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**LONG TERM TRENDS IN ATYPICAL FORMS OF  
EMPLOYMENT**

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## **TABLE OF CONTENTS**

### **1. Introduction**

### **2. Data problems and sources**

### **3. Development background and historical circumstances**

#### **3.1 A Historical Overview**

##### **3.1.1 Shares of Atypical Forms of Employment over Time**

##### **3.1.2 Share of Total Labour Force in Working Age Population**

##### **3.1.3 Share of Employment in Agriculture, Industry and Services in Civilian Employment**

##### **3.1.4 Changes in Labour Force as a Percentage of the Population from 15 to 64 Years, by Gender**

#### **3.2 Differences in the Level of Economic Development of the HWF Countries**

### **4. Atypical forms of employment**

#### **4.1 An Overview of the Magnitude of Atypical Forms of Employment in the EU15**

#### **4.2 The Status in Employment around 1950**

#### **4.3 Self-employment**

#### **4.4 Part-time work**

#### **4.5 Fixed term contracts**

#### **4.6 Good jobs and bad jobs**

#### **4.7 Conclusions from the case study of Slovenia**

#### **4.8 Overall picture from the comparative analysis among HWF project countries**

### **5. Conclusions**

### **Bibliography**

### **Abbreviations**

### **Appendices**

### **Statistical Appendix**

### **Methodological appendix: Time Distance Methodology**

## 1. INTRODUCTION

The purpose of this study is to look at the long-term trends in atypical forms of employment based on secondary sources and in this way to complement the thematic studies that are more directly based on the results of the surveys in the 8 participating countries of the HWF project. Though the flexibility of work is a considerably broader topic than the atypical forms of employment that can be studied through statistical sources and analytical studies of these forms, this study is important as a complementary inquiry of a more detailed survey material provided in the HWF project and in other surveys. Needless to say, the final outcome is not only a result of the behavior and decision on the side of the individuals and families involved but also of the decision by the enterprises and institutions as well as the general background in the country and in the world.

Section 2 discusses the problems with data and draws attention to the fact that due to problems with international comparability of employment data caution should be exercised in interpretation of conclusions. Section 3 deals with development background and historical circumstances which influence the present position in the participating countries with respect to the atypical forms of employment. In a historical overview shares of atypical forms of employment over time, shares of total labour force in working age population, shares of employment in agriculture, industry and services, and changes by gender of the share of labour force as a percentage of the population from 15-64 years are analysed. Furthermore, the differences in GDP per capita at purchasing power parity are examined and the participating countries are classified into three groups, which indicate substantial time lag in the level of development among them.

After this background atypical forms of employment are analysed in Section 4. First, an overview of the magnitude of atypical forms of employment for the EU15 average in 2001 is presented, against which the values of indicators in sections with more detailed analysis can be compared. The status of employment around 1950 provides a picture of the share of employers and own account workers, employees, and unpaid family workers after World War II. The level of self-employment depends both on the sector structure of the economy and of the notional subdivision of this category into entrepreneurs and highly qualified professionals, and disguised unemployment. Part-time work is the most important category of the atypical forms of employment in the developed countries with a marked gender bias; the situation in the candidate countries is distinctly different. Fixed term contracts also show a very wide range of country experiences. Atypical forms of employment should not be automatically considered inferior jobs, which is supported by the discussion about good and bad jobs, and the conclusions from the case study of Slovenia in this respect. Presenting an overall picture from the comparative analysis among HWF project countries concludes section 4.

Conclusions in Section 5 provide both a general discussion of the issue of flexible employment in a long term perspective and summarize the findings of the study. In the methodological appendix time distance methodology as a novel approach in measuring and evaluating disparities in economic and social indicators is presented. It complements rather than substitutes the existing mainly static statistical measures and thus opens a new perspective to comparative analysis and policy debate.

## 2. DATA PROBLEMS AND SOURCES

International comparisons are beset with problems of accuracy, coverage and comparability. One must be prepared for the possibility of a considerable range of uncertainty in the official statistics for the compared countries. The employment statistics are definitely prone to these problems. The ILO has stated that there is no unique definition of employment that is used in all countries. Thus, one should not pay too much attention to small differences in the quantitative values of the indicators used, and a proper caution in the interpretation is to be exercised. Notwithstanding these problems, most of the movements and trends are robust enough to present a convincing picture of the underlying tendencies.

Even within the EU the comparability of employment data across countries and over time is an acute problem as stated in European Commission (2000), p. 17. 'There is no one single source of data which is commonly regarded as the best indicator of the number employed in the Union. In the previous three *Employment in Europe* reports, the so-called 'benchmark series', a set of data based on the source which national statisticians considered as the most reliable for their own particular country, was used. The disadvantage of this series – consisting as it did of the EU LFS in some countries, the average of national LFS data in others, national accounts data in three more and administrative data in two others – was precisely that it was based on different sources and was, therefore, of questionable comparability between Member States. The creation of the benchmark series was an attempt to overcome the absence of a common reliable data source on employment both in any given year and over time. According to most statisticians, this would be a quarterly continuous LFS and until such a series is universally available (it has been introduced in most but not all Member States in recent years, the most notable exceptions being Germany and France), there is no alternative to adopting a second-best approach.' Furthermore, many of the EU statistics are subject to continuous revisions that are not fully explained. For instance, several tables in the study which are based on the source *Employment in Europe 2001* had the values for the shares of atypical forms of employment for back years changed in the new *Employment in Europe 2002*.

This study is based on the data from the statistical agencies, especially Eurostat and OECD, and not on special surveys like HWF project survey. Both approaches have their advantages and disadvantages. A recent study in the SIBIS project (Statistical Indicators Benchmarking the Information society) produced an overview of various surveys related to work, employment and skills. The lists of indicators used and suggested are dealing also with flexibility developments, the dimensions discussed were working time, the place of work, the type of contract and the work content (the skills applied in the production process). The project is funded under the Information Society Technology Programme of the 5FP and thus related to the role of information and communication technologies, it is a good background for discussion how one can try to combine LFS and other surveys in a more systematic way. Its advantage is also in the broad approach that deals with both worker-centered flexibility and with company-centered flexibility, as one needs both sides of the coin to provide a better data background for benchmarking, policy making and monitoring (Empirica, 2001).

### **3. DEVELOPMENT BACKGROUND AND HISTORICAL CIRCUMSTANCES**

#### **3.1 A Historical Overview**

##### **3.1.1 Shares of Atypical Forms of Employment over Time**

This section is a brief introduction to the more detailed analysis of the trends in atypical forms of employment later in the study and presents an overview of the developments in the major developed countries. These trends are recognized by several international organizations, though with a somewhat different emphasis. In its evaluation of the labour market performance and OECD Jobs Strategy, OECD finds that ‘high and persistent unemployment remains a major problem, with a significant role played by “atypical forms” of employment. Part-time work has made a positive contribution in most countries, but sometimes it is a second-best choice’ (OECD, 1999). ILO in its World Employment Report states that ‘recent years have seen a significant growth of part-time or temporary contracts, of self-employment and of informal sector employment in developing countries. Flexible work arrangements can result in pressure to create low-skill jobs, and those accepting them may well receive less training. Similarly, those entering self-employment and informal sector work may lack basic skills and never be able to acquire them. The overall result can be a general downgrading of the skill structure of the labour force’ (ILO, 1998).

In broad quantitative terms, Table 1.1 presented by Kalleberg (2002) at the XV World Congress of Sociology in Brisbane is one of the examples that confirm the increasing trend of shares of atypical forms of employment over time. Covering the period of about 20 years, all three indicators analysed (percent of part-time, fixed-term temporary in total employment and percent of self-employed persons in non-agricultural employees) show the increase in the analysed indicators in the 20 developed countries with very few exceptions. Though the prevailing trends are clear, the differences among the countries remain considerable. This means that one should in the analysis take into account also the structural characteristics and historic circumstances beside the more usually analysed differences in institutions and regulations. The analysis of the structural change is provided in Section 3.

For the project it is of particular interest to look at the position of the three participating developed countries, the Netherlands, the UK and Sweden in the table to see briefly what is their position with respect to the atypical forms of employment in the world perspective.

With respect to the share of part-time employment in total employment, they are at the top of the table. The Netherlands is a clear forerunner, Sweden and the UK follow forming the top group in Europe, on the world scale the two are on par with Australia and Japan. In this respect the study of the three developed countries participating in the HWF project offers a possibility of a closer look at the situation and experience in the countries that encounter the highest share of part-time employment. The Netherlands is also showing the largest increase in this share over the period of a quarter of the century covered in the table.

Table 3.1 Percent part-time, fixed-term temporary and self-employed persons, by country

Country	Percent part-time <sup>a</sup>		Percent fixed-term temporary <sup>b</sup>		Percent self-employed <sup>c</sup>	
	1973	1998	1983	1998	1973	1993
USA	15.6	18	-	3.2	6.7	7.7
Australia	11.9	25.9	15.6	26.4	9.5	12.9
Canada	9.7	18.7	7.5	8.3	6.2	8.6
Japan	13.9	23.6	10.3	10.8	14	10.3
Austria	6.4	11.5	-	7.8	11.7	6.3
Belgium	3.8	16.3	5.4	7.8	11.2	13.3
Denmark	22.7	17	12.5	10.1	9.3	7
Finland	6.7	9.7	11.3	17.7	6.5	9.5
France	5.9	14.8	3.3	13.9	11.4	8.8
Germany	10.1	16.6	10	12.3	9.1	7.9
Greece	-	-	16.2	13	-	-
Ireland	5.1	15.2	6.1	7.7	10.1	13
Italy	6.4	11.8	6.6	8.5	23.1	24.2
Luxembourg	-	-	3.2	2.9	-	-
Netherlands	16.6	30	5.8	12.7	9.2	8.7
Norway	23	21	-	-	7.8	6.2
Portugal	7.8	7.7	14.4	17.4	12.7	18.2
Spain	-	13.5	15.7	32.9	16.3	18.7
Sweden	23.6	24.2	12	12.9	4.8	8.7
UK	16	23	5.5	7.1	7.3	11.9

Source: Kalleberg (2002)

<sup>a</sup> Percent of total employment. 1973 (ILO and OECD) estimates from Standing (1997), Table 3; 1998 estimates from OECD Employment Outlook 1999, Table E; U.S. estimates from Bureau of Labor Statistics;

<sup>b</sup> Percent of total employment. 1983 (ILO and OECD) estimates from Standing (1997), Table 3; and Campbell and Burgess (2001), Table 1; 1998 estimates from Campbell and Burgess (2001), Table 1.

<sup>c</sup> Percent of non/agricultural employees. 1973 and 1993 estimates from Standing (1997), Table 3.

The percent of persons with fixed term contracts in total employment is majority of the analysed counties lower than the percentage of part-time work, but with notable exceptions of Spain, Portugal, Finland and Australia. The Netherlands and Sweden are close to the average value, while in 1998 the UK with 7.1% belongs to the lower group, in the USA the value of 3.2% is particularly low.

The use of percent of self-employed of non-agricultural employees reflects the fact that the share of self-employed in total employment is very much influenced by the usually higher values of self-employment in agriculture. Here again the Netherlands and Sweden are around average value, while the value for the UK is higher.

### 3.1.2 Share of Total Labour Force in Working Age Population

The first factor in trying to make international comparison in participation in work and in the later steps to discuss the share of 'standard' and 'atypical' forms of employment is to see the differences in potential employment that follow from the demographic factors under an assumption of a 'standardised' age group which is still used as an approximation for the so-called working age group. Obviously in a similar way as there are changes in the shares of 'standard' and 'atypical' forms of employment, there are important changes in attitudes and life styles in other aspects like the relationship between education, work, retirement and family and other social roles that are also becoming much more varied and flexible. Notwithstanding this increased complexity it is still of interest to look at international differences in the share of this age group in the total population. Table 3.2, based on OECD statistics, shows the values over the last three decades. For the remaining three candidate countries in the HWF project that are not OECD members the corresponding values for 1999 are 69.7% for Slovenia, 67.8% for Bulgaria (1998), and 67.9% for Romania (European Commission, 2001b). In the HWF group of countries, Slovenia and the Czech Republic show the highest values, followed by Hungary, Netherlands, Bulgaria, Romania, while Sweden and the UK show lower values of the analysed share. This raises the question how is the demographic potential actually used.

Table 3.2 Population from 15 to 64 years as a percentage of total population

Year	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	65.5	62.6	62.9	-	-	61.9	63.6	68.9	65.4	62.3
1971	65.3	62.7	62.7	-	-	62.3	63.6	68.7	65	62.3
1972	65	62.9	62.5	-	-	62.8	63.6	68.3	65	62.3
1973	64.7	63.1	62.5	-	-	63.3	63.7	67.9	64.9	62.4
1974	64.5	63.5	62.5	-	-	63.9	63.9	67.6	64.9	62.5
1975	64.2	63.9	62.6	64.8	-	64.3	64.1	67.7	64.9	62.6
1976	64	64.3	62.9	64.2	-	64.8	64.3	67.5	65	62.8
1977	63.9	64.8	63.2	63.7	-	65.3	64.7	67.5	65.4	63
1978	63.9	65.2	63.5	63.4	-	65.7	65.1	67.5	65.5	63.1
1979	64	65.7	63.8	63.1	-	66	65.7	67.4	65.8	63.4
1980	64.1	66.2	64	63.2	-	66.2	66.3	67.5	65.8	63.7
1981	64.3	66.6	64.4	63.4	-	66.3	67.2	67.4	66.1	64.2
1982	64.5	67	64.8	63.9	-	66.4	68.1	67.6	66.9	64.8
1983	64.6	67.5	65.2	64.3	-	66.4	69	67.8	67.5	65.2
1984	64.7	68.1	65.7	64.7	-	66.4	69.7	68.1	68.4	65.7
1985	64.6	68.5	65.6	64.8	-	66.5	70	68.3	68.8	65.9
1986	64.5	68.7	65.7	64.8	-	66.5	70	68.6	68.8	65.9
1987	64.4	68.9	65.6	64.9	-	66.4	70.1	69	68.7	65.9
1988	64.4	69	65.6	65.2	-	66.3	69.9	69.4	69.3	66
1989	64.3	69	65.4	65.6	-	66.1	69.7	69.7	68.8	66
1990	64.3	68.9	65.3	66	-	65.8	70	69.8	68.9	65.9
1991	64.1	68.8	65.1	66.5	-	65.6	69.2	69.8	68.9	65.7
1992	64	68.7	64.9	66.9	67.1	65.4	68.6	69.8	68.9	65.6
1993	63.8	68.6	64.8	67.3	67.4	65.3	68.3	69.7	68.8	65.5
1994	63.7	68.5	64.8	67.8	67.6	65.3	68.2	69.5	68.7	65.4
1995	63.7	68.4	64.9	68.2	67.8	65.3	67.9	69.5	68.6	65.4
1996	63.7	68.3	65	68.5	67.9	65.4	67.8	69.3	68.4	65.4
1997	63.8	68.2	65	68.8	68	65.6	67.8	69	68.3	65.4
1998	63.9	68.1	65.1	69.1	68.1	65.8	67.8	68.7	68.1	65.3
1999	64.2	67.9	65.2	69.4	68.2	65.9	67.8	68.5	68	65.2

Source: OECD Historical Statistics 1970-1999, CD-ROM

Table 3.3 Total labour force as a percentage of population from 15 to 64 years

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	74.3	59.3	72.4	-	-	66.8	69.5	71.5	59.5	67.8
1971	74.9	58.9	72	-	-	66.8	69.2	71.2	59.4	67.6
1972	75.2	58.3	72.1	-	-	67.4	69.1	70.8	58.6	67.5
1973	75.5	57.6	73	-	-	67.9	69.4	71.9	58.7	67.8
1974	76.9	57.2	73.1	-	-	68.6	69.1	71	58.8	68
1975	78.5	57.3	73.6	-	-	68.7	68.6	70.2	59	67.8
1976	78.9	56.8	73.9	-	-	69.2	68.3	70.4	59.5	68.2
1977	79.2	56.5	73.9	-	-	70	68.1	70.9	60	68.7
1978	79.6	56.4	73.9	-	-	71.1	68.1	71.3	59.7	68.7
1979	80.5	56.5	74.3	-	-	71.8	68.3	71.6	60.2	68.8
1980	81	57.7	74.4	-	-	72	68.5	71.6	60.8	68.5
1981	81	59.7	73.7	-	-	72.3	68.3	72	60.8	68
1982	81.2	60.2	73.1	-	-	72.6	68	72.1	60.2	67.7
1983	81.3	59	72.4	-	-	72.8	67.5	72.8	60.1	67.1
1984	81.4	58.8	73.4	-	-	73.4	66.4	72.5	59.8	66.8
1985	82	58.6	73.9	-	-	73.9	66.6	72.2	59.8	66.4
1986	81.3	58.5	73.7	-	-	74.7	67.3	72.2	60.5	66.5
1987	81.7	64.1	74.7	-	-	75.4	67.8	72.3	61	66.4
1988	82.3	65.2	75.6	-	-	75.9	68	72.5	60.9	66.3
1989	82.9	65.5	76.6	-	-	76.8	68.5	73.1	61.2	66.4
1990	82.5	66.7	76.9	73.6	-	77	69.5	74.1	62.7	66.4
1991	81.7	67.6	76.5	73.6	-	76.8	71.6	75.2	62.9	66.7
1992	79.9	68.4	75.9	72.7	65.3	77.1	71.5	75.7	62.8	66.8
1993	77.6	67.5	75.4	73.2	62.6	77	71.4	76	59.3	66.7
1994	76.3	68.2	75.2	73.5	60.6	78	71.4	76.3	58.8	66.9
1995	76.8	70.1	74.9	73.4	59.1	77.8	71.1	76.4	58.8	66.7
1996	76.5	70.9	75	73.2	58.5	77.9	71.3	77	59.1	67.1
1997	75.5	72.1	75.2	73.1	57.8	78.3	71.6	78	59.4	67.3
1998	76.8	73	74.9	73.1	58.2	78.1	71.7	78.2	60.1	67.4
1999	77	74.1	75.3	73.1	59.6	78.2	71.8	78.1	60.6	67.7

Source: OECD Historical Statistics 1970-1999, CD-ROM

The percentage of total labour force in the population between 15 and 64 years shows a different picture. Here the Sweden and the UK show the highest percentage values of participation, followed by Netherlands, Czech Republic and Romania (71.6% in 2000), while other candidate countries show in 2000 distinctly lower values: Slovenia 64.1%, Hungary 55.9% and Bulgaria 52.2%. There are small differences between different statistical sources, but the overall picture is clear. At the turn of the century the unemployment rates in the analysed candidate countries are much higher than a decade ago and they have also drastically lower participation rates of the working age population in the total labour force. The transition depression shifted them from a pattern of high and stable employment (though in many cases there was a prevailing over employment in terms of productivity requirements) to a situation of rapid deterioration in terms of availability, stability and remuneration of work. For all three countries the fall was drastic: in 1990 total labour force compared to the population between 15 and 64 years amounted to 74.6% in Hungary, to 75.6% in Bulgaria (World Bank, 1992, p. 138 and 44) and to 71.2% in Slovenia (SORS 1994). Thus at the beginning of the 1990's for all countries of the HWF group the analysed share was higher than 70%. In general these values were lower than in the USA and in Japan, but higher than in France and Italy. The situation in 2000 is very different, except possibly for the Czech Republic, while the high value for Romania is due to the high level of self-employed in agriculture that will be discussed later.

