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## **Family farmers' reluctance toward incorporating into the formal economy**

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**ABSTRACT:** Informal economy is particularly prevalent in small-scale farming, yet little attention has been paid to it so far. This article aims to contribute to a further understanding of this phenomenon. A survey of family farmers located in the Metropolitan Region of Santiago, Chile, was conducted. The data collected were processed using descriptive and multivariate techniques, factor and cluster analysis. Results show that farmers perceive formalization as a complex process which entails unpleasant obligations, and that they do not consider it necessary. There are some distinctions, however, that allow two clusters to be identified: "Favorable" (18.82 %) and "Reluctant" (81.18 %).

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**KEYWORDS:** Farmers' attitudes, Chile, small-scale and family farming, informal economy.

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### **La reticencia de los agricultores familiares respecto a su inserción en la economía formal**

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**RESUMEN:** La economía informal está especialmente presente en la pequeña agricultura, aunque se le ha prestado poca atención. El presente artículo tiene como propósito contribuir a un mayor entendimiento al respecto. Para ello, se llevó a cabo una encuesta a agricultores familiares de la Región Metropolitana de Santiago, Chile. La información recolectada fue analizada mediante técnicas descriptivas y multivariantes. Los resultados muestran que los agricultores perciben la formalización como un proceso complejo que conlleva obligaciones no deseadas, así como que no la consideran necesaria. Sin embargo, existen algunas diferencias, las cuales permiten identificar dos grupos: "Favorables" (18.82 %) y "Reacios" (81.18 %).

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**PALABRAS CLAVE:** Actitudes de los agricultores, agricultura familiar y de pequeña escala, Chile, economía informal.

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**JEL classification/Clasificación JEL:** H26, H32, Q18.

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**DOI:** <https://doi.org/10.7201/earn.2018.02.04>.

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*Acknowledgments:* Comments provided by the journal's reviewers on a prior version are gratefully acknowledged, however, the usual disclaimers apply.

*Cite as:* Boza, S.; Mora, M.; Osorio, F. & Muñoz, J. (2018). "Family farmers' reluctance toward incorporating into the formal economy". *Economía Agraria y Recursos Naturales* 18(2), 75-92. doi: <https://doi.org/10.7201/earn.2018.02.04>.

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Received on March 2018. Accepted on December 2018.

## 1. Introduction

The International Labor Organization (ILO) defines informal economy (IE) as all “the economic activities by workers and economic units that are –in law or in practice– not covered or insufficiently covered by formal arrangements” (ILO, 2002). Although it is difficult to carry out very specific measurements, the existing statistics show that the IE has an increased presence in rural areas and in agricultural activities (ILO, 2017). Also, IE is particularly common in small-scale operations and household based activities (Edusah, 2013). These are two of the characteristics most commonly linked to family farming (FF) by the specialized literature (Garner and De la O, 2014). As a consequence, it seems logical to imply that family farming may have a high presence of informality.

It is estimated that 98 % of the farms worldwide are family farms, accounting for 53% of the total agricultural land (Graeub *et al.*, 2016). The concept of FF is an ambiguous and confusing term, since it responds to a heterogeneous and changing reality. There was some consensus on the definition, such as the link between family work and patrimony with the farm, but even that has come under question (Moyano, 2014). In environments conducive to concentration and productive intensification, FF has sought new forms of organization in order to survive (Moreno-Pérez *et al.*, 2011). Despite its storied participation in agriculture, the FF was not recognized in Latin America as a particular category in the field of public policy until the 2000s (Ramos, 2014). The review of FF support programs beneficiaries’ eligibility criteria in the region demonstrates some common defining elements. Those include: limits in land size, in the workforce, in the value of the assets and that the main activity of the beneficiaries is agriculture (Salcedo *et al.*, 2014).

