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## CONTENT

### **Introduction**

### **Chapter 1.Theoretical aspect of Transformation of the global labor market**

- 1.1 The structure of the globalization of high skills
- 1.2 Types of international labor market and the scope of implementations
- 1.3 Main futures of labor market as a matter of export and import

### **Chapter 2 .Analysis of the global labor market during 2000 -2015**

- 2.1 Dynamics of world labor market
- 2.2 Trade dependence on regional labor market
- 2.3 The mechanism of international legal regulation of international labor market

### **Chapter 3.Global economic prospects of global labor market**

- 3.1 Main trend of world labor market
- 3.2 potential of labor market of export for developing countries

Conclusion

References

Appendices

## INTRODUCTION

### **Topic Actuality**

Transformation of the global labor market and the theoretical aspect of the transformation.

### **Overview**

#### **1.Theoretical aspect of Transformation of the global labor market**

- 1.1 The essence of labor market
- 1.2 Economic impact of international migration on countries
- 1.3 International regulation of labor market

#### **2 .Analysis of the global labor market**

- 2.1 Tendency of world labor market
- 2.2 Analysis of European labor market in the crisis Context
- 2.3 Analysis of Ukrainian labor market

#### **Global economic prospects of global labor market**

- 3.1 Main trend of world labor market
- 3.2 Prospect of international labor market

**The Subject of This Course Paper - Mechanism of the transformation of global Labor market.**

Modern market economies are constantly subject to structural change. Some sectors shrink, while others grow. Some of these changes are of short duration, rejecting fads, terms of trade, or temporary shifts of technology, while others appear more or less permanent. The most important common long-run trend for developed economies has been a marked shift of employment away from production towards service activities, as predicted by the three-sector hypothesis. Indeed, with the exceptions of Finland, Ireland, and Sweden, the share of manufacturing in total GDP has declined throughout the European Union over the past quarter century. In this research I will be elaborating firstly on the theoretical aspect of the transformation of the global labor market which comprises of the structural part, the important of labor market, also the economic impact of migration on developed countries such as Germany and Europe and also lay emphasis on the international regulation of labor market. While the second part will pin point the analytic important of global labor market by defining the meaning of world labor market, further analyze the European market and also the Ukraine labor market.

**The Object of This Course Paper – Global labor market**

Like other countries in the region of Europe and Central Asia, the labor market in Ukraine is seriously affected by the financial crisis. The unemployment rate has significantly increased since the beginning of 2014 – up to 9.5 percent and now is 8.7 percent. Unemployment remains a problem for large parts of the youth, and a large number of graduates are unable to find work after graduation. The main problems that now face the Ukrainian labor market includes low internal mobility within the country, the high level of unofficial unemployment and disparity of qualification or professional skills to the needs of the labor market in new

conditions.

Growing international experience indicates that internal labor mobility has a positive impact on productivity and growth of the country. In Ukraine, the level of internal migration is at extremely low conditions compared with other

countries. The population does not migrate even when there is substantial and constant inappropriate level of average wages and unemployment rate in the labor market. This indicates that people do not have economic opportunities outside the place of their current residence. It is significant

to consider the unofficial unemployment rate in Ukraine. In 2015 to 4.6 million people in Ukraine were

working in the informal sector, which constitutes 22.9 percent of total employment. In recent years which is in accordance to the data of the State employment service, there are 20.5 million people employed in Ukraine or 60 percent of the able-bodied population in the age between 15 and 70 years old. The figures have slightly improved comparing to 2014 (59.5 percent). At the same time, the figures of employment data differ significantly from the unemployment rate, which made 2 percent in January. As of February 2014, the average enrolment competition was ten applicants per one vacancy. The prospects in global market which further elaborate the main trend of the world labor market on international labor. The rest of this chapter provides an overview of the role of global labor market in the world economy. Its objective or main focus is to provide a more complete and updated picture of the economic importance of global labor when there is a major transformation in the economy.

### **The Aims of This Paper**

3.1.1 Main trend of world labor market

3.1.2 Prospect of international labor market

### **Task**

3.2.2 To show the economic prospect of labor market

3.2.2 Analyzing the essence of labor market

## **Novelty of Research**

The main objective of this paper is to find out the global economics prospect of the world labor market and also analyses the trend and economic essence of labor market cross sections the globe.

Although some researchers who worked on trend and economic importance, but very few researchers reported about the essence of labor market cross the globe. The essence of labor market is the main criteria for designing the efficient of the international trade system. The cross sections which are used in international trade are taken into consideration and found that the essence of labor market is of a higher importance to not just nation but all over the world since each country in one way will interact in trade deals.

Many researchers compared the shapes in their work. Though there are similar work, but in the present work, scope of different cross sections are obtained from the same article and their performance is studied.. In the present work, the effect and risk is studied exclusively.

## **Methods of the Research**

The research methodology is based on the application of international macro- and microeconomic approaches as well as structural comparative analysis. A study is dedicated to describing of components of the mechanism of the transformation of the global labor market and estimation of its level of development. A huge number of publications devoted to the global financial crisis and particularly to its lessons have been published.

