# Factors Affecting Involuntary Part-time Employment in OECD Countries

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**ABSTRACT**

Part-time work arrangement provides a flexible labor cost management for employers and flexible time arrangement of part-time workers. However, the part-time work is insecure, embedded by a little of chance for internal promotion, as well as a higher risk of job loss. Involuntary part-time workers, one component of part-time workers, are unsatisfied with their current working condition. As a result of being involuntary part-time workers, in the long-term, they are likely to be discouraged workers and members of working poor families. The number of involuntary part-time workers has been increasing at more than double from 7 million in 2000 to 16 million workers in 2012, reflecting a potential long-term problem of the labour market. Among all group cohorts, the involuntary part-time employment of the youth has escalated rapidly along with the high youth unemployment rate. Unlike previous studies, which investigated on an individual basis, this study examines the factors affecting the share of involuntary part-time workers at macro level. Using a structural econometric model in OECD countries, the estimated result suggests that the level of GDP and the share of the service sector are likely to decrease the share of involuntary part-time workers. While the higher share of female labour participation tends to reduce the share of involuntary part-time employment, the increase in youth unemployment shifts up the share of involuntary employment significantly. The result also confirms that the fiscal tools work effectively in reducing the share of involuntary part-time workers. During an economic recession, the share of involuntary part-time employment can be controlled through revision of tax policies as well as the criteria of receiving public assistance and unemployment benefits.

JEL Classification: J21, J22, J23, J31, J68, J81, J82
Key words: Involuntary Part-time Employment, Part-time Workers, Work Arrangement, Labour Market

## 1. INTRODUCTION

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Global employment structure has demonstrated various types of employment. The part-time worker is one of employment types which is claimed to enlarge firms' profits by filling hours of works at the peak demand for workers because of their flexibility in time allocation (Nelen et al. 2011, Kauhanen, 2008). The part-time employment offers enterprises the flexibility in labour cost management and a number of part-time workers may also be able to mix activities at their preference. However, on the other hand, part-time employment is presenting the risk in employment, income insecurity, and a little or no prospect of internal promotion as well as the jeopardy of alternating between short-term jobs and unemployment or inactivity. Characteristics of part-time workers are likely to contribute to the working poor than that of full-time workers. In the US, 4.2 percent of full-time workers were classified as working poor, compared with 15.1 percent of part-time workers (U.S. Department of Labor and U.S. Bureau of Labor Statistics, 2012). In association with their lower wage rate, families of involuntary part-time workers are more likely to fall below the poverty than full-time workers (Jacobs, 1993).

In 62 countries, around 107 million people are part-time workers according to the ILO statistics (ILO, 2012). Part-time workers can be classified into two groups: voluntary and involuntary part-time workers. The voluntary workers are the part-time workers who prefer to work part-time for non-economic reasons. They are typically regarded as voluntary part-time workers in the sense that their status reflects individual preferences. The reason for being voluntary part-time workers also include medical conditions, child-care needs, other family or personal obligations, school or training, and retirement.

On the other hand, the involuntary part-time workers are the part-time workers who prefer full-time work but they are facing business slack or unfavorable conditions that prompt employers to cut back hours, or unable to find full-time employment. The involuntary part-time workers are unsatisfied with their currently unpleasant working condition. As a result of being involuntary part-time workers, in the long term, they are likely to end up with being discouraged workers and effect on their productivities, as well as being working poor families.

In OECD countries, the share of part-time workers grew from 11.9 in 2000 to 16.9 percent in 2012(Figure 1).The share of involuntary part-time workers in total employment changed from 1.5in 2000 to 3.0 percent in 2012 respectively. These increasing trends point out an intensifying significance of part-time workers and involuntary part-time workers in the labour market.

It is clear that the economic condition impacts on the number of involuntary part-time workers. The gap between involuntary part-time workers to share of part-time worker has even become smaller since 2009 due to the arrival of the global economic recession in October 2008. However, most previous literature investigated on individual characteristics of part-time and involuntary part-time workers (MerjaKauhanen, 2008; Colette Muller, 2008; Startton L. S., 1996). As to my knowledge, a few literatures explore factors affecting the number of involuntary part-time workers at macro level. Therefore, this paper aims to explore the situation of involuntary part-time workers, and most importantly, investigate an explanation for the share of involuntary part-time employment at macroeconomic level.

The next section will reveal the facts and figures at the cross-countries analysis along with dialogue on previous empirical studies to observe a set of possible determinants of involuntary part-time


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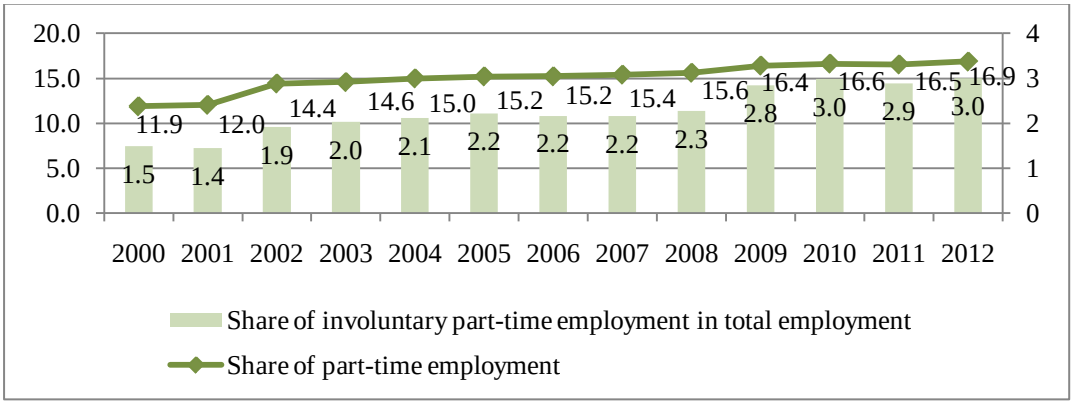
workers. The estimation method and the empirical results are described in the following sections. The last session is to conclude and discuss results of the study and the implementation.

Figure 1 Share of part-time employment and involuntary part-time employment in OECD countries: 2000-2012




Note: The involuntary part-time workers are workers who work fewer than 30 hours per week and wish more hours of work. In some countries' criterion of the hours of works in working part-time is fewer than 35 hours per week, for instance the US. Working less than 30 hours of works is a general criterion of working part-time in Europe's countries.
Source: OECD database, 2014 and author's calculation

## 2. LITERATURE REVIEWS: FACTORS AFFECTING SHARE OF INVOLUNTARY WORKER

This section represents facts and figures as well as discussion in previous literatures relating to involuntary part-time at macro level. It should be noted, again, that this paper will not argue on individual preferences but focus on macroeconomic and related macro factors.

