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## Research of Concordance in Demand and Supply of Qualified Workforce in Ukraine

The article discloses concordance in demand and supply of qualified workforce in Ukraine. The analysis of demand and supply for qualified workforce and dynamics of employed and unemployed with the number of vacancies for qualified workers in Ukraine were carried out. The approaches to solve the problems of present and perspective deficit of qualified workforce on labour market were suggested.

**education, workforce, vocational and technical educational establishments, labour market, working occupation, lack of qualified workers, the mechanism of government work order, demand and supply**

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**Исследование соответствия спроса и предложения на квалифицированных рабочих кадров в Украине**

Статья посвящена рассмотрению соответствия спроса и предложения квалифицированных рабочих кадров в Украине. Проанализированы спрос и предложение на квалифицированные рабочие кадры, динамика занятых и безработных с количеством вакансий квалифицированных рабочих в Украине. Предложены направления для решения проблемы существующего и будущего дефицита рабочих кадров на рынке труда.

**образование, рабочие кадры, профессионально - технические учебные заведения, рынок труда, рабочие профессии, дефицит рабочих кадров, механизм государственного заказа, спрос и предложение**

**Problem statement.** The problem of discordance in demand and supply on labour markets is getting more complicated by regional disparities in the system of vocational and technical education, lack of vocational guidance for youth and a large number of educational institutions of III-IV accreditation levels. This situation leads to an increase in number of specialists with higher education compared to the amount of blue-collar workers nearly doubled. Labour market is saturated with accountants, lawyers, economists and teachers. However, the structure of demand, which is registered by the State Employment Centre of Ukraine, shows the needs for working personnel. While among those looking for work a significant part are people with higher education.

**The analysis of recent research and publications.** Discordance in quantitative and qualitative parameters of the workforce to the needs of the economy and improvement of its competitiveness are fairly widespread research topic for national and foreign scientists. In particular, the issues of solving problems of structural imbalance on the labour market and the ways to overcome shortage of workers were focused in the published works of V.Antonyuk, S.Bandura, O. Grishnova [1], T. Desyatov [2], T. Zayats, E. Libanova [4], N. Luk'yanchenko, I. Soldatova [6], O. Novikova, I. Petrova, L. Shaulska; trends of management of competitiveness on labour market and workforce were studied by L.Lisohor [5], O.Levchenko [3], S. Sotnikova, S. Khazova, A. Tsymbal, N.Shulha and others. However, the problems to overcome workforce deficit, balancing labour market and improving occupation structure of

training workforce to meet the needs of labour market were not sufficiently studied.

**Objectives.** The main objective of the article is to analyse trends in labour market concerning discordance in demand and supply of qualified workforce, to determine the number of employed and unemployed with the number of vacancies for skilled workers in Ukraine and to identify the ways of balancing labour market.

**Main material.** The transition of Ukraine to a modern development model, in which the source of economic growth should be a common education area, scientific knowledge, technological innovations and information, needs thorough revision of methods and mechanisms of regulation of labour market in order to provide necessary reallocation of employment according to types of activity and sector. During the period of economic restructuring a considerable importance should be applied not only to the level and quality of workforce but to the ability to focus on the needs of labour market and to be competitive on labour market. The main condition for the formation of most favourable labour market is to create a balanced flow of demand and supply of workforce.

For more accurate definition of certain changes in labour market, it is necessary to analyse demand supply of qualified workforce in Ukraine during 2008 – 2012. The data for the analysis are shown in Table 1.

As we can see, over the past five years, the situation on the balance of demand and supply for qualified workers whose professional activity requires vocational and technical education has significantly decreased. Table 1 shows that the number of unemployed decreased from 2008 to 350,048 persons and in 2012 was 526,181. Among unemployed people the number of qualified workers in 2008 was 13.3% (116,299), in 2012 - 11.5% (60516), which shows the decrease by 1.8% (55783 people). The indicator of number of unemployed among workers in maintenance, operation and control decreased from 2008 to 75 453 persons and was in 2012 - 101,332 persons, from 20.2% in 2008 to 19.2% in 2012. Qualified workers in the sphere of agriculture and forestry numbered 3.8% (20 292 persons) in 2012, while in 2008 the number was 41983 persons and persons constituted 4.8% of the total number of unemployed people.

According to Table 1, it can be stated that the number of vacancies on labour market of Ukraine in 2008 was 91,127 people, and looking for a job almost 876,229 people and it is only among the unemployed who are officially registered at the employment centre. So the number per a vacancy in 2008 was about 10 persons, when compared with 2012, the number per a vacancy among the unemployed hardly changed, and was 11 people. In 2012, the number of vacancies on labour market was 48,587 persons, while the number of unemployed people looking for work was 526,181 people. The maximum number of candidates per vacancy occurred in 2012 with 11 persons. That is a highly negative trend on labour market.

