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Economic Theory

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FROM INDUSTRIAL TO INFORMATION SOCIETY

Abstract

The analysis of the factors that stimulate transition to the information economy and the accompanying trends in development allows to outline more clearly and logically a set of questions that demand state regulation. Changes in the economic system create preconditions to the formation of a new type of labour relations in the labour market. In view of this, a proposed mechanism for realizing and balancing interests and social protection of the employed is of significant interest to both theorists and practicians.

Key words:

Digital divide, employment, employment phases, global economy, labour and innovations market, labour relations, servisation of economy, social protection.

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1. General Tendencies

The best times of the «new economy» have undoubtedly passed. The fall of numerous start-ups was impressive while expectations of weakening market fluctuations, steady rise of the stock exchange, permanent productivity growth, and full employment under zero inflation appeared to be untimely. However, it would be wrong to draw a hasty conclusion that absolutely nothing happened, and the «new economy», from a historical and economic viewpoints, could be comparable to growth in the tulip industry in Holland in the early XVIIth century. Because of such appraisal, we risk underestimating the historical changes which are generically incorporated into the notion of «new economy» and which imply transition from industrial to information and service economy.

The transition to another social and economic conjuncture, to the stage of «digital capitalism» development, is not fiction, but an ongoing process of decisive influence upon total value-added formation, markets and companies, and labour sphere.

What are the most important factors of the transition?

Firstly, it is a tendency toward economy's servisation, i.e. an increase in the services' share in the structure of an economy observed for decades. Throughout recent years in Germany, the growth of employment has been taking place exceptionally in the services sector, resulting in significant structural changes within the economy. The number of the employed in the services sector in West Germany was by 4.2 million people larger in 1998 than in 1985. By the way, almost two-thirds of the employed work in this sector. The share of the employed in the processing industry decreased by one third (1.1 million people) during the same period. The services sector of East Germany performed even better, which was not as much a reflection of successful structural changes as a consequence of severe deindustrialization after the reunification. In the USA in the services sector worked 65 out of 100 employed already in the early 1970s; today, 80% of the employed are engaged in processing or generating information and providing services, not in production. The Jeremy Rifkin's «Everything will become a service» is, certainly, incorrect in its shortened version because it denies the no less important production, though reflects a steady tendency in development.

Secondly, characteristic of the transition is the fact that economic processes are becoming more and more knowledge-based. The role of science-intensive branches increased in the production and services spheres, where the production volumes of the science-intensive products and services increased due to an above-than-average rise in value-added. Thus, the US real output (in tons) is the same as a hundred years ago, but its economic value is 20 times larger. This situation can be primarily explained by the fact that these goods appreciated so that to account for human knowledge invested in them. For example, we could recall the ABS brake system, which was the result of a decennial

research and development. Consolidation of an employment structure also reflects an increasing importance of knowledge in the economy. In the 1990-s, the average employment growth rate of the so called «knowledge workers» was 3.3% in the EU and the USA. During this period, the number of «service workers» increased by 2.2%, «management workers» – by 1.6%, and «data workers» – by 0.9%; the number of production workers has been decreasing in average by 0.2% annually.

Thirdly, the economy is being digitized. Within this process, even more goods and services «dematerialise» and attain an ability to be produced and sold via electronic systems. The digitalisation and electronic systems development enable companies to meet their growing requirements concerning management and coordination, act more flexibly and quickly, use knowledge more effectively, extend the sphere of knowledge application, facilitate access to the market, and cooperate «virtually» with business associates, clients, and suppliers. Efficiency enhancement and transaction costs reduction, which are expected from and attained by shifting all business processes into the Internet, are of decisive importance. The survey of 2,852 German enterprises in 2000 proved that 68% of the companies have been expecting an «increase in the efficiency of business operations» in response to implementation of the electronic record keeping while 51% of the companies have been expecting a «decrease in transaction costs». According to empirical studies, in five European branches the procurement costs could be reduced from 20% (air- and textile industries) to 80% (pharmaceutical industry). The digitalisation and electronic business operations are a cost-saving and rationalizing program for an overall economy. Moreover, an information exchange facilitated by means of the Internet makes markets more transparent, effective, and competitive.

In view of the above, it becomes obvious that the aforementioned tendencies do not omit any sector of an economy, which is what globalisation is about. These tendencies penetrate the processes of goods and services production, trade, education, mass media, and administration (the latter being proved by a great number of projects such as «e-government», «virtuelles Rathaus», etc.). Taking into consideration the universality of these developments, mainly the implementation of these technologies in all spheres of the economy, it would be rational to distinguish among branches by the level of the Internet technology penetration. However, in the future there will be no Internet companies, but only the companies that will use the Internet for their purposes. When the potential of new technologies exhausts, the economy transforms not in part, but as a whole. Thus, a schematic contrasting of the «new» and the «old» economy seems to become even more obsolete.