The most interesting among the foreign scientific publications are the books of two Nobel Prize winners J. Stiglitz and P. Krugman. Among Ukrainian scientists

the following works have to be encouraged in the financial sphere the works of: U. Bazal, V. Bazylevych, I. Lutyi, V. Muntiyani, O. Rogach, V. Shevchenko and in the labor sphere: O. Grishnova E. Libanova, A. Starostina. The classical economic approach gives a vision that "new economy" is not just a new phenomenon but quite young, which practically has existed only for 0 – 15 years. On different approach, it is accepted to consider the year of the foundation of new economy is 2015, when global business and mass – media began to use possibilities of world free information network – the Internet. The theoretical roots of comprehension of processes of origin of new economic structure starts from the middle of the last century. It is certainly known that all economies, starting from the simplest, were based on knowledge about that how to do that or this: how to grow, how to collect, how to obtain, how to build and all this knowledge has been accumulated with development of the society. But till the middle of the last century this knowledge carried more complementary character. The knowledge began to play first fiddle in the middle of the last century. The process of training workers for the changes in the labor market is slow and constant. Till the end past century a characteristic of the new type of the worker began to appear more frequently in the western literature. The reason for its appearance unconditionally became the environment of inhabiting. Extrapolating for the labor market we see that that objective reasons of changes in the character and intensity of labor are in favor of scientific-technical and informational revolution. The mechanism of transformation and the transformation of the labor market rather in terms of the spread of the global information economy provides a range of measures to enhance the effectiveness of the functioning of the labor market. Among them are: self-education and science, search for additional sources of financing; providing of favorable terms for development of education; lead through of active policy of employment of population, including new forms – tele- and controlled form of distance employment; the further development of cooperation between

research centers and enterprises of the final production; state of development and production of IT products; ensuring the protection of intellectual property rights

and support of international scientific-technical cooperation. Braving the logic of the transformation process in live nature , proposed by M. Magometom-Eminovim in the labor market, which is experiencing changes in the global economic information we will get the picture of general transformation as follows: the object of transformation is of global labor market, "transformetr" – relations in the globa

market of labor , instrument of transformation, are influence of IT, time is time of process of changes, "psitemenos" is "new economy", transistor is the transitional

period between industrial and postindustrial periods, a transformation link is the government programs at the international labour market around the globe. For us the descriptive chart of mechanism of influence of informative economy went out to the world market of labor .

### **Glossary of key words**

Globalization

Labor market

### **Structure of the Research- Major Causes and effects of the Research Problem**

.The following are the causes of the research problem:

.Rise of the feminist movement

.Economic necessity

.Passage of governmental equal rights acts

. Rise of the service sector and decline of the manufacturing

Expansion and increased access to higher education

.Increased purchasing power of women



- .Business result improvements
- .Increased Gross Domestic Product
- . Increased number of women owned businesses
- . Less time for mothers to spend with children due to their work schedules
- . Increased stress levels and changing roles

## **Chapter 1. Theoretical aspect of Transformation of the global labor market**

The global expansion of higher education allows work traditionally reserved for the West to be done more cheaply and just as well in emerging nations, write Phillip Brown and Hugh Lauder. The result is that the wages and working conditions of western employees no longer set the global benchmark. The continuing fallout from the great recession and the western debt crisis has led to much debate about public sector cuts, the 'squeezed middle', executive pay and the behavior of 'vulture' capitalists. Much of the debate is predicated on the assumption that, although it will take longer than initially expected, Britain and other Western economies will eventually return to 'business as usual'. But our analysis of the labor market, as presented in *The Global Auction*, suggests that there will not be any such return. Indeed, it is possible that the early decades of the twenty-first century will become known not for a Great Recession but for a Great Transformation, for reasons we explain below. Understanding how the labor market is being transformed is as much art as science and it's worth remembering Schumpeter's observation that:...since we are dealing with a process whose every element takes considerable time in revealing its true features and ultimate effects, there is no point in appraising the performance of that process ex visa of a given point of time; we must judge its performance over time, as it unfolds through decades or centuries. This should serve as a timely warning to those who are still willing to predict the outcome of the current western debt crisis. Since the late 1990s we've been making regular research visits to China, India, South Korea, Singapore, Germany and the United States, investigating economic globalization and the 'knowledge' economy. We wanted to assess whether western policy assumptions about the global knowledge wars, and a world divided between 'head' and 'body' nations, conformed to the worldviews of leading transnational companies and policy-makers in emerging economies such as China and India. What we discovered has profoundly changed our views on the labor market in a context of

