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Impact of the tax reform on agricultural SMEs in the Province of Los Rios – Ecuador

By

Aida Maribel Palma
Universidad Técnica Estatal de Quevedo, School of Business Administration. Address: Campus; Ingeniero Manuel Agustín Haz Álvarez, Av. Quito km. 1 1/2 via Santo Domingo de los Tsáchilas. Postal Code: 120301 – Ecuador
https://www. orcid.org/0000-0003-3982-1132
Corresponding autor Email: apalma@uteq.edu.ec

Arturo Patricio Mosquera
Quevedo State Technical University, School of Business Sciences. Address: Campus; Ingeniero Manuel Agustín Haz Álvarez, Av. Quito km. 1 1/2 via Santo Domingo de los Tsáchilas. Postal Code: 120301 – Ecuador
https://www.orcid.org/0000-0002-1902-7102
Email: amosquera@uteq.edu.ec

Erika Ballesteros
Quevedo State Technical University, School of Business Sciences. Address: Campus; Ingeniero Manuel Agustín Haz Álvarez, Av. Quito km. 1 1/2 via Santo Domingo de los Tsáchilas. Postal Code: 120301 – Ecuador
https://orcid.org/0000-0002-5483-0507
Email: eballesteros@uteq.edu.ec

Abstract

Objective - This study aimed to analyze the impact of the tax law enacted in December 2017 on SMEs in the agricultural sector in Ecuador.

Theoretical Framework - Permanence over time and growth are two of the most important aspects for a company; laws that are not properly grounded can affect these two factors**.**

Design/methodology - The study population was agricultural SMEs that filed their financial statements with governmental control agencies and income during 2017, 2018 and 2019. Financial and growth indicators were applied with direct and indirect action of income tax for subsequent comparison with the base year 2017 with the following years, 2018 and 2019.

Results - More than 40% of SMEs caused lower income taxes than in the base year 2017; also, both small and medium-sized companies presented growth rates, but not to the extent that the law projected; however, no correlation was found between the income tax caused and the different financial ratios calculated.

Social, practices and research implications -This study determines the economic impact of one of Ecuador's most important pre-pandemic reforms.

Originality/value - Although the study is conducted in the agricultural sector, this study contributes to the analysis of SMEs in all sectors. Furthermore, it allows to identify and

obtain real data on the law's impact on agricultural SMEs and to check compliance with the assumptions of the existing taxation theory.

Keywords - agriculture, taxes, tax, indicators, SMEs

Resumen

Objetivo – El objetivo de este estudio fue, analizar el impacto de la ley tributaria promulgada en diciembre del 2017, sobre las pymes del sector de agrícola en Ecuador.

Marco Teórico – Permanencia en el tiempo y crecimiento son dos de los aspectos más importantes para una empresa y leyes no fundamentadas correctamente pueden afectar estos dos factores.

Diseño/metodología – La población de estudio fueron las pymes agrícolas que presentaron sus estados financieros en los organismos gubernamentales de control, e ingresos durante los años 2017, 2018 y 2019. Fueron aplicados indicadores financieros y de crecimiento con acción directa e indirecta del impuesto a la renta, para posterior comparación con el año base 2017 con los años siguientes, 2018 y 2019.

Resultados – Más de 40% de pymes causaron menores impuestos a la renta que en el año base-2017; también, tanto empresas pequeñas como medianas presentaron índices de crecimiento, pero no en la medida que la ley proyectó; sin embargo, no fue encontrada correlación entre el impuesto a la renta causado y los diferentes índices financieros calculados.

Implicaciones de sociales, practices y de investigación –Este estudio determina el impacto económico de una de las reformas pre-pandemia más importantes en Ecuador.

Originalidad/valor – A pesar que el estudio está realizado en el sector agrícola, este estudio contribuye para el análisis de las pymes de todos los sectores. Permite identificar y obtener datos reales del impacto de la ley sobre las pymes agrícolas y comprobar el complimiento de los supuestos de la teoría de tributación existente.

Keywords - agricultura, impuestos, indicadores, pymes

Introduction

The economic activities of SMEs constitute an essential part of regional and global economic activity. Moreover, due to their spatial distribution, they cooperate with the dynamism of entrepreneurship and rural business fabric, fight against poverty, inequality and sources of employment for women and youth and private investment (Araque & Arguello, 2015; Tambunan, 2019).