In Chile, there have been important structural changes in the agricultural sector in the past decades. They are evident in the data from the last three agricultural censuses (1976, 1997 and 2007). There has been a significant decrease in the cultivated area, intensification in the use of technologies, such as irrigation, and development both in terms of quantity and quality of food exports (INE, 2007). However, the evolution has been different depending on the property size. Today, Chilean agriculture is characterized by a duality between a minority of medium and large export companies and a majority of micro and small producers oriented toward the traditional local markets (Ríos and Torres, 2014). Among them, there is a significant gap in the use of technologies, access to financing and even public programs, in favor of export oriented enterprises (Echeverría *et al.*, 2012).

On the other hand, Chilean consumers have increasingly replaced fresh products with other foods at a lower cost per calorie (FAO and PAHO, 2017). Chile and Mexico are the countries in Latin America where sales of ultra-processed products have increased the most (PAHO, 2015). According to the National Institute of Statistics, supermarket sales grew in Chile by 70 % between 2009 and 2015. This entails a decrease in the market shares of traditional channels, where fresh products and especially FF and small-holdings’ products are more present. An alternative that has been raised to increase the bargaining power and market access of small farmers is

through farmer's associations. In the case of Chile, although the associations have been pushed recurrently by the public sector, in many cases farmers did not perceive them as a priority. That means that when they accept to join them, the final objective is access to credits or subsidies, but not a real conviction or intention to work together. Furthermore, the organizational capacities are underdeveloped and there is also no strong specialized accompaniment (Nagel and Martínez, 2015).

Chilean FF is mainly supported by the National Institute of Agricultural Development (INDAP, in Spanish), founded to promote its development. INDAP has experienced significant changes in its procedures and alignments since its establishment in the 1960s (Namdar-Irani and Sotomayor, 2011). It has focused its programs on technical-productive aspects, and more recently has included specific marketing and management initiatives. Among INDAP users, there are marked differences in their view of the programs. An important group of them, in spite of participating, are pessimistic about the results that they can obtain and avoid making substantive changes (Boza *et al.*, 2016; 2018).

Many of the limitations in the Chilean family farming are shared globally. In recent decades, rural areas have experienced a process of farmland abandonment largely related to low economic viability of agricultural production (Van Vliet *et al.*, 2015). Some critical factors for small holdings that limit profitability are land tenure, provision of productive capital, access to infrastructure, technology adoption and market integration (Medina *et al.*, 2015). Constraints on access to financial resources due to informality may limit the ability to combat those factors (USAID, 2013). However, some authors argue that IE contributes to maintaining the competitiveness and flexibility of production and providing income to families to cover their basic needs (Gërxfhani, 2004) because formal operations involve costs such as taxes, registration fees, and compliance with rules, which may be avoided depending on the enforcement threats and the risk of losing benefits from public institutions (Ademola *et al.*, 2015). The decision of a family farmer to formalize his or her activity will depend on the balance of those forces, as well as on other similar factors.

Consequently, a complete understanding of the decision to formalize should include farmers' attitudes toward the different aspects involved. Attitudes result from the interaction of three dimensions: affective, cognitive and behavioral. The first refers to feelings or emotions; the second depends on thoughts, beliefs and attributes; and the last to past behavior. This subjective approach will capture farmers' evaluation of the stimulus object, in this case IE, and, to a large extent, the expected behavior (Haddock and Maio, 2008). As a consequence, attitudes' identification facilitates to anticipate later results, which allows suggesting an adequate policy framework. Although analysis of attitudes is more common in consumer studies, it has been applied to small-scale agriculture (e.g. Sepúlveda *et al.*, 2010; Mora *et al.*, 2012, 2013; Kotevska *et al.*, 2013; Boza *et al.*, 2016, 2018).

The objective of this paper is to contribute to a further understanding of the attitudes of farmers towards incorporating into the formal economy. Our hypothesis is that those attitudes impact the probability of formalization of small-scale and family farmers. Research into the IE has mostly been conducted by using broader perspec-

tives than the one followed in the present article and have focused on economies of whole countries and on urban areas. In addition, previous research has concentrated particularly on the labor market. Although it is growing, interest in informal entrepreneurship is still low despite its prevalence, especially in developing economies (Ketchen *et al.*, 2014). There has been almost no research on informality in FF, and even less on the views producers have.

