economic Development Projects and Their Appraisal, Baltimore, 1967, Case 30.

¹⁷Law 95 of 1948 and Decree 3211-Bis of 1953.

¹⁸Except the excess profits tax.

¹⁹Law 167 of 1948 and Law 8 of 1952.

²⁰Law 81 of 1960.

²¹Certain básicas and complementarias later qualified for exemption from import duties as well. Decree 1659 of 1964.

²²From income taxes on dividends (or earnings) and from wealth taxes on the value of their shares.

²³Executive Resolutions 197 of 1961, 78 and 127 of 1962, 74 of 1964, and 225 of 1966.

²⁴The decision seems to have rested on the fact that each of the former was a major import, and each of the latter minor. However, such a criterion rests arbitrarily on the definition of the product.

²⁵Moreover, for one firm with which I corresponded, MinHacienda levied the taxes of two years despite the existence of a MinFomento resolution granting it exemption as a básica. For one year, the MinHacienda decision was later reversed, while for the other year, the firm has been appealing the decision for several years. There may be other such cases.

²⁶In fact, nobody knows who the complementarias are, nor can this be known without searching past corporate tax declarations. MinFomento knows the básicas (except those accepted by MinHacienda without a MinFomento resolution), but does not report the list to SuperAnónimas.

²⁷Especially Decree 1393 of 1961.

²⁸Decree 1731 of 1966.

²⁹In all, of the 55 firms which were nueva at some time during 1960-1966, 13 were not so declared until some year subsequent to their initial recognition as básica or complementaria, and six lost their nueva status in some year (or years) subsequent to their initial recognition as nueva.

³⁰Two of the reasons for this are that two thirds of the at-some-time-exempt firms had not yet been established by the start of the exemption statute, and that the newly established firms frequently did not earn sufficient profits to merit seeking exempt status in their first few years. For the at-some-time-exempt firms for which there are data, 44% earned zero or negative profits in the year of their establishment, 36% in the next year, and 22% two years later. For initially unprofitable firms, exemption had no value in the early years.

³¹"Overpriced" relative to what prices would be if the government did not grant exemption to complementarias and used the additional tax revenue to subsidize Paz del Río in such a way that its prices were lowered. This question is discussed in Appendix B.

³²This, for example, is the approach of A. R. Garcia, La Ley de Fomento de Industrias de Transformación, Thesis of Universidad Nacional Autónoma de México, 1957. Unfortunately, the Mexican administration, like the Colombian, essentially required firms to be already operating by the time their exempt status was determined. See Ross and Christensen, op. cit., pp. 83-90.

³³For those at-some-time exempt firms founded in or after 1961, the average time lapse between their date of establishment and their first MinFomento exemption resolution was more than two years.

³⁴In fact, the "population" to which such a question can be addressed is incorrectly defined since it would be a Herculean task to discover in MinFomento archives the names of firms which have solicited but never received exemption. The "population" being considered in this paper therefore consists of firms whose exemption hopes were, by 1966, at least once realized.

³⁵Some had ceased business or could not be located.

³⁶I.e., its composition with respect to number of years exempt, size, type of exemption, age, etc.

³⁷Since those who have been most favored or most disillusioned by the exemption system seem most likely to respond.

³⁸Price reduction in response to income-tax exemption is of course not consistent with the usual profit-maximization model of business behavior, but that model is probably not consistent with much Colombian business behavior.

³⁹Self-serving in that a continuation of the exemptions into the 1970's was then being considered.

⁴⁰Fortunately, there is some evidence along these lines. In the process of examining the investment behavior of Colombian corporations, R. Bilsborrow intensively

40 (cont.)

interviewed many tax-exempt firms. On the basis of these interviews and his empirical work, he concludes that tax reductions would have little effect on investment. R. Bilsborrow, The Determinants of Fixed Investment by Manufacturing Corporation in Colombia, Ph.D. Thesis, University of Michigan, 1968.

⁴¹Since work on this paper was completed, a path-breaking stride has been made in this direction by R. Bilsborrow (op. cit.). Unfortunately, the econometric results are, in his words, "not terribly convincing" (p. 136).

⁴²Such data are no longer readily available in SuperAnónimas, and in any case, two thirds of the at-some-time-exempt firms were established in or after 1960.

⁴³All the empirical work is based upon this group of 78 firms, hereafter called "the sample". See Appendix A for a description of sources, data and procedures.

