Perspectives and challenges of logging enterprises in the Italian Alps

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ABSTRACT

This study surveyed logging businesses in the Italian Alps to obtain a first detailed description of their current financial wellbeing, of their future intentions and of the success factors and obstacles perceived by the entrepreneurs. Answers from 322 respondents suggest a relatively stable group of enterprises, where the large majority (ca. 90%) intends to stay in business, but where investment intentions are limited (50% of the respondents). This is consistent with the self-assessed financial performance of either breaking even or of generating small profits (80% of the respondents). While equipment modernization was commonly reported as a success factor, professional skills seemed to be recognized as playing an even stronger role. There was strong agreement between respondents on the main business hurdles being related to rising costs, taxes and regulations, and unfair competition. The perspectives and information provided from this survey are discussed with the intent to help policy makers in designing successful strategies to stimulate the business growth required to reach the increasing bio-based and renewable products goals set in place throughout the world.

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1. Introduction

A growing population and an increasing emphasis on renewable products are boosting the demand for wood fiber, which may lead to a significant increase of wood prices (Buongiorno et al., 2011). That would represent a great opportunity for tapping the vast unutilized forest resources available in many regions, including Europe (Ericsson and Nilsson, 2006). Growing prices could restore the financial viability of currently unattractive forest operations, such as thinning (Petty and Kärhä, 2011). Higher wood prices would also help secure the proper tending of mountain forests, in order to maximize their protective (Dorren et al., 2004) and recreational (Hunziker et al., 2008) roles. In the mountains, cost-effective harvesting is hampered by terrain roughness, which prevents unlocking the full potential of modern ground-based forest technology (Spinelli and Magagnotti, 2011). As a result, harvesting costs are substantially higher than in the flat lands (Spinelli et al., 2016), which represents a serious threat to the financial viability of mountain forestry. However, the development of new technology and the concurrent increase of wood prices are likely to create ideal conditions for a revival of forest economy, in all environments. Current forecasts are predicting a very large increase in the volume of biomass obtained from the European forests (Verkerk et al., 2011), which will require a dramatic increase of logging capacity (Kärhä, 2006).

Of course, increasing wood production is easier said than done. Over the last 30 years, logging has proved to be a very unattractive business, characterized by low profitability, low solvency and high debt (Mäkinen, 1988; Blinn et al., 2015). That holds true not just for the small-scale, poorly mechanized enterprises of Southern Europe, but also for the modern, highly mechanized contractors of the Nordic Countries (Penttinen et al., 2010) and North America (Baker and Greene, 2008; Barrett et al., 2014). Logging entrepreneurs are squeezed between a relatively static forest ownership and a highly dynamic wood industry, both of which are much less flexible than they are (Penttinen et al., 2008). Hence, logging entrepreneurs end up absorbing much of the market strain, with little opportunity for displacing it onto someone else (Rummukainen et al., 2006; Germain et al., 2016).

Without a marked improvement in the economic outlook of the logging business, it is unlikely that the required large numbers of new entrepreneurs will ever be recruited (Barrett, 2013). For years, many national governments have supported the modernization of rural enterprises through recurrent grant schemes, aimed at funding the acquisition of new technologies and skills. That is especially true for the European Union, where logging companies have received substantial benefit from state subsidies. Therefore, it is likely the new grant schemes will be designed for supporting the forecasted dramatic growth of the new bio-based economy. However welcome they may be, grants are not enough if they are not directed to their best effect. The efficient implementation of any support measures implies a good

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knowledge of the recipient. The logging industry can be revived only if one knows what are its characteristics, what the strengths one can leverage and what the hurdles that need removing (Bolding et al., 2010).

Very little research has addressed the demographics and the economics of the logging sector, in any given country. To our knowledge, updated information is only available for parts of Germany (Borchert and Benker, 2015; Wippel and Viergutz, 2014), Italy (Spinelli et al., 2013), Sweden (Häggström et al., 2013) and the Southeastern US (Marchman and Greene, 2013). Curiously enough, these studies show more similarities than differences in the demographics and the economics of logging contractors, despite the very wide regional spread and the different work conditions encountered in the countries they represent. That may support cautious generalization, and enhance the value of any further studies on the subject, despite their inherent regional character.

