The Impact of Entitlement programs on Employment and Its Interaction with Social Heterogeneity in OECD Countries: an Empirical Study Based on a Dynamic Panel Model

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Abstract

Using a dynamic panel model and two estimators: Arellano-Bond estimator and Arellano-Bover/Blundell-Bond system estimator, this paper provides empirical evidences to support the hypothesis that expenditure on entitlement programs increases voluntary and involuntary unemployment, decreases labor participation rate and investment rate. For the impacts on employment rate and unemployment rate, welfare spending is found to have interaction with ethnic fractionalization index, supporting the hypothesis that higher social heterogeneity in terms of ethnic, racial, language and cultural backgrounds may strengthen the effects of entitlement programs on employment. However, this interaction effect is not present in Nordic countries, possibly due to the low social heterogeneity in these countries, which suggests that seemingly successful Nordic model may not be copied to other developed countries with higher social heterogeneity.

"No country, however rich, can afford the waste of its human resources. Demoralization caused by vast unemployment is our greatest extravagance. Morally, it is the greatest menace to our social order."

------Franklin Roosevelt

HYPOTHESES

Economists like to show that intuition is wrong. Intuition is, of course, not always wrong. This paper is aimed at testing a set of hypotheses based on intuition and observation about how entitlement programs impact on employment by using a dynamic panel model. It is hypothesized that entitlement programs induce higher unemployment through the following channels:

A. Increase voluntary unemployment: Entitlement programs raise the opportunity cost of working thus providing disincentive to work and incentive to depend on government welfare. In addition to the people who choose to leave labor market and depend on welfare system, it is expected that the incentive effect of entitlement programs is more prominently displayed in creating a group of “fake” job seekers whose real goal of looking for jobs is not working but meeting the eligibility requirements of unemployment benefit programs. Because of the existence of this group of fake job seekers, a large proportion of people who

would have left labor force if unemployment insurance programs had no eligibility requirements choose to stay in labor force by continuing job-hunting.

B. Increase involuntary unemployment: Entitlement programs increase labor costs to firms thus decreasing job opportunities by inhibiting business investments.
C. Decrease labor participation rate: In addition to the people voluntarily choosing the life style of depending on entitlement programs, as mentioned in hypothesis A, discouraged workers may give up job hunting for losing hope of finding job.
D. The effect of entitlement programs on employment may have interaction with social heterogeneity: higher social heterogeneity in terms of ethnic, racial, language, religion and cultural backgrounds may strengthen the effects A and C above. In a more socially diversified society, it is more likely that people with one ethnic or cultural background take advantage of another group of people with different ethnic or cultural background in terms of wealth re-distribution. So the disincentive effect of entitlement programs may be higher in economy with higher social heterogeneity, which, however, is not expected to affect the investment effect of B.

PAST THEROY AND EMPIRICAL LITERATURE

What is the impact of welfare spending on employment? As Disney (2000) pointed out, in a Keynesian setting, a tax-financed increase in welfare spending should have a modest expansionary impact on employment and output, so long as there are spare resources. In a static New Classical model, in contrast, such public spending can completely displace private spending. The impact of taxes levied on labor on the "equilibrium" or "natural" rate of output then depends on the net-of-tax replacement rate of earnings to out-of-work benefits.

Alesina and Perotti (1994) used a general equilibrium, two-country model with exportables, importables and nontradables to study government redistribution across different types of agents in a world characterized by the presence of labor unions and distortionary taxation and reveal that an increase in transfers to, say, retirees, financed by distortionary taxation, can generate a loss of competitiveness (defined as an increase in relative unit labor costs for tradable goods), an appreciation of the relative price of nontradables, and a decrease in employment in all sectors of the domestic economy. The same qualitative effects would also obtain in the case of an increase in transfers towards the unemployed even if financed by non-distortionary taxation.

As for the empirical literature on this impact, despite a large volume of literature on the relationship between tax rate or tax/GDP ratio and employment/unemployment rate, there are actually few studies investigating the impacts of welfare spending-to-GDP ratio or the components of welfare spending. The closet concept examined in the previous literature on macroeconomic findings on welfare spending is benefit replacement rate, which can indirectly reflect the size of the expenditure on entitlement programs. For example, Layard et. al. (1991) found that between 1956-59 and 1981-87, the rise in the replacement rate of Unemployment Insurance (UI) benefits to earnings raised unemployment rate by 1.12 percentage points. The empirical study of Nickell (1997)

gives a conclusion that high unemployment is associated with four labor market features. Two of them are 1) generous unemployment benefits that are allowed to run on indefinitely, combined with little or no pressure on the unemployed to obtain work and low levels of active intervention to increase the ability and willingness of the unemployed to work; 2) high overall taxes impinging on labor or a combination of high minimum wages for young people associated with high payroll taxes. However, he also points out that if generous levels of unemployment benefit are accompanied by pressure on the unemployed to take jobs, for example, fixing the duration of benefit and providing resources to raise the ability/willingness of the unemployed to takes jobs, then they do not appear to have serious implications for average levels of unemployment.

Nickell (2003) finds that a 10 percentage point rise in the tax wedge will reduce overall labour input provided via the market by around 2 per cent of the population of working age. However, tax rate differentials only explain a minority of the market work differentials, the majority can be explained by other relevant labour market institutions. Particularly important are the differences in social security systems which provide income support to various non-working groups including the unemployed, the sick and disabled, and the early retired. Similarly, Scarpetta (1996) found that a 1% increase in the replacement rate raises unemployment rate by 0.13%. However, as far as the author's knowledge, there is no empirical study specifically examining the impact of welfare expenditure scale (relative to GDP) on employment. This paper fills in this blank by using an econometric technique never used before on this topic. Additionally, it presents also total government expenditure (as percentage of GDP) as a measure for general government size in economy for comparison as welfare spending is a part of it.

ECONOMETRIC METHODOLOGY

As Disney (2000) pointed out, there are some limitations of the preceding empirical studies on this topic. One problem is some of them (for example, Tullio (1987)) have not fully developed model in the sense that the model specification has not enough covariates or proper functional form so that adding additional variables or imposing some structure on the model would be likely to quickly reduce the significance of the tax and spending effects on growth and employment. In addition, the possibility of endogeneity (of welfare spending levels to employment) is rarely discussed in these macroeconomic literatures. To address this, this paper applies an econometric technique that was never used on this topic previously and can take into account endogeneity of welfare variables on a fully developed dynamic panel data model, which includes most commonly included covariates in previous empirical literature on employment.

Another key issue in the previous studies is that most of them are not based on real panel data. For example, all five studies summarized in Disney (2000)'s Table 2 did not use either fixed effect for country-specific heterogeneity or fixed effect for common macroeconomic shocks, rather, countries were grouped so that the groups appear to have common characteristics, which are somewhat arbitrary and of limited use since there is no real time variation in them, or alternatively, each year was treated as a separate, independent observation in a pooled time series-cross section data set. The latter approach, as Nickell (1997) pointed out, almost certainly violates the assumption of

independent random draws and therefore the model should not be estimated by OLS (as Alesina and Perotti (1997) did). Some studies circumvented this by using period averages, as a result most part of time variation information was lost and power of the studies was severely compromised. Based on the above-mentioned limitations and defects, Disney (2000) concludes that despite a general presumption of adverse impact from welfare spending, there is no clear cut empirical evidence from cross-country comparisons in support of this general proposition.

To correct for these problems, I construct a dynamic panel model including two-way fixed effects for both cross-section variation and time variation. Particularly, as this paper uses the most recent, complete and comprehensive database of welfare expenditure of OECD countries up to now, most variables have the longest time ranges and all 34, rather than part of OECD countries are included, compared to previous literature on this topic, providing the highest variations in both cross-section and time (refer to Appendix 1 for time coverage of most variables).

More importantly, for the first time, this paper explicitly takes into account dynamic nature of the fixed effect model for panel data of employment/unemployment rate. The reason why a dynamic model is needed is that this kind of dependent variables related to labor market condition is likely to have high persistence. As Bernal-Verdugo et. al. (2012) point out, it is important to note that there is high persistence of unemployment rates. According to their estimation results, a one percentage point increase in previous unemployment translates into a 0.83 percentage point higher unemployment in the current period, which can be dubbed as a "momentum" effect of pre-existing unemployment rate levels. OECD (2006) also indicates that a macroeconomic shock might not only raise current unemployment but, in addition, its effects might persist over time.

The introduction of dynamic panel model, specifically, the addition of lagged value of dependent variable in ordinary panel model makes it necessary to use two estimators specifically developed to estimate this kind of model. As Roodman (2007) pointed out, the Arellano-Bond (1991) and Arellano-Bover (1995)/Blundell-Bond (1998) dynamic panel estimators are two popular estimators designed for situations with 1) "small T, large N" panels, meaning few time periods and many entities; 2) a linear functional relationship; 3) a single left-hand-side variable that is dynamic, depending on its own past realizations; 4) independent variables that are not strictly exogenous, meaning correlated with past and possibly current realizations of the error; 5) fixed entity effects and/or time effects; and 6) heteroskedasticity and autocorrelation within individuals, but not across them. Arellano-Bond estimation starts by transforming all regressors, usually by differencing, and uses the Generalized Method of Moments (Hansen (1982)), and so is called "difference GMM".

The Arellano-Bond estimator forms moment conditions in which lagged-levels of the dependent variable and the predetermined variables are orthogonal to first-differences of the disturbances. The Arellano Bover/Blundell-Bond estimator augments Arellano-Bond by making an additional assumption, that first differences of instrumenting variables are

uncorrelated with the fixed effects, which can form additional moment conditions in which lagged differences of the dependent variable are orthogonal to levels of the disturbances. This allows the introduction of more instruments, and can dramatically improve efficiency.

The robust estimates of the coefficient standard errors assume no correlation across individuals in the idiosyncratic disturbances. Time dummies make this assumption more likely to hold. If a regressor is endogenous, standard treatment is to use lags two and deeper of the regressor as instrument variable.

One advantage of using both estimators is to use both as a validator of each other. Only when two estimators are consistent can we say the result is robust and reliable. We take inconsistent but significant results between two estimators as insufficient evidence to establish significant effect.

THE WELFARE AND THE DATA

The "welfare" in the concept of welfare state or welfare spending used in this paper refers to public social spending, which measures the amount of resources committed by the government in the areas of pensions, benefits (social support), health and other entitlement programs that are not direct transfer payment. A traditional argument for much social public spending is to prevent disadvantage and thus enhance equity.
This study is based on a panel model of all 34 OECD member states: The OECD Social Expenditure Database. Social expenditure is classified as public when general government (i.e. central administration, local governments and social security institutions) controls the financial flows. For example, sickness benefits financed by compulsory contributions from employers and employees to social insurance funds are considered "public", whereas sickness benefits paid directly by employers to their employees are classified as "private".

According to this data, public social expenditure averaged 19% of GDP across 34 OECD countries in 2007. Country differences in spending levels were wide. Mexico and Korea spent between 6 and 10% of GDP. France and Sweden spent about 20 percentage points more. Public spending is a feature of the continental European countries although USA is also catching up in the ratio of public welfare spending to GDP. Between 1982 and 2007, this ratio has risen by 2.5 percentage points on average across all OECD countries.
According to OECD (2011), countries with a more equal income distribution, as measured by the Gini coefficient, tended to have higher social spending, however, bigger rises in social spending experienced over the last generation in some countries do not appear to have contributed to reductions in income inequality.

As for the composition of welfare expenditure, the largest category of public social spending concerns old-age and survivor pensions: on average across the OECD, amounting to almost 7% of GDP. On average across the OECD, income transfers to the working-age population amounted to almost 5% of GDP, and within the latter category,

public spending targeted to families with children and to persons on unemployment benefits each represented nearly 1.3% of GDP. On average public expenditure on health services amounted to 6% of GDP in 2003 while spending on other social services was about 2% of GDP.

