



Dual Apprenticeships in Spain – Catalonia: The Firms' Perspective

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Abstract

This article analyzes the motives for firms providing apprenticeship training in Catalonia and the reasons why other firms do not provide such training. In light of the recent introduction of dual apprenticeships in the formal education system in Spain, a country with a traditionally school-based vocational education and training (VET) system, Catalonia constitutes a relevant case for analyzing firms' training motives in newly established training systems. We analyzed the statements of about 800 Spanish companies in Catalonia who participated in the study. These included both companies that provide training and those that do not. The results show that companies perceive dual training more as an activity to ensure the supply of skilled workers in the future and less as a means to profit from the apprentices' productivity. Large firms are especially able to better integrate initial training in their continuous training process and to make use of positive synergies. The reasons for the absence of training have more to do with a lack of knowledge about the dual apprenticeship program than with a fear of losing investments in human capital. The results of this article provide relevant contributions to the discussion about the implementation of dual apprenticeship systems in countries with a different framework of conditions as opposed to those countries with established dual apprenticeship systems. Moreover, they provide relevant insights for the development of policies to foster firms' provision of dual apprenticeships.

Keywords Dual apprenticeships · Spain/Catalonia · Training motives · Training benefits · Educational transfer · Work-based learning · Occupation · Young people

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Introduction

Because of numerous advantages of dual apprenticeships, many countries in recent years have started to incorporate dual elements into their formal VET systems. However, it has often been debated whether dual apprenticeships based on the German model can be readily transferred to other countries (see for example Euler 2013; Geiben 2018; Gessler 2017). Differing framework conditions may make it difficult for a dual apprenticeship system to be successful in other countries. Framework conditions may refer to the overall labor market regulations, the educational system, the governance of the vocational education and training (VET) system, the communication between stakeholder and the structure of the economy. For example, loose labor market regulations may weaken the firms' incentives to invest in apprenticeships (Mühlemann et al. 2010). There are different criteria for what might constitute "success" of an educational transfer within the comparative VET literature (e.g. Wolf 2011). One important indicator of a successful implementation of a dual apprenticeship system is that firms are willing to provide positions for apprenticeships. To do this, firms must be able to receive enough benefits from their training activities, and additionally, they must be aware of the potential benefits. Firms' training motives in those countries that have a long tradition of apprenticeships are often related to institutional factors idiosyncratic to northern European countries. Nonetheless, firms in other countries also provide in-company training,¹ albeit not always to the same extent and under the label of formal apprenticeships (Grollmann et al. 2016; Jansen et al. 2017a). The question is whether firms are willing to offer formal apprenticeships in newly established systems and, if that is the case, what are their motives for doing so.

In recent years, many European and non-European countries have planned to reform their vocational education systems towards more integration of work-based learning. In Spain, the legal basis at the national level was introduced by means of a royal decree in 2012. Shortly after this, the different autonomous communities implemented their own regulations, based on the decree. With this legal basis, part of the training responsibility can be transferred from the vocational schools to companies, and pre-defined competencies acquired in the company are recognized for a formal occupational title regulated by the Ministry of Education. Spain is thus one of the few countries in Europe that rapidly introduced a legal foundation for apprenticeships. In a report on Spanish Vocational Education and Training (VET), Cedefop (2016) writes that at the institutional level, an expansion of the recently introduced dual apprenticeship system may face few difficulties but that there might be some problems in the implementation of apprenticeships at the company level. Nonetheless, in Spain, there has been an increase from 500 firms offering dual training in 2012/2013 to about 10,000 in 2016/2017 (Ministerio de Educación Cultura y Deporte 2014, 2017). This makes the Spanish case especially interesting to analyze in more detail. This paper analyzes the training motives of firms in Spain by focusing on the analysis on one autonomous community: Catalonia. We restricted our study to one autonomous community, as the regulatory frameworks in the different autonomous communities are very different. Catalonia was chosen because it is one of the regions with the most developed dual models and the highest participation of firms.

¹ See for example Wiemann and Fuchs (2018) for companies' engagement in dual VET in Mexico.

The article is structured as follows: In the following section, we present the theoretical framework, i.e. the literature on training motives, their relation to institutional characteristics, and relevant specific framework conditions in Spain. Next, we briefly describe the Spanish and Catalan models of dual apprenticeships, after which we describe the methodological approach and the empirical results of the study. Finally, we discuss some conclusions, including tentative policy implications.

Theoretical Framework

Firms' Motives to Train Apprentices

The overall literature on training has identified different motives that explain why firms provide apprenticeships. The *production motive* implies that firms train mainly because they want to make use of apprentices' productive contribution (Lindley 1975). The rationale behind this argument is that apprentices are relatively cheap in comparison to experienced workers, so firms can benefit from this during the training period. In contrast, firms training as a result of the *investment motive* do so because they want to retain the apprentices after the training period and ensure the supply of skilled employees in the future (Merrilees 1983). The *screening motive* implies that firms use the training period to observe the apprentices and choose only the best for retention (Stevens 1994b). When firms train out of *social responsibility*, they provide training because they want to give young people the possibility to integrate into the labor market (e.g. Beicht et al. 2004). Moreover, the *reputation motive* means that firms expect to convey a better image among clients, suppliers, and potential employees due to their training activity (Niederalt 2004). Another benefit for firms that do training are the *synergies* apprenticeships might create with the continuous training already provided by firms (Bellmann et al. 2010).

The occurrence of training motives strongly depends on the institutional context. For example, Becker's human capital theory (Becker 1962) explains that the investment motive can only be relevant when firms can be certain that the employees will stay with the firms after the training period, even if the wage is below the workers' productivity. This requirement can be fulfilled in the case of labor market frictions, e.g. asymmetric information, labor market regulations, minimum wages (Acemoglu and Pischke 1998, 1999a, b). Accordingly, the investment motive is more likely to occur in countries with strict labor market regulations than in countries with rather loose labor market regulations (Mühlemann et al. 2010; Jansen et al. 2015a). Firms that provide training can also be certain that the worker will not leave if the imparted skills are not, or not completely, transferable to other firms (Becker 1962; Lazear 2009; Stevens 1994a). Therefore, firms are more likely to invest in training in occupations in which the combination of imparted skills is more difficult to transfer to other firms (Geel et al. 2011). Interviews with British and German companies show that British companies are more willing to invest in training when training imparts skills for specific tasks instead of a set of comprehensive skills related to an occupation (Pilz 2009). Accordingly, firms are more likely to train when the specifications of the training curricula leave them with

sufficient freedom to organize their training to be firm-specific (Jansen et al. 2017b).

If firms are not willing to invest, they may train for the production motive. However, this will only be possible if training regulations allow firms to allocate enough of their apprentices' time to productive work or when apprentices have sufficient pre-training competencies (Jansen and Pfeifer 2017). Moreover, the screening motive is more likely to occur when there are no other screening alternatives such as short-term contracts and long probation periods. Also, the reputation motive may have varying importance between countries depending on the social context and the relevance of firms' behavior for the qualification possibilities of young people. Smits and Zwick (2004), for example, provide evidence that social recognition plays a much higher role in the training decision in Germany compared to the Netherlands.