This paper examines central Chile. In the country, 51.3 % of small entrepreneurs are informal. The highest presence of the IE is in primary activities and principally in agriculture, reaching 73.8 % of total small entrepreneurs (Ministerio de Economía, Fomento y Turismo, 2015). The results obtained from analyzing the collected information will be discussed in light of the changing reality of the productive structure of agriculture in Chile, and especially of small-scaled holders.

## 2. Materials and methods

### 2.1. Study area and survey

The area under study encompasses the Metropolitan Region of Santiago (MRS) in Central Chile. According to the MRS Government, 40.5 % of the Chilean population lives in this area, despite its relatively small size. Meanwhile, 45.6 % of the nation's Gross Domestic Product is generated in the MRS (Banco Central, 2016). The MRS has been experiencing population overgrowth, influenced by the high level of centralization in Chile. The MRS is divided into 52 districts with 34 districts in the center that form the main urban area in Chile, known as "Gran Santiago". Encircling those districts, there is a belt of 18 peri-urban districts with lower population density. However, those districts have experienced significant real estate development in the last decade (Cáceres, 2015).

Despite the high rate of urbanization and the 75 % reduction in the number of farms between 1976 to 2007 (INE, 2007), MRS still accounts for 26.5 % of the total area for horticulture in Chile, 17.3 % for fruits and 9.4% for vineyards (ODEPA, 2018). An investigation based on data from the last agricultural census estimated 87.9 % of the MRS farms to be family farms (Aedo and Alvear, 2010).

The questionnaire employed for this research was divided in the following sections: i) personal characteristics of the farmers (e.g. age, education), ii) technical and production features, iii) level of formalization of their production and iv) statements regarding attitudes toward formalization. The answers to the last category were formed in accordance with a 5-level Likert scale (1: "completely disagree", 2: "disagree", 3: "indifferent", 4: "agree" and 5: "completely agree"). In order to construct the questions related to formalization, a complete revision of the respective regulations and procedures in Chile was carried out.

## 2.2. Factor and cluster analyses

The information obtained from the survey was first dealt with using descriptive statistics. This was followed by multivariate analysis techniques applied to the results referring to farmers' attitudes. In this sense, an exploratory factor analysis was employed, which facilitates reducing the volume of information derived from a large set of variables (Jolliffe, 2002). Prior to applying factor analysis, the Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index were estimated, in order to determine the sample adequacy for that method (Malhostra, 2008). After being identified, the factors were interpreted once the variance percentages explained by the variables of each factor were determined. The internal consistency of factors was measured using Cronbach's coefficient alpha.

When the factors were established and characterized, a cluster analysis was carried out to identify homogeneous groups of producers based on their attitudes towards formalization. The methodology applied was a k-means analysis, which assigns the individuals to each group so that the sum squares within them is minimized. Finally, each cluster was described in terms of their attitudes regarding the identified factors.

## 3. Main findings

### 3.1. Descriptive analysis

The sample was composed of 68.2 % men and 31.8 % women. The average age was 57.5 years old. 23.5 % of the farmers didn't finish primary education, 24.7 % only completed primary school, 18.8 % finished secondary school, 16.5 % finished technical education and only 7.1 % completed university. These characteristics of the sample are in line with previous research in Chile. In terms of gender, our results are representative of the national reality, since around 30% of farms are managed by women (Namdar-Irani and Aracena, 2014). The age is consistent with previous research both for Chile, and specifically for the MRS, which refer to an average age of 55-57 years old (Boza *et al.*, 2016; 2018). The rural-urban migration of young people can explain the aging of farmers. According to the World Bank, the Chilean rural population has decreased by 0.8 % annually in the last two decades, while the urban population has increased by 1.5 %. The educational level is considerably lower than the national average in the CASEN 2017 survey of the Ministry of Social Development, but makes sense when considering only the older age of rural population.

51.8 % of the respondents own their property, while 38.8 % lease it. The average farm size is 2.6 hectares; however more than half of respondents have one hectare or less. Horticulture, nurseries, pastures and hydroponics are the main production systems. For labor, 55.29 % of the farmers turn to family, while 42.35 % hire external workers, the majority of which have no legal contract. 69.4 % of the respondents say the farm is their main income source, while 22.4 % have higher off-farm income and 8.2 % named other sources (e.g. pension).