### **3.1.3 Share of Employment in Agriculture, Industry and Services in Civilian Employment**

One of the most apparent structural changes in the development process is the increased share of services in the total value added and especially in total employment. Therefore for studying long-term trends in atypical forms of employment it is important to understand the background in this respect. What is today in developed countries understood as ‘standard’ form of employment as the contrast to ‘atypical’ forms of employment is dependent on the level of development of the economy and on the system of institutions and regulations that prevail under given circumstances.

Even if we confine ourselves to Europe and to the developed countries, there are substantial differences in the level of development and structural characteristics among countries, not to mention differences in institutions, legal systems, history and culture. Table 3.4 shows the share of employment in services in total civilian employment. The leader in increase in the share of services in the last 30 years is the USA, which was joined by the Netherlands. Of the ten countries analysed in the table three groups of countries are observed. In addition to the two leaders mentioned, in the first group Sweden, UK and France are positioned, with values above 71%. The second group with values around 62% is Germany, Italy and Japan. The third group is the HWF candidate countries. The two OECD countries from them, Hungary with 58.4% and Czech Republic with 47.1% are in the range with values for 2000 for Slovenia 52.7% and Bulgaria 54%, while Romania with 29% is much behind (European Commission, 2001b).

Combined with the shares of agriculture (Table 3.5) and industry (Table in appendix AS1) in total civilian employment one can observe very substantial differences in the level of development and structural characteristics of the analysed countries. Analyzing the differences in GDP per capita and some other indicators in the next section will further illustrate this. However, already the sector shares of employment verify such conclusion, especially if the static differences are complemented by time distance as a complementary measure of the degree of disparity<sup>1</sup>. Namely, the static measure of difference between the first two groups related to the most developed countries does not convey an impression of a very large difference between e.g. Sweden with 72% and Japan with about 63%. Both of them started at about 28% in 1920 and the difference of 9-percentage points in the share does not look very substantial. However, taking into account the dynamics of the indicator, the time distance between Sweden and Japan is about 18 years, as the value for Japan in 1999 was achieved in Sweden already in 1981. The time lag behind the USA with respect to the share of services in total civilian employment is for Japan, Germany and Italy about 27 years, in the USA their 1999 values were attained in 1972.

The mirror reflection of this main structural difference between these two groups of the analysed developed countries lies in the relative importance of industry in total employment. Namely, the differences in the share of agriculture are of relevance between developed and candidate counties, especially Romania, but not among analysed developed countries. Table 3.5 shows that the leading country in decreasing the share of agriculture over time was the UK as the leading country of the industrial revolution. The differences among developed counties are now not substantial.

Table 3.4 Employment in services as a percentage of civilian employment

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1920	27		44			39		28	20	
1950	38		47			52	33	31		
1970	53.5	54.9	52			61.1	42	46.9	40.3	47.2
1971	54.6	55.7	53.2			62.7	43.5	48.1	40.1	47.9
1972	55.8	57.1	54.3			63	44.6	49	41.3	48.7
1973	56.1	57.6	54.7			62.6	45.2	49.4	42.5	49.3
1974	56.4	58.4	55.1			63.4	46.3	50.1	43.2	49.9
1975	57.1	59.4	56.8	37		65.3	47.8	51.5	44.1	51.1
1976	58.4	60.8	57.6	37.6		65.3	48.7	52	45.2	52.2
1977	59.6	61.7	57.8	38.2		65.4	49.4	52.8	45.7	53.1
1978	60.9	61.6	58.2	38.6		65.2	49.9	53.3	46.4	54.1
1979	61.7	62.2	58.7	38.9		65.2	50.4	53.9	47.3	55
1980	62.2	63.6	59.7	39.1		65.9	51	54.2	47.8	55.6
1981	63.1	65.2	61.6	39.3		66.4	51.9	54.7	49	56.6
1982	64.1	66.3	62.8	39.6		68	52.9	55.4	50.5	57.3
1983	64.7	66.9	64	39.7		68.5	53.6	56	51.5	58.4
1984	65.1	66.8	62.2	40		68.2	53.9	56.3	53.6	59.4
1985	65.3	67	62.9	40.2		68.8	54.1	56.4	55.2	60.5
1986	65.7	68.4	63.7	40.4		69.3	54.7	57.1	56	61.4
1987	66.3	68.3	64.8	40.5		69.9	55.6	57.9	56.8	62.3
1988	66.7	68.8	64.8	40.7		70.2	56.1	58	57.7	63
1989	67	68.8	65.1	41		70.5	56.8	58.2	58.2	63.6
1990	67.7	69.1	65.5	42.2		70.9	57.9	58.7	58.8	64.6
1991	68.6	69.9	66.6	44		71.8	54.9	58.9	59.2	65.3
1992	70.2	71.9	67.8	46.8	53	72.5	56.7	59	59.6	66.3
1993	71.1	72.2	68.5	47.8	56.5	73.2	57.9	59.8	59.5	67.5
1994	71.4	73	70.2	49.4	57.6	73.1	59.1	60.2	60	68.4
1995	71	73.7	70.5	51	58.8	73.1	60.2	60.8	60.1	68.8
1996	71	73.8	70.7	51.7	58	73.3	61.6	61.2	60.8	69.4
1997	71.3	74.1	71.3	51.9	58.1	73.4	62.3	61.6	61.2	70
1998	71.7	75.1	71.6	49.8	57.8	73.7	62.7	62.7	61.6	70.5
1999	72.3	75.9	72.4	47.1	58.4	74.4	62.6	63.2	62.2	71

Source: OECD Historical Statistics 1970-1999, CD-ROM, for 1920 and 1950 ILO (1968).

Figure 1 Employment in services as percentage of civilian employment  
Source: OECD Historical Statistics 1970-1999, CD-ROM, Paris

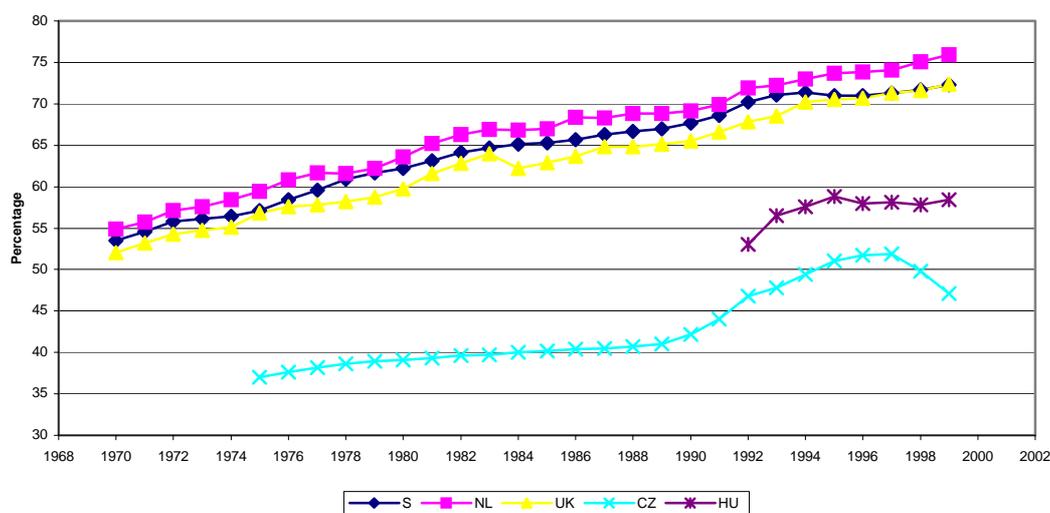


Table 3.5 Employment in agriculture as a percentage of civilian employment

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1950	20.3	19.8	5.0	37.7	52.9					
1970	8.1	6.2	3.2			4.5	8.6	17.4	20.2	13.5
1971	7.8	6	3.2			4.4	8.1	15.9	20.2	12.8
1972	7.4	5.9	3			4.4	7.7	14.7	19	12
1973	7.1	5.8	3			4.2	7.3	13.4	18.3	11.2
1974	6.7	5.7	2.8			4.2	7	12.9	17.5	10.6
1975	6.4	5.7	2.8	13.5		4.1	6.8	12.7	16.7	10.3
1976	6.2	5.6	2.8	13.2		3.9	6.4	12.2	16.5	9.9
1977	6.1	5.3	2.8	12.9		3.7	6	11.9	15.8	9.5
1978	6.1	5.4	2.8	12.7		3.7	5.8	11.7	15.5	9.2
1979	5.8	5.3	2.7	12.5		3.6	5.4	11.2	14.9	8.9
1980	5.6	4.9	2.6	12.5		3.6	5.3	10.4	14.3	8.6
1981	5.6	4.9	2.7	12.4		3.5	5.2	10	13.4	8.4
1982	5.6	5	2.7	12.2		3.6	5	9.7	12.4	8.1
1983	5.4	5	2.7	12.1		3.5	5	9.3	12.4	7.8
1984	5.1	5	2.6	12.1		3.3	4.8	8.9	11.9	7.7
1985	4.8	4.9	2.3	12.1		3.1	4.6	8.8	11.2	7.5
1986	4.2	4.8	2.2	12		3.1	4.5	8.5	10.9	7.2
1987	3.9	4.9	2.3	12		3	4.2	8.3	10.5	6.9
1988	3.8	4.8	2.3	12		2.9	4	7.9	9.9	6.6
1989	3.6	4.7	2.2	11.9		2.9	3.7	7.6	9.3	6.3
1990	3.4	4.6	2.1	12.3		2.9	3.4	7.2	8.9	5.7
1991	3.4	4.5	2.3	10		2.9	4.2	6.7	8.5	5.5
1992	3.3	3.9	2.2	8	11.4	2.9	3.8	6.4	8.2	5.3
1993	3.4	3.9	2	8	9.3	2.7	3.5	5.9	8	5.1
1994	3.5	4	2.1	7.1	8.9	2.9	3.3	5.8	7.8	4.9
1995	3.1	3.7	2.1	6.6	8.1	2.9	3.2	5.7	7.5	4.7
1996	2.9	3.9	1.9	6.3	8.5	2.8	3	5.5	7	4.6
1997	2.8	3.7	1.9	5.9	8.1	2.7	2.9	5.3	6.8	4.5
1998	2.6	3.3	1.7	5.9	7.7	2.7	2.8	5.3	6.6	4.4
1999	2.6	3	1.6	6	7.3	2.6	2.8	5.2	6.4	4.2

Source: OECD Historical Statistics 1970-1999, CD-ROM, for 1950 ILO (1968).

Table AS1 in the Appendix demonstrates that all analysed developed countries have in the last three decades been decreasing the share of the total civilian employment working in industry. The Netherlands and the USA have only about 22% of the civilian employment in industry, a mirror image of their leading role in the service sector. Germany, Japan and Italy stayed over 32%. The candidate countries, where industrialization was a high priority in the earlier regime, are still depending very much on industrial employment, in 2000 the respective values for the share of industrial employment were 32.8% for Bulgaria, 39.9% for Czech Republic, 33.8% for Hungary, 25.8% for Romania (lower due to higher share of agriculture) and 37.7% for Slovenia (European Commission, 2001b). Though the structural change by decreasing the relative importance of industrial employment is evident and is also in part a consequence of decrease of industrial production due to closure of enterprises, it will obviously take considerable time before the structural characteristics will be similar to that of the leading developed countries. Slovenia and Czech Republic as the most industrialized countries among the HWF candidate countries show the values that Sweden and Netherlands experienced three decades and the UK two decades ago. In the future these time distances can be shortened, but now differences are large.

### 3.1.4 Changes in the Indicator Labour Force as a Percentage of the Population from 15 to 64 Years, by Gender

In addition to the significant changes in the share of employment in agriculture, industry and services, there have also been dramatic changes in the indicator female labour force as a percentage of female population from 15 to 64 years. In all eight developed countries, for which data for the period 1970-1999 are presented in Table 3.6, there is a remarkable increase in this indicator from a minimum increase of more than 10 points in the percentage to the greatest increase in the Netherlands of more than 35 points in the percentage (from 28 in 1970 to 64.5 in 1999).

In looking at the increase in part-time employment in the later sections of the study, it is thus important to take into account these two broad trends of increase in the share of employment in services, on the one hand, and increase in the female participation in the labour force, on the other. However, there is a remarkable difference between the above-mentioned trends over the last 30 years of the 20<sup>th</sup> century and the developments in the last decade, especially in the candidate countries.

Table 3.6 Female labour force as a percentage of female population from 15 to 64 years

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	59.4	28	50.7	-	-	48.9	48	54.9	32.9	48.5
1971	60.9	28.3	50.6	-	-	49	48.5	53.8	32.9	49
1972	61.9	28.8	51.3	-	-	50	49.3	52.8	32.3	49.5
1973	62.6	29.2	53.2	-	-	51.1	50.3	54	33.3	50.1
1974	64.9	29.7	54.5	-	-	52.3	50.6	52.4	33.7	50.6
1975	67.6	31	55.1	-	-	53.2	50.8	51.6	34.3	51.1
1976	68.7	31.3	55.6	-	-	54.4	51	51.8	35.6	52.2
1977	70	31.9	56.3	-	-	55.8	51.2	53	37.3	53.2
1978	71.3	32.7	56.8	-	-	57.6	51.6	54.1	37.1	53.8
1979	72.8	33.4	58	-	-	58.9	52.2	54.6	38.2	54.5
1980	74.1	35.5	58.3	-	-	59.7	52.8	54.8	39.1	54.8
1981	75.3	37.9	57.3	-	-	60.6	53.1	55.1	39.4	55
1982	75.9	39	57.1	-	-	61.4	52.9	55.7	39.3	55.4
1983	76.6	40.3	57.1	-	-	61.8	52.5	57	39.9	55.5
1984	77.3	40.7	60.7	-	-	62.8	51.3	57	40.2	55.8
1985	78.1	40.9	61.4	-	-	63.9	51.9	57.1	40.5	56
1986	78.3	41.3	61.9	-	-	65.1	52.9	57.2	41.8	56.5
1987	79.4	48.8	63.4	-	-	66.2	53.9	57.6	42.9	57
1988	80.1	50.6	64.5	-	-	67.1	54.8	58.2	43.2	57.1
1989	80.6	51	66	-	-	68.3	55.5	59.2	43.8	57.4
1990	80.5	53.1	66.5	69.1	-	68.5	56.7	60.3	45.9	57.6
1991	79.7	54.5	66.3	66.8	-	68.5	61.1	61.4	46.2	58.2
1992	77.8	55.5	66.2	64.1	57.9	68.9	61.3	61.9	46.5	58.9
1993	75.8	56	66.3	64.8	55.3	69	61.5	61.8	42.5	59.1
1994	75.9	57	66.3	65.1	53	70.5	61.6	62.1	42.4	59.5
1995	76.1	59	66.2	64.9	50.5	70.6	61.6	62.2	42.8	59.4
1996	74.3	60.1	66.6	64.4	50.2	70.9	62	62.6	43.5	60
1997	75	61.8	67.1	64.4	49.4	71.4	62.6	63.7	44.1	60.1
1998	74.2	62.8	67	64.7	50.8	71.2	62.7	63.9	45.1	60.5
1999	74.6	64.5	67.5	64.9	52.1	71.7	62.8	63.8	46	60.8

Source: OECD Historical Statistics 1970-1999, CD-ROM

The rate of change of female participation in the labour force has practically stopped in Italy and the UK, in Sweden there was a decrease in the participation while in the Netherlands there was still a very strong trend of increase, on the average about 1 point in the percentage per year. These somewhat mixed changes in the analysed developed countries are in sharp contrast with the trends in the two countries (Czech Republic and Hungary), which are included in the OECD statistics. The transition depression led to a substantial decrease in the female labour force participation, which is also characteristic of the three other candidate countries in the HWF project. ????

The indicator male labour force as a percentage of male population from 15 to 64 years shows different trends than the female participation in the labour force and also varies across the countries to a greater extent. In general, the male participation rates are much higher, the smallest difference being in Sweden. The highest male participation rates are in Japan and USA, followed by the Netherlands and UK. There are diverse directions of the trends in this indicator, Sweden, UK, Italy, Germany, and France show declining values, in the USA the prevailing tendency is constancy at a high level while in Japan there is even a slight tendency to increase, notwithstanding its highest value among the analysed countries. For the two candidate countries there is a diverse development. In the Czech Republic a constant high value is observed despite the transition depression, while in Hungary there is a clear decrease.