According to the data in Table 1 the number of candidates for a skilled worker in agriculture and forestry in 2012 was 32 persons when compared with the previous data, it decreased by 21 persons compared to 2008 when candidates per vacancy among unemployed workers in the category of maintenance, operation and control in 2012 was 15 persons, compared with 2008 increased by 3 persons.

So, the number of vacancies among skilled workers in 2012 was 9650 people and unemployed people in this area about 60,516 people, where the number of candidates per vacancy in this case was 6 people, and for five years has not changed much.

Table 1 – Demand and Supply for Skilled Workers in 2008-2012

	2008		2009		2010		2011		2012	
	people	% of total	people	% of total	people	% of total	people	% of total	people	% of total
<b>The number of unemployed people, total</b>	<b>876 229</b>	<b>100,0</b>	<b>542 827</b>	<b>100,0</b>	<b>563 968</b>	<b>100,0</b>	<b>501 413</b>	<b>100,0</b>	<b>526 181</b>	<b>100,0</b>
<i>Including</i>										
Skilled agriculture and forestry workers	41 983	4,8	19 494	3,6	22 771	4,0	20 552	4,1	20 291	3,8
Skilled workers with tools	<b>116 299</b>	<b>13,3</b>	<b>77 670</b>	<b>14,3</b>	<b>69 860</b>	<b>12,4</b>	<b>57 034</b>	<b>11,4</b>	<b>60 516</b>	<b>11,5</b>
Workers in service, operation and control	176 785	20,2	106 786	19,7	107 165	19,0	93 889	18,7	101 332	19,2
<b>The number of vacancies, total</b>	<b>91 127</b>	<b>100,0</b>	<b>65 846</b>	<b>100,0</b>	<b>63 863</b>	<b>100,0</b>	<b>59 348</b>	<b>100,0</b>	<b>48 587</b>	<b>100,0</b>
<i>Including</i>										
Skilled agriculture and forestry workers	786	0,9	687	1,0	715	1,1	593	1,0	622	1,3
Skilled workers with tools	<b>20 084</b>	<b>22,0</b>	<b>11 397</b>	<b>17,3</b>	<b>13 190</b>	<b>20,7</b>	<b>13 024</b>	<b>21,8</b>	<b>9 650</b>	<b>19,9</b>
Workers in service, operation and control	14 427	15,8	7 669	11,6	7 854	12,3	7 882	13,3	6 729	13,8
<b>Candidates for a job, total</b>	<b>10</b>		<b>8</b>		<b>9</b>		<b>8</b>		<b>11</b>	
<i>Including</i>										
Skilled agriculture and forestry workers	53		28		31		34		32	
Skilled workers with tools	6		7		5		4		6	
Workers in service, operation and control	12		14		14		12		15	

Source: Labour Market of Ukraine in 2012 [7]

From the survey results, we see that companies need skilled workers with tools, almost 19.9% of the total number of vacancies in 2012, when compared to previous years, the demand for highly skilled workers within five years among the highest on the market of skilled labour.

So, the dynamics of the needs of enterprises for workers by occupation groups in Ukraine in 2012 amounted 48.6 thousand people, including occupation sectors: skilled workers with tools - 9.7%; professionals - 8.2%, elementary occupations - 68%, workers in maintenance and operation of processing equipment - 6.7%; specialists - 5.9%; workers in the sphere of trade and services - 5.1%, legislators, senior civil servants - 4.3%; technical employees - 13%, skilled workers of agriculture and forestry - 0.6%.

Compared with 2006, the total demand for workers by occupation groups was 170.5 thousand, including occupation sectors: skilled workers with tools - 50.7%; workers in maintenance and operation of processing equipment - 33.4%, elementary occupations - 24.2%; experts - 15.4%, professionals and workers in the sphere of trade and services - 14.5%; legislators, senior civil servants - 10.6%; technical employees - 5.3%; qualified workers in the sphere of agriculture and forestry - 1.9%.

According to the research of concordance in demand and supply on labour market, we see that the structure of enterprise needs by profession sectors has changed, which indicates structural changes in both business and labour market due to improving the quality of education, so now there is a need skilled workers as a whole. Most leading companies in Ukraine need skilled workers with tools, but unfortunately vocational and technical education institutions can not provide sufficient quality in training skilled workers that meet all the requirements of today's labour market, so we need some assistance from the side of public authorities.