Notwithstanding the influence of the transformation, main impulses are apparently generated by the information economy sectors and contribute to the development of electronic systems in the economy. Information economy promotes economic growth, which has resulted in significant employment growth recently. Moreover, this sphere is an important field for testing new forms of cor-

porate and labour organization, labour relations and employment structures in particular, which influence other branches as well.

What requirements arise from the analysis of historical and economic changes caused by the tendencies mentioned above?

Most importantly is to realize that the transformation of the industrial into the information and service economy does not automatically lead to progress, but requires governmental regulation and control so that to limit possible negative externalities. The understanding of this appeared after the fall of the first euphoria in the mid-1990s and was reflected in many concepts and specific political arrangements.

Recommendations are usually very general in nature. From the trade unions' standpoint, a central role is assigned to the following aspects:

1. Considering the stable tendency toward the economy's servisation, successful development requires that structural transformation be accelerated and the opportunities of the services sector's employment potential used. The potential is concealed in the high-quality science-intensive services provided by close-to-production spheres, information economy, environmental sphere, bio- and genetic technology, educational and cultural spheres, schooling, health protection, and social security. It is obvious that politics is not the last mechanism to provide appropriate conditions for development of the aforementioned tendencies. High-quality services imply skilled employees, as well as sensible labour conditions and income. The repeatedly recommended way to develop labour potential through labour-cost reduction strategy can not provide stable employment growth.

2. It is necessary to respond to the increasing importance of knowledge and innovations by implementation of the human-resources support strategy and consolidation of the innovative capacity of enterprises and organisations. High-quality education and knowledge of technology, as well as the right to implement new technology, are gaining significance in the economic process. For this reason, additional considerable efforts and investments at all levels of the educational system, including post-graduate education, are required. Technology and research policies should be reoriented towards an increased innovation competence of the enterprises and organizations which are usually limited by traditional forms of labour organisation and inherited managerial principles rather than lacking technical conditions. In order to solve this problem, trade unions proposed a program of innovative and employment-growth-oriented research and technology policy, improvement of opportunities for human creativity realization, and regional cooperation in the innovations sphere.

3. Considering the revolution caused by rapid expansion of the Internet, politicians and economists should force legislative modernization.

2. Revolution in the World of Labour

Naturally, the transition from industrial to information society influences the labour sphere and presses some governmental mechanisms to adjust. Within the tendencies shown and under the new business strategies of labour force attraction and use, the space and time structure of the world of labour, which has been firm until now, is changing, various new labour forms are emerging, and a new type of labour relations and conditions is unfolding.

By this we mean a so-called entrepreneur having his/her manpower. The pattern of labour relations which has dominated for the last hundred years and until now is losing its strength.

What are the driving forces of the reformation in the labour world? The following 5 seem to be the most important:

Firstly, it is the already mentioned tendency toward economy servisation and knowledge intensification, which certainly has not omitted the industrial sector as well.

Secondly, the labour sphere is constantly changing under the influence of technological revolution, mainly information and communication technologies. Future labour will turn into the «e-work» in most cases. For this reason, labour loses its initial dependence on time and place as it can be done at any time and in any place. At the same time, the following labour forms based upon information and communication technologies become wide-spread:

- concepts of the «flexible office»;
- variant forms of mobile work;
- electronic outsourcing;
- cooperation of separately located individual virtual teams.

Thirdly, the ongoing changes in the social labour system are being promoted by the new strategies of increasing the value of capital, which turn into different forms of labour organisation and labour attraction and use. Labour becomes more organized and result-oriented; it is often concerned with legal independence of the employee; a so-called project work is gaining greater significance.

Even though these entrepreneurial strategies are stimulated and facilitated by information and communication technologies on the one hand, they are also assisted, on the other hand, by special labour deregulating political programs, which constitute the fourth driving force. This broadens companies' opportunities to avoid various dependencies. Even more important might be a prolonged refusal to respond to crises by changing the regulation, as in the case of

the «pretended independence» where an obvious deficient state continued for such a long time that it appeared impossible to overcome it later.

However, the picture would be incomplete if the person's changed requirements to labour were not mentioned as an important factor of change, the aspect for too long omitted, ignored or underestimated by trade unions. Labour will change also because many people want to work differently; they are interested in labour autonomy; they want to find the best work-family combination; they seek for diverse activities without routine long-term objective of becoming specialists. And certainly, not all of the «newly independent» put on this status in response to their fear of unemployment; many of them search for independence and account for risks because of their desire to be truly self-determined.

What consequences do these driving forces have?

They influence the reorganization of the labour system by weakening traditional restrictions and norms, questioning stability, and omitting no cornerstone of the industrially normalized labour world. This revolution is associated with great hopes for improvement of the labour process. However, there will be no «new world of labour», at least it will not emerge by itself and will not be for everyone.