Thanks to OECD database[2] and World Bank database, this section provides the international overview in a number of aspects including economic dimension, share of economic activities and participation tax rates. Labour supply characteristics donate to demographic factors, including gender and age dimension in the labour market.

2 At least a total of 34 OECD member countries including Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States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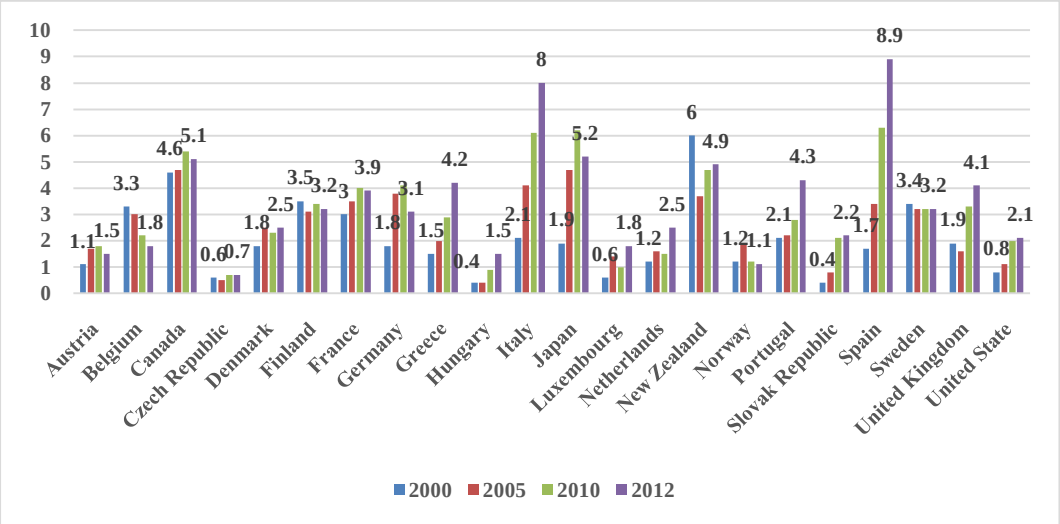
## 2.1 OVERVIEW OF INVOLUNTARY PART-TIME WORKERS

The number of part-time workers and involuntary part-time workers is growing. The number of involuntary workers in OECD countries was more than double from approximately 7million to 16 million workers in 2012. The incidence of involuntary part-time workers accounts for 1.5 and 3 percent of total employment in 2000 and 2012 respectively (OECD database, 2014).

In 2012, the countries with a high share of involuntary part-time workers in total employment-greater than 5 percent of total employment are, for example, Canada, Ireland, Italy, Japan, and Spain. The increasing trends explicitly demonstrate in the countries which were highly affected by the 2010 economic downturn, i.e. Greece, Italy and Spain. Only few countries, for example, Belgium and Sweden show the declining trend. Overall, most countries are increasing in the share of involuntary part-time workers.

Figure 1 Share of Involuntary Part-time Workers in Total Employment (2000, 2005, 2010, and 2012)




Note: Depicted only countries with the data available in 2000, 2005, 2010 and 2012 from the OECD database (retrieved 15 March 2014). The figures of other OECD countries are listed in Appendix 1, the number of involuntary part-time workers and its share in total employment.

Source: OECD database, 2014

## 2.2 DIMENSION OF ECONOMIC SITUATION

During the economic recession, involuntary part-time workers play a crucial role in employment absorption since finding a full-time job is challenging for many workers and the part-time works help them survive. In association with the flexibility of the part-time employment, the employers can be able to benefit in labour management (Nelen et al. 2011). Thus, the supply and demand is matched under the economic downturn, yet resulting in the upturn of the share of the involuntary part timer.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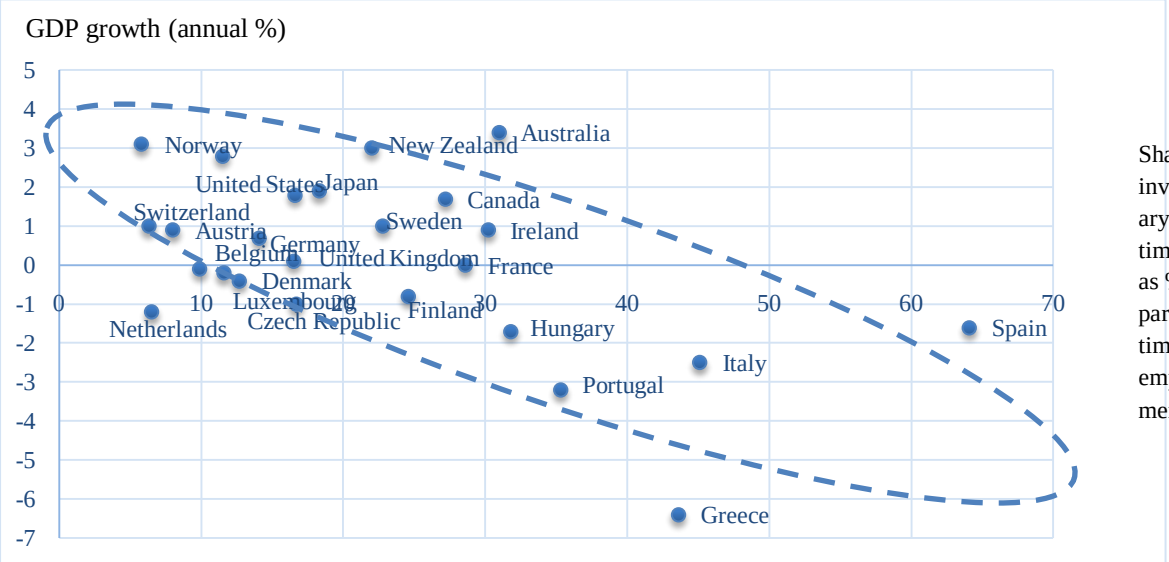
Based on the OECD data, Figure 2 draws a negative direction of correlation between the national GDP growth and the share of involuntary part-timers. Valletta and Bengali (2013) claimed that the share of part-time workers is majorly driven by economic cyclical component, rising in recessions and falling in recoveries. The unrecovered situation of jobs lost during the recession is visible through the high incidence of individuals working part-time for economic reasons. It is supported by the estimation by Cohen and Stier (2005). Their empirical work suggested that the rise in unemployment positively contributes, though small, to the rise of involuntary part-time. Employed 20-year data in Israel, they explained that an annual change of 1 percent in the unemployment rate raises the annual average rate of involuntary part-time workers by about 0.20 percent among all workers.

