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## CONSTRUCTING A SPECIAL TAX REGIME FOR DEVELOPING SCIENCES, TECHNOLOGIES AND INNOVATION IN CUBA

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**Abstract.** This paper aims to build a theoretical approach to the master lines of constructing the new Cuban tax law. This special tax regime allows the tax governance of several actors of the national economy directed to develop technologies, change of productive matrix and growth of Cuban science products' introduction in the Cuban enterprises net. We used the analysis-synthesis; induction-deduction; sociological; exegetic, and modulation theory as methods. The main results obtained provide the master lines for constructing a novel political approach towards future tax regime. The authors offer systematization of the Cuban economic scenarios and provide novel and practically instrumental suggestions for transforming the current tax regime.

**Keywords:** taxation; tax policy; tax regime; innovation; technologies

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**JEL Classifications:** K34, H20, H21

**Additional disciplines** tax law, theory of law, Selectives Incentives Theory, administrative law, regulations

### 1. Introduction

The Cuban economic context is very complicated; when we should explain it, we recommend imagining a mix of spaghetti; each spaghetti represents a cause, and their interactions symbolize effects; we can understand the Cuban scenario's extraordinary complexity through this simple graphical representation. With this educational method in the front, we propose one of the solutions to Cuba's economic troubles from a tax perspective. Indeed, attracting FDI has been a remarkable goal since the first Cuban economic transformation in 90 decades (Falcón, Montero, & Ferrer, 2022; Castellanos, 2022; García & Molina, 2023). However, the emergence of new economic actors such as SMEs, cooperatives, and autonomous workers (which earlier were restricted to the agriculture and fish area) raises the need to assume technological paradigms that increase competitiveness in international markets. New actors can substitute imports and become essential entities in the construction of national technological sovereignty under a severe economic crisis and the intensification of the US blockade on the country, which is not a flattering international scenario. These actors are the constant temptation of importing long-lasting, scarce and finished products and reselling them in the national market, and in that way affecting the weak manufacturing

production, constituting an inflationary factor, increasing technological dependence and evaporating the few international currencies in circulation in the country.

In recent times, the government has begun the implementation of the science-based government model, seeking to increase competitiveness in the various actors and form value chains, all from an ongoing administrative decentralization process (Díaz-Canel Bermúdez & Delgado, 2021). This political-theoretical proposition constitutes one of the cornerstones of President Díaz-Canel's administration, and, indeed, it is a necessary transformative vision in the Cuban scenario. However, no tax correlation rewards the behaviours of economic subjects that adopt the model in its internal management and penalize the costs of those who are not innovators or developers of research in technologies; the tax system hinders and slows the development of the model itself. On the other hand, this tax regime could serve as a dumbbell or a kind of flexible hinge to provide local governments with tax policy instruments that help to adjust their respective development strategies that are conceptually based on the government system supported by science and innovation. From a practical point of view, it would generate a critical mass of economic subjects in which innovation and the development of technological paradigms endowed with sovereignty would be positive selective incentives for their costs.

The Cuban tax system was created in its main current guidelines by the Law of Tax System in 2012. This is the universal heir to the creation of the tax system in 1994 as part of the policy to correct the macroeconomic imbalances caused by the disappearance of the Soviet Union and the socialist camp that left Cuba without its traditional markets and caused a 35% drop in GDP, the most pronounced in the history of the region without the presence of war as a factor in the fall. This fact is not minor because Law 73/1994 and its decree Law 169/1999 were born with a collection will, a principle that carries the current norm 113/2012 and remains a watchword for the tax administration, ignoring the extraordinary importance of the extra-fiscal dimension, both for the functioning of the tax system itself considered as well as in its facet as an instrument of economic policy in general.

It comprises of a general tax regime and several special regimes, for example, agricultural activity, foreign investment, non-agricultural cooperatives, MSMEs, mining activity, customs regime, regime for the economic development zone of Mariel, etc. Generally, it has 17 taxes, three rates and three contributions. In Cuba, subnational entities, i.e., Municipalities and provinces do not have the competence to create taxable events; hence they participate in the collection of income ceded by the central budget for the collection of the generality of taxes according to variable formulas. Only in the private sector, which contributes less than 22% of GDP, can municipal administrations increase or decrease the tax rates of certain taxes, according to a range provided by the Ministry of Finance in its capacity as a financial authority in the Republic of Cuba. For these reasons, the construction of a Special Tax Regime for R+D+i activity is a huge challenge for the entire Tax System and for Cuban society in general.

