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Impact of the Tax Reform on financial efficiency in agricultural SMEs in the Province of Los Ríos-Ecuador

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Abstract

Purpose: *The aim of this study was to evaluate the impact on the financial efficiency of SMEs in the agricultural sector of Ecuador, after the application of the organic law for the reactivation of the economy enacted in December 2017.* ***Method/design/approach:*** *The data envelopment analysis was applied to the agricultural SMEs of the Province of Los Ríos that presented income during the years 2017, 2018 and 2019. The inputs of the model were: sales revenue, income tax, operating costs and expenses and the outputs were: net margin and earnings before taxes.* ***Results and conclusion:*** *Small companies decreased their efficiency for the year 2018 with a recovery in 2019. Medium companies increased their efficiency for the year 2018 and decreased in 2019. Due to the variation in inputs and outputs observed, it cannot be concluded that this decrease in efficiency is solely due to the impact of the new law.* ***Originality/value:*** *Medium-sized companies had an increase in efficiency by four percentage points in the year immediately after the application of the law (2018), and for the year 2019 it fell by six percentage points, despite showing a significant decrease in the IR. However, this result is consistent with the regression analysis where it turned out that this variable does not explain the results in net margin for this year.*

Keywords: *DEA, efficiency, taxation, agricultural companies*

Introduction

SMEs are a key component of the national economy. According to the 2019 business directory (INEC, 2020), there are more than 84,000 companies in the Agricultural, Livestock, Forestry and Fisheries sector with reports of economic activity. This large number of companies allows them to have an extensive participation in GDP at the national level in addition to being considered a

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reflection of the level of entrepreneurship that the population has (Tambunán, 2019).

Due to their structure, size and dynamism, SMEs are also recognized for their ability to anticipate and respond to changes in the environment (Mantilla Falcon et al., 2014). Among other important contributions of SMEs is their contribution to the socioeconomic development of the country, highlighting the employment opportunities it offers for women, young people with little experience and qualifications and for people in rural areas (Araque & Arguello, 2015; Tambunán, 2019).

However, despite all the contributions of SMEs, there are many difficulties they face. These difficulties can be of various types such as technological aspects, access to financing sources, product innovation difficulties, leadership, little capacity to link with SMEs in the sector, among others (García-Luna & Cardoso-López, 2020; Matovelle et al, 2021; Valenzuela et al, 2018). All these factors affect the efficiency of companies and are also fundamental aspects for the permanence and growth of SMEs in the market.

There are some methods developed to measure the efficiency (E) of companies. The Data *Envelopment Analysis* (DEA) stands out, being widely used for being a non-parametric test that adjusts to the type of data provided by the financial information of companies. It uses decision-making units (DMU) that for the current study are represented by companies, and system inputs and outputs that are the factors with which efficiency will be evaluated. The efficiency measure is proportional, considering E = 1 as efficient companies and E <1 inefficient, extending a wide range between 0>E<1 efficiency levels and improvement needs (Villarreal & Tohmé, 2017)

Data envelopment analysis has been widely used for various purposes; for example, in comparative analyses between bank branches (Paradi et al, 2011); as a tool to predict business failure (Monelos et al, 2012), efficiency of SMEs in the export and non-export sector (Le & Valadkhani, 2014); efficiency of curricula in universities (Villarreal & Tohmé, 2017); development of models for SMEs (Amirkhan et al., 2018), technical efficiency in cooperatives (Campoverde et al, 2019), to measure efficiency in tax collection (Martínez et al., 2022), among others.

In this paper, data envelopment analysis is used to evaluate the impact on the financial efficiency of SMEs in the agriculture, livestock, forestry and fishing sector of the Province of Los Ríos - Ecuador, after the application of the Organic Law for the reactivation of the economy, strengthening of dollarization and modernization of financial management. enacted in December 2017.

Literature Review

Human talent management and work environment in SMEs

Micro, small and medium-sized enterprises represent the sectors that host the largest workforce in Ecuador (Figure 1). Approximately 60% of the workforce is concentrated in these three sizes of companies (INIEC, 2020). However, according to the OECD (2022), after the crisis caused by COVID-19, it has been calculated that in Latin America and the Caribbean there is a 9% reduction

in people in full employment, as well as working hours were reduced by 16.2%.