The relevance of the different training motives has already been discussed for established training systems. However, for various reasons, the relevance of training motives within newly implemented systems might be substantially different and potentially lower. *First*, vocational education systems often have a long history and they are strongly embedded in their respective institutional context.² Therefore, we could assume that framework conditions in more school-based VET systems are not conducive for firms to intensely engage in apprenticeships. This may mean that the typical training motives known from established countries are less relevant in countries with newly implemented training systems. *Second*, in newly implemented systems, firms might not yet be aware of the dual program itself or its related benefits. *Third*, the costs to start an apprenticeship program for the firm may be higher than the costs of running an already established program. For example, the training of trainers may have to be more intensive and controlled than in an established system where trainers may have been apprentices themselves. *Fourth*, especially when the overall training participation in the respective country or sector is still low, the fear that the trained workers will be poached or that the training costs will lead to a competitive disadvantage compared to firms that do not train may be much more relevant than in established dual systems (Euler 2013). Nonetheless, some firms in newly established systems decide to train despite these circumstances and become pioneers in these transitional processes (see e.g. Fundación Bertelsmann (2017) for the Spanish case). An analysis of their motivation, based on the Spanish (Catalan) case, is the aim of this paper. The paper tests whether the typical training motives are also relevant in Spain-Catalonia. To this end, we included questions about all known training motives and about their respective relevance. The training motives might vary between firm size and other characteristics. Big firms have different resources and a different level of power in the competition for skilled workers in the labor market. For this reason, we tested for differences in firm size and legal relationship between the apprentice and the firm (scholarship or contract).

² See for example Busemeyer & Trampusch (2011) for an analysis of the relationship between institutions and vocational training systems.

The Relevant Context in Spain and Catalonia

This section presents relevant framework conditions in Spain that, based on the theoretical considerations of the previous section, are expected to be related to firms' training motives. These contextual conditions might be either conducive or an impediment to the different training motives discussed above.

Regarding the contextual conditions related to the labor market, Spain is characterized both by conducive and impeding elements. Traditionally, the Spanish labor market has been relatively strongly regulated with high employment protection and long worker tenure (Peraíta 2005). However, this has changed somewhat since the recent labor market reform, which made it easier to create temporary working contracts. According to the OECD statistics on employment protection concerning individual and collective dismissal for regular contracts,³ Spain is still, by international standards, among the countries with a more highly regulated labor market regarding regular working contracts. However, it should be taken into account that this statistic refers to regular working contracts, which represent 73.3% of all working contracts in the fourth quarter of 2017.⁴ The relative ease of being able to hire on a temporary contract basis and the high level of unemployment (16.6% and 37.5% for people younger than age 25)⁴ provide firms with more flexibility. Nonetheless, the share of employees working in their company for more than five years is still relatively high (e.g. higher than in Germany in 2015).⁵ In addition, the share of workers covered by collective bargaining is relatively high, which leads to a rather compressed wage structure and should theoretically increase the incentives to invest (Acemoglu and Pischke 1998). For firms willing to invest in dual apprenticeship training, these aspects could be considered conducive (due to high tenure) or an impediment (due to alternative possibilities to screen workers by creating temporary working contracts). Thus, the evidence on the labor market situation in Spain is mixed. On the one hand, firms can expect workers to stay for a long time at the firm and not be as mobile as in other more liberal countries such as Switzerland or the United Kingdom, which should in general foster incentives to provide firm-sponsored training. On the other hand, it is relatively easy for firms to hire on a temporary working contract basis, which might make dual apprenticeship training less necessary in comparison to a very rigid labor market as seen in Germany.

Regarding the contextual conditions related to the vocational system, we consider the following aspects important. Traditionally the relevance of vocational training in Spain has been relatively low and the reputation of VET has been rather negative (Echeverría Samanes 2016). Firms are not used to this type of time-intensive training. This also implies that firms have plenty of alternatives to dual apprenticeship training such as recruiting in the labor market, offering internships within the traditional VET schooling model, and providing short-term contracts such as the internship contract. This background might not motivate firms to invest substantially in dual apprenticeship training. Moreover, firms are not strongly involved in the governance of VET in general – which has been proven to be an important aspect of German-speaking countries' VET

³ Data extracted on 03 Oct 2017 18:32 UTC (GMT) from OECD.Stat; dataset: Strictness of employment protection – individual and collective dismissals (regular contracts)

⁴ Data is extracted from Spanish Ministry for Labour, Migrations and Social Security: <http://www.mitramiss.gob.es/es/estadisticas/>

⁵ Data extracted on 12 Oct 2017 10:54 UTC (GMT) from OECD.Stat (“Employment by job tenure intervals”)

systems (Busemeyer and Trampusch 2011; Egg and Renold 2014; Euler 2013). This might also be an impediment for the motivation to train apprentices, especially if the system is not sufficiently targeted to the requirements of firms, for example, in the area of curricula content (Cedefop 2016). On the other hand, there are no strong training curricula for firms in Spain. This provides them with relatively high degrees of freedom in the implementation of on-the-job training. A high degree of curricula flexibility may mean that the implementation of training is less costly and that apprentices can be trained more specifically, which in turn creates long-term benefits for the firms. As a result, curricula flexibility may have a positive effect on firms' provision of apprenticeships (Jansen et al. 2017a, b).

Regarding the overall economic situation, a high rate of (youth) unemployment and high supply of workers would not induce firms to invest in training their workers. However, the economic recovery and the strong need for qualified workers, which often cannot be found on the external labor market, can induce firms to invest in this type of extensive vocational training. The tendency to offer apprenticeship training may be especially high in very specialized sectors.

Existing Studies on Training Motives in Spain

There are studies on training motives and their costs and benefit relation for several countries with established apprenticeship systems (i.e. Germany, Switzerland and Austria) (Jansen et al. 2015b; Schlögl and Mayerl 2016; Strupler and Wolter 2012). There are also studies on training motives in countries with less established apprenticeship systems, albeit on a case study basis (Grollmann et al. 2017; Pineda-Herrero et al. 2018; Jansen et al. 2017a, b). These studies show that firms also provide firm-sponsored training to labor market entrants and thereby contribute to their professional development in countries without established apprenticeship systems. In addition, they show that training motives can vary substantially between different countries and that the willingness to incur costs for apprenticeship training can differ greatly.

In the Spanish case, there are few studies on dual apprenticeship and how firms view them.⁶ The Bertelsmann Foundation in Spain in particular promotes the Alliance for Dual VET in Spain and has initiated several studies on this topic. One of the studies interviewed those firms which form part of the alliance offering dual VET (Rom et al. 2016). The study shows that 88% of the interviewed companies use dual apprenticeships to train potential employees and to create a pool of skilled staff. The most important difficulties are the lack of candidates and bureaucracy. Although the study provides insights into firms' training motivation, the sample is not representative, and it is likely that the firms associated with the alliance may have more positive attitudes towards dual apprenticeships. Moreover, carrying out case studies in three multinational companies, Pin et al. (2014) identify excessive bureaucracy, heterogeneous regulations in the different autonomous communities and the reluctance of current employees to dedicate a part of their working time to the apprentices as important barriers for training. In addition, a study on dual VET conducted by the Spanish Chamber of Commerce found that 60% of all Spanish firms are not aware of the possibility of dual apprenticeship training and that only 8.7% of all firms in the sample have participated in a dual project (Cámara de Comercio de España 2016).⁷

⁶ For a general report on VET in Spain, see Sancha Gonzalo and Gutiérrez Dewar (2018).

⁷ See also: <https://www.camara.es/el-60-de-las-empresas-espanolas-desconoce-la-formacion-profesional-dual>

They also identified the lack of time to guide and supervise the apprentices, the lack of tasks that can be carried out by apprentices and the unawareness of apprenticeship training benefits as the most important reasons for not engaging in this type of training.

Also focusing on Spain, Muehleemann and Wolter (2017) carried out a simulation of firms' costs and benefits of apprenticeship training. They estimate that when apprentices spend more time at the training firm, they can potentially contribute more to the economic output of the firm, which in turn decreases net training investments. Thus they show that, under adequate framework conditions, firms can obtain short-term benefits from training and do not have to invest in training.

The present article takes on a more descriptive approach by providing representative empirical evidence on actual training motives for all Catalan firms providing training. To the best of our knowledge, this is the first study that provides an in-depth analysis of firms' reasons for providing and not providing apprenticeships in Catalonia. The article thus fills an important research gap. The empirical results contribute important insights into the discussion on firms' training motives within different institutional contexts, such as labor market regulations, educational systems and economic conditions, and thereby also add to the discussion on the transferability of educational systems.