Access to private financing is very limited for the respondents, both to make productive investments and for operating expenses. More than 90 % of respondents use their own savings as their main source of financing. However, lack of private financing is perceived as a real limitation to growth by only 17.6 % of respondents, while high production costs were cited by 35.3 %. One explanation for this apparent inconsistency may be that because of their advanced age farmers do not feel as much need to expand their productive capital and, therefore, their farm structure, but simply solve their current expenses.

49.6 % of the respondents have no mechanical equipment for their production (e.g. tractor, irrigation pump). 60 % have no computer, 61.2 % have no Internet access and only 32.9 % use it at least occasionally for business. The low penetration of both mechanization and ICTs is consistent with the limited access to sources of financing, since they represent an economic investment. In the specific case of ICTs, the lack of training and an unfavorable attitude have also been shown to be constraining their access and appropriate use in Chilean small-scale farming (Mora *et al.*, 2012). In terms of commercialization, 60 % of respondents declared that most of their harvest is sold to consumers at the farm, whereas 17.64 % of respondents sell principally to intermediaries or wholesalers. Their personal participation in local markets is very low. Self-consumption, at least of part of the production, is present among the majority of the respondents.

Regarding formalization, 48.2 % of the respondents admit that they do not declare their activities to the tax services, i.e. they are not registered at the Internal Revenue Service (SII in Spanish)<sup>1</sup>. 45.9 % of the respondents admit that they do not know the procedures necessary for formalization and 90.6 % say they have never been advised about it. There is also high unfamiliarity with the different taxation schemes, even with those that have been created especially for small and micro entrepreneurs.

Although the sample is not totally homogeneous, descriptive analysis allows the identification of some common characteristics which will facilitate the interpretation of the analysis of attitudes regarding formalization. Those are: high age, low level of schooling, farms of micro and small size, dedication mostly exclusive to the farm activity, non-contractual links with workforce, low penetration of mechanization and ICTs, poor access to private financing and the prevalence of informal commercial channels.

### **3.2. Assessment of statements referring to attitudes**

The questionnaire contained a series of statements relating to attitudes toward the formalization of farmers' activities that were scored by respondents in accordance with a 5-level Likert scale, with 1 being "totally disagree" and 5 being "totally agree". Table 1 summarizes the average valuation and the respective standard deviation for the statements in the survey.

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<sup>1</sup> The SII is responsible for administering Chile's tax system. The Ministry of Economics considers registration in the SII as the primary step in the formalization process of any enterprise.

TABLE 1  
**Valuation of the proposed statements towards formalization**

	Av.	S.D.
Government institutions are of little help to formalize small enterprises	4.56	1.10
I do not consider it necessary to formalize my enterprise to have better market access	4.39	1.27
I think choosing a taxation scheme is complex	4.31	1.18
I prefer in person procedures	4.31	1.12
Government institutions do not seem reliable to me	4.20	1.20
I do not consider it necessary to formalize my enterprise to improve my farm income	4.19	1.44
I think the formalization process is very time demanding	4.14	1.33
Keeping the accounting books seems complex to me	4.07	1.41
I think taxes on entrepreneurship are high	4.04	1.26
I think the formalization process is complex	4.01	1.40
I do not consider it necessary to formalize my enterprise to have access to public benefits	3.95	1.55
Formalization is not necessary in my case because my production is small	3.73	1.60
I think formalization is not essential for my productive activity	3.67	1.47
The formalization process entails a high economic effort	3.65	1.53
I think formalization entails more inspections	3.65	1.51
I do not want to have the pressure of inspections	3.38	1.53
I do not know of any business like mine that is formalized	3.34	1.58
I do not consider it necessary to have my workers under a legal contract	3.29	1.54
The completion of procedures in the notary seems complex	3.28	1.37
I think I'm going to lose social benefits if I formalize my production	3.26	1.65
The completion of procedures at the SII seems complex	3.26	1.37
The completion of procedures at the city hall seems complex	3.19	1.35
I do not consider it necessary to formalize my enterprise to have access to financing	2.82	1.66

Source: Own elaboration.

