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## **An empirical study on transition and unemployment**

Changyong Choi  
KDI School of Public Policy and Management

*May, 2019*  
*Working Paper 19-10*



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# **An empirical study on transition and unemployment**

## **Abstract**

The aim of this study is to investigate the negative correlation between unemployment and life satisfaction in the 27 post-socialist countries. First, we measured the well-being cost of life satisfaction brought from pecuniary and non-pecuniary sources. In line with the previous literature, the non-pecuniary mental cost was as big as 2.7 times of the pecuniary cost to the unemployed person. However, at the societal level, the relation between pecuniary and non-pecuniary costs reversed. By demographic group, the detrimental impact of unemployment was bigger for mid-age group, and equal to males and females. Second, we measure the social pressure to the unemployed at the time of economic recession in 2008, and we found the pressure has been decreased due to pervasive unemployment rate. Third, on the top of the previously suggested policies to enhance the unemployed, we found that the quality of public service in everyday life can be helpful to mitigate the detrimental impact of unemployment, especially for the low-and middle-income groups.

Keywords: transition, unemployment, life satisfaction, public service

## **1. Introduction**

It has been almost thirty years after post-socialist countries such as Central Europe and Baltic countries (CEE), Southeastern European countries (SEE), and Commonwealth of Independent States (CIS) transformed its political economic system from centrally planned economy to market economy. In this period, post-socialist countries have experienced two big economic recessions and one economic boom. First economic plunge was immediate to the transition, and the magnitude was comparable to the Great Depression (The World Bank, 2002). The national gross domestic product (GDP) fell almost half of the 1990 level in early transition period and unemployment was severe (Campos & Coricelli, 2002). The life satisfaction significantly dropped following the pattern of economic downturn, and recovered later than the economy was normalized again. This was called the “transition happiness gap” (Sanfey and Teksoz, 2007; Guriev & Zhuravskaya, 2009; Easterlin, 2009; Mikucka, et al., 2017). Recently, however there is a literature that shows evidence of convergence between transition countries and others (Guriev & Melnikov, 2018). As one of the most direct impact of transition was unemployment, the life satisfaction of the unemployed has been featured (Namazie & Sanfey, 2001; Lelkes, 2006; Sanfey & Teksoz, 2007; Zaidi, et al., 2009; Guriev & Melnikov, 2018; Norton, et al., 2018). Among them, Norton, et al., (2018) has argued that not only current unemployment negatively affect to the life satisfaction, past experience of unemployment made scar and constitute around 8 percent of the “transition happiness gap.”

After the transition economic recession, transition countries experienced a economic booming period in the mid 2000s, recording high economic growth. It did not last long as global economic financial crisis negatively affected the economy in this region from 2008 to 2013.

Some countries even recorded a minus growth in this period. Although external shock from such as Lehman Brothers' collapse in 2008 and the euro-zone crisis in early 2010s ignited the recession, internal vulnerability including high current account deficits, high external debt, and excessive dependency on trade was another important source of devastating economic downturn (IMF, 2014). We will detect the impact of global financial crisis to the unemployment rate and the well-being of people at the descriptive level. Secondly, we will investigate the well-being cost of unemployment in the transition region. We utilize a comprehensive survey data regarding people's lives and values in transition countries, and econometrically estimate the loss arose from unemployment to the unemployed as well as the whole society. The detrimental impact of unemployment can be divided into pecuniary and non-pecuniary cost. The pecuniary cost is arose from the loss of income, and the non-pecuniary cost is from other factors such as shrunk social relationship, lowered self identity as a member of society (Winkermann & Winkermann, 1998), and marital instability (Jensen & Smith, 1990; Eliason, 2012). What is the ratio between pecuniary and non-pecuniary costs in transition countries? Is it different from other countries? What would be the moderating policy to enhance the life satisfaction of the unemployed? Could it be the good quality of public services? These questions are our primary source of research questions.

Main contribution of this study is to calculate the social cost of unemployment at the context of transition countries encompassing 27 countries in this region. Also, we will test whether the psychological cost of unemployment change in times of raised unemployment due to economic recession. Social norm theory of psychological impact of unemployment shows evidence that the unemployed are less affected by the raising unemployment rate at the national level (Clark, 2003; Powdthavee, 2007) except those with good employment prospect (Clark, Knabe, & Rätzl, 2010). Our paper will test the theory in the context of recent economic crisis. This study has some limitations. As the dataset we are using are cross-country survey rather than individual panel, we could not control for individual unobservable time invariant fixed effects. Also, we could not fully eliminate the risk of reverse causality or measurement error issue. Thus we will primarily focus on correlative relation between life satisfaction and unemployment.

## **2. Literature Review**

Negative correlation between unemployment and life satisfaction has been noted in the previous socio-economic academic work, and the psychological cost of unemployment is not just rising from loss of income (pecuniary cost) but also from other factors (non-pecuniary cost). Winkelmann and Winkelmann (1998) found a large detrimental effect on life satisfaction of working-age men in Germany even when controlling for income. Their paper emphasized the importance of non-pecuniary costs of joblessness using a fixed effects methodology on a longitudinal dataset (German Socio-Economic Panel, or GSOEP). The non-pecuniary utility loss arose from deteriorated social relationship, weakened identity in society, and lowered self-esteem. With the same data, Kassenboehmer & Haisken-DeNew (2009) tried more robust empirical work. They measured the effect of exogenous unemployment entries due to company closing. According to their work, females were more negatively affected by company closing, suggesting *prima facie* evidence of reduced employment options, investment in firm-specific

human capital, and the family constraint. The negative effect was largely brought from non-pecuniary psychological costs. Taking advantage of the same exogenous unemployment entry, Schmitz (2011) found an evidence that unemployment due to plant closure negatively affects to health measures including health satisfaction, mental health, and hospital visits. The detrimental health status from unemployment has spillover effect to the spouse as the same extent to the one directly unemployed (Marcus, 2013). Marital instability arose from unemployment of the husband is one of examples of social and individual non-pecuniary costs (Jensen & Smith, 1990; Eliason, 2012). Using United States (US) data, Helliwell and Huang (2014) calculated the ratio of nonmonetary to monetary loss leveraged by the life satisfaction, and concluded that the nonmonetary loss is 5.6 times larger than monetary loss.

Beyond the individual detrimental risk from income loss and psychological difficulties, there is a spillover effect of national or regional unemployment rate to the population including employed people (Di Tella, et al., 2003). The cost of aggregate unemployment is higher than that of inflation (Di Tella, et al., 2001). Helliwell and Huang (2014) measured the detrimental effect of unemployment in the family and society raising unemployment, and claimed that the ratio of population wide nonpecuniary cost to direct pecuniary cost on the unemployed is 12.6 as big. The unemployment rate gives a different social pressure to people with different working status. Clark (2003) found that regional unemployment rate negatively affects more to employed people than to unemployed using the British panel data, and he interpreted this as the social norm effect. They unemployed receives less pressure when unemployment of reference group is prevalent in society. Supportive evidence is also found in South Africa (Powdthavee, 2007). Some literature investigated detrimental effect from neighborhood deprivation (Shields & Price, 2005; Shields, Price, & Wooden, 2009). High unemployment rate hurt employed as they face low job security. Helliwell and Huang (2014) tested the source of indirect effects by instrumenting the predicted employment losses based on local industry shares for regional unemployment rate, and concluded that the sense of job insecurity is the major channel underneath indirect effect to society. That is why private workers who face a higher risk of dismissal or bankruptcy are more sensitive to fluctuations in unemployment rates than public servants (Luechinge, et al., 2010). Subjective job security is more important than employment status and contract. Clark, Knabe, and Rätzel (2010) found that higher negative effect of rising national portion of unemployment to men with good job prospects both employed and unemployed. On the other hand, Chadi (2014) argued that regional unemployment has two countering effects to life satisfaction, they are, unhappiness caused by income dependency to other people and scarce employment opportunity. The large and negative effect of regional unemployment rate is considerable but it is mitigated if one is living off public funds.

