Dynamics of employers' costs for the implementation of the dual model in industrial sectors

E S Ogorodnikova¹, A Yu Kokovikhin², L G Creciu³ and T V Kochergina¹

¹ Ural State University of Economics, Department of Management, 8th March str. 62, Ekaterinburg, Russian Federation
² Ural State University of Economics, Department of Labour Economics and Personnel Management, 8th March str. 62, Ekaterinburg, Russian Federation
³ Banca de Finante si Comert SA, Puşkin str. 26, Chişinău, Republic of Moldova

Email: cmb_8@mail.ru

Abstract. The introduction of the dual model of education is one of the promising areas for providing personnel with the necessary qualifications of industrial production in Russia. In the framework of this study, the task was to determine the role of the employer in the process of organizing the dual model. The main research method is the analysis of the structure and cost dynamics of industrial enterprises aimed.

The purpose of the article is to analyze the dynamics and cost structure of the implementation of the dual model on the example of the industrial sectors of the Sverdlovsk region.

1. Introduction

The introduction of the dual education model in the regions of Russia is due to the need to satisfy the demand for qualified personnel in order to increase the investment attractiveness of the respective territories. A detailed substantiation of the connection between the investment attractiveness of the regions and the availability of qualified personnel is presented in [1] and [2]. The dual model provides for the active participation of employers in the development of educational programs and professional standards that reflect the necessary competencies of students. Practical orientation is achieved by conducting a practical part of on-the-job training at a particular production under the guidance of a mentor.

Currently, guidelines have been developed for the implementation of the dual model of training highly skilled workers by the Ministry of Education and Science of Russian Federation, in which this model is defined as an «infrastructure regional model that ensures the interaction of systems: personnel forecasting, professional self-determination, professional education, professional qualification assessment, training and professional development of teaching staff, including mentors in industry» [3].

Today, dual training (education) is the most promising direction in the training of specialists for the real sector of the economy with the participation of large businesses with high-tech manufacturing, focused on international standards for the quality of both manufactured products and staff qualifications. The consolidation of the terms «dual education (training)», «dual model», etc. at the federal level, leads to significant changes in the system of secondary vocational education, primarily the principles of financing and building infrastructure, changing the level of responsibility and rights of employer organizations in the implementation of the educational process.
2. Theoretical base of the research

The methodology of managing the processes of attracting an employer to the processes of vocational education is fairly widely represented in the works of domestic and foreign experts in the field of public administration [4], [5], [6].

The basic source of information for studying the institutional model of management is data on the organization of the management system in Germany. According to the work of [7], about 20% of firms are offered in production, the main part of which relates to small and medium-sized businesses. Corporate industrial academies such as Volkswagen, Siemens and Bosch have corporate training academies and workshops, other enterprises are included in the system of dual education through participation in chambers of commerce and industry.

The activities of the chambers of commerce and industry of Germany as the main institution providing management of the dual education system include all the main stages of this process: standards of professions are established, standardization of methods and the learning process is carried out, teachers are trained, independent assessment of students' qualifications in the process and upon completion of training registration and administrative activities regarding the organization of practical internships, certificates of training are issued.

Such an institutional model for managing participants in dual education provides significant benefits for the training of personnel. Constant information exchange between employers and educational institutions makes it possible not only to plan a contingent of students based on the personnel needs of enterprises, but also to unify the professions (according to the Agency for Strategic Initiatives in Germany, there are about 350 nationally recognized professions, while in the Russian vocational education system (primary vocational and secondary vocational education) (600 professions are being trained). In addition, through the mechanism of membership dues, on the shoulders of employers more than half of the cost of training is transferred.

Such an institutional model positively assesses Monika Pogatsnik in [9], denoting the advantages of using the dual education model for companies: eliminating labor shortages, improving the quality of the workforce, reducing costs and forming cooperation based on curriculum development, and the possibility of forming deep human and professional relationships.

In the Russian practice, at the moment, the most successful is the system of dual education, formed in accordance with the needs of the largest enterprises, whose resource capabilities make it possible to invest in their own educational production base [10]. Such a model is devoid of additional add-ons and allows for the integration of the managerial impact of regional governments and big business on the performers of dual education programs: professional educational organizations and the personnel department of the company responsible for personnel training. This conclusion allows to rely on the implementation indicators of the dual model by large industrial enterprises to assess the intensity of its implementation.

The research methodology presented in this article assumes electronic questioning in the system of the State Information System of Industry and on the specialized site of the regstandard http://www.wikiregstandard.ru/. The study involved the heads and specialists of HR departments of 429 enterprises from 72 constituent entities of the Russian Federation.

3. Results of the study

As a result of the study “Assessment of employers' satisfaction with the regional staffing system” conducted by the Agency for Strategic Initiatives in cooperation with the Ministry of Industry and Trade of Russia, it was found that the main personnel shortage is fixed by engineering personnel for SMEs and highly skilled workers (5-6 grade) for large enterprises. In general, for both categories of workers, the deficit is fixed at more than 60%.

