

The Cooperative Taxation Controversy: a Conceptual and an Econometric Model

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Abstract:

Cooperatives are an integral and an essential part of the social and solidarity economy, as it has a dual role by contributing greatly to the local socio-economic development. Thereby, these social entities are considered as tools to satisfy the economic and the social Society's needs. Thus, the cooperatives are subject to several legal restrictions and constraints in relation to the nature of the activity exercised, compared to the counterpart entities. Moreover, to overcome these compulsions, most of government grants these social entities a set of taxes grace. Nevertheless, the activity expansion of certain cooperatives has aroused the demonstration of its competitors arguing that these tax exemptions leads to unfair competition, in return the cooperatives subject to this claim, defend their position by affirming that their activity generate certainly profits, but it contribute greatly to the social aspect. Therefore, the present research consisted in the study of the taxation's effect on dairy processing cooperatives in Morocco at the commercial, financial and social level in order to resolve this taxation controversy. Thereby, this study was carried out according to a quantitative study on the leading cooperatives of the dairy sector in Morocco, by using the econometric software STATA on the basis of the conceptual and the econometric model appropriate to the research theme.

Introduction

From the 1970s, the theories of taxation and tax exemption began to appear in several articles. These theories were scattered, but offer a structure and a base of reflections concerning the reasons and the effect of both the taxation and the tax exemption, especially for nonprofit organizations. However, most of these theories have the disadvantages that the authors have not carried out an empirical verification of their reflections. In fact, the theories of tax exemption gather in the first place the Subsidy Theories, secondly, the Donative and the Altruism Theories, thirdly, the Income Measurement and the Capital Formation Theories. In addition, the theories of taxation distinguished between the Shareholder, the Capital Lock-In, the Regulatory and the Artificial Theory.

Moreover, most of these theories assume that the tax exemption of certain entities constitutes a kind of subsidy granted by the state, which was mainly emphasized by the subsidy theory. In addition, other theories underlined the legitimacy for granting the tax exemption as mention by the income measurement and the capital formation theory. Therefore, based on this various theories, it can be argued that there are two levels to justify the tax exemption, in particular, the non-existence of individuals similar to shareholders as well as the provision of the exempt organizations of goods or services, that are not available on the market.

Thereby, for the exemption theories, the Subsidy Theories mainly bring together three theories, namely the Subsidy Theory, which can be considered as fundamental, the Traditional Subsidy Theory, the Public Good Theory as well as the Public Benefit Subsidy Theory. These theories generally underlined the impact of the tax exemption on the growth and the market share of nonprofit organizations.

First, the Fundamental Subsidy Theory has been presented theoretically over the years by a set of authors as (Crimm, 1998) and (Hackney, 2013). Thus, this theory has not been subject to unanimous empirical validation. Nevertheless, the main studies that have dealt with it theoretically and empirically are those presented by (Mullner & Hadley, 1984), (Hansmann, 1987), (Chang & Tuckman, 1990) et (Gulley & Santerre, 1993). Additionally, the subsidy theory advocates that the tax exemption is granted to non-profit organizations that provide some benefit to the state. In other words, the subsidy theory assumes that the state normally taxes all entities located within its borders, nevertheless it exercises a legislative grace by exempting certain companies from tax (Hackney, 2013).

All the more, (Crimm, 1998) argued that the following theory arose from the formation of a combined conventional market and a social theory. Indeed, it is based on the notion that the charities support the function normally performed by the government, which is the provision of essential goods and services. In this regard, this theory advanced that the purposes of charities are worthy of promotion and the government should promote them through an indirect subsidy, in the form of a tax exemption.

Accordingly, (Hansmann, 1987) through his study focused on measuring the sensitivity of the market share of non-profit enterprises, namely nursing homes, hospitals, primary, secondary and vocational schools, in terms of the tax exemption of national and local taxes,

which was considered by the author as a type of subsidy that encourages the existence of this type of non-profit commercial enterprise as it contributes to the development of their activity. In other words, the substantial market share of nonprofits in many service industries is largely a response to the explicit or implicit subsidies that are available to nonprofits, but not to their for-profit competitors. In sum, the author concludes that the study's results validated the hypothesis that the tax exemption or at least the exemption from the sales tax, and particularly from the corporation tax, provides a meaningful advantage to nonprofit businesses in establishing market share regarding to for-profit businesses that offer similar services and operate in the same industry.

