

Development of ICT and Labor Flexibility

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Many social scientific studies demonstrate the connection between the development of information and communication technology (ICT) and social inequality. This phenomenon is also described as "digital divide". The digital divide concerns the social inequality between and within countries that is based on possibilities of accessing and using the Internet (cp. Norris 2001). In fact, the gap continuously shrinks between those having access to the Internet and those who do not have access. Thus, some refer to the phenomenon of digital divide as a myth rather than a reality (cp. Compaine 2001). However, first of all the digital gap between countries and between population groups within a country – although declining – still exist and secondly, there are good reasons to believe that differentiation concerning the ability to use the Internet affects the social inequality between and within countries. Results of a study in the Netherlands suggest, for example, that a gap between early adopters and late adopters to the new technologies rather tends to increase than decrease over time. Therefore, the digital divide does not only coincide with old inequalities but rather causes new inequalities (Haan 2003). In general, rather than identifying a digital gap between those countries and parts of the population that use new technologies more frequently, the difference in skills on the one hand and the effects of the digital gap on countries and population groups on the other hand give interesting insights in the influences of the development of ICT.

Other studies show how flexibilization of labor is connected with a growing social inequality. That coherence is more often analyzed in US American studies, because there changes of the labor market are typically characterized with a growing inequality (Castells 2003, 313). But there are also German studies that show the correlation between social inequality, e. g. income inequality, and flexibilization (Groß 2000, Giesecke und Groß 2002).

How development of ICT is connected with flexibilization of labor and in consequence how the combination of both is responsible for a growing social inequality are only considered in a few exceptional studies. The goal of this paper is to introduce and discuss these studies and to point out open questions remaining in that context.

The underlying understanding of labor flexibility is broad. Not only forms of labor flexibility (such as part-time, temporary work) and flexible work conditions are regarded, but a global view of flexibilization will be discussed. This includes several definitions of flexibilization which will be introduced. From unemployment to the global phenomenon of deregulation various aspects of labor flexibility are included in the following analysis.

The conception of social inequality is based on the definition of the social structure of society as a situation, in which people due to their social relation structure regularly receive more from "valuable goods" than others (Geißler 2002, Hradil 2001). Concerning the ICT driven developments one must keep in mind that they do not need to be taken for granted, because they are mutually influenced by institutions as well as people involved in the process. Not only the diffusion of ICT, but also the possibility of shaping this diffusion should be regarded. Therefore, when we talk about the development of ICT we should rather talk about 'informatization' (German: 'Informatisierung') than about the development of ICT, because the latter does not include the social process of the changes. 'Informatization' encloses the above described social processes (Schmiede 1996, Boes 2005). All in all, the development of ICT provides increasing flexibilization possibilities that have not existed without the technological innovations. How these possibilities are used, who benefits from those, and who does not, highly depends on institutional influences.

In general, flexibility of labor is a value laden concept. Public and academic discussions emphasize the positive effects of increasing labor flexibility on innovation, competition and economic success (cp. Gutmann 1997). However, labor flexibility is not inevitably linked with positive economic and social development (Benner 2002). Flexible work is directly connected with economic success within the information economy, because only with flexible work direct reactions on the global market influences are possible. However, flexible employment¹ is only partially connected with the dynamics of competition and flexible work conditions. Frequently there are only short-termed motives for profit or institutional and legal frameworks that constitute flexible employment. In those cases it does not support innovation, but rather undermines success and causes inequalities (Benner 2002, 83). Especially, if one focuses on the impacts on employees, negative aspects of flexible labor can be observed.

Social and digital divide

In his analysis considering a connection of social and digital divide Johann Welsch uses the established definition of flexibility, concentrating on the phenomena of external flexibilization like the development of part-time work and unemployment (Welsch 2005). He defines social divide as the differences in possibilities of having access to the employment system and being able to improve ones skills by participating in the employment system. Welsch sees possibilities and abilities concerning the use of the Internet that are connected with the integration in the employment system and also identifies differences within the opportunities to participate in the employment system through Internet use. Therefore, Welsch talks

¹ A detailed definition of the differences between flexible work and flexible employment see paragraph "Flexible Work" and "Flexible Employment" on page 4ff.

