The Models of Estimated Development of Labour Market in the Czech Republic up to 2050

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Abstract

Population ageing will considerably influence economic and social structure of the population. The labour market will change completely. The lower number of persons in productive age and the rise of proportion of older age groups will speed up ageing after 2030. The future development of labour market will face a challenge of reduction of the negative initial demographic conditions. The main problem of the labour market in the Czech Republic is the exclusion of all groups of population due to the lack of flexible jobs, mainly part-time jobs (for example students, mothers with children and elderly people). The analysis shows a possible way of measuring these reserves on the labour market. The comparison with labour indicators (mainly specific employment rates by gender and age) of other European countries is the aim of this approach. This offers a possibility to construct the scenarios of the future development in the Czech Republic.

Keywords

Population ageing, labour force survey, economic status, labour market

JEL code

J1, J2, J6

INTRODUCTION

Population ageing will influence basic economic and social relations in society. Faster pace of ageing cannot be considered an accidental deviation. It is rather an expression of a new tendency (Koschin, 2005). Population ageing is a new challenge for the society in the 21th century. It changes the model of family patterns and it will be the test of individual societies how to manage the process of doubling the number of the seniors (Rychtaříková, 2011). Population ageing is defined as occurring when the proportion of population aged 65 and over is growing In the Czech Republic, the demographic projection predicts a rising proportion of the third economic generation to 33.0% in 2060, with further possible increase showing a decreasing share of the first economic generation (people under 15/20 years of age) from 30% to 18%. Consequently, dependency indices reflect this situation and show increase in the economic burden on economically active people (Miskolczi and Langhamrová, 2011, Fiala and Langhamrová, 2007).

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Generally, it is possible to define basic demographic indicators characterising the potential of the labour market. Population ageing leads to growing number of persons in post-productive age, in quantitative expression the growing values of indicators of ageing index or economic dependency ratio. If there are not any unforeseeable demographic changes (the growth of fertility, the growth of intensity of migration or worsening of mortality conditions), the labour market will be shortly influenced by a decrease of productive part of the population.

The future development will focus on the reduction of negative initial demographic conditions. The main problem of the labour market in the Czech Republic is an exclusion of all groups of population due to the lack of flexible jobs, mainly part-time jobs (for example Mejstřík, 2005, Mejstřík and Nývlt, 2006). This fact influences the potential of use of workforce. There are three main sources of the future use of workforce in the Czech Republic: students, mothers with children and elderly people. The lack of part-time jobs does not enable to balance the student or family life with work life. Mothers with children are affected by higher risk of unemployment. The lack of flexible jobs leads to a steep employment rate decline after the acquirement of statutory retirement age. Gradual transition from labour market to economically inactivity is a good step how to reduce the negative impact of population ageing.

Inflexible and not reformed, the labour market can significantly influence the rate of employment or unemployment primarily of young people. This problem is now very common in southern Europe. Labour market is considerably influenced by the social and economic system. Pension or parental leave (benefit) system belongs to basic factors, which have a great impact on participation in the labour market. For example, the system of parental leave can allow for a better reconciliation between family and work life for young mothers or fathers. The Czech Republic is characterised by a long full-time parental leave with tiny participation in the labour market.

1 DATA

Labour Force Survey (LFS) is the main data source for this analysis. LFS is performed in a continuous manner on the territory of the Czech Republic; the evaluation of results is carried out at respective calendar quarters (for example Employment and Unemployment in the Czech Republic, 2011). The aim is to inform about the level and structure of employment, unemployment and underemployment in the Czech Republic measured in compliance with international definitions and recommendations by the International Labour Organization (ILO). The definitions and contents of all Labour Force Survey indicators requested by Eurostat are fully applied and respected in the Czech Labour Force Survey (EU Labour Force Survey, Explanatory Notes, 2012).

For the purpose of the projection of employment the population projection is used. This population projection was a revised variant of the population projection of 2009 and was prepared only for the project "The Reserves on the Labour Market" (Population ageing in the Czech Republic, 2011). The revised version from the year 2011 is based on estimated development of fertility, mortality and migration in years 2009–2011.