Hence our scientific problem is the non-existence of a special tax regime for innovation, and the development of science affects the development of innovative behaviours and scientific development in economic subjects in Cuba. Consequently, as a working hypothesis, we assume that the existence of master lines for the creation of a special tax regime for innovation and the development of science will facilitate its design and, in turn, will make it possible to change the behaviour of economic subjects in Cuba, favouring innovation and development of technologies, as primary purpose since a theoretical approach the master lines to the construction in the new Cuban tax law a special tax regime that allows the tax governance of several actors of the national economy directed to develop technologies, change of productive matrix and grown of Cuban science products' introduction in the Cuban enterprises net. The main results obtained were seven master lines for adopting this political approach and future tax regime, systematization of the Cuban economic scenario and their descriptors and the theoretical basis of the new tax regime.

## 2. Methods

As methods, we used the analysis-synthesis in the analysis of the leading tax categories, in the compared theoretical proposals, in the systematization of tax techniques and in the condensation of effects on the R&D+i\* activity; induction-deduction as part of the description of the criteria, the results, the tax interrelationships, the analysis of the Cuban scenario and the interpretation of the trends that affect the proposal and the tax system adjacent to the R&D+i activity; sociological essentially used in the analysis of the socioeconomic characteristics of the Cuban scenario as well as the behaviour predicted by the various economic actors in the face of reality and the proposed tax regime.; exegetic, legal research method par excellence, showed its extraordinary usefulness in normative analysis; the statistical method facilitated the analysis of trends in the economic series used for the financing of science, its sources and its composition; on the other hand, it was also applied in the analysis of macroeconomic variables such as GDP, interannual growth, fiscal deficit, and modulation theory to sketch the categorical interactions as part of the proposed diagram.

## 3. Results

The main results reveal main criteria for adopting this political approach and future tax regime, systematization of the Cuban economic scenario and their descriptors and the theoretical basis of the new tax regime. Those are Accounting and factual verifiability of R&D<sup>†</sup>, Impact of the R+D+i<sup>‡</sup> in the strategic axes and sectors defined in the National Development Plan, creation of developments following local strategies, Sustainable changes in technological and productive paradigms and impact on the availability of liquidity in the country and forming part of public-private partnerships.

## 4. Discussion

Prior studies have noted the importance of tax treatment for research, development and technological innovation (Elschner, 2013; Mirrlees & Adam, 2010; Sánchez & de Haro, 2004). Several juridical orders have adopted lines in this address with the creation of special tax treatment for this kind of activity, whether tax deductions, benefits, attenuation of tax rates, or elimination of formal tax obligations with transcendence to costs. The chosen form varies according to the circumstances and the objectives pursued, manifestly extra fiscal. This tendency is obtained from such development that now talks of a particular legal regime - broader than tax question only- for such issues as digital innovation (Efremova & Gordienko, 2022).

A strong relationship between tax treatment and the development of research and innovation has been reported in the literature (Afif et al., 2019). Except for environmental taxation originally included in the law, extra-fiscality has meagre vestiges throughout the taxable events provided for by the Cuban legislator. This case at hand is no exception. In the Cuba case, no regime or tax category tends to prize the financing of new products resulting from research or innovation. Many times, it has been said that our tax system has an enormous regulatory weight that prevents it from addressing non-fiscal purposes with the necessary comprehensiveness and complexity and operating as a system (Limonta Montero, 2021, 2022; Maceira, 2014; Otero & Moya, 2020). This last assessment must be taken into account in all the discussions that we will carry out since it explains, to a large extent, the categories and relationships provided for in the Cuban tax system law

One question that needs to be asked is the behaviour in science activity inversion in Cuba; this data constitute the foundations for constructing a coherent policy on research, development and technological innovation. According to the displacement in amounts and time of this kind of public financing, could it be the critical crossing; its