The variables used in this paper, data source and time coverage of each variable are presented in Appendix 1. Four variables are used to represent welfare state: public social welfare expenditure as a percentage of GDP (public_social) and four components of it: 1) income support to households which do not have sufficient other resources to support themselves identified by government (income_support), 2) pension expenditure to the old-age and survivor (pension_exp), 3) public expenditure on health services (health_exp) and 4) spending on other social services (otherwelf). All the welfare measures are in percentage of GDP.

Welfare expenditure rate is a better measure for welfare state or entitlement society than government consumption as percentage of GDP because government purchases of goods and services for citizens financed by tax may have significant externality benefits (for example, through education and R&D) while welfare spending is more relevant to transfer payment part of government spending, which is more likely to affect individual's incentive to work or individual firm's incentive to make investment. Therefore welfare spending rate is a better measure for non-productive effect of government intervention in economy, which is the interest of this paper. Government expenditure rate, however is a more general measure of the scale of welfare state or entitlement society, which represents the overall net impact of government intervention in economy and will also be presented for comparison.

The main data source of welfare expenditure and its components, OECD Social Expenditure database covers the years 1980 – 2010. Over this period, public social expenditure as a percentage of GDP, on average across OECD, increased from 15.6% to 19.2%. Public pension spending (6.4% of GDP) and public health expenditure (5.8% of GDP) are the largest social spending items (Adema et. al. (2001)). The data of welfare variables between 2008 and 2012 are projected by OECD.

THE MODEL

The model in this paper is a dynamic panel model containing moving-average serial correlation (MA1) in the residuals:

$$y_{it} = \alpha y_{it-1} + \beta x_{it} + \delta z_{it} + c_i + \theta_t + \varepsilon_{it} + \gamma \varepsilon_{it-1} \qquad (1)$$

where ε_{it} are assumed to be independent and identically distributed, x_{it} is assumed to be strictly exogenous and z_{it} is assumed to be endogenous.

First-differencing the model equation yields

$$\Delta y_{it} = \alpha \Delta y_{it-1} + \beta \Delta x_{it} + \delta \Delta z_{it} + \Delta \theta_t + \Delta \varepsilon_{it} + \gamma \Delta \varepsilon_{it-1} \qquad (2)$$

Lagging the level equation three periods shows that only ε_{it-3} and ε_{it-4} appear in the equation for y_{it-3}, So y_{it-3} is a valid instrument for the current differenced equation. An analogous argument works for higher lags of y. Similarly, because

$$\delta z_{it-2}=y_{it-2}-\alpha y_{it-3}-\beta x_{it-2}-c_i-\theta_{t-2}-\varepsilon_{it-2}-\gamma\varepsilon_{it-3} \quad (3)$$

only ε_{it-2} and ε_{it-3} appear in the equation for z_{it-2}, So z_{it-2} is a valid instrument for the current differenced equation. Lags two or higher of z are valid instruments for the differenced composite errors. For the Arellano-Bond estimator, we will use lags three or higher of y and lags two or higher of z in differenced equation. For Arellano Bover/Blundell-Bond estimator, in addition to these two moment conditions, we will use lagged differences of y and z as instruments in level equation.

Specifically for out study, y_{it} is a set of dependent variables concerning employment and investment, including employment rate, unemployment rate , labor participation rate and investment rate (investment-to-GDP ratio) for country i at time t. x_{it} is 1 x 4 vector and contains 4 observable explanatory variables which are assumed to be strictly exogenous, including labor productivity growth rate (labor_prodg), inflation rate (inflation), , international trade openness (trade_open) and population density (popd). z_{it} is a vector of explanatory variables which are assumed to be endogenous: one of five welfare measures (public_social, pension_exp, health_exp, income_support and otherwelf), and long real interest rate (long_real_r). c_i represents country fixed effects that capture unobserved country-specific determinants of the dependent variable, which may include some variables with high time constancy, such as national cultural attitude(tradition) towards trade-off between work and leisure or national cultural attitude towards importance of equality of result or equality of opportunity. θ_t is a fixed effect term for aggregate time, which captures global trend of some growth determinants that are common to all OECD countries, such as worldwide technology progress or global economic downturns or booms. $\varepsilon_{it}+\gamma\varepsilon_{it-1}$ is a composite idiosyncratic error, which absorbs some time-varying omitted variables, such as home ownership (as pointed out by OECD (2006, p218), Home ownership is correlated with unemployment).

The reason why a composite residual containing moving-average serial correlation (MA1) is specified in the model is because Arellano-Bond estimator requires that there be no autocorrelation in the idiosyncratic errors. Since this assumption is often violated in real data for employment and investment rate, a composite residual $\varepsilon_{it}+\gamma\varepsilon_{it-1}$ is explicitly modeled so that as long as ε_{it} has no autocorrelation, our model allows for some autocorrelation in the idiosyncratic errors.

The reason why welfare variables are assumed to be endogenous is that it is likely that changes in unemployment or economic growth induce changes in welfare spending. Following the financial crisis in 2007-2008, more unemployed people claimed UI

benefits or food stamps in the US than pre-crisis period thus government expenditure on entitlement programs expanded rapidly. For example, according to an April 2012 report from the Congressional Budget Office, food stamps enrollment increased by 70 percent between 2007 and 2011. So welfare variables may receive feedback effect from employment: higher unemployment and lower business investment indicate bad economy, fewer job opportunities and lower income for working people, so it may induce higher level of dependence on entitlement programs.

The reason why long term interest rate is assumed to be endogenous is that government tends to respond to the fluctuation of business cycles by adjusting interest rate. So when unemployment is high and investment is low, central bank tends to act to lower interest rate, which affects long term real interest rate. This reverse causality makes the strict exogeneity assumption for long term real interest rate unreasonable.

The choice of three control variables (labor_prodg, inflation, long_real_r) closely follows IMF (2003) and OECD (2006). The inclusion of trade openness and population density as control variables for employment variables follows Bernal-Verdugo et. al.(2012). Felbermayr et. al. (2009) also find that higher trade openness is causally associated to a lower structural rate of unemployment.

Factors that have contributed to lowering average hours worked per person in employment per year are expected to include:

- Technological advances in efficiency such as mechanization, robotics and information technology, which is measured by labor productivity growth rate (labor_prodg)
- The increase of women equally participating in making income as opposed to previously being commonly bound to homemaking and childrearing exclusively, which is measured by labor participation rate (labor_parti)
- Dropping fertility rates leading to less hours needed to be worked to support children, which is measured by fertility rate (fertility)

The hypothesis A is tested by applying model (1) and choosing y_{it} =hours, x_{it} ={labor_prodg, inflation, l.wageg, fertility, labor_parti}, z_{it} ={l.hours, one of five welfare variables or govexp}. That is, working incentive is measured by hours actually worked, the set of exogenous explanatory variables includes labor productivity growth, inflation rate, one year lagged value of growth rate of labor compensation per unit labor input, fertility rate and labor participation rate. The set of endogenous variables include the lagged value of hours and one of five welfare variables or government expenditure-GDP ratio, which is used to compare the economic impacts between entitlement program expenditure and general government expenditure.

The hypothesis B is tested by applying model (1) and choosing y_{it} =invrate, x_{it} ={ inflation, long_real_r, l.gdpg}, z_{it} ={l.invrate, one of five welfare variables or govexp}. That is, business investment is measured by investment rate (investment-to-

GDP ratio), the set of exogenous explanatory variables includes inflation rate, long term real interest rate and one year lagged value of GDP growth rate. The set of endogenous variables include the lagged value of investment rate and one of five welfare variables or government expenditure-GDP ratio.

Unemployment in economics sense cannot always be measured by unemployment rate. Unemployment consists of voluntary unemployment and involuntary unemployment. Voluntary unemployment is due to the people who give up seeking job and entirely depend on entitlement programs, which are not counted in unemployment rate, and those "fake" job seekers mentioned in hypothesis A who are looking for jobs only for meeting eligibility criterions of unemployment insurance programs, which are counted in unemployment rate. Unemployment rate can measure the latter but not the former for the part of voluntary unemployment. One part of the former is conventionally referred as "discouraged workers" who give up job hunting for losing hope. The other part of the former is the people who voluntarily choose to leave labor force and depend on welfare programs after cost-benefit calculation. Involuntary unemployment can be measured by unemployment rate and is caused by the gap between labor demand and labor supply, or essentially the lack of job opportunities created by businesses.

Because of the fact that unemployment rate is impacted by part of voluntary and all of involuntary unemployment, the hypothesis A and B will also be tested by applying model (1) and choosing y_{it} =unemp, x_{it} ={labor_prodg, inflation, trade_open, popd}, z_{it} ={l.unemp, long_real_r , one of five welfare variables or govexp}. That is, the dependent variable is unemployment rate, the set of exogenous explanatory variables includes growth rate of labor productivity, inflation rate, trade openness (foreign trade-to-GDP ratio) and population density. The set of endogenous variables includes the lagged value of unemployment rate, long-term real interest rate and one of five welfare variables or government expenditure-to-GDP ratio.
Because unemployment rate can only measure part of voluntary unemployment, it is not a precise measure of labor market condition. Employment rate is free of this defect as it measures the proportion of the country's working-age population (ages 15 to 64 in most OECD countries) that is employed. In other words, when calculating employment rate, the denominator includes people that have stopped looking for work. In contrast, when computing unemployment rate, both numerator and denominator do not include people that have stopped looking for work. To use this better measure of labor market condition, I also test the Hypothesis A and B by applying model (1) by choosing y_{it} =employrate, x_{it} ={labor_prodg, inflation, trade_open, popd}, z_{it} ={l.unemp, long_real_r , one of five welfare variables or govexp} where employrate is employment rate.

To specifically test the impact of entitlement programs on the number of discouraged workers and people who voluntarily choose to leave labor force and depend on welfare programs after cost-benefit calculation, I also test the Hypothesis C by applying model (1) by choosing y_{it} =labor_parti, x_{it} ={labor_prodg, inflation, trade_open, popd}, z_{it} ={l.unemp, long_real_r , one of five welfare variables or govexp} where labor_parti is labor participation rate, the ratio between the labor force and the overall size of their

cohort (national population of the same age range). It should be noted that the separate effect of entitlement programs on the number of "fake" job seekers cannot be tested as there is no official statistic on this part of population: they are counted as labor force, they are not working and they do not want to work, the only reason that they are looking for work is for keep unemployment welfare benefits. In the long run, as UI expires, this part of population will transition into non-labor-force population, i.e., people that have stopped looking for job.

The hypothesis D is tested by adding one interaction term between one welfare variable and ethnic fractionalization index from Alesina et. al. (2003), into the dynamic panel estimations mentioned above. If the interaction term is significant, then the Hypothesis D is supported.

The supporters of welfare state or entitlement society often use Nordic countries (Norway, Sweden, Denmark, Finland and Iceland) as a success model. To test whether the preceding hypotheses also apply to Nordic countries and whether they have some unique features that may not be replicable across countries, I also conduct sub-sample analysis using the same estimation approach.

RESULT

Table 1A through Table 9_1B present the estimation results for model (1) using two estimators: Arellano-Bond estimator and Arellano-Bover/Blundell-Bond system estimator. All regressions include dummy variables for both countries and years, the estimates for which are not shown to save space. The numbers in parenthesis are robust standard errors.

Table 1A and 1B confirm that two components of welfare expenditure have negative impacts on hours worked per year per person in employment: income support, public health service, therefore the total welfare-to-GDP ratio has a significant negative effect on hours worked. This supports disincentive effect in Hypothesis A.