2 POTENTIAL OF LABOUR MARKET AND ECONOMIC DEPENDENCY

It is possible to measure the potential of labour market from the demographic point of view as the comparison of the pre-productive and post-productive part of the population with the productive part of the population, generally it is this indicator defined as an economic dependency ratio.

$$\textit{Economic dependency ratio}^{1} = \frac{S_{0-14,\,65+}}{S_{15-64}} \cdot 100, \tag{1}$$

where: $S_{0-14,\,65+}$ Population aged 0–14 and 65+ years,
S_{15-64} Population aged 15–64 years.

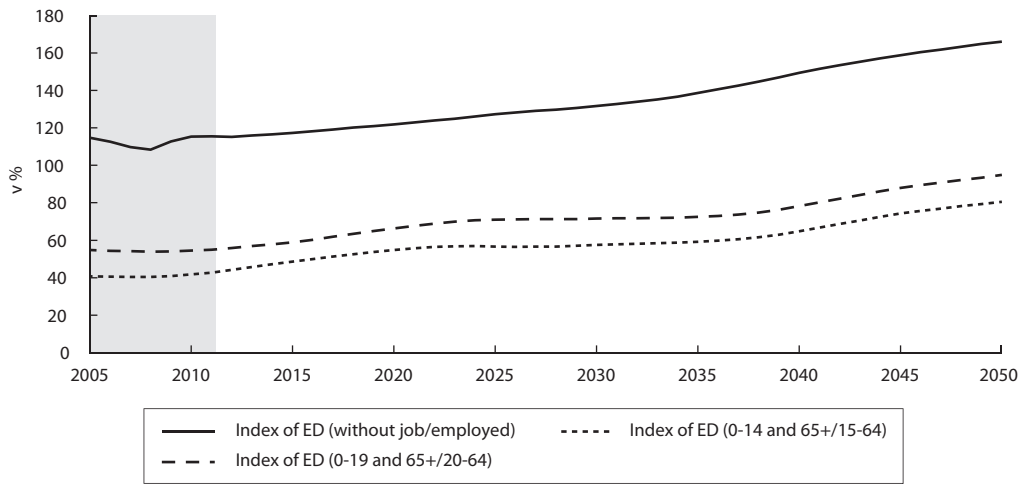
The other indicators are not directly working on the assumption of the ageing differentiation, but from the indicator of Labour status, if the person is employed, unemployed or economically inactive according to the International Labour Organization (ILO) definition. Primarily, we change the indicator economic dependency ratio so that in the numerator there will be substituted the pre-productive and post-productive part of population with the persons without a job. The productive part of the population then will be substituted with the employed persons.

$$\textit{Economic dependency ratio}^{2} = \frac{S^{\text{unempl + ec.inac}}}{S^{\text{emp}}} \cdot 100, \qquad (2)$$

where: $S^{unempl,\ ec.inac}$ Unemployed (15+) and Economically inactive person (0+),
S^{emp} Employed (15+).

The economic dependency ratio, which compares the pre-productive and post-productive part of the population with the productive part of population, amounted to 42.7% in the year 2011. This shows a very low ratio of economic dependency in the Czech Republic. It is also given a low number or persons aged 0–14 years. The economic dependency ratio will have slowly grown by the year 2030, but thereafter this variable grows very steeply. Then, in 2050, the economic dependency ratio should reach 80.5%, which is double in comparison with 2011. The age specification of the productive population is chosen widely, but the economic activity of a person at the age between 15–19 years has been very low during the last fifteen years. Therefore, the age specification of the productive part of the population to the age group 20–64 years is narrow. This indicator of economic dependency ratio was 54.6% in 2011, in the Czech Republic in 2050 it is expected to reach 94.8%. It shows more negative view of the labour market in the future.

Figure 1 Economic dependency ratios in the Czech Republic, 2005–2050



Source: Revised population projection CZSO 2009, CZSO-LFS

In the second option the labour specification substitutes the age (demographic) specification. In this case the variable Labour status is used, which divides the population into the employed (denominator) and the unemployed plus economically inactive persons (numerator). In this case the economic dependency ratio was 115.4% in 2011. If we compare the (labour) indicator with the (demographic) indicator we find considerable differences showing great reserves in the labour market. These reserves create an

unexploited potential of the labour market, how to face the adverse effect of population ageing. After 2012, the values are projected on the base of the same specific employment rates as in 2011. According to this simple method the economic dependency ratio should reach 166.0% already in 2050, which should have a great effect on the economic efficiency of the Czech Republic.