about a fatal or reinforced cycle between social and digital divide, which he calls "divide-cycle" alternatively "divide-spiral" (Welsch 2005). His thesis of a reinforcement of flexibilization and digital divide is intuitively plausible. However, the empirical material presented seems to lack important facts of labor flexibility within the information economy. Data from the (N)Onliner Atlas confirms, for example, a correlation between employment in general and the use of the Internet. There are 36.8 per cent unemployed Internet users but 62.2 per cent unemployed Internet non-users. In addition, only 32.5 per cent employed do not use the Internet, but 67.5 per cent employees use the Internet (TNS Emnid und Initiative D21 2004, 17). However, this does not show any implication on the connection of flexibility and the use of Internet other than being employed or unemployed. Other data showing the correlation between the intensity of using the Internet and professional status, education and age do not give any hints concerning a connection between flexibility and the digital divide either. Only the differentiation between the household incomes might give an idea of the combination of digital divide and flexibility. Because precarious jobs are paid less, the household income of people with precarious jobs (or with partly precarious jobs) are assumed to be lower than of those with regular jobs. There is a clear correlation with Internet use and household income. Only 30 per cent of the households with less than 1000 Euros income use the Internet and as much as 78 per cent of the household with an income of 3000 Euros and more are online (TNS Emnid und Initiative D21 2004, 16). These findings emphasize a reinforcement of digital divide and social divide within Germany. However, data from the Third European Working Condition Survey, comparing the intensity of computer used at work between European countries, suggests an opposite correlation between flexibilization and digital divide. According to that data Dutch employees use computer most frequently within the European Union, with 23 per cent using it all the time, 45.4 per cent using it at least half of the time, and 60.6 per cent using it at least one fourth of their time at work. Also employees from the United Kingdom have a high intensity using the computer at work (19.4 per cent/ 42.7 per cent/ 53.4 per cent). In contrast, German employees use computer less frequently (4.4 per cent / 26.6 per cent / 41.2 per cent) (European Foundation for the Improvement of the Living and Working Conditions 2005). The labor markets of the United Kingdom and the Netherlands stand for rather flexible labor markets and both have a high intensity of using the computer at work, whereas in Germany – with an assumed inflexible labor market – this intensity is rather low. This indicates that greater labor market flexibility means higher intensity of computer use at work in a country and vice versa. Greater social divide (high flexibility) would then mean less digital divide. That points out that there might be two dimensions of the "divide-cycle" – a macro and a micro level dimension – with opposed correlations.

"Flexible Work" and "Flexible Employment"

In his study of the flexible labor market in Silicon Valley Chris Benner identifies aspects of increasing flexibility that are driven by trends of the information economy rather than caused by firms or their management (Benner 2002, 15). With the commonly used definition of flexibilization it is difficult to analyse these aspects. Here one differentiates between internal and external flexibilization alternatively between functional and numerical flexibilization (Matthies et al. 1994, Keller und Seifert 2000, Schienstock 1998).² Internal/functional flexibilization implies the reduction and build-up of employees and precarious employment relations and external/numerical flexibilization involves the maceration of the consolidated structures with the work organization such as arrangements of working time. That concept of flexibility uses the firm as the unit for analysis (Benner 2002, 23). Regarding the changing conditions on the labor market this is not sufficient as to include the development of ICT. Therefore a definition that goes beyond enterprise boundaries is necessary. Benner introduces a concept that implies a broader view on flexibilization. He differentiates between flexible work and flexible employment. Work is defined as "the actual nature of the activities people do while engaged in the process of production" (Benner 2002, 23). Flexible work describes the change in quantity of work required, the change in skills, knowledge and information required for work as well as the reflexivity in work tasks. Regarding flexible work within these dimensions the changes that are connected with the development of ICT are implicated. The discussion about the change in the quantity of work is connected with the development of ICT as well as the changes in skills and the new role of knowledge and information is due to the development of ICT. The necessity to be reflexive concerning work tasks also comes along with the increasing influence of ICT within work.

Employment describes "the informal and formal contractual relationship between worker and employer" (Benner 2002, 24). Flexible employment constitutes the rise in external employment relations, the weakening of the direct employment contract, and mediated management practices. These aspects of flexible employment go beyond enterprises and are possible through consolidated changes in ICT.

All in all, this concept clarifies that, on the one hand, it is possible to have flexible work conditions within a standard employment contract. On the other hand there may be extremely inflexible work conditions – such as the traditional routine work on an assembly line – within a highly flexible employment contract, e.g. based on a

² Berndt Keller and Hartmut Seifert also extend this definition of flexibilization. Analysis of the OECD differentiate between internal-numerical and internal-functional flexibilization, whereas Keller and Seifert widen that definition with the types of external-numerical and external-functional flexibilization (Keller und Seifert 2002, 91).

temporary employment. Both, however, have a diverse impact on social and economic development.

The distinction between flexible work and flexible employment is useful in regarding the consequences of these conditions for the labor market outcomes for employees and employers. Considering the development of social inequality, for example, both can be seen as factors that influence social inequality. However, flexible work and flexible employment differ with respect to their impact on the social inequality. Flexible work has positive as well as negative effects on the livelihood of employees. On the one hand it causes social inequality and on the other hand it is useful in helping to prevent increasing social inequality. Due to constantly demanded skill improvement, for example, there is a higher rate of unemployment especially among older employees. In contrast, flexible work opens many possibilities improving skills dynamically. Overall, the impacts of flexible work and social inequality are ambivalent (Benner 2002).