global capitalism. For the purpose of this discussion there are four related trends that we'd like to highlight. All of which have contributed to the global auction for jobs. This auction was previously limited to relatively low-skilled workers in manufacturing and service sector employment, such as call centers. But it is now dividing the fortunes of more highly skilled workers, in a cut-price competition (reverse auction) for brainpower. At the same time that some occupational elites have been able to use their market power to hike-up their salaries, many others, including university graduates, are confronting a challenge to both their 'work' and 'market' situations. The long-run evolution of economies from agricultural, then to industrial, and finally to service-based structure is the key prediction of the "three-sector-hypothesis" associated with Fisher, Clark, and Fourastié. Central to most theoretical explanations is an exogenous, persistent divergence in labor productivity growth rates in manufacturing and services, as well as a relatively inelastic demand for services.<sup>3</sup> At the sectoral level, it is natural to think of an economy beset by idiosyncratic disturbances which reject changes in tastes, terms of trade, technologies, or institutional interventions, and empirical evidence tends to support the view that these factors are responsible for long-term movements in unemployment.<sup>4</sup> One of the first models to consider this in general equilibrium was extended this analysis to include multi-sectoral models. In the former, a two-period, two-sector model with permanent sectoral shocks is analyzed. Rogerson (2015) proposes a variant of the Lucas-Prescott model which allows for multi-lived agents and sector-specific human capital. In which workers always move from declining to expanding sectors, workers from a declining sector might well end up non-employed. This analysis thus allows for a richer set of worker histories. More recently, the importance of the costs workers face when switching their sector of employment, as well as the role of labor supply and demand factors in the growth of the service sector. In order to do so, they estimate a two-sector growth model with aggregate and idiosyncratic shocks for the US economy. These mobility costs are large, and that demand side factors, namely technical change and movements in product and capital prices, were responsible for

the growth of the service.

## **1.1 The important of labor market**

The global financial crisis has underscored the importance of intervening in the labor market to protect workers and promote better employment outcomes. In both developed and developing countries, active labor market policies (ALMPs) have proved to be successful in averting lay-offs (for example through job retention), increasing employability (training), creating job opportunities (wage/job subsidies). Many of these are planned and implemented through public employment services. Interventions to support income are also essential to cope with the loss of salaries and prevent poverty. While such measures are typically provided in richer (OECD) countries through unemployment benefit systems – so-called passive labor market policies – other schemes have been introduced or expanded in poorer countries, although these programs often cover only a small proportion of the population. The rights of workers can also be protected through labor market institutions such as wage-setting institutions, legislation on employment protection, mandatory social benefits or minimum wages – and enforcement of the legislation. How have labor markets been adjusting to economic shocks? And to what extent has the policy and institutional mix been able to provide fair adjustments. The debate on the economic effects of labor market regulations, policies and institutions has been going on for over two decades and is still conflictual and divisive. One lesson learnt from the East Asian financial crisis in the 1990s is that the lack of institutions and programs, especially established social security schemes, and hindered how these countries could respond to the impact of the crisis on their labor markets and thus on household wellbeing. Developing countries face many challenges in building well-functioning labor market policies and institutions including the lack of fiscal space and inadequate administrative/institutional capacity. In addition, social dialogue is often weak, the formal sector underdeveloped and labor regulations poorly enforced.

## **1.2 Economic impact of international migration on developed countries**

### **1.3 International regulation of labor market**

Countries can adopt a range of approaches to regulate the functioning of their labor market. Mechanisms can be market-based, statutory, or based on collective voice. All coexist, to varying degrees, in every society. Where there is a reliance on market-based mechanisms, labor markets are often characterized as “unregulated.” However, Standing argues that this should be viewed instead as one approach to regulating employment relations. And, indeed, it is a policy choice to use legislation and other regulatory instruments to this end. At the heart of market-based regulation is the individual contract (either explicit or implicit) between employer and employee. There has been a modest trend towards greater dependency on market mechanisms over the past decade or so – at least in developed countries where most of the available evidence exists (OECD 1999a). However, there are well-known arguments for public policy intervention in the labor market, as well. These arguments pivot on the need to address market failures and injustice/exploitation. In the World Development Report, *Workers in an Integrating World*, the World Bank (1995) highlighted four reasons for public intervention in the labor market:

- Uneven market power. Workers may find themselves in a weak bargaining position. This can raise concerns about their protection from unjust treatment. It can also have longer-term efficiency losses.
- Discrimination. Workers belonging to groups with little voice or power (e.g., due to age, gender, ethnicity, etc.) may experience particular disadvantages in the labor market. This also raises both equity and efficiency concerns.
- Insufficient information. Workers and some employers may not have adequate information to make informed decisions about the conditions of work. Health and safety hazards are the classic example.
- Inadequate insurance against risk. Workers are typically unable to formally insure themselves against labor market-related risks associated, for example, with Unemployment, disability, or old age. These arguments underlie public policy interventions to support the other modes of labor market regulation. Statutory regulation is the classic notion of regulation -- rules and procedure established by laws and decrees that govern aspects of the employment relationship. These can cover a wide range of areas: for example, the establishment and protection of universal worker rights; the protection of vulnerable groups of workers; principles for determining Compensation; working conditions; and the initiation and termination of the employment relationship.

**Table 1 provides examples in these areas of statutory regulation**

Type of intervention	Specific examples
Establishment and protection of universal workers rights	Right to associate Right to bargain collectively Right to contest dismissals and disciplinary actions
Protection of vulnerable groups	Minimum working age Equality of employment opportunities Equal pay
Determining compensation	Minimum wage

	Overtime payments Mandatory non-wage benefits
Working conditions	Occupational health and safety standards Maximum working hours Minimum number of holidays
Initiation/termination of employment relationship	Fixed-term contracting Reasons for dismissal Advance notice and severance requirements

Source: Based on World Bank (2015).