3 THE LABOUR MARKET IN THE CZECH REPUBLIC IN COMPARISON WITH OTHER EUROPEAN COUNTRIES

The employment rate is basic indicator expressing the level of employment when in numerator there is the number of employed persons and in denominator the population is 15 years old and over. However, it is a simple indicator which interpretation is relatively complicated and, in the first place, it is not suitable for finding the potential of workforce.

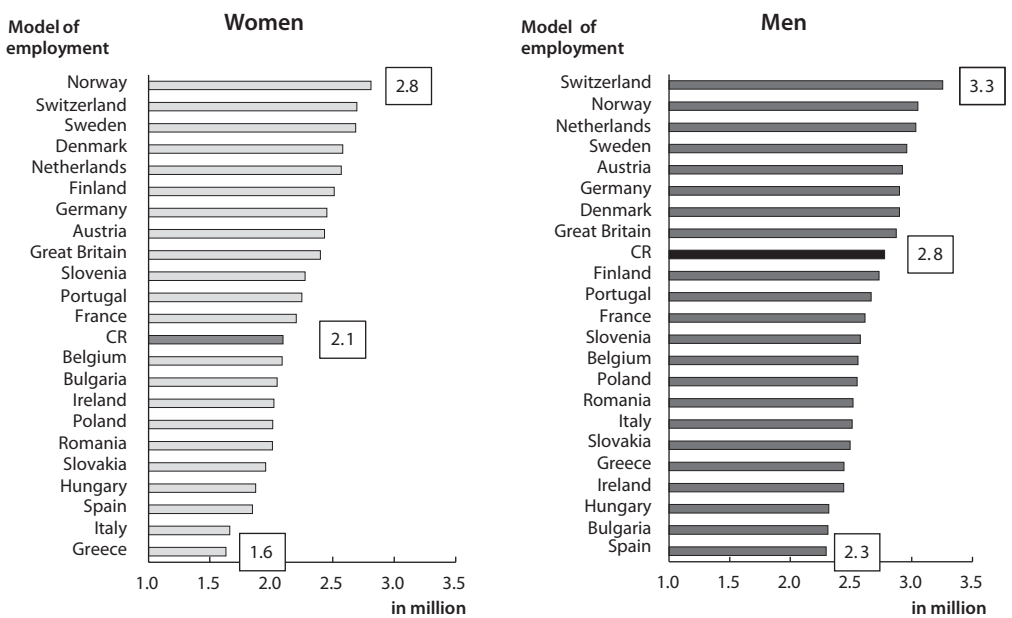
Assuming that we use a specific employment rate of individual European countries and the number of persons in specific age groups in the Czech Republic, the standardization (the same method as in indirectly standardized mortality – for example Pavlík, 1986) of the number of employed persons is suitable for the purpose of using the potential of workforce. This hypothetical numbers show how many persons would work in the Czech Republic, if there was the level of employment as in Sweden or Italy.

$$\textit{Standardized number of employed persons in CR} = \sum_{i=1}^{n} \alpha_x^{emp.standard} \cdot S_x^{CR}, \quad (3)$$

where: $\alpha_x^{emp.standard}$ Specific rate of employment in the European countries by age groups,

S_x^{CR} Population by age groups in the Czech Republic.

Figure 2 Hypothetical number of employed persons in the Czech Republic on the condition of level of employment in individual European countries in 2011



Source: Eurostat- LFS, own calculations

We construct the hypothetical number of employed persons in the Czech Republic taking specific employment rate of individual selected European countries according to this formula and the population of the Czech Republic. If we rank European countries, there are very different models of the labour market among individual regions of Europe. Generally, southern Europe countries are characterised by bad working conditions in the labour market. This fact is given by combination of negative factors (high level of unemployment, unfavourable position of young people in the labour market, very low economic activity of women with children). On the other hand, western and northern Europe are characterised by a great participation of men and women on the labour market in the whole age group 20–64 years.

The Czech Republic has a relatively high male employment, mainly due to high male employment in the age group 30–49 years, which is the biggest in the whole Europe. In 2011, 2 777.3 thousand of men were employed in the Czech Republic, if we had had the level of employment as in Italy, it would have been only 2 296.2 thousand of employed men, on the other hand, in case of the Netherlands 3 033.9 thousand of employed men. Now, the Czech Republic is fortunately closer to Netherlands than Italy.