Table 3.6a Male labour force as a percentage of male population from 15 to 64 years

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	88.8	90.2	94.4	-	-	85.4	92.6	88.7	85.3	86.9
1971	88.6	89.1	93.7	-	-	85.1	91.2	89.3	85.2	86.1
1972	88.1	87.3	93.2	-	-	85.4	90.1	89.6	84.2	85.3
1973	88.1	85.6	93	-	-	85.4	89.6	90.5	83.4	85.2
1974	88.5	84.2	91.8	-	-	85.4	88.5	90.5	83.6	85.1
1975	89.2	83.2	92.1	-	-	84.7	87.3	89.4	83.4	84.4
1976	88.9	81.8	92.3	-	-	84.4	86.3	89.6	83.2	84.1
1977	88.1	80.6	91.6	-	-	84.7	85.6	89.2	82.8	84
1978	87.7	79.7	91.1	-	-	85	85.2	89.1	81.8	83.5
1979	87.9	79	90.5	-	-	85.1	84.9	89	81.6	82.9
1980	87.8	79.4	90.5	-	-	84.7	84.3	88.9	81.7	82.1
1981	86.5	80.9	90.2	-	-	84.4	83.7	89.2	81.3	81
1982	86.3	80.8	89.2	-	-	84.1	83.3	88.8	80.4	80
1983	85.9	77.3	87.5	-	-	84.1	82.6	88.8	79.8	78.7
1984	85.4	76.5	86.1	-	-	84.2	81.5	88.1	78.6	77.7
1985	85.8	75.8	86.3	-	-	84.1	81.2	87.6	78.4	76.9
1986	84.1	75.3	85.3	-	-	84.4	81.6	87.3	78.4	76.5
1987	83.9	79	85.8	-	-	84.8	81.5	86.9	78.1	75.9
1988	84.4	79.4	86.6	-	-	85	81	86.8	77.4	75.5
1989	85	79.6	87.1	-	-	85.4	81.2	87	77.5	75.4
1990	84.8	79.9	87.2	78	-	85.7	82.2	87.9	79.7	75.3
1991	84	80.3	86.7	80.4	-	85.2	81.9	88.8	79.7	75.2
1992	82.1	80.8	85.4	81.4	73.1	85.3	81.4	89.5	79.1	74.7
1993	79.4	78.7	84.4	81.6	70.3	85	81	90.2	76.3	74.3
1994	79.7	79.1	84	81.8	68.4	85.5	80.8	90.5	75.4	74.3
1995	80.5	80.9	83.6	81.9	67.9	85.2	80.3	90.7	74.8	73.9
1996	78.6	81.4	83.3	82	67.1	85.1	80.3	91.2	74.8	74.3
1997	79.6	82.1	83.2	81.8	66.6	85.4	80.4	92.1	74.9	74.4
1998	79.3	82.9	82.7	81.5	65.9	85.2	80.4	92.3	75.2	74.4
1999	79.3	83.3	82.9	81.3	67.4	84.8	80.6	92.4	75.3	74.7

Source: OECD Historical Statistics 1970-1999, CD-ROM

### **3.2 Differences in the Level of Economic Development among the HWF Countries**

Already the previous sections have indicated that there are substantial differences among the HWF countries with respect to the structural characteristics even at the broad sectors of agriculture, industry and services. The analysed candidate countries have all undergone a period of rapid industrialization under the socialist economic system and have tried to lessen the development gaps with developed countries. This process was interrupted by two main factors, increasing inefficiency of the system and later the change of the socio-economic system. Thus there are two major differences between the two groups of the HWF countries: Netherlands, Sweden and the UK, which belong to the leading developed capitalist countries, and the five candidate countries that have been undergoing the transition to the new system.

The first difference is in the level of development and standard of living that is a result of the historical circumstances and these differences have in many aspects even increased in the transition period. The second difference is the fact that the development in the three developed countries was continuous within a broadly defined system uninterrupted by major upheavals.

With respect to the quantitative indicators of the level of development, GDP per capita at purchasing power parity is the most commonly used indicator of the achieved level of economic development. The static disparities in this indicator for the eight HWF project countries are shown in the last row of Table 3.7. According to Eurostat, the level of GDP per capita (at purchasing power parity) in 2001 amounted to 112% of the EU15 average for the Netherlands, 100% for Sweden and the UK, 69% for Slovenia, 57% for Czech Republic, 51% for Hungary, 28% for Bulgaria, and 25% for Romania. In terms of grouping the eight participating countries by GDP per capita (ppp), there seem to be three groups with considerable difference in the level of the indicator: first, the Netherlands, Sweden and the UK; second, Slovenia, Czech Republic and Hungary; third, Bulgaria and Romania.

However, in addition to the static measures of disparity the degree of disparity can be measured also in a temporal perspective. Appendix Time Distance Methodology explains the major characteristics of the novel method of comparative analysis, which was also presented at the XV World Congress of Sociology in Brisbane under the title Time Distance: A Missing Link in Comparative Analysis. Time distance generally means the difference in time when two events occurred. We define a special category of time distance, which relates to the level of the analysed indicator. The suggested statistical measure S-distance measures the distance (proximity) in time between points in time when the two compared series reach a specified level of the indicator X.

To arrive at the estimates of the respective time distances one needs several approximations since the necessary time series of GDP per capita at purchasing power parities at constant prices are not yet available. Table 3.7 shows the input data for calculating the ex post time distances. First, the trend in GDP per capita for the EU15 is calculated by utilising time series of GDP in constant prices and time series on populations (European Commission, 1996) with updates and transforming it to 2001=100.

Table 3.7 Approximation of real per capita GDP time series (EU15 2001=100)

Time	EU15	S	NL	UK	SI	CZ	HU	BG	RO
1960	35.9	44.2	40.3	44.1					
1961	37.5	46.5	41.1	45.2					
1962	38.9	48.2	42.1	45.2					
1963	40.2	49.6	43.0	46.7					
1964	42.2	53.4	45.9	48.8					
1965	43.6	55.0	47.7	49.8					
1966	45.0	55.6	48.3	50.5					
1967	46.2	57.0	50.3	51.3					
1968	48.3	58.8	53.0	53.1					
1969	50.9	61.3	55.8	54.0					
1970	53.0	64.6	58.3	55.0					
1971	54.4	64.8	60.1	55.8					
1972	56.4	66.1	61.3	57.6					
1973	59.4	68.6	63.9	61.3					
1974	60.2	70.5	65.9	60.4					
1975	59.7	72.0	65.5	60.4					
1976	62.1	72.5	68.0	61.8					
1977	63.5	71.1	69.2	63.1					
1978	65.2	72.1	70.4	65.4					
1979	67.3	74.8	71.5	67.1					
1980	68.0	75.9	71.8	65.9					
1981	67.8	75.8	70.9	65.0					
1982	68.2	76.4	69.7	66.1					
1983	69.3	77.7	70.6	68.3					
1984	70.7	80.8	72.6	69.8					
1985	72.3	82.1	74.5	72.0					
1986	74.3	83.8	76.1	74.9					
1987	76.2	86.1	76.6	78.2					
1988	79.2	87.6	78.1	81.9					
1989	81.6	89.1	81.3	83.4					
1990	83.4	89.3	84.1	83.4					
1991	84.2	87.9	86.1	81.6					
1992	84.6	84.0	86.4	82.7					
1993	83.8	82.4	87.0	82.9	51.9	49.4	37.7	23.5	25.1
1994	85.9	84.1	89.8	84.5	55.0	51.6	38.7	24.1	26.6
1995	87.8	88.2	93.6	83.9	57.1	54.5	39.5	24.6	28.1
1996	89.1	88.0	93.3	87.4	59.7	57.0	41.0	22.3	30.3
1997	91.4	88.6	95.9	90.8	62.1	57.6	42.9	21.0	28.3
1998	93.7	92.8	105.9	95.6	63.7	56.2	45.9	21.6	25.3
1999	95.8	97.1	109.5	96.5	65.2	56.5	47.9	26.8	23.0
2000	98.8	99.8	111.5	98.7	67.2	55.3	50.4	26.7	23.7
2001	100.0	100.3	112.3	100.3	69.0	57.0	51.0	28.0	25.0

Source: For the EU15 time series of GDP per capita in constant prices European Commission (2001a), for candidate countries Eurostat (2002f). For an explanation of the derivation, see text.

This is not the true trend at purchasing power parity but is its approximation. With the help of this series, the series of per capita GDP at current prices and current PPPs (US

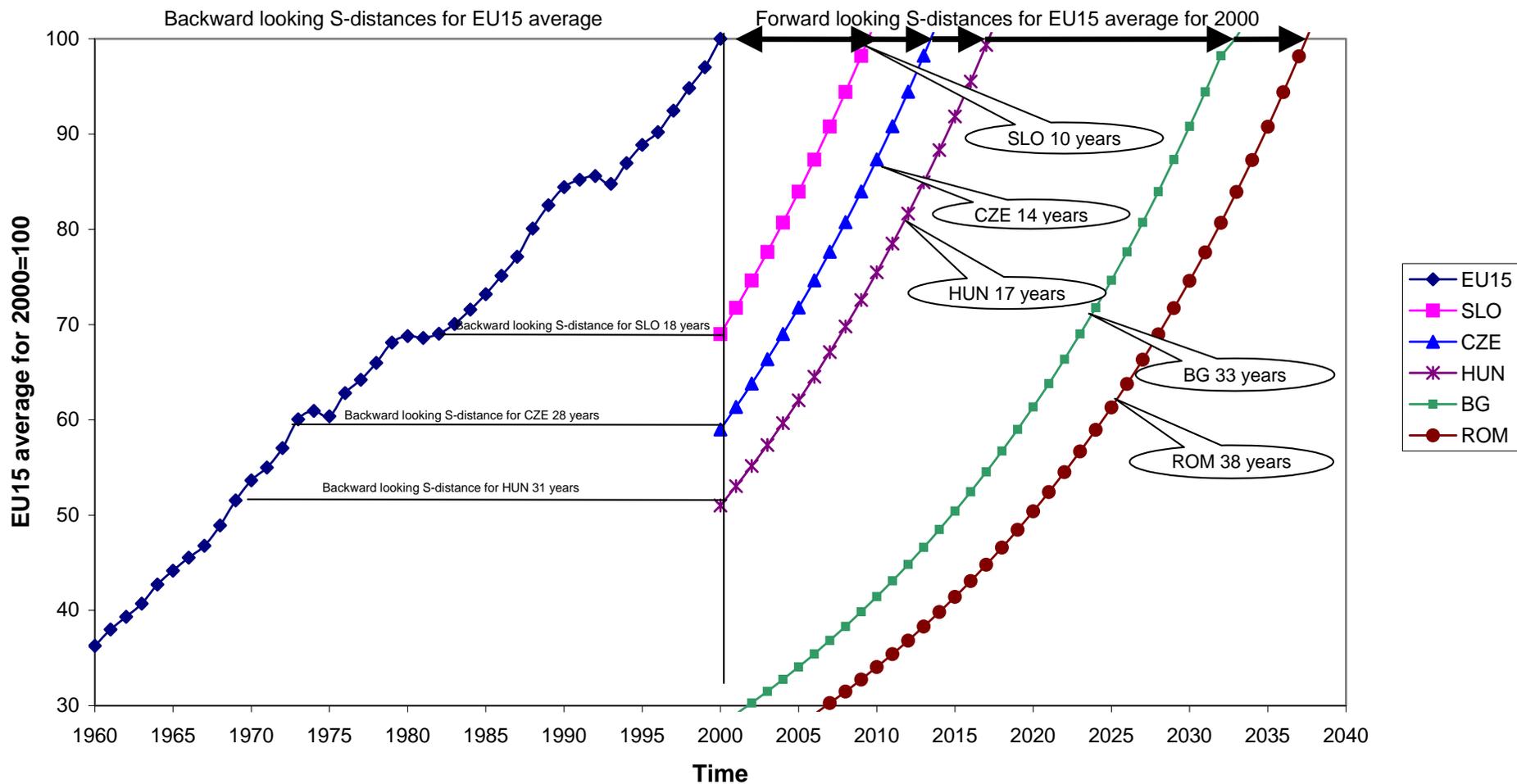
dollars) for the 1990-2001 period for the candidate countries and for the period 1960-2001 for the three EU countries, EU15 =100, are in the Table 3.7 transformed to the base year 2001.

The left part of Figure 2 presents the calculation of the respective time distances for the levels of GDP per capita of the HWF project countries for the year 2000. The logic of calculation of the backward looking (*ex post*) S-distance can be observed if in the historical time series for EU15 one looks for the year in which the EU15 had the same percentage of its 2000 value of GDP per capita as Slovenia had in 2000. This was approximately in the year 1982, which means that the backward looking time distance is about 18 years. In other words, the same value of the analysed indicator was achieved in EU15 18 years ago (1982 compared to 2000 in Slovenia). The corresponding values are for Czech Republic 28 years, for Hungary 31 years. The value for EU15 average in 1960 was 36% of its value in the year 2000, which means that the present values of GDP per capita for Bulgaria and Romania are lower than that and thus the backward looking S-distance is greater than 40 years.

Figure 2 is also used as an empirical example of an important distinction between backward looking (*ex post*) and forward looking (*ex ante*) time distances. They relate to different periods, past and future. The first belongs to the domain of statistical measures based on known facts; the second is important for describing the time distance outcomes of the results of alternative policy scenarios for the future. In this paper we will use mainly the backward looking time distances. In such application the time distance for the past period will introduce additional information about the fact at what point in time for a given indicator the benchmarking country, region or other unit observed the same level of the indicator that the compared unit is experiencing at present. This gives us the information about the magnitude of lead (lag) in time between the two compared units for a given level of the indicator as one of the possible perspectives on the magnitude development gap. Thus it can serve as an additional analytical method in numerous areas and for numerous indicators.

In the right hand side of Figure 2 forward looking S-distance for the level of EU15 average for 2000 are calculated based on a scenario that GDP per capita for the candidate countries will grow at 4 per cent per year. If this scenario would be implemented, the level of EU15 average for 2000 would be reached by Slovenia at about 2010, which means that at this level of GDP per capita the time distance for Slovenia would be about 10 years. However, under the assumed scenario<sup>2</sup> we have the estimate of one dimension of disparity in 2010. Such scenario tells us that the time dimension of disparity between Slovenia and EU15 average is expected to be reduced from 18 years to 10 years. Under the assumed scenario for growth rate for the candidate countries, the respective projected S-distances for the level of EU15 average in 2000 would be 14 years for Czech Republic, 17 years for Hungary, 33 years for Bulgaria and 38 years for Romania. Such a calculation of how many years would be needed for these countries to reach a given level (in our case EU 15 average for 2000) is a simple exercise in algebra, which is commonly used in describing such issues. However, within the framework of time distance methodology these values have also an additional meaning; they represent estimated future time distances for a given level of the indicator under the selected scenario<sup>3</sup>.

**Figure 2. Past time distances and time distances (projected) at the level of EU15 average GDP per capita for 2000 (Scenario: growth rate in selected countries is 4%)**



## 4. ATYPICAL FORMS OF EMPLOYMENT

### 4.1 An Overview of the Magnitude of Atypical Forms of Employment in the EU15

A static picture of the relative importance of atypical forms of employment in the EU15 can be grasped from the LFS principal results for 2001 (Eurostat, 2002d). In brief, out of 301.4 million persons aged 15 or more 161.3 million were persons in employment (52%), 12.7 million were unemployed (4.1%) and 136.3 million were non-active persons (43.9%). Among the non-active persons 119.9 million (38.6% of all persons aged 15 or more) do not want to have work, 7.4 million would like to have work but are not seeking employment and 1.7 million are seeking employment but is not available. Of the unemployed persons less than 2 in 10 are searching for a part-time job, the great majority for a full-time job.

The question of the relative importance of the atypical forms of employment is thus directly relevant for persons in employment, which form about 52% of the persons aged 15 or more in EU15. The first question is what are various notions of the ‘standard’ forms of employment against which the ‘atypical’ forms are to be compared and analysed. Even when one chooses one or more schemes in this respect there is a lasting problem about facts and preferences. This is an issue that stands at the root of the question how to combine work and family life, i.e. whether a certain form is desirable from the point of view of the individual that has to balance this and other aspects of his/her life or is it considered by him/her to be an undesirable form of employment. There is no easy way out of this and other question about the complexity of life situations. Needless to say, the actual outcomes are affected also by the situation on the side of demand for work.

Table 4.1 Work status of persons aged 15 years and more, EU15, 2001

	Million	%
Persons in employment	161.3	100
<b>Part-time job</b>	29	<b>18.0</b>
Not available for full-time job	20.7	12.8
Available for full-time job	4.3	2.7
<b>Full-time job</b>	132.1	<b>81.9</b>
Self-employed	19.9	12.3
Family workers	1.9	1.2
Employees	110.3	68.4
<i>Permanent job</i>	96.4	59.8
<i>Temporary job</i>	13.4	8.3

Source: Eurostat (2002d)

There can be several categories that could stand for the so-called ‘standard’ form of employment. In a developed economy the broadest category of ‘standard’ form is ‘employees’, which in EU15 in 2001 represents 84.3% of total employment (ranging from 92.7% in Luxembourg to 60.2% in Greece).

Self-employment is a substantial category (12.9% of total employment in EU15) and will be discussed in a special section as one form of atypical employment. Family workers category is much smaller (1.2%). Within the large category of employees

there are several divisions by Eurostat in Table 4.1, which could indicate atypical forms of employment within the category of employees. In this table Eurostat uses first the division into part-time and full-time jobs. Part-time jobs are a substantial part of persons in employment (18%), have different quality characteristics than full time jobs, but it is questionable whether one should consider them automatically as jobs with negative characteristics as about 80% of those engaged in part-time jobs answer that they are not available for full-time jobs. Employees with full-time jobs are separated into those with permanent job and those with temporary jobs.

If one would take the most selective definition of what could be the notion of 'standard' form of employment in Table 4.1, this would be the category 'employees with permanent full-time jobs'. In the EU15 in 2001 LFS there were 96.4 million (59.8% of total employment) in this category. Such a definition would mean that 60% of the persons in employment would satisfy the condition of the so-called 'standard' form of employment. In other words, 40% of persons in employment could be assigned to different categories of 'atypical' forms of employment. However, such a division should not be taken as a division between 'good' and 'bad' jobs, between desirable flexibility and insecurity, which is a major policy concern in the policy debate and in the literature about atypical forms of employment.

As mentioned above, the great majority of persons working on part-time jobs answered in the LFS that they are not available for full-time job, which may mean that from at least one aspect of personal preferences these jobs do not need to be put in the category of 'bad' jobs. Furthermore, the category of self-employed is a very difficult category with respect to classifications in terms of 'good' and 'bad' jobs, as it is usually very heterogeneous. Similarly, temporary jobs may be either a convenient step in one's career to further desirable changes in the employment status or a dead end with no possibility of promotion and a high degree of uncertainty of holding to the job. If one tried to make an estimate of the smallest share of atypical forms of employment that could be on the face value put into a category of 'bad' jobs, the addition of part-time jobs but available for full-time job, family workers, and temporary jobs, this would amount to 12.2% of total persons in employment. To this percentage of the persons in employment one would, of course, have to add unemployed persons, a category which is not a part of this study. With this, rather superficial statistical reasoning one could estimate that in EU15 the range of atypical forms of employment that could represent the notion of less desirable forms of employment is between 12.2% and 40% of persons in employment.

Beck (2000) shows example of the change in Western Germany over the period from 1970 to 1995 of dependent employees in normal and non-normal work situations. The share of dependent employees in normal work situations in the total of dependent employees and dependent self-employed decreased from 84% in 1970 to 68% in 1995. Table 4.6 below shows that the increased trend of the share of part-time employment in the period 1985-2001 was apparent for the EU15 average and evident in Germany, Belgium, Netherlands, Ireland, Luxembourg, Austria, France, Portugal, Italy and Spain, while little change in this share was observed in the UK, Denmark, Finland and the analysed candidate countries (for which much shorter time series are available). The increased relative importance of part-time work as quantitatively the largest atypical form of employment in the EU is a wide spread phenomenon.

