

Firms' incentives to provide apprenticeships

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Valorization Addendum

Apprenticeship training programs are socially beneficial as they serve to integrate the youth into the labor market and ensure the availability of skilled workers. Therefore, studying firms' incentives to provide apprenticeships is highly relevant. Without neither any laws forcing firms to train nor any public subsidies for providing apprenticeships, the framework conditions have to ensure that providing apprenticeships is attractive for firms. The thesis investigates several highly relevant contextual conditions and shows which factors are conducive to a high engagement of firms in the dual system.

Overall, policy-makers could be considered the core target group for the findings of this thesis, as they are the ones who set the conditions and institutions, which in turn affect firms' training decisions. These conditions and institutions can be directly linked to the apprenticeship system, such as policy campaigns convincing firms to train or the development of training curricula. Nonetheless, also for related policy areas like the system of compulsory general education or the regulation of the labor market, it is important to understand potential side effects on firms' training engagement. Furthermore, firms can also benefit from the results of this thesis. Training firms may use of the results when organizing the process of recruiting apprentices. Non-training firms may use of the results when considering whether training could be a beneficial venture for them.

The insights given are relevant for countries with existing apprenticeships systems such as Germany, Switzerland, Austria, the Netherlands, and Denmark. Additionally, these insights are helpful for countries with school based systems of vocational education that want to introduce elements of duality, such as internships, in their educational systems and face the challenge of convincing firms to participate in the vocational education process. In the following, the policy relevant implications of the four empirical studies presented in this thesis are listed separately for each chapter.

Policy implications of chapter 3

“Firms should focus on oral and writing as well as problem-solving competencies in their recruitment decisions.”

Chapter 3 investigates the relation between pre-training competencies and the productivity of apprentices. It focuses on oral and writing competencies, basic mathematics, IT, and problem-solving competencies, which have been acquired in the complete educational career prior to the start of the apprenticeship. Controlling for assortative matching and productivity enhancing firm effects, the analysis shows that especially oral and writing and problem-solving competencies and, to a lower degree, IT competencies are essential predictors for the productivity at the workplace.

This finding is especially relevant for firms, which have difficulties to recruit apprentices. Particularly in times of a relatively low demand for apprenticeship places, firms cannot simply choose the applicant who is best in all potential criteria. Instead, firms need to focus in the recruitment decision on characteristics that predict apprentices' potential productivity. Apprentices with high pre-training competencies also contribute more to the firms' economic output than apprentices with low pre-training competencies do because they conduct productive tasks more often. As the productive contributions of apprentices make up for 70 % of the total gross costs of training, a high productivity of apprentices can reduce the training costs substantially. As a result, it can be worthwhile for firms to employ assessment centers that test, e.g., for applicants' problem-solving competencies.

“For firms training occupations with a low share of analytical tasks and a high share of routine manual tasks, it can be worthwhile to use short internships to screen the applicants instead of relying only on school competencies.”

A differentiation between occupational groups shows that the strong relation between pre-training school competencies and the productivity at the workplace can only be observed for commercial occupations and not for industrial/technical occupations. An additional differentiation between the different tasks shows that, e.g., problem-solving competencies are only imperative in occupations that involve a high share of analytical tasks and a low share of routine manual tasks. Thus, firms that train for occupations with a rather high share of routine manual tasks and a low share of analytical tasks should not focus too much on school competencies. Instead, these firms can better use short trial periods or internships in order to observe the applicants' practical skills before offering them an apprenticeship contract.

“Compulsory schooling should equip students with the necessary competencies to acquire vocational skills.”

Even though we cannot claim clear causal evidence for the impact of pre-training competencies, the analysis suggests that on average school competencies are crucial for the productivity of apprentices. Better prepared school graduates are probably more productive in an apprenticeship, thereby making apprenticeship training more profitable from the firms' perspective. This relationship can be triggered by various mechanisms. Firstly, competencies could be directly relevant for the conducted tasks at the workplace. Secondly, having general skills can enable students to learn occupation-specific skills with less effort. Thirdly, productive apprentices are assigned more often to productive work tasks.

Thus, the quality of compulsory education seems to be pivotal for the employability of apprentices. If the educational system prepares the school graduates well for the work in an apprenticeship program, it can alleviate the economic burden the firm would have to carry otherwise. From a policy point of view, the results suggest that equipping young students with the right set of competencies might increase the attractiveness of offering apprenticeships.

Policy implications of chapter 4

“Labor market deregulations do not have to be detrimental to firms' incentives to provide apprenticeships.”

Another essential framework condition relates to the employment protection regulation within the labor market. Various extensions of human capital theory regard labor market rigidities as a prerequisite for firms to invest in general training. The regulations of the labor market have an effect on the mobility of workers and therefore also recently trained workers. As training is only beneficial for the firm, if trained workers stay sufficiently long at the firm, firms operating in labor markets with a high degree of mobility will have lower incentives to invest in training. Chapter 4 challenges this view and shows that labor market regulations are not a pre-condition for the functioning of the apprenticeship system by analyzing the example of the German labor market reforms. If firms are able to increase the productive contributions of apprentices, providing apprenticeships can be attractive for firms even if they operate in a flexible labor market with a high mobility of recently graduated apprentices. The fourth chapter demonstrates that German firms did not abandon the training system; instead, they changed their training strategies after the implementation of the labor market reforms. German firms reduced the net costs of training by involving apprentices in more work and reducing non-productive tasks.