If we compare the employment of women, the situation in the Czech Republic is different. A low employment of women with young children and generally unfavourable reconciliation of family and work life (a very low proportion of part-time jobs) in the Czech Republic is different comparing to western and northern Europe. As a consequence of these factors only 2 095.1 thousand of women worked in the Czech Republic in 2011, but in case of Swedish employment 2 678.4 thousand of women would have worked in the Czech Republic, which is almost 600 thousand more.

4 THE MODEL OF THE LABOUR MARKET DEVELOPMENT UP TO 2050

The estimation of the future development can be the next step how to evaluate the situation on the labour market in the future. Following this purpose, we construct the projection of the employed persons on the basis of the population projection up to 2050. This projection takes into consideration different models of the labour market.

The first model is based on the assumption of the same level of employment as in 2011. The other methods use the gradual linear transition from start to end point. The start point is the year 2011, when the specific employment rates are known, and the end point is the year 2050.

Rate of increase (decrease) by age

$$= a_x^{CR,2011} + \left((t - 2011) \cdot \frac{a_x^{standard} - a_x^{CR,2011}}{2050 - 2011} \right), \tag{4}$$

where: t Year,

$a_x^{CR,2011}$ Employment rate by age in the Czech Republic in 2011,

$a_x^{standard}$ Model employment rate by age.

In the first model the level of the employment is fully dependent on the demographic development. It means that after dropping out the generations of the 1970's from the labour market, there will be a steep fall of the number of employed persons. This model assumes 4 millions of employed persons in the Czech Republic in 2050. While in year 2011: 46.6% of the whole population was employed, in 2030 still 44.1% was employed, in 2050 it was only 37.8%. If we use the gender criterion, then in 2050 there would be only 31.7% employed women from the whole population and 43.9% of men.

So, the second model considers the current Swedish employment as the end point for our model, and between the years 2011 and 2050 the model assumes a gradual linear transition between the start point (specific rates of employment in the Czech Republic in 2011) and the end point (specific rates of employ-

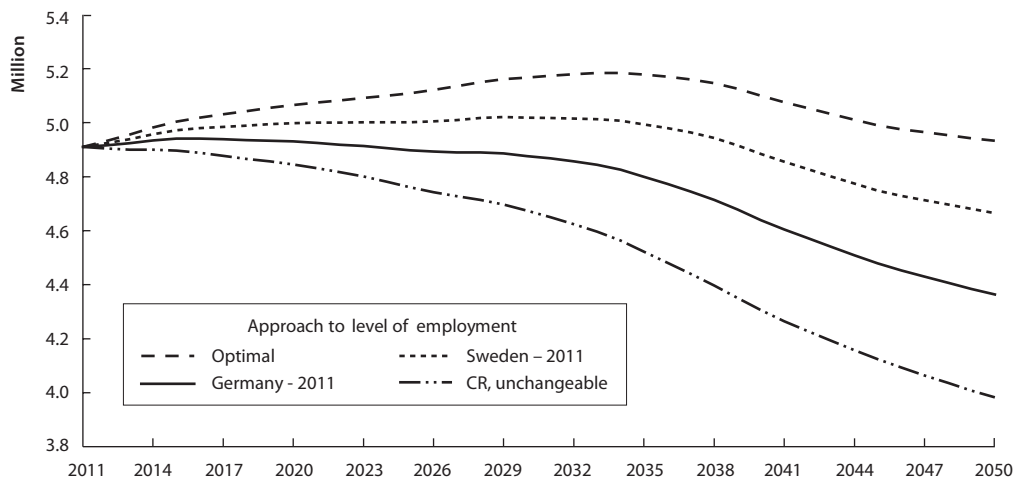
ment in Sweden in 2011). Generally, the northern European countries show a very high level of female employment as a result of the opportunity to use flexible jobs. Furthermore, there is a great participation of men on family duties. For these countries it is not unusual if a man is on parental leave, but for example in the Czech Republic the number of fathers on parental leave is absolutely insignificant. The good balance between student and work life is another factor that results in higher employment rate of young people and the relatively high level of employment of young people in social and health services.

In case of the Swedish model there is a rise of the number of employed persons up to 2030. After 2030 the number of employed persons slightly declines, the number of employed men declines more than the number of employed women. In consequence of this development, the share of employed persons on the whole population declines. According to the Swedish model there would work in year 2050 approximately 2 500 thousand men, which is about 300 thousand less than 2011. On the other hand, there would be about 50 thousand more employed women than 2011 in 2050 with 2 162.5 hundred working women.