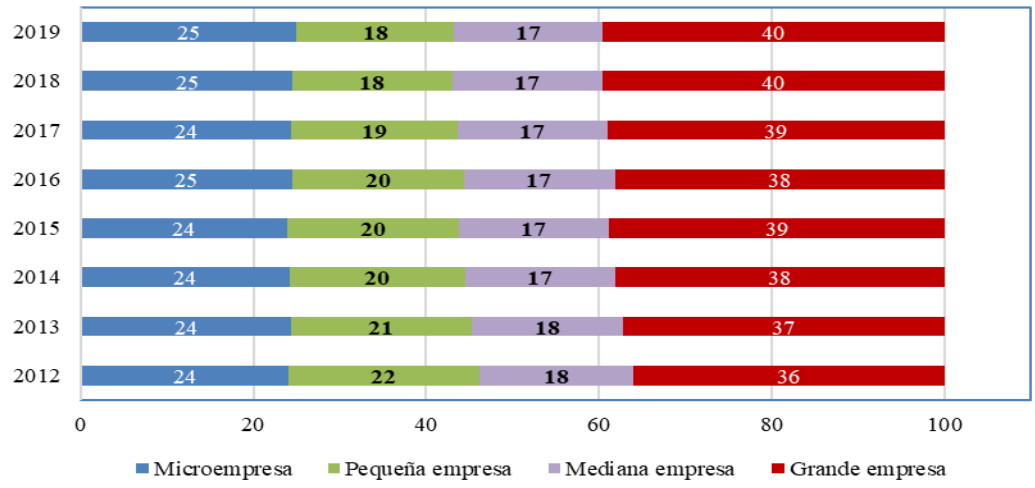

Figure 1 Percentage of jobs according to the size of the company

Note: Adapted from "Directory of Companies and Establishments 2019" by INEC, 2020. (https://www.ecuadorencifras.gob.ec/).

Although SMEs have a great capacity to generate employment, these positions are concentrated in small niches, few employees per company. This closeness makes the environment more familiar, encouraging and employees more inclined to help each other, increasing productivity (Qalati et al., 2022). This also promotes a warmer, transformational and charismatic leadership style that guides the fulfillment of goals and development of competencies such as teamwork, motivation and risk-taking (Yela Aránega et al., 2023; Wongsansukcharoen & Thaweepaiboonwong, 2023).

On the other hand, SMEs have also shown poor administration, mainly due to the fact that, usually, the start of ventures is carried out without an adequate business plan (Laitón Ángel & López Lozano, 2018; Valenzuela et al, 2018), easily losing the commercial and financial course and with this decreasing the expectation of surviving more than 5 to 10 years (Teerasoponpong & Sopadang, 2022; Tobar & Solano, 2018).

Competitiveness, innovation and financing

With the level of competitiveness that is currently experienced in national and international markets, innovation is committed as an option to maintain SMEs and improve their financial performance (Ogawa, 2023). This innovation should not only focus on the development of new products, but should also innovate in management, commercial, organizational and process aspects (Dhir et al., 2023; Larios-France & Ferasso, 2023, ECLAC, 2016b).

Companies and mainly SMEs are the entities that energize the globalized market. Ecuador has few

exporting companies, it is estimated that 1% of companies in the country export 75% of goods and services, with China being one of the main destinations for exports of primary products (ECLAC, 2016a). It is difficult for exporting SMEs to diversify products due to their limited production capacity. When you do it, it is because of the demands of the target markets (ECLAC, 2016b). This capacity for production and innovation is affected by the limited sources of financing that SMEs have.

The financial environment surrounding SMEs is diverse, which means that the rigor with which they are analyzed to access credits is greater. This is one of the reasons why large and better-established firms tend to have easier access to formal credit (Gur et al., 2023) and SMEs to trade credit (Detthamrong & Chansanam, 2023). However, it should also be considered that entrepreneurship, innovation and financing are variables that are closely related (Sharma et al., 2023).

Compliance with tax obligations

In most countries in Latin America and the Caribbean, taxes on goods and services represent the main source of government revenue. In the case of Ecuador in the last 5 years it has been between 18% and 20% of GDP, with a downward trend since the pandemic (OECD, 2022) (Figure 2).

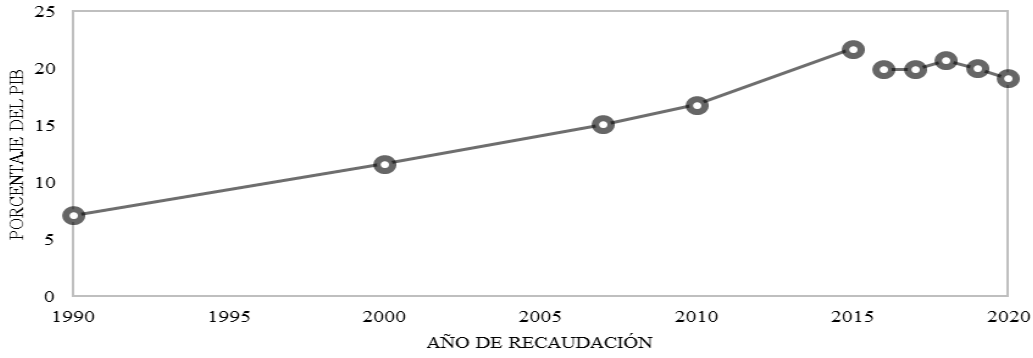

Figure 2 Taxes as a percentage of GDP in Ecuador from 1990 to 2020

Note: Adapted from "Revenue Statistics in Latin America and the Caribbean 2022", by OECD, (2022) (https://doi.org/10.1787/58a2dc35-en-es).