Figure 2:GDP growth and the share of involuntary part-timers as percentage of part-time employment, 2012




Note: The share of involuntary part-time workers in part-time employment, unemployment, and GDP growth in 2000 and 2012 are demonstrated in Appendix 2.

Source: Share of involuntary part-time workers as percentage of part-time employment: OECD 2013; GDP growth (annual %): World Development Indicators, 2013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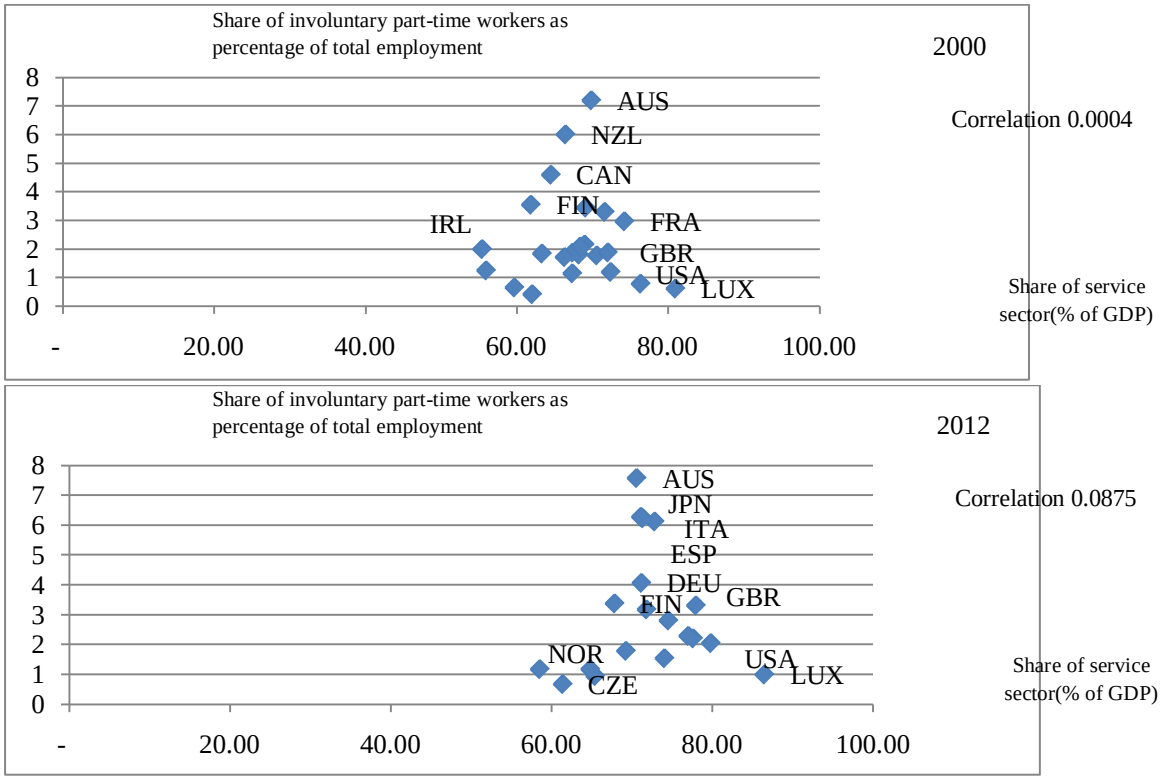
### 2.3 DIMENSION OF ECONOMIC STRUCTURE

Countries with a higher ratio of involuntary part-time to total employment are more likely to have a higher proportion in the service sector(OECD: 1990).However, in contrary to previous literature, Figure 3 shows an unclear relationship between the GDP share of the service sector and the share of involuntary part-time workers. A possible explanation can be contributed to types and levels of skills required for the service sector where the high share of the service sector outlines the economic structure of the OECD countries. A similar economic structure contributes to the inconclusive relationship and thus will be tested in the following session.

Figure 3 Share of Involuntary Part-time Workers as Percentage of Total Employment and Share of Value Added of Service Sector




Source: Share of involuntary part-time workers: OECD database, 2014

Share of Value Added (% of GDP): World Bank (2013) national accounts data. Services correspond value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges, import duties, and any statistical discrepancies.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## 2.4 TAX RATES AND INSTITUTIONAL DIMENSION

Income support programs for low-skilled workers and vulnerable people, provided by welfare states, have often been claimed to reduce work incentives for lower income classes. Tax rates and public policies are important policy indicators for determining how financially desirable it is for an employee to increase working hours or for an unemployed / inactive person to take up employment in the first place. The tax structure affects structural unemployment, labour market attachment and working hours, especially for those persons at the low end of the productivity scale whose labour market opportunities may not be sufficient to induce work given the low wages they attract.

A study conducted by OECD (2011: 11) pointed out that effective tax burdens on low-income workers are often very high due to the combined impact of taxation and benefit withdrawal on entering employment, or on increasing hours worked once in employment. Furthermore, empirical evidence highlights the high responsiveness of low-income workers to these disincentives, particularly at the participation margin.

Marginal Effective Tax Rates (METR) estimated by OECD (2014) are used in this study as a proxy to determine the extent to which taxes and benefits reduce the financial gain of increasing work hours. As can be seen in Figure 4, though the correlation in 2001 does not show significant direction, there is a remarkable correlation between share of involuntary part-time workers of part-time employment and the METR in 2012. The higher METR, the lower share of involuntary employment- or the other words. The METR is likely to induce worker to satisfy with the current work hours, since it is likely to not worth working for an additional hour of work.

The institutional work is likely to impact on the demand for labour as well. Valletta and Bengali (2013) explain an alternative interpretation of the level of involuntary part-time work in the US that it also reflects employers' anticipation of the 30-hour cutoff for mandatory employee health benefits under the Affordable Care Act (ACA) of 2010.Someemployers are only hiring part-time workers to avoid rising health benefit costs. Nevertheless, they also argue that the ultimate increase in the incidence of part-time work when the ACA provisions are fully implemented is likely to be small, on the order of a 1 to 2 percentage point increase or less. Yet, their points raised an issue of institutional impact due to the part-time and full time workers' benefit program.