Meanwhile, Table 2 summarizes the results of the factor analysis performed. First, we are able to observe the weight of each variable in the composition of its respective factor. This shows the correlation between the original variable and the factor estimated by linear combination of the original variables (Santesmases, 2009). Only variables with a weight over 0.4 were considered. On the other hand, KMO and Bartlett's sphericity test specified the adequacy of a factor analysis. For the KMO, the result obtained was 0.687, which indicates that the sample is acceptable, as it is above 0.6. Bartlett's sphericity test presented a p-value of 0.000, which supports that the application of factor analysis is suitable.



TABLE 2  
**Composition of factors which explain farmers' attitudes towards formalization**

	Factor					
	1	2	3	4	5	6
I think the formalization process is very time demanding	0.871	-0.173	0.132	0.061	0.144	0.061
I think the formalization process is complex	0.845	-0.060	0.072	0.057	0.098	-0.004
The formalization process entails a high economic effort	0.743	0.118	0.345	0.016	0.003	0.084
Keeping the accounting books seems complex to me	0.625	0.174	-0.077	0.108	0.269	0.304
I think choosing a taxation scheme is complex	0.535	0.294	-0.103	0.234	0.250	0.180
I do not consider it necessary to formalize my enterprise to improve my farm income	0.073	0.894	0.110	0.130	-0.078	0.153
I do not consider it necessary to formalize my enterprise to have better market access	-0.041	0.866	0.067	0.165	0.042	-0.110
I do not consider it necessary to formalize my enterprise to have access to public benefits	0.043	0.708	0.222	0.127	0.176	0.289
Formalization is not necessary in my case because my production is small	0.105	0.266	0.860	0.162	0.106	-0.115
I prefer in person procedures	0.082	-0.172	0.780	0.098	-0.109	0.207
I think formalization is not essential for my productive activity	0.317	0.442	0.696	0.144	0.076	-0.058
I do not consider it necessary to formalize my enterprise to have access to financing	-0.053	0.372	0.486	0.289	0.157	0.219
I do not want to have the pressure of inspections	0.195	0.130	0.126	0.892	-0.112	-0.012
I think formalization entails more inspections	0.005	0.079	0.083	0.855	-0.142	0.116
I think I'm going to lose social benefits if I formalize my production	0.092	0.216	0.213	0.626	0.196	0.122
I do not know of any business like mine that is formalized	0.104	0.234	0.538	0.545	0.227	-0.009
The completion of procedures at the SII seems complex	0.170	0.046	0.021	-0.115	0.869	-0.036
The completion of procedures at the city hall seems complex	0.058	-0.068	0.026	0.013	0.769	0.094
The completion of procedures in the notary seems complex	0.248	0.196	0.088	0.061	0.746	0.104
I think taxes on entrepreneurship are high	0.107	0.075	0.151	-0.084	0.034	0.853
Government institutions are of little help to formalize small enterprises	0.179	0.224	-0.187	0.161	-0.026	0.733

TABLE 2 (cont.)

**Composition of factors which explain farmers' attitudes towards formalization**

	Factor					
	1	2	3	4	5	6
Government institutions do not seem reliable to me	0.071	-0.078	0.207	0.248	0.298	0.533
% of variance	13.777	13.091	12.545	11.830	10.793	8.909
% cumulative variance	13.777	26.869	39.414	51.244	62.036	70.945
Cronbach's alpha	0.774	0.854	0.794	0.813	0.781	0.681

\* Bartlett's sphericity test  $p = 0.000$ .

\*\* Kaiser-Meyer-Olkin index (KMO) = 0.687.

\*\*\* Total explained variance = 70.945 %.

Source: Own elaboration.

Our analysis also showed that the farmers' attitudes towards formalization can be explained in 70.945 % of their variance by six factors, which exceeds the minimum of 60 % recommended for this type of methodology (Hair *et al.*, 1979). There is a relative balance in the variance that each factor explains, with none especially predominant. The Cronbach Alpha for the different factors is higher than 0.7 in all but one case, which means that the correlation between the variables is at least acceptable.