Within the administration and financial environment of SMEs, taxes are a determining factor. Studies by Castañeda Rodríguez (2017) and Wadesango et al. (2018) concluded that SMEs do not comply with tax legislation, not only because of ignorance of it but also because of a lack of tax culture among taxpayers.

This tax evasion causes great problems for the Ecuadorian state, which, by not reaching its collection expectations, makes it difficult for it to provide the public goods and services that the

population demands (Espita et al, 2017; OECD, 2020; Ruiz et al., 2018; Zamora, 2020). It also increases the pressure on companies that do make their timely tax contributions, increasing the risk of facing financial difficulties and inefficiencies (Catañeda Rodríguez, 2017), since tax obligations indirectly affect the competitiveness of SMEs (Saavedra-García et al., 2020). It is estimated that losses due to tax evasion are higher in people who carry out professional activities than among payroll employees (OECD, 2020).

According to the OECD (2022), it is estimated that uncollected revenues resulting from tax non-compliance in Latin America and the Caribbean reached 6.1% of GDP in 2018, mainly income tax (3.8% of GDP) and VAT (2.3% of GDP). The same report highlights that informality is another factor that hinders tax collection in the region by considerably reducing the tax base.

Higher demands do not increase revenue. Collection efficiency should be improved through education in basic stages of the citizen (Martínez et al., 2022). In addition, it has also been shown that other factors such as company size, time spent in the company and technological level of the same can affect compliance with tax obligations (Ernest et al., 2022).

Ecuador has carried out 51 reforms from 2012 to 2017 (Ballesteros et al., 2022). One of them and reason for this study is the Organic Law for the Reactivation of the Economy, Strengthening of Dollarization and Modernization of Financial Management was issued in December 2017 and comes as a reform of the Law of Internal Tax Regime. It was established with the aim of promoting the private, popular and solidarity sectors, at the same time with the intention of balancing the public budget (National Assembly of Ecuador, 2017)

One of the benefits highlighted by the law is that microenterprises created after the enactment of the aforementioned law will be exempt from income tax for three (3) years from the first fiscal year in which operating income is generated. The condition to access this benefit is that they generate net employment and incorporate national added value into their productive processes (National Assembly of Ecuador, 2017, Article No. 2.). Despite the benefits, during the years following the enactment of the law, microenterprises reduced their growth rate (Figure 3).

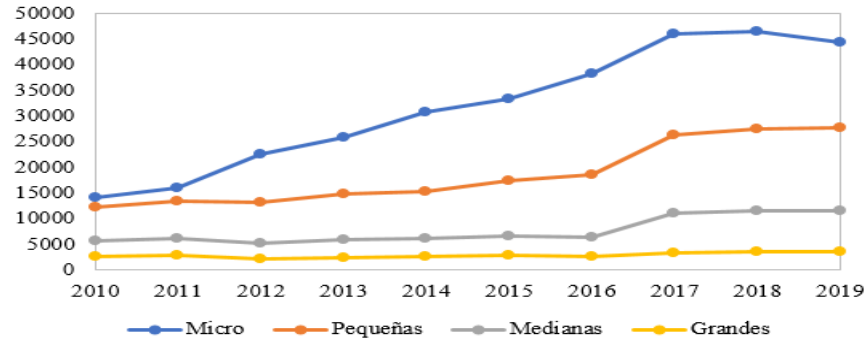

Figure 3 Productive companies active from 2010 to 2019

Note: Adapted from "Directory of Companies and Establishments 2019" by INEC, 2020. (https://www.ecuadorencifras.gob.ec/).

Other benefits enacted in the law that affect the development of the economic sector under study are the reduction of "3 percentage points of the income tax rate in favor of micro and small enterprises; and, of the usual exporting companies, provided that the latter maintains or increases employment" (National Assembly of Ecuador, 2017, Article 9).

It is also indicated that the tax benefit of "reduction of 10 percentage points of the income tax rate, for reinvestment of profits of the year, only applies to companies: a) habitual exporters; (b) engaged in the production of goods (including manufacturing) with a domestic component of 50 per cent or more; and, c) inbound tourism" (National Assembly of Ecuador, 2017, Article 7).

And, finally, "the benefit of income tax reduction for the reinvestment of profits in projects or programs of responsible scientific research or technological development (10% in knowledge territory, 8% in other knowledge spaces and 6% for the rest of the actors), only applies to companies producing goods, on the amount reinvested and the conditions determined by the Regulations" (National Assembly of Ecuador, 2017, Article 8). These last benefits are those that we will try to see reflected in the analysis of efficiency of the companies of the present work.