## 4.2 The Status in Employment around 1950

Table 4.2 illustrates the division by status in employment for around 1950 for the five HWF project countries. It can be compared with Table 4.1 in the sense to see the possible differences in the broadest definition of 'standard' employment, i.e. employees that in EU15 in 2001 represented 84.3% of total employment. In the UK already in 1951 salaried employees and wage earners represented 92% of persons in economically active population. The UK can thus be an example of what was the prevailing idea about the standard form of employment, though there are of course further subdivisions within the category of employees that can be considered as atypical forms of employment. Obviously, the UK had from the industrial revolution until that time reached the level of structural change where 95% of total economically active population were employed in non-agriculture (and 93.4% of active persons in non-agriculture belong to the category of employees).

Table 4.2. Economically active population by status and by sector (around 1950)

	Total					
		S	NL	UK	CZSK	HU
Employers, own account workers	T	19.3	19.1	7.7	19.2	34.8
	M	22.5	22.9	9.2	25.8	39.2
	F	10.4	7.4	4.6	7.2	24.1
Salaried employees and wage earners	T	76.8	70.2	92.0	60.7	45.9
	M	73.2	71.3	90.7	67.3	47.1
	F	86.8	66.9	94.8	48.7	42.8
Unpaid family workers	T	3.9	10.7	0.2	20.1	19.3
	M	4.3	5.8	0.1	7.0	13.6
	F	2.8	25.7	0.6	44.1	33.1
Agriculture						
	S	NL	UK	CZSK	HU	
Employers, own account workers	T	55.0	33.7	31.6	32.7	51.5
	M	54.5	41.2	32.9	57.1	59.2
	F	60.4	8.3	20.0	7.5	33.3
Salaried employees and wage earners	T	29.8	32.4	66.3	16.7	13.2
	M	31.3	39.6	66.2	20.6	15.6
	F	13.2	7.7	67.0	12.7	7.3
Unpaid family workers	T	15.2	33.9	2.1	50.6	35.3
	M	14.2	19.2	0.8	22.4	25.2
	F	26.4	84.0	13.0	79.8	59.4
Non-agriculture						
	S	NL	UK	CZSK	HU	
Employers, own account workers	T	10.2	15.5	6.5	11.1	16.1
	M	11.7	18.2	7.5	12.6	17.2
	F	6.9	7.3	4.4	6.9	13.3
Salaried employees and wage earners	T	88.8	79.5	93.4	87.4	82.6
	M	87.4	79.3	92.4	86.9	81.8
	F	91.9	80.1	95.3	88.6	84.6
Unpaid family workers	T	1.0	5.0	0.2	1.6	1.3
	M	0.9	2.4	0.0	0.5	1.0
	F	1.2	12.7	0.4	4.5	2.1

Source: UN (1957), Statistical yearbook 1957, New York  
Data for NL, CZSK 1947, HU 1949, S 1950, UK 1951

Around that time in Sweden and in the Netherlands about 20%, in Czechoslovakia 38% and in Hungary 53% of the total economically active population was still employed in agriculture, which resulted in lower shares of employees than in the UK. However, if the status of employment is analysed only for non-agriculture, then the category 'salaried employees and wage earners' is shown as distinctly the most important category with values higher than 80%, thus confirming the notion that this is the form of employment that is considered the standard form of employment and was expected to increase also in the total as the share of agriculture is falling with economic development.

### **4.3 Self-employment**

The broad category of self-employment in statistical sources is a rather heterogeneous category. Sometimes it is further broken down into more detailed categories, one such division is into employers and own account workers. A much more difficult distinction to evaluate is what one can label desirable and undesirable instances of self-employment. Though this is at the end a subjective evaluation from the point of view of the person involved, one can try to distinguish also the factors that led to the self-employment form of employment and that can be traced back to some more objective classes of cases. On the one hand, self-employment is in the literature also related to the notion of entrepreneurship and in such cases it may be considered as a very positive and innovative type of economic activity (see Boegenhold, 2002b). On the other hand, self-employment may be the only solution for survival as a consequence of the situation that no other form of employment was attainable. In the HWF project the much higher value of share of self-employment in total employment in Romania than in other HWF countries may be representing the latter case, which becomes apparent when one looks at the importance of self-employment in the non-agriculture part of the economy. The share of self-employment obviously depends strongly on the level of development of the economy, as it is much higher in the agricultural sector (see Table 4.2). Within the non-agricultural sector more self-employed work is found in the service sector than in the industrial sector. For the candidate countries this is shown in Table 4.4 (Eurostat, 2001b).

This table also explains the higher value for Romania, as most of the self-employed are in agriculture, partly because of the high share of agriculture in the economy and partly because of the unemployment situation in the country. In the six transition countries analysed by Earle and Sakova the share of self-employment in total employment increased between 1988 and 1993, which strengthens the earlier mentioned general dilemma for the case of self-employment in transitional economies: entrepreneurship or disguised unemployment (Earle, Sakova, 1998). The HWF project countries are with respect to the share of self-employment in total employment slightly below the EU 15 average. The two exceptions are Romania on the higher side and Sweden with a much lower share of self-employment.

Table 4.3 Self-employment (% total employment)

	1975	1985	1990	1991	1992	1995	1996	1997	1998	1999	2000	2001
EU15	15.8	15.1	15.4	15.6	15.8	16.1	16.0	15.9	15.7	15.3	15.0	14.8
EL		36	47.2	46.7	46.9	45.8	45.7	45.4	45.1	44.8	44.3	43.3
P	27.7	26.2	25.4	26.5	26.9	29.2	29.6	29.4	29.4	28.4	27.4	28.5
I	29.5	24.1	27.4	27.5	27.3	26.9	26.9	26.7	26.6	26.2	26.1	25.8
RO								22.4	23.2	23.8	25.4	25.7
A	13.7	11.3	22.8	22.3	21.8	20.4	20	19.7	19.4	19	18.4	18.2
IRL	24.4	21.5	23.1	22	22.2	20.5	19.9	19.4	19.7	18.7	18.2	17.6
B	14.8	15.9	18	18.2	18.4	18.8	18.9	18.6	18.2	17.9	17.5	17.2
E	21	22.6	19.6	18.8	19.3	18.7	18.9	18.1	17.7	17.1	16.5	16.4
CZ								11.8	13	13.9	14.5	14.6
HU							16.8	16.3	15.2	14.9	14.5	13.9
BG											14.7	13.7
NL	10.3	9.1	15.4	15.1	15.5	15.7	15.8	15.8	15.3	14.5	14.1	13.8
SI							12.6	12	12.5	12.6	11.2	11.8
UK	8.1	11.6	13.5	13	13.1	13.5	13.2	13	12.4	12.1	11.8	11.7
FIN		13.9	12.9	12.9	13.2	12.8	12.8	12.6	11.8	11.8	11.6	11.1
D	9.4	9.2	8.9	9.3	9.6	10.3	10.3	10.5	10.6	10.4	10.3	10.2
F	14.4	12.6	13.1	12.6	12	10.9	10.5	10.3	10	9.8	9.5	9.2
DK	13.9	9.9	9.1	9.1	9.3	8.2	8.1	7.8	7.4	7.3	7.2	7
L	15.8	9.4	8.9	8.4	8.2	7.6	7.5	7.3	7.1	6.8	6.4	6.1
S	7.2	9.5	4.6	4.6	5	5.6	5.5	5.6	5.5	5.5	5.3	5.0

Source: European Commission (2002), Employment in Europe, Recent Trends and Prospects, Luxembourg, for 1975, 1985 European Commission (2000), Employment in Europe, Luxembourg

Table 4.4 Self-employment rate and contribution by sectors

Country	Self-employment rate	Contribution of sectors		
		Agriculture	Industry	Services
Bulgaria	14.6	7.2	1.5	5.8
Czech Republic	14.5	0.9	4.6	8.9
Hungary	14.6	2.6	3.7	8.4
Romania	25.4	21.9	0.9	2.6
Slovenia	11.2	3.8	2.6	4.7

Source: Eurostat (2001b).

For the EU15 countries there are several characteristics. First, self-employment in different sectors of the economy is the highest in services, followed by industry and agriculture (the share in agriculture has fallen with the development of the economy). Within the category of self-employed the division over different sectors shows considerable differences among the countries of the EU15. For the countries that are high on the list in Table 4.3 the self-employment in agriculture is still important while in the UK and Germany self-employment in industry is also important, but in practically all countries the highest proportion of self-employed is in services. The less developed EU15 countries have a higher percentage of lower educated among the self-employed. There is a much higher rate of men than women among the self-employed. Furthermore, in the study by the European Parliament it is shown that the level of the development of the economy and the structure of the economy are statistically significant explanatory forces for diverging national self-employment rates (European Parliament, 1998).

A much more detailed study of the self-employment and its role in the development is needed because of its heterogeneity. Within this category one can expect to find a high polarization between the new entrepreneurs and highly educated self-employed professionals who entered the self-employment by choice and earn high incomes, on the one hand, and those who were entering the self-employment because of lack of other alternatives and earn low income under unstable conditions, on the other. As Boegenhold stresses, in the case of the first group there is growth of new companies and new occupations, there was an emergence of a multiplicity of new self-employed occupations and job profiles. This led to the situation that in Germany in 1996 one in every six self-employed persons belonged to the self-employed liberal professions (Boegenhold, 2002a). On the other hand, for Canada it is stated that most of the increase in self-employment has been driven by the lack of alternatives in terms of decently paid, permanent paid work (Canadian Labour Congress)<sup>4</sup>.

#### 4.4 Part-time work

The international comparisons of the distinction between ‘full-time’ and ‘part-time’ are hampered by the fact that there is no agreed international definition as to the minimum number of hours in a week that would constitute full-time work. So the ILO puts the dividing line either on an economy-by-economy basis or through the use of special estimations (ILO, 2002). Kalleberg (2002) cites many examples of how what constitutes part-time work varies among countries.

Notwithstanding these difficulties in diverse definitions of part-time work, it seems that part-time work is the prevailing form of the three studied cases of atypical forms of employment. Both for the USA and for the EU15 average this is the highest share of atypical forms of employment and in the total the percentage is very similar for 2000, 16.9% in the USA and 17.7% in the EU15.

Table 4.5 Employed persons by usual full- or part-time status and sex, USA, annual averages, 1970-2000 (percentage)

	Total		Male		Female	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
1970	84.8	15.2	91.5	8.5	73.9	26.1
1980	83.1	16.9	90.4	9.6	73.2	26.8
1990	83.1	16.9	89.9	10.1	74.8	25.2
2000	83.1	16.9	89.8	10.2	75.3	24.7

Source: Bureau of Labor Statistics (2001), Table 11

With respect to gender differences, in EU every one in three women work part-time (see Table 4.7), while in the USA this ratio is one in four. Looking from another perspective, from the persons working part-time in the USA 67.5% are women, in the EU this percentage is around 80%. Thus part-time employment is much more strongly related to women than to men. This is especially strong in the developed countries of the EU, while the tendency is observed also worldwide (UN, 2001). Part-time work often allows combining family responsibilities with work. ILO finds that the relationship between the higher share of women in part-time work and the higher women’s participation in the labour force can be seen in the developed (industrialized) countries where part-time work is institutionalized, although the relationship is not strong. In the transition economies, in their view, the share of

women working part-time does not affect labour force participation rates. In these countries such work is a recent phenomenon and other factors are influencing its magnitude (ILO, 2002).

A longitudinal survey for the period 1967-1989 has shown that the evolving structure of female work time is towards increase of shorter working times. In 1967 74.8% of the analysed women's cohort worked 35 or more hours per week, in 1989 this had decreased to 68.3% as more women were working shorter hours (Parsons, 1994). Ferber and Waldfogel (1998) find that past part-time work has a negative effect on current wages, which varies with gender and whether the part-time status was voluntary or involuntary. A more general relationship between part-time work and fast-growing industries in the USA was discussed by Fallick (1999). In the period 1983-1993 there was a positive correlation between an industry's growth rate and the percentage of that industry's workforce who work part-time. He raises the question whether this correlation is intrinsic or accidental. For the period analysed it seemed that part-time workers were particularly well suited to the changing demands of rapidly growing industries. However, this may not be a general conclusion, as this pattern did not emerge clearly in the data until the 1980s. There was also no indication that the part-time workers in these fast-growing industries were more likely to be working part-time, because they could not find full-time work.

Table 4.6 Part-time employment (% total employment)

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU15	13.1	13.8	13.9	14.5		15.5	16	16.4	16.9	17.3	17.6	17.8	17.9
NL	29.4	32	33.1	34.6	35.3	36.6	37.5	38.1	38.2	39	39.8	41.5	42.2
UK	21.2	21.7	22.6	23.3	23.4	24.2	24.3	24.8	24.8	24.7	24.8	25	24.9
S	25.6	23.9	24.2	24.8	25.7	25.8	25.2	24.6	24.4	23.8	23.7	22.4	24.1
D	10	10.5	14.1	14.5	15.2	15.8	16.3	16.7	17.6	18.4	19	19.6	20.3
DK	24.3	23.5	23.3	23	23.1	21.7	21.8	21.9	22.5	22.3	21.6	21.3	20.2
B	9.4	12.9	13.6	14.2	14.7	15	15.7	16.3	17.2	18.4	20.3	20.8	18.2
A	11.1	14	14	14	14	13.6	14.1	14	14.7	15.7	16.4	16.4	17.6
F	10.9	12	12.3	13.1	14.3	15.2	15.8	16.3	17	17.3	17.1	16.7	16.4
IRL	6.5	7.9	8.3	9.1	10.5	11.1	11.6	11.4	13.6	16.5	16.4	16.4	16.5
RO									15.2	16.3	16.5	16.4	16.8
FIN	11.5	9.5	10.1	10.4	11.3	11.5	11.7	11.5	11	11.4	12.1	12.3	12.2
P	6.7	7.4	7.9	7.6	7.8	8.3	8.1	9.3	10.7	10.9	10.9	10.8	10.8
L	4.7	6.5	6.5	6.5	6.9	7.9	8.5	8	8.2	9.1	9.8	10.3	10.3
I	5.3	6	6	6	5.5	5.9	6.3	6.5	6.8	7.3	7.9	8.4	8.4
E	5.8	4.8	4.6	5.9	6.4	6.7	7.4	7.7	8	7.9	8.1	8	8.1
SI								6.8	8.2	7.6	6.6	6.1	6.1
CZ									6.1	5.9	5.7	5.4	4.3
EL	5.2	4	3.9	4.5	4.3	4.7	4.8	5	4.8	5.6	5.8	4.5	4
HU								3.2	3.7	3.8	3.9	3.6	3.3
BG													3.4

Source: European Commission (2002), Employment in Europe, Recent Trends and Prospects, Luxembourg, for 1985 European Commission (2000), Employment in Europe, Luxembourg

In the EU the share of part-time work follows broadly the ILO conclusions mentioned earlier. Generally, the more developed countries have the share of part-time employment in total employment much higher than the EU countries with a lower level of development or the candidate countries. From the point of view of the HWF

project countries, the three EU countries in the project show the highest share of part-time employment in total employment, while the candidate countries in the project are at the lower end of the table. The only outlier is Romania. Very similar is the situation with the indicator women employed part-time as % of all employed women. In both cases the Netherlands shows a much higher level of these two indicators than the rest of the countries. The Netherlands stands out not only by the high values but also as an example of the substantial increase in these two indicators over the last 15 years. In Table 4.7 the percentage of women working part-time as the percentage of all employed women increased from 60.1% in 1989 to 71.3% in 2001, thus to a great extent explaining the increase in female labour force as a percentage of female population from 15 to 64 years (in Table 3.6) from 51% in 1989 to 64.5% in 1999.

In the OECD countries the long-term rising trend in part-time work has been a characteristic in almost all countries over the 1990s, going hand-in-hand with increases in female labour force participation. OECD study also states that in recent years growth in part-time employment has made a significant positive contribution to total employment growth across a wide range of OECD countries. It has partially offset declining full-time employment in a number of them (OECD, 2000). From the point of view of the role of part-time employment it is also important whether those

Table 4.7 Women employed part-time as % of all employed women

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
EU-15						30.6	31.3	31.6	32.3	32.9	33.2	33.4	33.4
NL	60.1	59.7	60.9	64	64.9	66.3	67.6	68.3	67.9	68.1	69.1	71	71.3
UK	43.6	43.2	43.7	43.9	43.9	44.6	44.5	44.7	44.7	44.5	44.2	44.6	44.1
D	30.7	33.8	30.2	30.9	32.1	33.2	33.7	33.9	35.3	36.4	37.3	38.2	39.2
B	25	29.9	31	31.9	32.2	32.3	33.8	34.7	35.9	37.7	40.2	40.5	36.8
S		42.6	42.8	43.1	43.7	43.7	43	41.9	41.4	40.5	39.3	36.1	36.4
A		26.5	26.5	26.5	26.5	26	27.4	27.6	28.5	30.5	32.2	32.2	34.1
DK	40.1	38.5	37.8	37.1	37	35	35.4	34.7	34.9	35.5	34.8	34.1	31.7
F	23.8	23.6	23.9	25.2	26.9	28.3	29.1	30	31.2	31.6	31.4	30.8	30.4
IRL	16.5	17.3	17.6	18.7	20.8	21.5	22.4	22	25.2	30	30	30.1	30.5
L	16.4	16.1	16.1	16.3	17.6	20.5	21.8	20.5	21	22	24	25.1	26.1
RO									18.3	19.4	19.2	18.6	19.1
I	10.9	11.8	11.8	11.8	11.2	12	12.7	12.9	13.4	14.2	15.6	16.5	16.6
E	11.9	11.8	11.2	13.5	14.3	14.8	16.2	16.6	17.1	16.9	17.1	16.9	16.8
FIN		13.4	13.6	13.7	14.8	14.9	15.4	15.3	15.3	15.9	16.9	17	16.8
P	9.9	12.6	13.1	12.3	12.5	13.1	13.1	14.7	16.8	17.1	16.7	16.3	16.1
SI								8.6	9.9	8.7	7.8	7.7	7.4
CZ									10.3	10	9.9	9.5	7.1
EL	8	7.5	7.3	8.1	7.7	8	8.4	8.7	8.5	10	9.9	7.8	7.1
HU								4.4	5.6	5.4	5.6	5.3	4.8
BG													3.7

Source: European Commission (2002), for 1989 Eurostat web page

employed part-time did not want a full-time job or whether they could not find a full-time job. In the EU15 in 2000 59.3% of those employed part-time did not want a full-time job, among women the percentage was 65.1% (the percentage of women came as high as 80.2% in the UK, 70.3% in Germany and 77.8% in the Netherlands). For the

EU15 for 15.8% the reason for working part-time was that they could not find a full-time job (Eurostat, 2001a).