From this side of the «normal labour relations» appears a variety of the labour models which are somewhere between the hired labour and the independent entrepreneurship, between the full-time and the part-time working day, between the regular and the temporary work.

Trade unions suggest the following.

1. Industrial labour relations cannot differ in legal forms, as well as in the extent of legal labour protection and social providing. The unprotected areas should be eliminated. Obligatory social insurance and legal labour protection should be true for all labour relations, irrespective of the amount of working time. The systems of social insurance should expand in proportion to other forms of labour relations that develop along with the industrial ones. All of the employed should be involved in social insurance. Correspondingly, a minimum level of social security is so necessary as to reflect a socially growing differential among different kinds of labour relations.

2. In rejecting conventional labour relations, women and young people suffered the most. For certain types of work many spheres offer lower wages than the minimum social security level. They focus on providing the minimum income sufficient for a comfortable life.

3. Legislation and tariff agreements can facilitate the choice among different kinds of work and between employment and unemployment phases. All employees should have the right to additional vacations for improving qualifications or because of private reasons. Moreover, the employed should be protected from overload, for example, from a request to work without time limits.

4. With respect to telework and other forms of electronic work, the social standards which would determine the work time and the level of labour requirements should be set. The employed in these forms of labour cannot be ignored compared to other workers.

The issue of information society remains on the agenda of Bundestag that supports legally fixed minimum conditions for telework, which should ensure unified legal protection, eliminate legal uncertainty, and increase eligibility of this form of labour organisation.

5. More and more of the employed work via the Internet today. Since our labour law has appeared at the time when no computers and the Internet have yet existed, today it should be urgently modernized so that to meet all the requirements of the information society. This concerns also the legal protection of the employed since the Internet-workers require the Internet-legislation. This primarily concerns access: employees and trade unions should have free access to the e-mail systems and corporate intranets for communicating with each other. Even though the traditional enterprise as a spatial object is often liquidated when labour and communication processes shift to data networks, the traditional information and communication forms (e.g. billboard) should be supplemented with and replaced by their electronic versions. Access should not be limited to internal corporate networks, but include also the opportunities to use the Internet resources at the workplace in order to solve work-related problems, as well as to reach, to some extent, personal goals. The complete prohibition of the latter has no sense. Control over the employee's behaviour in the network is illegitimate. Although this sphere is characterized by many unresolved questions, the renewed law on employee data protection should ensure the legal framework.

6. In view of current tendencies, a new mechanism for balancing the interests of the employed with their social protection is needed. This requires that:

- the working group autonomy should be expanded by extending the law on tariff agreements;
- social security should be improved, e.g. by social insurance;
- the rights of the representatives of labour collectives should be extended to include labour relations with the specialists who work as independent entrepreneurs;
- the copyright reform, which means that the authors should have an opportunity to become equal partners with the users of intellectual property, should be implemented.

These requirements and recommendations aim not only at the legislator, but also at the employer, i.e. the partners to a tariff agreement.

3. Employment and Education

In times of mass unemployment, the key request to politicians and economists is to make labour «normal» for everyone. The issue of balancing the employment in transition from the industrial to the information and service economy, which arises with transition to «digital capitalism», is the most difficult. Despite many theoretical and empirical studies, this question remains unresolved. The following three aspects should, however, be undoubted:

1. Despite significant unemployment during previous months, the information society seems to continue being a powerful driving force in the employment issue for the nearest future. Analysts forecast from 1.5% to 2.5% employment growth by 2015. That is why political support to allocation of the information society's employment potential should be provided.

2. However, an overall economic impact of digital revolution upon employment should be viewed sceptically. The rationalization effect, which leads to dismissals, resists the creation and diffusion of innovations, which, in their turn, stimulate employment growth. These processes compete with each other and, at the same time, are parallel to the penetration processes which do not promote employment. This leads to a labour market failure: while a lot of new employment opportunities arise and the demand for skilled workers increases sharply, some sectors and regions face the shortage of workforce. In electronic commerce, for example, the rationalization of the traditional forms of buying and selling will result in the loss of numerous workplaces, which can be recompensed by other fundamentally new employment opportunities (software developers, etc.).

3. It follows that the «digital revolution» will not create a miracle of full employment, and the employment problems will not be solved by themselves. Therefore, it only remains to pursue an active policy of employment, labour market, and innovations; to conduct fair time-sharing and reduce working time; to struggle efficiently and continuously against unemployment.

With regard to these questions, the trade unions' recommendations are the following:

Firstly, the measures of developing new employment potential primarily in the services sector should be strengthened. Within the social and ecological strategy, the economic growth should be stimulated, which would consequently improve employment, for example, by means of:

- ecological reconstruction policy;
- adequate policy in the spheres of education and culture, as well as health protection, where government assistance is indispensable for the improvement of the services' quality and ensuring their availability to every citizen;

- extension and modernization of national infrastructure (transportation, energy, and communications).