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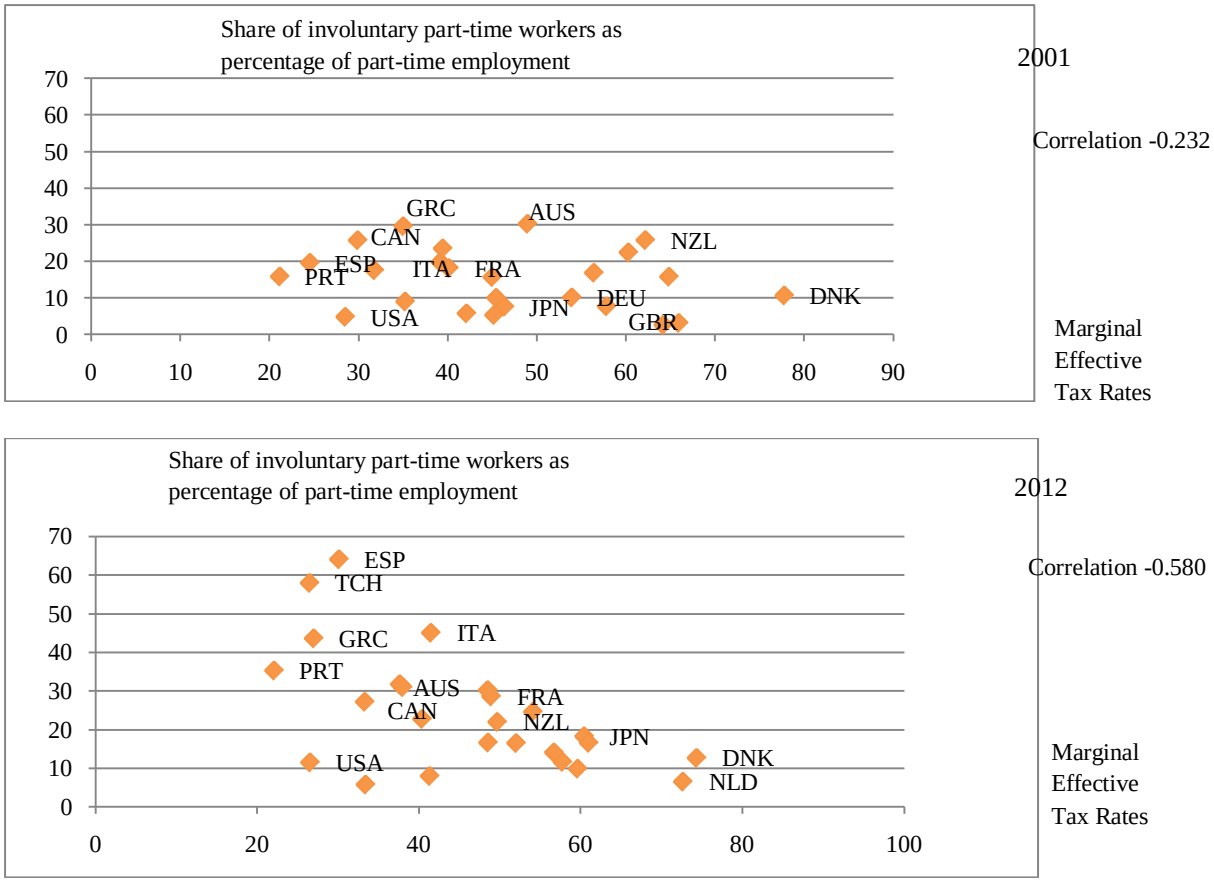
Figure 4 Share of involuntary part-time workers as percentage of part-time employment and Marginal Effective Tax Rates




Source: Share of involuntary part-time workers and Marginal Effective Tax Rates: OECD database, 2014

Marginal Effective Tax Rates for part-time employees: OECD Directorate for Employment, Labour and Social Affairs, Benefits and Wages: Statistics. Different working-hours transitions, in percent, of one single people with no children and moving from one third of work to two third of work. Hourly earnings correspond to the Average Worker (AW) level throughout so that a half-time employee would have earnings equal to 50% of AW. Social assistance and any other means-tested benefits, including cash housing assistance, are assumed to be available subject to the relevant income conditions.