The other model takes the Germany labour market into consideration. The Germany has a similar structure of labour market as the Czech Republic. It suggests, first of all, a relatively important position of industry in the national economy. In the current comparison of the Czech Republic and Germany, the Czech labour market has a lower level of employment men or women in young age groups. Furthermore, the pension age in the Czech Republic will be approaching the Germany pension age (now in Germany it is 67 years for men, 65 years for women). According to the German model, in 2050, the total number of employed persons would be 4 363.4 thousand persons, i.e. approximately 550 thousand persons less than in 2011. Relatively, in 2011 the share of employed persons of total population made 46.6%, in 2050 only 41.4%. Generally, it is relatively a significant decline, but not as dramatic as in case of the unchangeable level of employment in the Czech Republic.

The last model tries to find the optimal solution. The optimal solution does not mean the highest specific employment rate in all age groups. The optimal model is based on the assumption of the highest specific employment rate by gender and age groups, with the exception of age groups 15–19 years and people aged 65 years and older. The full employment is certainly not the optimal solution for young people below 20 years.

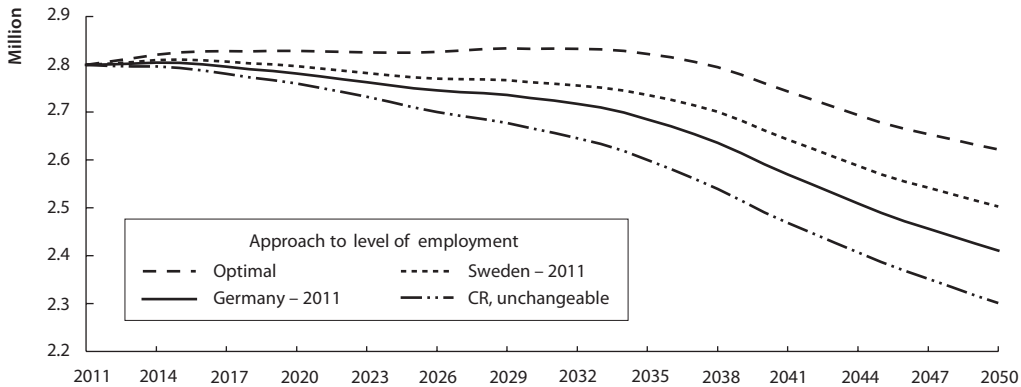
Figure 3 The estimated number of the employed persons in the Czech Republic according to the model situation, 2011–2050



Source: Revised projection of CZSO 2009, Eurostat-LFS, own calculations

For people aged 65 years and older a preferable solution is, that they wish to work from a nonfinancial reason. From this reason the optimal employment rate for age group 15–19 years is 40% for both genders, 9.3% for women and 6.0% for men aged 65 years and older. The difference is given by the high life expectancy of women. These employment rates are taken as average values of northern and western European countries. In other age groups the employment rate is given by the highest value in all states of the European Union (with the exception of the smallest ones – Luxembourg, Cyprus, Malta). This model characterises the maximum of flexible jobs, mainly part-time jobs.

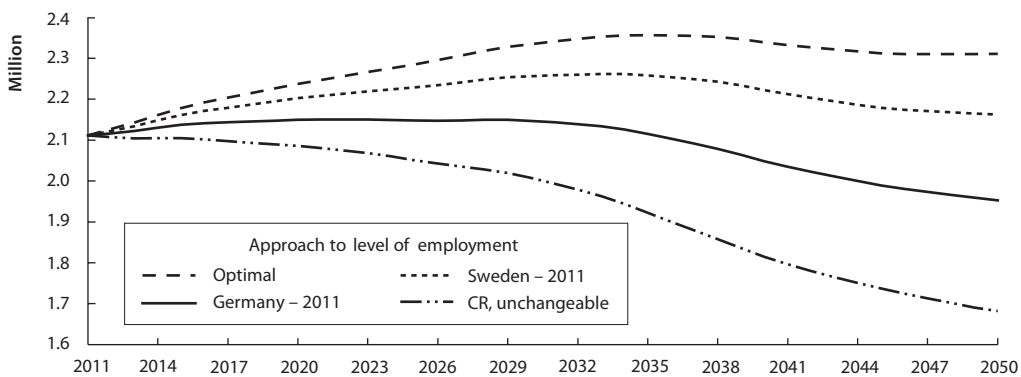
Figure 4 The estimated number of the employed men in the Czech Republic according to the model situation, 2011–2050