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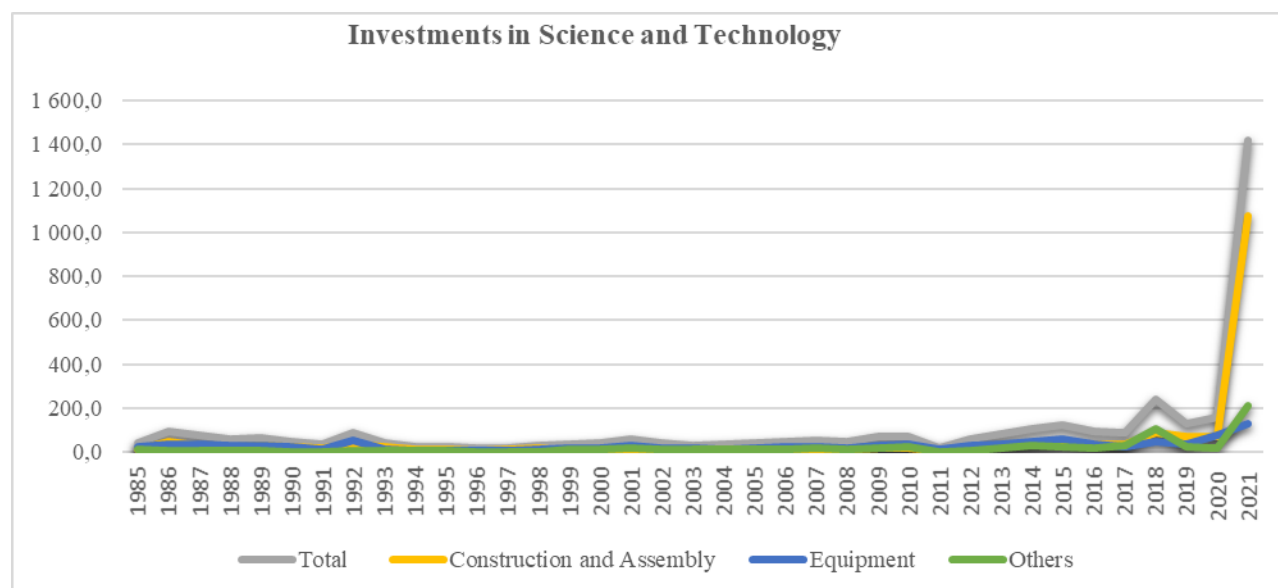
\* Research +Development +innovation

† Research + Development

‡ R&D+i

necessary to invest more private funds in development, research and technological innovation? Or can we increase the public funds? In the Cuban case, the answer is a truism. A more significant public, private and mixed business sector commitment is necessary for these objectives. Another question that needs to be asked, however, is whether Governance mechanisms are available, in this tax case, to ensure that financing occurs and has a tangible impact on the Cuban economic process while not contributing to raising the numbers of tax avoidance. R+D+i should simplify the technological transformation in critical areas such as energy, food production, transportation, e-commerce, export & import process, international currencies availability, etc.

The following graph shows that there has been a sharp increase in investment in science activity according to data of the Cuban National Statistical Office. Interestingly, this data shows that a significant part of public funds is directed to science activity because of the substantial part in the sequence corresponding to public entrepreneurial plus budget expenses. Consequently, our proposal of a particular tax system should be the composition of this graph, increasing the private funds as an independent line. Another chart shows the design inside the funds. The data in Graph 1 shows that the equipment variable is underfunded concerning construction and assembly, even in front of a miscellaneous variable as others.



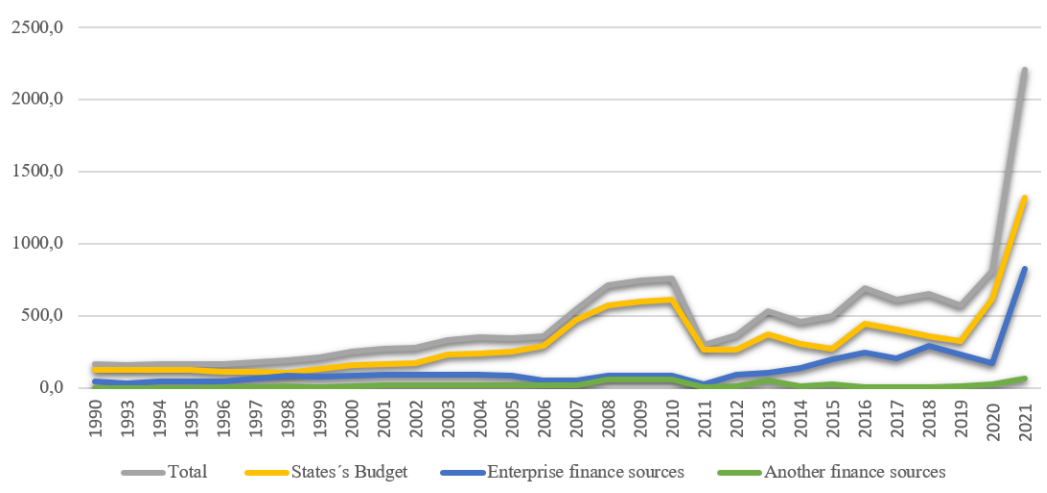
**Graph 1.** Graph of Investment in Science and Technology. Source ONEI Cuba

This tendency is exceptionally remarkable in designing a special tax regime because it should be valued as a prevalent behaviour of taxpayers. However, this point could explain one circumstance of Cuban economic management. The significant difference between the two shows a negative impact of the supra explanation. In terms of R+D+i, the equipment variable had to have a more ascending sequence than construction and assembly, even if considering the significant infrastructure works for the creation of scientific centres, for example, the western scientific centre from the capital, which became BIOCUBAFARMA<sup>§</sup>, or the impressive extension of the CIGB<sup>\*\*</sup> in the development zone of Mariel. The statistics show that the few funds allocated to equipment are