Interestingly, Table 1_1A and 1_1B for sub-sample analysis of Nordic countries give us an opposite result: except the welfare spending rate for public health and other social services, all welfare variables have significant POSITIVE effect on the measure of working incentive (hours). This difference in effect on hours worked is likely to have something to do with cultural attitude towards work in Nordic countries, which, however, is supposed to have time constancy and captured largely by fixed effect of country in model (1). The hypothesis D suggests that social homogeneity is also likely to play a role here. The average ethnic fractionalization index of all non-Nordic OECD countries is 0.2672 while that of Nordic countries is 0.0824. The non-Nordic OECD nations have more than three times higher ethnic fractionalization index, suggesting a much more diversified ethnic , racial , language and cultural backgrounds than these five small Northern European nations. The ethnic fractionalization of USA is 0.4901, about six times of that of Nordic countries. If it does affect the impact of entitlement programs on

employment, i.e., it does have interaction with welfare expenditure in the dynamic model of employment/unemployment rate, then Nordic model cannot be copied to USA. In fact, the welfare state model of Nordic countries is not replicable even in most European nations, which is practically proved by the current European Sovereign Debt Crisis.

Table 2A and 2B confirm that three components of welfare expenditure have negative impact on employment rate: income support, pension benefit and public health service, therefore the total welfare-to-GDP ratio has a significant negative effect on employment rate too, supporting the Hypotheis B. It is also noted that government expenditure-to-GDP ratio has similar impact on employment rate. The insignificant estimate for otherwelf (welfare expenditure ratio for other public social services provided by government) implies that not all components of spending on entitlement programs are harmful for employment rate. For example, as Nickell (1997) pointed out, welfare spending by government that provides resources to raise the ability/willingness of the unemployed to takes jobs has no negative impact on employment. However, three biggest components mentioned above do induce lower proportion of employment in population, as evidenced by both Arellano-Bond and Arellano-Bover/Blundell-Bond system estimators. Interestingly, Table 2_1A and 2_1B show a similar pattern for the sub-sample of Nordic countries. This finding implies that Nordic nations could have performed better if they had lower level of welfare spending. Their overall seemingly better performance on employment, compared with other EU nations is not attributed to the feature of high welfare expenditure in Nordic model but something else. The impact of spending on entitlement programs on employment rate estimated from the data of all OECD countries suggests that if current rising trend of entitlement programs in most developed countries maintains, the proportion of working population in total population will keep falling, making long term fiscal sustainability increasingly fragile. Even the presently seemingly healthy Nordic economies will not be immune to this danger in the long run. As establishment of entitlement programs have high policy rigidity politically, this danger will be more and more prominent and imminent with time.

Table 3A and 3B indicate that welfare spending on income support and public health services does interact with ethnic fractionalization index, validating the Hypothesis D. As expected, the interaction term has the same sign with that of welfare variable, suggesting that ethnic diversity enhances the negative effect of welfare spending on employment. This implies that the quantitative effect of welfare spending may be hard to estimate as a variety of interactions may not be taken into account when we only estimate the main effect of a welfare variable.

As a comparison, two estimators are not consistent for Nordic countries when interaction term is included, as shown in Table 3_1A and 3_1B, so we have no robust evidence to support a significant interaction effect between welfare spending rate and ethnic fractionalization for Nordic countries. Because Nordic nations are relatively socially homogeneous and are not immigrant countries, low social diversity does not impact much on the effect of welfare spending on employment.

Table 4A and 4B repeat analysis in Table 2A and 2B for unemployment rate. The results are strikingly similar. Higher welfare leads to higher unemployment rate. Table 4_1A and 4_1B show a similar pattern for the sub-sample of Nordic countries (the only difference is now welfare spending on other social services is also significant). Again, Nordic countries are not special in terms of the economic impact of welfare expenditure on unemployment.

Like Table 3A and 3B, for unemployment rate, welfare spending on income support and pension benefits does interact with ethnic fractionalization index as shown in Table 5A and 5B, verifying the Hypothesis D. As expected, the interaction term has the same sign with that of welfare variable, suggesting that ethnic diversity enhances the positive effect of welfare spending on unemployment. As for the case of employment rate, the overall government size measured by govexp has significant main effect but not interaction effect with ethnic fractionalization, which is expected as total government expenditure is more distantly related to working incentive or business behavior than welfare spending.

Like Table 3_1A and 3_1B, two estimators are not consistent for Nordic countries when interaction term is included, as shown in Table 5_1A and 5_1B. Only when both main effect and interaction are significant and two estimators give consistent results can we say interaction is significant, so we have no robust evidence to support the interaction effect between welfare spending rate and ethnic fractionalization for Nordic countries. Because of the difference in social heterogeneity, Nordic model, if could be taken as a success, may not be replicated in other countries with higher social heterogeneity.

Table 6A and 6B show that welfare spending on pension benefits and public health services decrease labor participation rate (LPR), therefore total welfare spending rate has a negative effect on LPR, validating the Hypothesis C. As the case for unemployment rate and employment rate, government-expenditure-to-GDP ratio has similar negative effect on LPR.

In contrast, for Nordic countries, two estimators are not consistent for LPR as shown in Table 6_1A and 6_1B, suggesting that entitlement programs may not affect people's decision to work or not there. This is consistent with the finding for hours worked for Nordic nations, implying that entitlement programs do not induce voluntary unemployment and disincentive effect of welfare spending in the Hypothesis A may not apply to Nordic countries. The mechanism of this special feature for Nordic countries is worth further research, social homogeneity may also play a role here.

In Table 7A and 7B, two estimators are not consistent for LPR for all OECD countries when interaction term is included, suggesting that social heterogeneity may not have interaction with the effects of welfare variables in most OECD countries. Why employment/unemployment rate has interaction with ethnic fractionalization index while labor participation rate has not? One explanation could be: the number of "fake" job seekers mentioned in Hypothesis A has positive correlation with social heterogeneity, the more diversified a society is in terms of racial, ethnic, language or cultural backgrounds, the more people are likely to take advantage of the welfare system and

depend on other tax-payers' support. The number of "fake" job seekers can affect employment rate and unemployment rate but not LPR. The reason is LPR is the ratio between the labor force and the overall size of their cohort (national population of the same age range) and the number of "fake" job seekers does not affect the size of labor force. When the number of "fake" job seekers increases, employment rate decreases and unemployment rate increases but labor participation rate does not change as the size of labor force remains unchanged. Because the number of "fake" job seekers has positive correlation with social heterogeneity, the latter also has correlation with employment rate and unemployment rate but not LPR.

At last we test the effect of entitlement programs on business investment. Table 8A and 8B confirm that three components of welfare expenditure: income support, pension benefits and health services and total welfare spending have significant negative effects on investment rate, supporting the Hypothesis B. The reason that investment is depressed is higher cost arising from higher tax that is imposed to fund entitlement programs. So it is expected that government expenditure as a percentage of GDP does not affect investment rate as government spending does not always match taxes on labor firms pay. This is also verified in table 8A and 8B.

Because the interaction between welfare variables and ethnic fractionalization is expected to be caused mainly by working incentive, social heterogeneity is not expected to affect business investment. This is proved by insignificant interaction terms in table 9A and 9B.

Table 9_1A and 9_1B shows that in Nordic countries, firms' investments may not be affected by welfare spending. Why Nordic firms are not affected by higher labor cost due to entitlement programs needs further research. As the previous finding shows that welfare spending in Nordic countries has positive impact on working incentive measured by hours worked, an opposite case to most other OECD countries, but negative impact on employment rate, which is most likely due to the decrease in working opportunities created by firms. Unchanged investment along with decreased job opportunities may be caused by firms' shift of investment from labor to technology or to overseas to save cost. For example, Sweden is the country with the highest number of multinational corporations per capita in the world. In other words, entitlement programs may induce the firms in Nordic nations to change investment structure rather than scale to adjust for change in cost, which may not be employment friendly.

CONCLUSION

Two components of welfare expenditure (income support, public health service) and the total welfare-to-GDP ratio have negative effect on hours worked per year per person in employment, supporting the hypothesis that higher welfare increases voluntary unemployment. On the contrary, in Nordic countries, welfare expenditure has positive effect on hours worked. This may be related to national cultural towards working in Nordic countries, it is also likely to be related to lower social heterogeneity in Nordic countries.

Three components of welfare expenditure have negative impact on employment rate and positive impact on unemployment rate: income support, pension benefit and public health service, therefore the total welfare-to-GDP ratio has a significant negative impact on employment rate and a positive impact on unemployment rate, supporting the Hypothesis that entitlement programs increase both voluntary and involuntary unemployment.

The welfare spending on pension benefits and public health services decreases labor participation rate (LPR), therefore total welfare spending rate has a negative effect on LPR, validating the Hypothesis C that entitlement programs decrease labor participation rate.

The three components of welfare expenditure: income support, pension benefits and public health services and total welfare spending have significant negative effects on investment rate, supporting the Hypothesis B that entitlement programs increase involuntary unemployment by increasing labor cost to firms thus decreasing job opportunities by inhibiting business investments.

For the effects on employment rate and unemployment rate, welfare spending on income support and public health services has interaction with ethnic fractionalization index: ethnic diversity enhances the main effects of welfare variables.

In contrast, for the effect on labor participation rate, welfare spending has no interaction with ethnic fractionalization index. This is likely due to the fact that the number of "fake" job seekers has positive correlation with social heterogeneity, it does not affect the size of labor force thus labor participation rate (LPR) but does affect employment/unemployment rate so that social heterogeneity does not affect LPR too.

As expected, investment rate has no interaction with social heterogeneity, which mainly affects incentive to work, not business behavior.

For the main effects of welfare variables on employment/unemployment rates, Nordic countries show the similar patterns as those of all OECD countries. However, in Nordic countries, there is no interaction between welfare variables and ethnic fractionalization index, which may be due to the low social heterogeneity in these five Northern European nations or small sample size for them.

In Nordic countries, welfare spending variables are not found to have significant impact on labor participation rate, this finding is consistent with the positive effect on hours worked, suggesting that disincentive effect of welfare spending in the Hypothesis A may not apply to Nordic countries.

The welfare spending variables are not found to have significant impact on investment rate in Nordic countries, which is worth further research as to why the firms in Nordic countries are not affected by rise in labor cost due to entitlement programs. One possible explanation is: entitlement programs may induce the firms in Nordic nations to change

investment structure rather than scale to adjust for change in cost, which is not employment friendly.

At last, for a comparison, total government expenditure is found to have adverse impacts on employment rate, unemployment rate for both all OECD countries and the sub-sample of Nordic countries. These impacts have no significant interaction with ethnic fractionalization index as expected. However, the impacts on average hours worked per person in employment and labor participation rate are different for all OECD countries and the sub-sample of Nordic countries. For the former, these impacts are significantly negative. For the latter, they are not significant. This difference implies that in Nordic nations' government expenditure, there are some elements that encourage people to work, which, however are not present in most of other OECD nations. As expected by our hypotheses, total government expenditure is found to have no significant impact on investment rate of businesses.

Reference

Adema, W.(2001), Net social expenditure, 2nd Edition., OECD Labour market and social policy, Occasional paper, No. 52.

Alesina, Alberto; Devleeschauwer, Arnaud; Easterly William; Kurlat, Sergio (2003), Fractionalization, *Journal of Economic Growth,* vol. 8, no. 2, June 2003, pp. 155-194. : http://www.anderson.ucla.edu/faculty_pages/romain.wacziarg/papersum.html

Alesina, Alberto; Perotti, Roberto (1997), The Welfare State and Competitiveness, American Economic Review, Vol. 87 (December), pp. 921-39

Arellano, M., and O. Bover. 1995. Another look at the instrumental variable estimation of error-components models. Journal of Econometrics 68: 29-51.