During the transition period from centrally planned economy to market economy, post socialist countries experienced high unemployment rate and its detrimental impact to citizens' lives. In happiness studies of transition countries, the high correlation between unemployed status and life satisfaction has been found (Namazie & Sanfey, 2001; Lelkes, 2006; Sanfey & Teksoz, 2007; Zaidi, et al., 2009; Guriev & Melnikov, 2018; Norton, et al., 2018) parallel to the studies in other countries. Using the longitudinal data of Ukraine, one of the former socialist

countries, Norton et al., (2018) investigated the mechanism behind the adverse effect of unemployment to life satisfaction in three ways, they are, scarring, adaptation, and social comparison. When controlling an unobserved individual effect, the authors found that past unemployment experience makes a scar to individuals and that explains approximately 8 percent of the “transition gap” calculated by Guriev and Melnikov (2018). Additionally, the authors distinguished the population into two different genders (males and females), and found the evidence that females adapt to the state of being unemployed while males do not when controlling for current employment status. The regional unemployment rate has a mitigate impact for males of their lower subjective wellbeing caused by unemployment.

The study between economic recession and life satisfaction is well addressed in Di Tella et al., work (Di Tella, et al., 2003). They showed that economic recession brings large losses through rise in unemployment. Assuming that economic recession is accompanied by a rise in unemployment rate of 1.5 percentage points, citizens in this economy should be compensated by approximately 200 dollars each on the top of the direct GDP decline to overcome psychic losses. Firm-level workforce reductions have a significantly negative relationship with mental health and subjective job insecurity is a underlying mediating variable (Clark, Knabe, & Rätzel, 2010). In times of economic crisis, policies supports better social capital and trust are helpful to raise life satisfaction and positive emotions brought by increasing local unemployment rates.

Previous literature suggested policies to enhance life satisfaction of unemployed people. First is the labor market policy which as a moderating effect. It has two policy tools, they are, the cash transfer (unemployment benefit or passive labor market policy) and training and job matching program (active labor market policy). Di Tella, et al. (2003) found a positive correlation between passive labor market policy and life satisfaction of European citizens from 1975 to 1992. Although the researchers did not apply an interaction effect between benefit replacement rate and unemployed status, they found that increase in the generosity of unemployment benefits enhances subjective well-being of the unemployed and employed at a similar degree. Active labor market policy is also effective. Generous unemployment insurance is beneficial especially to vulnerable group such as women, housewives, and older people (Ochsen & Welsch, 2012). Korpi (1997) found positive effect of job training programs participation among unemployed youth in Sweden. Between two policy tools, Wulfgramm (2014) argued that passive unemployment benefit is more effective and robust than the active labor market policy.

Second is to strengthen the employment security. Green (2011) found that rising in employability moderates the detrimental impact of unemployment and job insecurity, leading to a support for “flexicurity” model. Enhanced employment security raises perceived job security, and it reduces detrimental effect of being unemployed (Origo & Pagani, 2009; Clark, Knabe, & Rätzel, 2010). Some argue that reducing life satisfaction of unemployed people does help them to shorten the unemployment duration as it encourages unemployed find actively for a new employment opportunity (Stutzer & Lalive, 2004). Clark (2003) also found that those hurt less by unemployment rate are more likely to be a long-term unemployed and less likely to find another employment opportunity. In that sense, the government might need to intervene

before the unemployment is prevalent and ease negative impact of social norm.

### 3. Data and empirical strategy

We utilize Life in Transition Survey (LiTS) three waves which were conducted in 2006, 2010, and 2016. LiTS contains survey result of values and attitudes towards democracy, the role of the state, and prospects to effectively support transition to market economies of post-socialist countries. It is a comprehensive survey covers 27 transition countries which are focus of this research. The list of countries is included in Annex 1 with the number of observations. Our empirical strategy is to include more variables into regression which is summarized in Table 1. First, we will regress only macroeconomic variables such as log of GDP per capita (PPP), GDP per capita growth, unemployment rate, and inflation rate. To address country level unobservable time-invariant omitted variable bias, we included country and year fixed effects. Second, in additional to macro variables, we further include individual social demographic variables such as age, gender, employment, and so on. Lastly, we will see how country or individual level of government efficiency and public service quality is correlated with life satisfaction of unemployed individuals.

**Table 1. Summary of regression models**

	Macroeconomic variables	Social variables (individual demographic variables)	Public service quality
<b>Model 1</b>	O	-	-
<b>Model 2</b>	O	O	-
<b>Model 3</b>	O	O	O

Below are detailed regression equations.

- Model 1: Macro variables

$$LS_{icy} = \alpha_{yc} + \beta_1 \log(\text{GDPpercap PPP})_{yc} + \beta_2 \Delta \text{GDPpercap}_{yc} + \beta_3 \text{UR}_{yc} + \beta_4 \text{Inflation}_{yc} + \theta_c + \varphi_y + u_{icy}$$

$LS_{icy}$  is life satisfaction of individual  $i$  of country  $c$  in year  $y$ .  $\log(\text{GDPpercap PPP})_{yc}$  is the log of GDP per capita purchasing power parity adjusted,  $\Delta \text{GDPpercap}_{yc}$  is the GDP per capita growth,  $\text{UR}_{yc}$  is the unemployment rate, and  $\text{Inflation}_{yc}$  is inflation rate at country and year level.  $\theta_c$  and  $\varphi_y$  are country and year fixed effects respectively.  $u_{icy}$  is the residual.

- Model 2 : Macro and micro demographic variables

$$\begin{aligned}
LS_{iy_c} = & \alpha_{y_c} + \beta_1 \log(\text{GDPpercap PPP})_{y_c} + \beta_2 \Delta \text{GDPpercap}_{y_c} + \beta_3 \text{UR}_{y_c} \\
& + \beta_4 \text{Inflation}_{y_c} + \gamma_1 \text{UN}_{icy} + \gamma_2 \text{Age}_{icy} + \gamma_3 \text{Age squared}_{icy} \\
& + \gamma_4 \text{Female}_{icy} + \gamma_5 \text{Income}_{icy} + \gamma_6 \text{Employment}_{icy} + \gamma_7 \text{Religion}_{icy} \\
& + \gamma_8 \text{Health}_{icy} + \theta_c + \varphi_y + u_{icy}
\end{aligned}$$

Additional variables in the second model is individual demographic social variables.  $\text{UN}_{icy}$  is a dummy variable equals to 1 if one is not working and currently looking for another job opportunity.  $\text{Age}_{icy}$  and  $\text{Age squared}_{icy}$  is individual age which is categorized into five (18-24(1), 25-34 (2), 35-44 (3), 45-54 (4), 55-64 (5), 65+ (6)).  $\text{Female}_{icy}$  is a dummy variable equals to 1 if one is female, and 0 otherwise.  $\text{Income}_{icy}$  is the subjective income level from 1 (the poorest) to 10 (the richest),  $\text{Employment}_{icy}$  is a set of dummies indicating employment status, they are, work for wages, self-employed.  $\text{Religion}_{icy}$  is a dummy representing one has a religion, and health is subjective statement of health status from 1 (very bad) to 5 (very good).