For the candidate countries in the HWF project, with the exception of Romania, the part-time employment as percentage of total employment is very low, 6% or lower. There are several reasons for that besides the lower level of development. One of them is the historical experience of very high full employment participation rates and in that sense part-time employment is generally seen as a deterioration of employment conditions. Another factor is a considerably lower general wage level in transition countries than in the EU, which means that the income from part-time employment is not sufficient for economic survival.

#### 4.5 Fixed term contracts

Fixed term and temporary employment are also increasing in most of the countries presented in Table 4.8. In a situation of substantial unemployment temporary work is becoming an important source of employment growth on the one hand, and also

Table 4.8 Fixed term contracts (% total employment)

	1985	1990	1991	1992	1995	1996	1997	1998	1999	2000	2001
EU15	8.3	10.3	9.2	9.4	12	12.2	12.6	13.1	13.4	13.6	13.4
E	15.6	30.3	32.3	33.5	34.9	33.8	33.6	33.1	32.8	32	31.7
P	13.8	16.1	14.8	13.7	12.3	13.8	15.7	17.5	19	20.4	20.6
FIN	10.4	18.2	18.2	18.2	18.2	18.2	18.2	17.4	16.7	16.3	16.4
F	4.7	10.4	10.3	10.6	12.4	12.8	13.4	14	14.6	15.3	14.9
NL	7.5	7.6	8.2	9.8	11.2	11.8	11.7	12.5	12.2	13.7	14.3
S		8.3	8.1	8.7	11.7	11.4	11.9	12.7	13.4	14	13.5
EL	14.7	15	12.8	9.6	9.4	10	10.3	12.1	12	12.8	12.6
D	10	10.5	10.2	10.5	10.5	11.2	11.8	12.4	13	12.7	12.4
SI						7	11.6	9.2	8.8	10.8	10.8
I	4.8	7.1	7.1	7.1	7.3	7.3	7.9	8.6	9.5	10.1	9.8
DK	12.3	10.6	11.3	10.7	11.6	10.9	10.6	9.9	9.6	9.7	9.2
B	9.1	5.3	5.1	5	5.4	6	6.6	8.2	9.9	9.1	9
A		8	8	8	8	7.9	7.8	7.9	7.9	8	8.1
CZ							6.9	5.8	6.4	6.9	6.9
UK	7	5.2	5	5.2	7.3	7.5	7.7	7.5	7.1	7	6.8
HU							5.5	5.6	5.2	5.8	6.4
L	4.7	3.3	3.3	3.4	5	4.3	4.1	4.9	5.2	5.4	5.8
BG											5.7
IRL	7.3	8.5	8.4	8.9	10	9.3	9.1	7.3	5	4.5	3.7
RO							1.8	1.7	1.7	1.6	1.6

Source: European Commission (2002), Employment in Europe, Recent Trends and Prospects, Luxembourg, for 1985 European Commission (2000), Employment in Europe, Luxembourg

reflects attempts by employers to bypass strict employment protection for permanent workers (OECD, 2000).

Within the EU15 countries and the selected candidate countries Spain stands out as the country with the highest share of fixed term contracts as percentage of total

employment. Of the HWF project countries Sweden and the Netherlands are slightly over the EU15 average, while Slovenia is below that average but considerably higher than the rest of the candidate countries. It seems that in other candidate countries as well as in the UK fixed term contract arrangement is not a very important category of atypical forms of employment and has not been an important component of employment growth in the last decade. The position of the UK in the lower part of the table may be due to the fact that the labour legislation in the UK is not very stringent with respect to dismissal of workers. Fixed term contracts can be in a certain way looked upon as a compromise between the interest of an enterprise and interest of workers, between flexibility, security of employment and the access to the employment possibilities at all.

#### **4.6 Good and bad jobs**

The discussion of the importance and role as well as of consequences of atypical forms of employment is varied in the sense that some authors strongly emphasise the negative aspects of these forms as compared to the standard form of employment, while the other group emphasises more the positive aspects. Beck (2000) points more to the negative aspects of the destandardization of the work relationships and discusses how the work society is becoming a risk society. However, especially on the individual level, it may very well be that in a substantial number of cases atypical forms of employment may mean a welcome possibility to combine the specific individual conditions of work, family, and chosen lifestyle. This is an important debate, broadly discussed from many perspectives and it is no doubt here to stay for a long period of time. When attempted from the ideological point of view, it is difficult to see how the diverse value judgments could lead to a unified conclusion. In this situation a pragmatic approach might be very useful, by taking the position that whether a certain form of employment is good or bad should be treated as an empirical issue. This approach was taken by Sicherl and Remec (2002) in the analysis of the HWF survey for Slovenia and by McGovern, Smeaton and Hill (2002) for the assessment of bad jobs and nonstandard employment in Britain. There are two sets of criteria that can be used in deciding whether certain arrangements represent good or bad jobs, a set of objective and a set of subjective criteria. Both studies decided to test the possibility of what conclusions could be based on a chosen set of objective criteria.

The results of the Sicherl and Remec study will be discussed in more details in the next section. The British study decided to follow and compare with a similar study in the USA (Kalleberg, Reskin and Hudson, 2000). It defines bad jobs according to social judgment that emphasises the economic limitations of such jobs, which is operationalised as a set of bad characteristics that include low pay, no sick pay, no pension beyond statutory entitlement, and no promotion ladder. Their results on the one hand support the claim that nonstandard employment (different from traditional full-time permanent form of employment) increases workers' exposure to bad job characteristics after controlling for workers' personal characteristics, family status, occupation and industry. On the other hand not all nonstandard arrangements are the same and some of them might not be no worse than full-time permanent employment in relation to pay. Also the European Union's framework directive on part-time workers introduced in Britain did not in practice solve the problem, as the requirement

that part-timers must find a full-time comparator within the same work place was in many cases impossible to meet. Furthermore, in their case one third of those in standard jobs did not have the fringe benefits required for giving equal treatment to part-timers. A similar situation exists in the United States. Employee Benefits Survey (Bureau of Labor Statistics, 1997) shows that there are more benefits associated with full-time than with part-time employees, but that the benefits for full-time employees may be also rather low in some aspects.

Two general conclusions can be deduced from the ample literature on this topic. Not all atypical forms of employment are necessarily inferior to standard employment, and the outcome depends on a variety of objective and subjective criteria. Institutional arrangements differ among the countries and forms, and could significantly influence this outcome. However, there are many general factors like level of development, globalization, technological progress, lifestyles and preferences, which show that the shares of atypical and standard forms of employment are not influenced only by institutional and policy choices.

#### **4.7 Conclusions from the case study of Slovenia**

In the analysis of the HWF survey for Slovenia (Sicherl, Remec, 2002) Chapter 5 is devoted to additional analysis of different flexibility categories that can to a certain extent be used as an empirical case study of the major issue discussed above: to what extent can different kinds of flexibility be related to positive or negative work characteristics.

The respondents were first grouped into eight categories, the major criterion for categorization being employment status of the respondent, which was then combined with some other characteristics of flexibility. The emphasis was on 'objective' elements of work status and flexibility, which may or may not correspond to the subjective evaluation of the respondents with respect to these characteristics. For instance, it was considered that working in shifts or an irregular schedule is a negative element of work; while in a survey by the Statistical Office a rather large number of those working in shifts expressed their satisfaction with such a position<sup>5</sup>. Thus the approach taken here has the advantage that such 'objective' elements could be compared for different social groups or different countries, but obviously should not be considered as a statement of the difficulty or satisfaction with a particular position with respect to a given element of work.

Later the eight categories were for statistical analysis grouped into three groups, flexible employment group A, flexible employment group B, and standard employment group C. These groups do not follow the earlier categories of atypical forms of employment, i.e. self-employment, part-time employment, and fixed contracts. In the survey the percentages of these three categories are not the same than the corresponding values in the above tables that follow the usual statistical classification criteria. For instance, part-time employment in the survey is much lower, as respondents were asked whether they work part-time or full-time while in the official statistics the subdivision into full-time and part-time is done simply by a selected number of hours worked per week.

Table 4.9a Flexibility grouping into eight categories

Category	Frequency	Percent (%)
1. Full time employment, more activities, flexitime	83	14.4
2. Full time employment, shift and irregular work	115	19.9
3. Part time employment	7	1.2
4. Fixed contract	60	10.4
5. Self employed	41	7.1
6. Students and retired with one or more activities	64	11.1
7. Others	27	4.7
8. Employed full time, regular schedule, one activity	181	31.3
	n=578	

Table 4.9b Flexibility grouping into three categories

Category	Frequency	Percent (%)
Flexibility group A (1+5+6)	188	32.5
Flexibility group B (2+3+4+7)	209	36.2
Standard employment group C (8)	181	31.1
	n=578	

This grouping is also a major departure from an implicit assumption that the notion of full-time permanent form of employment is a homogeneous category against which atypical forms of employment are to be compared. In Table 4.9a full-time employment is subdivided into three categories. Category 8 (employed full-time, regular schedule, one activity) is defined as the standard employment group C in Table 4.9b. The other two categories of full employment in Table 4.9a are category 1 (full-time employment, more activities, flexitime), which should in general mean some more desirable characteristics than the standard employment group C; and category 2 (full-time employment, shift and irregular work), which on the contrary is associated with some generally less desirable characteristics. In the contrast to the standard employment category C, the other two categories of those employed full-time are then considered categories of flexible employment. These two categories are the backbone of the subdivision of those with some flexibility characteristics (as distinct from the standard employment category) into flexibility group A and flexibility group B.

Flexibility group A encompasses those with some 'objective' positive characteristics of flexibility, which are in this instance a summation of categories 1, 5 and 6 from Table 4.9a. It is considered that in addition to the category 1 explained above, one could add into this group also the self-employed, and students and the retired with one or more activities. One could argue that both students and pensioners do not have to engage in an economic activity for their basic status, or that economic activity is conditioned by their basic status position, respectively, so that their engagement in one or more economic activities is a voluntary decision. For the self-employed in Slovenia we may consider that this position is in the majority of cases a voluntary decision, aimed at more independence and flexibility in their work, rather than a consequence of being laid off and being forced into such a status. This may be very different in some other transition countries and in international comparisons one should subdivide the self-employed category accordingly.

Flexibility group B comprises four categories from Table 4.9a (adding categories 2, 3, 4 and 7). The most important component is category 2 with shift and irregular work as explained above. Part-time employment, which is rather rare in Slovenia, and fixed

contract (temporary) employment are placed in this flexibility group with ‘negative’ objective elements on presumption that the majority of these cases are involuntary from the point of view of the employees, as they would prefer a more firm commitment from the employers. The group of ‘others’ comprises casual workers, unpaid workers in family businesses, the unemployed with an additional job, farmers with one economic activity and those laid off. The greatest majority of those included in the category ‘others’ have ‘negative’ elements of flexibility associated with their work position. To sum up, there are no doubt other possible criteria for categorizing respondents by various flexibility characteristics. In the analysis of survey in Slovenia an attempt has been made to bring attention to the ‘objective’ elements of flexibility to initiate a discussion on the positive and negative aspects of flexibility arrangements at work, looking from one side, that can be later connected also with the work-family situations, from the other. As the most important policy issue with respect to work flexibility we see the question of how to balance the positive and negative aspects of work flexibility from both the employees’ and the employers’ side.

The detailed results and statistical significance analysis of differences among the three compared groups, flexibility group A, flexibility group B, and standard employment group C, are presented in Sicherl, Remec (2002). Statistically significant differences were shown with respect to work characteristics: e.g. people in flexibility group A undertake more work activities, more hours of work per week, have a more flexible schedule, as well as a more varied type of contract and place of work. This group is more likely to have higher incomes and more household goods, including Internet and PCs. They also have more satisfaction with earnings but less with working hours. On the other hand, flexibility group B is more often disadvantaged. The three flexibility categories show very significant differences in (‘objective’) characteristics related to work and practically no significant differences in (‘subjective’) opinions about possible work/family conflicts or agreement on various household issues.

The main conclusion from this analysis is that not all atypical forms of employment should be considered as categories with negative characteristics and as such necessarily automatically labeled ‘bad’ jobs; and that equally all full-time permanent jobs should not be associated only with the notion of ‘good’ jobs as there was a great heterogeneity in the work conditions and end results in terms of income, flexibility, and freedom of decision-making in full employment permanent jobs category.

#### **4.8 Overall picture from the comparative analysis among HWF project countries**

The composition of countries in the HWF project covers a wide range of experience over the whole European landscape. Already at the beginning of the project it was clear that it covers countries from Northern, Western, Central and Eastern Europe. In this study several other characteristics have been analysed that further confirm the very broad range of values for a number of indicators within the set of project countries.

By the level of development, as conventionally measured by GDP per capita, there are three distinct groups. The first consist of the three EU developed countries, Sweden and the UK are around the EU15 average, while the Netherlands is about 10% higher. The second group includes the three candidate countries that are in the line for

becoming full members of the EU in 2004. Their per capita GDP at purchasing power parity ranges in 2001 from 69% in Slovenia to 51% of the EU15 average value. In the third group the two other candidate countries, Bulgaria and Romania, reached 28% and 25% of the EU15 average, respectively. These are well known facts. Another way of looking at these differences was the time distance analysis. When compared to the EU15 average, the Netherlands was about 4 years ahead, for Sweden and the UK the lead was a few months, Slovenia lagged 18 years, Czech Republic 28 years, Hungary 32 years, while Bulgaria and Romania lagged more than 40 years. However, the data presented allow for other typologies for background analysis.

One of them is the distribution of the civilian employment by sectors of activity. The share of agriculture influences the share of self-employment in total employment; in the HWF group of countries the highest value is that in Romania. A much more interesting influence on the share of atypical forms of employment is that of the relative importance of services in employment. Here there are substantial differences also among developed countries. The leading countries among the developed countries studied in Table 3.4 are the USA and the Netherlands. Close to them are Sweden, the UK and France. Countries like Germany, Italy and Japan have a distinctly lower share of services in civilian employment, the time distance with the USA is about 25 years. The candidate countries have still lower values of this share, mainly because of their high share of industry, in Romania especially because of the high share in agriculture. The EU group of HWF project countries<sup>6</sup> is at the top of importance of service sector in the world perspective, the candidate countries lag in time even more than in GDP per capita. In addition to the lag in the general level of economic development they belong to the type of countries that because of the emphasis on industry have made relatively less advance in developing services.

Beyond the effects of general trends of development and structural change there is another grouping which is broadly between two groups: developed capitalist western countries which experienced a rather smooth development (though sometimes interrupted by cyclical factors) and the candidate countries that especially in the transition period experienced drastic shocks. Their present situations as well as their policies are still partly influenced by a different set of historical circumstances, values and preconditioned situations. In all three sets of factors influencing the shares of atypical forms of employment (level of development, level and speed of structural change, and institutional system with its history) the span of diverse experience in the HWF project is very wide indeed.

In this light the wide range of differences among the shares of atypical forms of employment in Table 4.10 and among the respective trends is easier to understand. It does not depend only on the present process of acceptance of the EU legal regulations but on many more factors, some of them of a very long-term nature.

The share of self-employment in total employment in 2001 is very similar in all HWF project countries and close to the EU15 average; the only two outliers are Romania on the high side and Sweden on the low side. The case of Romania is easy to explain by the high share of agriculture in total employment, the low value for Sweden is an interesting case for a more detailed inquiry.

The share of part-time employment in total employment is a different case. The Netherlands stands out with 42.2% of part-time employment in total employment, followed by the UK with 24.9% and Sweden with 24.1%. Even the latter two countries have more than four times higher share of part-time work than the candidate countries (excluding the outlier Romania). In this category the most important differences between the group of developed and the group of candidate countries in the HWF project are established. First, the gap between the two groups is the largest here. Second, for the first group this is the largest category of atypical employment, for candidate countries the smallest. Third, in the first group the gender divide is very large, in candidate countries it is not yet of important magnitude. The share of fixed term contracts is the highest in the Netherlands, Sweden and Slovenia; in all these countries there is a marked trend of increase in the last decade.

Table 4.10 Summary table for the HWF project countries for 2001

Shares of the three atypical forms of employment in total employment								
	NL	S	UK	SI	CZ	HU	BG	RO
Self-employment as % of total employment	13.8	5	11.7	11.8	14.6	13.9	13.7	25.7
Part-time employment as % of total employment	42.2	24.1	24.9	6.1	4.3	3.3	3.4	16.8
Fixed term contracts as % of total employment	14.3	13.5	6.8	10.8	6.9	6.4	5.7	1.6
Sum of the three shares	70.3	42.6	43.4	28.7	25.8	23.6	22.8	44.1
Distribution of employment by sectors								
	NL	S	UK	SI	CZ	HU	BG	RO
Share of employment in services	76.7	74.1	73.7	51.4	54.6	59.4	57.6	29.7
Share of employment in industry	19.8	23.3	24.8	38.6	40.5	34.5	32.7	25.8
Share of employment in agriculture	3.4	2.6	1.4	9.9	4.9	6.1	9.7	44.4
Activity rates total and by gender								
	NL	S	UK	SI	CZ	HU	BG	RO
Activity rate per population aged 15-64	75.8	75.2	75.6	67.5	70.7	59.7	63.3	68.3
Male activity rate per population aged 15-64	84.3	76.9	83	72.5	78.5	67.6	67.8	74.3
Female activity rate per population aged 15-64	67.1	73.4	68.1	62.5	63	52.2	59.1	62.4

Source: European Commission (2002)

## 5. CONCLUSIONS

The issue of flexible employment and of optimal balance between flexibility and security is of a major economic, social and political importance. It is a very complex problem and it will be a permanent issue of continuous adjustments to changing situations and preferences. It has to be looked upon from at least three perspectives with different sets of preferences and instruments with which different stakeholders try to influence the final outcome of their interdependent actions. These three perspectives are: approach centered on the personal level (individual and family), the activity-centered approach (workplace activity like business, governmental and other institutions) and the society-centered approach. In the enlarged European Union the EU perspective may also indirectly influence the decisions and developments at the national level.

The HWF project is concentrated mainly on the first perspective, i.e. household, work and flexibility. In the project survey preferences about work arrangements are asked from the point of view of the respondent and the relationship of the work situation with his/her family and important persons in his/her life<sup>7</sup>. However, it is obvious that the final outcomes seen in statistical figures for atypical forms of employment are the outcome of decisions at the workplace shaped both by product markets and labor markets, which are in turn influenced by institutional arrangements, external conditions and behavior characteristics. This study of statistical data on long term trends of atypical forms of employment, based on secondary sources, complements other studies in the HWF project by pointing out these external conditions through comparisons among countries and over time. In this way the topic can be related to the prevailing patterns of change in the world.