Materials and Methods

To determine the universe of companies, an analysis of companies with SME structure, belonging to the Province of Los Ríos of the Agriculture, Livestock, Forestry and Fisheries sector, was carried out. Another factor used as a characteristic of the companies for the study is that they have presented their financial statements in the government control bodies, such as the Superintendence of Companies, Securities and Insurance (SCVS), Internal Revenue Service (SRI), National Institute of Statistics and Cencos (INEC) and the Ecuadorian Institute of Social Security (IESS). The selection criteria used were: 1) that they are within the companies classified as SMEs as established by the Superintendence of Companies (Table 1) and according to the Andean Community of Nations (CAN, 2009); 2) that are located in the Province of Los Ríos – Ecuador; 3) that have submitted financial statements to the Superintendence of Companies of Ecuador; and, 4) that have reported income during the years 2017, 2018 and 2019.

Table 1 Classification of companies according to their size.

Classification of enterprises	Annual sales volumes	Busy staff
Micro enterprise	Less than or equal to 100 000	1 TO 9
Small Business	From 100 001 to 1 000 000	10 TO 49
Medium Business "A"	From 1 000 001 to 2 000 000	50 TO 99
Medium Business "B"	From 2 000 001 to 5 000 000	100 TO 199
Large company	From 5 000 001 onwards	200 and up

Note: From "Directory of Companies and Establishments 2019" by INEC, 2020.

(https://www.ecuadorencifras.gob.ec/).

For comparative analyses, the year 2017 was established as the base year of comparison, since it 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.

Financial indices and indicators were applied to the information provided in the financial statements. Subsequently, multiple regressions were performed to analyze the relationship between the variables, measuring their explanatory capacity within the model with the F test with a significance of 0.05. This process was repeated for the three years under analysis and for small and medium-sized companies, analyzing mainly as independent variables: assets, costs, expenses, sales revenues, total revenues, income tax caused; and, as dependent variables, net margin, profit before taxes and equity were analyzed individually.

To measure the financial efficiency of companies, the data envelopment analysis methodology was used. The DEA model used was that of constant returns to scale (CRS) input oriented. From the regression analysis , sales revenues, income tax caused, operating costs and expenses generated in the period were taken as inputs. For *outputs*, profit before taxes and net margin were used.

Multiple regression was performed with SPSS v.20 software, efficiency was determined using R v.4.1 software, and financial indicators were calculated with Microsoft Excel 2016. With the data obtained, comparisons were made between the base year, 2017, and subsequent years 208 and 2019.

Results

Selection of companies

After comparing the total universe of companies that have reported their financial statements to the Superintendence of Companies (SCVS), Internal Revenue Service (SRI), National Institute of Statistics and Cencos (INEC) and the Ecuadorian Institute of Social Security (IESS), the following results were obtained. During the 3 years of study, more than 800 thousand companies are reported in the country considering all sizes (Figure 4).

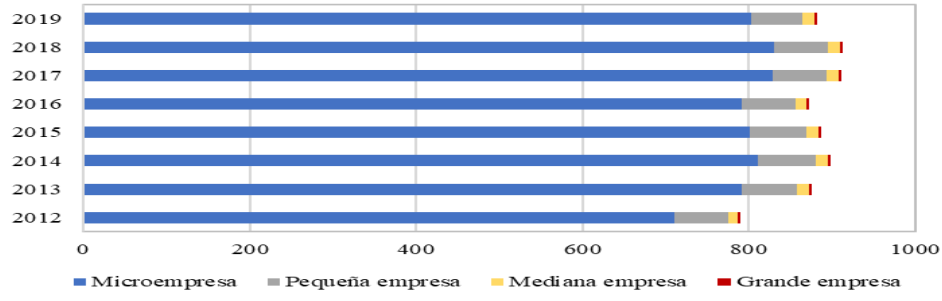

Figure 4 Number of companies according to their size

Note: From "Directory of Companies and Establishments 2019", by INEC, 2020. (https://www.ecuadorencifras.gob.ec/).

However, a large number of them are not productively active, that is, they do not register sales in the SRI and/or do not have registered employment places in the IESS. The number of companies meeting these two conditions varies between 86600 and just over 88800 companies, i.e. approximately 10% of the total number of registered companies (Figure 5). Excluding large companies this number is reduced to between 83300 and 85300.

After applying the following filters, that is, that they are located in the Province of Los Ríos and that belong to the economic group of Agriculture, Livestock, Forestry and Fisheries, the figure is reduced to a little more than 2000 companies. When reviewing their financial statements in the Superintendence of Companies, Securities and Insurance, it was found that the SMEs that reported their information correctly and that also record income are only 81 companies in 2017, 85 in 2018 and 87 in 2019.

Figure 5 Number of companies selected at each stage of the process

Note: Adapted from "Directory of Companies and Establishments 2019", by INEC, 2020. (https://www.ecuadorencifras.gob.ec/) and the "Business Ranking 2017 to 2020", by SCVS, 2020 (https://appscvsconsultas.supercias.gob.ec/rankingCias/).