The impacts of flexible employment are much clearer. Flexible employment is responsible in great extent for growing social inequality of the labor markets and has mainly negative impacts on the livelihood of employees, such as lower income and higher social insecurity. In addition, it is not even unexceptionally connected with economic success and competition, which is the main argument stated by company representatives to introduce more and more flexible employment conditions. As an example one may regard the income of temporary employment. This is significantly lower than for those in unlimited employment. In addition, the social system does not fit to temporary employment. Therefore, people in temporary employment are disadvantaged regarding social security and health care possibilities (Benner 2002). Severe causation of income deprivation by temporary employment is also verified in an analysis in Germany (Giesecke und Groß 2002, Groß 2000). With the Dutch model of labor market flexibilization, the so called "Poldermodel", these negative aspects were tried to be anticipated. The key element here was that those who work in part time or temporary employment are still completely secured through the national social system. The implementation of that model came along with intensive technological innovation (Castells 2003, 305f.). The Dutch administration, industry and unions were able to lower the high rates of unemployment with that model during the 1980s in the 1990s. In general, the model can be described as one that combines negotiated flexibilization of labor markets and labor conditions with regulated institutional and fiscal responsibility in the social system (Castells 2003, 305f.). An important implication of that model is that an agreement among unions, business, and government is crucial in order to increase flexibility and employment (Carnoy 2002, 49f.). But concerning the outcome of the so called "Poldermodel" there are skeptical views. The flexibilization of the labor market is accompanied by a

high insecurity for those in flexible jobs, because they are more likely to get unemployed again. Also, the conditions of work differ between regular and flexible jobs. The fact, that more people earn less due to precarious occupation increases the risks for people living alone not to be able to finance themselves anymore. In contrast to Germany, the Netherlands has a much higher rate on service work. The pre-condition concerning a flexibilization of the labor markets are therefore different as well (Delsen 2000). In sum, even considering the specific differences in several countries, flexible employment comes along with higher social inequality.

Social polarization

Another aspect that is linked with the increasing inequality is social polarization which originates in the changes of work and employment conditions in the information age (e. g. Castells 2003, Schmiede 1996). The group of the middle management declines through rationalization, which is due to lean management strategies. In addition, through the influence of ICT development the structure of control changes in the labor process with the middle management level becoming redundant. Also the flexible labor forms lead to polarization between groups of employment. The high-qualified, high-paid, and full-time jobs differentiate from precarious, low-paid part-time or temporary jobs. The polarization of the social structure is best visible on the basis of the income inequality which has increased during the last years, in Germany, the USA and the Netherlands. Concerning the increasing polarization of the social structure Castells pleads for regulation because in his view the uncontrolled competition would lead to growing dualism of the employment and social structure (Castells 2003, 297).

Global trade

The connection between informatization, flexibility and social inequality is as well shown in a study by Adrian Wood (1995). There he examines in versatile details the influence of global trade on employment and inequality. With his studies he is able to specify the common views of the outcomes of global trade. The efficiency that comes along with global trade between North and South is accompanied by high income inequality in the North. In addition, he disagrees with views that the capital gains and the labor loses in general through that process. Instead, he points out that northern skilled labor gains and northern unskilled labor loses from the development of the global trade. The high qualified employees generally benefit from the increasing economic growth and in addition they had an advantage in competition from the new international division of labor. On the other hand, less qualified employees have big rivalry with the producer from low income regions and therefore the demand for less qualified employees declined at about twenty per cent (Wood 1995).

Intermediaries and Qualification

Regarding labor flexibility in the information age, opportunities and possibilities of qualifications become more and more important. Associated with that is a new role of institutions in the labor market. Recognizing the importance of lifelong learning, education, training and qualification, labor market intermediaries gain massive impact on labor market developments. This is especially obvious in Silicon Valley and therefore in particular connected with the proceeding of the development of ICT (Benner 2002, 2003). Benner differentiates between three different kinds of intermediaries at the labor market, such as private, member-based and public intermediaries, each having a different impact on the actors of the labor market. In general, there are four functions of intermediaries on the labor market that can be identified. They reduce transaction costs for employers and employees, which is the established view on effects on intermediaries. Furthermore, they determine the price of work on the labor market, lower the risk, as well as build and support networks for the actors of the labor market. Concerning the importance of permanent qualification in flexible labor markets these intermediaries offer various possibilities. As in house qualification declines more and more off-the-job training is necessary. Labor market intermediaries have an ambivalent influence on the labor market. Especially member-based organizations – and here Benner identifies new guild-like organizations – counteract social inequality at the labor market. They offer important qualification programs and are helpful for profession network building (Benner 2002, 2003).