The other mode of regulation, collective voice, refers to the voluntary negotiation and administration of the employment relationship where workers (and sometimes employers) are represented collectively. This mode of regulation can occur at different levels (e.g., enterprise, sector, or nationally) and with various degrees of coordination. In developing countries, only a minority of workers are covered by collective bargaining; often this minority is quite small and concentrated in the public sector. Moreover, the reach of the collective voice mode likely has receded somewhat if union membership trends are any indication. As Table 2 indicates, union membership declined in many countries during the late 2012 and through the 2016.

**Table 2 Union Membership Trends by Region, mid-2012s to 2016**

	Decline of more than 10 points	Decline of up to 10 points	Gain of up to 10 points	Gain of more than 10 points
Africa	Kenya (-25)	Egypt (-4) Mauritius (-9) Uganda (-4) Zambia (-6)	Zimbabwe (+2)	South Africa (+27)
Latin America	Argentina (-29) Costa Rica (-13) México (-17) Venezuela (-13)	Colombia (-4) Dominican Rep. (-2) Guatemala (-4) Uruguay (-8)	Chile (+4) El Salvador (+2)	
Asia	India (-11)	Bangladesh (-8) Pakistan (-1) Thailand (-0.1)	Korea (+0.4) Philippines (+6)	

Eastern Europe and Central Asia	Azerbaijan (-33) Czech Rep. (-34) Estonia (-46) Hungary (-20) Poland (-25) Slovakia (-15)	Bulgaria (-4) Cyprus (-9) Romania (-10)	Turkey (+4)	Malta (+17)
Industrialized	Australia (-20) Israel (-77) New Zealand (-22) Austria (-13) Greece (-12) Ireland (-14) United Kingdom (-13)	Canada (-7) United States (-4) Japan (-6) Singapore (-4) Denmark (-3) France (-4) Germany (-10) Italy (-4) Luxembourg (-6) Netherlands (-5) Norway (-1) Switzerland (-4)	Hong Kong (+4) Belgium (+3) Finland (+10) Spain (+7) Sweden (+7)	
Total number [%]	19 [32.8]	26 [44.8]	11 [19.0]	2 [3.4]
Developing countries	12 [35.3]	14 [41.2]	6 [17.6]	2 [5.9]
Developed countries	7 [29.2]	12 [50.0]	5 [20.8]	0 [0.0]

Source: ILO (2000a)

Obviously, the effectiveness of different modes of regulation can vary greatly depending on the particular circumstances. A statutory approach may achieve its intended objectives in one setting but be inappropriate or unenforceable in another. Similarly, markets operate with varying effectiveness, as does collective bargaining. However, each of these modes of regulation does have inherent strengths as well as potential risks. These are summarized in Table 2

**Table 3: Some Potential Strengths and Risks of Market, Statutory, and Collective Voice Regulation**

	Potential strengths	Potential risks
Market-based	Enhances flexibility Efficient allocation Low transaction costs	Market failures “Short-termism” Discrimination
Statutory	Predictability Can address equity concerns Provides monitoring mechanisms	Rigidity Monitoring costs Moral hazards
Collective voice	Can promote long-term investments Provides self-monitoring	Time consuming Insider-outsider differences

Source: ILO (2000a)



There is considerable variation across countries in terms of how labor markets are actually regulated. An important determinant is the national legal and cultural tradition. In countries with Anglo-Saxon heritage where common law principles prevail, voluntarily negotiated contracts between workers and employers (either individual or collective) typically play a large part. In principle, statutory regulation plays a smaller role here in directly regulating the employment relationship than it does in countries with civil law principles (e.g., French or Spanish tradition) or in countries that were part of the Soviet bloc. The stage of development does not seem to be an important determinant of labor market regulation, at least in its formal sense. Developing countries often have very strong statutory regulation through interventionist Labor Codes, for example. However, due to institutional limitations and economic structure, labor markets in many developing countries are actually regulated largely through market or informal means.

## **Chapter 2 .Analysis of the global labor market**

At a time of rapid global change, understanding labour market dynamics and the supply and demand for skills is vital for businesses and governments alike. Whether it is analysis of the effect of regulatory changes on businesses or assessing the supply of essential skills, our team of economists has many years of experience in developing labour market insights for corporate and government decision makers. Our tools include the Oxford Economics' Global Economic Model as well as econometric evaluation techniques and forecasting models. Our labour market analysis capabilities include:

Strategic business workforce planning in times of market transformation.

Evaluating policy and regulatory changes affecting employment, wages and skills.

Gauging the state of the labor market for different skills across various geographies.

Assessing country, sub-regional and city labor market conditions and skill requirements.

Forecasting the evolving skills needs of sectors of the economy.

Market-sizing of education and training markets across the globe.

Furthermore putting consideration five kinds of data that have been used to analyze the global labor markets – micro cross-sectional data, panel data, aggregate cross-sectional data, time series data, and experimental data – and present examples of empirical studies that have used each.

A. Micro cross-sectional data.

Micro data sets exist for most developing countries. A typical issue of any of the leading development economics journals contains a number of papers using such data sets. Studies analyzing micro data enable researchers to find out what makes a difference at the level of the individual worker or the individual household. This type of data analysis is at the core of most contemporary research studies on labor markets, and the literature using such data is correspondingly huge.