## 2.5 GENDER DIMENSION

A number of studies claim that the female social obligation for household duties is a main reason for women to voluntary, yet tolerate, in the part-time work and mostly in informal sectors (SOFA Team and Doss, 2011; Buddelmeyer et al., 2005) Studies of part-time and full-time employment often assume implicitly that women voluntarily choose part-time work, due to a constrained choice in the face of social and household responsibilities (e.g Geurts, 2003; Hardarson and Romans,2005).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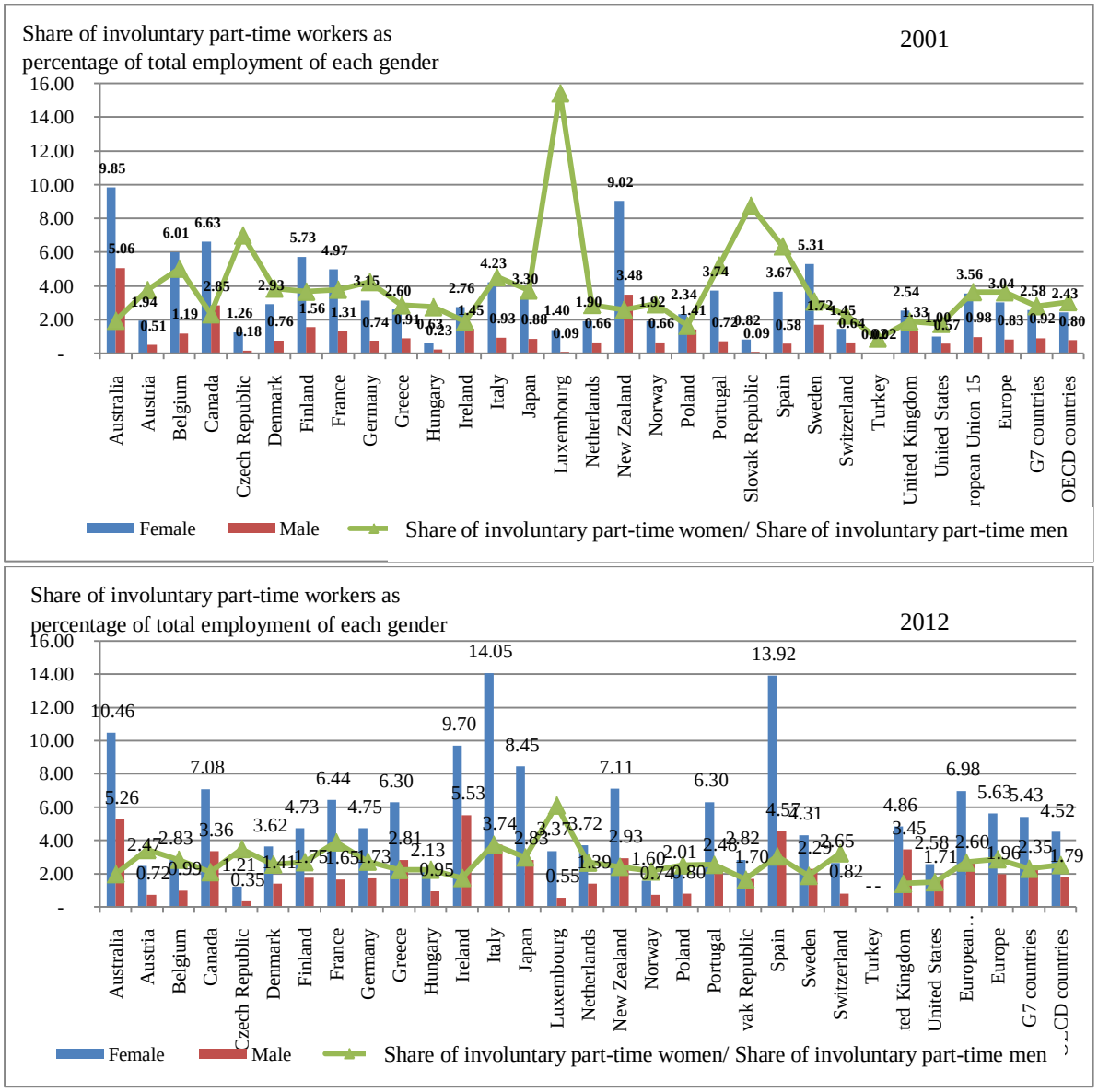
Nevertheless, It should be noted that both 2001 and 2012,shares of involuntary part-time workers of total female employment are greater than those of male (Figure 5). The greater shares of female suggests the majority of woman are unsatisfied with the part-time employment.

Though not all countries exhibit the decreasing ratio of the share of involuntary part-time female to the share of involuntary part-time workers, most of countries reveal the declining trend, for instance Belgium, Czech Republic, Italy, Slovak Republic, Spain and the United State. At the aggregate level the ratio of OECD countries is declining from 3.05 to 2.53. Though the decreasing ratio implies a structural improvement on gender equality, promoting gender equality and empower women are still considered to be critical issues to eliminate inequality.

Figure 5 Share of involuntary part-time workers as percentage of total employment by gender




Note: See Appendix 3 for the calculated ratio of share of involuntary part-time women to share of involuntary part-time men

Source: OECD database, 2014 and authors' calculation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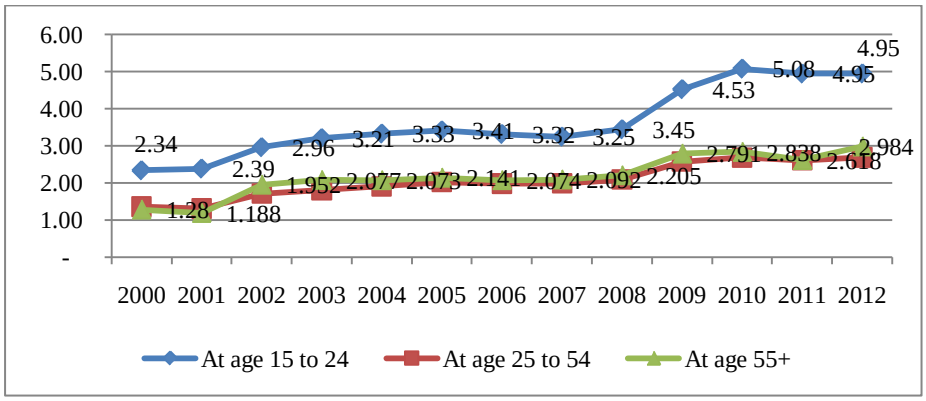
## 2.6 AGE DIMENSION

The youth employed persons, age 15 to 24, show the involuntary part-time workers than other age cohorts (Figure 6). The increase in the share of involuntary part-time youth has been rapidly escalated since 2009, while other age cohorts are increasing at comparable speed. An increase in the youth unemployment rate associates with the higher ratio of involuntary part-time youth multiplies a potential tong-term problem for the labour market and human capital accumulation.

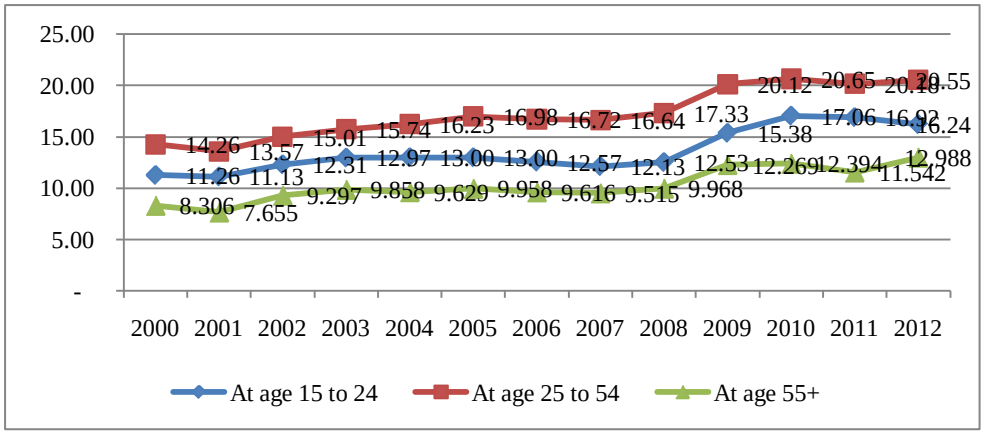
Figure 6 Share of involuntary part-time workers in total employment by age cohorts




Source: OECD database, 2014

Figure 7revealsinteresting psychological aspects. Trends of all age cohorts have increased over time. It implies that the number of involuntary part-time workers is shaping by economic surrounding to all age cohorts somewhat equally. However, the share of involuntary part-time workers of working age (age 25 to 54) is highest. A possible explanation is the higher expectation of work status at this working age.