Apprenticeships in Spain and Catalonia

A governmental decree⁸ has provided the legal foundation for dual apprenticeship training in Spain since 2012. According to this decree, dual VET is “the set of actions and training initiatives, a work and training combination, whose objective is the professional qualification of workers. This occurs in a regime of alternation between the labor in a company and the training received in the framework of professional training for employment or education systems” (Article 2.1). Two modalities of training can be included in the category of dual VET: (i) one regulated by training and learning contracts and (ii) projects without contracts involving schools and companies.

Apprentices spend part of their time at a vocational school and another part at the training company. In contrast to the traditional model, where firms provide internships for 2–3 months, this new model foresees that apprentices spend at least 33% of the total training time in the training firm and alternate between the vocational school and the training firm. This mode involves a much higher degree of engagement by firms in the training process and is, accordingly, likely to be associated with higher training costs than the traditional model is.⁹

The national law does not foresee a minimum training allowance. Depending on the formal relation between the apprentice and the firm, the apprentice may receive nothing or an amount according to the working time and the minimum wage. For example, in Andalusia, it

⁰ See also: <https://www.camara.es/el-60-de-las-empresas-espanolas-desconoce-la-formacion-profesional-dual>

⁸ Real Decreto 1529/2012, de 8 de noviembre, por el que se desarrolla el contrato para la formación y el aprendizaje y se establecen las bases de la formación profesional dual

⁹ Even though there is some compensation for some share of the costs, since training firms receive a discount from business contributions to social security. The amount of discount depends on size of the firm (Pin et al. 2014).

is not compulsory to pay the apprentice while in Catalonia the apprentice must have either a working contract or a scholarship, both stipulating a minimum training allowance.

Spain has 17 autonomous communities, which are regions with their own parliaments and a high degree of political power. Each autonomous community establishes their dual VET system characteristics according to the basis of the mentioned law. Autonomous communities have similar norms for organizing the dual VET system, but each has specific contextual characteristics. The main differences lie in the organization of the alternation schedule between educational institutions and companies, which can be weekly, monthly, or even annually in some regions (as it is the case of the autonomous community of Madrid). There are also differences in the regulation of the legal relationship between firm and apprentice, which can be a training contract or a scholarship. This also generates important differences in the salary conditions of students. In Catalonia, where this research was carried out, dual VET has some specific characteristics:

- The training lasts two academic years, and the dual VET takes place during the second one. The duration and organization are established through an agreement between the school and the company, based on the needs of the company and the educational institution. In the second year the student must spend 900 h in the company. During the first academic year, the student also does an internship in the same company for 80–100 h. Thus, in total, the student spends 1000 h in the company.
- In the case of an apprenticeship contract, the apprentice usually has a part-time job in the company and alternates between the company and the vocational school during the week. However, in some vocational tracks the courses at the vocational schools are organized in blocks and the apprentices spend a whole week in the company and one or two weeks at the vocational school. In this case, the law allowing apprentices to work a maximum of 40 h per week becomes relevant.
- The apprentices can have a scholarship status or sign a training contract. Apprentices with a working contract must be paid the minimum inter-professional salary of about €4 per hour. When there is a scholarship, the total salary cannot be lower than the one established by the IPREM¹⁰ (€537.84 for a full month, applied proportionally according to hours worked). In both cases, the company assigns a social security number and the company pays the training allowances to the apprentice.
- Considering the average wage for an employee with a higher VET degree per year of €21,664 (Adecco/Infoempleo 2017) and adjusting both this wage and the training allowance for social security contributions,¹¹ the relative training allowance is 16% if the apprentice is covered by a scholarship and 19% if the apprentice has a working contract.¹²

¹⁰ IPREM (Indicador Público de Renta de Efectos Múltiples) is a Spanish index used as a reference to provide social benefits and grants. It is lower than the interprofessional minimum salary (SMI). (<http://www.salariminimo.es/>). Its current values can be seen at: www.iprem.com.es.

¹¹ https://cincodias.elpais.com/herramientas/calculadora-sueldo-neto/#tabla_resultados

¹² For comparison, in Germany, apprentices receive about 26.8% of the wage of a trained employee and in Switzerland 17.9% (Ryan et al. 2011). Nonetheless, it is important to note that German apprentices work 70% and Catalan apprentices about 50%. Assuming that both worked 100% and adjusting the relative wage accordingly, the Spanish apprentice would receive 32% in case of a scholarship and 38% in case of contract, while the German apprentice would receive 40%.

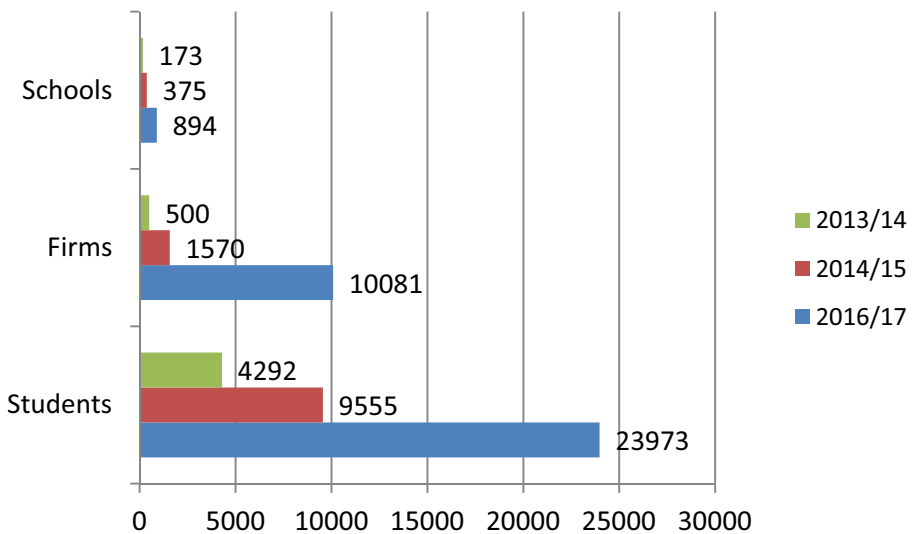
- The company designates a tutor to follow up on the progress of apprentices during their stay in the company.
- The evaluation of the apprenticeship is done by the school's teachers, who also consider the company tutors' opinions about what the apprentice has learned in the company.

Fig. 1 shows the changes in participation of firms, schools, and students in dual training since the training year 2013/14, which is after the introduction of the decree on dual apprenticeships. It clearly shows that the participation in training of all relevant actors increased considerably in those years.

Table 1 shows the training participation of Catalan firms segregated by firm size for the training year 2017/18. Overall, the dual apprenticeship training participation is very low: 0.65%. However, in the group of medium-sized firms and large firms, the training participation is considerably higher: 12.55% and 14.7%. In order to understand the average low participation rate, we have to consider that the share of autonomous firms is very high in Catalonia. The total share of training firms without considering the autonomous group is 1.35%. This level of participation in Catalonia (Spain) stands in contrast to the percentage of firms that provides dual training in Central Europe with more established systems (e.g. Germany 20% in 2015) (Troltsch 2017).

Methodological Approach

The purpose of the study was to determine the motives of firms providing dual apprenticeships in Catalonia. The training motives of those firms that already train and the barriers that prevent firms from participating in dual apprenticeship training



Source: Ministerio de Educación Cultura y Deporte (2014,2017)

Fig. 1 Evolution of dual apprenticeships in Spain

Table 1 Participation in Dual Training in Catalonia According to Firm Size

Autonomous	0.12%
Micro firm (1–9 employees)	0.43%
Small firm (10–49 employees)	4.06%
Medium-sized firm (50–249 employees)	14.71%
Large firms (250 or more employees)	12.55%
Total	0.65%

Note: Our calculation is based on data from the Catalan Statistical Institute (IDESCAT) and data from the Catalan Department of Education

were elicited. The reasons for non-participation were differentiated between unawareness of the possible benefits and rational economic justifications.