- Model 3 : Macro, micro demographic variables, and public service quality

$$\begin{aligned}
LS_{iy_c} = & \alpha_{y_c} + \beta_1 \log(\text{GDPpercap PPP})_{y_c} + \beta_2 \Delta \text{GDPpercap}_{y_c} + \beta_3 \text{UR}_{y_c} \\
& + \beta_4 \text{Inflation}_{y_c} + \delta_1 \text{GovEffect}_{y_c} + \delta_2 \text{PST}_{y_c} + \gamma_1 \text{UN}_{icy} + \gamma_2 \text{Age}_{icy} \\
& + \gamma_3 \text{Age squared}_{icy} + \gamma_4 \text{Female}_{icy} + \gamma_5 \text{Income}_{icy} \\
& + \gamma_6 \text{Employment}_{icy} + \gamma_7 \text{Religion}_{icy} + \gamma_8 \text{Health}_{icy} \\
& + \rho_1 \text{UN}_{icy} \text{GovEffect}_{y_c} + \rho_2 \text{UN}_{icy} \text{PST}_{iy_c} \\
& + \theta_c + \varphi_y + u_{icy}
\end{aligned}$$

Finally, the third regression model includes the indicators showing the government effectiveness or the quality of public service to the citizens.  $\text{GovEffect}_{y_c}$  is the government effectiveness index which was obtained from Worldwide Governance Indicators (WGI) dataset. It has scale from -2.5 to +2.5, the more number means the better effective government.  $\text{PST}_{y_c}$  is the average of satisfaction for six public services (to interact with the road police, to request official documents, to go to courts for civil matter, to receive medical treatment in the public health system, to request unemployment benefits, and to request other social security benefits) at country and year level. Also, we interacted two variables with unemployed status to see whether good quality of government can enhance the life satisfaction of the unemployed.  $\text{UN}_{icy} \text{GovEffect}_{y_c}$  is the interaction between unemployed status and country-level government effectiveness score, and  $\text{UN}_{icy} \text{PST}_{iy_c}$  the interaction between unemployed status and individual-level satisfaction of public services.



In addition to the basic regression models, we interacted key individual variables with year 2010 dummy to see the impact of economic crisis to each regression model. Table 2 is the summary statistics of variables.

**Table 2. Summary Statistics**

Variable	Observation	Mean	Std. Dev.	Min	Max
<b>Macro variables</b>					
log GDP per capita PPP	97,969	9.46	0.71	7.49	10.35
GDP per capita growth	97,969	4.31	4.39	-4.18	33.03
Inflation rate	93,963	4.04	4.04	-1.54	14.51
Unemployment rate	97,969	11.21	6.90	0.49	36.03
<b>Micro demographic variables</b>					
Life satisfaction	96,008	3.16	1.12	1	5
Age	97,948	3.71	1.65	1	6
Age squared	97,948	16.50	12.31	1	36
Female	97,938	0.59	0.49	0	1
Household income (subjective)	96,292	4.39	1.70	1	10
Work for wage	97,969	0.40	0.49	0	1
Self-employed	97,969	0.06	0.25	0	1
Unemployed	97,969	0.06	0.23	0	1
Religion	96,717	0.91	0.28	0	1
Education	97,953	3.47	1.06	1	6
Health (subjective)	97,644	3.41	0.96	1	5
<b>Public service quality</b>					
Government effectiveness (WGI)	97,969	0.02	0.67	-1.16	1.16
Public service satisfaction (country-level)	97,969	3.34	0.27	2.72	3.94
Year 2006	97,969	0.28	0.45	0	1
Year 2010 (Time of crisis)	97,969	0.31	0.46	0	1
Year 2016	97,969	0.42	0.49	0	1

## 4. Key Findings

### (1) Macroeconomic development of transition economies

The macroeconomic development in the transition economies since its political and economic transformation can be divided into five sequences (IMF, 2014). First is the initial stabilization and market reforms period (from 1990 to 1996) which brought severe economic

downturn and massive job destruction (The World Bank, 2002). The average GDP per capita growth in this period was -4.07 percent, and fifteen out of twenty-six countries experienced negative growth. Second is economic turmoil of emerging markets, including systematic economic crisis started from Russia (from 1997 to 2001). However, the transition region has recovered in a fast pace, so that the average GDP per capita growth was on average 4.41 percent. Third period is following booming economic period or “Great Moderation” period with rapid growth and strong convergence with western European countries (from 2002 to 2007). The average growth rate was 7.33, and four countries (Azerbaijan, Armenia, Latvia, and Georgia) recorded double digits. Even the lowest ranking countries (Macedonia FYR, Hungary, and Kyrgyz Republic) showed more than 3 percent growth. Fourth period is another economic recession affected by global financial crisis and the recovery (from 2008 to 2013). Transition countries revealed its vulnerability in fiscal stability, and recorded only 2.06 percent growth on average. Seven countries (Latvia, Ukraine, Hungary, Czech Republic, Estonia, Croatia, and Slovenia) even recorded minus growth in this period. The last period is the current years (from 2014 to 2017). The growth shows only slightly improvement (2.73 percent), and four countries (Belarus, Russian Federation, Azerbaijan, and Ukraine) still record negative growth.

The ranking of GDP per capita indicates the importance of initial conditions at the beginning of the transition (Table 3). When we categorize the ranking into three groups – up to 10<sup>th</sup> grade, up to 20<sup>th</sup> grade, and others, there are only two exceptional cases which changed its category. One is Ukraine which starts from 16<sup>th</sup> but ended with 23<sup>rd</sup> in the most recent period, and the other is Bosnia and Herzegovina which was only 22<sup>nd</sup> in early 1990s but ranked in 18<sup>th</sup> in the mid-2010. Also, there are only two countries who climbed up more than three steps in the list, they are, Lithuania and Bosnia and Herzegovina. On the other hand, six countries (Croatia, Hungary, Russian Federation, Macedonia FYR, Ukraine, and Montenegro) experienced downturn more than three steps. Ukraine showed largest drop from 16<sup>th</sup> in the initial stage to 23<sup>rd</sup> in the most recent period.

**Table 3. GDP per capita (constant 2010 US\$)**

1990-1996 Change up to 2014-2017	Up to 10 <sup>th</sup> grade	Up to 20 <sup>th</sup> grade	Others
△ at least 3 grades	Lithuania		Bosnia and Herzegovina
- Stable	Czech Republic, Estonia, Latvia, Poland, Slovak Republic, Slovenia	Albania, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Romania, Serbia	Armenia, Kyrgyz Republic, Moldova, Tajikistan, Uzbekistan
▽ at least 3 grades	Croatia, Hungary, Russian Federation	Macedonia FYR, Ukraine, Montenegro*	

Note: Author’s calculation from World Bank Database.