Figure 7 Share of involuntary part-time workers as percentage of part-time employment




Source: OECD database, 2014

## 3. ESTIMATION METHOD AND EMPIRICAL RESULT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Most previous section reveals the characteristics of part-time, involuntary part-time workers. Several studies examined the observed characteristics of voluntary and involuntary part-time workers. In order to identify the unique characteristics between the two groups (e.g., Muller, 2008). Some literatures observed how the part-time workers change their employment status from voluntary and involuntary part-time to full-time jobs or from involuntary part-time to voluntary part-time (for instance, (Brender and Gallo; 2008, Stratton; 1996). Most of literatures apply binary function or choice model estimated with the labour force survey or household economic survey.

Unlike previous literatures, this paper aims to find the determinant of structural determinants of involuntary workers at the macroeconomic level. An econometric model was constructed and estimated using a pooled cross section data of 27 OECD countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States. The data are the pooled data from OECD database, World Bank database and International Labour Organization database, from 2001 to 2012.

$$IPT_{i,t} = \alpha_1 + \alpha_2 GDPG_{i,t} + \alpha_3 GDPG_{i,t-1} + \alpha_4 SS_{i,t} + \alpha_5 METR_{i,t} + \alpha_6 SFP_{i,t} + \alpha_7 YE_{i,t} + \alpha_7 DC_{i,t} + \gamma_i + ui_{i,t}$$

Where $IPT_{i,t}$ is the share of involuntary workers to part-time employment; $GDPG_{i,t}$ is the GDP growth; $GDPG_{i,t-1}$ is the GDP growth in the previous year; $SS_{i,t}$ is the share of service sector value added; $METR_{i,t}$ is the Marginal Effective Tax Rates; $SFP_{i,t}$ is the share of female labor participation; $YE_{i,t}$ is the share of youth employment; $DC_{i,t}$ is the dummy variable to represent economic crisis from 2009 to 2012; $\gamma_i$ is the country-specific fixed effect. Fixed Effects incorporate the data's panel structure but ignores the correlation between the lagged dependent variable and the regression error. However, the Hausman test rejected the null hypothesis that a random effect model would be statistically different from a fixed effects one.

Table1 represents the estimation of our benchmark model. Our results suggest that the level of GDP negatively impact on the involuntary part-time workers. Surprisingly, however, the combination with economic recession dummy does not significantly effect on the involuntary workers. It intensively indicates the importance of the expectation on the economic condition rather than a particular shock represented by economic recession.

Interestingly, the share of the service sector, unlike argued by other literatures, reduces the share of the involuntary part-time workers. Tally (2006) provides a possible explanation at the skill level. Because the most-often-cited benefits of hiring a part-time worker are 1) the ability to match staffing levels with peaks of work volume and 2) savings due to the ability to offer lower wages and fringe benefits to part-time workers, those reasons implies the common characteristics of the part-time service workers which require to serve lowly-skilled work. Therefore, the increasing share of the service sector in developed countries may reflect the increasing in higher skill categories and thus a decrease in part-time workers and invulnerable part-time workers.

Interestingly, the higher share of female labour participation tends to decrease the share of


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involuntary part-time workers. Since the higher share of female labour participation implies the structural change in gender equality, the female universal recognition in the labour market has a positive impact on finding either part-time or full-time work at a certain level of satisfaction.

It is clear from the descriptive section and the result of the estimation that the increase in youth unemployment shifts the share of involuntary employment significantly. It is worth to note that the working condition of youth employment contributes to long-term effects of the youth on later labour market outcomes mainly though the lack of human or skill accumulation (Mroz and Savage, 2006). Since the share of involuntary part-time workers signifies the share of dissatisfied workers who are searching for an additional hour of work, an increase in involuntary part-time youth in associated with an increase in the share of youth unemployment simply amplify the problem of quality of jobs of the youth.

Share of Marginal Effective Tax Rates (METR) emphasizes on the fact that the higher effective tax rate for an additional hour of work, the lower share of involuntary part-time workers. Since the METR measure the degree to which any additional income will be taxed away, it is therefore, reasonable to decrease the number of involuntary part-time workers. In other words, an increase in the hours of work, the lower marginal rate of return to workers (Carone et al., 2004) Therefore, a study to investigate the impact of METR on various group cohorts is necessary. This determinant highlights on the institutional impact on the quality of jobs. Not only the involuntary part-time workers, but also the non-standard employment shares these characteristics. For example, Aoyagi and Ganelli (2013) and Jaumotte (2011) suggest that the high employment protection increases the share of temporary workers.

Table 1 Determinants of Share of Involuntary Part-time Workers: Regression Results

| Dependent Variable: share of involuntary workers to part-time employment 1/ | Model1 | Model2 | Model3 | Model 4 | Model5 | Model 6 |
|---|---|---|---|---|---|---|
| Constant | 32.637 | 32.830 | 30.896 | 3.607 | 3.614 | 0.656 |
| | 2.337*** | 2.342*** | 2.318*** | 2.299 | 2.291 | 0.658 |
| GDP Growth | -0.052 | -0.090 | -0.021 | - 0.262 | - 0.263 | - 0.211 |
| | 0.055 | 0.051*** | 0.056 | 0.053 *** | 0.048*** | 0.048*** |
| Lag of GDP growth | -0.191 | -0.250 | | - 0.108 | - 0.111 | - 0.127 |
| | 0.062*** | 0.049*** | | 0.059* | 0.047** | 0.045*** |
| Share of Service Sector | -0.194 | -0.190 | -0.186 | - 0.022 | - 0.022 | |
| | 0.025*** | 0.026*** | 0.026*** | 0.024 | 0.024 | |
| share of female labor participation | -0.062 | -0.060 | -0.056 | - 0.016 | - 0.016 | |
| | 0.019*** | 0.019*** | 0.019*** | 0.018 | 0.018 | |
| share of youth employment | 0.524 | 0.530 | 0.536 | 0.121 | 0.121 | 0.139 |
| | 0.025*** | 0.0250*** | 0.026*** | 0.026*** | 0.026 *** | 0.019 *** |
| Dummy of economic recession | 0.669 | | 1.488 | 0.027 | | |
| | 0.438 | | 0.356 | 0.418 | | |
| Marginal Effective Tax Rates | -0.124 | -0.120 | -0.124 | - 0.027 | - 0.027 | - 0.021 |
| | 0.011*** | 0.011*** | 0.011*** | 0.011** | 0.010** | 0.010*** |
| Lag dependent | | | | 0.959 | 0.959 | 0.950 |
| | | | | 0.018*** | 0.018*** | 0.017*** |
| Adjusted R-squared | 0.925 | 0.969 | 0.968 | 0.972 | 0.972 | 0.980 |
| Durbin-Watson stat | 2.173 | 2.164 | 2.070 | 2.082 | 2.083 | 2.028 |

Note: 1/ Std. Errors are reported below coefficients. * denotes significance at 10% level, ** significance at 5% level, and *** significance at 1% level.