Instruments

The research was based on a quantitative methodology, using two questionnaires: one for companies providing dual apprenticeship training and another for companies that do not provide dual training.

The quantitative phase was preceded by a qualitative phase aimed at identifying the relevant items and variables. In this pre-study, 10 semi-structured interviews were conducted with four companies that provide dual apprenticeship training in different sectors and other experts involved in dual VET. We intentionally interviewed different agents from different sectors to achieve a global vision of training motives and benefits. Moreover, this sample with interview partners from different sectors better represented the sample of the quantitative study. The topics of the interview were the motives and benefits of training, the potential reasons for the absence of apprenticeship training, potential impediments and whether dual apprenticeship training is perceived as an investment that takes into account cost aspects and apprentices' productivity. Furthermore, potential differences with the compulsory internship within the traditional model were examined. Table 2 provides an overview of the interview partners for the pre-study.

The purpose of the interviews was to obtain a clear understanding of the different motives for providing training. A key finding of the expert interviews is that firms in Spain can have very different training motives. Even though many firms mentioned their concern for obtaining skilled workers in the future, the assessment as to whether dual training is considered as an investment varied substantially. The interviews suggested that this depends also on firm size and the legal relationship between firm and apprentice (scholarship or apprenticeship contract). Thus, the interviews not only helped us to develop different items for the quantitative questionnaire, but also gave us hints for potential differentiations in the analyses. The expert interviews (in contrast to the firm interviews) specifically helped to provide a third view on the issue, which was used to identify aspects that the firms themselves might not readily bring up (e.g. aspects related to training costs, quality).

The two questionnaires were developed based on the literature review and on the results of the qualitative pre-study. We incorporated items that were relevant for the

Table 2 Interviews for Pre-study

No.	Activity	Firm size in Spain
	Training firms	
1	Production of electronic systems	700 (3000 worldwide)
2	Production and distribution of hearing advice	1200 (1800 worldwide)
3	Distribution of electrical devices	26
4	Providing logistical services	120
Other actors involved in dual VET		
5	Director of Employers' Association (Production of turning pieces) (54 associated firms)	
6	Coordinator of Vocational School 1 (Parastatal)	
7	Coordinator of Vocational School 2 (Parastatal)	
8	Dual training Apprentice	
9	Coordinator of dual training at Department for Education	
10	Responsible for dual training from Employers' Union	

firms and other dual VET actors. The questionnaires were validated by two experts on questionnaire development and by four experts on VET. Table 3 shows the topics of the questionnaires for training and non-training firms. The exact wording of the questions relevant for this article is shown in the [Appendix](#) (Table 10) of the paper.

The questionnaire for the training firms contained 27 questions whereas the non-training firm questionnaire had 13 questions. In order to compare the variables between training and non-training firms we formulated questions on the potential training benefits and on the general firm characteristics in exactly the same way.

Fig. 2 shows the structure of the questionnaire for firms not participating in dual apprenticeship training. The questionnaire includes two relevant filters in order to account for the different types of firms. It differentiates between firms that already know about dual training and those that had not been previously aware of dual training.

Table 3 Topics of Questionnaires

Questionnaire for training firms
• Training organization • Investments in training (material resources, trainers, productive contribution, general evaluation) • Information on apprentices (age, previous experience) • Training motives • Synergies with continuous training • Retention strategy • Comparison with traditional VET
Questionnaire for non-training firms
• Knowledge of the dual training system • Potential training motives (items equivalent to training motives in questionnaire for training firms) • Motives for not offering dual training • Measures that could facilitate participation in dual training • Difficulties recruiting new personnel

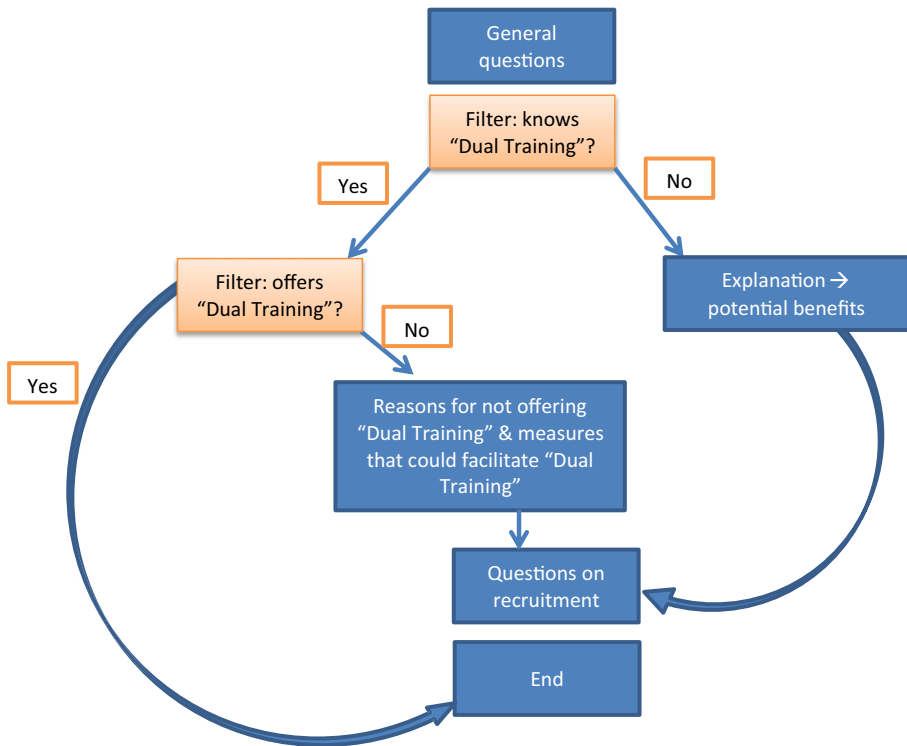


Fig. 2 Description of Filters in Questionnaire for Non-training Firms

Participants and Data Collection

The quantitative data were collected through two online questionnaires, one for training firms and the other for non-training firms. In order to gain access to the firms' email addresses, we cooperated with three different organizations in Catalonia (Spain) that have access to the email addresses of employers or employees that are responsible for human resources and training: the Department of Education (Departament d'Ensenyament), PIMEC and FOMENT. Those organizations sent the link to the companies.

For the firms providing dual apprenticeships, the population to be analyzed consisted of all firms in Catalonia that either train currently in the academic year 2017/18 or have trained in any prior academic year. In order to reach the firms that provide training in Catalonia, we used the list of email addresses of the Department of Education of Catalonia. According to paragraph §31 of Royal Decree 1529/2012 the department of education of each autonomous community must approve all agreements between firms and vocational schools. For this reason, the Department of Education of Catalonia has a complete list of firms that cooperate with vocational schools and provide dual apprenticeships. Because the collaboration agreements are in effect for 4 years, in addition to firms that currently provide apprenticeships, there may also be firms that did so in previous years. Therefore, we had access to the whole population of dual apprenticeship training firms in Catalonia. In January 2018, 4018 firms in

Table 4 Dual Training Firms: Distribution of Firm Size in Catalonia, Population, and Sample

	Catalonia	With email address	Sample (gross)	Sample (net)
Autonomous	11%	12%	0.67%	0.70%
Micro firms (1–9 employees)	25%	28%	30.23%	31.17%
Small firms (10–49 employees)	26%	29%	33.29%	32.75%
Medium-sized firms (50–249 employees)	22%	26%	23.57%	23.29%
Large firms (250 or more employees)	6%	0.45%	12.25%	12.08%
Other	10%	5%	—	—
Total	4,018	2,823	751	571

Note: Sample net includes all firms that completed the last page in the questionnaire and gave information on firm size. The “Other” category includes public bodies

Catalonia had signed a collaboration agreement. Only those firms that provided their email address received the email with the link since it was an online questionnaire. The link to the questionnaire was sent to 2823 firms in Catalonia. The field phase for the training firms' questionnaire lasted from December 13, 2017, to January 31, 2018. Out of the 2823 firms that received the email with the link, 809 firms participated in the study and 571 firms completed the questionnaire (= net response rate of 20.23%).