Due to the focus of the study, it was necessary to divide the selected companies into small and medium-sized companies (Table 1). The small companies that enter the analysis of efficiencies are 46 for the year 2017, 50 for the year 2018 and 49 for the year 2019. On the other hand, the medium-sized companies that meet the requirements are 35 for the years 2017 and 2018 and 39 for the year 2019 (Table 2); that is, less than 4% of companies registered as SMEs that belong to the Province of Los Ríos and present income in the years 2017, 2018 and 2019. This data being a constant for both small and medium-sized companies during the 3 years of study.

Table 2 Number of companies selected for the study.

Year		Small	Medium
2017	Total	1 418	905
	Selected companies	46	35
	%	3.24	3.87
2018	Total	1 445	941
	Selected companies	50	35
	%	3.46	3.72
2019	Total	1 463	954
	Selected companies	49	38
	%	3.35	3.98

Note: Adapted from "Business Ranking 2017 to 2020", by SCVS, 2020. (https://appscvsconsultas.supercias.gob.ec/rankingCias/).

Variable selection

As a result of the multiple regression analysis in both small companies (Table 3) and medium-sized companies (Table 4), the most common variables that explain the result obtained from the set of companies analyzed are the profit before taxes (UAI) and the IR caused during the period.

Table 3 Multiple linear regression for small companies in the three years studied.

Year	Model	Coefficients		t	Gis.	F	Gis.
		β	Standard error				
2017	β0	3.47E-02	8.94E-03	3.87	0.00*	117.22	0.000*
	IAU	2.63E-06	1.44E-07	18.30	0.00*		
	GO	-1.89E-06	2.08E-07	-9.08	0.00*		
	Sales revenue	-8.95E-08	1.61E-08	-5.56	0.00*		
2018	β0	5.55E-02	8.78E-03	6.32	0.00*	95.59	0.000*
	IAU	2.34E-06	1.41E-07	16.64	0.00*		
	Total Revenue	-1.19E-07	1.69E-08	-7.05	0.00*		
	GO	-2.42E-06	9.67E-07	-2.50	0.02*		
2019	β0	2.89E-02	1.41E-02	2.06	0.046*	409.50	0.000*
	Heritage	1.27E-07	2.09E-08	6.06	0.00*		
	IAU	1.78E-06	1.92E-07	9.28	0.00*		
	Sales revenue	-1.03E-06	2.01E-07	-5.14	0.00*		
	Total Revenue	9.21E-07	2.02E-07	4.55	0.00*		

Note: *Significant at α=0.05; UAI: Profit before taxes; IR: income tax; β: beta coefficient of the model; β0: intercept of the model.

It highlights the fact in this part of the analysis that for the year 2019, for both small and medium-sized companies, the IRs caused in the period are not part of the influential variables to explain the net margin obtained for these groups of companies. Since the UAI is calculated based on sales revenue, costs and expenses, the authors decided that these would be used as *inputs* along with the IR caused and as *outputs* the IAU and net margin would be used.

Table 4 Multiple linear regression for medium-sized companies in the three years studied.

Year	Model	Coefficients		t	Gis.	F	Gis.
		β	Standard error				
2017	β0	4.06E-02	1.06E-02	3.84	0.00*	42.27	0.000*
	IAU	2.85E-07	2.82E-08	10.12	0.00*		
	GO	-2.95E-07	7.58E-08	-3.89	0.00*		
	Costs	-1.88E-08	6.39E-09	-2.95	0.01*		
2018	β0	4.61E-02	7.57E-03	6.09	0.00*	66.50	0.000*
	IAU	3.34E-07	2.49E-08	13.41	0.00*		
	GO	-4.93E-07	1.17E-07	-4.22	0.00*		
	Total revenue	-1.38E-08	2.98E-09	-4.62	0.00*		
2019	IAU	3.18E-06	4.02E-07	7.92	0.00*	31.57	0.000*
	Expense	-4.99E-07	1.29E-07	-3.88	0.00*		

Note: *Significant at α=0.05; UAI: Profit before taxes; IR: income tax; β: beta coefficient of the model; β0: intercept of the model.

Efficiency Analysis

Small businesses

In the results of the DEA model, it is determined that most of the small companies in the Agriculture, Forestry, Livestock and Fisheries sector presented an efficiency of less than 0.5, regardless of the year. The lowest level was calculated for the following year (2018) after the enactment of the organic law for the reactivation of the economy, strengthening of dollarization and modernization of financial management where we found that almost half of the companies are at a level below 0.1 efficiency (Table 5).

Already for the year 2019 there is a recovery of companies and efficiency is estimated to be even higher than the base year (44.3%). This is related to what was observed in the previous section, where the IR was not a significant variable within the model for the net margin variable.