Most skilled workers are required in Kyiv industry - 18.9%, and the following regions: Dnipropetrovsk - 12.0%, Donetsk - 8.0%, Luhansk - 5.1%, Kharkiv - 5.1%, Crimea - 5.1%, which are mostly industrialized. As for agricultural regions the need for skilled workers observed in Volyn 4.2%, Poltava - 4.7%, Lviv - 3.7%, Zakarpattya - 3.6%, Zhytomyr - 3.5% regions. Kherson region - 4.6% and Odessa region - 5.2% also need skilled workers in the sphere of agriculture.

Thus, we can say that the above-mentioned data proves the changing trends in technology development at enterprises, affecting employers' increased requirements to the quality of workforce, which is one of the most important problems of economic development of our country - shortage of modern skilled workforce.

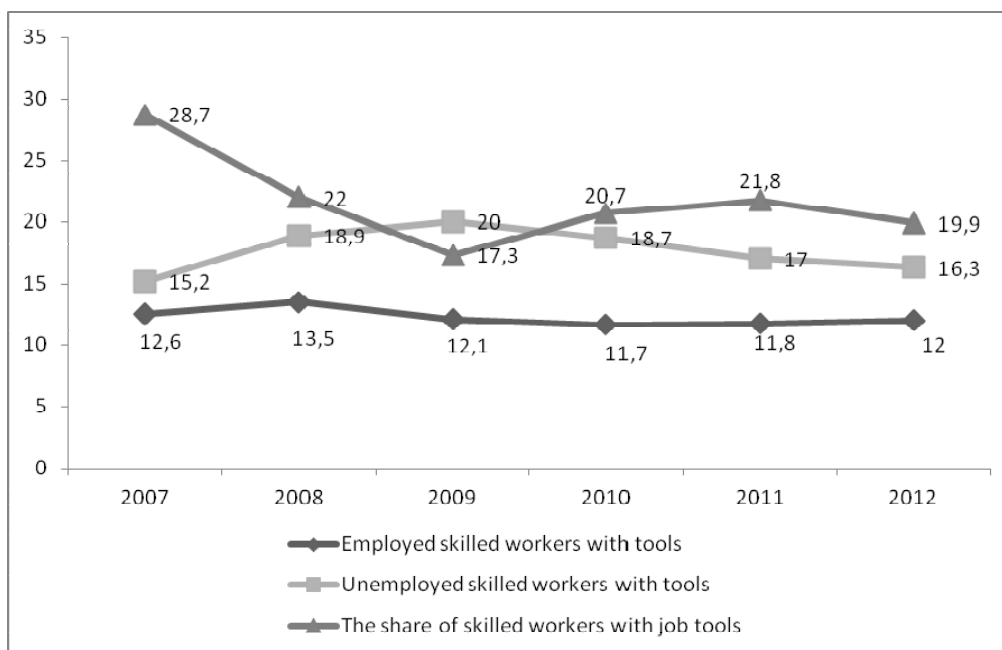
For a more detailed further research it is necessary to analyse the dynamics of the employed and unemployed with the number vacancies of skilled workers in Ukraine in the period of 2007 - 2012. The data for the analysis are shown in Figure 1.

According to Figure 1 we see that the number of employed skilled workers with tools in 2012 was 12%, so dynamics of employed skilled workers after six years has not particularly changed. Taking into account unemployed skilled workers with tools we see that in 2012 the figure was 16.3%, compared with 2008 - 18.9%, in 2009 - 20%, 2010 - 18.7% and in 2011 decreased to 17%, but the labour market situation has not been considerably changed. Special influence on the dynamics of labour market of Ukraine shows the proportion of vacancies of skilled workers with tools which is the following: 2007 - 28.7%, 2008 - 22%, 2009 - 17.3%, 2010 - 20.7%, in 2011 - 21.8% and in 2012 - 19.9% of the total number of vacancies.

According to the research of concordance in demand and supply on labour market we observe deficit of skilled workforce. So, today's labour market highly needs staff workers who have certain characteristics: appropriate value orientation, positive motivation, solid expertise, considerable intellectual potential, good skills, which he can use flexibly in dynamically

changing production environment, openness to application innovative technologies in production, ability to provide high quality of the final product of labour, striving for continuous professional improvement.

Thus, the imbalance of demand and supply of skilled workforce on labour market is mainly caused by the lack of objective forecasts of future shortages in certain professions, and thus to ensure job vacancies with qualified personnel in time.



Source: Labour Market of Ukraine in 2012 [7]

Figure 1 - Dynamics of employed and unemployed with the number of vacancies of skilled workers in Ukraine,% of total

**Conclusion.** Summarizing the above-mentioned material it can be stated that today there is an urgent need to study and forecast the demand for qualified personnel, improving the formation and placement of public order, simplification of licensing education services, improving the quality of vocational training and job placement for graduates who are employed, increasing their social protection, improving legal and regulatory framework for vocational education, involvement of employers in providing educational programs, establishment of career guidance centres for young people on labour market.