\* GDP per capita data for Montenegro is missing for the first period. The categorization is based on the ranking of the following period (from 1997 to 2001)

Unlike the GDP per capita country ranking, GDP per capita growth and unemployment rate shows more dynamic patterns. First, regarding the GDP per capita growth ranking (Table 4), only four countries in each category remained from the early stage of transition to current

years. Seven countries experienced upward movement in the ranking, and the other eight countries exhibit downward movement. Among them, four countries from CEE countries (Hungary and Poland) and two Baltic states (Latvia and Lithuania) remained in the 10<sup>th</sup> grade group from the early 1990s to mid-2010s. On the other hand, four former Soviet countries (Azerbaijan, Kyrgyz Republic, Russian Federation, and Ukraine) remained in the lowest group. Previous literature indicated that growth rates are correlated to initial conditions, dependency on trade with the former USSR, and reform policies. While the CEEs and Baltic countries carried out profound economic reforms, the CIS countries postponed the reform policies so that economic development delayed (IMF, 2014).

**Table 4. GDP per capita growth (annual %)**

<b>1990-1996 2014-2017</b>	<b>Up to 10<sup>th</sup> grade</b>	<b>Up to 20<sup>th</sup> grade</b>	<b>Others</b>
<b>Up to 10<sup>th</sup> grade</b>	Hungary, Latvia, Lithuania, Poland	Bulgaria, Czech Republic, Romania, Uzbekistan	Georgia, Tajikistan
<b>Up to 20<sup>th</sup> grade</b>	Bosnia and Herzegovina, Croatia, Estonia, Slovak Republic, Slovenia	Albania, Armenia, Macedonia FYR, Moldova	Montenegro*
<b>Others</b>	Serbia	Belarus, Kazakhstan	Azerbaijan, Kyrgyz Republic, Russian Federation, Ukraine

Note: Author's calculation from World Bank Database.

\* GDP per capita data for Montenegro is missing for the first period. The categorization is based on the ranking of the following period (from 1997 to 2001)

Second, transition countries are ranked in Table 5 according to unemployment from lowest numbers to highest. It is also categorized into three – up to 10<sup>th</sup> grade, up to 20<sup>th</sup> grade, and others. Those who kept unemployment rate low from the beginning of transition are five countries (Belarus, Czech Republic, Estonia, Kazakhstan, and Russian Federation). On the other hand, four countries (Albania, Bosnia and Herzegovina, Macedonia FYR, and Montenegro) recorded highest unemployment rate from the start of 1990s until now. Low unemployment is a good sign of labor market with high employment, however, at the same time it can be interpreted as high unproductive employment in inefficient government-owned companies and private sectors (IMF, 2014). Transitional unemployment prolonged impact until today bringing social and political costs such as eroding skills, poverty, inequality, and social marginalization. CIS region shows lower unemployment rate, but the workers often locked in low quality jobs with poor job prospects (OECD, 2005).

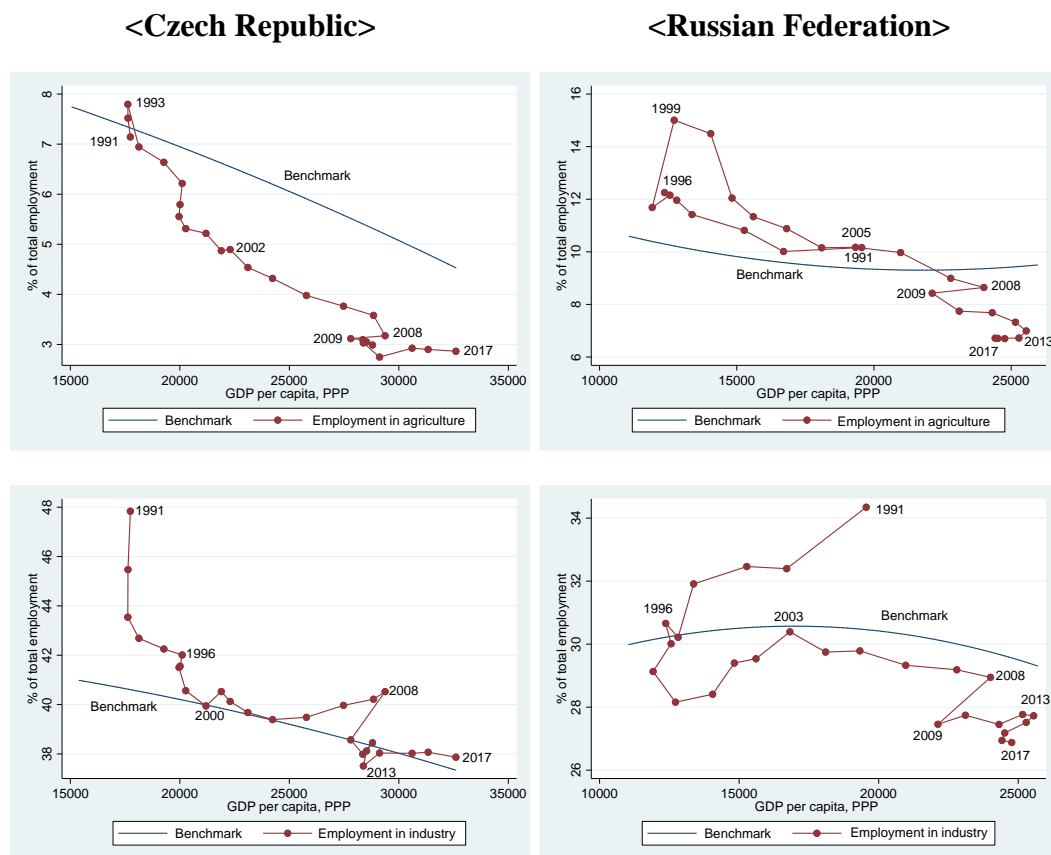
**Table 5. Unemployment Rate**

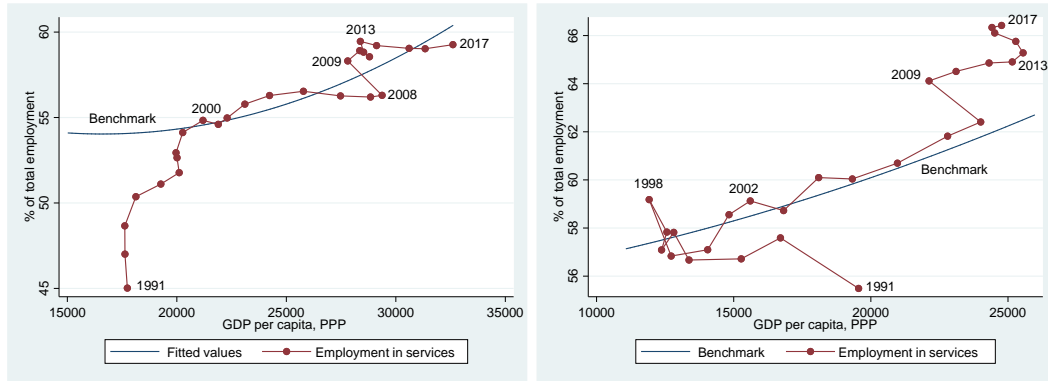
1990-1996 2014-2017	Up to 10 <sup>th</sup> grade	Up to 20 <sup>th</sup> grade	Others
Up to 10 <sup>th</sup> grade	Belarus, Czech Republic, Estonia, Kazakhstan, Russian Federation	Azerbaijan, Hungary, Moldova, Poland, Romania	
Up to 20 <sup>th</sup> grade	Kyrgyz Republic, Slovenia, Ukraine, Uzbekistan	Georgia, Slovak Republic, Tajikistan	Bulgaria, Latvia, Lithuania
Others	Armenia	Croatia, Serbia	Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro

Note: Author's calculation from World Bank Database. Unemployment, total (% of total labor force) modeled ILO estimates.