The identified factors were named: "Formalization process and subsequent obligations" (Factor 1), "Impact on profitability" (Factor 2), "Needlessness of formalization and procedures" (Factor 3), "Control and social benefits" (Factor 4), "Completion of procedures" (Factor 5) and "Role of institutions" (Factor 6).

Factor 1: "Formalization process and subsequent obligations" (13.777 % of the variance)

This factor is composed of statements that reflect a perception of the formalization process as complex and demanding of time and economic resources. This factor also contains statements related to difficulties due to subsequent obligations, specifically accounting and taxes. On the valuation by respondents, statements regarding the mentioned aspects are among the highest rated: "I think choosing a taxation scheme is complex" (4.31 average); "I think the formalization process is very time consuming" (4.14); "I think the formalization process is complex" (4.01); "Keeping the accounting books seems complex to me" (4.07); and, with a lower valuation, "The formalization process entails a high economic effort" (3.65). Chile has recently implemented special taxation and accounting standards and procedures adapted to micro and small businesses, but it is clear that small farmers still consider them as not amicable (or even unknown).

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Factor 2: “Impact on profitability” (13.091 % of the variance)

This factor focuses on the general outcomes of formalization. When it comes to the aspects of formalization that should be attractive to an entrepreneur from the point of view of profitability, formalization is not perceived as necessary for generating higher income or expanding market access. Likewise, formalization is not perceived as an advantage when it comes to accessing government benefits, which is especially relevant considering that FF is a habitual recipient of support policies. Respondents give a high valuation to the statements regarding the lack of advantages of formalization: “I do not consider it necessary to formalize my enterprise to have better market access” (4.39); “I do not consider it necessary to formalize my enterprise to improve my farm income” (4.19) and “I do not consider it necessary to formalize my enterprise to have access to public benefits” (3.95). This last conclusion is well informed, since the main institution for the promotion of small-scale and family farming in Chile, the INDAP, does not require formalization to be a beneficiary. Anyway, the perception of a low benefit derived from formalization and the apparent difficulties of carrying out the process are very likely to result in the decision to remain in the informal economy.

Factor 3: “Needlessness of formalization and procedures” (12.545 % of the variance)

This factor contains statements that result in the farmers’ perception of formalization as not very significant in their case. This is due to the small scale of their production, and the fact that formalization is not seen as necessary for their productive activity or their access to financing. This factor also shows a preference for completing procedures in person.

The statements “Formalization is not necessary in my case because my production is small” (3.73) and “I think formalization is not essential for my productive activity” (3.67) have a valuation close to agreement (average of 3.5 to 3.75). In contrast, the respondents do seem to perceive that IE may be a limitation in access to private financing, as “I do not consider it necessary to formalize my enterprise to have access to financing” had the lowest valuation (2.82) in the survey. However, to the extent that their main source of financing is their own savings and INDAP, it probably will not seem to be such a relevant limitation. Meanwhile, formalization through the internet has been especially facilitated with websites such as “Your company in one day”<sup>2</sup>, however, small-scaled holders are reluctant to use ICTs to complete their paperwork, as the statement “I prefer in person procedures” has a high valuation (4.31). This reinforces the previous suggestion that the low access and use of ICTs by these farmers is due, at least in part, to an adverse attitude. Once again, there is a general perception of low benefits and high costs associated with formalization. Consequently, it is expected that the formalization rates will remain low if the authorities do not implement actions with an effective impact in either of the two perceptions.

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<sup>2</sup> “Tu empresa en un día” in Spanish. <http://www.tuempresaenundia.cl>.