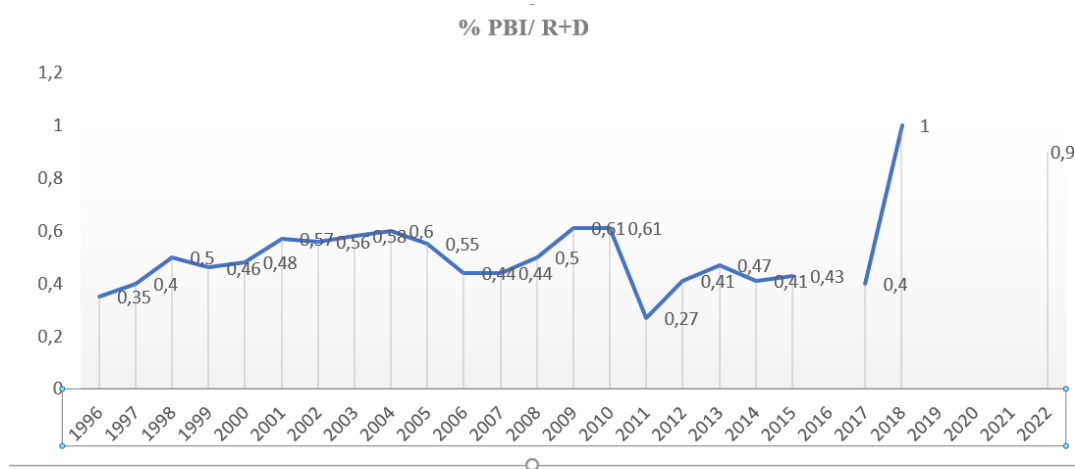
<sup>§</sup> The Cuban pharmaceutical business conglomerate brings together all the country's pharmaceutical production and exclusively biotechnology in Cuba. Acronym in Spanish.

<sup>\*\*</sup> Centre for Genetic Engineering and Biotechnology. An essential part of BIOCUBAFARMA and one of its nuclei of innovation and results in general.

sustained, a much more malleable solution in the Cuban context as there is a significant business infrastructure establishment with a low occupancy rate if it is taken to the field of research in universities and other actors., there is a less pronounced but similar trend. Since the macroeconomic approach, the correlation between PBI/Science investment is fickle without a clear direction. It can be seen from the data in Graph 3 that although there is an increment until 1 per cent, it shows an oscillation in one case with a sudden decrease that returns the following year to recover and maintain normal levels. It is essential to clarify that index is down, in many of the years reflected, of the Latin America region average.

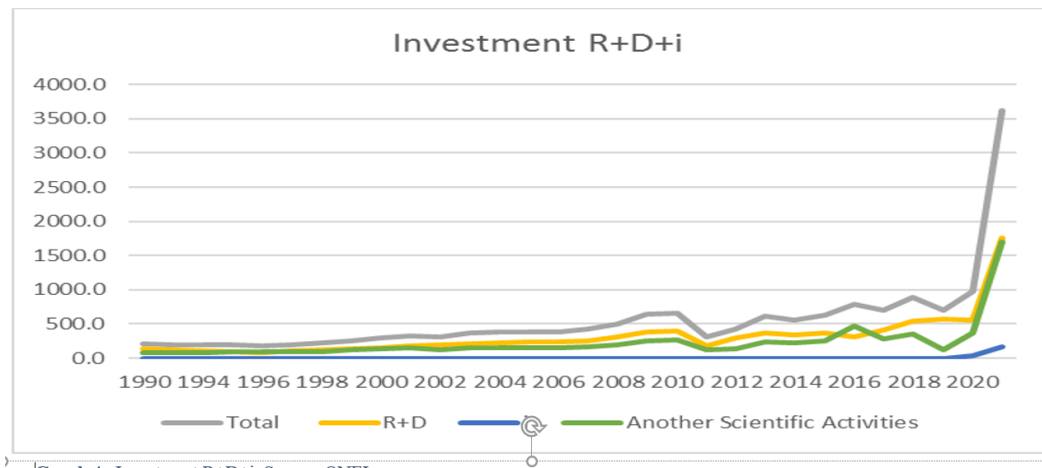


Graph 2. Graph of Cuban Science Financing. Source ONEI Cuba.



Graph 3. PBI/Investment R+D. Source. UNESCO, World Bank, Agustin Lage, Cubadebate, Mipais

Moreover, this graphic demonstrates the crucial need to increase the funds of PBI destined to the R+D+i. If we understand the explanation of graphs 2, 3, and this last graph 4, we will realize that we should raise funds and flow from all kinds of actors in the Cuban economy until this destiny. The necessity of changing the current state of affairs can be understood in broad terms. However, why the Cuban tax system should be one of the change factors? The answer to this question allows developing our hypothesis on this discussion in particular and in all papers.