In the first decade, it was estimated that more than 90% of productive enterprises were within SMEs (Savrul *et al*., 2014; Valdes & Sanchez, 2012). With this high number of companies remaining today, SMEs employ 35.48% of the labor force while large companies employ 39.54%.

According to the National Institute of Statistics and Census (INEC), productive sector companies are divided into five groups: Services, Commerce, Agriculture, Livestock, Forestry and Fishing, Manufacturing Industries, Construction and Mining and Quarrying. The Agriculture, livestock, forestry and fishing sector, which is the subject of this study, accounts

for 7.16% of active, productive enterprises and employs 7.68% of the country's labor force (INEC, 2020).

The same INEC report (2020) states that 6.39% of sales registered by productive enterprises correspond to the Agriculture, livestock, forestry and fishing sectors. The Province of Los Ríos is the seventh province with the highest share in sales (1.5%); however, very distant from the provinces of Pichincha and Guayas, which have 44.03% and 32.88% share in sales, respectively. By company size, SMEs have a 25.37% share of sales, corresponding to approximately one-third of the share of large companies, which account for 73.95% of sales nationwide.

Despite the solid macroeconomic effect that SMEs represent (Aguirre *et al*., 2021), they also face some unfavorable conditions that prevent their contributions from being greater, reduce their productivity, limit their growth and, often, their sustainability over time. Among their most important limitations is the lack of training, management and administration, access to technology and infrastructure, access to sources of financing and tax regulations (Aguirre *et al*., 2021; Nikolic *et al*., 2018; Tambunan, 2019), being that authors such as Peralta and Viltard (2015), determined that economic and technological aspects are the most influential for SMEs; however, the same study reveals that less than half of the SMEs analyzed made investments in the technological area.

In a study conducted by Mantilla-Falcón *et al*. (2014), it was determined that less than 30% of SMEs train their personnel continuously and almost half of the companies carry out training occasionally or when required by law. In addition, the same author found that more than 52% of the companies analyzed recognize that they require training. As a result, and contrary to what may be assumed, SMEs are generally born as subsistence ventures without medium- or long-term strategic plans (Valenzuela-Klagges *et al*., 2018). SMEs are also managed and operated by owners, who make decisions at all levels of the organization (Savrul *et al.,* 2014).

The advantage of this organizational structure is that the company becomes dynamic, with high adaptability and flexibility, by not having complex organizational structures (García & Villafuerte, 2015). In addition, its characteristic allows it to personalize its products more and to be in direct contact with customers (Savrul *et al*., 2014). On the other hand, the disadvantage is that the lack of knowledge, mainly administrative, prevents it from analyzing the micro and macroeconomic variables of the market, accessing credit, and applying marketing strategies and consequently can lead to financial problems (Kibira *et al*., 2021; Tobar & Solano, 2018).

Other aspects that affect the good financial performance of SMEs are tax burdens (Tobar & Solano, 2018). In the history of Ecuador, the tax aspect has influenced the lives of Ecuadorians at the social and economic level due to the variable tax policy. Over the years this tax policy has evolved according to each era's social and political environment, and in turn, the methodology of the taxes applied. All these changes have led to the collection of taxes that constitute an important part of the State's revenues. According to the Organization for Economic Cooperation and Development (OECD, 2021), in 2019, the contribution to GDP from tax collections reached 20%.

Together with the fact that what is collected is not enough for the State to provide goods and services for society in general and also as a support for businesses (Espita et al., 2017; Zamora, 2020), the State also faces the problem of tax evasion generated by the perception of

inequity regarding the application of tax rules and the instability of these rules (Newman et al., 2018). By not controlling the evasion problem, the new reforms and laws enacted could increase the burden on companies that comply with their tax obligations (Castañeda Rodríguez, 2017).

For Jacob (2021), lower taxes can help improve SME productivity and other benefits such as investment in technology, innovation, stability and growth.

Of all the aspects analyzed, taxation is a fundamental aspect in evaluating SMEs' excellent performance since it influences their management, investment and growth. Therefore, from 2007 to 2017, the Government of Ecuador has carried out a series of reforms to strengthen the Ecuadorian tax system (Table 1).

Table 1: Laws enacted from 2007 to 2017.