Taking into account strategic importance and essential need the preparation of highly qualified workforce and the need for industrial growth, we need:

- continual interaction between educational institutions and companies in providing training, improving curriculum, improving the quality of vocational and practical training of students, employers' liability for the use of skilled labour;
- development of employment mechanism for graduates of vocational schools with the use of certain organizational and administrative approach to a market economy in society;
- simplifying and shortening procedures for licensing educational services to the mobility of the system of vocational education, the ability to respond quickly to the needs of employers;
- creation of the effective system of professional orientation of young people for professions in which there is demand on the labour market and providing an individual approach to the provision of career guidance services for young people;

- establishing permanent educational programs informing people, especially graduates of secondary schools, the state and prospects of the labour market, scarce and surplus profession on it, etc.;
- study the question of whether a system of certification of qualifications goes in accordance with the requirements of employers;
- intensification of work to bring the contents of professions and job descriptions in line with modern manufacturing and service based offerings employers;
- continue the practice of concluding agreements on cooperation with enterprises, institutions and organizations, involving representatives of employers to improve the material and technical base, the formation of educational content, training sessions, participation in state assessment, leadership training and production practice and diploma projects;
- mandatory, at least once every 5 years, training teachers and teaching staff at the leading enterprises of the industry;
- monitoring of employment of graduates, their attachment to the first job, professional advancement;
- study and analysis of assessment employers professional level of graduates;
- promoting educational institutions in the implementation of high-quality professional training by creating conditions for industrial training, providing job opportunities for practice, transfer machinery, equipment, samples of materials and products to educational institutions.

To solve present and future staff shortages in some key professions and to regulate measures we should: hold monitoring to study the demand of functioning of regional labour market according to the data of the employment centre, providing annual forecast of professional qualification structure and additional needs in them by main professional groups; organization career guidance for students to meet the needs of the economy for the election of disciples occupations that are in short supply on labour market and putting into action the mechanism of state job order for training labour for the account of forecasted production volumes in all spheres of economy.

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### Дослідження відповідності попиту і пропозиції кваліфікованих робітничих кадрів в Україні

Основна мета статті полягає в проведенні аналізу тенденцій розвитку ринку праці в розрізі невідповідності попиту і пропозиції кваліфікованих робітничих кадрах, визначення чисельності зайнятих та безробітних з кількістю вакансій кваліфікованих робітників в Україні та визначення напрямів збалансування ринку праці.

Стаття присвячена розгляду відповідності попиту і пропозиції кваліфікованих робітничих кадрів в Україні. Проаналізовано попит і пропозицію на кваліфіковані робітничі кадри, динаміка зайнятих та безробітних з кількістю вакансій кваліфікованих робітників в Україні. Запропоновані напрями для вирішення проблеми поточного та перспективного дефіциту робітничих кадрів на ринку праці.

Перехід України до новітньої моделі розвитку, в якій джерелом економічного зростання мають стати єдиний освітній простір, наукові знання, технологічні інновації та інформація, потребує кардинального перегляду методів та механізмів регулювання ринку праці з метою забезпечення необхідного перерозподілу зайнятості за видами діяльності та секторами економіки. У період реструктуризації економіки вагомим значення набуває не тільки рівень і якість підготовки робітничих кадрів, а вміння орієнтуватися в потребах ринку праці та бути конкурентоспроможними й затребуваними на ринку праці.

**освіта, робітничі кадри, професійно – технічні навчальні заклади, ринок праці, робітничі професії, дефіцит робітничих кадрів, механізм державного замовлення, попит та пропозиція**

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## Інноваційна складова розвитку трудового потенціалу машинобудівної галузі України

В статті розглядається сучасний стан інноваційного розвитку трудового потенціалу машинобудування України, виділено основні причини, що його стримують та запропоновано шляхи щодо їх усунення.

**трудоий потенціал, інновації, інноваційна діяльність, інноваційна праця, машинобудування**

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**Инновационная составляющая трудового потенциала машиностроительной отрасли Украины**

В статье рассматривается современное состояние инновационного развития трудового потенциала машиностроения Украины, выделены основные причины, которые его сдерживают и предложены пути их устранения.

**трудоий потенциал, инновации, инновационная деятельность, инновационный труд, машиностроение**

Сучасні світові процеси вимагають від українського суспільства суттєвих перетворень, зокрема використовуючи у якості системоутворюючого ресурсу трудовий потенціал. Нині пріоритетним напрямком соціально-економічної політики держави має бути інноваційний шлях розвитку як країни в цілому, так і окремих галузей економіки.