Deregulation

The new role of labor market intermediaries is connected with deregulation regarding employment conditions. Deregulation is associated with abolition of institutional and legal regulation and a gaining influence of market driven development. However, a thesis formulated by Michael J. Piore is, that the process of deregulation rather means an institutionalization of new regulation (2003, 2004). In his opinion deregulation means that the new institutional arrangements are more flexible and therefore better apply to the new global and flexible economic system. In recent papers Piore works out the details of a shift from economic to social identities in the United States. The collapse of the trade union movement in the early 1980s symbolizes the break down of the old institutional structures. The changing role of the family (increasing work force of women; increasing support of income), the changing role of the enterprise (loss of integrity), and the changing organization of work (less division of labor, more work in project teams) are most important examples of that shift. This implies that institutions are more important than the neo-liberal ideal suggests (Piore 2003). The influence of unions in Germany declines as well and the described changes concerning the family, enterprise and organization of work can be observed in Germany, too. Different institutions seem to replace those

of an older system more and more. In the Netherlands unions seem to still have a more validated influence, as can be seen on the basis of the negotiation of the more flexible employment system. But these developments do not happen without changing the roles of family, enterprise and the organization of work as well.

A normative view concerning the role of deregulation was formulated by Joseph E. Stiglitz (2004). As Piore he also points out that the new and complex framework of economic process does not need deregulation but needs new improved regulations. He even suggests stricter rules in certain areas, such as accounting, and a loosening of regulation in other areas. As per Stiglitz's observations it is interesting, that actors in the global market often asked for deregulations in great extend, but only as long as their economic action is not negatively influenced by these procedures and as long as they have an advantage out of the deregulation. As soon as deregulation negatively affects their outcome, they call for more regulation (Stiglitz 2004). This view corresponds greatly with current events at the German stock market with Rolf-Ernst Breuer and other involved persons previously favoring all deregulation procedures, such as intensive shareholder value principles, and with the current development of massive influence of hedge funds calling for stricter regulation of the same. It is also a very good example in which extend new ICT affect these developments, because especially the working of financial markets depends on these developments.

ICT professions

To learn more about the impact of ICT on work one should also consider the development of ICT professions as well. Even though part time work is rather marginal in this field – due to the fact that not many women work in these professions – there are other aspects of flexibility. The increasing flexibility is mainly due to the different structure of these professions. ICT professionals are more involved in project work than professionals in other fields. Furthermore, their jobs have a shorter life cycle, since a lot of firms that employ a high rate of ICT professions fail within a few years. Also, there is a tendency among ICT professionals to be self employed since they are the high performer on the labor market. The development of ICT professions is an ongoing process. Therefore, continually regarding the development on ICT professions is useful in identifying overall trends of the information economy (Dostal 2005).

Conclusion

Regarding the connection between the developments of ICT, the increasing labor flexibility, and the growth of social inequality various aspects need to be taken into account. At first, the phenomena of the digital divide, which describes the connection between the development of ICT and social inequality, needs to be regarded.

Secondly, the process of labor flexibilization can be understood as a social divide when observed under the focus of increasing social inequality. As Welsch puts it, the combination of both constitutes a "divide-cycle". That thesis needs to be thoroughly reviewed though, because the correlation within a country and between countries seems to be opposed. Concerning the correlation between flexibilization and informatization no 'direct' correlation has been identified yet. However, we have seen that there are possibilities to identify those aspects of flexibilization that are driven by the development of ICT with regard to their impact on social inequality. To do so, a differentiation between flexible work and flexible employment is necessary. Because it becomes obvious that qualification play an important role concerning the influence of ICT on the labor market, it might be possible to talk about a "qualification divide" when specifying a connection between flexibilization and informatization. The dynamics of social polarization, the consequences of global trade, as well as the emerging member-based, guild-like intermediaries suggest a major role of qualifications.

All in all, the described findings are still limited at that point and further research is required. First of all, more empirical research on that topic is needed. Considering the indications of the analysis a focus on careers and individual professional lives seems to be important, because the qualitative development of professional lives tells us more about current developments than quantitative analysis of employment conditions (Benner 2002, 201ff.). This is especially true, when focusing on the development of ICT and social inequality, because in that context individualized data should be more helpful than mass data. But also the broad view on flexibilization as it was indicated in this analysis needs to be specified and thoroughly defined. A suggestion in that context is to especially concentrate on the role of institutions regarding the development of flexibilization. Institutional, economic, and individual dimensions of flexibilization need to be regarded separately.

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