Arellano, M., and S. Bond. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies 58: 277-297.

Bernal-Verdugo, Lorenzo E; Furceri, Davide; and Guillaume, Dominique (2012), Labor Market Flexibility and Unemployment: New Empirical Evidence of Static and Dynamic Effects, IMF working paper 12/64

Blundell, R., and S. Bond. 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87: 115-143.

Disney, Richard (2000), The impact of tax and welfare policies on employment and unemployment in OECD countries, IMF working paper, WP00/164

Felbermayr, Gabriel; Prat, Julienne; Schmerer,Hans-Jörg (2009), Trade and Unemployment: What Do the Data Say? IZA Discussion Paper No. 4184, May 2009, http://ftp.iza.org/dp4184.pdf

Hansen, L. (1982), Large sample properties of generalized method of moments estimators. Econometrica 50(3): 1029–54

IMF (2003), World Economic Outlook, April 2003, Chapter IV: Unemployment and Labor Market Institutions: Why Reforms Pay Off

Layard, Richard; Nickell, Stephen; Jackman, Richard (1991), Unemployment: Macroeconomic Performance and the Labour Market, (Oxford, New York: Oxford University Press)

Nickell, Stephen (1997), Unemployment and labor market rigidities: Europe versus North America", Journal of Economic Perspectives, Vol. 11 No. 3 (Summer 1997), pp. 55-74

Nickell, Stephen (2003), Employment and Taxes, CESifo Working Paper Series 1109, CESifo Group Munich, http://ideas.repec.org/p/ces/ceswps/_1109.html

OECD (2006): OECD Employment Outlook: Boosting Jobs and Incomes, ISBN 92-64-02384-4, © OECD 2006

OECD (2011): SOCIETY AT A GLANCE 2011: OECD SOCIAL INDICATORS, http://www.oecd.org/dataoecd/27/60/47570121.pdf

Roodman, David, How to Do xtabond2: An Introduction to "Difference" and "System" GMM in Stata, December 2006, revised January 2007, Working Paper Number 103, The Center for Global Development

Scarpetta, Stefano (1996), Assessing the role of labor market policies and institutional settings on unemployment: A cross-country study, OECD Economic Study, No. 26 (Paris: Organization for Economic Cooperation and Development)

Tullio, Gisseppe (1987), "Long run implications of the increase in taxation and public debt for employment and economic growth in Europe", *European Economic Review*, Vol. 31(April), pp. 741-80

Table 1A: Arellano-Bond estimator for hours worked (hours)

	hours	hours	hours	hours	hours	hours
L.hours	0.883	0.898	0.906	0.883	0.919	0.827
	(0.024)**	(0.022)**	(0.022)**	(0.023)**	(0.022)**	(0.027)**
labor_prodg	-3.241	-3.049	-3.247	-3.292	-4.412	-3.366
	(0.448)**	(0.460)**	(0.470)**	(0.447)**	(0.554)**	(0.497)**
inflation	-1.118	-1.033	-1.379	-1.009	-1.059	-1.023
	(0.281)**	(0.292)**	(0.324)**	(0.277)**	(0.626)+	(0.282)**
L.wageg	0.052	0.136	0.001	0.130	-0.125	0.129
	(0.245)	(0.246)	(0.249)	(0.243)	(0.392)	(0.251)
fertility	24.974	23.173	27.159	24.573	26.476	24.538
	(9.374)**	(9.432)*	(9.449)**	(9.348)**	(9.977)**	(11.379)*
labor_parti	-1.802	-1.845	-1.650	-1.391	-1.097	-1.562
	(0.668)**	(0.673)**	(0.720)*	(0.654)*	(0.707)	(0.798)+
public_social	-1.509					
	(0.635)*					
income_support		-2.397				
		(1.133)*				
pension_exp			-0.830			
			(1.518)			
health_exp				-5.726		
				(2.157)**		
otherwelf					-4.315	
					(2.202)*	
govexp						-2.432
						(1.079)*
Constant	298.794	260.438	223.949	277.798	174.912	410.259
	(66.064)**	(59.365)**	(65.671)**	(58.399)**	(55.172)**	(73.781)**
N	448	449	444	450	434	367

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 1B: Arellano-Bover/Blundell-Bond system estimator for hours worked (hours)

	hours	hours	hours	hours	hours	hours
L.hours	0.955	0.954	0.978	0.955	0.967	0.930
	(0.012)**	(0.011)**	(0.009)**	(0.011)**	(0.011)**	(0.013)**
labor_prodg	-2.905	-2.667	-2.936	-3.073	-4.167	-2.670
	(0.422)**	(0.435)**	(0.455)**	(0.426)**	(0.516)**	(0.474)**
inflation	-0.632	-0.590	-0.661	-0.603	-0.431	-0.537
	(0.226)**	(0.233)*	(0.242)**	(0.229)**	(0.592)	(0.229)*
L.wageg	0.321	0.352	0.480	0.275	0.085	0.450
	(0.211)	(0.219)	(0.210)*	(0.220)	(0.373)	(0.206)*
fertility	9.956	11.154	9.818	8.976	13.827	5.889
	(7.151)	(6.963)	(6.953)	(7.107)	(7.499)+	(8.423)
labor_parti	-0.970	-0.698	-0.767	-0.856	-0.373	-0.034
	(0.447)*	(0.456)	(0.549)	(0.473)+	(0.485)	(0.551)
public_social	-0.866					
	(0.455)+					
income_support		-2.050				
		(0.867)*				
pension_exp			0.229			
			(0.894)			
health_exp				-3.789		
				(1.726)*		
otherwelf					0.045	
					(1.389)	
govexp						-1.660
						(0.759)*
Constant	132.604	106.945	60.121	130.895	53.785	148.960
	(45.559)**	(37.992)**	(47.038)	(39.771)**	(33.983)	(44.207)**
N	448	449	444	450	434	367

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 1_1A: Arellano-Bond estimator for hours worked (hours) estimated from the sub-sample of Nordic countries

	hours	hours	hours	hours	hours	hours
L.hours	0.953	0.94	0.963	0.956	0.959	0.894
	(0.043)**	(0.042)**	(0.045)**	(0.045)**	(0.043)**	(0.050)**
labor_prodg	-3.287	-4.514	-4.108	-3.004	-3.008	-5.437
	(0.818)**	(0.810)**	(0.765)**	(0.872)**	(0.840)**	(1.180)**
inflation	-2.006	-1.722	-3.216	-2.539	-2.698	-3.274
	-1.924	-1.877	(1.783)+	-1.911	-1.915	(1.701)+
L.wageg	-2.22	-2.32	-2.49	-2.008	-1.946	-2.411
	(0.917)*	(0.866)**	(0.922)**	(0.920)*	(0.898)*	(0.977)*
fertility	34.586	45.402	48.112	42.084	41.171	65.987
	-23.124	(23.273)+	(24.208)*	(22.736)+	(22.648)+	(27.549)*
labor_parti	-0.828	-1.495	0.062	-0.98	-0.352	-0.925
	-1.187	-1.14	-1.292	-1.227	-1.262	-1.25
public_social	1.691					
	(0.811)*					
income_support		2.836				
		(1.271)*				
pension_exp			8.636			
			(3.764)*			
health_exp				1.673		
				(2.557)		
otherwelf					3.629	
					(4.031)	
govexp						1.503
						(1.832)
Constant	36.688	99.066	-75.669	62.195	6.534	108.218
	(131.603)	(125.016)	(145.64)	(134.338)	(136.507)	(157.947)
N	71	71	71	71	71	59

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 1_1B: Arellano-Bover/Blundell-Bond system estimator for hours worked (hours) estimated from the sub-sample of Nordic countries

	hours	hours	hours	hours	hours	hours
L.hours	0.962	0.993	0.957	0.992	1.006	0.981
	(0.021)**	(0.019)**	(0.025)**	(0.021)**	(0.017)**	(0.022)**
labor_prodg	-3.259	-4.469	-4.085	-2.790	-2.948	-5.707
	(0.688)**	(0.693)**	(0.645)**	(0.768)**	(0.715)**	(1.049)**
inflation	-2.904	-1.592	-3.266	-2.810	-2.020	-4.559
	(1.709)+	(1.618)	(1.540)*	(1.713)	(1.699)	(1.349)**
L.wageg	-2.482	-2.759	-3.463	-2.737	-1.995	-2.361
	(0.699)**	(0.681)**	(0.700)**	(0.720)**	(0.742)**	(0.741)**
fertility	32.477	22.980	35.814	33.698	44.309	52.574
	(17.948)+	(17.400)	(17.853)*	(17.526)+	(18.752)*	(21.196)*
labor_parti	-0.502	-0.803	0.801	-0.185	-0.169	-1.188
	(0.813)	(0.870)	(1.000)	(0.808)	(0.811)	(0.941)
public_social	2.008					
	(0.564)**					
income_support		2.108				
		(0.976)*				
pension_exp			5.829			
			(1.913)**			
health_exp				2.693		
				(2.089)		
otherwelf					2.925	
					(1.175)*	
govexp						1.484
						(0.804)+
Constant	2.987	16.744	-66.706	-33.370	-84.595	15.765
	(90.148)	(91.542)	(97.648)	(92.460)	(90.298)	(114.295)
N	71	71	71	71	71	59

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 2A: Arellano-Bond estimator for employment rate (employrate)

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.888	0.894	0.878	0.908	0.896	0.834
	(0.017)**	(0.018)**	(0.018)**	(0.019)**	(0.018)**	(0.021)**
labor_prodg	-0.082	-0.070	-0.105	-0.098	-0.090	-0.096
	(0.025)**	(0.025)**	(0.025)**	(0.026)**	(0.026)**	(0.028)**
inflation	-0.011	-0.008	-0.024	-0.010	-0.004	0.044
	(0.027)	(0.028)	(0.028)	(0.029)	(0.029)	(0.030)
long_real_r	-0.086	-0.102	-0.107	-0.116	-0.109	-0.103
	(0.020)**	(0.020)**	(0.020)**	(0.021)**	(0.020)**	(0.022)**
trade_open	0.053	0.064	0.078	0.075	0.083	0.037
	(0.010)**	(0.010)**	(0.010)**	(0.010)**	(0.010)**	(0.012)**
popd	-0.035	-0.045	-0.023	-0.022	-0.026	-0.000
	(0.012)**	(0.012)**	(0.012)+	(0.012)+	(0.013)*	(0.015)
public_social	-0.168					
	(0.024)**					
income_support		-0.374				
		(0.053)**				
pension_exp			-0.342			
			(0.061)**			
health_exp				-0.332		
				(0.091)**		
otherwelf					-0.031	
					(0.096)	
govexp						-0.314
						(0.050)**
Constant	14.459	12.931	11.415	8.865	7.902	16.885
	(1.460)**	(1.586)**	(1.556)**	(1.485)**	(1.464)**	(1.767)**
N	405	405	405	405	405	343

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 2B: Arellano-Bover/Blundell-Bond system estimator for employment rate (employrate)

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.945	0.946	0.921	0.947	0.938	0.953
	(0.009)**	(0.009)**	(0.009)**	(0.010)**	(0.011)**	(0.011)**
labor_prodg	-0.106	-0.098	-0.084	-0.098	-0.107	-0.098
	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.025)**	(0.027)**
inflation	-0.050	-0.067	-0.045	-0.049	-0.033	-0.043
	(0.022)*	(0.022)**	(0.022)*	(0.022)*	(0.023)	(0.021)*
long_real_r	-0.066	-0.103	-0.137	-0.143	-0.133	-0.044
	(0.017)**	(0.018)**	(0.017)**	(0.017)**	(0.017)**	(0.019)*
trade_open	0.027	0.033	0.025	0.022	0.030	0.024
	(0.004)**	(0.004)**	(0.004)**	(0.004)**	(0.004)**	(0.005)**
popd	0.001	0.001	0.001	0.002	0.001	0.001
	(0.001)	(0.001)	(0.001)+	(0.001)*	(0.001)	(0.001)
public_social	-0.067					
	(0.013)**					
income_support		-0.160				
		(0.030)**				
pension_exp			-0.209			
			(0.029)**			
health_exp				-0.243		
				(0.070)**		
otherwelf					-0.004	
					(0.043)	
govexp						-0.098
						(0.026)**
Constant	5.147	4.012	6.572	4.886	3.861	5.029
	(0.652)**	(0.666)**	(0.780)**	(0.692)**	(0.733)**	(0.738)**
N	405	405	405	405	405	343