B. Panel data.

Panel data analysis is a relatively new and promising approach in developing countries. Panel studies follow the same individuals or families over time. Such studies enable development processes to be analyzed in ways that analyses of comparable cross-sections cannot. Two areas in which a great deal of policy-relevant knowledge has been gained are the effects of policy interventions on treated individuals and the determinants of income and earnings mobility. On the first topic, studies of policy interventions estimate such measures as the average treatment effect, the average treatment effect for those treated, and the distribution of treatment effects for different individuals. Heckman and Ravallion are among those who present comprehensive overviews of the relevant issues in estimating

such magnitudes. Empirical research of this type has proved informative in the context of developing countries. One example is the study by Kugler of a policy change in Colombia, which replaced its earlier system of severance payments with a new system of mandated severance payments savings accounts (SPSAs). Kugler's question was whether part of this obligation was shifted to workers in the form of lower wages. Using a difference-in-difference-in-difference estimator, she concluded that 60-80% of the total SPSA contributions were shifted to workers in the form of lower wages, thus disproving the view held by some that such mandates would be "free" to the workers.

### C. Aggregate cross-sectional data.

The analysis of aggregate data is a useful and often-neglected starting point for policy analysis, permitting answers to questions such as the following. Do workers participate proportionally in economic growth? More generally, how do labor market conditions change during times of growth and decline? How do the outcomes in one country compare with those in another? How do changes in labor market outcomes for one population sub-group compare with those of another? Is economic growth jobless, and if so, under what circumstances? The general result that has come out of such aggregate data analysis for a limited number of countries is that economic growth has generally led to improved conditions in labor markets as gauged by indicators such as the rate of unemployment, composition of employment, real earnings levels, earnings inequality, and poverty. Conversely, when such labor market aggregates have not improved, typically it is because economic growth has not taken place. This line of research suggests that to improve labor market conditions for workers in general and for the poor in particular, economic growth should be sought. The pessimistic view - that workers have been left out or even made poorer when economic growth has taken place - is not supported by the data as a generalization.

### D. Time series data.

The simplest kind of time series data is that which follows given variables within a country over time. Time series data allow for the determinants of changes over time to be modeled explicitly. For example, the wage elasticity of formal sector labor demand in South Africa was estimated using such data; Fields, Leibbrandt, and Wakeford present their own and earlier estimates. Despite differences in time periods and estimation methods, these studies concurred that the range of estimates was on the order of -0.4 to -0.6 – certainly not zero. This finding led policy-makers in that country to recognize that the push by the Congress of South African Trade Unions for higher wages would likely result in reduced formal sector employment. A more comprehensive kind of data combined time series with cross sections – that is, time series are presented for a number of countries or for groups or regions within countries. Such is the case for a study of the effects of labor market regulations in India. Besley and Burgess used time series data for each of India's states to assess the effects of amending India's Industrial Disputes Act in an allegedly pro-worker direction. Using sophisticated econometric methods, they estimated that the legislation had led to an informalization of the economy and to higher urban poverty than would have been the case without the amendments. Like Besley and Burgess, Ahsan and Pagés also used cross-section time-series methods. Their main result was that *de jure* legal amendments and *de facto* use of contract labor hurt formal sector workers and imposed substantial costs on society.

#### E. Experimental data.

A burgeoning literature in development economics uses randomized field experiments to find out what works in practice. Here are three examples of the kinds of lessons to come from this kind of literature. First, to address the problem of teacher absenteeism in India, teachers in randomly selected schools were given a camera with a tamper-proof date and time function and told to take a picture of him/herself and the students at the beginning and end of each school day. Teachers were offered a bonus based on the number of days they actually came to school. The evaluation results (Duflo and Hanna, 2005) showed that the absence rate in

the treatment schools (22%) was half of that in the control schools (42%). A second example of randomized treatment in the labor market is the Colombian workfare program *Empleo en Acción* (Employment in Action). In an evaluation of this program, Attanasio, Meghir and Vera-Hernandez (2007) found that the program positively influenced the number of hours worked and both individual and household labor income. Household income increased more than individual's income, indicating that the program had some positive externality on the other members of the household. A third application of experimental methods is in the evaluation of job training in Latin America. In one study, Card et al. (2007) studied the Dominican Republic and found that 12 job training had no significant impact on the likelihood of having a job, but it did have a marginally significant impact for wages and also for having health insurance coverage conditional on being employed. Another randomized evaluation of a training program is reported by Attanasio, Kugler and Meghir (2007) for Colombia. Contrary to Card et al.'s findings for the Dominican Republic, this study found that in Colombia job training had large, widespread effects on women, but fewer and less pronounced effects on men. Literally hundreds of experimental studies have been completed, and a great many others are under way.

## **2.1 Definition of world labor market**

A labor market is the place where workers and employees interact with each other. In the labor market, employers compete to hire the best, and the workers compete for the best satisfying job.