Source: Revised projection of CZSO 2009, Eurostat-LFS, own calculations

According to the optimal model, the level of the employment would rise up to 2035. The influence of dropping out the strong generation of the 1970's from the labour market would cause the decline of the employment level after 2035. As a result, the number of the employed persons is in the optimal model higher in 2050 (4 932.3 thousand) than in 2011 (4 910.5 thousand). The most significant is the difference in the women employment, in 2011 2 111.7 thousand of women worked, but in 2050 2 311.5 thousand, relatively in 2011 39.4% from the whole population of women, in 2050 already 43.6%.

Figure 5 The estimated number of the employed women in the Czech Republic according to the model situation, 2011–2050

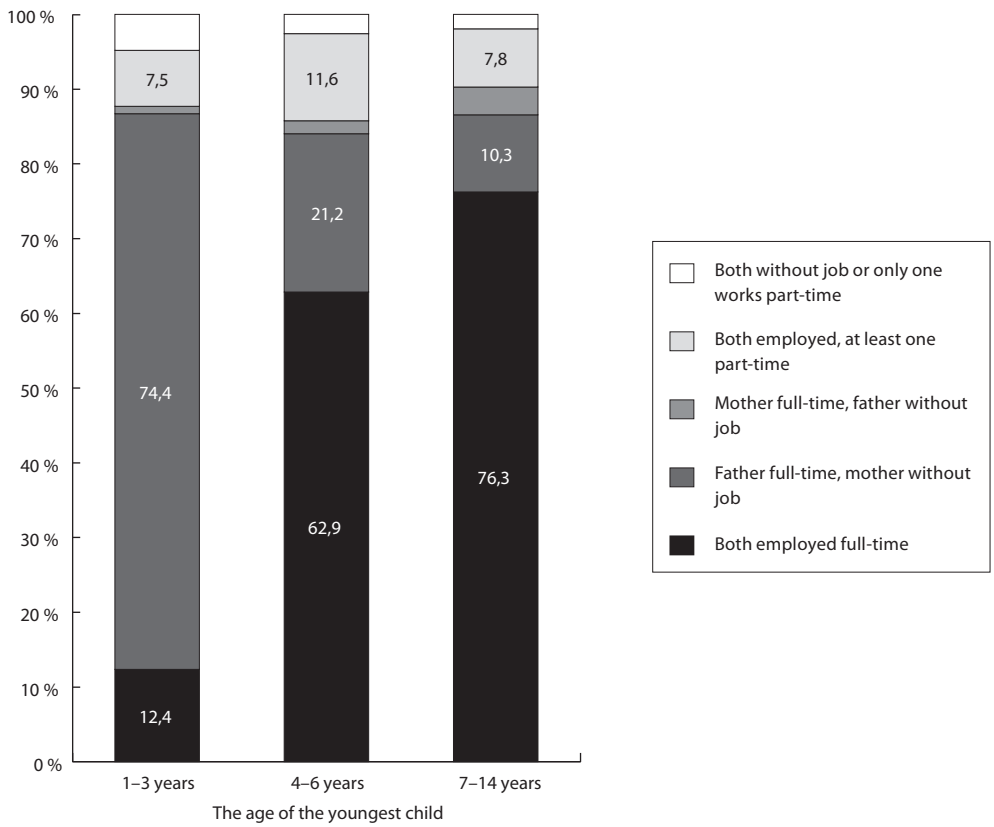


Source: Revised projection of CZSO 2009, Eurostat-LFS, own calculations

5 YOUNG WOMEN ON THE LABOUR MARKET

The labour market can be viewed not only from the perspective of an individual, but we can use the fact that Labour Force Survey is primarily a household survey. A household is defined as a housekeeping unit including all the individuals who have an economic interest in the given household. From this point of view we analyse the economic activity of individual parents in a complete family household or the father or mother in lone-parent family household (Bartoňová and Nývlt, 2011). In the context of work-life balance it is important to analyse the flexibility of work arrangements of each individual parent, especially when mothers take advantage of opportunities for part-time work. The traditionally separated roles in family (mother in household with young children, father at full-time job), a long parental leave and a very low relative number of part-time jobs cause a very long break in the labour market for young mothers. Changing patterns of family life constitutes a qualitative break and provides an alternative basis for the development of a suitable policy (Hakim, 2003). Figure 6 shows that using part-time jobs for young mothers is very low. At the age of the youngest child from 4 to 6 years, when the opportunity for mother to take advantage of part-time jobs is the most suitable, only 11.6% one of a two-parent household works at least part-time. On the other hand, in 62.9% of two-parent household both parents work full time.