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 2_1A: Arellano-Bond estimator for employment rate (employrate) estimated from the sub-sample of Nordic countries

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.757	0.684	0.797	0.800	0.771	0.725
	(0.064)**	(0.068)**	(0.067)**	(0.074)**	(0.067)**	(0.076)**
labor_prodg	-0.127	-0.126	-0.142	-0.182	-0.150	-0.163
	(0.062)*	(0.062)*	(0.064)*	(0.064)**	(0.065)*	(0.067)*
inflation	0.265	0.317	0.246	0.184	0.223	0.281
	(0.086)**	(0.090)**	(0.088)**	(0.094)*	(0.089)*	(0.088)**
long_real_r	-0.200	-0.219	-0.184	-0.197	-0.220	-0.303
	(0.065)**	(0.065)**	(0.068)**	(0.070)**	(0.068)**	(0.077)**
trade_open	0.038	0.017	0.089	0.064	0.072	0.035
	(0.047)	(0.049)	(0.048)+	(0.048)	(0.048)	(0.063)
popd	-0.195	-0.288	-0.278	-0.284	-0.328	-0.382
	(0.121)	(0.113)*	(0.118)*	(0.138)*	(0.119)**	(0.132)**
public_social	-0.245					
	(0.070)**					
income_support		-0.412				
		(0.125)**				
pension_exp			-1.061			
			(0.329)**			
health_exp				-0.296		
				(0.278)		
otherwelf					-0.256	
					(0.184)	
govexp						-0.233
						(0.124)+
Constant	30.504	37.221	28.960	25.970	29.052	40.378
	(5.716)**	(6.143)**	(5.918)**	(6.826)**	(5.967)**	(7.371)**
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 2_1B: Arellano-Bover/Blundell-Bond system estimator for employment rate (employrate) estimated from the sub-sample of Nordic countries

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.852	0.789	0.788	0.962	0.955	0.946
	(0.029)**	(0.035)**	(0.033)**	(0.024)**	(0.028)**	(0.026)**
labor_prodg	-0.113	-0.071	-0.120	-0.126	-0.083	-0.082
	(0.050)*	(0.050)	(0.051)*	(0.054)*	(0.053)	(0.062)
inflation	0.149	0.206	0.211	0.038	0.054	0.125
	(0.070)*	(0.071)**	(0.068)**	(0.071)	(0.071)	(0.077)
long_real_r	-0.163	-0.162	-0.182	-0.123	-0.146	-0.158
	(0.050)**	(0.050)**	(0.051)**	(0.052)*	(0.055)**	(0.064)*
trade_open	0.057	0.013	0.056	0.069	0.093	0.111
	(0.028)*	(0.029)	(0.027)*	(0.029)*	(0.031)**	(0.037)**
popd	0.005	0.009	0.000	-0.006	0.002	0.001
	(0.003)+	(0.004)*	(0.003)	(0.003)*	(0.003)	(0.004)
public_social	-0.181					
	(0.026)**					
income_support		-0.607				
		(0.091)**				
pension_exp			-0.531			
			(0.073)**			
health_exp				-0.631		
				(0.136)**		
otherwelf					-0.247	
					(0.071)**	
govexp						-0.164
						(0.054)**
Constant	13.563	19.275	17.394	5.002	1.660	4.395
	(2.886)**	(3.519)**	(3.131)**	(2.382)*	(2.524)	(2.522)+
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 3A: Arellano-Bond estimator for employment rate with interaction with ethnic fractionalization

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.890	0.876	0.874	0.909	0.891	0.836
	(0.018)**	(0.018)**	(0.018)**	(0.019)**	(0.018)**	(0.021)**
labor_prodg	-0.087	-0.066	-0.107	-0.104	-0.087	-0.095
	(0.025)**	(0.025)**	(0.025)**	(0.026)**	(0.026)**	(0.028)**
inflation	-0.024	0.013	-0.023	-0.011	0.003	0.044
	(0.028)	(0.027)	(0.028)	(0.029)	(0.029)	(0.030)
long_real_r	-0.110	-0.083	-0.106	-0.114	-0.111	-0.102
	(0.020)**	(0.020)**	(0.020)**	(0.021)**	(0.020)**	(0.022)**
trade_open	0.066	0.050	0.080	0.077	0.083	0.037
	(0.010)**	(0.010)**	(0.010)**	(0.010)**	(0.010)**	(0.012)**
popd	-0.022	-0.046	-0.022	-0.023	-0.024	-0.001
	(0.012)+	(0.013)**	(0.012)+	(0.012)+	(0.013)+	(0.015)
public_social	-0.141					
	(0.031)**					
pb_ethnic	-0.157					
	(0.140)					
income_support		-0.240				
		(0.069)**				
income_ethnic		-0.822				
		(0.299)**				
pension_exp			-0.254			
			(0.087)**			
pension_ethnic			-0.594			
			(0.424)			
health_exp				-0.444		
				(0.112)**		
health_ethnic				0.679		
				(0.397)+		
otherwelf					-0.167	
					(0.123)	
otherw_ethnic					0.755	
					(0.427)+	
govexp						-0.362
						(0.062)**
govexp_ethnic						0.205
						(0.153)
Constant	12.014	15.181	11.737	8.628	7.999	16.944
	(1.549)**	(1.509)**	(1.569)**	(1.493)**	(1.466)**	(1.770)**
N	405	405	405	405	405	343

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 3B: Arellano-Bover/Blundell-Bond system estimator for employrate with interaction with ethnic fractionalization

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.950	0.932	0.917	0.946	0.946	0.951
	(0.009)**	(0.008)**	(0.008)**	(0.010)**	(0.010)**	(0.010)**
labor_prodg	-0.115	-0.105	-0.091	-0.111	-0.086	-0.104
	(0.024)**	(0.023)**	(0.024)**	(0.025)**	(0.025)**	(0.027)**
inflation	-0.064	-0.041	-0.043	-0.022	-0.030	-0.036
	(0.022)**	(0.021)*	(0.021)*	(0.021)	(0.021)	(0.019)+
long_real_r	-0.126	-0.073	-0.148	-0.161	-0.151	-0.033
	(0.017)**	(0.017)**	(0.016)**	(0.016)**	(0.017)**	(0.017)+
trade_open	0.021	0.018	0.020	0.014	0.017	0.022
	(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.004)**	(0.004)**
popd	-0.002	0.000	0.001	-0.001	0.000	0.000
	(0.001)*	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
public_social	-0.086					
	(0.013)**					
pb_ethnic	-0.112					
	(0.017)**					
income_support		-0.070				
		(0.028)*				
income_ethnic		-0.377				
		(0.061)**				
pension_exp			-0.216			
			(0.027)**			
pension_ethnic			-0.295			
			(0.058)**			
health_exp				-0.230		
				(0.068)**		
health_ethnic				-0.121		
				(0.053)*		
otherwelf					-0.038	
					(0.040)	
otherw_ethnic					-0.119	
					(0.098)	
govexp						-0.093
						(0.024)**
govexp_ethnic						-0.046
						(0.018)*
Constant	5.927	5.768	7.629	5.660	4.020	5.346
	(0.646)**	(0.601)**	(0.725)**	(0.668)**	(0.716)**	(0.713)**
N	405	405	405	405	405	343

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 3_1A: Arellano-Bond estimator for employment rate with interaction with ethnic fractionalization estimated from the sub-sample of Nordic countries

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.744	0.706	0.798	0.807	0.713	0.753
	(0.065)**	(0.069)**	(0.065)**	(0.080)**	(0.068)**	(0.079)**
labor_prodg	-0.132	-0.135	-0.150	-0.180	-0.150	-0.162
	(0.062)*	(0.063)*	(0.062)*	(0.065)**	(0.064)*	(0.067)*
inflation	0.253	0.252	0.180	0.178	0.289	0.239
	(0.087)**	(0.099)*	(0.093)+	(0.098)+	(0.089)**	(0.094)*
long_real_r	-0.195	-0.267	-0.228	-0.191	-0.244	-0.269
	(0.066)**	(0.068)**	(0.072)**	(0.077)*	(0.067)**	(0.081)**
trade_open	0.038	0.035	0.094	0.067	0.063	0.044
	(0.047)	(0.048)	(0.043)*	(0.050)	(0.047)	(0.064)
popd	-0.198	-0.251	-0.257	-0.282	-0.290	-0.369
	(0.121)	(0.116)*	(0.117)*	(0.140)*	(0.117)*	(0.133)**
public_social	-0.094					
	(0.176)					
pb_ethnic	-1.296					
	(1.383)					
income_support		-0.276				
		(0.340)				
income_ethnic		-0.821				
		(2.463)				
pension_exp			-0.030			
			(0.686)			
pension_ethnic			-9.527			
			(6.307)			
health_exp				-0.176		
				(0.632)		
health_ethnic				-1.494		
				(7.059)		
otherwelf					1.202	
					(0.541)*	
otherw_ethnic					-20.023	
					(7.006)**	
govexp						0.216
						(0.341)
govexp_ethnic						-4.648
						(3.297)
Constant	30.572	32.984	26.685	25.314	32.916	35.801
	(5.706)**	(6.703)**	(5.874)**	(7.553)**	(5.977)**	(8.083)**
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 3_1B: Arellano-Bover/Blundell-Bond system estimator for employrate with interaction with ethnic fractionalization estimated from the sub-sample of Nordic countries

	employrate	employrate	employrate	employrate	employrate	employrate
L.employrate	0.771	0.791	0.771	0.953	0.857	0.937
	(0.031)**	(0.037)**	(0.037)**	(0.028)**	(0.031)**	(0.027)**
labor_prodg	-0.098	-0.056	-0.119	-0.141	-0.056	-0.098
	(0.046)*	(0.046)	(0.046)*	(0.052)**	(0.049)	(0.057)+
inflation	0.235	0.173	0.140	0.079	0.179	0.150
	(0.063)**	(0.071)*	(0.068)*	(0.066)	(0.068)**	(0.071)*
long_real_r	-0.164	-0.207	-0.272	-0.104	-0.166	-0.147
	(0.046)**	(0.048)**	(0.046)**	(0.051)*	(0.050)**	(0.060)*
trade_open	0.026	0.011	0.052	0.080	0.068	0.108
	(0.025)	(0.027)	(0.024)*	(0.027)**	(0.026)**	(0.036)**
popd	0.006	0.010	-0.004	-0.006	0.009	0.002
	(0.002)*	(0.003)**	(0.002)	(0.003)*	(0.003)**	(0.003)
public_social	-0.134					
	(0.023)**					
pb_ethnic	-0.786					
	(0.172)**					
income_support		-0.389				
		(0.082)**				
income_ethnic		-1.330				
		(0.551)*				
pension_exp			-0.378			
			(0.074)**			
pension_ethnic			-1.328			
			(0.600)*			
health_exp				-0.596		
				(0.152)**		
health_ethnic				-0.478		
				(0.855)		
otherwelf					-0.056	
					(0.070)	
otherw_ethnic					-5.721	
					(1.235)**	
govexp						-0.157
						(0.049)**
govexp_ethnic						-0.338
						(0.242)
Constant	21.137	18.461	18.734	5.198	10.993	5.594
	(3.068)**	(3.704)**	(3.455)**	(2.503)*	(2.799)**	(2.890)+
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 4A: Arellano-Bond estimator for unemployment rate (unemp)