Otherwise, (Mullner & Hadley, 1984) and (Chang & Tuckman, 1990) empirically examined the various factors that influence the mix of nonprofit and for-profit hospitals in the United States. The authors argued that these subsidized nonprofit organizations have an advantage over for-profit hospitals that are generally exempt from taxes. In addition, (Gulley & Santerre, 1993), hypothesized that if the tax exemption is allocated, the market share of nonprofit hospitals is greater when tax rates are higher on the corporate income and the sales tax, in other words, the market share of nonprofit hospitals is higher in States where the exemption from corporate income tax and the sales tax is more valuable. Also, the market share of for-profit hospitals is expected to decline with respect to different tax rates, assuming that these entities are driven by a profit incentive

Thus, this demonstrates theoretical justification for the belief that changes in the value of a tax exemption affect nonprofit market share, which is consistent with (Chang & Tuckman, 1990)'s assertion that the literature on the nonprofit economics and public finance both recognize that taxes affect the growth and the composition of markets.

Second, the Traditional Subsidy presents the tax exemption as an indirect subsidy by which the government encourages charitable and altruistic organizations to carry out activities that promote the public good, which offer two types of public benefits, in particular primary public benefits or the ordinary ones, as well as meta-benefits (Atkinson, 1990) and (Atkinson, 1997).

Third, the Public Good Theory states that the justification for the tax exemption for nonprofit organizations was conceived in the context that the government finds itself in the inability to procure certain goods and services needed by the Society, which compels it to proceed with providing grants in the form of a tax exemption. So, according to this theory nonprofit organizations providing a public good or service are the ones to be exempted and the others should be taxed (Fricke, 2015).

Fourth, the Public Benefit Subsidy Theory is the first theory based on the efficiency of the charities' tax exemption. Thus, this theory is a mean by which the government encourages these types of organizations to maintain the provision of public goods and services. In fact, it consists of the government to subsidize goods or services for various reasons that the latter cannot provide. As a result, it compensates in the form of a charitable donation, the tax exemption at the benefit of the organizations that provide these public goods and services (Brennen, 2006).

Fifth, the Donative Theory was put forward by the theoreticians (Hall & Colombo, 1991) and subsequently was underlined and evoked by a group of authors such as (Atkinson, 1997), (Crimm, 1998) and (Fricke, 2015), stipulating that the main justification for the tax exemption of charitable organizations is to subsidize those capable of attracting the support of a substantial number of philanthropic donations. For the altruism theory, it was introduced by (Atkinson, 1990) and was based on the premise that the favorable tax treatment of altruistic nonprofit organizations is an affirmative preference for what they provide. In fact, the theories of donative and altruism presented above justify the tax exemption granted to nonprofit organizations, according to the nature or the purpose of the activity carried out by them or even following the source of their income's origin. This is indeed contradictory to the theories previously mentioned which have focused mainly on granting the tax exemption based on the nature and usefulness of the good or service provided.

In continuity with the tax exemption theories, the Income Measurement Theory and the Capital Formation Theory advanced that tax exemption is legitimate for no profit organizations because the profits and the tax rate thereon cannot be assessed as defined by the profit organizations. Also, given the restrictions linked to the status of this type of entities, counting, the access to external capital, find in the tax exemption an opportunity for the constitution of funds and the raising of capital.

First, the Income Measurement Theory pointed out that the justification for granting the tax exemption cannot be based on the legislative bases, due to the fact that neither the concept of net income nor the capacity to pay can be accepted as grounds for the taxation or the exemption of charitable organizations. According to the authors, the government proceeds to tax the net income of all organizations making a profit, thus, as nonprofit organizations are not constituted in the term of making profit, the concept of net income cannot be applied, and even if it is, it would be difficult to proceed with the calculation of net income (Bittker & Rahdert, 1976).

Second, the Capital Formation Theory mentioned by (Hansmann, 1981) was founded following the non-distribution's constraint of profits, which is based on a historical rule prohibiting a charity from distributing surplus funds to the members that control it. Also, another constraint, which is the notion of contract failure, that can be defined as a type of market failure arising from the inability of some or most consumers to make accurate judgments about the quality, quantity or price of services provided by the alternative producers. Thus, the author argued that nonprofit organizations have a disadvantage in fundraising due to their inability to issue shares. In this logic, the tax exemption granted allows the accumulation of profits that following their non-distribution and non-taxation constitutes a fund for raising capital. In other words, the money earmarked for paying taxes for capital expenditures, can be used to increase the cash flow, a situation that will encourage lenders to extend more debt financing, hence creating a double benefit.

Distinctly, taxation is an essential component of the economic and the fiscal policy established by governments. In fact, this mechanism compensates for the imbalances existing at the market level, to redirect the behavior of economic agents or to establish and maintain certain tax equity between the various stakeholders in the economy. Following the extent of this government tool, a number of taxation theories have been put forward by various authors, the purpose of which was to conceptualize a theoretical framework justifying the taxation. These taxation theories revolve around the Shareholder Theory, the Capital Lock-In Theory, the Regulatory Theory, the Artificial Theory or the Benefits Theory.