Graph 4. Investment R+D+i. Source: ONEI

Previous research into the extra fiscal dimension has been consistent with the change in taxpayer behaviour. For example, Elschner (2013, p.213) studying the Impact of European tonnage taxes on the choice of organizational form draws our attention to "... the impact of the tonnage tax on organizational form choice is studied empirically in two steps. First, comparing firms in the maritime sector and other transport industries in 26 European countries, a cross-sectional analysis investigates the likelihood that a firm is incorporated depending on whether and how a tonnage tax regime is applied at a firm's location. The results provide the first evidence that the design of a tonnage tax regime strongly impacts organizational form choice. In particular, the likelihood that a business will incorporate is significantly lower in jurisdictions where a tonnage tax regime for all organizational forms is available than in countries without a special tax regime. In the second step, a panel analysis studies the share of incorporated firms out of all shipping firms in a country over time. This approach makes it possible to identify the change of organizational form patterns in the shipping industry when countries introduce the tonnage tax. The panel analysis results confirm the cross-sectional analysis findings, demonstrating the impact of a tonnage tax on organizational form choice".

In analogue result, Zhu et al. (2020, p.8.), in research on China's Green taxes policy, argued that "with the continuous introduction of the carbon tax and other policies, investors and the public can pay more and more attention to the carbon information of enterprises because it not only reflects the production and operation of a company but also reflects whether the company bears the public image of environmental and social responsibility. As low-carbon power becomes a trend, power companies should strengthen their disclosure of green accounting information so that accounting information users can better evaluate companies and make investment decisions".

The evidence of these works supports the idea that the tax system is a powerful tool to change the behaviour of economic and political actors. Alt, Preston and Sibiet (2010, p.1310) demonstrated that "tax incentives can potentially increase innovation by attracting investment by new firms, either by convincing large multi-national enterprises (MNEs) looking to expand globally to invest R&D resources or by helping small firms to emerge and establish themselves as business entities. Alternatively, tax incentives can fuel greater innovation by leading existing investors to increase their level of spending. In any case, R&D tax incentives provide tax relief to research-intensive companies for undertaking R&D, defined for tax purposes as projects that '[seek] to achieve an advance in overall knowledge or capability in a field of science or technology, not a company's state of knowledge or capability'".

Despite the positive behaviour change in the taxpayer, there is another risk that legislators should warn under penalty of the fiscal objective being undermined a posteriori; in the same work, the cited authors indicate, with extreme clarity, that: "the R&D tax credit provides several lessons, the primary one being that enacting tax policy



can create interest groups and constituencies in favour of that policy. Even when they did not lobby for the policy in the first place, like the large firms in our study, they will lobby for persistence and extensions that allow the policy to drift from its original motivation. Therefore, any potential tax reformer should remember that any new allowances enacted or favourable tax treatments provided to particular groups could prove difficult to remove and may be distorted into something different over time" (Alt et al., 2010, p.34). Since this theoretical position, they used the approach of groups from Mancur Olson to understand the existence and projection of this interest created under any tax policy design.

In the Cuban case, the tax design should notice the low innovative gradient of the enterprise community (M. et al., 2021). Creating an approach that allows modifying the cost structure, fostering the FDI, value global chains or any mechanisms to make the R+D+i easier. Of course, conceptual platforms should establish differences between research and development intended to impact technological paradigms that do not have or will immediately have precise applications in goods and services of the innovation that directly becomes transformations in the productive base. There are several interpretative difficulties in comparative cases, Spain, to cite a case in which the law speaks in its differentiation of substantial transformations, forming a legal concept that is difficult to determine (Sánchez & de Haro, 2004). However, in Cuba, there are potentialities on which the projected system must rest and which must constitute one of its clearest bases.

The projected several impacts inside the regime must be supported by the criteria (not excluded):

- ◆ Accounting and factual verifiability of R&D. (There are institutions in Cuba that, under a non-bureaucratic action protocol, can fulfil this purpose, for example, agencies of the Ministry of Science, Technology and the Environment, universities, research centres, science and technology entities, study centres) This criterion serves as the basis for the tax administration's protocol in its verification on the one hand and, on the other, would allow adjusting the tax policy to the national, provincial and municipal development strategy. C1
- ◆ The impact of the R+D+i in the strategic axes and sectors defined in the National Development Plan should be considered indicators. There are some obvious ones given the complexity of the Cuban economic scenario: Transformation of the fossil energy matrix and the path towards clean or renewable energy in production processes or provision of services, the inclusion of national components in the manufacturing industry with the consequent import substitution, export or inclusion in global value chains, endogenous systems development, IFA production in Cuba, food production or transformation, transportation with more rational consumption patterns. C2
- ◆ Creation of developments following local strategies. C3
- ◆ Sustainable changes in technological and productive paradigms. C4
- ◆ Impact on the availability of liquidity in the country and forming part of public-private partnerships C5
- ◆ Once the teleology of the tax regime has been established through the guiding criteria, the impacts must cover various tax categories so that Cuba's entire subjective economic map can benefit from resorting to this behaviour and financing it. As we have said, this regime will become one of the most solid foundations for the government system based on science (1).