Year	Laws enacted
2007-2009	Tax Equity Act Constitution of the Republic Amendments to the Internal Tax Regime Law and to the Reform Law for Tax Equity in Ecuador
2010-2011	Hydrocarbons Law Amendment Law and Internal Tax Regime Law Organic Code of Production, Commerce and Investments Environmental Promotion Law Organic Law on Disabilities
2012-2013	Organic Law for the Redistribution of Revenues for Social Spending Organic Reformatory Law to the Mining Law, to the Reformatory Law for Tax Equity in Ecuador and to the Organic Law of Internal Tax Regime Organic Law on Incentives for the Productive Sector Organic Law for the strengthening and optimization of the corporate and stock market sector.
2014-2015	Law on Incentives to the Productive Sector and Prevention of Tax Fraud Organic Law on remission of interest, fines and surcharges Organic Law on Incentives for Public-Private Partnerships and Foreign Investment Organic Law for the balance of public finances
2016-2017	Organic Law of Solidarity and Citizen Co-responsibility for the Reconstruction and Reactivation of the Areas Affected by the Earthquake of April 16, 2016. Law for the implementation of the popular consultation of February 19, 2017: Prohibition of the use of tax havens for public servants. Organic Law for the reactivation of the economy, strengthening of dollarization and modernization of financial management.

Source: Adapted from Servicio de Rentas Internas (SRI, 2018).

The objective of this study was, through a series of financial indicators, to analyze the Organic Law's impact on the economy's reactivation, strengthening of dollarization and modernization of financial management on SMEs in the Agriculture, Livestock, Forestry and Fishing sectors in the Province of Los Ríos. Mainly compliance with benefits to 15% of small and 10% of medium-sized companies.

Material and methods

For the analysis of growth in the number of companies, the total number of companies reported for the Agriculture, Livestock, Forestry and Fishing sector from 2012 to 2019 and the total number of companies classified by size from 2015 to 2019 were used. Both groups are reported in the Business Directory for the years mentioned by the National Institute of Statistics and Census (INEC).

For the remaining analyses, the population under study consisted of SMEs in the Province of Los Ríos in the Agriculture, Livestock, Forestry and Fishing sectors that have submitted their financial statements to government control agencies, using as an additional selection criterion that they have reported revenues during 2017, 2018 and 2019.

The companies were classified as small and medium-sized according to the Superintendence of Companies and the Andean Community of Nations (CAN, 2009). If, for the years 2018 and 2019, they changed the category (increase or decrease in sales revenue), they were maintained according to their base year classification for the analyses. The base year was 2017, which corresponds to the year prior to the enactment of the law and was compared with the years 2018 and 2019, years prior to the pandemic caused by the SARS-CoV-2 virus.

The information from the financial statements to evaluate economic performance (Tobar-Pesántez & Solano-Gallegos, 2018) and other relevant information for the study was extracted from the Superintedencia de Compañías (SuperCias), Servicio de Rentas Internas (SRI), Directorio de Empresas presented by the Instituto Nacional de Estadísticas y Cencos (INEC) in association with the Instituto Ecuatoriano de Seguridad Social (IESS). With this information, indicators were applied to verify the benefits projected in the law.

The indicators applied to each company on the information in their financial statements are divided into four groups. The first group corresponds to the analysis of the increase/decrease in the number of companies in each category due to the benefits enacted in the law. The second group analyzed the number of companies that moved up/down in category (from small to medium-sized and vice versa).

The third group corresponds to the analysis of the direct impact on income tax with the following indicators: the ratio between the increase in income tax (IT) and the increase in sales; the ratio between IT and sales revenues for the year; the ratio between IT and income before taxes (IAT); increase in IT in absolute values for the base year and the weighted sum of the above indicators. In addition, the number of companies with an increase in sales and, at the same time, a decrease in income tax for the previous year was also analyzed. In the fourth group is the indirect impact of income tax indicators such as the DuPont index, net margin and the weighted sum of these two indicators.

All indicators, except those in the first group, were applied on each company's financial statements for the years 2017, 2018 and 2019. The comparison unit was each group's percentage (%) of affected companies.