For the non-training firms, the population to be analyzed consisted of the firms directly associated with two very relevant employers' associations in Catalonia: “*Foment del Treball Nacional*” (FOMENT) and “*Micro, petita i mitjana empresa de Catalunya*” (PIMEC). FOMENT and PIMEC sent the questionnaire to all associated firms that had mentioned interest in topics related to employment and training (561 firms of FOMENT and 11,450 firms of PIMEC). The field phase lasted from January 3 to January 31, 2018, for the non-training firms. Out of the 12,011 (561 + 11,450) firms that received the email with the link to the questionnaire, 261 firms participated in the questionnaire and 204 firms completed the questionnaire (= net response rate of 1.70%).

Table 4 and Table 5 show the distributions of firm size in Catalonia for firms providing dual apprenticeship training and for those not providing training along with the distributions of firm size in the respective sample. As Tables 4 and 5 suggest, the

Table 5 Non-training Firms: Distribution of Firm Size in Catalonia, and Sample

	Catalonia	Sample (gross)	Sample (net)
Autonomous	57.10%	0.82%	—
Micro firms (1–9 employees)	37.47%	31.97%	30.15%
Small firms (10–49 employees)	4.15%	38.93%	39.7%
Medium-sized firms (50–249 employees)	0.97%	20.08%	22.11%
Large firms (250 or more)	0.31%	8.20%	8.04%
Total	619,490	244	199

sample is partially proportional to the total Catalan population of training and non-training firms. The group of autonomous workers was underrepresented and micro and small firms tended to be slightly underrepresented. Medium-sized firms were substantially represented. Large firms were overrepresented in the sample, which allowed for a reliable analysis segregated by firm size. It was to be expected that small firms would tend to answer less since it was an online questionnaire. Larger firms often have personnel responsible for human resources and training. Thus, it is more likely that there is staff willing to fill out a questionnaire related to their work. We did not calculate sample weights. However, we always tested for differences between firm sizes in the analysis.

Data Analysis

The results section shows the main variables of interest and the share of respondents while indicating the options on the five-step Likert scale. We also present some descriptive statistics on the analyzed sample.

Training motives may vary substantially between firm sizes. Therefore, we also tested whether there was a significant difference between firm size. We created a variable valued at one if the respective respondent had either indicated a value of four (interpreted as relevant) or a five (interpreted as very relevant). Otherwise, the variable was zero. We assumed that the respective training motive had a high importance for those respondents indicating a four or a five and that for the other respondents this motive was of minor importance. We then regressed this binary variable by use of a logit regression on the different firm size categories. Because of the low number of observations, we added the category “autonomous” to the category “micro firms”. The same procedure was carried out for some statements on dual training that were assessed in the questionnaire.

The type of legal relationship the apprentice had with the firm is another element that may effect training motives. In Catalonia this can be a training contract or a scholarship. The contract is more expensive than the scholarship and most firms opt for the more economic option. Therefore, we also checked whether there were significant differences between firms that use a training contract for the legal relationship with their apprentices and firms that use a scholarship. Since we had a binominal variable (training contract: yes/no), we made a Pearson’s chi-squared test. We displayed only those training motives in the paper that showed significant differences.

Results of the Study

This section describes the empirical results for training and non-training firms.

Training Firms

Table 6 describes some relevant characteristics of the training firms in our sample. Of the firms interviewed, 74% currently offer dual training. The firms interviewed in this study either started in academic year 2017/18 (30%) or in the prior academic year (30%). Twenty-three percent provide training since 2015/16 and about 17% started

Table 6 Description of Firms with Collaboration Agreements

Variable	Yes	No	Observation
Firm currently offers dual training	74.13%	25.87%	572
Apprenticeship contract	56.41%	43.59%	569
Scholarship	43.06%	56.94%	569
Receives a higher than required remuneration	13.38%	86.62%	568

earlier.¹³ Of the firms interviewed, 56.41% have apprenticeship contracts and 43.06% have scholarships.¹⁴

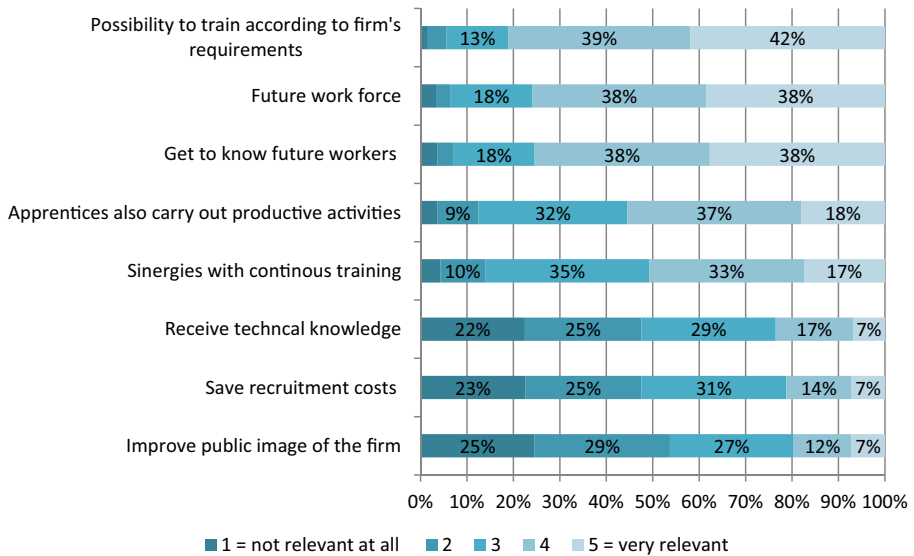
The firms' training motives were measured on a five-level Likert scale. Fig. 3 shows the results for training motives. The most important reason is the possibility of training according to the firms' requirements. More than 80% of the firms stated that this aspect is important or very important. The question purposely did not specify the exact type of requirement since it was not relevant to the questions. Nonetheless, the requirements most likely refer to the different work tasks. It is important that the firm has the freedom to train according to its own requirements in contrast to a standardized curriculum determined by the vocational school or the educational department.

This motive is followed by the motive to secure a future work force and the motive to get to know future workers. In general, aspects that are related to securing the supply of future workers are very relevant. This also became relevant when looking at the firms' strategy to retain their apprentices. Sixty-five percent of all firms planned to retain all or part of their apprentices and 34.47% planned to retain them only in exceptional cases. The fact that apprentices carry out productive activities seems to be of medium importance. It was neither the most relevant aspect, nor the least relevant aspect. Synergies with continuous training were also evaluated by the firms as of medium importance, with slightly over 50% of all firms stating that this aspect was important or very important. In contrast, only about 20% of all firms stated that saving recruitment costs or improving the public image were very relevant aspects.

The data also included evidence on the different synergies between apprenticeship training and continuous training, e.g. using the same trainers or learning material. This allows the firm to save costs for initial and continuous training. However, due to space restriction, we do not graphically show these results here, but they are available upon request.

¹³ Results not shown in the table, but are available upon request.

¹⁴ The percentage of scholarships differs from other administrative statistics: data from the Catalan Department of Education for the 2016–2017 academic year show that 91.84% of students were linked to the company with a scholarship and 8.16% of students had an apprenticeship contract with the company. There were several reasons for this difference. First, the difference was due to the fact that the data in this article is based on companies and not on apprentices. Because some companies have more than one apprentice, the results can vary considerably. Large companies use the scholarship much more often than small companies and at the same time large companies have more apprentices. Therefore, many apprentices are linked by scholarship, which is not represented in a company-based survey. Another important aspect to consider is that the sample also contains a high percentage of companies that no longer offer dual FP, but have done so in the past when the scholarship rate was lower. A third reason is that the responses to the present survey were voluntarily provided. More motivated firms tend to offer training contracts and may self-select into the survey.