$$B_i - M_E - G_{fd} = B_{Lx} T_i = CT_i \quad B + S = CT_L \quad (1)$$

Where:

$B_i$  = taxable basis;  $M_E$  = exempt minimum;  $G_{fd}$  = deductible tax expenses;  $B_{Lx}$  = Credit taxes;  $T_i$  = tax rate;

$B$  = payable tax base;  $S$  = tax penalty;  $CT_i$  = tax liability (uncomplete);  $B$  = credit taxes;  $CT_L$  = tax liability

Let us assume that the general equation for taxation is the model expression of the impact of the proposed tax regime. Thus, the first impact could be in the conformation of the taxable base, which could consider the non-inclusion of investments in equipment for R+D+i in a prudential period for the execution of the investment. Note that the behaviour described in the investment structure would have a selective incentive for equipment to exceed

the investment in miscellaneous (matter graphed supra) with the effect on the acquisition or growth of technologies. It should be signified by the urgency of the economic situation in Cuba at first; through the budget law, it could be updated, four immediate objectives: investments aimed at generating energy, those that contribute to macroeconomic stability, acquisition and development of technologies with foreign investment and those that are made as part of a public-private alliance and foods production. Out of the taxable basis should be all the investments process that can prove all the exposed criteria. It remains for granted two criteria that, due to their obviousness, have not been reflected in the proposal; first, the calculation must correspond to the tax on the income of the legal entity that in Cuba corresponds to the tax on profits, provided for in article 68 of the current law 113 /2012 Law of the Tax System and second, all these exclusions in the taxable base become inclusions for those who decide not to invest in R+D+i, who must bear the costs of their investment processes with the corresponding tax burden.

Concerning the exempt minimum, two additional variables must come into play; the law contemplates several special tax regimes with extra fiscal purposes as crucial as the one intended to protect, inducing the behaviours declared by the taxpayers. For this reason, a system of weighting rules must be considered to avoid tax avoidance or deviation from the desired tax impacts with the policy. For example, the law raises in its title V a special regime for the agricultural system, favouring something that the Cuban economy has been suffering from, which is the low production of food and the high imported content of the food basket. Considering the diagnosis that ECLAC made in 2020 (CEPAL, 2020), there was a gross drop in the agricultural sector in 2020, year 1 of the COVID-19 pandemic in Cuba of 23.7%. Suppose the proposal outlined in this paper is approved. In that case, both tax regimes must coexist with weighting rules that achieve effective production and realization of production in agriculture. In the case of the R+D+i regime, it must focus on the change of technologies and the prize for it, v. gr. alternative irrigation systems that reduce water consumption, use of pesticides and fertilizers that favour national developments, as well as the introduction of more resistant species obtained thanks to scientific development. We apply an Occamian razor to the issue of genetically modified or transgenic organisms, as it is a marginal issue to the exhibition and the Cuban reality concerning the scarcity and price inflation of agricultural products (Castellanos, 2022; García & Molina, 2023; Hernández et al., 2022). These principles will interact, with adjustments and empowerment, to specify rules in the text of the law for other similar regimes in competition and application. For all these reasons, the minimum exemption will have to be built under these rules, and a single minimum exemption must be renounced, as is the current criteria of the law and its legal orbit.

For years there has been much ado on the deductible tax expenses. In a matter of R&D, there is a consensus; the differences of opinion are located in the best way law makes them. Indeed, considering deductible expenses as a tax incentive results from political decision-makers needing a more significant innovative effort from economic actors, hoping that the growth of R&D inside economic actors be translated into considerable wealth and welfare.

On this peculiar teleology, Jacquet & Robin (2023, p.23) suggested that "the rationale is that innovation-induced economic growth will increase wealth, employment and well-being. EU policymakers are therefore searching for the conditions that are more likely to make firms increase their innovation effort. A widespread recommendation consists in creating the conditions of increased competition between firms (or "letting the market decide"), as the increased competitive pressure would supposedly lead firms to innovate to survive or to gain advantages over their competitors".