First, the Shareholder Theory stipulates that the tax exemption of dividends for charities is not a subsidy because they do not have shareholders to tax. Thus, the tax exemption can be considered as a tax subsidy in the case where the organizations have member's equivalent to shareholders. In fact, this theory was advanced by claiming that without the corporation tax, the shareholders could use the corporation as a tax deferral device, due to the fact that corporations could defer tax by leaving income within the corporation, which will constitute over time, annual tax savings for the owners of nontaxable entities compared to the taxable business entities (Hackney, 2013). It should be noted that this theory finds its origin among the essentialist theories of Society, namely the Aggregate Theory, also called the theory of contracts «The Nexus of Contracts Theory», which states that societies are collections of people who are bound together by the intersection of various obligations, hence, it emphasizes the individuals composing the society which has no existence beyond natural persons who organize and operate it (Chaffee, 2016).

Second, the Capital Lock-In Theory was initiated by (Bank, 2005) who argues that in the absence of a tax on dividends, companies will tend to maintain capital in order to increase the size and scope of their activities. Conversely, in the case of profits' taxation allocated to the shareholders, the managers would be obliged to distribute the profits in the form of dividends in order that the shareholders could pay taxes on their distributed shares. However, this will harm the blocking of capital and the company's disposal of resources necessary for the expansion of the activity. As a result, this theory has been put forward with the aim of exerting pressure on the managers of companies, by distributing dividends to shareholders. In this respect, the present theory supports the taxation of the latter even if the distribution of dividends could harm the growth of the activity.

Third, the Regulatory Theory consists in controlling the behavior of the leaders over the assignment of large sources of wealth, by regulating the resources accumulated for the nonprofit organizations. This theory states that any organization benefiting from the tax exemption and having a potential to accumulate significant wealth could be considered a recipient of a subsidy. In this order, exempting an organization from the corporation tax is to exempt it from a whole regulatory regime (Hackney, 2013). Indeed, the present theory finds its origin following the second essentialist theory of Society, which is the Real Entity Theory, also called the theory of the natural entity. In fact, this theory suggests that corporations have existed separately from their owners and managers as distinct entities and claims that

corporations have existed beyond the artificial constructs created by law i.e. the allocation of power by the government (Chaffee, 2016).

Fourth, the Artificial Theory or the Benefits Theory states that the constitution of a company is a right given by the government to those that use the aggregation of their wealth for commercial purposes and this in order to obtain a limited liability. Therefore, the companies exist solely on the basis of a concession from the government and the members that use these rights should pay a tax for these advantages. However, this theory is only justified for companies with access to the public stock market. In fact, the original version of the present theory held that non-profit businesses should be subject to the corporation tax to pay for the benefit of operating in the corporate form. Indeed, the modern version holds that the tax is imposed on publicly traded entities in exchange for their ability to sell shares in public markets. Thereby, the theory does not support the taxation of nonprofit organizations because such organizations cannot sell shares in a public market (Hackney, 2013).

Moreover, as pointed out by (Brennen, 2006) tax exemption has a number of non-economic advantages which could be more valuable than other economic advantages, notably the halo effect which is an indeterminable aspect of the status of nonprofit organizations and reflects a positive view of an institution as being mission-oriented rather than profit-oriented. Furthermore, this can be interpreted at the level of the cooperative context, which is strongly implied by this social aspect, as a sort of indirect influence on consumers to tend more towards a socially active entity contributing to socio-economic development, than a competing entity detached from this social character and oriented solely towards profit.

In this context, the cooperatives qualifying as commercial, nonprofit organizations and socially oriented are normally exempt from taxation as they tend to produce goods and services under binding conditions or which other entities in the market fail to meet. Nevertheless, governments increasingly under the pressure from capitalist companies and the inconvenience of these social entities submitted certain cooperatives to taxation under the argument of restoring fair competition and fiscal fairness. Hence, the interest to measure the influence of taxation on the activity's growth of cooperatives by evaluating this impact through a set of constructs that was identified at the level of the literature review and which serves as mediating and moderating variables between the dependent and the independent variable. From the foregoing, it framed the formulation of the research hypotheses in two parts. First, it presents the impact of taxation on the activity's growth of cooperatives that represents simultaneously the independent and the dependent variable. For the second, it assesses the influence of this aforementioned relation indirectly via the other mediating variables, in particular the market share, the cash flow and the self-financing. As for the moderating variables, it has been limited to the sales tax and the corporation tax rate.

Furthermore, the market share can be linked to the activity's growth, as specified by (Reijonen & Kompola, 2007). Also, (Moungou, 2005) stipulated that the determinants of the

latter can be measured through the increase in the quantitative elements of the company, namely the increase in the market share. Thus, according to Murphy et al. (1996) cited by (Reijonen & Komppula, 2007), growth is evaluated according to the market share.

Also, the dimension of free cash flow can be linked to the growth of the activity, which, according to (Saemundsson, 2003) can refer to the increase in the amount of resources available to the company. For the self-financing, this dimension is directly linked to the activity's growth as was mentioned by Manigart (1996), cited by (Janssen, 2004).