55% of the shortage of personnel in the regional labour market is determined by the employer's non-competitive offer, and the rest is inappropriate to the requirements of enterprises by the number of specialists in the labour market and the quality of their training.

Figure 1 presents data on the use of the dual model for overcoming the shortage of personnel.
Solving the problem of personnel shortages through the introduction of a dual model is carried out in 38% of industrial enterprises. Among them it is necessary to mention “Volkswagen Group Rus” LLC and “Kalugaenergo” in the Kaluga region, “Rusagro-Tambov” LLC in the Tambov region and “Capital Agro” CJSC in the Belgorod region, TsKB “Titan” in Volgograd, OJSC “Krasnoshch” in the Krasnoyarsk region, PJSC “NPO Saturn” and CJSC “R-Farm” in the Yaroslavl region, OJSC “Pervouralsk Novotrubny Plant” in the Sverdlovsk region.

The most common elements of dual education are the basic departments of universities and the participation of employers in the attestation commissions, the least common - the participation of employers in the adjustment of educational programs and the training of teachers at enterprises. Next, we present information on the role of the employer in financing the dual model, figure 2.

The funding of the material and technical base of educational organizations is carried out by less than 50% of respondents. The main reason for the low level of funding is the lack of resources and effect for employers. The main direction of financing the material and technical base is the purchase of equipment.
and consumables. A full-scale cooperation of firms with professional educational organizations requires a number of external conditions: favorable economic conditions, steady demand for labor, which is supported by long-term government orders and investment projects. However, not all industrial partners of secondary vocational education organizations work in such conditions. Along with the dynamically growing sectors of regional economies, there are branches that are in a systemic crisis. Some enterprises find resources for technological re-equipment, for others this task remains unsolvable. All these factors influence the motivation of business leaders to participate in dual training programs and their willingness to invest in the system of secondary vocational education.

Next, figure 3 presents data on the forms of participation of industrial enterprises in financing the dual model.

As can be seen in the figure, the main cost direction includes the purchase of consumables and equipment, the values for these areas range from 25 to 30% of the total amount provided by employers for the implementation of the dual model. Many employers note that in financial terms the dual model gives a negative result: financial investments in the training base of partners - institutions of secondary vocational education require a significant payback period in the context of the formation of personnel with the necessary qualifications.

4. Discussion and conclusions
For the further spread of the dual model in the industry, tax incentives are necessary to compensate for the investment in the implementation of the dual model. The first steps in this direction were made when submitting a payment to the Tax Code on the allocation to the costs of industrial enterprises of fixed assets used in the educational process.

It should be noted that institutional superstructures can be used to solve the above problems of introducing dual education in the form of industry associations, chambers of commerce, etc. Such an organization of the implementation of the dual model will reduce the burden on individual participants in the dual model. The proposed superstructures will perform the functions of building cooperation between partner companies, educational institutions and government bodies. The scope of their activity mainly affects the harmonization of standards required for the preparation of industry workers, the formation of industry councils, which will subsequently work with educational institutions in the field of adapting curricula to industry needs. It should also be noted the complexity of the institutional implementation of such a scheme and the need to prepare a regulatory framework governing the behavior of participants.
References

[1] Kokovikhin A Yu, Ogorodnikova E S, Williams D and Plakhin A Ye 2017 Institutional Factors in the Evaluation by the Entrepreneur of Municipality Investment Climate Economy of Region 13 (1) 80-92

[2] Kokovikhin A Yu, Ogorodnikova E S, Williams D and Plakhin A Ye 2018 Assessment of the Competitive Environment in the Regional Markets Economy of Region 14 (1) 79-94

[3] Busemeyer M R and Trampusch Ch 2012 The Comparative Political Economy of Collective Skill Formation The Political Economy of Collective Skill Formation N Y Oxford University Press

[4] Remington T 2017 Public-private partnerships in the field of secondary education: an adaptation of the German model of dual education Moscow House of the Higher School of Economics

[5] Marhuenda-Fluixa F, Jose Chisvert-Tarazona M and Palomares-Montero D 2013 D as in dual: Research on the implementation of dual training in the Spanish vocational education system EDUCAR 53 (2) 285-307

[6] Remington T 2017 Business-government cooperation in VET: a Russian experiment with dual education Post-Soviet Affairs 33 (4) 313-333

[7] Baethge M and Wolter A 2015 The German skill formation model in transition: from dual system of VET to higher education? Journal for labour market research 48 (2) 97-112

[8] Milgrom P and Roberts J 1992 Economics, Organization and Management. Englewood Cliffs: Prentice-Hall, 1992 29

[9] Pogatsnik M 2018 Dual Education: The Win-Win Model of Collaboration between Universities and Industry International journal of engineering pedagogy 8 (3) 145-152

[10] Helmer M and Conway M 2014 Workforce Intermediaries and the Apprenticeship System: Lessons and Implications from the Construction Industry Connecting People to Work: Workforce Intermediaries and Sector Strategies N Y Aspen Institute p 325