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.865	0.863	0.844	0.894	0.890	0.801
	(0.020)**	(0.019)**	(0.021)**	(0.020)**	(0.020)**	(0.024)**
labor_prodg	0.037	0.015	0.055	0.038	0.040	0.050
	(0.023)	(0.022)	(0.023)*	(0.023)+	(0.023)+	(0.025)*
inflation	0.060	0.034	0.064	0.043	0.049	0.008
	(0.025)*	(0.023)	(0.025)*	(0.024)+	(0.025)+	(0.027)
long_real_r	0.098	0.063	0.095	0.068	0.092	0.099
	(0.018)**	(0.017)**	(0.018)**	(0.018)**	(0.018)**	(0.019)**
trade_open	-0.059	-0.042	-0.068	-0.053	-0.076	-0.038
	(0.009)**	(0.009)**	(0.009)**	(0.009)**	(0.009)**	(0.011)**
popd	0.033	0.066	0.034	0.044	0.038	0.005
	(0.010)**	(0.009)**	(0.010)**	(0.010)**	(0.011)**	(0.012)
public_social	0.142					
	(0.023)**					
income_support		0.369				
		(0.047)**				
pension_exp			0.349			
			(0.057)**			
health_exp				0.261		
				(0.078)**		
otherwelf					-0.070	
					(0.086)	
govexp						0.262
						(0.046)**
Constant	-4.466	-8.279	-3.738	-5.214	-1.489	-3.180
	(1.332)**	(1.297)**	(1.300)**	(1.277)**	(1.281)	(1.537)*
N	402	402	402	402	402	340

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 4B: Arellano-Bover/Blundell-Bond system estimator for unemployment rate (unemp)

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.897	0.897	0.845	0.915	0.908	0.904
	(0.013)**	(0.012)**	(0.014)**	(0.014)**	(0.015)**	(0.015)**
labor_prodg	0.065	0.039	0.049	0.054	0.041	0.049
	(0.022)**	(0.021)+	(0.022)*	(0.022)*	(0.023)+	(0.025)*
inflation	0.063	0.050	0.022	0.043	0.024	0.039
	(0.018)**	(0.017)**	(0.017)	(0.018)*	(0.019)	(0.018)*
long_real_r	0.121	0.056	0.139	0.086	0.133	0.086
	(0.015)**	(0.015)**	(0.015)**	(0.015)**	(0.015)**	(0.016)**
trade_open	-0.030	-0.025	-0.021	-0.015	-0.026	-0.020
	(0.004)**	(0.004)**	(0.004)**	(0.003)**	(0.004)**	(0.004)**
popd	0.000	0.000	-0.002	-0.002	0.000	-0.000
	(0.001)	(0.001)	(0.001)**	(0.001)*	(0.001)	(0.001)
public_social	0.112					
	(0.011)**					
income_support		0.237				
		(0.025)**				
pension_exp			0.211			
			(0.025)**			
health_exp				0.388		
				(0.054)**		
otherwelf					0.071	
					(0.033)*	
govexp						0.108
						(0.021)**
Constant	-1.226	-0.417	0.028	-2.008	0.758	-0.745
	(0.321)**	(0.225)+	(0.266)	(0.425)**	(0.267)**	(0.557)
N	402	402	402	402	402	340

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 4_1A: Arellano-Bond estimator for unemployment rate (unemp) estimated from the sub-sample of Nordic countries

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.718	0.579	0.831	0.839	0.809	0.779
	(0.051)**	(0.060)**	(0.050)**	(0.054)**	(0.053)**	(0.059)**
labor_prodg	-0.010	-0.026	0.016	0.059	0.023	0.030
	(0.045)	(0.045)	(0.046)	(0.050)	(0.050)	(0.052)
inflation	-0.163	-0.232	-0.125	-0.059	-0.095	-0.186
	(0.058)**	(0.060)**	(0.060)*	(0.064)	(0.062)	(0.065)**
long_real_r	0.167	0.173	0.148	0.158	0.179	0.200
	(0.045)**	(0.044)**	(0.047)**	(0.051)**	(0.050)**	(0.058)**
trade_open	0.018	0.057	-0.059	-0.026	-0.046	-0.047
	(0.033)	(0.035)	(0.033)+	(0.037)	(0.034)	(0.044)
popd	-0.049	0.006	0.138	0.099	0.182	0.209
	(0.097)	(0.089)	(0.089)	(0.111)	(0.095)+	(0.108)+
public_social	0.304					
	(0.054)**					
income_support		0.672				
		(0.107)**				
pension_exp			1.017			
			(0.238)**			
health_exp				0.429		
				(0.199)*		
otherwelf					0.268	
					(0.141)+	
govexp						0.285
						(0.097)**
Constant	-4.799	-4.662	-8.214	-5.170	-6.131	-12.020
	(2.796)+	(2.752)+	(2.929)**	(3.176)	(3.074)*	(3.656)**
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 4_1B: Arellano-Bover/Blundell-Bond system estimator for unemployment rate (unemp) estimated from the sub-sample of Nordic countries

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.818	0.731	0.805	0.926	0.932	0.914
	(0.031)**	(0.038)**	(0.032)**	(0.029)**	(0.030)**	(0.031)**
labor_prodg	0.025	-0.023	0.038	0.025	0.007	-0.002
	(0.038)	(0.038)	(0.040)	(0.041)	(0.041)	(0.045)
inflation	-0.076	-0.101	-0.056	-0.038	-0.002	-0.139
	(0.050)	(0.048)*	(0.047)	(0.052)	(0.052)	(0.055)*
long_real_r	0.153	0.149	0.173	0.135	0.149	0.119
	(0.038)**	(0.037)**	(0.039)**	(0.039)**	(0.041)**	(0.047)*
trade_open	-0.041	0.012	-0.035	-0.041	-0.066	-0.090
	(0.021)+	(0.020)	(0.022)	(0.022)+	(0.023)**	(0.026)**
popd	-0.002	-0.008	-0.001	0.004	-0.002	-0.001
	(0.002)	(0.002)**	(0.002)	(0.002)	(0.002)	(0.003)
public_social	0.127					
	(0.018)**					
income_support		0.474				
		(0.064)**				
pension_exp			0.300			
			(0.047)**			
health_exp				0.483		
				(0.101)**		
otherwelf					0.158	
					(0.054)**	
govexp						0.143
						(0.041)**
Constant	-0.892	-2.215	0.040	-1.692	1.546	0.426
	(1.042)	(0.979)*	(1.010)	(1.209)	(0.997)	(1.363)
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 5A: Arellano-Bond estimator for unemployment rate with interaction with ethnic fractionalization

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.859	0.857	0.840	0.893	0.887	0.804
	(0.019)**	(0.019)**	(0.021)**	(0.020)**	(0.020)**	(0.023)**
labor_prodg	0.032	0.020	0.057	0.045	0.039	0.044
	(0.022)	(0.022)	(0.023)*	(0.024)+	(0.023)+	(0.024)+
inflation	0.051	0.047	0.064	0.053	0.045	-0.011
	(0.024)*	(0.024)*	(0.025)**	(0.025)*	(0.025)+	(0.026)
long_real_r	0.070	0.090	0.092	0.095	0.092	0.077
	(0.017)**	(0.017)**	(0.018)**	(0.018)**	(0.018)**	(0.019)**
trade_open	-0.045	-0.051	-0.071	-0.072	-0.076	-0.023
	(0.009)**	(0.009)**	(0.009)**	(0.009)**	(0.009)**	(0.011)*
popd	0.044	0.047	0.035	0.033	0.038	0.021
	(0.009)**	(0.010)**	(0.010)**	(0.010)**	(0.011)**	(0.012)+
public_social	0.132					
	(0.027)**					
pb_ethnic	0.108					
	(0.121)					
income_support		0.262				
		(0.060)**				
income_ethnic		0.879				
		(0.259)**				
pension_exp			0.226			
			(0.079)**			
pension_ethnic			0.830			
			(0.372)*			
health_exp				0.210		
				(0.101)*		
health_ethnic				-0.452		
				(0.354)		
otherwelf					0.023	
					(0.111)	
otherw_ethnic					-0.509	
					(0.381)	
govexp						0.302
						(0.055)**
govexp_ethnic						-0.190
						(0.134)
Constant	-6.960	-5.643	-3.952	-1.854	-1.413	-6.064
	(1.264)**	(1.347)**	(1.293)**	(1.340)	(1.282)	(1.484)**
N	402	402	402	402	402	340

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 5B: Arellano-Bover/Blundell-Bond system estimator for unemployment rate with interaction with ethnic fractionalization

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.898	0.896	0.834	0.910	0.904	0.904
	(0.012)**	(0.012)**	(0.013)**	(0.014)**	(0.014)**	(0.014)**
labor_prodg	0.065	0.047	0.061	0.052	0.026	0.042
	(0.021)**	(0.021)*	(0.021)**	(0.023)*	(0.023)	(0.024)+
inflation	0.055	0.073	0.025	0.028	0.017	0.021
	(0.017)**	(0.017)**	(0.017)	(0.018)	(0.018)	(0.016)
long_real_r	0.074	0.098	0.144	0.156	0.145	0.032
	(0.015)**	(0.015)**	(0.014)**	(0.015)**	(0.015)**	(0.015)*
trade_open	-0.017	-0.026	-0.020	-0.013	-0.015	-0.009
	(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.004)**
popd	0.001	0.001	-0.002	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)**	(0.001)	(0.001)	(0.001)
public_social	0.102					
	(0.010)**					
pb_ethnic	0.082					
	(0.014)**					
income_support		0.229				
		(0.023)**				
income_ethnic		0.391				
		(0.053)**				
pension_exp			0.213			
			(0.024)**			
pension_ethnic			0.243			
			(0.049)**			
health_exp				0.337		
				(0.055)**		
health_ethnic				0.028		
				(0.045)		
otherwelf					0.076	
					(0.031)*	
otherw_ethnic					0.006	
					(0.087)	
govexp						0.097
						(0.019)**
govexp_ethnic						0.036
						(0.016)*
Constant	-2.233	-0.515	-0.376	-1.596	0.459	-1.381
	(0.293)**	(0.205)*	(0.230)	(0.423)**	(0.251)+	(0.509)**
N	402	402	402	402	402	340

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 5_1A: Arellano-Bond estimator for unemployment rate with interaction with ethnic fractionalization estimated from the sub-sample of Nordic countries