Factor 4: "Control and social benefits" (11.830 % of the variance)

This factor contains statements that show the farmers' concern regarding audits and their perception that they will increase with formalization as well as the uncertainty of farmers about whether or not incorporation into the formal economy will make them lose social benefits. In this sense, the assessment "I think I'm going to lose social benefits if I formalize my production" has a valuation close to indifference (3.26), which suggests that farmers do not have a definite opinion or that it is not so relevant to them. This reinforces the conclusion that it is apparently unclear to the farmers whether they will lose access to social benefits through business formalization. The existence of doubts in this regard, especially considering the socio-economic weakness of most of the farmers' families, might inhibit formalization. In fact, in Chile many social benefits are linked to the level of vulnerability, which is estimated in part by information in the SII database. Therefore, to increase formalization, it would be useful if farmers are convinced that the receipt of the social assistance will not be necessarily stopped.

Factor 5: "Completion of procedures" (10.793 % of variance)

This factor is made up of statements regarding the perception of farmers of the complexity of carrying out procedures with different entities normally linked to the formalization process such as the SII, the notary and the city hall. The related assessments ("The completion of procedures at the (...) seems complex") have a general valuation close to indifference, which similarly suggests that farmers do not have a definite opinion or that they are not so relevant to them. The indifference could be due to the farmers' lack of experience with government agencies, besides specific ones like INDAP, which hinders understanding.

Factor 6: "Role of institutions" (8.909 % of variance)

This factor shows the farmers perception of public institutions as unreliable and a deterrent from incorporation into the formal economy. This is because they are not seen as supportive, and taxes on entrepreneurship are considered high. In this sense, two of the statements in the survey most highly supported by the respondents were: "Government institutions are of little help to formalize small enterprises" (4.56) and "Government institutions do not seem reliable to me" (4.20). The second statement could, however, be understood to refer to the government more generally. According to Tezanos-Pinto *et al.* (2016), 65 % of Chileans are disappointed with the political system as a whole. Meanwhile, the statement "I think taxes on entrepreneurship are high" also had an important degree of agreement (4.04).

### 3.3. Sample's clusters

Two homogeneous groups of farmers were identified by their attitudes towards formalization which were specified in the factor analysis previously described. These groups were named: "Favorable" (18.82 %) and "Reluctant" (81.18 %). Table 3 summarizes the attitudes of each. The first segment is defined by a general disagreement toward the identified factors and the second by an agreement, except for the factor "Needlessness of formalization and procedures" where that trend reverses. Careful interpretation of these results must be made, given that almost all of the statements included in each factor express aspects of formalization negatively.

TABLE 3  
Farmers' clusters in terms of attitudes towards formalization

Components	Clusters	
	Favorable (n = 16)	Reluctant (n = 69)
Formalization process and subsequent obligations	-0.58069	0.13465
Impact on profitability	-0.85436	0.19811
Needlessness of formalization and procedures	0.44982	-0.10431
Control and social benefits	-0.43508	0.10089
Completion of procedures	-0.27859	0.06460
Role of institutions	-1.37435	0.31869

Source: Own elaboration.

Most farmers are distinctly skeptical regarding the formalization process, its impact, and its actual necessity for the development of their economic activities. There is, however, a group that favors formalization and presents a positive attitude both in terms of the formalization process and its overall impact, but they are a small percentage of farmers. The low number of farmers in that segment limits the conclusions that we can consider significant, let alone generalizable. Regardless, these results confirm that the great majority of the producers observe formalization to be a complex process which entails obligations, and they do not perceive it to be necessary. This is expressed in the low rate of formalization in FF, and would have to be reversed to increase it.

## 4. Discussion

The characteristics of agriculture and, specifically, family farming in Chile should be considered when viewing the results from our survey to understand farmers' varying attitudes toward participation in the formal economy. The literature on IE has

identified some elements, institutional, social, economic and even cultural, that impact an entrepreneur's decision to operate in either the formal or informal economy, which are relevant when discussing our results (Webb *et al.*, 2013, Thai and Turkina, 2013).

First, a low productive output is a key element influencing entrepreneurs to remain in the informal economy (La Porta and Shleifer, 2014). This is characteristic of the surveyed farmers and a common element of FF in Chile. Low productivity will have an impact on agriculture earnings, which might condition the farmers to perceive any tax burden derived from formalization as excessive. Besides the taxation level, two more institutional elements have a significant impact on informality, namely trust in the institutions and the rule of law (Elgin and Öztunali, 2014; Nagac, 2015; Williams and Horodnic, 2015, 2016). In our case, farmers expressed their distrust in the government and public institutions in general. Even though Chilean farmers are beneficiaries of public programs, a broad group prefers a low level of intervention in their daily work. The aversion to change, or at least the lack of motivation to change, might also be related to the high average age and the lack of a next generation to take over their farms.