Table 5 Percentage of small companies at the different efficiency levels measured.

Efficiency Range	**2017 (%)**	**2018 (%)**	**2019 (%)**
0 ≤ E <0.1	30.4	46	18.4
0.1 ≤ E <0.2	21.7	24	14.3
0.2 ≤ E <0.3	6.5	8	8.2
0.3 ≤ E <0.4	6.5	4	10.2
0.4 ≤ E <0.5	10.9	4	16.3
0.5 ≤ E <0.6	4.3	2	4.1
0.6 ≤ E <0.7	0	4	4.1
0.7 ≤ E <0.8	0	0	0
0.8 ≤ E <0.9	2.2	0	4.1
0.9 ≤ E <1	0	0	4.1
E = 1	17.4	8	16.3
Average Efficiency	33.7	22.6	44.3

Between 2017 and 2018, the number of companies with maximum efficiency decreased from 8 to 4, and by 2019 it increased to 10 (Figure 6). The intermediate efficiency ranges maintain the pattern of decrease between 0.4 and 0.8 efficiency.

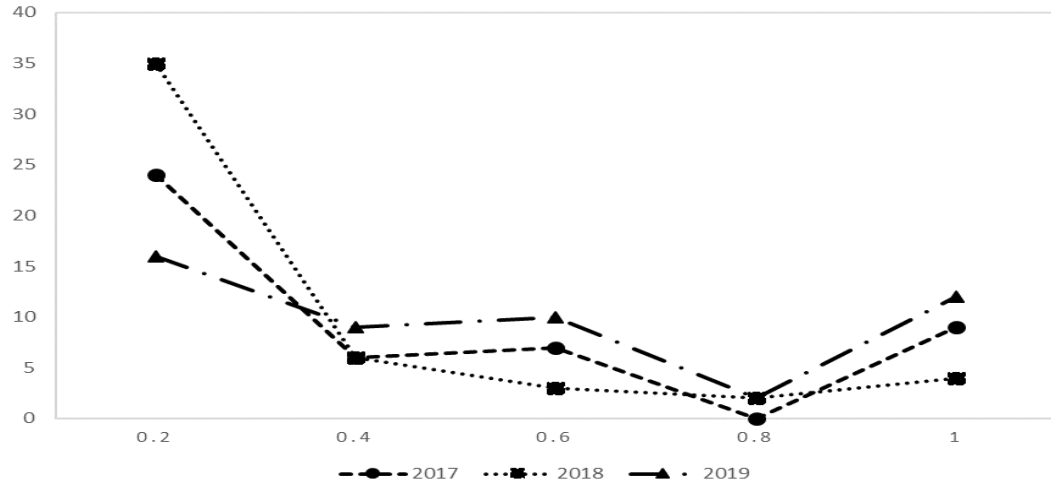

Figure 6 Number of small companies in the different efficiency levels analyzed.

This decrease in efficiency is also accompanied by a decrease in most levels of *inputs* and *outputs* used for analysis (Table 6). The taxes caused had a significant decrease, even since 2019, may be due to the difficulty of controlling the taxes levied by agricultural companies for the way of marketing mainly food products (Castañeda-Rodríguez, 2016).

Table 6 Variation of inputs and outputs in small firms in the years of analysis

	2017	2018	2019	
Sales revenue (USD)	482 705.70	529 815.00	498 211.30	
Costs (USD)	473 864.50	395 431.80	388 834.50	↓
Expenses (USD)	297 431.20	117 375.40	97 681.80	↓
IR (USD)	15 537.76	3 324.87	2 020.59	↓
UAI (USD)	30 639.24	26 733.67	37 600.91	
Net margin (%)	4.27	04.56	9.27	↑

Note: IR: income tax, UAI: profit before tax. Adapted from the "Business Ranking 2017 to 2020", by SCVS, 2020 (https://appscvsconsultas.supercias.gob.ec/rankingCias/).

Midsize companies

Medium-sized companies, unlike small ones, on average showed an increase in efficiency for the year 2018; however, efficiency levels fell sharply for 2019 (Table 7). During 2017 and 2018 the percentage of efficient companies (E=1) remained between approximately 24% and 29% and similarly, in 2019 there was a decrease in the percentage of companies at this level (5.3%).

Table 7 Percentage of medium-sized companies at the different efficiency levels measured.

Efficiency Range	**2017 (%)**	**2018 (%)**	**2019 (%)**
$0 \leq E < 0.1$	2.9	2.9	15.8
$0.1 \leq E < 0.2$	17.1	5.7	21.1
$0.2 \leq E < 0.3$	2.9	14.3	5.3
$0.3 \leq E < 0.4$	20	5.7	5.3
$0.4 \leq E < 0.5$	2.9	2.9	13.2
$0.5 \leq E < 0.6$	2.9	11.4	10.5
$0.6 \leq E < 0.7$	5.7	8.6	13.2
$0.7 \leq E < 0.8$	8.6	5.7	0
$0.8 \leq E < 0.9$	5.7	5.7	5.3
$0.9 \leq E < 1$	8.6	8.6	5.3
$E = 1$	22.9	28.6	5.3
Average Efficiency	58.2	65.3	42.0

Taking as a reference the efficiency range between 0.7 and 1, during the years 2017 and 2018 between 46% and 50% of medium-sized companies in this range are calculated and by 2019, it decreases to 16% of them.