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.700	0.590	0.803	0.921	0.708	0.844
	(0.049)**	(0.059)**	(0.048)**	(0.067)**	(0.051)**	(0.058)**
labor_prodg	0.003	-0.008	0.033	0.041	0.021	0.028
	(0.044)	(0.045)	(0.044)	(0.051)	(0.044)	(0.049)
inflation	-0.123	-0.173	-0.079	-0.021	-0.163	-0.107
	(0.057)*	(0.066)**	(0.060)	(0.067)	(0.057)**	(0.064)+
long_real_r	0.146	0.158	0.191	0.107	0.203	0.132
	(0.044)**	(0.044)**	(0.049)**	(0.056)+	(0.044)**	(0.057)*
trade_open	0.011	0.047	-0.065	-0.055	-0.033	-0.059
	(0.032)	(0.035)	(0.029)*	(0.039)	(0.031)	(0.041)
popd	-0.041	-0.020	0.112	0.118	0.096	0.197
	(0.093)	(0.089)	(0.087)	(0.112)	(0.087)	(0.102)+
public_social	-0.051					
	(0.121)					
pb_ethnic	3.090					
	(0.950)**					
income_support		0.125				
		(0.287)				
income_ethnic		3.946				
		(1.932)*				
pension_exp			-0.680			
			(0.493)			
pension_ethnic			17.086			
			(4.541)**			
health_exp				-0.657		
				(0.553)		
health_ethnic				13.100		
				(6.230)*		
otherwelf					-1.564	
					(0.383)**	
otherw_ethnic					25.631	
					(5.068)**	
govexp						-0.735
						(0.253)**
govexp_ethnic						10.419
						(2.410)**
Constant	-2.483	-2.156	-5.538	-5.085	-3.756	-7.384
	(2.787)	(2.969)	(2.964)+	(3.174)	(2.774)	(3.603)*
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 5_1B: Arellano-Bover/Blundell-Bond system estimator for unemployment rate with interaction with ethnic fractionalization estimated from the sub-sample of Nordic countries

	unemp	unemp	unemp	unemp	unemp	unemp
L.unemp	0.692	0.603	0.770	0.866	0.735	0.799
	(0.032)**	(0.035)**	(0.035)**	(0.030)**	(0.032)**	(0.032)**
labor_prodg	0.015	-0.024	0.037	0.033	-0.019	0.012
	(0.034)	(0.032)	(0.038)	(0.038)	(0.033)	(0.041)
inflation	-0.081	-0.120	0.003	-0.085	-0.097	-0.178
	(0.041)*	(0.040)**	(0.047)	(0.046)+	(0.043)*	(0.047)**
long_real_r	0.170	0.185	0.283	0.146	0.193	0.140
	(0.033)**	(0.032)**	(0.038)**	(0.037)**	(0.034)**	(0.041)**
trade_open	0.026	0.069	-0.028	-0.035	-0.005	-0.043
	(0.018)	(0.019)**	(0.020)	(0.020)+	(0.019)	(0.026)+
popd	-0.006	-0.012	0.002	0.004	-0.009	-0.004
	(0.002)**	(0.002)**	(0.002)	(0.002)*	(0.002)**	(0.002)*
public_social	0.071					
	(0.016)**					
pb_ethnic	0.820					
	(0.114)**					
income_support		0.226				
		(0.057)**				
income_ethnic		2.605				
		(0.361)**				
pension_exp			0.176			
			(0.056)**			
pension_ethnic			0.980			
			(0.436)*			
health_exp				0.366		
				(0.106)**		
health_ethnic				1.316		
				(0.566)*		
otherwelf					-0.080	
					(0.048)+	
otherw_ethnic					6.609	
					(0.820)**	
govexp						0.137
						(0.033)**
govexp_ethnic						0.798
						(0.175)**
Constant	-3.102	-3.543	0.127	-1.471	-1.061	-1.940
	(0.881)**	(0.867)**	(0.888)	(1.021)	(0.837)	(1.240)
N	86	86	86	86	86	76

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 6A: Arellano-Bond estimator for labor participation rate (labor_parti)

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.871	0.875	0.857	0.888	0.871	0.792
	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.024)**	(0.029)**
labor_prodg	-0.058	-0.054	-0.068	-0.064	-0.062	-0.061
	(0.017)**	(0.018)**	(0.017)**	(0.018)**	(0.018)**	(0.019)**
inflation	0.034	0.040	0.032	0.043	0.045	0.051
	(0.021)+	(0.021)+	(0.021)	(0.021)*	(0.021)*	(0.022)*
long_real_r	-0.052	-0.047	-0.056	-0.052	-0.059	-0.054
	(0.014)**	(0.015)**	(0.014)**	(0.015)**	(0.014)**	(0.016)**
trade_open	0.014	0.016	0.022	0.014	0.024	0.013
	(0.008)+	(0.008)*	(0.007)**	(0.008)+	(0.007)**	(0.010)
popd	0.010	0.001	0.013	0.007	0.015	0.038
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.012)**
public_social	-0.077					
	(0.018)**					
income_support		-0.111				
		(0.041)**				
pension_exp			-0.186			
			(0.045)**			
health_exp				-0.242		
				(0.067)**		
otherwelf					-0.091	
					(0.071)	
govexp						-0.187
						(0.038)**
Constant	7.998	7.773	7.711	7.194	5.583	11.472
	(1.330)**	(1.369)**	(1.365)**	(1.329)**	(1.286)**	(1.645)**
N	391	391	391	391	391	329

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 6B: Arellano-Bover/Blundell-Bond system estimator for labor participation rate (labor_parti)

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.968	0.960	0.946	0.967	0.973	0.976
	(0.009)**	(0.010)**	(0.010)**	(0.009)**	(0.011)**	(0.012)**
labor_prodg	-0.062	-0.058	-0.062	-0.067	-0.067	-0.055
	(0.017)**	(0.017)**	(0.017)**	(0.017)**	(0.017)**	(0.019)**
inflation	-0.009	0.002	0.000	0.002	0.008	-0.010
	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)
long_real_r	-0.041	-0.033	-0.060	-0.046	-0.056	-0.032
	(0.012)**	(0.013)*	(0.012)**	(0.013)**	(0.013)**	(0.014)*
trade_open	0.010	0.008	0.005	0.006	0.007	0.011
	(0.003)**	(0.003)**	(0.003)*	(0.003)*	(0.003)*	(0.003)**
popd	-0.000	0.000	-0.000	0.001	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
public_social	-0.024					
	(0.010)*					
income_support		-0.010				
		(0.022)				
pension_exp			-0.135			
			(0.024)**			
health_exp				-0.122		
				(0.045)**		
otherwelf					-0.008	
					(0.028)	
govexp						-0.052
						(0.018)**
Constant	2.515	2.550	4.416	2.867	1.668	2.467
	(0.645)**	(0.633)**	(0.806)**	(0.617)**	(0.664)*	(0.713)**
N	391	391	391	391	391	329

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 6_1A: Arellano-Bond estimator for labor participation rate (labor_parti) estimated from the sub-sample of Nordic countries

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.761	0.750	0.757	0.700	0.741	0.762
	(0.071)**	(0.069)**	(0.068)**	(0.090)**	(0.070)**	(0.079)**
labor_prodg	-0.154	-0.166	-0.143	-0.160	-0.151	-0.144
	(0.047)**	(0.046)**	(0.045)**	(0.044)**	(0.045)**	(0.049)**
inflation	0.069	0.059	0.084	0.079	0.083	0.070
	(0.065)	(0.064)	(0.064)	(0.065)	(0.066)	(0.074)
long_real_r	-0.083	-0.091	-0.071	-0.099	-0.094	-0.133
	(0.046)+	(0.046)*	(0.046)	(0.046)*	(0.045)*	(0.056)*
trade_open	0.012	0.019	0.008	0.020	0.011	0.007
	(0.033)	(0.032)	(0.031)	(0.031)	(0.032)	(0.042)
popd	-0.127	-0.156	-0.090	-0.225	-0.128	-0.110
	(0.092)	(0.082)+	(0.087)	(0.115)+	(0.083)	(0.099)
public_social	-0.030					
	(0.058)					
income_support		0.034				
		(0.093)				
pension_exp			-0.471			
			(0.264)+			
health_exp				0.215		
				(0.239)		
otherwelf					-0.151	
					(0.142)	
govexp						-0.096
						(0.095)
Constant	21.118	21.729	22.020	26.578	22.592	22.572
	(5.910)**	(5.800)**	(5.764)**	(7.913)**	(5.885)**	(7.292)**
N	82	82	82	82	82	72

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 6_1B: Arellano-Bover/Blundell-Bond system estimator for labor participation rate (labor_parti) estimated from the sub-sample of Nordic countries

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.911	0.944	0.861	0.973	0.966	0.978
	(0.027)**	(0.027)**	(0.037)**	(0.020)**	(0.023)**	(0.020)**
labor_prodg	-0.112	-0.093	-0.105	-0.151	-0.116	-0.116
	(0.037)**	(0.039)*	(0.037)**	(0.038)**	(0.040)**	(0.044)**
inflation	0.069	0.033	0.071	0.044	0.052	0.050
	(0.057)	(0.056)	(0.054)	(0.059)	(0.060)	(0.067)
long_real_r	-0.038	-0.065	-0.039	-0.054	-0.065	-0.106
	(0.039)	(0.039)+	(0.038)	(0.039)	(0.040)	(0.049)*
trade_open	0.030	0.014	0.031	0.040	0.042	0.056
	(0.021)	(0.024)	(0.020)	(0.021)+	(0.022)+	(0.027)*
popd	-0.002	-0.001	-0.005	-0.004	-0.001	-0.003
	(0.003)	(0.003)	(0.002)*	(0.002)*	(0.002)	(0.003)
public_social	-0.086					
	(0.025)**					
income_support		-0.125				
		(0.074)+				
pension_exp			-0.289			
			(0.077)**			
health_exp				-0.291		
				(0.110)**		
otherwelf					-0.114	
					(0.057)*	
govexp						-0.079
						(0.042)+
Constant	6.853	4.110	9.846	2.215	1.301	1.941
	(2.529)**	(2.605)	(3.057)**	(1.723)	(1.863)	(1.899)
N	82	82	82	82	82	72

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 7A: Arellano-Bond estimator for labor participation rate with interaction with ethnic fractionalization

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.871	0.871	0.854	0.887	0.866	0.789
	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.029)**
labor_prodg	-0.058	-0.053	-0.066	-0.068	-0.060	-0.060
	(0.017)**	(0.018)**	(0.017)**	(0.018)**	(0.018)**	(0.019)**
inflation	0.035	0.039	0.030	0.041	0.047	0.052
	(0.021)+	(0.021)+	(0.021)	(0.021)*	(0.021)*	(0.022)*
long_real_r	-0.052	-0.047	-0.049	-0.050	-0.053	-0.054
	(0.014)**	(0.015)**	(0.014)**	(0.015)**	(0.015)**	(0.016)**
trade_open	0.014	0.015	0.019	0.016	0.021	0.012
	(0.008)+	(0.008)+	(0.007)**	(0.008)*	(0.007)**	(0.010)
popd	0.009	0.003	0.010	0.006	0.012	0.039
	(0.010)	(0.011)	(0.010)	(0.010)	(0.011)	(0.012)**
public_social	-0.079					
	(0.023)**					
pb_ethnic	0.015					
	(0.100)					
income_support		-0.085				
		(0.052)				
income_ethnic		-0.180				
		(0.216)				
pension_exp			-0.170			
			(0.064)**			
pension_ethnic			-0.131			
			(0.318)			
health_exp				-0.332		
				(0.082)**		
health_ethnic				0.557		
				(0.294)+		
otherwelf					-0.131	
					(0.093)	
otherw_ethnic					0.237	
					(0.311)	
govexp						-0.231
						(0.047)**
govexp_ethnic						0.182
						(0.114)
Constant	7.989	7.731	8.546	7.091	6.281	11.663
	(1.334)**	(1.370)**	(1.379)**	(1.328)**	(1.296)**	(1.651)**
N	391	391	391	391	391	329

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 7B: Arellano-Bover/Blundell-Bond system estimator for labor participation rate (labor_parti) with interaction with ethnic fractionalization