We traced the employment by industries of Czech Republic and Russian Federation, which have recorded low employment rate in early 1990s steadily until today (Figure 1). However, the employment by industries shows different path. While Czech Republic experienced sound increase in GDP per capita (PPP) and increase in employment of industry and service to the benchmark level, Russian Federation has seen decrease in GDP per capita (PPP) and temporary increase in agriculture until 2015 compared to the benchmark. Currently, Russian Federation recorded lower employment in industry and higher in service.

**Figure 1. Employment by industries (Czech Republic and Russian Federation)**





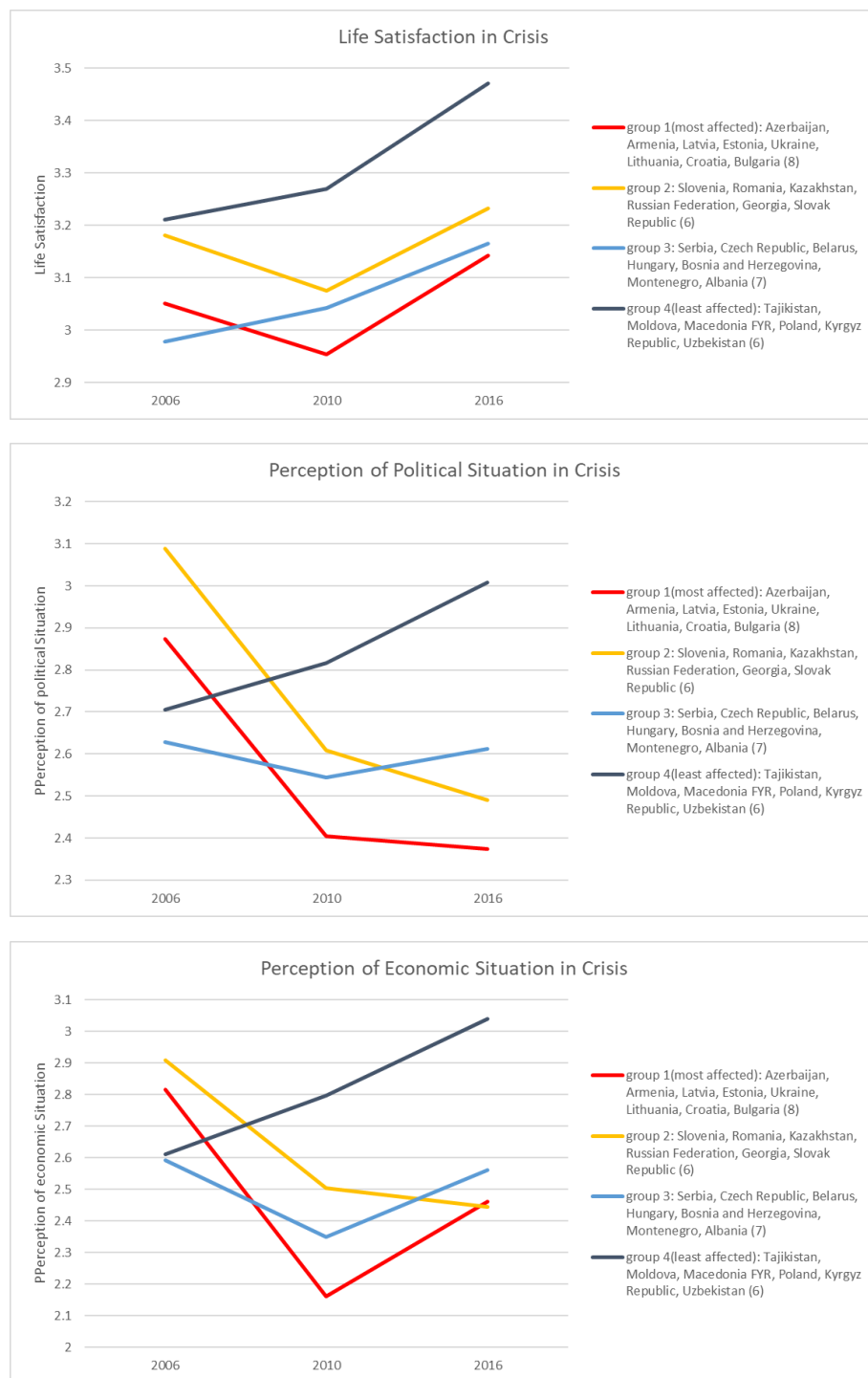
Source: author's calculation from World Bank Indicators. Benchmarks are obtained through regression of industrial employment shares on GDP per capita and its share on a sample of transition countries. The format is referred from OECD (2005).

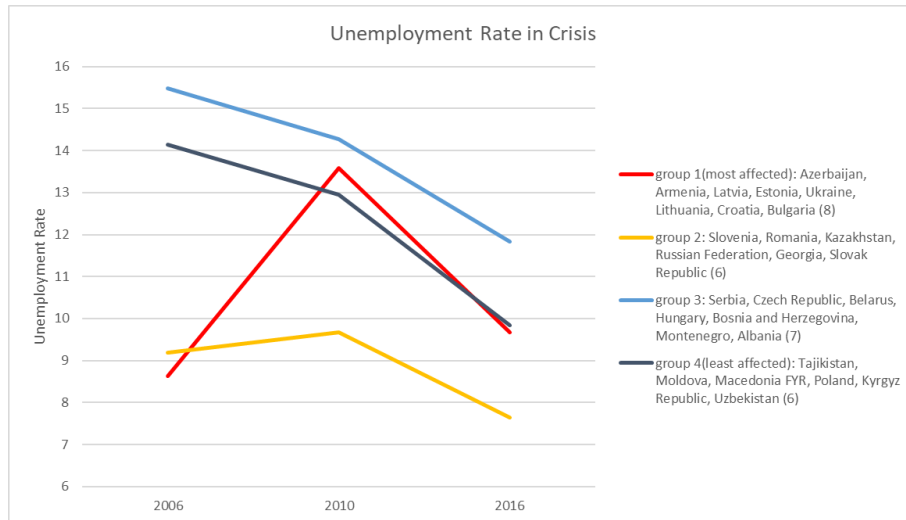
## (2) Impact of the economic recession

To capture the impact of global financial crisis to the life quality of transition countries, we investigated the change of four categories, they are, life satisfaction, perception of current political situation (or economic situation) compared to the past, and unemployment rate (Figure 2). We divided transition countries into four groups following to the negative impact of economic crisis to the national GDP growth. Degree of negative impact is obtained the difference between average GDP growth of “Great Moderation” period (from 2002 to 2007) and that of economic recession affected by global financial crisis period (from 2008 to 2013). The LiTS was conducted before (in 2006), midst (in 2010), and after the recession (in 2016). After obtained the difference, we calculated the quantiles and grouped into four categories from the most affected to the least affected countries.