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Source: Author's calculations

## 4. CONCLUSION AND POLICY IMPLICATION

The part-time work is a form of job arrangement that facilitates enterprises on labour cost management and workers themselves on time allocation. However, part-time workers are work in security, a little of internal promotion as well as the jeopardy of alternating between short-term jobs and unemployment or inactivity. They are also likely to be the working poor. In OECD countries, the share of part-time workers was 11.9 percent in 2000 and became 16.9 percent in 2012. Among part-time workers, we can classify into voluntary and involuntary part-time workers. The share of involuntary part-time workers to total employment has become larger from 1.5 in 2000 to 3.0 percent in 2012

Structural econometric model has been applied for a panel of OECD countries for international cross-country comparison. The level of GDP, share of service sector and share of female labour participation are likely to decrease the share of involuntary part-time workers. The estimates also suggest that the higher METR for an additional hour of work, the lower share of involuntary part-time workers. Based on the demographic factor, the higher share of female labour participation tends to decrease the share of involuntary part-time workers. This associates with a structural improvement in gender equality. The increase in youth unemployment moves up the share of involuntary employment significantly.

Public policy debates are related to income and tax policies. The level of GDP highly affected on the share of involuntary part-time employment yet the cyclical economic fluctuation is unavoidable. Representing shares of involuntary part-time employment together with the unemployment rate and share of part-time employment will visualize the actual labour market situation rather than only unemployment rate. The study also suggests that fiscal tools, represented by METRs, should be implemented along with a flexible mandatory employee health/unemployment benefits scheme during an economic downturn to cutback the share of involuntary part-time workers. The limitation of the study is a lack of data set in developing economies in other regions. The unavailability of data will provide a comprehensively in-depth discussion.

Appendix

Appendix 1: Involuntary Part Time Workers and Share of Involuntary Part-time Workers in Total Employment

| | Involuntary part time workers ( Thousand persons) | | | | Share of involuntary part-time workers in total employment | | | |
|---|---|---|---|---|---|---|---|---|
| | 2000 | 2005 | 2010 | 2012 | 2000 | 2005 | 2010 | 2012 |
| Australia | 564.4 | 711 | 845.7 | 875.7 | .. | 7.1 | 7.6 | 7.6 |
| Austria | 42 | 62.1 | 72.8 | 64 | 1.1 | 1.7 | 1.8 | 1.5 |


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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Belgium | 121.9 | 111.8 | 87.9 | 76.4 | 3.3 | 3 | 2.2 | 1.8 |
| Canada | 677.1 | 755.1 | 920.1 | 896.6 | 4.6 | 4.7 | 5.4 | 5.1 |
| Czech Republic | 30 | 24.4 | 32.8 | 35.3 | 0.6 | 0.5 | 0.7 | 0.7 |
| Denmark | 48 | 68.3 | 61.7 | 66 | 1.8 | 2.5 | 2.3 | 2.5 |
| Finland | 82 | 75.3 | 82.1 | 79 | 3.5 | 3.1 | 3.4 | 3.2 |
| France | 684.1 | 855.8 | 1,021.40 | 998.8 | 3 | 3.5 | 4 | 3.9 |
| Germany | 652.3 | 1,397.70 | 1,573.60 | 1,250.10 | 1.8 | 3.8 | 4.1 | 3.1 |
| Greece | 61 | 87.2 | 125.4 | 158.4 | 1.5 | 2 | 2.9 | 4.2 |
| Hungary | 15.8 | 17.1 | 35.6 | 58 | 0.4 | 0.4 | 0.9 | 1.5 |
| Iceland | 1.8 | .. | .. | .. | 1.1 | .. | .. | .. |
| Ireland | 33.2 | .. | 94.1 | 122.3 | 2 | .. | 5.7 | 7.6 |
| Italy | 449.3 | 882.1 | 1,395.90 | 1,829.00 | 2.1 | 4.1 | 6.1 | 8 |
| Japan | 1,180.00 | 2,910.00 | 3,800.00 | 3,170.00 | 1.9 | 4.7 | 6.2 | 5.2 |
| Luxembourg | 1.1 | 2.5 | 2.1 | 4.1 | 0.6 | 1.4 | 1 | 1.8 |
| Netherlands | 93.4 | 129.4 | 128.7 | 207.9 | 1.2 | 1.6 | 1.5 | 2.5 |
| New Zealand | 106.3 | 76 | 98.6 | 104.5 | 6 | 3.7 | 4.7 | 4.9 |
| Norway | 28.1 | 43.5 | 29.3 | 29.6 | 1.2 | 1.9 | 1.2 | 1.1 |
| Poland | .. | 295.8 | 181.3 | 208 | .. | 2.1 | 1.2 | 1.3 |
| Portugal | 101.8 | 109.5 | 135.5 | 189.6 | 2.1 | 2.2 | 2.8 | 4.3 |
| Slovak Republic | 8.9 | 16.6 | 49.1 | 50.7 | 0.4 | 0.8 | 2.1 | 2.2 |
| Spain | 261.6 | 622.2 | 1,111.90 | 1,454.90 | 1.7 | 3.4 | 6.3 | 8.9 |
| Sweden | 142.7 | 135.1 | 143.2 | 150.9 | 3.4 | 3.2 | 3.2 | 3.2 |
| Switzerland | 38.8 | 58.3 | 70.8 | .. | 1 | 1.5 | 1.7 | .. |
| Turkey | 4 | .. | .. | .. | 0 | .. | .. | .. |
| United Kingdom | 517.8 | 449.5 | 929.4 | 1,170.80 | 1.9 | 1.6 | 3.3 | 4.1 |
| United State | .. | .. | .. | .. | 0.8 | 1.1 | 2 | 2.1 |
| Europe | 3,679.80 | 5,447.90 | 7,364.50 | 8,203.80 | 1.7 | 2.5 | 3.2 | 3.6 |
| G7 countries | 5,108.60 | 8,590.20 | 12,015.40 | 11,857.30 | 1.7 | 2.7 | 3.9 | 3.8 |
| OECD countries | 7,155.50 | 11,240.00 | 15,403.90 | 15,792.70 | 1.5 | 2.2 | 3 | 3 |