On the obverse side of the coin, the market failure, as a kind of Arrow precaution (Arrow, 1962), is the opposite explanation of the optimism of the EU policymakers. The character of the public good of the innovation (beyond what is protected by industrial and intellectual property rights) and the little certainty of the investment processes that have innovation as their centre make companies and banks under the deregulated market, they do not tend to develop R&D as a source of growth, quite the contrary. Those circumstances - as a model, explain the market failure in promoting R&D without the required mechanisms of encouragement. This is why incentives such as



deductible expenses adjust for likely market failures. One of the most important mechanisms is the called tax super deduction consisting of vital tax deductions after evidencing expenses in R+D+i; several researches show that economic actors from countries where a super deduction is available are more motivated to spend money in R&D (Makeeva et al., 2019). In the case of a taxable base reduction of more than 100 per cent of the R&D demonstrated expenses, the research and development intensity are higher. Literature has concluded that super-deduction will boost R&D investment across Europe, which is assumed to be more conducive to innovation, and, ultimately, more growth. There is evidence of up to 200% in these deductions in cases such as Brazil; other countries with this technique are Slovakia, China, Greece, Hungary, India, Latvia, Lithuania, Malaysia, Poland, Romania, Russia, Singapore, South Africa, Türkiye and United Kingdom (Bočková & Pakšiová, 2022; Jančíčková & Pakšiová, 2022; Makeeva et al., 2019; Noked, 2019; Tufetulov et al., 2015).

Politicians and academic sectors would widely discuss the relevance of the super deduction technique inside the Cuban tax scenario because of the budgetary deficit. Only this year's (2023) estimated deficit was 24% of the expected fiscal income. Any tax renounces will have many critics scheduled in Cuba's context, even if they have lofty purposes such as growing R+D inside economic actors. More than once, the Cuban Public Financial Administration has fronted to severe liquidity issues, often, the liquidity gaps are a reality inside budget realization, and this permanent anxiety state becomes very difficult the agreement on the super deduction institution. However, R+I could construct a *modus vivendi* between collection finality and extra fiscal goals. A progressive introduction should be reserved for the more significant investments in decisive fields of the national economy. The strategic axes, defined under government policy rules, are the perfect primary field of experimentation under the caution established by the base criteria proposed by this paper. The super deduction application process could consider even a progressive scale of marginal sections of the investment.

On the question of super deductible expenses, Tao et al. study found that they should be adjusted to the industries classification because the impact inside the economic cycle is very different between several kinds of industries. The ongoing classification by Economy Ministry could be the ideal platform for fine-tuning this part of the tax technique implementation. Contrary to expectations, this cited research demonstrated that policies should focus on SMEs and be more inclusive. A cash credit policy should be adopted for SMEs instead of a deferred credit policy. For startup-technology-based SMEs, a higher super-deduction rate should be available (Qian et al., 2022). On this point, the Cuban SMEs dedicated the majority to reselling and not to the production or any transformation of the goods could be halted. The last end, the super deduction, should establish innovative chains between a vast part of Cuban economic actors.

Hence, it is likely hypothesized that the taxable basis converted into payable tax base was influenced by a system of credit taxes originating in the operation of exempt minimum and deductible tax expenses. The highlight, without doubt, would settle around of tax rate. In Cuba, one of the principles of a tax system is the progressiveness of the tax structure, expressed in a rate aliquot or proportional, progressive rates by steps or fixed rates. Therefore, such tax rates are likely configuring a model for a particular tax regime on R+D+i. Thus, in the tax rate on income taxes or profit taxes, there can be a marked difference between the behaviour toward R+D+i and others to anyone who does not invest in R+D+i. Those companies that run risks developing technologies must be rewarded in tax rates in the several steps of the scale. Another issue that should be revised is the tax burden and the benefits of the researchers. Today, there is a dichotomy between the spirit of the original law when in the 300 c) excluded of the taxable basis, the incomes originated in other funds different to the salaries for the Special Tax Contribution from the workers to the Social Security. It is comprehensible that when the law was announced, there was no possibility that research projects could pay the researchers. This reality changed 180 degrees when making these payments under the Science Ministry administrative order was possible. The law stipulation should have been reviewed; thus, an administrative order by Finance and Prices Ministry was indicated to include all the payroll incomes. This administrative order, 310/2020, was since juridical approach highly contradictory because for this imperative was essential the derogation of 300 c). This point of view, also contradictory, was ratified in