All indices of life quality show clear correlative relationship with economic downturn. The life satisfaction dropped in year 2010 more for the most and the second most affected countries and then restored in 2016. As the result, the gap between the most affected and the least affected countries increased from year 2006 to year 2016. Similarly, citizens of largely affected by the economic recession felt that the political and economic situation is worsened compared to the past. By contrast, the least affected countries perceived that the political and economic situation is better off with time. In addition to the perception of citizens, we compared the unemployment rate among the group of countries. Notably, the most affected countries have experienced sharp increase in year 2010 more than any other groups. On the other hand, the third most, and the least affected countries have experienced downturn trend in the portion of unemployed among population.

**Figure 2. Impact of the economic recession to the quality of life**





Source: author's calculation from World Bank Indicators and LiTS dataset. The categorization of countries is based on change in GDP growth rate between "Great Moderation" period (2002-2007) and economic recession period (2008-2013).

### (3) Regression result

The regression result of model 1 indicates that unemployment rate has a negative correlation with life satisfaction of overall citizens (Table 6). The magnitude of the coefficient for unemployment rate is 0.0257 (column (1)), and it is 0.6 percent on a scale of 1 to 5. Considering that the samples are not limited to unemployed people but for all population, the result confirms previous literature that the unemployment rate has a harmful correlation with both unemployed people and others. The negative relationship, however, mitigated in the midst of economic recession and following increase in unemployment (column (3)). The result indicates that the prevalent of unemployment in the economic crisis has eased the negative impact of unemployment rate.

**Table 6. Model 1 (Macro variables)**

	(1)	(2)	(3)
log PPP GDP per capita	0.274 (0.305)		0.311 (0.313)
GDP per capita growth		-0.000868 (0.00898)	
Unemployment rate	-0.0257*** (0.00819)	-0.0292*** (0.00702)	-0.0277*** (0.00761)
Unemployment rate*y2010			0.00698* (0.00380)
Inflation rate	-0.0207 (0.0135)	-0.0224* (0.0130)	-0.0214 (0.0129)
Country FE	yes	yes	yes
Year FE	yes	yes	yes
constant	0.743 (3.120)	3.503*** (0.164)	0.406 (3.187)
N	92,063	92,063	92,063
R-sq	0.096	0.096	0.096

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1  
\*\* p<0.05, \*\*\*p<0.01)

Table 7 is the result of the second model with individual demographic variables. With the additional individual level variables, the coefficient of unemployment rate has decreased into 0.0172 (Column (1)). However, when running regression with salary workers, the magnitude becomes as the similar amount, which is 0.0248 (Column (2)). The coefficient for unemployed people is much larger as it is 0.242 (Column (3)). Unemployed people in the time of economic recession (year 2010) had higher life satisfaction about 0.07 or around 25.6 percent of total utility loss of not having jobs (Column (4)). Again, it indicates that the increasing unemployment eased the social norm upon the unemployed.

We calculated the social cost of unemployment based on the methodology used by Helliwell and Huang's work (2014). For unemployed individuals, the pecuniary cost of being unemployed can be calculated as the loss of income (0.419) multiplied by the coefficient for income variable from column (1) which is 0.197. The loss of income is obtained when we regressed life satisfaction on income while controlling for individual demographic variables, and country year fixed effects. The total sum for the pecuniary cost is 0.083. Non pecuniary cost is 0.242 as indicated in column (1) for unemployed dummy variable. The ratio between nonpecuniary and pecuniary cost is  $0.242/(0.419*0.197)$ , which is 2.9. The non-pecuniary cost of unemployment is as 2.9 as large as the pecuniary cost. For the whole population, the direct pecuniary effect is the multiple of the pecuniary effects on the unemployed. Considering that



average employment to population rate (aged 15 or more, ILO modelled estimate) of transition countries is 52 percent during 2014 to 2017, 1 percent increase in unemployment moves 0.52 percent of employed people to unemployment category. Thus, direct cost of unemployment to the population is  $0.52 \times 0.083$  at the aggregate, and the sum is 0.043. The indirect cost of unemployment is the coefficient of unemployment rate in column (1), which is 0.017. The ratio of non-pecuniary cost at the population level to direct loss of the unemployed is  $0.017 / (0.083 \times 0.52) = 0.40$ , and it indicates that direct cost is larger than indirect cost to the population. The result contrasts to Helliwell and Huang's study (2014), which concluded that indirect cost of population is as large as 12.6 times than the direct cost.

The low level of non-pecuniary cost at the population level in post-socialist countries results from the small coefficients to the unemployment rate variable. Corresponding coefficient from Helliwell and Huang's study (2014) is -0.59 which is bigger in magnitude than the coefficients for being unemployed (-0.4) with U.S. population samples. Small and insignificant response to national unemployment rate by individuals who experienced socialist regime is found at Kassenboehmer and Haisken-DeNew's work (2009). When compared individuals from east and western Germany, east Germany sample regression showed small and insignificant coefficients to the state-specific unemployment rate while the west Germany sample regression showed significantly negative and large result. The author interpreted this as a high sensitivity to regional unemployment in the west and the saturation indifference in the east. We hypothesis four explanations for the low sensitivity to aggregate level of unemployment rate to ex-socialist citizens. First is the low representativeness of 'unemployed' category. Those without jobs might report themselves as the 'inactive' rather than the 'employed' by giving up any active job search. Once the validity of 'unemployed' categorization, we can pose the second hypothesis that the regression result shows less peer pressure from raising unemployment rate if the individuals are from ex-socialist region. Third hypothesis is that the difference comes from the recognition of responsibility to the unemployment. Socialist legacy might guide people to blame unfair social structure rather than lack of individual effort as the cause of unemployment. This might lessen the detrimental psychological effect from gloomy job market prospect. Lastly, it can be simply the matter of statistics or sampling errors.

**Table 7. Model 2 (Individual social demographic variables)**

	(1) Total population	(2) salary workers	(3) Total population	(4) Total population
log PPP GDP per capita	0.382 (0.236)	0.366 (0.300)		0.414* (0.240)
Unemployment rate	-0.0172** (0.00752)	-0.0248** (0.0104)	-0.0210*** (0.00677)	-0.0192*** (0.00686)
Unemployment rate * y2010				0.00707* (0.00368)
Unemployed	-0.242*** (0.0247)		-0.247*** (0.0245)	-0.273*** (0.0236)
Unemployed*y2010				0.0723* (0.0385)
Country FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Individual demographic variables	yes	yes	yes	yes
constant	-1.884 (2.425)	-1.567 (3.098)	1.912*** (0.162)	-2.158 (2.452)
N	89,269	36,143	89,269	89,269
R-sq	0.240	0.206	0.240	0.241

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1, \*\* p<0.05, \*\*\*p<0.01). Control variables are GDP per capita growth (for column 3), inflation rate, age, age squared, female, income, employment (wage workers, self employed), religion, education, and health status.

We tried additional regressions by sub-population group. First is by five age groups (18-24(1), 25-34 (2), 35-44 (3), 45-54 (4), 55-64 (5), 65+ (6)) (Table 8). The mean test result indicates that we cannot reject the hypothesis that the coefficient for unemployment rate is equal across age groups. However, the test for the coefficient for unemployed status rejects the same hypothesis and gives evidence that each age group have different magnitude in correlation life satisfaction and being unemployed. The magnitude was biggest to the age group between 55 to 64, and smallest to the youngest age group between 18 to 34. Interest result is the coefficient for the oldest age group which is older than 65 year-olds. The magnitude of coefficient is comparable to mid-age individuals although the age is beyond retirement age. It gives suggestive legacy from socialist ideology that everyone should go to the work.