⁴⁴I.e., the after-tax profit rate that the firms would have enjoyed if they had paid all corporate taxes.

⁴⁵This data is collected by SuperAnónimas and is published annually in its Revista. In Colombia, there are two types of corporations, the sociedades anónimas and the sociedades limitadas. The former are like the U.S. corporation while the latter are more uniquely Colombian, combining various features of the corporation and the multiple partnership. For purposes of this paper, the critical difference lies in the tax rates. The anónima pays a progressive corporate income tax ranging from .12 to .36, and is liable to an excess-profits tax; the limitada pays a progressive corporate income tax ranging from .04 to .12 and is not liable to any excess-profits tax.

⁴⁶In the sample of 78.

⁴⁷At the least, it is now necessary to explain why realized profits typically have exceeded expectations in these areas (and not elsewhere).

⁴⁸In seven other designated areas not a single firm entered (or existed).

⁴⁹Less than half of these firms were ever granted nueva status, while over two thirds of the firms in the other 17 fields were (at some time or other) made nuevas.

⁵⁰The limitadas comprise 40% of the number of firms in the sample, but with only 4% of the total (1966) equity.

⁵¹Since the marginal income tax of limitadas cannot exceed 12%. Any value to limitadas lay not in status as básica or complementaria per se but rather in status as nueva which could greatly benefit the shareholders--and for limitadas, shareholders and management are often the same. Unfortunately, it is almost impossible to uncover information about the value of nueva status.

⁵²"Real" means in year zero prices.

⁵³The use of a horizon is one way to handle the uncertainty of distant flows. While not the best way, it is widely used by business. What it essentially means, in the present context, is that a piece of equipment is assumed to become valueless b years after its installation. It is further being assumed that r is chosen in such a way that the investor can and will undertake the investment if its present value is positive.

⁵⁴d represents the differential, and e is the Napierian 2.718....

⁵⁵Were a to increase beyond b, it would have no effect on the investor's decision.

⁵⁶For the manner of calculation of "profit rates", see Appendix A.

⁵⁷I.e., firms whose equity was below 1 million pesos in 1966.

⁵⁸This begs the question, where did the other extreme go. Only 5 of the 23 small limitadas in the sample had average profit rates below .20.

⁵⁹Half of these sixteen firms enjoyed such status for at least one year (during 1960-66).

⁶⁰Except, of course, if the firm's profits were negative and hence its tax liabilities zero.

⁶¹This approach, and the methodology of this section, owe much to an unpublished memo of R. Bilsborrow, "The Tax Incentive for 'Basic' and 'Complementary' Industries in Colombia," Bogotá, 1966.

⁶²For the years during 1960-66 for which data about the firm are available; the details are described in Appendix A.

⁶³On the assumption that the tax really applies to excess profits, and not normal returns as well.

⁶⁴And the easier it is to know when it has failed--and this latter is no trivial consideration.

⁶⁵Decree 1393 of 1961.

⁶⁶Firms file with SuperAnónimas a few months after the year's end, before MinFomen- to's resolutions have begun to be issued.

⁶⁷The data are not used to check tax declarations, import license applications, etc., but the firms cannot be sure of that.

⁶⁸P is not after-tax profits since T is not usually an accurate estimate of the firm's tax liabilities.

⁶⁹Years in which firms were extant but non-operating were eliminated as being unusable.

⁷⁰Which is the after-tax profit rate if the firm is exempt from corporate taxes.

⁷¹If not exempt. If it is exempt, H represents the hypothetical taxes it would have paid (i.e., the value to it of the exemption).

⁷²Since it induces Paz del Río customers to buy a larger quantity and/or pay a higher price than they otherwise would.

⁷³The first two assumptions will have to be relaxed later, but the third is reasonable in the Colombian context.

⁷⁴I.e., (p, q) in the tax-exemption situation, and (p', q') in the tax-and-subsidy situation.

⁷⁵This is but a new way of looking at an old idea. If a firm does not expand output beyond the point where its marginal revenue equals its marginal cost, its operation can be made socially more desirable by a policy that lowers the firm's marginal cost curve (and later taxes, on other than a per-unit basis, its additional profits).

⁷⁶A precise derivation of the line between "very profitable" and "not very profitable" and between "costs are very largely composed" and "just over half" would be unrewarding.

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