The most characteristic trend of the last decades is the accelerating speed of change in many fields. As a starting point it is enough to mention the advancements in technology and information society infrastructure, on the technology side, and globalization of the economy and the collapse of the former socialist systems, on the socio-economic side, with important interrelationships between them. Such changes could not have left untouched the world of work as they affect both product and labor markets. The resulting outcome is the increase of uncertainty in the world.

As pointed out by Beck (2000), the risk regime prevails in every field, economy, society and polity, meaning that the future of work will involve more than one direction of development, within and across a number of different dimensions. One can add that the shock of moving into the period of increased uncertainty is even more notable for the case of the candidate countries where in the socialist system the state was, for better or worse, supposed to take care of employment possibilities and for enterprise survival. The differences in the size and approach to atypical forms of employment between candidate countries and developed EU countries in the HWF project are thus much easier to understand in this general framework.

There are in general two major levels at which further path of development of future work is being influenced. The first one are market forces, the second one is the level of societal intervention. They work on different rules, at the most rudimentary level one could say that in the markets one dollar represents one vote, in politics one person represents one vote. Obviously some of the outcomes that would be a result of

unrestricted market forces are not socially acceptable for various reasons, like abuse of a monopoly position, inefficiency and social injustice. The crux of the matter is how to combine these two systems in line with the given conditions and social preferences; this means that there will be a multitude of ways how different countries will try to search for a satisfactory solution over time.

Especially the small countries are the price takers in the international markets and on such points have to adjust to the prevailing conditions. Yet there is still an ample scope of possibilities to build, within these limitations, their own ways of how to deal with the motivation and distribution of benefits and costs of the process of change in the line of their specific circumstances and preferences. In the Lisbon Strategy Europe is proclaiming to strive for both higher growth and more cohesion. Obviously the nexus between growth and inequality is in the European development model paradigm again at the forefront of economic and social policy considerations. Lundvall (2000) brings to attention two important characteristics of the emerging knowledge based economy: the major impact of the information technology revolution is that it speeds up the process of change in the economy, while the most important inherent contradiction of the learning economy has to deal with polarization and social exclusion<sup>8</sup>.

Also on the world scale it becomes obvious that the laissez faire approach advocated by the USA and partly the UK with its emphasis on deregulation (instead of reregulation in line with the changing conditions) has entered into serious problems. Its flagship, with derivatives inflated stock exchange, has suffered severe losses with uncertain further trends. The loss of trust into corporate responsibility persuaded the USA government to forget about the ideological discourse about the deregulation and harsh penalties for misreporting were immediately introduced. This is not to say that such actions by the governments could basically remove the increased uncertainty in the world. The volume of money in the stock markets and in the hands of large multinationals can in a very short time distinctly change the situation in the world markets, let alone the position in individual countries. The situation with respect to activity centered flexibility and in the society centered flexibility considerations represents the framework within which the households can make choices about their lifestyle strategies. This framework is itself uncertain and prone also to rapid changes due to external conditions or political changes.

Another underlying general trend is that towards knowledge based society. This trend will also substantially influence the world of work in the future. It will require changes in the management both at the enterprise and at the national level. Lundvall (2000) in his discussion of Europe and the learning economy stresses that there is a need for reintegrating the strategies of firms, social partners and policy makers. He points out that learning is a social process based on trust and social capital and that the elements of collective tacit knowledge (knowledge that cannot be separated from its carrier, either an individual or an organization) are at the very core of the competitiveness of the firm. A recent article of Financial Time describes the situation in a USA firm based on knowledge workers and similarly points out that the success of managing knowledge workers with varied places and hours of work is based on trust and that the conventional standardized management practices cannot lead to an efficient management of the knowledge based organisation.

All these challenges will have to be addressed at all three levels: personal, activity and society level. There is a much greater chance of a better outcome if the co-ordination of these different perspectives is done in a continued social dialogue rather than by random actions of the participating agents. A recent success is the fast convergence of the Ireland within the EU15. One of the most important factors contributing to this outcome was the social consensus reached at the end of 1980s in a difficult situation. The statistical data on shares of atypical forms of employment can also be interpreted as outcomes of the actions when different countries have in different circumstances tried in different ways, by design or default, to deal with the problems of employment.

There are large differences in different kinds of atypical forms of employment between the group of developed EU countries and the group of candidate countries in the HWF project. Furthermore, there are also important differences among the countries in each of these two groups. The first important difference between the two groups is the degree of stability of development trends over time. The candidate countries have been subject to both consequences of inefficient development in the past, the shock of changing the socio-economic system and the transition depression. Thus their present situation could be still rather far from their long term development trajectory.

The differences in the statistical values of the indicator share of self-employment are minor, the higher value for Romania is due to high value of employment in agriculture, and the lower value for Sweden is an invitation for a more detailed analysis. However, the main issue for policy analysis is the further breakdown of the self-employment into the category of ambitious entrepreneurs and highly qualified professionals (forming a very dynamic group in small enterprises and the backbone of independent knowledge workers) and the group that entered self-employment due to the lack of other ways of earning a living.

With respect to part-time employment there is a vast difference between the two groups, with the respective share in total employment being at least four times higher in the developed EU countries than the average value for the candidate countries. Partly this is due to a very high share of employment in services for the three EU countries also on the world scale. The low value for candidate countries is due to the lack of tradition of part-time work, higher industry orientation and the fact that at the lower wage level in these countries such jobs are not as attractive as in developed countries. The high value of the share of part-time work in the Netherlands makes this country a special case. The second large contrast between the two groups is the gender composition of persons working part-time. The indicator women employed part-time as a percentage of all employed women amounts to a very high 71.3% in the Netherlands, 44.1% in the UK, and 36.4% in Sweden. The corresponding values for candidate countries vary from 7.4% in Slovenia to 3.7% in Bulgaria (the outlier is Romania). In the three developed EU countries in the HWF project the most important atypical form of employment is part-time work, for the candidate countries both self-employment and fixed term contract are more important atypical forms than the part-time work.

Fixed term contracts decline with the level of development (the exception is the UK with a lower level of that share thus being at the level of the Czech Republic and

Hungary. The higher values of this indicator in the Netherlands, Sweden and Slovenia indicate that the fixed contracts form of employment is in these countries most probably used as a form of dealing with the uncertainty and the unemployment situation. In all the three countries there is a clear increasing trend in this share in the 1990s.

If one attempts to add up the shares of all the three statistical categories of the atypical forms of employment in Table 4.10, there is again a clear distinction between the groups of the three EU developed countries and the group of the candidate countries in the HWF project. The highest value is that for the Netherlands, amounting to as much as 70.3% (based on European Commission, 2002 as the source, the value based on LFS for 2000 in Eurostat, 2001a, amounts to 63.8%). In other words, the atypical forms of employment as defined by these three categories comprise more than 60% of the employment in the country (when the base of comparison is number of employed). The corresponding value for the sum of the three categories is 42.9% for Sweden and 43.4% for the UK. The sum of the three shares for the candidate countries is much lower. The unweighted average for the four candidate countries comes to about 25%<sup>9</sup>. Roughly speaking, the average value of the sum of the three categories of atypical forms of employment for the three EU developed countries may be twice as high as the corresponding sum for the participating candidate countries. All the three EU countries show the share of the three categories of atypical work in total employment higher than 40%.

However, one should not jump to the conclusion that the work situation in the three EU developed countries is inferior to that of the participating candidate countries. This is a good example to prove that one should not start from an assumption, explicit or implicit, that atypical jobs are necessary substandard jobs. As mentioned before, in the EU15 in 2000 59.3% of those employed part-time did not want a full-time job, among women the percentage was 65.1% (the percentage of women came as high as 80.2% in the UK, 79.3% in Germany, 77.8% in the Netherlands, while it is 52.3% in Sweden). In the EU15 only 15.8% answered that the reason for working part-time was that they could not find a full-time job. Second, in the self-reported job satisfaction in the EU15 in 1998 in the category very satisfied voluntary part-time employment reached beyond 60%, while for involuntary part-time employment it was around 30% (European Commission, 2002). Third, as presented in Table 4.10, all three countries have much higher activity rate than the candidate countries, which have fallen in the transition depression from earlier higher levels comparable with the developed countries and thus substantially worsened their employment position. Fourth, the wage level is very much higher in the participating EU countries. Fifth, the unemployment rate as percentage of labour force aged 15+ is lower in all these three countries as in the candidate countries and especially low in the Netherlands (*ibid*). In summary, this study provides abundant evidence that the indiscriminate use of an assumption that atypical jobs are inferior jobs is not warranted.

The issue whether atypical jobs are good or bad jobs is to be investigated as an empirical issue. Sicherl and Remec (2002) provide an attempt of such analysis in the analysis of the HWF survey for Slovenia. They confirm in the case study that atypical jobs are not necessarily bad jobs and conclude that equally all full-time permanent jobs should not be associated only with the notion of 'good' jobs as there was a great

heterogeneity in the work conditions and end results in terms of income, flexibility, and freedom of decision-making in full employment permanent jobs category.

One should also distinguish between the numerical magnitude of the atypical employment and the active policy towards facilitating such forms of employment or the deregulation in the labour market legislation. For instance, the fact that among the candidate countries Slovenia appears in statistical terms with the highest overall sum of 28.7% of atypical forms of employment does not at all mean that Slovenia would have among the candidate countries the most liberal legislation with respect to the flexible forms of employment. One could also mention that some movement towards similarity with the EU countries is taking place that is not seen in the usual statistical indicators. What is in the EU countries thought as a regular schedule is the so-called 9 to 5 job. For instance, the predominant schedule of work consisted in the previous system of 6 to 2 jobs in Slovenia in many manufacturing enterprises, and of 7 to 3 jobs in many government institutions. In the recent years the move to the European schedule in many cases meant the attempt to facilitate the communication with EU countries. This shift, however, meant that the family life schedule had also changed as a result. Sicherl (1989) and Merz (2002) suggested that the use of time should be in further research on flexibility included as an element of the analysis of welfare.

This analysis of trends in atypical forms of employment is due to the availability of data restricted to the three types of atypical work most frequently discussed in the literature. Because of lack of reliable statistical data informal economy was not included though it would be an important category especially in candidate countries. To reiterate, the definition of atypical work is dependent on the definition of typical work. In developed countries where for the great majority work means paid employment, atypical work is mostly subdivision of paid employment that is not full-time and permanent and that pattern was followed in this study<sup>10</sup>. It is important to repeat that these types of atypical forms of employment are not necessarily inferior and that they are here to stay as in many cases they help to facilitate dealing with some enterprise and/or household problems. Together with other aspects and instruments of flexibility needed to meet the coming challenges and risks they are to serve as means which will have to be adjusted to arrive at a social consensus of how to balance their benefits and costs for all stakeholders.

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## **ABBREVIATIONS**

HWF Households, Work and Flexibility

B Belgium

DK Denmark

D Germany

EL Greece

E Spain

F France

IRL Ireland

I Italy

L Luxembourg

NL Netherlands

A Austria

P Portugal

FIN Finland

S Sweden

UK United Kingdom

BG Bulgaria

CZ Czech Republic

HU Hungary

RO Romania

SI Slovenia

## APPENDICES

### STATISTICAL APPENDIX

Table AS1 Employment in industry as a percentage of civilian employment

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	38.4	38.9	44.7	-	-	34.4	49.3	35.7	39.5	39.2
1971	37.6	38.3	43.6	-	-	32.9	48.4	36	39.7	39.3
1972	36.8	37	42.7	-	-	32.6	47.7	36.3	39.6	39.3
1973	36.8	36.5	42.3	-	-	33.2	47.5	37.2	39.2	39.5
1974	37	35.9	42	-	-	32.5	46.7	37	39.3	39.4
1975	36.5	34.9	40.4	49.4	-	30.6	45.4	35.9	39.2	38.6
1976	35.4	33.6	39.6	49.2	-	30.8	44.9	35.8	38.4	37.9
1977	34.3	33	39.4	48.9	-	30.9	44.6	35.4	38.5	37.4
1978	33	33	39.1	48.8	-	31.1	44.3	35	38.1	36.7
1979	32.5	32.5	38.6	48.6	-	31.3	44.2	34.9	37.8	36.1
1980	32.2	31.4	37.6	48.4	-	30.5	43.7	35.3	37.9	35.7
1981	31.3	29.9	35.8	48.3	-	30.1	43	35.3	37.6	35
1982	30.3	28.7	34.6	48.2	-	28.4	42.1	34.9	37.1	34.6
1983	29.9	28.1	33.3	48.2	-	28	41.4	34.8	36.1	33.8
1984	29.8	28.3	35.3	48	-	28.5	41.3	34.8	34.5	32.9
1985	29.8	28.1	34.8	47.7	-	28	41.3	34.9	33.6	32
1986	30.1	26.8	34.1	47.6	-	27.7	40.8	34.5	33.1	31.4
1987	29.7	26.8	32.9	47.5	-	27.1	40.2	33.8	32.6	30.8
1988	29.5	26.4	32.9	47.4	-	26.9	39.9	34.1	32.4	30.3
1989	29.4	26.5	32.7	47.1	-	26.7	39.5	34.3	32.4	30.1
1990	28.9	26.3	32.3	45.5	-	26.2	38.6	34.1	32.3	29.7
1991	28.1	25.5	31.1	45.9	-	25.3	40.8	34.4	32.3	29.2
1992	26.5	24.1	30	45.1	35.6	24.6	39.5	34.6	32.2	28.4
1993	25.4	24	29.4	44.2	34.3	24	38.6	34.3	32.5	27.4
1994	25.1	23	27.7	43.6	33.5	24	37.5	34	32.2	26.7
1995	25.9	22.6	27.4	42.3	33.1	24	36.6	33.6	32.4	26.5
1996	26.1	22.4	27.4	42.1	33.5	23.8	35.4	33.3	32.2	26
1997	26	22.2	26.8	42.2	33.9	23.9	34.8	33.1	32	25.5
1998	25.7	21.6	26.7	44.3	34.5	23.6	34.4	32	31.8	25.1
1999	25.1	21.1	26	46.8	34.3	23.1	34.5	31.7	31.4	24.8

Source: OECD Historical Statistics 1970-1999, CD-ROM

Table AS2 Employment in manufacturing as a percentage of civilian employment

	S	NL	UK	CZ	HU	USA	D	Japan	I	F
1970	27.6	27.5	34.2	-	-	26.4	37.4	27	28.2	27.5
1971	27.3	27.2	33.4	-	-	24.7	37	27	28.4	27.8
1972	27.1	26.2	32.3	-	-	24.3	36.2	27	28.3	27.9
1973	27.5	25.8	31.7	-	-	24.8	35.8	27.4	28	28.2
1974	28.3	25.7	31.8	-	-	24.2	35.8	27.2	28	28.3
1975	28	25	30.4	41.5	-	22.7	34.7	25.8	28	27.8
1976	26.9	23.8	29.7	41.1	-	22.8	34.6	25.5	27.4	27.3
1977	25.9	23.2	29.8	41	-	22.7	34.4	25.1	27.5	26.9
1978	24.9	23	29.5	40.8	-	22.7	34.1	24.5	27.1	26.4
1979	24.5	22.3	28.9	40.7	-	22.7	33.7	24.3	26.8	26
1980	24.2	21.5	27.7	35.6	-	22.1	33.9	24.7	26.8	25.6
1981	23.3	20.9	25.9	35.6	-	21.7	33.3	24.8	26.2	24.9
1982	22.4	20.5	24.8	35.5	-	20.4	32.7	24.5	25.8	24.5
1983	22.3	19.3	23.6	35.4	-	19.8	32.1	24.5	25	24
1984	22.4	19.6	24.6	35.2	-	20	32.2	24.9	23.9	23.6
1985	22.5	19.4	24.5	35	-	19.5	32.5	25	23.2	23
1986	22.9	19.3	24.3	34.9	-	19.1	32.3	24.7	22.9	22.4
1987	22.1	19.2	23	34.8	-	18.6	31.9	24.1	22.5	21.8
1988	22	18.7	23.2	34.6	-	18.5	31.5	24.2	22.7	21.2
1989	21.1	19	22.5	34.4	-	18.5	31.3	24.2	22.7	21
1990	20.9	18.9	22.1	33.3	-	18	30.7	24.1	22.4	21
1991	19.9	18.1	21.5	33	-	17.5	31.5	24.3	22.1	20.7
1992	18.9	17.5	21	32.5	26.2	17	29.7	24.4	22	20.2
1993	18.3	17.2	20.9	30.6	24.9	16.4	28.5	23.7	22.5	19.5
1994	18.3	16.2	19.1	30.1	24	16.4	27	23.2	22.6	19
1995	19.1	15.8	19	29	23.5	16.4	25.5	22.5	22.8	18.9
1996	19.4	15.5	19.3	28.7	23.9	16.2	24.2	22.3	22.9	18.6
1997	19.4	15.2	18.8	28.5	24.2	16.1	24	22	22.7	18.4
1998	19.2	14.8	18.6	29.8	24.8	15.8	24	21.2	22.7	18.1
1999	18.6	14.5	17.9	31.5	24.5	15	24.1	20.8	22.4	17.8

Source: OECD Historical Statistics 1970-1999, CD-ROM

Table AS3 Economically active population by status and industry (branch of activity)

		Total economically active population			Employers, own account workers			Salaried employees and wage earners			Unpaid family workers			
		T	M	F	T	M	F	T	M	F	T	M	F	
S	1950	Total	100	100	100	19.3	22.5	10.4	76.8	73.2	86.8	3.9	4.3	2.8
		Agriculture, etc.	20.3	25.3	6.5	55.0	54.5	60.4	29.8	31.3	13.2	15.2	14.2	26.4
		Non-agriculture	79.7	74.7	93.5	10.2	11.7	6.9	88.8	87.4	91.9	1.0	0.9	1.2
NL	1947	Total	100	100	100	19.1	22.9	7.4	70.2	71.3	66.9	10.7	5.8	25.7
		Agriculture, etc.	19.8	20.3	18.2	33.7	41.2	8.3	32.4	39.6	7.7	33.9	19.2	84.0
		Non-agriculture	80.2	79.7	81.8	15.5	18.2	7.3	79.5	79.3	80.1	5.0	2.4	12.7
UK	1951	Total	100	100	100	7.7	9.2	4.6	92.0	90.7	94.8	0.2	0.1	0.6
		Agriculture, etc.	5.0	6.5	1.6	31.6	32.9	20.0	66.3	66.2	67.0	2.1	0.8	13.0
		Non-agriculture	95.0	93.5	98.4	6.5	7.5	4.4	93.4	92.4	95.3	0.2	0.0	0.4
CZSK	1947	Total	100	100	100	19.2	25.8	7.2	60.7	67.3	48.7	20.1	7.0	44.1
		Agriculture, etc.	37.7	29.6	52.6	32.7	57.1	7.5	16.7	20.6	12.7	50.6	22.4	79.8
		Non-agriculture	62.3	70.4	47.4	11.1	12.6	6.9	87.4	86.9	88.6	1.6	0.5	4.5
H	1949	Total	100	100	100	34.8	39.2	24.1	45.9	47.1	42.8	19.3	13.6	33.1
		Agriculture, etc.	52.9	52.4	54.1	51.5	59.2	33.3	13.2	15.6	7.3	35.3	25.2	59.4
		Non-agriculture	47.1	47.6	45.9	16.1	17.2	13.3	82.6	81.8	84.6	1.3	1.0	2.1

Source: UN (1957), Statistical yearbook 1957, New York

## **METHODOLOGICAL APPENDIX: TIME DISTANCE METHODOLOGY**

### **1. Introduction**

In research and decision-making process comparisons play an important role. The better the analytical framework the greater the information content provided to experts, policy makers and general public. The present state-of-art of comparative analysis, over many dimensions and over time, needs improvement at least in two directions: (1) comparisons over indicator space and over time need to be better integrated, (2) an explicit treatment of the time dimension as a universal unit of measurement can establish a special category of time distance as one of the measures of disparity thus contributing new insights to comparative analysis.