**Table 8. Model 2 (Individual social demographic variables) by age group**

	(1) 18-34	(2) 35-44	(3) 45-54	(4) 55-64	(5) 65+
log PPP GDP per capita	0.661** (0.250)	0.619* (0.306)	0.337 (0.312)	0.195 (0.246)	0.151 (0.232)
Unemployment rate	-0.0145 (0.0119)	-0.0185* (0.0106)	-0.0177* (0.00941)	-0.0181*** (0.00647)	-0.0187*** (0.00522)
Inflation rate	-0.0160 (0.0132)	-0.0171 (0.0146)	-0.00814 (0.0155)	-0.0118 (0.0118)	-0.0180* (0.00999)
unemployed	-0.199*** (0.0303)	-0.240*** (0.0442)	-0.263*** (0.0396)	-0.361*** (0.0349)	-0.295*** (0.0828)
Country FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Individual demographic variables	yes	yes	yes	yes	yes
constant	-4.505* (2.580)	-4.582 (3.126)	-1.842 (3.240)	-0.298 (2.509)	0.210 (2.352)
N	24,837	15,902	15,558	14,493	18,479
R-sq	0.209	0.244	0.245	0.255	0.239

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1, \*\* p<0.05, \*\*\*p<0.01). Control variables are female, income, employment (wage workers, self employed), religion, education, and health status

Second, we separated gender group and regressed the life satisfaction on the macro and micro variables (Table 9). The mean test result indicates that the unemployment rate and unemployed status have equal impact to males and females. The result is different from the previous literature on other regions giving the evidence that male affected more than female from job insecurity (Clark, Knabe, & Rätzl, 2010).

**Table 9. Model 2 (Individual social demographic variables) by gender**

	(1) Male and Female combined	(2) Male	(3) Female
log PPP GDP per capita	0.381 (0.236)	0.286 (0.261)	0.444* (0.226)
Unemployment rate	-0.0172** (0.00753)	-0.0207** (0.00844)	-0.0155* (0.00759)
Inflation rate	-0.0145 (0.0127)	-0.0185 (0.0125)	-0.0121 (0.0128)
unemployed	-0.245*** (0.0244)	-0.239*** (0.0330)	-0.238*** (0.0268)
Country FE	yes	yes	yes
Year FE	yes	yes	yes
Individual demographic variables	yes	yes	yes
constant	-1.852 (2.426)	-0.887 (2.673)	-2.480 (2.320)
N	89,289	36,697	52,572
R-sq	0.240	0.243	0.240

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1, \*\* p<0.05, \*\*\*p<0.01). Control variables are age, age squared, income, employment (wage workers, self employed), religion, education, and health status

Table 10 is the last regression model including quality of government activity index. Both the national level of WGI government effectiveness index and the aggregate public service satisfaction are not significant in the relationship with the life satisfaction. Only positive and significant impact to life satisfaction of the unemployed is the individually perceived good public service (column (1)). It mitigated approximately 53 percent of decline in life satisfaction of unemployed people. The positive correlation was not affected by economic recession (column (2)).

**Table 10. Model 3 (Public service quality)**

	(1)	(2)	(3)
log PPP GDP per capita	0.575** (0.266)	0.584** (0.266)	
Unemployment rate	-0.0151* (0.00781)	-0.0153* (0.00783)	-0.0213*** (0.00699)
Inflation rate	-0.0106 (0.0116)	-0.0107 (0.0116)	-0.0147 (0.0117)
Government effectiveness (WGI)	-0.174 (0.124)	-0.177 (0.123)	-0.0622 (0.146)
Public service satisfaction (country level)	0.192 (0.153)	0.192 (0.153)	0.120 (0.159)
Unemployed	-0.344*** (0.0367)	-0.344*** (0.0372)	-0.346*** (0.0371)
Unemployed*Government effectiveness	-0.0512 (0.0744)	-0.119 (0.0710)	-0.0502 (0.0745)
Unemployed*Government effectiveness*y2010		0.149 (0.0906)	
Unemployed*Public service satisfaction (individual level)	0.182*** (0.0315)	0.165*** (0.0428)	0.177*** (0.0318)
Unemployed*Public service satisfaction (individual level)*y2010		0.0447 (0.0624)	
Country FE	yes	yes	yes
Year FE	yes	yes	yes
Individual demographic variables	yes	yes	yes
constant	-4.497 (2.915)	-4.584 (2.921)	1.534*** (0.533)
N	89,269	89,269	89,269
R-sq	0.241	0.241	0.241

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1, \*\* p<0.05, \*\*\*p<0.01). Control variables are GDP per capita growth (for column 3), inflation rate, age, age squared, female, income, employment (wage workers, self employed), religion, education, and health status.

When we divide the samples into household income groups (low for 1 to 3, middle for 4 to 6, high for 7 to 10), the mediating impact of public sector satisfaction was significant only for the low- and middle-income groups (Table 11).

**Table 11. Model 3 (Public service quality) by household income group**

	(1) Low	(2) Middle	(3) High
log PPP GDP per capita	0.955*** (0.230)	0.396 (0.260)	0.467 (0.506)
Unemployment rate	-0.00904 (0.00788)	-0.0148* (0.00797)	-0.0194 (0.0116)
Government effectiveness (WGI)	-0.146 (0.134)	-0.175 (0.126)	-0.158 (0.258)
Public service satisfaction (country level)	0.234 (0.195)	0.239 (0.167)	0.0447 (0.201)
unemployed	-0.287*** (0.0478)	-0.392*** (0.0517)	-0.413*** (0.119)
Unemployed*Government effectiveness	-0.115 (0.0917)	-0.00714 (0.0695)	0.142 (0.122)
Unemployed*Public service satisfaction (individual level)	0.140*** (0.0390)	0.216*** (0.0454)	0.131 (0.102)
Country FE	yes	yes	yes
Year FE	yes	yes	yes
Individual demographic variables	yes	yes	yes
constant	-8.531*** (2.684)	-2.681 (2.803)	-1.770 (5.134)
N	27394	52825	9050
R-sq	0.167	0.142	0.115

Note: Dependent variable is life satisfaction. Country-level clustered standard errors are in parentheses (\* p<0.1, \*\* p<0.05, \*\*\*p<0.01). Control variables are age, age squared, female, income, employment (wage workers, self employed), religion, education, and health status.

## 5. Conclusion

In this study, we investigated the detrimental well-being impact of unemployment leveraged by self-reported life satisfaction. Our result confirmed that unemployment has negative correlation to the whole population at the society as well as those being unemployed. When dividing the negative impact of unemployment into pecuniary and non-pecuniary sources, non-pecuniary cost was as 2.9 as large as the pecuniary cost. At the population level, however, pecuniary cost exceeds non-pecuniary cost unlike the result of previous literature on Europe or USA. Satisfaction of the quality of everyday public services of the unemployed was positively correlated with their life satisfaction especially for low- and middle-income group. Rating of government effectiveness, however, did not have significant correlation.