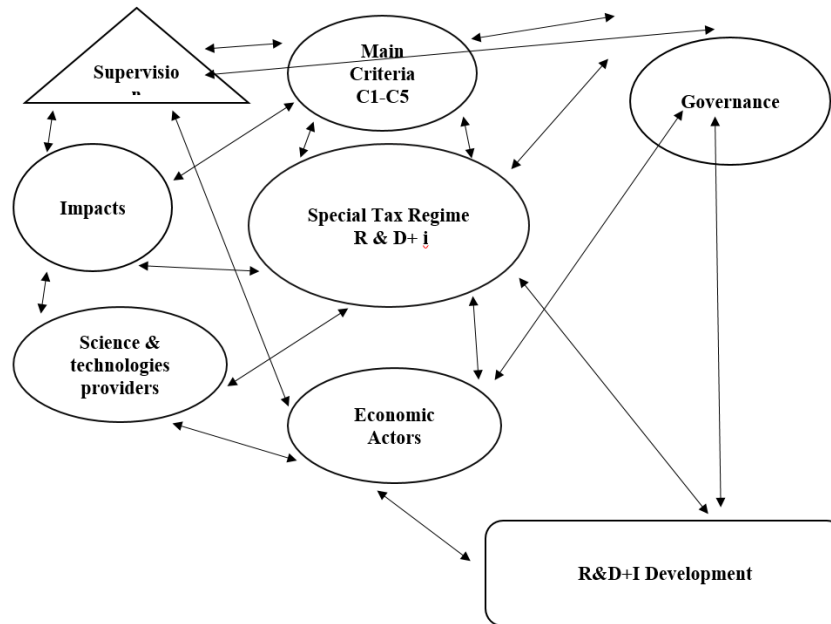
the administrative order 41/2023. In general, researchers and innovators should be benefited from their tax burden.

Another example of things this particular tax regime should change is the approach to tax benefits. When we directed the foundational group of the Oriente University Interface Society, we noticed that other enterprises or economic actors generally did not benefit from investing in the technologies or science products transferred from the university until the companies or businesses. The exemption only can be applied by technological parks, foundations or Interface Societies; this needs to be corrected from the reward focus. All the participants in the innovative chain should be rewarded with rules that support the risks taken in the investment. With this vision, economic actors will be encouraged to participate in innovation.

Sectors and actors should measure the tax progressivity. Due to this, in recent years, researchers have investigated various approaches to understand the real impact. In the case of progressive tax regulation on carbon in China, Zhan has pointed out that although manufacturers are impacted by tax progressivity, they adopt measures that are convenient for them, explained in the study with the Nash equilibrium methodology; for this reason, "to guarantee that carbon emissions do not exceed the cut-off value, when the high-level carbon tax is increased, the manufacturer significantly improves the reduction level and increases the production quantity moderately; conversely, when the cut-off value is increased, the manufacturer drastically reduces the reduction level and slightly decreases the quantity of production" (Zhang et al., 2021), this behaviour explains why it is crucial to determine the impacts of the proposed tax regime since it is the only way to avoid falsifiable results and the consequent tax evasion. In June of 2023, Ferriere et al. pointed to some of how they should design the progressivity; for example argued that transfers allow for more progressive average than marginal tax and transfer rates, achieving redistribution while preserving efficiency; transfers should be larger than currently in the United States and financed with moderate income tax progressivity (Ferriere et al., 2021, 2023; Forscher et al., 2023), those approaches should be superposed before the cash needs that as the sword of Damocles hangs over Cuban Tax System.

On the credit taxes, Makeeva, Murashkina & Mikhaleva have argued that "the R&D tax credit program is a program that allows the subtraction of an amount of money directly from tax liability. The sum of subtracted money depends on the amount of R&D expense. The majority of countries allow a decrease in the tax paid by 5-35 per cent for R&D expenses of that year, while some of the regulations can enable cutting up to 50 per cent of R&D" (Makeeva et al., 2019, p.25)

The representation of a special tax regime should reflect all the issues explained before, as Diagram 1 shows:



**Diagram 1.** A special tax regime

The exposed diagram condenses the variables we explained in detail for each category in the general taxation equation. As it is possible to notice, all the categories are closely interrelated, and the criteria outlined play a role in the guiding lines in the elaboration and evaluation of the proposed tax regime. This is not an exclusive proposal; it is original at the dawn of drafting the new tax law.

### Concluding Remarks

In the present paper, we established the fundamental reasons that allow us to justify the need for a particular tax regime for the R&D activity, not only from a prospective and *de lege ferenda* approach but also from the peculiar circumstances of the Cuban economic scenario. Fulfilling the objective outlined in this article, we established the master lines, called criteria that should preside over the creation and measurement of the impacts of the proposed tax regime. In the same way, proposals were made for configuring important categories of tax design, such as the taxable base, the minimum exemption, tax-deductible expenses, and the tax rate and tax benefits. The reward approach to economic actors constitutes an objective goal that was argued throughout the analysis made in this investigation. In short, it is a proposal that forms a powerful tool to guide Cuba toward economic recovery and growth.

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