Source: OECD database 2014

Appendix2 Share of Involuntary Part-time Workers in part-time employment, unemployment, and GDP growth in 2000 and 2012

| | 2000 | | | 2012 | | |
|---|---|---|---|---|---|---|
| | Share of involuntary part-timers as % of part-time employment* | Unemployment, total (% of total labor force) | GDP growth (annual %)** | Share of involuntary part-timers as % of part-time employment*** | Unemployment, total (% of total labor force) | GDP growth (annual %) |
| Australia | 30.3 | 6.8 | 3.8 | 31.0 | 5.2 | 3.4 |
| Austria | 9.4 | 3.6 | 3.7 | 8.0 | 4.3 | 0.9 |
| Belgium | 17.3 | 6.2 | 3.7 | 9.9 | 7.5 | - 0.1 |
| Canada | 25.4 | 7.2 | 5.2 | 27.2 | 7.2 | 1.7 |
| Czech Republic | 20.0 | 8.1 | 4.2 | 16.7 | 6.4 | - 1.0 |
| Denmark | 11.0 | 4.2 | 3.5 | 12.7 | 7.0 | - 0.4 |
| Finland | 34.2 | 9.1 | 5.3 | 24.6 | 7.5 | - 0.8 |


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| | | | | | | |
|---|---|---|---|---|---|---|
| France | 20.8 | 8.6 | 3.7 | 28.6 | 25.0 | 0.0 |
| Germany | 10.2 | 7.8 | 3.1 | 14.1 | 10.1 | 0.7 |
| Greece | 28.3 | 10.2 | 4.5 | 43.6 | 7.6 | - 6.4 |
| Hungary | 14.4 | 5.7 | 4.2 | 31.8 | 9.9 | - 1.7 |
| Ireland | 11.0 | 3.7 | 5.3 | 30.2 | 24.2 | 0.9 |
| Italy | 17.5 | 9.6 | 3.7 | 45.1 | 14.7 | - 2.5 |
| Japan | 8.3 | 5.0 | 2.3 | 18.3 | 6.0 | 1.9 |
| Luxembourg | 4.9 | 1.8 | 8.4 | 11.6 | 10.7 | - 0.2 |
| Netherlands | 3.7 | 2.1 | 3.9 | 6.5 | 3.2 | - 1.2 |
| New Zealand | 27.0 | 5.4 | 2.3 | 22.0 | 5.1 | 3.0 |
| Norway | 6.1 | 3.4 | 3.3 | 5.8 | 4.9 | 3.1 |
| Poland | 15.8 | 18.2 | 4.3 | 16.6 | 5.3 | 1.8 |
| Portugal | 22.1 | 4.0 | 3.9 | 35.3 | 3.2 | - 3.2 |
| Spain | 22.2 | 10.5 | 5.0 | 64.1 | 5.5 | - 1.6 |
| Sweden | 24.5 | 5.0 | 4.5 | 22.8 | 13.9 | 1.0 |
| Switzerland | 4.1 | 2.5 | 3.7 | 6.3 | 8.8 | 1.0 |
| United Kingdom | 8.1 | 4.7 | 4.4 | 16.5 | 9.2 | 0.1 |
| United States | 4.6 | 4.7 | 4.1 | 11.5 | 8.1 | 2.8 |

Source: OECD database 2014and World Bank 2013

Appendix 3:

Ratio of share of involuntary part-time women to share of involuntary part-time men

| | **2000** | **2004** | **2005** | **2012** |
|---|---|---|---|---|
| Australia | 1.95 | 2.18 | 2.10 | 1.99 |
| Austria | 3.77 | 4.76 | 3.50 | 3.43 |
| Belgium | 5.04 | 4.84 | 4.44 | 2.85 |
| Canada | 2.33 | 2.33 | 2.06 | 2.11 |
| Czech Republic | 7.01 | 5.37 | 5.70 | 3.49 |
| Denmark | 3.86 | 2.42 | 2.51 | 2.57 |
| Finland | 3.67 | 3.38 | 3.20 | 2.71 |
| France | 3.79 | 6.08 | 5.31 | 3.89 |
| Germany | 4.24 | 3.31 | 2.96 | 2.74 |
| Greece | 2.86 | 3.68 | 3.87 | 2.24 |
| Hungary | 2.75 | 2.52 | 1.91 | 2.25 |
| Ireland | 1.90 | 1.96 | 1.72 | 1.76 |
| Italy | 4.53 | 4.08 | 4.29 | 3.75 |
| Japan | 3.74 | 2.75 | 2.64 | 2.99 |
| Luxembourg | 15.43 | n.a. | 4.99 | 6.11 |
| Netherlands | 2.89 | 2.13 | 3.15 | 2.68 |
| New Zealand | 2.59 | 2.49 | 2.51 | 2.43 |
| Norway | 2.93 | 2.20 | 3.11 | 2.15 |
| Poland | 1.65 | 1.73 | 2.47 | 2.52 |
| Portugal | 5.23 | 3.77 | 4.45 | 2.55 |
| Slovak Republic | 8.77 | 4.42 | 2.06 | 1.66 |
| Spain | 6.36 | 6.58 | 4.82 | 3.05 |
| Sweden | 3.09 | 2.28 | 2.55 | 1.88 |
| Switzerland | 2.26 | 3.36 | 3.29 | 3.24 |
| Turkey | 0.89 | 2.86 | n.a. | n.a. |
| United Kingdom | 1.90 | 1.38 | n.a. | 1.41 |


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| | | | | |
|---|---|---|---|---|
| United State | 1.76 | 1.60 | 1.58 | 1.51 |
| **OECD countries** | **3.05** | **2.77** | **2.82** | **2.53** |

Remark: Due to data unavailability, the data of Australia and Poland are applied the data of 2001, the data of UK in 2008 is replaced by the data in 2009. The data of Switzerland in 2012 is replaced by 2010 data

Source: OECD database 2014 and authors' calculation

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