Note: Number of observations 570

Fig. 3 Motives for Offering Dual Apprenticeship Training

Additional results show that firms identify many advantages of employing graduates from dual training rather than employing graduates from the traditional training system. The most important are that the apprentices are a better fit for the firm because they have spent more time at the firm and they tend to be more motivated. More than 50% of the firms stated that these aspects are important or very important.¹⁵

As explained in section 4.3, we also checked for differences between firm sizes. We found that for three of the described motives there is no significant differences between firm sizes. For the other motives, we found significant differences. Those motives that vary between firm size are shown in Fig. 4. The marked bars represent those that vary significantly (with a significance level of less than 10%) from the firm size category “micro firms”. The strongest differences are seen for the motive “synergies with continuous training” and for the statement that dual training can be seen as an investment. Large and medium-sized firms are much more likely to see dual training as an investment. Another interesting result is that the positive synergies with continuous training are much more pronounced for larger firms. In contrast, the productive contributions of apprentices seem to be a minor motive for large firms. Micro firms depend much more on the productive contributions of their apprentices to make training attractive. The motive to receive technical knowledge is also more important for small and medium-sized firms. For micro firms, this motive is less relevant. In addition, it was not as important for larger firms even though they were most satisfied with the technical knowledge of their apprentices.

Nonetheless, the fact that some motives do not vary between firm sizes show that they are very relevant motives for all types of firms. From a methodological point of view, this also strengthens our results by ruling out that they are not merely driven by a self-selection of large firms in the sample.

¹⁵ Results are not shown here, but they are available upon request.

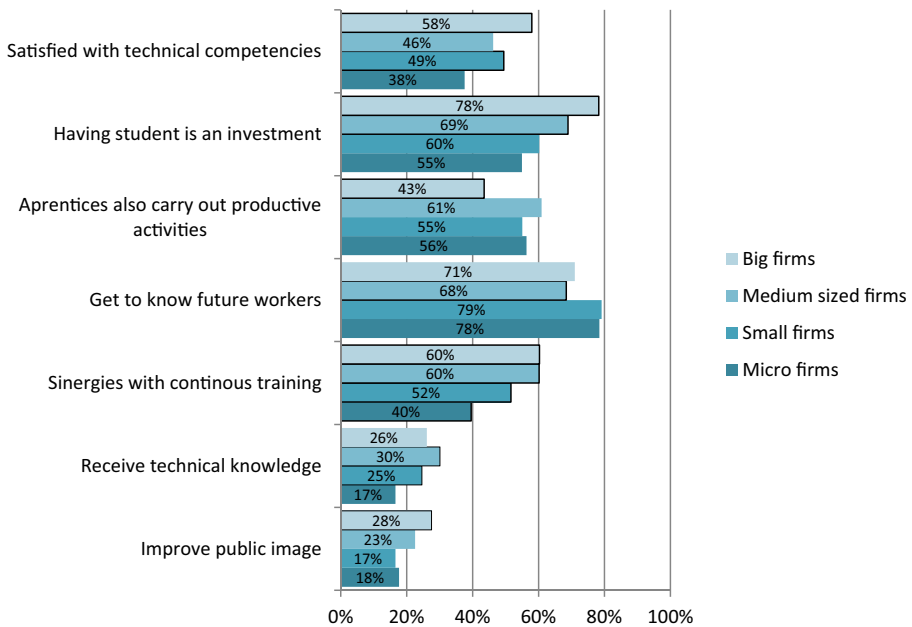


Fig. 4 Share of Firms Evaluating the Respective Motive as Important or Very Important by Size of Firm *Note:* The framed bars are those that are significantly different (less than 10%) from the firm size category “micro firms”. The significance was calculated based on a logit regression

We also checked for differences between firms that provide a training contract and firms that use a scholarship. Fig. 5 shows the two training motives that show significant

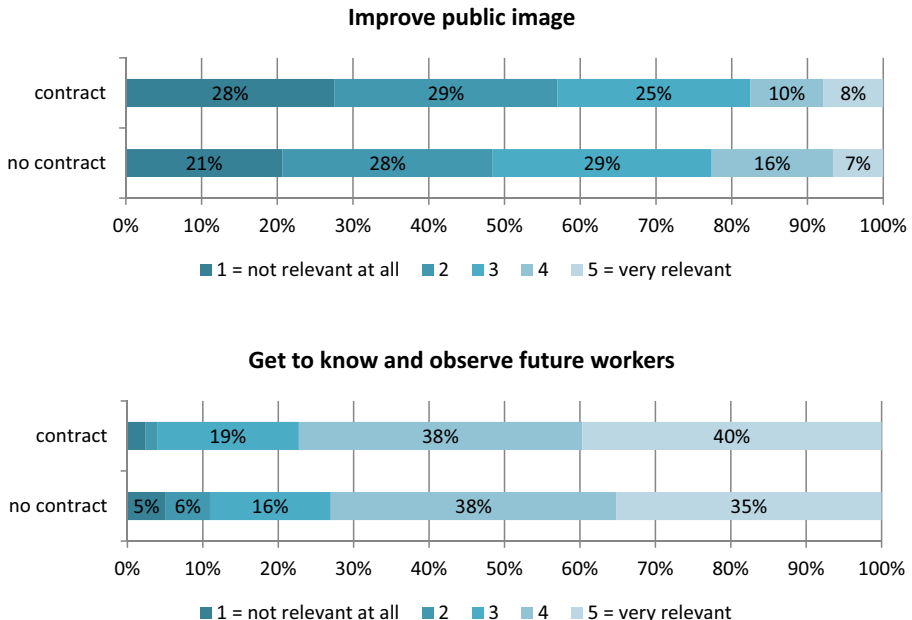


Fig. 5 Differences in Training Motives Between Firms with Contracts and Those with Scholarships

Table 7 Non-training Firms: Descriptive Data

Variable	Yes	No	Observation
Firm knows dual training	67.90%	32.10%	243
From those knowing: Offers dual training	37.80%	62.20%	164
From all: Offers dual training	25.62%	74.38%	242

differences between these two types of legal relationship. The results show that there are significant differences in the training motives “improve public image” (Pearson $\chi^2 = 8.4681$; $p = 0.076$) and “get to know future workers” (Pearson $\chi^2 = 12.2273$; $p = 0.016$). Firms with a training contract tend to provide more dual training because they want to get to know future workers, while firms with a scholarship tend to provide more dual training because they value the positive effects on their public image.

Checking for differences in the retention rate, we observed that firms with training contracts retain 57.51% of their apprentices, while firms using a scholarship retain 43.81% of their apprentices. The difference is significant at the 1 % level ($p = 0.0092$).

Non-training Firms

The following section describes the results of the study based on firms that a priori do not provide apprenticeship training. The sample consists in any Catalan firm regardless of whether it provides apprenticeship training or not. Because we assumed that many firms in the sample would not provide apprenticeships, the questionnaire did not focus on this topic and we call the section “non-training firms”, even though, in principle, some firms in the sample provide apprenticeship training. Tables 7 and 8 show the percentages of firms in our sample that know about and provide dual apprenticeships. Nearly 70% of all firms in the sample are aware of dual training. Given previous results (e.g. Cámara de Comercio de España 2016), the sample was likely to be biased towards firms that know about dual training. However, this bias provided us with the advantage of having many firms that knew about dual training and could offer some information concerning their reasons for not offering dual training. Table 8 shows the knowledge and provision of training according to firm size; both variables increased with the number of employees in the firm. Large firms with more than 250 employees had all previously heard of dual training.