## 6. References

- Campos, N. F., & Coricelli, F. (2002). Growth in Transition: What We Know, What We Don't, and What We Should. *Journal of Economic Literature* 40(3), 793-836.
- Chadi, A. (2014). Regional unemployment and norm-induced effects. *Empirical Economics* 46, 1111–1141.
- Clark, A. E. (2003). Unemployment as a Social Norm: Psychological Evidence from Panel Data. *Journal of Labor Economics* 21 (2), 323-351.
- Clark, A., Knabe, A., & Rätzl, S. (2010). Boon or bane? Others' unemployment, well-being and job insecurity. *Labour Economics* 17, 52-61.
- Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *American economic review* 91.1, 335-341.
- Di Tella, R., MacCulloch, R., & Oswald, A. (2003). The Macroeconomics of Happiness. *The Review of Economics and Statistics*, Vol. 85, No. 4, 809-827.
- Easterlin, R. A. (2009). Lost in transition: Life satisfaction on the road to capitalism. *Journal of Economic Behavior & Organization* 71, 130-145.
- Eliason, M. (2012). Lost jobs, broken marriages. *Journal of Population Economics* 25(4), 1365-1397.
- Green, F. (2011). Unpacking the misery multiplier: How employability modifies the impacts of unemployment and job insecurity on life satisfaction and mental health. *Journal of Health Economics* 30, 265–276.
- Guriev, S., & Melnikov, N. (2018). Happiness convergence in transition countries. *Journal of Comparative Economics* 46, 683-707.
- Guriev, S., & Zhuravskaya, E. (2009). (Un) Happiness in Transition. *Journal of Economic Perspectives* 23 (2), 143-168.
- Helliwell, J. F., & Huang, H. (2014). New measures of the costs of unemployment: Evidence

- from the subjective well-being of 3.3 million Americans. *Economic Inquiry* 52(4), 1485-1502.
- IMF. (2014). *25 Years of Transition Post-Communist Europe and the IMF*. Washington, D.C: IMF.
- Jensen, P., & Smith, N. (1990). Unemployment and Marital Dissolution. *Journal of Population Economics* 3, 215-229.
- Kassenboehmer, C. S., & Haisken-DeNew, J. P. (2009). You're Fired! The Causal Negative Effect of Entry Unemployment on Life Satisfaction. *The Economic Journal* 119, 448-462.
- Korpi, T. (1997). Is utility related to employment status? Employment, unemployment, labor market policies and subjective well-being among Swedish youth. *Labour Economics* 4, 125-147.
- Lelkes, O. (2006). Tasting freedom: Happiness, religion and economic transition. *Journal of Economic Behavior & Organization*, 173-194.
- Luechinge, S., Meier, S., & Stutzer, A. (2010). Why Does Unemployment Hurt the Employed? Evidence from the Life Satisfaction Gap between the Public and the Private Sector. *Journal of Human Resources* 45(4), 998-1045.
- Marcus, J. (2013). The effect of unemployment on the mental health of spouses - Evidence from plant closures in Germany. *Journal of Health Economics* 32(3), 546-558.
- Mikucka, M., Sarracino, F., & Dubrow, J. K. (2017). When Does Economic Growth Improve Life Satisfaction? Multilevel Analysis of the Roles of Social Trust and Income Inequality in 46 Countries, 1981–2012. *World Development* 93, 447–459.
- Namazie, C., & Sanfey, P. (2001). Happiness and Transition: the Case of Kyrgyzstan. *Review of Development Economics* 5, no 3, 392–405.
- Norton, E. C., Nizalova, O., & Murtazashvili, I. (2018). Does past unemployment experience explain the transition happiness gap? *Journal of Comparative Economics* 46(3), 736-753.
- Ochsen, C., & Welsch, H. (2012). Who benefits from labor market institutions? Evidence from surveys of life satisfaction. *Journal of Economic Psychology* 33, 112–124.
- OECD. (2005). *Enhancing Job Opportunities: Eastern Europe and the Former Soviet Union*. OECD.
- Origo, F., & Pagani, L. (2009). Flexicurity and job satisfaction in Europe: The importance of perceived and actual job stability for well-being at work. *Labour Economics* 16, 547–555.
- Powdthavee, N. (2007). Are there Geographical Variations in the Psychological Cost of Unemployment in South Africa? *Social Indicators Research* 80(3), 629–652.



- Sanfey, P., & Teksoz, U. (2007). Does transition make you happy? *Economics of Transition* 15(4), 707-731.
- Schmitz, H. (2011). Why are unemployed in worse health? The causal effect of unemployment on health . *Labour Economics* 18(1), 71-78.
- Shields, M. A., & Price, S. W. (2005). Exploring the economic and social determinants of psychological well-being and perceived social support in England. *Journal of Royal Statistical Society* 168, 513–537.
- Shields, M. A., Price, S. W., & Wooden, M. (2009). Life satisfaction and the economic and social characteristics of neighbourhoods. *Journal of Population Economics* 22(2), 421–443.
- Stutzer, A., & Lalive, R. (2004). The role of social work norms in job searching and subjective well-being. *Journal of the European Economic Association* 2(4), 696-719.
- The World Bank. (2002). *Transition The First Ten Years - Analysis and Lessons for Eastern Europe and the Former Soviet Union*. Washington, DC: The World Bank.
- Winkermann, L., & Winkermann, R. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica* 65, 1-15.
- Wulfgramm, M. (2014). Life satisfaction effects of unemployment in Europe: The moderating influence of labour market policy. *Journal of European Social Policy* 24(3), 258–272.
- Zaidi, S., Alam, A., Mitra, P., & Sundaram, R. (2009). *Satisfaction with Life and Service Delivery in Eastern Europe and the Former Soviet Union: Some Insights from the 2006 Life in Transition Survey*. Washington, D.C.: The World Bank.

## Annex 1. List of Countries

Region/country	Wave			Total
	1	2	3	
Transition countries				
Central Europe and Baltic countries (CEB): 8 countries				
Czech Republic	1,000	1,007	1,532	3,539
Estonia	1,000	1,002	1,503	3,505
Hungary	1,000	1,054	1,501	3,555
Latvia	1,000	1,007	1,500	3,507
Lithuania	1,000	1,013	1,501	3,514
Poland	1,000	1,616	1,500	4,116
Slovak Republic	1,001	1,011	1,544	3,556
Slovenia	1,001	1,000	1,501	3,502
Sub-total	8,002	8,710	12,082	28,794
Southeastern European countries (SEE): 8 countries				
Albania	1,000	1,055	1,500	3,555
Bosnia and Herzegovina	1,000	1,087	1,499	3,586
Bulgaria	1,000	1,014	1,500	3,514
Croatia	1,000	1,006	1,503	3,509
FYR Macedonia	1,000	1,072	1,499	3,571
Montenegro	1,000	1,013	1,503	3,516
Romania	1,000	1,078	1,512	3,590
Serbia	1,000	1,519	1,508	4,027
Sub-total	8,000	8,844	12,024	28,868
Commonwealth of Independent States (CIS): 11 countries				
Armenia	1,000	1,000	1,527	3,527
Azerbaijan	1,000	1,002	1,510	3,512
Belarus	1,000	1,000	1,504	3,504
Georgia	1,000	1,000	1,508	3,508
Kazakhstan	1,000	1,000	1,505	3,505
Kyrgyz Republic	1,000	1,016	1,500	3,516
Moldova	1,000	1,043	1,512	3,555
Russia	1,000	1,584	1,507	4,091

Tajikistan	1,000	1,007	1,510	3,517
Ukraine	1,000	1,559	1,507	4,066
Uzbekistan	1,000	1,500	1,506	4,006
Sub-total	11,000	12,711	16,596	40,307
<b>Total</b>	<b>27,002</b>	<b>30,265</b>	<b>40,702</b>	<b>97,969</b>