Besides, after carrying out an exploratory qualitative study bearing on the effect of taxation on the dairy processing cooperative leaders in Morocco and in order to valid or to add variables to the research model, it was found that the interviewees cited mainly the variables selected in relation to the literature review. Also, two new variables were noted by the interlocutors, which are the net profit margin and the social contribution of cooperatives that are directly related to the concept of the activity growth, correspondingly, highly impacted by the taxation of these entities.

In fact, according to the interviewees' reflections, the taxation reduces the investment envelope intended for social activities as the cash reserved for the social contribution is used to pay the taxes. Thus, the cooperatives cannot be encouraged to undertake more social activities as this naturally depends on the surplus which will be diminished. As well, the interviewees stated that in the context of social investments, cooperatives generally proceed to the creation of collection centers, making possible to attract more milk collectors and in this respect to increase the quantity of products marketed and by default the increase in the turnover achieved, hence the improvement in their activity growth. As a result, the submission of dairy processing cooperatives to taxation influences negatively the social contribution of these latter and which indirectly degrades the growth of their activity.

Additionally, this advancements are in line with the reflections of (Lafleur & Merriën, n.d.), that have argued that the social contribution of cooperatives constitutes an essential foundation for governments, as it exercises a significant influence on the market thanks to the market shares it holds and contributes in this order to ensure economic, social and political stability and regulation.

Previous research that has attempted to study the effect of tax exemption or taxation on non-profit commercial organizations are limited, as the theories of tax exemption or taxation have generally focused on the purely theoretical explanation of the problem, without proceeding to an empirical validation of the theoretical contributions. In addition, these theories attempt to study this issue for non-profit commercial organizations without studying its impact specifically for cooperatives. As well, in the Moroccan context, this taxation controversy has persisted without a real empirical study being applied in the field. Therefore, the purpose of this research is to bring an empirical validation to the theories previously presented, at the level of the Moroccan Dairy Processing Cooperatives, in order to explain the effect of taxation on these entities.

Otherwise, after the establishment of the literature review and the qualitative study specific to the research theme, it would be necessary to draw up a set of hypotheses, which are articulated with each other and logically integrated into the problem. Indeed, the latter will be founded on the basis of several constructs and the totality of which forms a priori a hypothetical conceptual model. Thus, a set of constructs was identified, in particular, the taxation, the tax exemption, the market share, the free cash flow, the self-financing, the net profit margin, the social contribution and the activity's growth.

By opposition the taxation refers to the tax exemption, therefore, it would be wise to retain a single independent variable as the assertion of the hypotheses of this variable supposes by extrapolation the invalidation of the hypotheses of the tax exemption. Thus, our research theme puts forward, two sub-hypotheses in each hypothesis as the intensity of the impact between the taxation and the activity's growth of cooperatives is moderated by the rates of the corporate tax and the sales tax, which may vary according to the legislation. Hence, the formulation of the research hypotheses is as follows:

H0: Taxation influences negatively the activity's growth of Moroccan Dairy Processing Cooperatives.

H0.a: The higher the sales tax rate, the higher the negative effect of the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives.

H0.b: The higher the corporate tax rate, the higher the negative effect of the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives.

H1: The interactive effect of a high taxation on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the market share.

H1.a: The interactive effect of a high sales tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the market share.

H1.b: The interactive effect of a high corporate tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the market share.

H2: The interactive effect of a high taxation on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the free cash flow.

H2.a: The interactive effect of a high sales tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the free cash flow.

H2.b: The interactive effect of a high corporate tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the free cash flow.

H3: The interactive effect of a high taxation on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the self-financing.

H3.a: The interactive effect of a high sales tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the self-financing.

H3.b: The interactive effect of a high corporate tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the self-financing.

H4: The interactive effect of a high taxation on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the net profit margin.

H4.a: The interactive effect of a high sales tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the net profit margin.

H4.b: The interactive effect of a high corporate tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the net profit margin.

H5: The interactive effect of a high taxation on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the social contribution.

H5.a: The interactive effect of a high sales tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the social contribution.

H5.b: The interactive effect of a high corporate tax rate with the tax burden on the activity's growth of Moroccan Dairy Processing Cooperatives is mediated by the social contribution.

Research Method

Our epistemological positioning is a post-positivist, which is considered to be the most appropriate to our research work as our objective is to provide explanations to our problem. Moreover, research with a post-positivist orientation use more often a qualitative method, upstream of a quantitative method, or, more rarely, downstream of the latter. Typically, a first qualitative phase allows exploring the object studied and the quantitative one confirms the hypotheses formulated following the exploratory phase.