In order to compare training and non-training firms, we introduced the same set of questions on (potential) training motives in the questionnaire. The results

Table 8 Knowledge and Provision of Training by Firm Size

Firm size	Firm knows dual training	Offers dual training	Observation
Micro	64%	8%	75
Small	60%	23.40%	94
Medium	75%	50%	48
Large	100%	50%	20

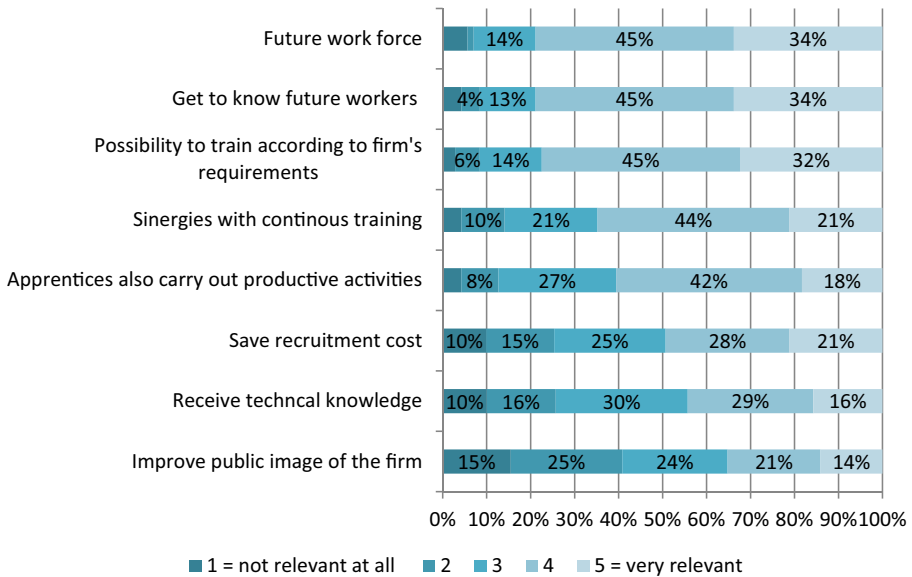


Fig. 6 Potential Motives for Offering Dual Training (Non-training Firms) **Note:** Number of observations 71

are shown in Fig. 6. The potential motives for supplying training for non-training firms are surprisingly similar to the training motives of firms that already provided training. This shows that non-training firms are aware of the potential benefits but that there are other reasons that prevent firms from providing training.

We also checked for significant differences between firm sizes. Large firms with more than 250 employees were not asked about the potential benefits, since they were all previously aware of dual training (see Fig. 2 on the structure of the questionnaire). Thus, we only differentiated between micro, small and medium-sized firms. All motives, except for two, did not show any difference between firm sizes. The two motives that showed significant differences between motives were “future work force” and “saving of recruitment costs” (see Table 9).

Those firms that knew about dual training but still decided not to offer it were asked about their reasons for not providing dual training. As Fig. 7 shows, the most important reason given was that the firms lacked sufficient knowledge about the dual system. Other reasons refer to problems in the implementation of the apprenticeship programs such as supervising and supporting the

Table 9 Training Motives by Firm Size: Significant Differences

Training motive	Firm size		
	Micro	Small	Medium
<i>Future work force</i>	64%	88%*	83%
<i>Saving of recruitment costs</i>	36%	50%	75%*

The asterisk indicates that the value in the respective category is significantly different from the value in the category “micro firm”

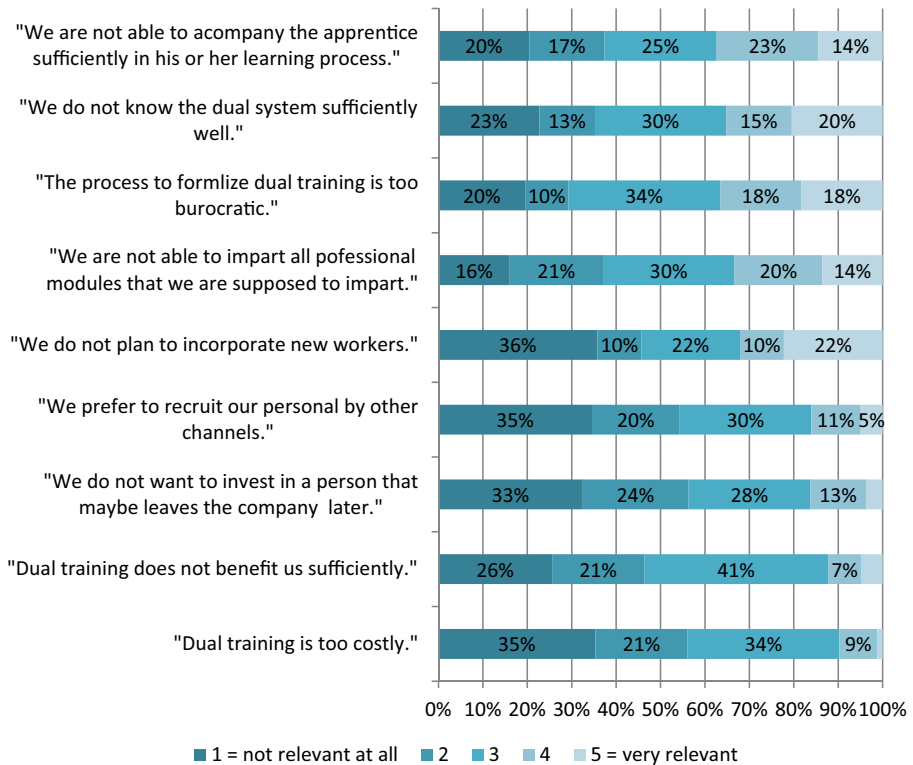


Fig. 7 Motives for not Offering Dual Training *Note: Observations 80–88*

apprentice, too much bureaucracy and difficulties in the provision of professional models. Less important were reasons related to overly high training costs or the fear that the apprentice would leave the firm after the training period. The most important reasons for not training all have immediate implications for education policies and imply recommendations for concrete actions, such as increasing knowledge about the dual training system and helping firms in implementing dual training. Of medium importance was that firms did not plan to hire new workers.

Discussion and Conclusions

For the successful implementation of a dual apprenticeship system in a country, it is necessary that firms are willing to participate in the system and that they are aware of the long-term training benefits, such as safeguarding their future supply of workers. Nonetheless, as previously explained, the literature on firms' training motives suggest that training motives strongly depend on framework conditions, including labor market regulations, general characteristics of the VET system and the economic situation (see Wolter and Ryan (2011) for a good overview of the literature). Training apprentices is often associated with an investment and a corresponding risk of losing this investment

if the worker leaves the firm. How severe this risk is perceived depends highly on the framework conditions. Implementing dual apprenticeships in a country without this tradition may aggravate the risk of poaching since there are few workers with this type of training in the labor market (Euler 2013; Mühlemann and Wolter 2011). By analyzing training motives in Catalonia, the article provides important empirical evidence about the possible training motives in newly established systems without a long tradition of apprenticeships. The study also adds insights into the barriers that prevent firms from training apprentices. While the results obtained confirm the results of previous studies in Spain (Rom et al. 2016; Cámara de Comercio de España 2016; Pin et al. 2014), they also add other important contributions.