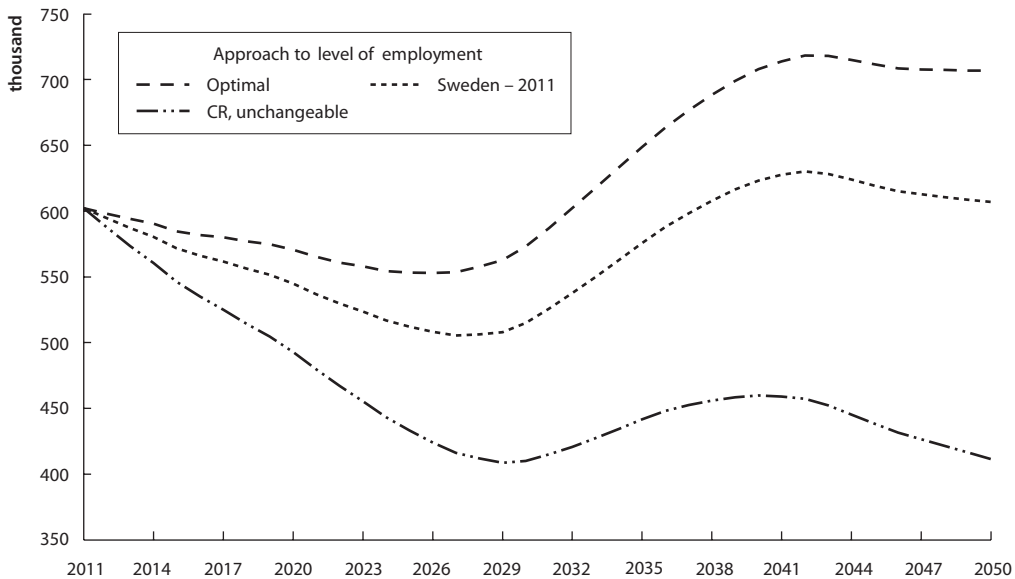
Figure 6 The participation of families on the labour market according to the age of the youngest child in the Czech Republic (average of years 2009–2011) %



Source: Labour Force Survey

The Czech Republic is characterised not only by unsuitable reconciliation between family and work life, but a low participation of students in the labour market as well. It means that from the point of view of students, there are great reserves on the labour market, mainly in comparison with developed countries of northern and western Europe. In comparison of the Swedish or Optimal model with the model of the unchangeable level of employment in the Czech Republic there are great differences. According to the optimal model it would be 706.7 thousand of employed women at age 15–34 years in 2050, according to the Swedish model it would be 603.5 thousand, according to the unchangeable level of employment only 411.6 thousand.

Figure 7 The estimated number of the employed women in age 15–34 years in the Czech Republic according to the model situation, 2011–2050



Source: Revised projection of CZSO 2009, Eurostat-LFS, own calculations

CONCLUSION

The Czech Republic has a specific position on the European labour market. The Czech labour market fully uses the potential of the middle aged persons, mainly men work full time. This group reaches the maximum limit of the employment rate. On the other hand, the lack of flexible jobs causes the decline of participation of persons who combine the care of family (children) and work life. The low number of flexible jobs makes it more difficult for elder people or people with health problems to find a suitable job. The demographic development shows, that the current policy of full-time jobs mainly for persons of middle age is unsustainable in future. The number of the employed persons will steeply decline without a higher participation of younger and older persons and younger mothers in productive age on the Czech labour market. If we raise the participation of these groups on the labour market, we can significantly reduce the negative impact of population ageing. But it is necessary to know that this situation is only possible if we spread the offer of flexible jobs, mainly part-time jobs. In this context it depends on a personal policy of particular companies. The role of state is important in creation of good conditions for participation of a larger number of employed persons on the labour market.

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