Finally, a regression model that explains the behavior of the IR for the increase in sales, the IAU and the sales revenue reported each year was evaluated. Furthermore, with these same variables, the correlational relationship between them was analyzed using Spearman's coefficient, as it is the most appropriate in non-linearity between variables and as a non-

parametric coefficient (Ortiz & Ortiz, 2021). The analyses were performed using Microsoft Excel 2016, R v.4.1.0 and SigmaPlot v.12.

Results

According to the Business Directory (INEC, 2020), as of 2019, 882,766 companies were registered in Ecuador, of which only 87,039 (9.86%) companies submitted information on sales and employment positions registered with social security. Of the total productive companies (87,039), 50.91% correspond to small companies and 13.22% to medium-sized companies.

Growth in the number of companies

Between the years 2012 and 2019, the total number of companies registered in Ecuador and within the Agriculture, Livestock, Forestry and Fishing sectors presented a fluctuation without a persistent pattern (Table 2), presenting a high peak of growth in the years 2017 and two substantial reductions in the number of companies registered in the years 2013 and 2019.

Table 2. Change in several companies in the Agriculture, Livestock, Forestry and Fishing sector between 2012 and 2019.

Year	No. Companies	Variation (%)
2012	103.324	
2013	93.771	-9,2
2014	89.548	-4,5
2015	89.775	0,3
2016	87.926	-2,1
2017	98.156	11,6
2018	93.336	-4,9
2019	84.540	-9,4

Source: Adapted from INEC (2020)

Analyzing the behavior of the number of companies by size and by year in the period between 2015 and 2019 (Table 3), it is observed that small companies presented a decreasing growth between 2017 and 2018 to finally reduce the number of companies in 2019 by 3.7% compared to the previous year. On the other hand, medium-sized companies also presented a smaller increase each year in the number of companies in this category.

Table 3 Change in the number of companies by size from 2015 to 2019.

	Total		Microenterprise		Small business		Medium "A" company		Medium "B" company		Large company	
Year	No. Emp.	V (%)	No. Emp.	V (%)	No. Emp.	V (%)	No. Emp.	V (%)	No. Emp.	V (%)	No. Emp.	V (%)
2015	842.936		764.001		61.987		7.733		5.156		4.059	
2016	843.745	0,1	763.636	0,0	63.400	2,3	7.703	-0,4	5.143	-0,3	3.863	-4,8
2017	884.236	4,8	802.696	5,1	63.814	0,7	8.225	6,8	5.468	6,3	4.033	4,4
2018	899.208	1,7	816.553	1,7	64.117	0,5	8.529	3,7	5.749	5,1	4.260	5,6
2019	882.766	-1,8	802.353	-1,7	61.759	-3,7	8.544	0,2	5.798	0,9	4.312	1,2

No. of companies = Number of companies, V (%) = percentage change
Source: Adapted from INEC (2020).

Therefore, it cannot be evidenced that the Organic Law for the reactivation of the economy, strengthening of dollarization and modernization of financial management, enacted in December 2017, has been a motivation for entrepreneurship within the agricultural, livestock, forestry and fishing sector as well as in other sectors, regardless of the size of the company created.

Company growth (change of category)

The law under analysis determined that 15% of small and 10% of medium-sized companies would benefit. However, when analyzing the growth in the size of the companies based on the increase in category (Table 4), as a measure of the growth of SMEs, it is observed that the percentage of companies that benefited was lower than the objective of the reform, since only about 7% of small companies and 9% increased in the category, while the net increase was approximately 5%, given that a little more than 2% of the companies decreased in the category.

Despite this, it is also observed that high percentages of companies did show an increase in sales, although not enough to move up a category.

Table 4. Change of company size in Small Businesses

Company size	Indicator	2017 %	2018 %	2019 %
Small Businesses (2017)	Upper scale (Medium)		7	7
	Lower scale (Microenterprises)		2	2
	Sales increase	65	51	49
Medium-Sized Companies (2017)	Upper scale (Large)		---	9,09
	Lower scale (Small)		9,09	6,06
	Increase in sales	70	67	76

Indicators of direct influence of the income tax caused

In this group of indicators, the percentage of companies that presented a lower index than the base year (2017) is considered favorable, except for the first indicator, where the companies that presented at the same time an increase in sales and a decrease in the IR caused were counted.