Comparing the year 2017 and 2018, the efficiency ranges where there is an increase in the number of companies by 20-30%, 50-60% and maximum efficiency (100%), decreasing in the lowest range (0-20%), enough to increase efficiency on average by three percentage points (Figure 7). When

comparing the years 2017 and 2019, there is a significant increase in companies in the lowest range (0-20%) and, although there is an increase in companies in the ranges of 50-60% and 70-80%, they are not enough to avoid the decrease in the average efficiency of the sector analyzed.

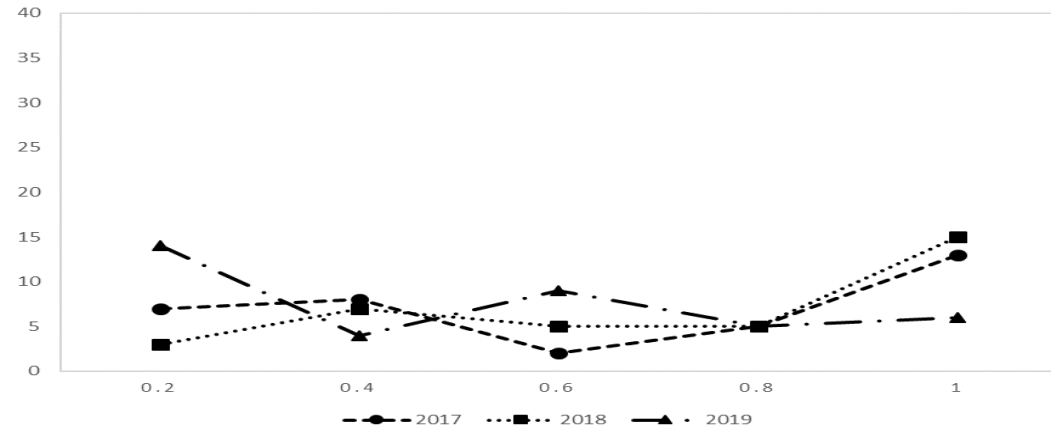

Figure 7 Number of medium-sized companies in the different efficiency levels analyzed.

In medium-sized companies, *inputs* and *outputs* showed an increase in their absolute values (Table 8). Importantly, the income tax caused decreased by more than 50% despite the fact that its sales income had an increase of 12%, this may have contributed to the increase in the financial efficiency of this sector, since it was also possible to increase equity. A similar result was reported by Jacob (2021), where he observed that lower taxes can result in better capital investments.

Table 8 Variation of inputs and outputs in medium-sized companies between 2017 and 2019.

	2017	**2018**	**2019**	
Sales revenue (USD)	2 275 449.0	2 545 781.0	2 660 082.0	↑
Costs (USD)	1 649 096.0	1 775 927.0	2 096 273.0	↑
Expenses (USD)	496 488.0	647 904.0	566 786.2	
IR (USD)	40 303.8	19 190.9	14 887.8	↓
IAU	131 386.79	126 761.91	150 954.01	
Net margin (%)	3.51	4.36	18.06	↑

Note: IR: income tax, UAI: profit before tax. Adapted from the "Business Ranking 2017 to 2020", by SCVS, 2020 (https://appscvsconsultas.supercias.gob.ec/rankingCias/).

Discussion

The economic sector of Agriculture, Livestock, Forestry and Fisheries analyzed in this study includes all companies engaged in the exploitation of plant and animal natural resources. This group includes companies that have activities of cultivation, breeding and reproduction of animals, the

exploitation of wood and the collection of other plants, animals or animal products on farms or in their natural habitats (INEC, 2020). Due to the characteristics of this sector, most of the productive activity is carried out in rural areas and commercial activities are carried out in *situ* or in urban areas.

One of the limitations is the hiring of a higher educational level, for whom the rural environment may not be attractive to work, especially at the administrative-managerial level (Del Olmo-García et al., 2023). This generates an agglomeration in urban areas of entrepreneurs with a higher level of education, which has made them more competitive and prepared to incur in these markets (Pindado et al., 2023).

In other aspects, rurality can represent a strength, since in this area I can find greater opportunities for entrepreneurship in the economic sector of study due to the available natural resources, provided that policies and access to credit are not a limitation (Del Olmo-García et al., 2023).