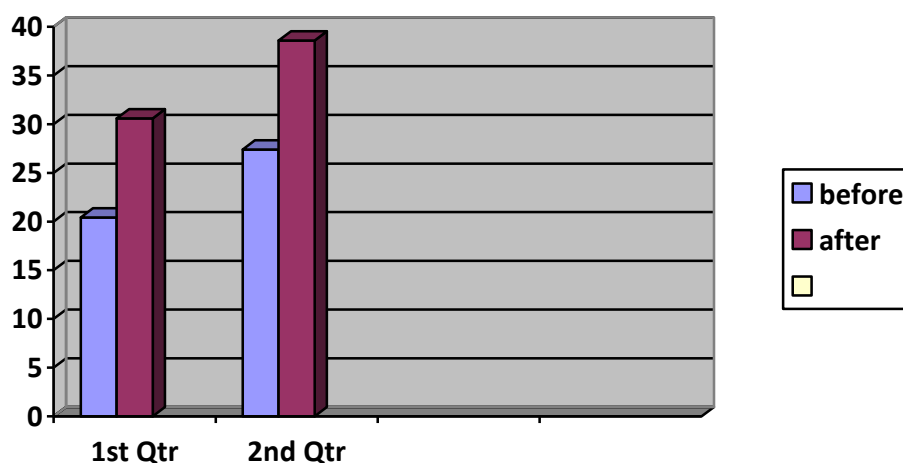
A labour market in an economy functions with demand and supply of labour. In this market, labour demand is the firm's demand for labour and supply is the worker's supply of labour. The supply and demand of labour in the market is influenced by changes in the bargaining power.

Before the collapse of Soviet Communism, China's move-ment toward market capitalism, and India's decision to undertake market reforms and enter the

global trading system, the global economy encompassed roughly half of the world's population comprising the advanced Organization for Economic Cooperation and Development (OECD) countries, Latin America and the Caribbean, Africa, and some parts of Asia. Workers in the United States and other higher-income countries and in market-oriented developing countries such as Mexico did not face competition from low-wage Chinese or Indian workers or from workers in the Soviet empire. Then, almost all at once in the 1990s, China, India, and the former Soviet bloc joined the global economy, and the entire world came together into a single economic world based on capitalism and markets.

This change greatly increased the size of the global labor pool, from approximately 1.46 billion workers to 2.93 billion workers (Figure 1). I have called this “the great.

**Figure 1** Old and new global labor markets



*Source:* Employment from ILO data, <http://laborsta.ilo.org>, 2000. Capital/labor ratio, calculated from Penn World tables, scaled so “before” is 1.0.

*Note:* “Before” shows the labor market that would have existed in the global capitalist system in 2000 if China, India, and the former Soviet bloc had remained outside the global economy. “After” shows the labor market with the addition of the workers and capital from those countries

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By bringing modern technology and business practices to most of humanity, current global capitalism has the potential for creating the first truly global labor market. Barring social, economic, or environmental disasters, technological advances should accelerate, permitting huge increases in the income of the world and eventually rough income parity among nations. But even under the most optimistic scenario, decades will be required for the global economy to absorb the huge workforces of China, India, and potentially other successful developing countries. After World War II it took 30 or so years for Western Europe and Japan to reach rough parity with the United States. It took Korea about 50 years to move from being one of the poorest economies in the world to the second rung of advanced economies.

## **2.2 Analysis of European labor market in the crisis**

### **Context**

on labor market policies and lower rigidity in labor market institutions and product market regulation". In fact, the literature devoted to the impact of institutions and public policies on labor market outcomes is very wide. Moving now to the literature that deals with the causes and consequences of the crisis, to identify some of the main reasons of the recession using a cross-country analysis. Their research emphasizes the fact that countries with higher income and not so tight credit regulations have been more affected by this economic downturn, while countries with current account surpluses have managed to easier overcome recent difficulties.

The fall in production being caused by the decrease in labour demand and the decline estimated to be recorded in peoples' income, due to the same reason, is supposed to generate a fall in the demand of goods and services. This creates a spiral in which economic outcomes are strongly linked to the labour market performances. The methodology and results of the principal component method,

cluster analysis and regression analysis are presented in this direction. According to OECD (2015), “in a number of countries, employers made extensive use of hours reduction as an alternative to layoffs” while in public sector “short-time work schemes played an important role in preserving jobs during recession”. Yet, certain labour force groups have been more affected than others: “times are hard for workers on temporary contracts and people with lower levels of education” Although in 2010 (most recent year for which statistics are available at this time) the first signs of economic recovery became visible, in terms of labour market results, it will take time before unemployment and employment will return to pre-crisis levels. According to ILO (2011), globally, the main features of the current period and of the near future are high unemployment, a recovery in growth without a comparable recovery in employment, industrial employment most affected, growing number of discouraged youth, stagnating progress in reducing vulnerable employment and slowed progress in reducing working poverty. On the whole, economic performances begin to improve, but risks remain. In this context, the main aim of this paper is to investigate the determinants of labour market dynamics in EU-27 before and after the crisis and to analyse their impact on the process of economic development. The objectives refer to assessing the persistence in time of labour market phenomena and differences between European countries in terms of these trends, exploring the existence of groups of countries with similar performance and whether these groups remained unchanged before and after the crisis, analyzing the main determinants of labour market performance and how they influence countries’ competitiveness. The key drivers of labour market dynamics in the European Union countries and their impact on economic performances have been largely documented in both theoretical and empirical literature. The purpose of this paper is not to explore the results of these articles, but rather to focus on studies that address the effects of the recent financial and economic crisis. But first, it is important to take a look at how labour market looked like in the years before the economic recession. Perugini and Signorelli (2007), examining differentials, dynamics and determinants of labour market performances in EU-15, found