In the case of the first indicator and small companies (Table 5), only in 2019 was a benefit observed since, in 2017, there were already 28% of companies meeting the condition of presenting an increase in income and, at the same time, a decrease in the IR caused. On the other hand, in the case of medium-sized companies, both in 2018 and 2019, an increase of 12% and 22%, respectively, for 2017, was observed.

For the rest of the indicators (Table 5), a much higher percentage of small and medium-sized companies than determined in the law (15% and 10%, respectively) benefited by causing lower IR for 2017 measured in the different indicators. It was calculated that more than 40%

of small companies had a lower caused IR when compared to the base year. These benefits of the IR caused are higher in medium-sized companies, where it was calculated that 52% of the companies in 2018 and 48% in 2019 presented lower IR than in 2017.

Table 5 Indicators of direct influence of the income tax caused

Company Size	Indicators	2017 %*	2018 %*	2019 %*
Small Businesses	Increase in Sales and Decrease in IR	28	26 (-2)	35 (+7)
	▲IR/▲V		33	30
	Decrease in IR	26	42 (+16)	40 (+14)
	IR/UAI		42	42
	IR/Sales		44	37
	IR weighted index		16	23
Medium-Sized Companies	Increase in Sales and Decrease in IR	30	42 (+12)	52 (+22)
	▲IR/▲V		24	33
	Decrease IR	12	52 (+40)	48 (+36)
	IR/UAI		48	55
	IR/Sales		55	39
	IR weighted index		36	27

* Percentage of companies that presented a lower calculated index compared to 2017. ▲IR/▲V= ratio between the increase in IR caused and the increase in sales. IR/UAI= ratio between income tax caused and pre-tax profits. IR/Sales= ratio between income tax incurred and sales revenue.

These decreases in the IR caused are also reflected in indicators where this tax acts indirectly; thus, 56% of small companies presented a net margin higher than that obtained in 2017 (Table 6), the year before the law's enactment. For medium-sized companies, high percentages were also calculated for 2018 (52%) and 2019 (58%). A similar pattern was observed for the DuPont index and the weighted sum of performance indicators.

Table 6 Indirect action indicators of the IR caused.

Company Size	Indicator	2018 %*	2019 %*
Small Businesses	Du Pont	58	53
	Net margin	56	56
	Weighted profitability index	42	28
Medium-Sized Companies	Du Pont	42	61
	Net margin	52	58
	Weighted profitability index	45	48

*Percentage of companies with performance indexes higher than those presented in 2017.

Regression Analysis

Although the high number of companies with lower caused IR indexes compared to 2017, no linear or non-linear change ratio was found between caused IR and the variables of Sales Revenue, Profit before taxes and Sales Increase. This result is maintained for both small

and medium-sized companies, i.e., there is no applicable model with which future projections can be made.