In 2012, CNR conducted a comprehensive survey of logging enterprises in the Italian Alps, which returned accurate information about the number of logging enterprises and their distribution in terms of company type, annual work volume, total workforce and machine fleet (Spinelli et al., 2013). This study tapped the enterprise data files collected by regional forest administrations for the purpose of logging company certification. In many Italian regions, access to public forest sales is only allowed to certified companies. Certification is obtained after the firm demonstrates its capacity to operate safely and effectively, by providing suitable firm metrics (workforce, equipment, annual work volume etc.). This study allowed differentiating firms based on their different business models and technology levels, among other things. However, the study was eminently descriptive, and it did not probe entrepreneur background, perspectives and expectations, nor did it try to determine success factors and obstacles to growth – actual or perceived. These are crucial factors when trying to stimulate business growth. If one does not know what drives development and what blocks it, then one cannot design a successful support strategy. Policy makers must be able to understand the full ramifications of proposed policies when they plan their strategies.

Therefore, the goal of this study was to determine the perspectives, expectations and self-defined strengths and weaknesses of logging enterprises in the Italian Alps, with a view to obtaining a first general reference for logging entrepreneurship in industrialized countries.

2. Materials and methods

2.1. Sample

The survey conducted in 2012 produced a comprehensive list of 1206 active logging businesses based in the Italian Alps. For each business, the list contained information about demographics, workforce, work volumes, wood basket composition, business model (i.e. contracting vs. trading) and machine fleet (type, model, year of manufacture and current value).

This large database represented the ideal starting point for the current study, which was carried out in 2014, according to a very simple design. Sampling intensity was set at 25% of the total, resulting in the selection of 300 enterprises. The sample was stratified by region, so that the regional distribution of the sample reflected that of the whole population, which was spread over five regions: Piemonte, Valle d'Aosta, Lombardia, Trentino, Veneto and Friuli Venezia Giulia (i.e from the French border on the west, to the Slovenian border to the east). Apart from that, selection was random, since the sample was considered large enough that further stratification was unnecessary. Eventually, the total number of sample enterprises grew to 322, because all the regional interviewers produced a few additional interviews as a back-up in case of invalid samples, and the invalid samples were fewer than expected.

2.2. Interviews

The Authors developed a simple interview form that covered the following domains: financial performance and future plans, equipment replacement capacity, perceived success factors and perceived hurdles to a higher profitability. This information was intersected with the data obtained from the 2012 survey, looking for relationships between firm perspectives and firm characteristics, such as annual work volume, technology type, business model etc. Whenever possible, quantitative answers were solicited, using categories if appropriate. However, general comments and opinions were also encouraged and recorded, for later categorization and analysis. Every effort was made to keep the survey as concise as possible, and the final form contained ten questions only. Several questions were interrelated, so as to evaluate the internal consistency of responses. The original interview form can be found attached, as a *Supplementary materials* file.

Surveys were conducted via telephone interview, in order to obtain the highest possible response rate. Furthermore, telephone surveys allow developing an exchange that may grow beyond the simple path traced by the interview form. Over the phone, opinions are exchanged freely, and open-ended questions may develop into a coherent new discourse.

Entrepreneurs were called in alphabetical order until the end of the list, and then further attempts were made if necessary. If an entrepreneur refused to join or if he/she was not reached after five attempts, the enterprise was removed from the list and replaced with another one, extracted randomly from the same regional group. This process was repeated until reaching the prescribed target number. The interviewee was the firm owner, the managing partner or the general manager, respectively for single ownership companies, partnership companies and cooperatives or consortia.

2.3. Statistical analysis

Interview notes were immediately entered into Microsoft Word as individual files corresponding to each business. Then the same lead researcher read all interview files, looking for commonly voiced opinions and comments that could be gathered under the same conceptual category. Finally, categorized data was entered into a single master data base, ready for statistical analysis.

As a first step, researchers extracted fundamental descriptive statistics, including distribution charts. Meaningful differences were analyzed with parametric and non-parametric techniques, depending on the distribution of data. The significance of any differences between distributions was checked using classic χ^2 (chi-square) analysis. The significance level was set at <5%. Obviously, missing data were excluded from the calculation of the various statistics. Before analysis, data were checked for internal consistency. Inconsistent answers were not removed, but marked for easy retrieval, in case they represented an outlier. In such instance, inconsistency was used to justify removal.

2.4. Limitations of the study

Before presenting the results, readers must be warned about the main limits of this study, and namely: origin of data, subjective categorization and data unbalance. First of all, data represent declarations released by the company owners, and their accuracy depends on the truthfulness of these declarations. Data about annual harvest might have been downplayed for fear of taxes, due to their relation with income. Listed workforce includes regular workers only, while possible irregulars are obviously excluded. On the other hand, most questions were relatively harmless, and the data was checked for internal consistency, which excluded gross inaccuracies. Secondly, some degree of subjectivity must have crept into the categorization of answers to open-ended questions about key success factors and obstacles to better profitability. It is quite likely that other researchers would have