Section 2 defines time distance as a novel generic statistical measure complementing the conventional static measures of disparity and thus exploiting the information content in the data that was left unidentified until now. The two-dimensional notion of the overall degree of disparity provides new insight from existing data as section 3 shows also empirically that this can bring a very different perception of the extent of disparity across indicators with different dynamic characteristics. The empirical examples confirm that the two-dimensional comparative analysis adds new insight while none of the earlier results are lost or replaced. This methodological appendix is based on the author's paper 'Time Distance: A Missing Link in Comparative Analysis, presented at the session of the RC33 Research Committee on Logic and Methodology in Sociology at the XVth World Congress of Sociology.

### **2. A Novel Generic Statistical Measure: Using Levels of the Variable as Identifiers and Time as the Focus of Comparison and Numeraire**

Time distance analysis requires a radical shift in perspective with respect to time series data. Under the conventional perspective, comparisons are made on the basis of absolute or relative values of a given socio-economic indicator for each point in time, i.e. the main emphasis lies in the differences between two time series data at each point in time, respectively. The new perspective on time series, which for obvious reasons can be characterized as 'temporal', has its main focus on the horizontal differences in time for each level of socio-economic indicators for the two or more compared units. Under the new focus, time distance measures the differences in time for specified levels of the indicator. The observed distance in time (the number of years, quarters, months, etc.) is used as a temporal measure of disparity between two time series in the same way that the observed difference (absolute or relative) at a given point in time is used as a static measure of disparity. It is remarkable that the notion of time distance, which can be in principle developed from the same information embodied in the existing data, has not been earlier developed theoretically and as a standard statistical measure.

**Figure A1. Perceiving and measuring differences in two dimensions (in value and in time)**

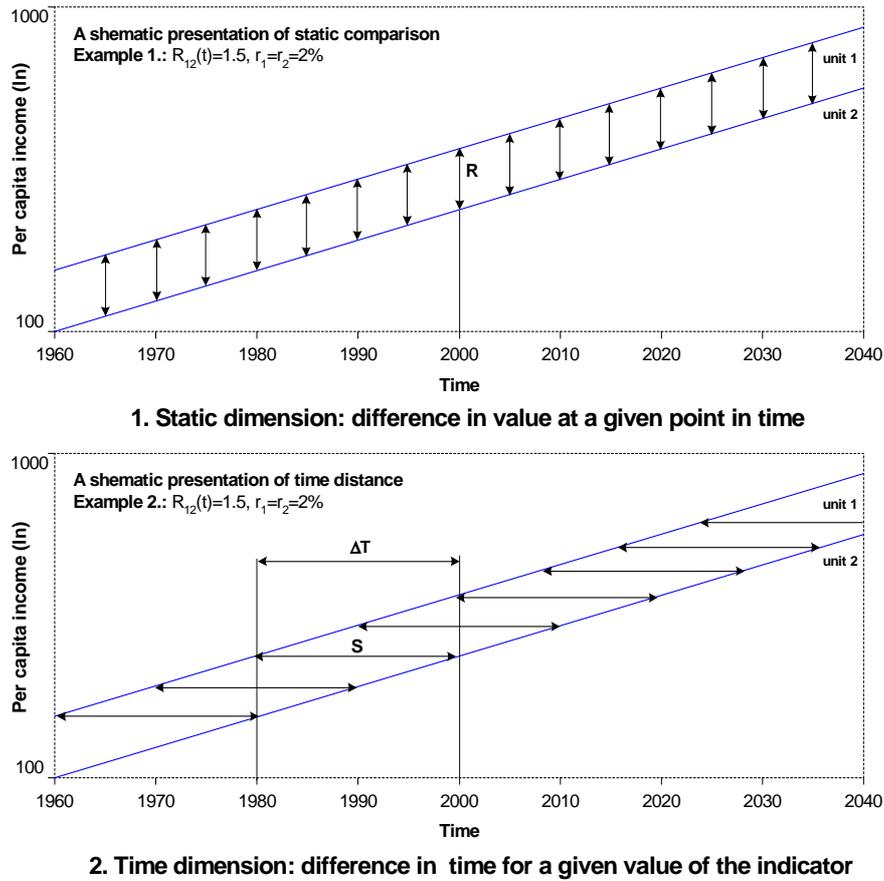


Figure A1 presents the idea for a simple case where the chosen indicator (in this example GDP per capita) is growing at the same rate of growth in both compared units. This is by no means a necessary requirement; it serves only an immediate purpose to explain in Figures A1 and Figure 2 in the Section 3.2 of the main text the major impact of the novel theoretical and analytical framework for comparative analysis in simple, though not simplistic terms.

First, a broader theoretical framework is required. Time distance concept and methodology represent an inherent dimension in comparative analysis over time. The conventional approach does not realise that in addition to the disparity (difference, distance, proximity) in the indicator space at a given point in time, in principle there exist a theoretically equally universal disparity (difference, distance, proximity) in time when a certain level of the indicator is attained by the two compared units. A new dimension is added while no earlier results are lost or replaced.

Second, a statistical measure S-distance is defined to suggest a possibility how the broader concept and reference framework can be measured in operational terms and how they can be integrated with the conventional statistical measures. Time distance in general means the difference in time when two events occurred. A special category of time distance related to the level of the analysed indicator is defined: S-distance measures the distance (proximity) in time between the points in time when the two series compared reach a specified level of the indicator.

The standpoint that time distance measure is a generic concept of comparative analysis similar to the conventional concepts of static disparity measure(s) and growth rate can be presented in two ways, the first one is presented in Table A1. The first two rows in Table A1 describe data requirements for two statistical measures that deal with direct comparison of values of the indicator for the two compared units. We compare two points with three elements of information: (i) the respective level of the indicator, (ii) to which unit it belongs, and (iii) at what time it happened. The first row represents the static type of comparison between two units at a given point in time (e.g.. absolute difference, ratio, percentage difference), where time and unit serve as identifiers and the disparity in the indicator space is measured. For the novel statistical measure S-distance in row two, following the same logic, a given level is the same for both units, level and unit serve as identifiers, and time is used as numeraire for calculating time distance.

**Table A1. Points of comparison for static difference, change over time and time distance  
(Comparing two units)**

	TIME	LEVEL	UNIT	Measure
TIME	same	2	2	static difference
LEVEL	2	same	2	time distance
UNIT	2	2	<i>same</i>	<i>change over time</i>

Using the comparison between two units in Table A1 as an example, it is shown that the idea of time distance goes together very naturally with the existing concepts of static disparity at a given point in time and the notion of the growth rate over time. Time has been used in comparisons mainly as locational information, i.e. as a coordinate in a parameter frame forming a coordinate system that is used to organise (or index) a set of variables. In alternative words, it has played a role of a descriptor, subscript or identifier. The intention of this approach is to go further, without replacing the existing views. If we choose to interchange the roles of the level of the indicator and time, then a given level of the indicator becomes a descriptor or identifier and time becomes a numeraire in which certain distances between the compared units and indicators can be expressed and measured. While the whole approach and the broad range of possible applications are much more complex and general, the time distance is the priority choice because of its intuitive nature, and of the importance of the time dimension in semantics of describing various situations in real life and forming our perceptions about them (Sicherl 1997b).

If we describe static difference and time distance in terms of operators, then for static difference(s) follows

absolute difference

$$A_{ij}(t) = X_i(t) - X_j(t)$$

ratio

$$R_{ij}(t) = X_i(t)/X_j(t)$$

percentage difference

$$P_{ij}(t) = [X_i(t)/X_j(t) - 1]*100$$

In case of time distance, for a given level of  $X_L$ ,  $X_L = X_i(t_i) = X_j(t_j)$ , the S-distance, the time span separating unit (i) and unit (j) for the level  $X_L$ , will be written as

$$S_{ij}(X_L) = \Delta T(X_L) = T_i(X_L) - T_j(X_L) \quad (1)$$

where T is determined by  $X_L$ . In special cases T can be a function of the level of the indicator  $X_L$ , while in general it can be expected to take more values when the same level is attained at more points in time, i.e. it is a vector which can in addition to the level  $X_L$  be related to time. Three subscripts are needed to indicate the specific value of S-distance: (1 and 2) between which two units is the time distance measured and (3) for which level of the indicator (in the same way as the time subscript is used to identify the static measures). In the general case also the fourth subscript would be necessary to indicate to which point in time it is related ( $T_1, T_2, \dots, T_n$ ).

The sign of the time distance comparing two units is important to distinguish whether it is a time lead (-) or time lag (+) (in a statistical sense and not as a functional relationship)<sup>1</sup>

$$S_{ij}(X_L) = -S_{ji}(X_L) . \quad (2)$$

For a given level of the indicator  $X_L$  in general there will be two vectors of the values of time when this level of the indicator (or its approximation by interpolation or extrapolation) will be attained by unit i and unit j:  $T_i(X_L)$  with  $\underline{m}$  values and  $T_j(X_L)$  with  $\underline{n}$  values. The corresponding matrix of time distances will have  $\underline{m}$  times  $\underline{n}$  elements. For continuously increasing or decreasing series there will be only one time distance value.

On the theoretical level the time distance approach provides a new view of information: it uses level of the variable(s) as identifiers and time as the focus of comparison and numeraire. Time distance is a generic concept, like percentage difference or growth rate<sup>2</sup>. Events are dated in time, therefore in time series comparisons, regressions, models, forecasting and monitoring, the notion of time distance was always there as a “hidden” dimension. In such capacity it can be used to analyse a variety of problems beyond the applications in this paper, which are focused on comparisons between countries in the HWF project.

It can be generalised to other types of applications, like analysis of discrepancy between the estimated and actual values and goodness-of-fit in time series, regressions and models, forecasting and monitoring<sup>3</sup>, and extended to variables other

<sup>1</sup> The earlier definition of S-distance (see e.g. Sicerl, 1978 and 1992) used positive sign for time lead and negative sign for time lag. With the generalisation of application of the time distance concept and S-distance measure to short term economic analysis (e.g. deviations in regressions, models, forecasting and monitoring) in Sicerl (1994), for a more clear two-dimensional graphical presentation of deviations between actual and estimated values it was found to be more convenient to assign the negative sign to time lead and positive sign to time lag, as it is done in equations (1) and (2).

<sup>2</sup> For elaboration of this statement see e.g. Sicerl (1999), which also presents the extension of the concept to variables other than time.

<sup>3</sup> The extension to measuring deviations between estimated and actual values in time distance for regressions and models, for forecasting and monitoring and for business cycle analysis see Sicerl (1994, 1998). Granger and Jeon (1997) mention that ‘Sicerl’s several works have presented a non-technical discussion of the theory of time distance. This concept can help us to think more clearly about the forecastability of series.’ In the paper they present the formalization for the case of comparing

than time. However, there is no space to elaborate on the generic characteristics of the time distance concept in this paper.

There are at least four ways in which one can read off or estimate the values of S-distance for the past. The first one simply compares data in the table, then for a given value (level of the indicator) finds the two points in time indicating when such indicator value was achieved in the two compared units, and subtracts the time values to arrive at the value of S-distance. This is simply a statistical fact and one does not need to bring into the picture any assumptions about the respective rates of growth or catching-up hypothesis. For instance, in Table A2 the level of female life expectancy of 75 years was achieved in Sweden about 1960 and in the UK in 1970, which means, that this level of the indicator was attained in Sweden ten years earlier, so that S-distance for this level is –10 years time lead for Sweden, or 10 years time lag for the UK.

The second method is similar, one can select a given level of the indicator from a figure of trends of the compared series, read off from the figure the respective times for the given level of the indicator and calculate the corresponding time distances. This is schematically presented in the lower part of Figure A1. The left part of Figure 2 in the Section 3.2 in the main text presents the calculation of the respective time distances for the levels of GDP per capita of these countries for the year 2000. Figure 2 is also used as an empirical example of an important distinction between backward looking (ex post) and forward looking (ex ante) time distances, which are related to the past and the future, respectively. The first belongs to the domain of statistical measures based on known facts; the second is important for describing the time distance outcomes of the results of alternative policy scenarios for the future.

The backward looking time distances for the past period introduce additional information about the fact at what point in time for a given indicator the benchmarking country, region or other unit observed the same level of the indicator that the compared unit is experiencing at present. This gives us the information about the magnitude of lead (lag) in time between the two compared units for a given level of the indicator. This information is independent of the static difference or the rate of growth; it is a statistical fact reflecting one of the possible perspectives on the magnitude development gap. Thus it can serve as an additional analytical method in numerous areas and for numerous indicators.

**Table A2. Illustrative example: GDP per capita and female life expectancy for Sweden and the UK, 1960-1998**

GDP per capita			Female life expectancy		
Year	Sweden	UK	Year	Sweden	UK
1960	8688	8645	1960	74.9	73.7
1970	12716	10767	1970	77.1	75
1980	14936	12928	1980	78.8	76.2
1990	17680	16411	1990	80.4	78.5
1998	18685	18714	1998	81.9	79.7

Source: for GDP per capita, 1990 international Geary-Khamis dollars, Maddison (2001), for female life expectancy, Eurostat (2001)

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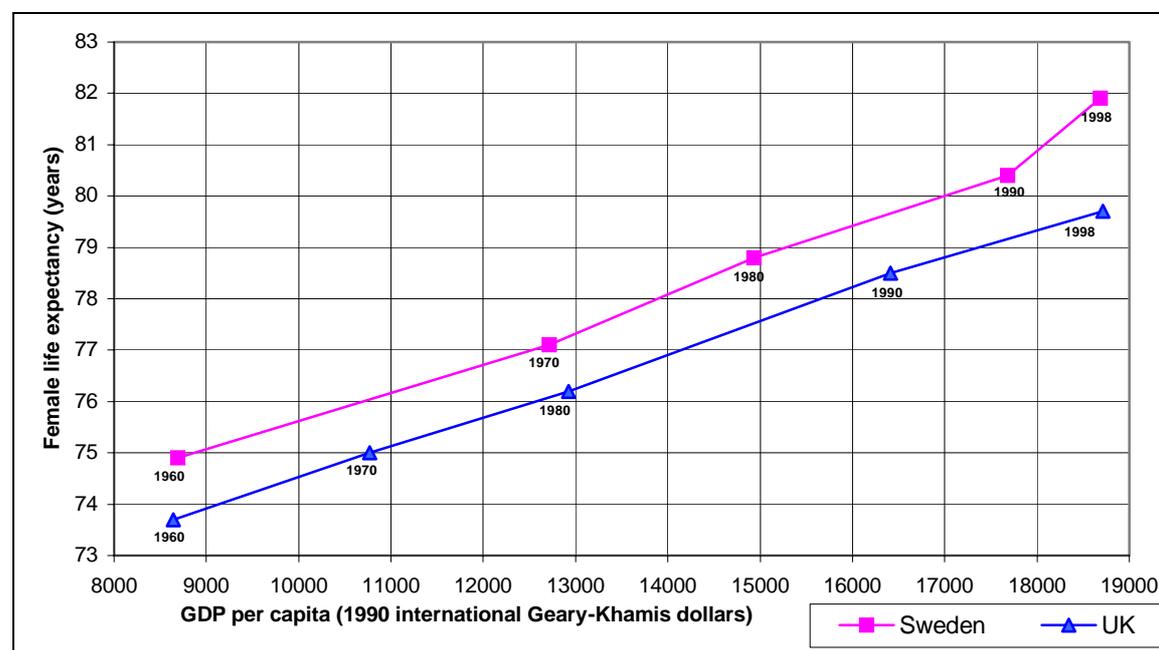
lagged or leading indicators and conclude that in modeling series with leading or lagging indicators, it is desirable to begin comparing models in terms of time distance.

**Table A3. Illustrative example: GDP per capita and female life expectancy for Sweden and the UK, 1960-1998; S-distance (- time lead, + time lag) and time intersections for specified levels of GDP per capita and of female life expectancy**

GDP per capita				Female life expectancy			
GDP per capita level (int. dollars)	Sweden time	UK time	S-distance (years)	Female life expectancy level (years)	Sweden time	UK time	S-distance (years)
8000				73			
9000	1960.8	1961.7	-0.9	74		1962.3	
10000	1963.3	1966.4	-3.1	75	1960.5	1970.0	-9.5
11000	1965.7	1971.1	-5.3	76	1965.0	1978.3	-13.3
12000	1968.2	1975.7	-7.5	77	1969.6	1983.5	-13.9
13000	1971.3	1980.2	-8.9	78	1975.3	1987.8	-12.5
14000	1975.8	1983.1	-7.3	79	1981.3	1993.3	-12.1
15000	1980.2	1986.0	-5.7	80	1987.5		
16000	1983.9	1988.8	-4.9	81	1993.2		
17000	1987.5	1992.1	-4.5	82			
18000	1992.6	1995.5	-3.0				

Source: own calculations based on data in Table A2

**Figure A2. Scatter diagram of relationship between GDP per capita and female life expectancy for Sweden and the UK, 1960-1998**



Data source: Maddison (2001), Eurostat (2001)

The third method is an extension of the second method to the X – Y scatter diagram. For any selected level of the indicator (X or Y in our simple example) one needs only to subtract the time subscripts for the two compared units for that level of the chosen indicator to obtain the respective time distance. In an X – Y scatter diagram like Figure A2 the information on time is usually not fully utilised by the commonly

applied statistical methods. If one would use regression analysis, one could estimate the slope and the intercept of the relationship between X and Y for the two units, and also further test the significance of difference between the parameters for Sweden and for the UK. For the estimate of the slope it would be irrelevant whether the first point relates to the year 1960 or 1998, which shows that the information about the time subscript is not utilised. However, if one applies the generic idea that time subscripts cannot be used only as identifiers, but also as values ('numeraire') in the implicit time framework as the third dimension beyond the XY dimensions explicit in the diagram, the time distances implied become visible. For instance, looking horizontally for the value of 75 years of female life expectancy, one can subtract the time subscript for Sweden 1960.5 and for the UK 1970 (see Table A3) and arrive at time lag for the UK of about 10 years. Table A3 contains the calculations of other time distances for a given level of either indicator that are alternatively observed in Figure A2.