evidence of widely and somehow unexpected improvements in labour market performances at the European Union level. Without having as main goal identifying the reasons of these positive evolutions, the authors point to the European Employment Strategy, as an important factor that cannot be excluded. Rovelli and Bruno (2008) reinforce the idea that evaluating the health of the European Union economies can be done in close relation with their labour markets performances. A key element of labour market outcomes is represented by the social policies adopted in different countries. Starting from the four types of social policy models (Nordics, Anglo-Saxon, Continental and Mediterranean) the authors prove that, as expected, countries with higher rates of employment are those that have “higher expenditures Which have been the groups of countries or social models that best cope with the recent years’ difficulties and have these groupings remained constant over time? As already mentioned in the literature review, Boeri (2002) and then other scientists like Sapir (2006) and Rovelli and Bruno (2008) included European countries in four social groups and examined their performances according to these models. Based on their outcomes, our study concentrates on analysing the 27 European countries as clusters (created according to the labour market outcomes and overall economic performance) and assessing the changes within and between these groups, due to recent economic downturn.

Which are the determinants of labour market results and what is their impact on the process of economic development? A large body of research has been devoted to the factors that can explain differences in labour market performances across countries or regions.

From these studies four categories of drivers emerged as most significant: composition of labour force and unemployment, institutional variables, structural shocks, business cycle. One innovation of this paper is related to our intention to measure the labour market outcomes in relationship with economic performances in the 27 European Union countries by means of panel data models. To answer the first research question, labour market trends in the EU-27 countries have been

examined during the period 2000-2010 and separately by sub-periods (before and after the economic crisis) using descriptive statistics and simple econometric models. To this end, the following indices have been computed and the next equations have been estimated:

**1. Spearman's rank correlation coefficient:**

$$S = 1 - \frac{\sum d_i^2}{n(n^2 - 1)}, \quad (1)$$

where  $d_i$  are differences between the ranks of each observation of the variables  $x$  and  $y$ .

**2. Kernel density:**

$$\hat{f}_h(x) = \frac{1}{nh} \sum_{i=1}^n K\left(\frac{x - x_i}{h}\right), \quad (2)$$

where  $K(\cdot)$  is the kernel function,  $h$  is the bandwidth parameter and  $n$  the number of observations.

Applying OLS we obtain:

$$\hat{Y} = [X \quad X]^{-1} X' Y \quad (7)$$

random effects ( $u_i$ )

model (RE): 
$$y_{it} = x_{it}'\beta + u_{it} + \varepsilon_{it} \quad (8)$$

where  $x$  is formed of  $K$  regressors,  $y$  is a vector for the dependent variable,  $\varepsilon$  and  $u$  are two random variables.

Generalized Least Squared method:

$$\hat{\beta} = (X'IX)^{-1}X'Y, \quad (9)$$
 where  $I_n$  and  $I_T$  are identity matrices of dimension  $n$  and  $T$ , respectively,  $i_T$  being a column vector of 1, dimension =  $T$ .

To apply such techniques, several conditions regarding the absence of autocorrelation and heteroscedasticity of disturbance components ( $u$  and  $\varepsilon$ ) need to be satisfied and also the availability of  $\sum$ .

### 3.Descriptive Statistics and Compared Evidence

Throughout the period 2013-2016, labour market performances consistently improved in all the 27 European countries, but specific dynamics were affected by the baseline conditions in individual countries (e.g. until late 1990s, post-communist countries were still undergoing through major transformation process).

At the European Union level, as a whole, the number of employed increased on average by 2.3 millions (1.1%) every year, reaching over 215 millions people in 2007. The most jobs were created in Spain, France and Italy, while, in relative terms, Mediterranean countries (Spain, Cyprus, Italy, Greece) and Central and Eastern European (CEE) ones (Latvia, Bulgaria, Estonia, Slovakia) experienced the greatest improvements. In addition, it is worth noticing the average increase of employment by 3.2%, every year, in Ireland, the second best performance after

Spain and Cyprus, but also the negative result of Romania (employment declined, on average, by 1.2%, every year) (see Table 3).

During the same period of time, at EU-27 level, female employment increased on average by 1.6%, every year, a net annual job creation of approximately 1.4 million. This was a widespread phenomenon, in some countries the growth rate of the number of jobs occupied by women being almost double compared to the growth rate of total employment (Germany, Portugal and Netherlands) (see Table 3.1)