Therefore, the mode of reasoning adopted is a deductive logic, more specifically the hypothetic-deductive approach, which consists in establishing several hypotheses and confronting them with reality, in order to verify the relevance hypotheses originally put forward in the base of the literature review and the qualitative study. Thereby, the methodological approach applied is the mixed approach, which is adopted to explore, collect and analyze the data. Indeed, the qualitative approach is first carried out in order to better explore our research theme and to test the hypothetical conceptual model. Subsequently, the quantitative approach is used to collect all the data required for the development of the empirical study (Evrard et al., 2003), (Gavard-Perret et al., 2008) and (Thietart, 2014).

Accordingly, the study sample after its refinement in coherence with the effectiveness of the activity exercised and the identification for tax eligibility, it was limited to the cooperatives constituting the leaders of the dairy processing sector in Morocco, which their turnover exceeds the tax limit. Indeed, after filtering the sample in line with our theme it was concluded that six cooperatives will be the subject of the study.

Of what follows, the conceptual model can be represented as follows:

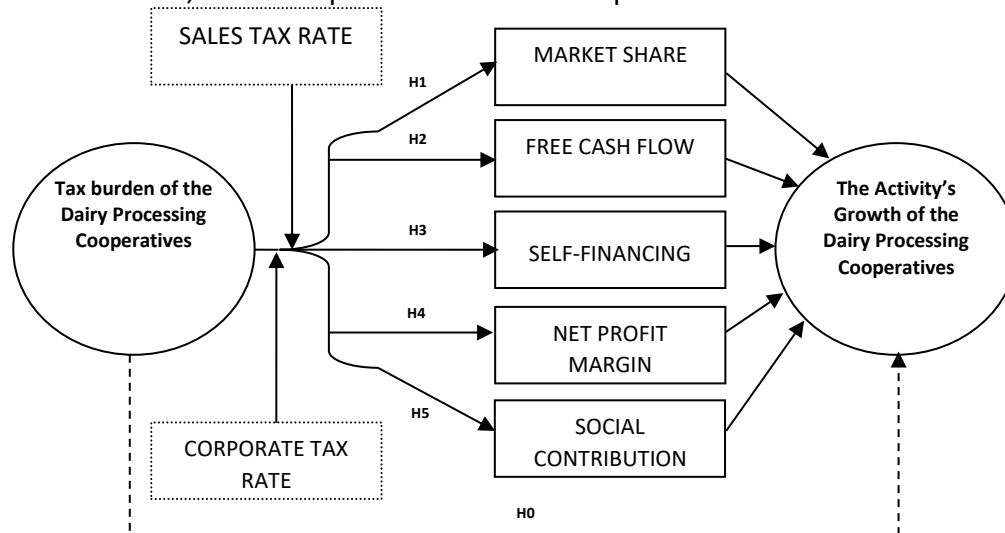


Figure 1. Conceptual Framework

In addition, the data collection method adopted in relation with the research theme was the semi-directive individual interview for the exploratory qualitative study and the questionnaire for the quantitative study. In fact, the data analysis method applied was the longitudinal study, which is composed of fifteen cross-sections for each year, ranging from the year 2005 to 2019. In this regard, following the study sample selected above, the number of the observations is amounting to 90. As a result, the use of a panel database is necessary. Thereby, the longitudinal study has a number of advantages. First, it takes into account the heterogeneity of the units making up the sample. Then, it offers more informative data, variability and less colinearity. Then, it is more suitable for researching the dynamics of change. Finally, it can more easily identify and measure the effects that cannot be easily detected in cross-sectional data or in time series (Gujarati et al., 2003).

Thus, in order to evaluate the impact of taxation on the activity's growth of dairy processing cooperatives in Morocco, through the assessment of its effect on the market share, the self-financing, the cash flow, the net profit margin as well as the social contribution, where the intensity of these relations varies according to the corporate tax and the sales tax rate, the general structure of the panel data model will be in the form of the model presented below. Furthermore, our model corresponds to a mediated moderation which, according to (Caceres & Vanhamme, 2003) is a mediated moderation process which reflects only the interactive effect of the dependent variable (X) with the moderator (Z) on the variable dependent (Y), which is mediated by a fourth variable (M). Therefore, in the application of the general model' structure in panel data and in accordance with our conceptual research model that refers to a mediated moderation model, the final presentation of the general structure of our model is as follows:

$$GRWTHCOOP = a_{0i} + b_{1i}MS + b_{2i}FCF + b_{3i}SF + b_{4i}NPM + b_{5i}SC + b_{6i}TXBURDEN + b_{7i}TXCORP + b_{8i}TXSALE + b_{9i}(TXBURDEN * TXCORP) + b_{10i}(TXBURDEN * TXSALE) + \epsilon_{0i}$$

With:

GRWTHCOOP: The activity of growth of the cooperative i at the period t .

TXBURDEN: The tax burden of the cooperative i at the period t .

MS: The market share of the cooperative i at the period t .

FCF: The free cash flow of the cooperative i at the period t .

SF: The self-financing of the cooperative i at the period t .

NPM: The net profit margin of the cooperative i at the period t .