The results show that, on average, despite different framework conditions, the training motives are surprisingly similar to those found in countries with established training systems. In both cases, most firms primarily see dual apprenticeship training as a strategy for safeguarding their future supply of workers. Catalan firms have indicated that their motives are clearly more related to long-term benefits, such as training and screening future workers (Merrilees 1983; Stevens 1994b) rather than short-term benefits like using the productive contribution of apprentices. This is a very relevant result because there are no differences between the dual training and non-training firms: all firms recognize and point out training and screening motives as more relevant than the immediate benefits linked to apprentices' productivity. Even though Catalan and Spanish firms have, due to flexible labor market regulations, several other possibilities for screening new employees such as temporary work contracts, the option to offer apprenticeships provides them with additional benefits. This finding points to the existence of a screening motive (Stevens 1994b). This result also impacts the image of dual apprenticeship among social agents. Workers' unions, professional schools and some researchers point to the threat of companies using dual apprentice students as cheap labor (e.g. Echeverría Samanes 2016). They argue that in a country without adequate economic and institutional conditions it is more likely that firms will only train in order to make use of the apprentices' productive contributions. Our results show the opposite. Spanish-Catalan firms consider dual apprenticeships as more of a long-term investment rather than an immediate gain; firms give priority to the investment motive and the screening motive over the productive motive.

Nonetheless, it is important to consider how the different characteristics in the design of the dual VET system in Catalonia might affect training motives. This is why we provide a detailed description of the Catalan dual system at the beginning of this paper. For example, the relatively short period of actual consecutive working hours in the company in comparison to the German speaking countries might impede firms from making extensive use of their apprentices' productive contributions. This shows that training motives depend on the interaction between the framework conditions and the regulation of the dual VET system. A careful choice of the design of the system that considers the institutional and cultural framework conditions can contribute to the stability of an apprenticeship system.

To understand why firms perceive apprenticeships as beneficial, even though they have many alternatives to dual apprenticeships and no assurances that the apprentice

will stay with the training firm, we explicitly asked for the differences between hiring dual apprentices and students from traditional VET. The results show that there are many advantages in hiring graduates from dual tracks instead of hiring graduates from the traditional VET track, such as greater technical skills, productivity, and loyalty. One of the reasons for these advantages might be the longer training period in the company, which allows the apprentices to acquire firm-specific skills and expertise. In particular, firms in need of highly vocationally skilled workers must carry out in-company training, for which dual apprenticeships provide an appropriate legal framework. A second reason is that by providing paid apprenticeship training, firms can attract the more motivated and better-educated students. Another benefit of dual apprenticeships is that firms can make use of synergies between initial and continuous training (Bellmann et al. 2010). The results show that there are a number of substantial synergies between these two types of training in the Spanish-Catalan companies. Thus, the advantages of apprenticeships in contrast to existing recruitment strategies and the possible synergies with continuous training can be considered as two important success factors for the implementation of apprenticeships in Spain.

Additional analyses show that training motives are not the same for all types of firms. First, there are differences between firm sizes, with medium and large firms benefiting more from synergies between initial and continuous training and being more likely to see dual training as an investment. Second, the results show that one important aspect of the regulatory framework, i.e. the legal relation between firm and apprentices, also plays a role. Firms that sign a training contract with the apprentice are more likely to train because of the screening motive and are more likely to retain their apprentices after the training period than firms that provide a scholarship. The latter suggests that training motives also depend on the regulatory framework of the apprenticeship program. Although we cannot say for certain why firms with scholarships tend to prioritize different training motives, we can formulate a hypothesis. As described in the section on the Spanish dual training system, providing the apprentice with a scholarship is cheaper for the firm than entering into an apprenticeship contract. Moreover, the bond between firm and apprentice is not as close in the case of a scholarship as it is in the case of a contract. When entering into a training contract, apprentices might feel more like an additional employee of the firm and thus might feel more loyalty towards the firm. Thus, firms which make this slightly higher investment and create a closer connection to the apprentice are willing to do so because they expect positive returns in the future. In contrast, for firms with a scholarship, the commitment to the apprentice may not be that high, and therefore they might be less likely to retain them after the training period.

Regarding the reasons for not training, the study shows that although in new training systems the risk of poaching might be more relevant, as there are fewer firms that train, in Catalonia this risk is not a key barrier for engaging in dual training. Firms do not decide not to train because of a potential risk of poaching or of losing their investments. Moreover, the results also show that firms do not generally avoid training due to excessively high training costs, as might be expected, especially for small firms (e.g. Dionisius et al. 2009). Regardless of firm size, costs of apprenticeships do not seem to be a limitation, something which may be explained by generally low training costs, e.g. due to low training allowances (Rom et al. 2016). Instead, the study shows that other elements such as excessive bureaucracy, difficulties in the supervision of the apprentice

and insufficient information about the implementation of dual apprenticeship training are the primary barriers for the non-training firms. The results have important implications for public policy. Additional information and guidance rather than introducing financial incentives to firms are needed to foster the implementation of dual training programs.

Given the contributions that apprentices make to the economic output of a firm, it is necessary to analyze whether their training allowance is sufficient and appropriate. This is especially true in the case of scholarships, which are firms' primary option (81% of the firms for the academic year 2016–2017; Miñarro et al. 2017). However, if Spanish policymakers decide to increase the apprentice allowance, the increase should be balanced in a way that both the apprentice and the firm obtain sufficient benefits and that the costs are not a barrier to participation by firms (Muehlemann & Wolter, 2017).

There are two primary potential limitations to the methodology of the study, both of which are common in many empirical studies. First, the statements of the firms are subjective and not objective measures. However, in this example, this limitation is not excessively severe since we explicitly want to know the firms' perspective. This might constitute a problem when firms have an underlying bias (i.e. a social desirability bias), which is common in surveys. Due to the complete anonymity (in contrast to personal or telephone interviews), we expect those types of biases to be relatively low. The second possible limitation is a potential self-selection bias, meaning that certain types of firms are more prone to answering the questionnaire. In the fourth chapter on the methodological approach we tested whether this was the case by comparing the surveyed sample with the total population. We did find that the surveyed firms tend to belong more often to the group of big firms. For this reason, we always tested for differences between firms of different sizes in the statistical analysis. In many cases, we did not find structural differences between firm sizes, which corroborates that average results are not driven by a self-selection bias.

In conclusion, the article shows that recognizing the long-term benefits of training apprentices is an important requirement for the successful implementation of a dual apprenticeship system in Catalonia. Most firms provide apprenticeships because they want to train and screen future workers. Dual apprenticeships in Spain are designed in a way that provides firms with additional benefits in contrast to alternative recruitment measures. These long-term motives can also be potentially relevant for the firms that do not train. Barriers are not related to unchangeable and constant contextual conditions, but rather to insufficient information, which is a barrier relatively easy to tackle. The results suggest that, if the system is designed in a way that provides sufficient benefits for the firms, the typical training motives relevant in countries with established systems can also be relevant for firms in countries that have recently introduced dual track systems. This implies that countries traditionally characterized by a school-based VET system can also successfully introduce dual elements in their formal education system despite having different framework conditions.

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Appendix

Table 10 Wording of relevant questions from questionnaire

Questions relevant for Fig. 3:	“What are the main reasons why your company offers dual apprenticeships?” (Please indicate the relevance of each motive with a scale of 1 to 5, where 1 is “not relevant” and 5 “very relevant.”) – The possible answer options are displayed in Fig. 3
Questions relevant for Fig. 4 are the same questions as for Fig. 3 plus two affirmations asked in the following way:	Here are a few statements about dual apprenticeships. Indicate your degree of agreement on a scale from 1 to 6, where 1 is “totally disagree” and 6 “totally agree”. - “We are satisfied with the technical competences of the students.” - For the following statement, consider all the costs involved in having dual apprenticeship students (economic gratification, tutor’s time, material resources) but also consider that the student does activities that contribute to compensate them: “Having students is an investment”
Question relevant for Fig. 6:	What benefits do you think your company would get if it offered apprenticeships places? (the answer options are the same as for Fig. 3)
Questions relevant for Fig. 7:	Please indicate the reasons why your company does not offer dual apprenticeships. (Please indicate on a scale of 1 to 5 the relevance of each answer; 1 means not relevant at all and 5 means very relevant). – The possible answer options are displayed in Fig. 7.

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