**Table 3** 1 Total and Female Employment – Average Annual Changes (absolute value and %)

Countries	Total employment				Female employment			
	2013-2014		2014-2016		2013-2016		2014-2016	
	(1000)	(%)	(1000)	(%)	(1000)	(%)	(1000)	(%)
EU-27	2,342.5	1.1	-2,656.9	-1.2	1,426.3	1.6	-586.7	-0.6
Belgium	40.1	1.0	18.5	0.4	30.0	1.7	21.6	1.1
Bulgaria	62.9	2.1	-147.9	-4.6	29.9	2.2	-59.8	-3.9
Czech Republic	33.0	0.7	-61.9	-1.3	8.0	0.4	-28.3	-1.3
Denmark	9.0	0.3	-69.7	-2.5	6.2	0.5	-20.8	-1.6
Germany	215.2	0.6	-82.6	-0.2	193.4	1.2	9.8	0.1
Estonia	11.0	1.9	-40.9	-6.7	5.6	1.9	-14.2	-4.6
Ireland	59.0	3.2	-127.5	-6.4	30.7	4.0	-32.2	-3.6
Greece	61.1	1.5	-83.6	-1.9	33.8	2.1	-12.1	-0.7
Spain	687.4	4.0	-899.4	-4.6	381.9	5.7	-189.3	-2.3
France	315.8	1.3	-101.2	-0.4	220.3	2.0	-12.4	-0.1
Italy	299.1	1.4	-257.0	-1.1	201.0	2.4	-53.2	-0.6
Cyprus	11.4	3.6	0.6	0.2	6.4	4.6	1.3	0.8
Latvia	22.2	2.3	-78.7	-7.6	10.6	2.2	-27.8	-5.4
Lithuania	19.5	1.4	-85.3	-5.9	7.1	1.0	-23.6	-3.2
Luxembourg	3.1	1.7	8.4	4.1	2.5	3.2	4.3	4.8
Hungary	13.0	0.3	-49.6	-1.3	7.8	0.4	-5.8	-0.3
Malta	1.8	1.2	1.7	1.0	0.9	2.0	1.4	2.5
Netherlands	75.2	0.9	-120.4	-1.4	62.7	1.8	-39.2	-1.0
Austria	40.8	1.1	0.6	0.0	26.8	1.6	13.9	0.7
Poland	120.3	0.8	80.8	0.5	52.3	0.8	68.3	1.0
Portugal	16.1	0.3	-104.4	-2.2	14.5	0.7	-30.0	-1.3
Romania	-106.7	-1.2	-30.1	-0.3	-65.0	-1.5	-25.6	-0.7
Slovenia	11.4	1.2	-16.9	-1.7	4.3	1.0	-5.6	-1.3
Slovakia	36.4	1.7	-58.1	-2.4	9.9	1.0	-18.8	-1.8
Finland	19.9	0.8	-43.6	-1.8	12.6	1.1	-14.9	-1.2
Sweden	40.8	1.0	-28.2	-0.6	18.6	0.9	-13.6	-0.6
United Kingdom	223.8	0.8	-280.6	-1.0	113.4	0.9	-80.0	-0.6
Min	<b>-106.7</b>	<b>-1.2</b>	<b>-899.4</b>	<b>-7.6</b>	<b>-65.0</b>	<b>-1.5</b>	<b>-189.3</b>	<b>-5.4</b>
Max	<b>687.4</b>	<b>4.0</b>	<b>80.8</b>	<b>4.1</b>	<b>381.9</b>	<b>5.7</b>	<b>68.3</b>	<b>4.8</b>

Source: EUROSTAT, 2011; own calculations

Now it is recommended to look more closely at the distributions' shape and evolution of three variables that reflects labour markets performances and overall economic outcomes: unemployment rate, non-employment rate and GDP per capita, to cast some light on the disparities within the European Union. Our decision to use non-employment rate along with unemployment rate is related to measurement and comparability issues raised by the second indicator employment rate (%) and try to measure the part of the population of working age (15 to 64 years) that could perform work (i.e. unused labour potential, in a given period of time), unlike the unemployment rate which refers to a specific category of population (e.g. unemployed according to the guidelines of the International Labour Organization). The intention was to bring additional consistency to the comparative analysis that has been performed. As is duly confirmed by the box-plots in Figure 1, differences between EU performers and those with poor performances remain high, no matter if assessed before or after the crisis. Moreover, in terms of unemployment rate and GDP per capita, 2010 results announce the beginning of an increasing tendency of these differences. In 2010, excepting Luxembourg, GDP per capita ranged from 32,800 PPS per inhabitant (in Netherlands) to 10,600 PPS per inhabitant (in Bulgaria), while the difference between the lowest unemployment rate (4.4% in Austria) and the highest (20.1% in Spain) was of 15.7 percentage points, an increase by 1.4 percentage points compared to previous year. Only when assessed in terms of non-employment rate, EU countries tend to have more and more similar performances, but this fact is mainly due to worsening conditions in the advanced countries. The same reality is emphasized by the k-density graphs, namely, the tendency of polarization and formation of two groups of performers (see Figure 1.1). In absolute terms, graphs and Spearman coefficients show that examined phenomena are persistent over time (see Figure 2). In this sense, the highest rank correlation coefficient, recorded for GDP per capita (0.990) means that, on the whole, countries kept their

positions before the crisis. Among them, during 2008-2010 only Germany has improved its performances, going up two places, while UK, Portugal and Hungary fell two positions. If regarding non-employment rate the situation is similar to that reported for GDP per capita, with respect to unemployment, countries changed their positions, in some cases quite significantly: Ireland, Portugal, Hungary (worsened their performances), Bulgaria and Poland (improved their positions).

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