SC: The social contribution of the cooperative i at the period t .

TXSALE: The sales tax rate of the cooperative i at the period t .

TXCORP: The corporate tax rate of the cooperative i at the period t .

a_{0i} : Constant term for the cooperative i .

b_{1i}, \dots, b_{10i} : Coefficients of the variables TXBURDEN, MS, FCF, SF, NPM, SC, TXSALE, TXCORP of the cooperative i at the period t .

ε_{it} : The error term of cooperative i at time t .

It is to be emphasized that the statistical processing of the data will be carried out using the software STATA (Version 16) which is specially used for the econometric analysis.

Result and Discussion

Following the results of the econometric test model, specifically the heteroscedasticity and the autocorrelation tests of the residuals, it was concluded that there are heteroscedasticity and autocorrelation issues. Therefore, in order to estimate our econometric model, it is necessary to choose a suitable panel regression model to correct the two aforementioned problems, which requires in this context the use of the Panel Corrected Standard Errors that was estimated at the STATA software by the Prais-Winsten regression. Thus, in order to strengthen the validation of its result, it was necessary to carry out as well the nonparametric model using the quantile regression.

Thereby, the estimation of the Panel Corrected Standard Errors model by means of the Prais-Winsten regression generated a final model with corrected heteroscedasticity and autocorrelation as presented in the figure below. Indeed, the Wald χ^2 (10) test of the overall significance of the regression model is significant at the level of 1% ($\text{Prob} > \chi^2 = 0.0$). Also, the coefficient of determination R^2 of the model's regression is equal to 98%. Therefore, the explanatory power of this model is very satisfactory and the results obtained using this estimation demonstrates that the variables are significant each at a determined threshold.

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:	COOPINDEX	Number of obs	=	90	
Time variable:	YEAR	Number of groups	=	6	
Panel:	correlated (balanced)	Obs. per group:			
Autocorrelation:	panel-specific AR(1)	min	=	15	
		avg	=	15	
		max	=	15	
Estimated covariances	=	21	R-squared	=	0.9880
Estimated autocorrelations	=	6	Wald chi2(10)	=	2225.43
Estimated coefficients	=	11	Prob > chi2	=	0.0000

GRMTHCOOP	Panel-corrected		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
MS	9.55e+09	2.30e+09	4.15	0.000	5.04e+09	1.41e+10
FCF	-5.91193	3.736656	-1.58	0.114	-13.23564	1.41178
SF	5.651952	2.519473	2.24	0.025	.7138752	10.59003
NPM	-6.55e+09	1.56e+09	-4.19	0.000	-9.62e+09	-3.49e+09
SC	40.90448	116.6317	0.35	0.726	-187.6894	269.4983
TXBURDEN	54.281	21.28933	2.55	0.011	12.55468	96.00732
TXBURDENSAL	-549.7655	244.0132	-2.25	0.024	-1028.023	-71.50842
TXBURDENCORP	30.29816	20.24361	1.50	0.134	-9.378596	69.97491
TXSALE	-3.10e+09	3.89e+09	-0.80	0.426	-1.07e+10	4.52e+09
TXCORP	6.42e+07	3.90e+08	0.16	0.869	-7.01e+08	8.29e+08
_cons	4.09e+08	3.48e+08	1.17	0.241	-2.74e+08	1.09e+09
rhos = -.1770258 -.3340466 .0207026 .0790488 .5402809 .526294						

Figure 2. Prais-Winsten regression

According to the results of the regression model, the independent variable corresponding to the tax burden is significant at the level of 1%. Regarding the mediating variables, in particular the market share and the net profit margin, it is significant at the level of 1%. As for the self-financing variable, it is significant at the level of 5%. Thereby, the free cash flow and the social contribution variable are not significant. In fact, the moderating variable of the sales tax rate weighted by the independent variable corresponding to the tax burden is significant at the level of 5%. Thus, the weighting of this last variable from the moderating variable relating to the corporate tax rate is not significant. In addition, the moderating variables of the corporate tax and the sales tax rate are not significant. However, the significance of these last variables is not important as the analysis is based more on the significance of the mediated moderating variables. In fact, this joins the advancements of (Caceres & Vanhamme, 2003) which emphasizes that even if the analyst is only interested in the significant character or not of the interaction between the independent and moderating variables, it is not correct to regress the dependent variable only on the product of the two variables but must also include the two independent and moderator variables in the regression model. Otherwise, the effect of the interaction on the dependent variable will be confused with the simple effect of the two variables and it is not correct to remove these last ones from the final model even if the coefficients of these variables are not significant.

Moreover, in order to improve the robustness and to verify and confirm the veracity of the results obtained by the parametric model, it is necessary to estimate the econometric model according to the non-parametric model by using the quantile regression. Indeed, this latter is considered to be an integral part of the most appropriate statistical tools, which offers a richer and more flexible regression than classical linear regression (D'haultfœuille & Givord, 2014). Therefore, by examining the results presented in the picture below, the overall estimation of the non-parametric model is similar as the parametric model considering that

the coefficient of determination R2 is equal to 96%, which is slightly low compared to the parametric model.