The globalized commercial environment that is currently experienced demands that companies be efficient and competitive to achieve their permanence over time (Pereira Bolaños, 2019; Salas-Albeláez, 2017). One of the factors that enables this permanence is the efficient use of its resources, this factor being also prone to change with the conditions of the environment.

Regardless of the year in analysis, small companies had lower efficiency than medium-sized companies. While the average efficiency of small companies ranged from 33.7% to 44.3%, the average efficiency of medium-sized companies fluctuated between 42% and 58.2%. Similar results were found by Ogawa (2023), who also highlighted that small and inefficient companies have high staff turnover, their business performance is poor, asset-equity debt is high and they invest little in innovation.

This low financial efficiency in both types of company must relate to the other sectors of the company, since financial inefficiency can be a result of other inefficiencies within the company. Areas that can directly influence the financial efficiency of the company are: production, management, equity financing, marketing, commercialization and innovation and new product development (Ogawa, 2023).

During the three years of analysis, small companies had a sustained reduction in costs and medium-sized companies increased them. However, both had an increase in net margin. Although one of the ways to improve the performance of the company is the reduction of costs, this must be done in a technical way, as a result of greater productive efficiency and that allows its sustainability over time.

Considering the economic sector of study, this sustainability must not only be financial, but must include environmental sustainability and the preservation of resources with which the Agriculture, Livestock, Forestry and Fisheries sector works. The orientation of SMEs towards "green production" presents great expectations and challenges. A production oriented to the preservation

of resources brings intangible benefits that have an impact on economic such as opening new markets, a greater approach with customers and positive image of the company (Parrilli et al., 2023; Sohns et al., 2023; Wongsansukcharoen & Thaweepaiboonwong, 2023; Yin et al., 2023). Economic benefits could be cost reduction, resource optimization, product innovation, quality improvement (Zangara et al., 2023).

An example of this approach to green production is the incorporation of circular economy in SMEs. The use of waste when we become new products, although it may require a significant initial investment, in a short time the economic and environmental benefits will be noticeable (Yin et al., 2023). However, despite all the benefits of incorporating circular economy in SMEs, due to the challenges you constantly go through, already mentioned in previous lines, it is prudent to analyze the relevance and feasibility for each company (Mauss et al., 2023; Mon & Giorgio, 2023; Stucki et al., 2023).

Part of the orientation towards green and sustainable production is the need to implement digitalization and communication technologies in SMEs. This incorporation can be faster when the management of the company has a higher level of education (Zahoor et al., 2023a-b). The digitalization of activities and the incorporation of new technologies allow an approach to international markets, technological innovation, cost reduction, more effective monitoring of production (Radicic & Petković, 2023). However, one of the difficulties of incorporating these technologies in agricultural SMEs is the lack of connectivity in agricultural sectors (Ferrari et al., 2022; Tiwasing et al., 2022).

The results also showed that both small and medium-sized companies had a decrease in income taxes (IR) caused. This study did not prove whether this reduction was the result of the application of the Organic Law for the Reactivation of the Economy, Strengthening of Dollarization and Modernization of Financial Management or tax evasion. Berger et al. (2017) when analyzing the problem of taxes in the European Union, highlighted that new tax impositions hardly decrease financial obligations in this field, which partially explains the result obtained. However, it should also be considered that new tax obligations, when not properly socialized, can increase tax evasion (Castañeda Rodríguez, 2017).

Limitations and Future Research Directions

With this study, it was possible to calculate the financial efficiency of SMEs belonging to the Province of Los Ríos after the application of the Organic Law for the Reactivation of the Economy, Strengthening of Dollarization and Modernization of Financial Management enacted in December. The years it took for the study were from 2017 to 2019. It would be important to resume the research and include the years after the pandemic, 2020 and 2021, and analyze how this reform helped mitigate the crisis caused in this economic sector.

Additionally, this study focused on SMEs in the Province of Los Ríos, so the sample was very

limited, the sample could be expanded for each of the 9 areas in which Ecuador is divided. This considering that, when doing it by provinces, the size of the same could cause limited samples as well.

The study was also unable to determine the level of tax evasion among SMEs in the province. It is therefore necessary to develop a methodology with which to determine the level of evasion existing in the country.

In addition, given the need to venture into green production markets, studies are necessary to indicate the technical, financial and management feasibility existing to implement the production see in Ecuadorian SMEs.

Conclusions

Small companies presented a reduction of 15 and 12 percentage points in their levels of financial efficiency in the years 2018 and 2019 respectively, which corresponds to the years following the enactment of the organic law for the reactivation of the economy, strengthening of dollarization and modernization of financial management.

Medium-sized companies had an increase in efficiency by four percentage points in the year immediately after the application of the law (2018), and for the year 2019 it fell by six percentage points, despite showing a significant decrease in the IR. However, this result is consistent with the regression analysis where it turned out that this variable does not explain the results in net margin for this year. It cannot be proven whether the decrease in income tax caused was due to the implementation of the new law or to tax evasion.

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