Secondly, while supporting the creation of additional workplaces, it is necessary to use all of the opportunities related to fair labour distribution, in particular, by means of:

- reducing working hours on the basis of fixed maximum working time;
- promoting qualified, part-time employment;
- work-time accounting;
- eliminating overtime work;
- creating opportunities for combining work-time with the improvement of the employee's qualifications.

Finally, the last proposal concerns the sphere of education and professional preparation, which plays an important role under the conditions of modern structural reconstruction: knowledge is considered to be the decisive resource of economic growth, participation in social activities, and individual self-fulfilment in the knowledge society. In view of this, the reformation and development of an adequate education system is the key precondition to successful crisis resolution in transition to information society. Today on the agenda are: the legitimization of the right to postgraduate education, the implementation of education and labour policies, and the formation of the system of qualifications improvement, which should become a basis for lifelong self-perfection.

4. Digital Divide – the Obstacle to Global Knowledge Society

The problem of digital divide is viewed as an obstacle to the development of knowledge society, whose progressive potential should be useful for every citizen. This means that certain population groups use the Internet incongruently with their share in total population. Despite the growth of the Internet use, the threat of digital differentiation also increases, especially among the deprived (women, unemployed, countrymen). According to recent forecasts, in 2003, 21 million persons from 14 to 69 are excluded from using the Internet in Germany. If unmanaged, these structural drawbacks can cause a significant negative impact.

From such a viewpoint, the most important obstacles to the use of the Internet, especially the factors of «costs» (software and the Internet access costs), «acceptability» (of the Internet itself and its value), and «competence» (at using the Internet and IT), can be of different priority. While small unprofitable companies or teenagers consider the costs of purchasing and using the com-

puter to be a real obstacle, the old and the low-educated people underestimate the utility of the Internet or lack skills to use it.

This differentiation draws attention of German politicians as well. In order to overcome the obstacles, the following measures can be recommended:

- to provide financial stimuli to companies which work on eliminating these obstacles;
- to create opportunities to access the Internet for low-income users at public institutions;
- to conduct educational projects regarding the use of the Internet and other IT;
- to use the Internet as an instrument of qualifications upgrading and self-improvement;
- state departments should exemplify the organizations that use the Internet.

Digital differentiation is not, of course, an ordinary intra-social problem; it is the problem global in nature. Two viewpoints lay the foundation of the debates. The first is that there is a hope that Southern states could use IT to facilitate their integration into the global economy and to overcome their lagging development.

Such an optimistic view is opposed by the fears that the distance between the North and the South will not decrease, but, on the contrary, increase in the course of «digital revolution» since the rate of modernization in the centre significantly exceeds that of the periphery, and many countries of the third world will hardly have infrastructural preconditions, for example a functional «telephone-network-based Internet connection», to reach the modernization rate of the developed countries in the near future.

Even if forecasts were not regarded as final, the evaluations of empirical studies are pessimistic. On the one hand, it is obvious that the discrepancy between the available and the required information has increased globally while, on the other hand, the access to information has gained significance during the transition to the knowledge-based economy. The phenomenon of «digital divide» at closer examination turns out to be far from being new: it reflects and represents merely the «division of the mankind into the wealthy and the poor», which, in fact, does not make the picture any better...

Still, a considerable part of the world is simply lacking the Internet connection. Apart from the countries of South Asia, Africa is the main continent to demonstrate a serious gap in development, especially if we take into account that the data above consider the developed South African Republic as part of the Sub-Saharan Region, which reduces the estimated gap between the other African countries of the region and «the rest of the world». Insufficient density of the network is one aspect of the third world's digital divide, insufficient accessibility

of the Internet is another: the average price of using the Internet for a typical Internet-user is 1.2% of the monthly income in the USA, 60% – in Sri Lanka, 191% – in Bangladesh, 278% – in Nepal, and 614% – in Madagascar.

Without doubt, globalization is nowadays the powerful force of economic and political changes facilitated by progress in the information and communication technology, the Internet-based electronic networks in particular. Telecommunication networks constitute a technological infrastructure of the future information economy. The convergence of telecommunications and computers represents a precondition to globalization as well; similarly, for example, the railway is the precondition to the development of national markets during the industrialization process.

However, the global economy calls for new orientation, new sustainable-growth-based principles, high employment rate, social justice, as well as recognition of democracy and human rights that certainly include the rights of the workers and trade unions. The world markets call for efficient, transparent, and democratic regulation. International cooperation and powerful supranational institutions should be put to work so that to prevent globalization from transforming into the competition among the states and the people.

This primarily concerns labour, which moves beyond national boundaries and attains more mobility in the information society.

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