GRWTHCOOP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
MS	6.63e+09	5.24e+08	12.64	0.000	5.58e+09 7.67e+09
FCF	2.304607	.7971202	2.89	0.005	.7179786 3.891235
SF	1.441589	.5277008	2.73	0.008	.3912273 2.491952
NPM	-1.36e+09	8.28e+08	-1.64	0.105	-3.01e+09 2.89e+08
SC	.0031834	22.10199	0.00	1.000	-43.98973 43.9961
TXBURDEN	14.09677	4.630164	3.04	0.003	4.880659 23.31288
TXBURDENSAL	-113.7808	54.86643	-2.07	0.041	-222.9897 -4.571894
TXBURDENCORP	41.64183	4.78153	8.71	0.000	32.12443 51.15922
TXSALE	1.77e+09	1.80e+09	0.98	0.329	-1.82e+09 5.35e+09
TXCORP	-1.55e+07	2.08e+08	-0.07	0.941	-4.29e+08 3.98e+08
_cons	-1.02e+08	1.59e+08	-0.64	0.521	-4.19e+08 2.14e+08

Figure 3. Quantile regression

Considering the results of the quantile regression model, the independent variable corresponding to the tax burden is significant at the level of 1%, which is consistent with the results obtained by the Prais-Winsten regression model. Regarding the mediating variables, the market share, the net profit margin, the free cash flow and the self-financing, it is significant at the level of 1%, which proves an improvement in significance compared to the estimation of the parametric model. However, the net profit margin and the social contribution are not significant. Thus, compared to the results of the parametric model, the free cash flow is significant in this model and has become insignificant for the net profit margin. For the moderating variable of the sales tax rate weighted by the independent variable, corresponding to the tax burden, it is significant at the level of 5%. Nonetheless, the moderating variable related to the corporate tax rate weighted by this independent variable, became significant at the level of 1% compared to the results of the parametric model. Also, the moderating variables of the corporate tax and the sales tax rate are maintained not significant.

In sum, on the basis of the six variables studied, the four variables presented above are significant and reveal the negative effect exerted by the tax burden in moderation with the variable of the sales tax and the corporate tax rate, through the mediating variables in particular the market share, the free cash flow and the self-financing. The other last variables, namely the net profit margin and the social contribution are insignificant and the result of the predicted direction for the two variables is partially confirmed as it acts in the opposite direction for the corporation tax rate variable.

In outline, the estimation of our econometric model by means of the parametric and non-parametric regression determined the significance of the variables chosen for our research model and the signs of the variables' predicted direction. Otherwise, in our econometric model, both the estimation of the parametric and non-parametric model lead

to substantially similar results as to the signs of the determination coefficients for all the variables except for the mediating variable corresponding to the free cash flow. Moreover, the degree of significance of the variables already significant in the first model becomes greater in the second one, with the exception of the net profit margin variable which becomes insignificant, whereas the social contribution is maintained as insignificant. Thereby, it is necessary to compare these results with the research hypotheses initially defined in order to decide on their confirmation or invalidation.

Thus, for the verification of the research hypotheses, the interpretation of the results is presented for the two models because they converge approximately towards the same results. Nevertheless, the reference model is the nonparametric model because its results are more improved than those of the parametric model. Thereby, the following interpretation aims to highlight the meaning obtained in connection with the significance of the variables in order to confirm or to invalidate the research hypotheses.

For the central research hypothesis stipulating that the tax burden influences negatively the activity growth of the dairy processing cooperatives, it is partially confirmed. Indeed, the first sub-hypothesis stipulating that the higher the sales tax rate, the higher the negative effect of taxation on the activity's growth of the cooperatives, is confirmed, and the variable relating to the weighting of the tax burden and the sales tax is significant at the level of 5% for both models, also, the result of the predicted direction is confirmed. However, the second sub-hypothesis asserting that the higher the corporate tax rate, the higher the negative effect of taxation on the activity's growth of the cooperatives, is invalidated, and the significance of the variable is at the level of 1% for the non-parametric model, thus, it is not significant for the parametric model, thereby, the result of the predicted direction is invalidated. In addition, the tax burden variable is significant at the level of 1% for both models.

Concerning the hypotheses from n°1 to 5 relating to the verification of the nature and the significance of the interactive effect of a high tax on the activity's growth of dairy processing cooperatives is mediated respectively by the market share, the free cash flow, the self-financing, the net profit margin and the social contribution.