	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti	labor_parti
L.labor_parti	0.966	0.957	0.940	0.967	0.977	0.973
	(0.009)**	(0.009)**	(0.010)**	(0.009)**	(0.010)**	(0.011)**
labor_prodg	-0.065	-0.062	-0.057	-0.071	-0.062	-0.063
	(0.016)**	(0.016)**	(0.016)**	(0.016)**	(0.017)**	(0.019)**
inflation	-0.004	0.006	0.001	0.011	0.007	-0.017
	(0.018)	(0.018)	(0.018)	(0.016)	(0.017)	(0.016)
long_real_r	-0.046	-0.033	-0.055	-0.051	-0.049	-0.024
	(0.012)**	(0.013)**	(0.012)**	(0.013)**	(0.012)**	(0.013)+
trade_open	0.007	0.007	0.004	0.004	0.005	0.012
	(0.002)**	(0.003)**	(0.002)	(0.002)+	(0.003)*	(0.003)**
popd	-0.001	0.000	-0.000	-0.001	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
public_social	-0.026					
	(0.009)**					
pb_ethnic	-0.027					
	(0.012)*					
income_support		-0.002				
		(0.020)				
income_ethnic		-0.130				
		(0.047)**				
pension_exp			-0.130			
			(0.022)**			
pension_ethnic			-0.074			
			(0.042)+			
health_exp				-0.105		
				(0.044)*		
health_ethnic				0.004		
				(0.040)		
otherwelf					-0.016	
					(0.026)	
otherw_ethnic					-0.099	
					(0.071)	
govexp						-0.058
						(0.017)**
govexp_ethnic						-0.024
						(0.014)+
Constant	2.965	2.919	4.984	2.995	1.653	2.888
	(0.641)**	(0.603)**	(0.770)**	(0.593)**	(0.634)**	(0.685)**
N	391	391	391	391	391	329

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 8A: Arellano-Bond estimator for investment rate (invrate)

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.838	0.831	0.832	0.848	0.835	0.773
	(0.022)**	(0.023)**	(0.022)**	(0.023)**	(0.023)**	(0.022)**
inflation	-0.032	-0.036	-0.016	-0.024	-0.015	0.007
	(0.019)+	(0.023)	(0.018)	(0.019)	(0.020)	(0.019)
long_real_r	-0.073	-0.070	-0.083	-0.080	-0.078	-0.089
	(0.022)**	(0.022)**	(0.022)**	(0.022)**	(0.022)**	(0.019)**
L.gdpg	0.180	0.198	0.187	0.193	0.213	0.245
	(0.026)**	(0.025)**	(0.026)**	(0.026)**	(0.025)**	(0.024)**
public_social	-0.088					
	(0.026)**					
income_support		-0.164				
		(0.045)**				
pension_exp			-0.186			
			(0.063)**			
health_exp				-0.229		
				(0.086)**		
otherwelf					-0.025	
					(0.086)	
govexp						-0.025
						(0.036)
Constant	5.689	4.654	5.243	4.978	3.889	4.885
	(0.736)**	(0.566)**	(0.684)**	(0.658)**	(0.543)**	(0.860)**
N	535	537	535	535	535	605

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 8B: Arellano-Bover/Blundell-Bond system estimator for investment rate (invrate)

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.870	0.851	0.876	0.875	0.880	0.807
	(0.018)**	(0.019)**	(0.019)**	(0.019)**	(0.019)**	(0.018)**
inflation	-0.027	-0.011	-0.027	-0.025	-0.012	0.009
	(0.015)+	(0.018)	(0.014)+	(0.015)+	(0.015)	(0.014)
long_real_r	-0.068	-0.081	-0.083	-0.068	-0.063	-0.095
	(0.020)**	(0.019)**	(0.020)**	(0.020)**	(0.020)**	(0.016)**
L.gdpg	0.179	0.207	0.175	0.205	0.208	0.235
	(0.022)**	(0.022)**	(0.022)**	(0.022)**	(0.021)**	(0.019)**
public_social	-0.055					
	(0.015)**					
income_support		-0.086				
		(0.031)**				
pension_exp			-0.134			
			(0.030)**			
health_exp				-0.145		
				(0.065)*		
otherwelf					-0.020	
					(0.042)	
govexp						-0.021
						(0.022)
Constant	4.322	3.882	4.047	3.880	2.883	4.229
	(0.570)**	(0.485)**	(0.475)**	(0.570)**	(0.453)**	(0.628)**
N	535	537	535	535	535	605

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 9A: Arellano-Bond estimator for investment rate with interaction with ethnic fractionalization

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.836	0.831	0.830	0.844	0.831	0.774
	(0.023)**	(0.023)**	(0.023)**	(0.023)**	(0.023)**	(0.022)**
inflation	-0.034	-0.039	-0.027	-0.019	-0.013	0.006
	(0.022)	(0.023)+	(0.022)	(0.019)	(0.020)	(0.020)
long_real_r	-0.089	-0.066	-0.093	-0.080	-0.078	-0.090
	(0.021)**	(0.022)**	(0.021)**	(0.022)**	(0.022)**	(0.019)**
L.gdpg	0.179	0.194	0.177	0.190	0.214	0.245
	(0.027)**	(0.025)**	(0.026)**	(0.026)**	(0.025)**	(0.024)**
public_social	-0.094					
	(0.033)**					
pb_ethnic	0.064					
	(0.131)					
income_support		-0.095				
		(0.058)				
income_ethnic		-0.472				
		(0.248)+				
pension_exp			-0.403			
			(0.096)**			
pension_ethnic			0.986			
			(0.341)**			
health_exp				-0.418		
				(0.118)**		
health_ethnic				0.766		
				(0.324)*		
otherwelf					-0.085	
					(0.106)	
otherw_ethnic					0.296	
					(0.310)	
govexp						0.001
						(0.048)
govexp_ethnic						-0.112
						(0.136)
Constant	5.361	4.861	5.059	5.060	3.967	4.887
	(0.775)**	(0.576)**	(0.693)**	(0.656)**	(0.549)**	(0.861)**
N	535	537	535	535	535	605

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 9B: Arellano-Bover/Blundell-Bond system estimator for investment rate with interaction with ethnic fractionalization

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.866	0.852	0.870	0.873	0.875	0.805
	(0.018)**	(0.019)**	(0.018)**	(0.018)**	(0.019)**	(0.017)**
inflation	-0.018	-0.017	-0.020	-0.020	-0.010	0.007
	(0.017)	(0.018)	(0.017)	(0.014)	(0.015)	(0.014)
long_real_r	-0.090	-0.078	-0.100	-0.062	-0.064	-0.090
	(0.019)**	(0.019)**	(0.019)**	(0.020)**	(0.020)**	(0.015)**
public_social	-0.051					
	(0.014)**					
pb_ethnic	-0.012					
	(0.016)					
L.gdpg	0.177	0.205	0.175	0.207	0.207	0.236
	(0.021)**	(0.021)**	(0.022)**	(0.021)**	(0.021)**	(0.019)**
income_support		-0.086				
		(0.029)**				
income_ethnic		-0.026				
		(0.058)				
pension_exp			-0.131			
			(0.030)**			
pension_ethnic			0.055			
			(0.056)			
health_exp				-0.172		
				(0.064)**		
health_ethnic				0.025		
				(0.054)		
otherwelf					-0.033	
					(0.039)	
otherw_ethnic					0.111	
					(0.104)	
govexp						-0.025
						(0.020)
govexp_ethnic						-0.000
						(0.015)
Constant	4.177	3.898	3.909	3.966	2.916	4.325
	(0.559)**	(0.470)**	(0.472)**	(0.544)**	(0.442)**	(0.610)**
N	535	537	535	535	535	605

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 9_1A: Arellano-Bond estimator for investment rate (invrate) estimated from the sub-sample of Nordic countries

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.828	0.827	0.843	0.829	0.733	0.716
	(0.086)**	(0.084)**	(0.084)**	(0.083)**	(0.091)**	(0.088)**
inflation	0.115	0.188	0.143	0.180	0.189	0.137
	(0.139)	(0.124)	(0.134)	(0.136)	(0.132)	(0.124)
long_real_r	-0.148	-0.067	-0.156	-0.174	-0.131	-0.196
	(0.105)	(0.114)	(0.104)	(0.104)+	(0.102)	(0.107)+
L.gdpg	0.387	0.383	0.326	0.321	0.398	0.341
	(0.098)**	(0.089)**	(0.097)**	(0.088)**	(0.083)**	(0.086)**
public_social	0.061					
	(0.114)					
income_support		-0.001				
		(0.130)				
pension_exp			-0.335			
			(0.462)			
health_exp				-0.369		
				(0.289)		
otherwelf					0.645	
					(0.257)*	
govexp						0.181
						(0.167)
Constant	2.469	3.967	5.652	6.198	1.899	1.032
	(2.998)	(1.853)*	(3.032)+	(2.473)*	(1.765)	(4.074)
N	92	94	92	92	92	89

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Table 9_1B: Arellano-Bover/Blundell-Bond system estimator for investment rate (invrate) estimated from the sub-sample of Nordic countries

	invrate	invrate	invrate	invrate	invrate	invrate
L.invrate	0.870	0.840	0.832	0.826	0.851	0.751
	(0.018)**	(0.062)**	(0.056)**	(0.062)**	(0.061)**	(0.064)**
inflation	-0.027	0.177	0.147	0.198	0.163	0.155
	(0.015)+	(0.096)+	(0.092)	(0.109)+	(0.099)+	(0.095)
long_real_r	-0.068	-0.033	-0.162	-0.139	-0.172	-0.170
	(0.020)**	(0.093)	(0.077)*	(0.080)+	(0.080)*	(0.082)*
L.gdpg	0.179	0.430	0.347	0.389	0.378	0.348
	(0.022)**	(0.071)**	(0.064)**	(0.070)**	(0.066)**	(0.066)**
public_social	-0.055					
	(0.015)**					
income_support		-0.070				
		(0.080)				
pension_exp			-0.163			
			(0.077)*			
health_exp				-0.087		
				(0.170)		
otherwelf					0.035	
					(0.089)	
govexp						-0.009
						(0.068)
Constant	4.322	3.819	4.590	3.917	2.954	4.707
	(0.570)**	(1.389)**	(1.308)**	(1.745)*	(1.387)*	(2.334)*
N	535	94	92	92	92	89

+ $p<0.1$; * $p<0.05$; ** $p<0.01$

Appendix 1 The variable definitions, data sources and time coverage of data

variable	Definition	Data source	Time coverage
fertility	Fertility rate: Number of children born to women aged 15 to 49	OECD Factbook	1970-2010
govexp	Government expenditure as % of GDP	WDI2010	1960 - 2010
health_exp	Public social expenditures on Health as a percentage of GDP	SOCX	1980 - 2007
hours	Average hours actually worked: Hours per year per person in employment	OECD Factbook 2010	1980 - 2012
income_support	Public social expenditures on income support to the working-age population as % GDP	SOCX	1955 - 2010
inflation	Inflation rate: Consumer price indices (CPI): annual growth in percentage	OECD Factbook 2010	1955 - 2008
invrate	Investment rate: the share of total GDP that is devoted to investment in fixed assets	OECD Factbook 2010	1976 - 2006
L.gdpg	One-year lagged value of GDP growth rate	WDI2010	1961-2005
l.wageg	One-year lagged value of growth rate of labor compensation per unit labour input	OECD Factbook	1967-2008
labor_parti	Labor participation rate	OECD StatExtracts	1990 - 2011
labor_prodg	Labor productivity growth rate		
long_real_r	long real interest rate :The nominal returns on long-term government bond minus the actual inflation rate over the following year		1955 - 2008
otherwelf	Welfare spending on other social services as percentage of GDP	SOCX	1955 - 2010
pension_exp	Public social expenditures on pension as % GDP	SOCX	1980 - 2010
popd	Population density (people per square km of land area)	WDI2010	1961 - 2010
public_social	Public Social Expenditure as percentage of GDP	SOCX	1980 - 2010
Trade_open	International trade openness (% of GDP)	WDI2010	1960 - 2008
unemp	Unemployment rate	OECD Factbook	1955 - 2010

Note: WDI2010: World Development Indicator 2010 Edition, World Bank. SOCX: The OECD Social Expenditure Database