Beyond trust in the public sector, the structure of the institutional programs may also impact attitudes toward formalization. For instance, INDAP does not have formalization as a requirement for access, and does not focus on fostering the skills required to formalize. This might encourage farmers to view formalization as something that is difficult and unnecessary. INDAP's main programs have been focused on individual solutions, which along with farmers' cultural background, discourages associative entrepreneurship (Nagel and Martínez, 2015). The resistance to associate reduces the variety of legal pathways to formalization. Without being in a cooperative or other kind of society, farmers can only formalize individually.

Another factor common in the IE literature is the destination of produce. In agriculture, on-farm consumption is a frequent manifestation of informality, depending on the number of members in the household, farm size and access to markets (Gönenç and Tanrıves, 2007). Informal sales to neighbors are also very frequent, generating commercial links based on trust (Bighelini, 2013). Our results show that farmers mainly allocate their products to on-farm consumption and on-farm sales. This decision may contribute to the fact that they do not see any need to be formalized, given that the destination of their products does not require it. However, not being formalized prevents them from accessing markets with higher added value. Chilean small farmers, especially vegetable growers, sell mainly through an intermediary chain to supply centers and retail markets which is a comfortable and familiar option for producers, but the farm price is low (Rivas, 2012). For commercialization, high informality generates a vicious cycle.

Finally, regarding the results of the cluster analysis, there is abundant evidence showing that within small-scale farmers there are different profiles (e.g. Forero-Álvarez, 2013; Maletta, 2011). Beyond these specific differences between them, more than 80 % of the farmers had a reluctant attitude toward formalization. This shows that the adversity is held by diverse groups of farmers, regardless of their entrepreneurial focus, specific characteristics and even whether they are actually formalized or not.

## 5. Conclusions

From the results presented, it stands out that farmers perceive formalization as a complex process which entails unpleasant obligations, and that the procedures are cumbersome and cost time and money. They also believe incorporation into the formal economy will increase their tax burden, force them to keep accounts and subject them to inspections. Many farmers do not think that formalization is necessary to improve their income, sales or access to public programs, and even fear losing social benefits. So, in summary, there is an overall perception of low advantages and high costs associated with formalization. Moreover, small farmers tend to perceive that public institutions are unreliable and prevent them from incorporation into the formal economy. In spite of the significant differences between respondents, most of them show attitudes that reflect a general skepticism regarding the formalization process, its impact and its actual necessity.

Although these results may seem *a priori* predictable, they had not been sufficiently documented in previous literature about small-scale agriculture. Additionally, another contribution is that certain aspects of the productive structure, commercialization and institutional framework may be determining farmers' perceptions regarding IE. For instance, low productivity tends to involve low earnings and, as a consequence, an increased aversion to any tax burden; the farmers' aging and the uncertainty about their succession lead to little motivation to change. Other elements pushing small holders toward informality are a generalized mistrust in the public sector, limited focus on organizational issues in the extension programs and no formalization requirements for access, lack of skills and willingness to associate that reduces formalization alternatives, uncertainty regarding the compatibility between social assistance and formalization, and frequent commercialization through informal channels.

From the point of view of public sector action, our results suggest that strategies to increase small-scale farmers' insertion into the formal economy must include the generation and dissemination of accurate and understandable information, as well as the adaptation of the processes and subsequent obligations to the farmers' situation and preferences. Our research also shows that there are structural aspects that must be addressed beforehand to substantially increase farming formalization rates: rural aging, low profitability, scarce market access and low willingness to form associations, among other factors. Additionally, public institutions themselves, and especially those related to agricultural extension, should promote those aspects that encourage formalization, such as the explicit or implicit generation of organizational capacities.

## 6. References

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