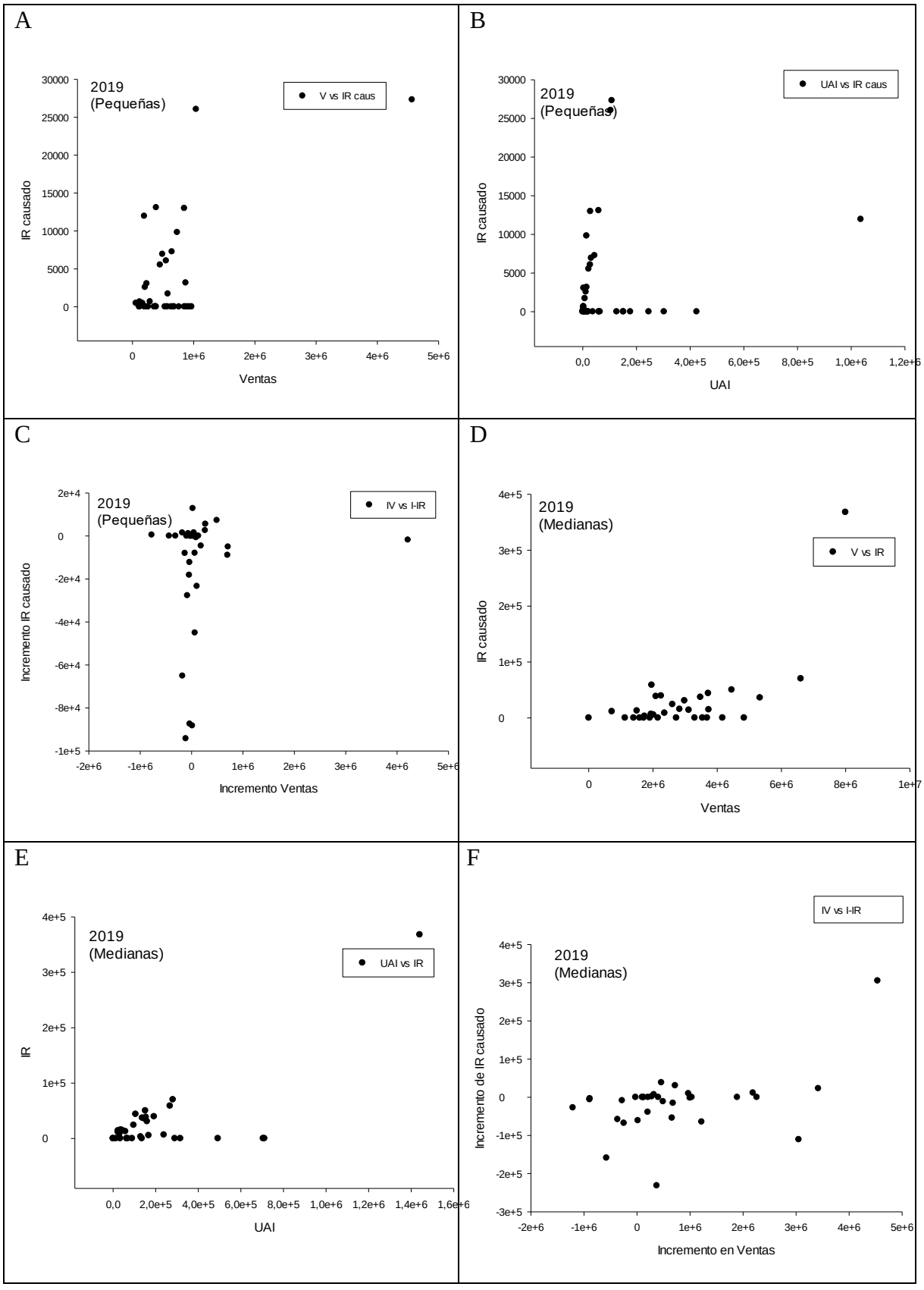

Figure 1. Regression analysis between various financial ratios A. Sales Revenue and Income Tax for small companies. B. Income Tax and Profit before taxes for small companies. C. Increase in Sales and Increase in Corporate Income Tax for small companies. D. Sales Income and the Income Tax incurred for medium-sized companies. E. Income Tax and Profit before taxes for medium-sized companies. F. Increase in Sales and Increase in Corporate Income Tax for medium-sized companies.

Correlation analysis

In general, no correlation was found between the IR caused and variables such as Sales Revenue, Profit before taxes and Increase in sales for 2017, 2018 and 2019. More specifically, in the correlation analysis of small companies, for the year 2018, a significant correlation (*p-value* = 0.03) was found between IR and profit before taxes, with a very low Spearman's coefficient (0.38).

For medium-sized companies, in the correlation analysis for 2018, a significant relationship (*p-value=0*.03) was found between IR caused and sales revenue, with a Spearman coefficient also low (0.37). For the year 2019, more relationships were significant: IR and Sales Revenue (*p-value*= 0.02) and IR and Sales Increment (*p-value=0*.03); however, with Spearman coefficients were also low, 0.37 and 0.4, respectively.

These last two analyses indicate that the benefits of the standard depend on other factors not analyzed in this paper, such as the cost structure and the benefits each company obtains from the standard in a particular way.

Conclusions

The data show an increase in the number of small and medium-sized companies; however, this growth is not sustained and, therefore, cannot be attributed as a benefit of the reform.

Although a percentage of SMEs move up to the next higher category, showing growth, this is not what is proposed by the reform.

Among the financial indicators elaborated for the comparative analysis, many companies benefit, presenting better performance indexes and better IR caused for 2017. However, no correlation was found between the monetary and percentage benefits of the IR and the variables analyzed, nor was a linear or non-linear model that would allow making future projections.

It is concluded, therefore, that the benefits observed result from applying the articles contemplated in the law in a particular way and from the efficiency in using its resources.

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