The first hypothesis relating to the market share is partially confirmed and the corresponding variable is significant at the level of 1% of the parametric and non-parametric model. Thus, the regression of the dependent variable on this mediating variable is positive. Moreover, the indirect partial mediating effect transmitted by this variable at the sales tax rate level is positive, hence the invalidation of the first sub-hypothesis, while the second sub-hypothesis is confirmed by the fact that the indirect partial mediating effect transmitted by this variable for the corporation tax rate is negative.

The second hypothesis corresponding to the free cash flow is partially confirmed. Thus, this variable will be retained in our model because it is significant at the level of 1% for the non-parametric model, while it is not significant in the parametric model. Moreover, the regression of the dependent variable on this mediating variable is positive for the nonparametric model and negative for the nonparametric model. Nevertheless, the first sub-hypothesis is confirmed by the fact that the partial indirect mediating effect transmitted by

this mediating variable at the level of the sales tax rate is negative, while the second sub-hypothesis is invalidated by the fact that the partial indirect mediating effect transmitted by this variable for the corporation tax rate is positive.

The third hypothesis concerning the self-financing is partially confirmed. Moreover, this variable will be retained in our model because it is significant at the level of 1% for the non-parametric model and at the level of 5% for the parametric model. Thus, the regression of the dependent variable on this mediating variable is positive. Thereby, the first sub-hypothesis is invalidated as the indirect partial mediating effect transmitted by this variable is positive for the sales tax rate. However, the second sub-hypothesis is confirmed as the indirect partial mediating effect transmitted by this variable for the corporation tax is negative.

The fourth hypothesis corresponding to the net profit margin is invalidated. In fact, there is a discrepancy in the significance of the variable because it is significant for the parametric model at the level of 1% and not significant for the non-parametric model. Thus, the direction's signs predicted are invalidated for the parametric and non-parametric model. In addition, the first sub-hypothesis is invalidated, as the indirect partial mediating effect transmitted by this variable at the level of the sales tax is positive. For the second sub-hypothesis relating to the indirect partial mediating effect transmitted by this variable for the corporation tax is negative, hence the confirmation of this sub-hypothesis.

The fifth hypothesis relating to the social contribution is invalidated. Moreover, this variable is not significant in terms of the estimation of the parametric and nonparametric model. In fact, the predicted direction result is confirmed for both models. Thus, for the first sub-hypothesis, it is confirmed, because the indirect partial mediating effect transmitted by this variable at the level of the sales tax is negative, while the second sub-hypothesis is invalidated as the indirect partial mediating effect of this variable for the corporate tax rate is positive.

Conclusion

The analysis of the present econometric model allocated the confirmation and the invalidation totally, or partially of the research hypotheses. Thereby, for the empirical verification of the hypotheses (H0, H1, H2 and H3), the results obtained showed that the tax burden exerts a direct negative influence on the activity's growth of dairy processing cooperatives in Morocco, especially for the sales tax. While, the impact of the corporation tax on the activity growth of these entities, had been assessed indirectly through the mediating variables, including the market share and the self-financing. Nevertheless, the mediating variable related to the free cash flow exerts a direct negative influence in terms of the sales tax.

In addition, the verification's results of the hypotheses related to the net profit margin and the social contribution (H4 and H5) are invalidated. This is due to the insignificance of these variables of the model, also in the partial confirmation of the predicted result's direction, mainly for the moderating variable related to the corporation tax. Generally, it can be concluded that the tax burden has an overall negative impact on the activity growth of

dairy processing cooperatives in Morocco in terms of the increase in the corporate tax rate as well as in the sales tax rate. Otherwise, these results refer to the necessity for the government to initiate a tax reform for the benefit of these social entities in order to improve several aspects of their activity, in particular at the commercial, financial and social level.

In fact, at the commercial level, as the proposed tax reform will ensure that these entities will gain further external growth, which is materialized by the improvement of their competitiveness on the market following their subjection to an adequate sales tax rate, in other words, the products will be marketed at a lower price than their competitors, which will imply the increase in number of the products' quantity marketed, hence the upsurge of their turnover. Equally, by virtue of the new dynamic established the improvement of the productivity will influence directly the increase of the income, which will allow, according to the strategy of the cooperative, the growth of its activity by holding more market share.

Also, at the financial level, as this tax relief will allow these entities to independently strengthen their internal growth due to the improvement in the net profit following the realization of more benefits than the current tax situation, leading to the increase of their capital and implicitly the consolidation of their financial structure. This will have repercussions, firstly, by strengthening their financial autonomy and reducing their dependence on capital lenders, secondly, by optimizing their financial profitability, thirdly, by increasing the free cash flow ensuring the coverage of expenses linked to investments.

Lastly, at the social level, as the positive spinoffs resulting from the application of an incentive tax reform in the dairy processing cooperative sector will produce direct effects, beyond the financial and commercial aspect and which is materialized by the improvement of cooperative members productivity's and their income, as the latter is based on the revenue collected within the framework of their activity with the entity, as well as the increase of the amount allocated to the portfolio devoted to social investments following the upsurge of the net profit.

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