“Curricula should leave sufficient freedom for firms to allocate the apprentices to productive work.”

The central idea in this chapter highlights the importance of apprentices' productive contributions for the engagement in apprenticeship training in more competitive labor markets. The analysis has shown that the allocation of apprentices to productive work is not detrimental to the quality of the apprenticeship, especially when apprentices carry out work at the skilled worker level. Instead, learning and working can take place at the same time and should be seen as joint products.

Thus, the regulations of the training system should ensure that training firms have enough possibilities to allocate their apprentices to productive work tasks. On the one hand, this means that training regulations should provide sufficient freedom for firms to organize their training. This can be achieved, for example, by including choice options in the training curricula, thereby allowing firms to adapt the training according to their need. On the other hand, this means that the regulatory framework should ensure that apprentices spend enough time in the firm. For example, an increase of the days per week at the vocational schools could be counterproductive. Furthermore, a decrease in training duration could also limit firms' possibilities to benefits from apprenticeship training already during the training period. The allocation of apprentices to productive work usually increases with each training year as the apprentices have acquired more occupation-specific competencies in the course of the apprenticeship program. Accordingly, for some occupations a decrease in the training duration could decrease total training benefits for the firm, which will make it less attractive to train apprentices.

Policy implications of chapter 5

“Training regulations should include choice options in order to remain attractive for both the firms that supply apprenticeships and students that demand apprenticeships.”

Chapter 5 showed that firms are more likely to supply apprenticeships when training curricula include choice options. On the one hand, this is due to the higher productivity of graduates who have acquired more skills that are relevant for the training firm. On the other hand, this is due to the firms' higher market power in the wage bargaining process with graduates. Moreover, this enables firms to train closer to the production process and to allocate apprentices more often to productive work. This insight is especially useful for curricula developers, who determine the amount of choice options within the curricula. The results further show that students also prefer curricula with more choice options and that the beneficial effects of choice options for firms do not come at the expense of a lower demand for apprenticeship places.

Nonetheless, the results should not be interpreted as a recommendation to increase the number of choice options without any limit. The results refer to the modernizations that were implemented between 2004 and 2014 and accordingly refer to the variation in the number of choice options that actually existed. Whether an expansion in the number of choice options beyond what has been implemented has beneficial effects on supply and demand cannot be answered with the data at hand.

Indeed, policy-makers may face a tradeoff situation. Even though more flexibility leads to higher attractiveness for firms, certain standardization is also important to ensure a sufficient mobility of graduated apprentices. Too much heterogeneity could overly restrict the apprentices' chances outside their training firms. Also for firms certain standardization could have beneficial effects, as this would ensure the availability of a sufficient number of skilled workers on the external labor market. This allows staffing flexibility in unforeseen situations, e.g., when additional skilled workers are needed. Nonetheless, the findings of the fifth chapter show that the implemented modernizations increasing the curricula heterogeneity retained sufficient standardization to prevent these potential adverse effects.

Policy implications of chapter 6

“Appeals that aim to increase the firms’ investment in apprenticeship training and target the community spirit of firms can be successful.”

The sixth chapter investigates the relationship between economic preferences of those who decide on a firm’s training investments and the training policy of the firm. Decision-makers who are more altruistic and have a higher preference towards the future invest more in apprenticeship training. The evidence for the impact of altruism suggests that decision-makers take into account the enhanced subjective well-being of others. This increases the likelihood that appeals to firms’ social responsibility have an effect on firms’ training decisions because the requirement for such a campaign to work is that decision-makers in potential training firms care about the well-being of others. Another advantage of these kinds of campaigns would be that the higher training investments due to altruism are also related to higher training quality. In the long run higher training investments and higher training quality could lead to higher wages and a lower probability of getting unemployed (Pfeifer et al., 2012).

However, the impact of preferences is much stronger on a firm’s training investments than on the decision to provide apprenticeship places at all. Thus, the effect of campaigns targeting altruism will probably be most effective for firms that already provide apprenticeships, while firms that do not provide training will need additional monetary incentives to start to train.

“Appeals that aim to increase firms’ investments in apprenticeship training and target the awareness of the future need for skilled workers can be successful.”

The sixth chapter also shows that time preferences are a significant predictor of training investments. Firms that employ decision-makers with a high preference towards the future are more likely to accept higher training investments because they value future benefits sufficiently high. Policy campaigns that address the future need for skilled workers are probably most effective to increase training investments in these firms.

Moreover, the results in this chapter also have important implications for the recruitment of human resource managers who decide on a firm’s training investments. As a firm usually has a longer time horizon than their employees, it could be beneficial for the firm to employ decision-makers with high preferences towards the future as this will better align the decision-maker’s preference with the firm’s interest.