In all three methods of estimating time distance mentioned, S-distance is calculated from original data (with some possible interpolation and extrapolation) without referring to any other information than levels of the indicator and time subscripts. This is a confirmation of the statement that one deals with the (n+1) dimension in a multidimensional space of n variables, which was always there but left unexplored.

The fourth possible method of estimating the value of S-distance is based on a possible integration of static and intertemporal comparisons. When the respective measures relate to the appropriate period and levels, the relationship is obvious

$$S_{ij}(X_L) = \ln R_{ij}(t) / r_i,$$

where r represents the corresponding average rate of growth, and R represents the static ratio between the values of the indicator for the two units at time (t). This method is particularly useful for calculation of forward looking time distances, although it can be used also as an approximation in calculating backward looking time distances. For backward looking S-distance the corresponding average rate of growth is that of the more developed unit  $r_i$ , for forward looking S-distances it is the average rate of growth of the indicator for the less developed unit in the future  $r_j$ . To calculate the time needed for full equalization the result depends on the initial static disparity and the difference between the two growth rates:

$$SE_{ij} = \ln R_{ij}(t) / (r_j - r_i).$$

There are several other extensions of the time distance conceptual and analytical framework presented so far. One possible extension is an additional time related measure that is derived from the values of time associated with a given level of the indicator in Table A3 labelled in this example as Sweden time and UK time. The vertical differences from the time associated with the consecutive levels of the indicator can be labelled as time steps and can be used as an alternative description to the growth rate concept. Coming back to the example in Table A1, the third row measures the dynamic properties of the indicator, like growth rate, for each unit separately. Now unit is the same and from information on two levels at two different times the growth rate for that unit over the respective period can be calculated. It is important to underline that the nature of the measure of change over time is different from that of static difference and time distance. The latter are measures of direct comparison of indicator values between two or more units, while the growth rate is an example of a measure of a joint characteristic of several points for the given unit.

Slope

$$\Delta X/\Delta t (t) = (X_t - X_{t-1})/\Delta t$$

Using the table of the inverse relation, a corresponding measure in units of time would be

$$\Delta t/\Delta X (X) = (t_t - t_{t-1})/\Delta X$$

We shall not elaborate on this measure here due to lack of space<sup>4</sup>. Similarly, the concept of time distance for a given level of the indicator can be applied also to variables other than time (Sicherl 1999), while examples of application in time series regressions, models, business cycles, forecasting and monitoring are provided e.g. in Sicherl (1997a).

### **3. The Two-Dimensional Notion of the Overall Degree of Disparity - New Insight from Existing Data**

Although the integration of the static and temporal dimensions of disparity into a formally consistent analytical framework can be obtained only as a compromise between the pure concept of comparison at a given point in time and of comparison for a given level of the indicator, we shall use the two-dimensional analysis of disparities across time and space extensively. The advantages of having a broader conceptual framework for a better understanding of the reality far outweighs the disadvantages in dealing with more than one possibility of combining static and temporal distances in a formally consistent analytical framework. Our aim has been to systematise and formalise this novel approach not only on the analytical but also on the conceptual level (see e.g. Sicherl 1978 and 1992). Consequently, we define the concept of the overall degree of disparity (proximity) that is based on a simultaneous perception of proximity in indicator space and proximity in time, as both of them matter.

Figure A3 portrays the position that the overall degree of disparities should be measured in two dimensions; the existing static measures of disparity (proximity) in the indicator space should be complemented by proximity in time. In other words, the difference between the values for the two units could be measured in vertical dimension (the most commonly used are absolute differences expressed in the units of the indicator or relative differences) as well as in horizontal dimension, i.e. in terms of time that leads to the notion of time distance. Such a broader concept of the overall degree of disparity can lead to a different perception of the extent of disparity than the conventional static measures alone.

Figure A3 presents a simple, but not simplistic case of comparing two countries or regions or social groups for a given indicator, assuming two scenarios: scenario A assumes growth rate of 4%, and scenario B growth rate of 1%, for simplicity reasons both units are growing at the same rate of growth, respectively. In the two compared units, the value of the indicator for region 1 is 50% higher than that of region 2 in both scenarios. If one uses for the evaluation of the magnitude of the gap between the

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<sup>4</sup> See Sicherl (2000) for the interpretation how different statistical measures of the gap between North America and Europe in Internet users per capita show diverse conclusions.

two regions the conventional statistical measures like ratio, percentage, Gini coefficient, Theil index, these two scenarios show the same degree of disparity for the two scenarios.

Now let us take a broader view of the situation. The concept of time distance as one of the dimensions of disparity leads to a different conclusion about the degree of disparity in scenario A and in scenario B. In the 4% growth rate for scenario A with the 50% static disparity the time distance between the two regions is 10 years, in scenario B with 1% growth rate the time distance between the compared regions is 40 years. It is highly unlikely that people would perceive such situations as equal degrees of disparity. Conventional welfare theory would need to explain why it would not be possible to incorporate such broader way of thinking and the changed semantics into the present state-of-the-art<sup>5</sup>.

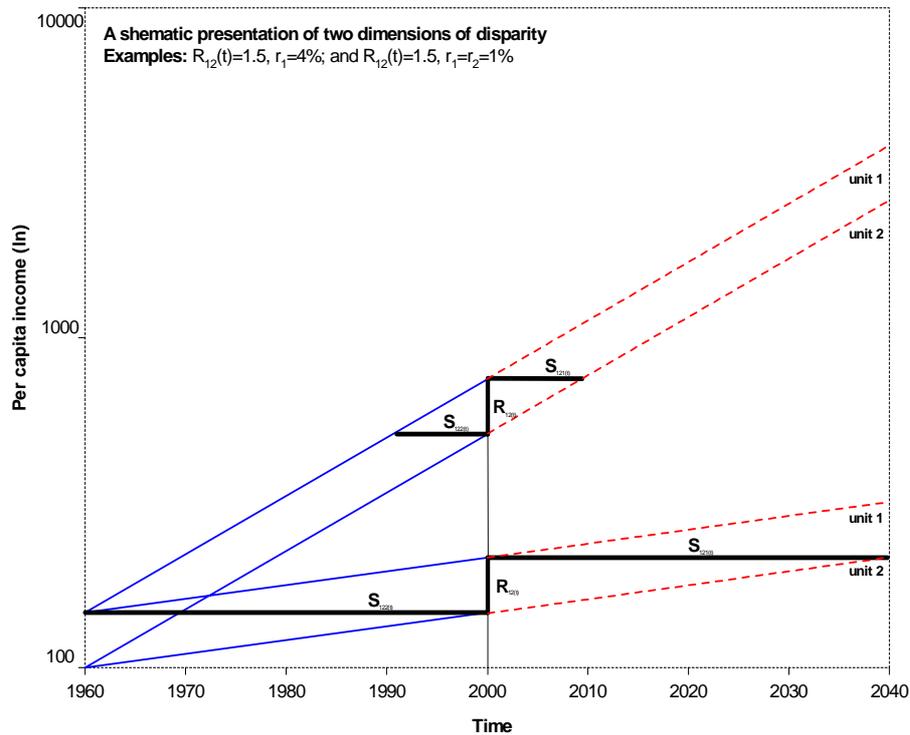
The analytical conclusion that higher magnitudes of growth rates lead, *ceteris paribus*, to smaller time distances, and vice versa, is important in explaining past developments and in preparing policy recommendations. In the dynamic world of today it is hardly satisfactory to rely only on static measures of disparity which are insensitive to the magnitudes of the growth rates and take into account only differences in the growth rates between the units. In this respect time distance plays in the analysis of disparities an important role, quite distinct from that of static measures.

Table A4 and Figure A4 present an empirical example of the statement that static measures of disparity and time distance measure can lead to very different analytical and policy conclusions. The position of Slovenia, one member of the consortium for the project Households, Work and Flexibility, is in this example compared to the EU15 average for a set of ten selected indicators. For each of the indicators backward looking S-distance was calculated for the level of the indicator in Slovenia at around 2000. Similarly, static relative disparity was calculated where the value for the EU15 was expressed as an index, the value for Slovenia being 100. This set of economic, social, infrastructure and employment indicators shows that the degree of disparity varies very much across indicators and that it also varies very much if one uses as a measure of the degree of disparity the static index or time distance. This can be confirmed by looking at the values in Table A4 in columns 3 (S-distance) and 4 (index SLO=100). The correlation coefficient between the two columns is 0.02, thus indicating no correlation between the static relative disparity and time distance across indicators. The next two columns confirm that by ranking the indicators by the degree of disparity according to both measures used. The nonparametric Spearman rank correlation coefficient amounts to 0.39, which is again not statistically significant.

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<sup>5</sup> Thus one can expect the benefit of an additional descriptive and presentation concept/measure offering a fresh perspective on the situation under scrutiny in all time series applications. Even if this would be the only benefit of its use, it would be unwise not to take advantage of a new analytical tool. Second, important hypotheses about the interrelationship between efficiency, growth and disparity can be formulated in such broader framework with important economic, social and political consequences. This offers improved semantics for analysis and policy debate. For details how the broader concept of the overall degree of disparity can provide new hypotheses for the interrelationship between efficiency, growth and disparity see Sicherl (2001b).

**Figure A3. Concept of overall degree of disparity: simultaneously perceiving and measuring differences in two dimensions (in value and in time)**



Static relative disparity and time distance:  
 higher (4%) growth example  $R=1.5$ ,  $S=10$  years;  
 lower (1%) growth example  $R=1.5$ ,  $S=40$  years.

**Table A4. Static differences and time differences (- denotes time lead for EU15) between EU15 and Slovenia for selected indicators around 2000, ranking of degree of disparity by these two measures of disparity.**

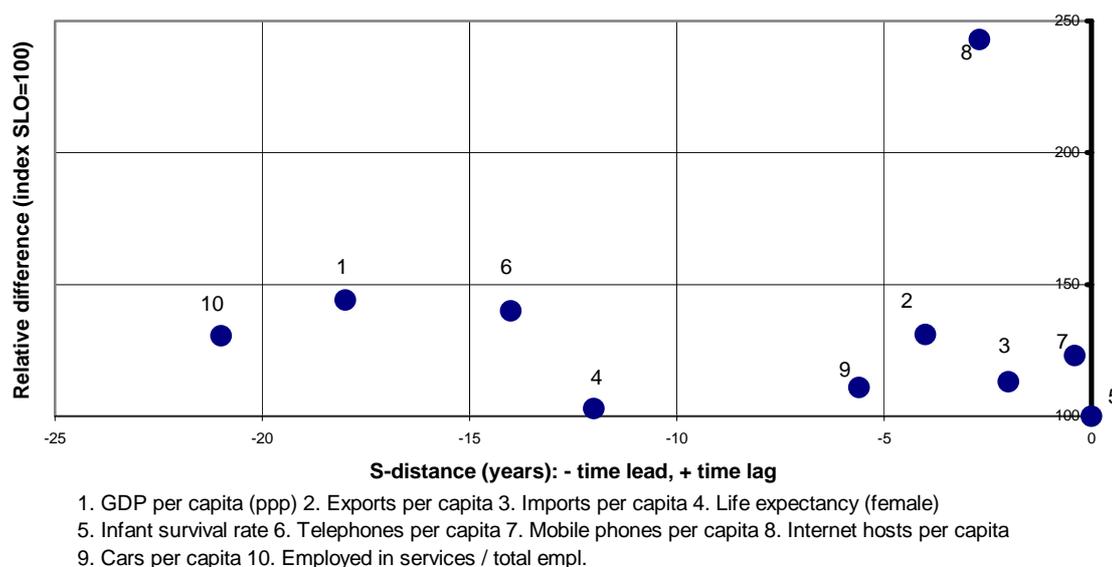
No.	Indicator	S-distance (years)	Index (SLO=100)	Rank S	Rank R
1	GDP per capita (ppp)	-18	144	2	2
2	Exports per capita	-4	131	6	4
3	Imports per capita	-2	113	8	7
4	Life expectancy (female)	-12	103	4	9
5	Infant survival rate	0	100	10	10
6	Telephones per capita	-14	140	3	3
7	Mobile phones per capita	-0.4	123	9	6
8	Internet hosts per capita	-2.7	243	7	1
9	Cars per capita	-5.6	111	5	8
10	Employed in services / total empl.	-21	131	1	5

Source: update of Sicherl (2001a).

The graphical presentation of the two-dimensional analysis of the degree of disparity between Slovenia and the EU15 average is given in Figure A4. Here one can bring to the attention the great difference between the perception of the degree of disparity when measured by static index and time distance best by comparing two extremes in this respect. Life expectancy (female) is in the EU15 only 3% higher than in Slovenia, while the indicator Internet hosts per capita is nearly 2.5 times higher. However, it is

questionable whether this static measure of disparity alone could lead to a proper perception of the respective degree of disparity. Time distance however is 12 years for life expectancy (female), and only 2.7 years for Internet hosts per capita, due to very different growth characteristics and the related possibilities how fast the disparities can be reduced. Obviously, for a proper evaluation both dimensions should be analysed simultaneously.

**Figure A4. Static difference and time distance between EU15 and Slovenia for selected indicators around 2000**



#### 4. Summary on time distance methodology

Time distance concept and S-distance statistical measure are theoretically universal, intuitively understandable and immanently practical as a new view of the information content that has always existed in the time series data and related issues. Though time and money are two most common units of measurement used to assess and to compare various situations, the time distance approach and S-distance measure have not been taken into account by the present state-of-the-art of comparative analysis.

As time distance is a generic concept, it is not a methodology oriented towards some specific substantive problem, it presents an additional view to many problems and applications. In its role as a descriptive statistical measure, complementing existing approaches, time distance can be applied literally to thousands of cases of time series comparisons so that additional information content embodied in countless databases in different fields of concern for socio-economic research is not left unutilised.

Time-distance as a statistical measure has two important advantages. One big advantage is that it is defined in standardized units - time - which means that everybody understands the notion of the time lead or time lag between two compared units for a given level of the indicator. This makes it not only a transparent analytical measure but also an excellent presentation and communication device, which is of great importance for its practical use and of considerable influence on public opinion. The second big advantage of this approach is that the results and conclusions based on

the two-dimensional comparative analysis add new information and new insight, while none of the earlier results are lost or replaced.

In addition to the use of S-distance as a descriptive statistical measure, the broader conceptual framework poses new interesting questions for growth and welfare theory, and the related policy issues, not discussed in this paper. An important hypothesis about the interrelationship between efficiency, growth and disparity can be formulated. In the conventional theory the trade-off between growth and inequality is emphasised. In this framework a high growth rate (with appropriate distribution policy) is not only a means for reaching higher levels of satisfaction of needs faster, but can also be a means of reducing disparities, at least in the time dimension. Lower growth rates should signal to politicians that an increase in the degree of disparity may be felt and that social tension may be increasing and cohesion decreasing (Sicherl, 1992). If one does not use explicitly the broader framework outlined here, there is a possibility that in political debate and policy formulation various interest groups would intentionally look only at the specific statistical measure that will suit their particular interest.

The European value added component of time distance methodology is thus not based only on its generic characteristics as a concept like growth rates or static degree of disparity, but also on its relationship with the mainstream of the European development model paradigm addressing the nexus between growth and inequality and as a useful presentation tool for facilitating the public debate of these issues and the role of the civil society in the governance. It is a novel way of addressing one of the most important strategic issues in the European societies, raising new questions and providing a tool for analysis, benchmarking, description of scenarios and monitoring their implementation at macro, mezzo and micro levels.

The methodology presented combines the conventional predominantly static approach to comparisons of disparities in economic and social indicators with the novel concept of time distance and the associated statistical measure S-distance. This will permit perceiving and measuring disparities also in time and an integration of static and intertemporal comparisons to deliver better understanding of the situation to researchers, policy makers, media and the general public.

## Endnotes

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<sup>1</sup> For the definition and elaboration of time distance see Section Time Distance Methodology.

<sup>2</sup> Since we do not have the scenario for growth of GDP per capita for EU15 average in the future, it is with this single assumption not possible to calculate what will be the conventional absolute or percentage difference between EU15 average and Slovenia in 2010.

<sup>3</sup> This provides for estimate of the future value of the time dimension of the disparity. If one wished to project also the static relative disparities with EU15 in the future, one would need a second assumption about the future rate of growth of EU15 average.

<sup>4</sup> An article by Statistics Canada analyst Susan Crompton noted that: 'The hard times thesis of self-employment holds that lack of suitable work, low wages or high unemployment leads to an increase in self-employment; that is, self-employment is used as a substitute for paid work. The hypothesis cannot be tested using census data; even using longitudinal data would prove difficult, given the nature of most datasets. Suffice it to say that the argument makes sense intuitively, and much anecdotal evidence supports it.' (Canadian Labour Congress).

<sup>5</sup> Of course, it is difficult to disentangle whether, in answering that question, they were satisfied that they had a job or whether they were satisfied with the shift arrangement as such.

<sup>6</sup> Ignjatović (2000) was using cluster analysis of flexibility of the European labour markets distinguished three groups of the labour markets. All three EU countries participating in the HWF project were put in his group 3 represent in his view modern flexible labour market.

<sup>7</sup> To cover the issues at the activity level in the sense of functional aspects of various forms of work flexibility would be extremely difficult both from operational budgetary point of view and was thus not included in the project proposal. In the Literature Review and in the Country Context Report for each participating country several topics like legal conditions and institutional arrangements were described.

<sup>8</sup> However, the present state-of-the-art of socio-economic analysis is deficient in this respect. Now, more than ever, there is a need that the conceptual and statistical framework employed to deal with these problems goes beyond the conventional static approach and that concepts of the degree of disparity and of convergence and divergence should be measured, evaluated and policy options debated in a broader, truly dynamic conceptual and analytical framework. Time distance methodology explained in the Methodological Appendix is one of the possible improvements in this respect.

<sup>9</sup> If from the high value of 44.1% for Romania one subtracts the share of self-employed in agriculture presented in Table 4.4, the sum of the three categories falls close to the average value for candidate countries.

<sup>10</sup> At a lower level of development other forms of work may be still very important or even predominant.