

Labour Market Regulations and Subjective Wellbeing: Cross-Country Evidence From Value and Perception Surveys

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There is growing recognition that fair and effective labour market policies not only matter for economic growth but also for social wellbeing. Yet, few studies have analysed systematically how employment regulations influence non-monetary outcomes. This paper seeks to fill this gap by presenting cross-country evidence on the link between labour market policies and self-reported life satisfaction. Using international survey data, we find that the unemployed report relatively lower levels of subjective wellbeing in nations with more heavily regulated labour markets. These effects hold for different measures of worker protection and in several data sets from high income and transition economies. Moreover, the results are robust to controls for government quality, the extent of economic informality, welfare transfers and other unobserved biases and measurement errors. However, relative differences in life satisfaction do not necessarily indicate a greater potential for social conflict, as absolute levels of wellbeing of the employed and unemployed are often positively influenced by other economic and institutional contexts.

I. Introduction

It is well documented that unemployment has negative consequences for subjective wellbeing that exceed those of other important personal experiences, such as divorce or the loss of a partner (see for example Blanchflower and Oswald 2011, Clark and Oswald 1994, Di Tella and MacCulloch 2008, Frey 2008: 46f). Yet, how are experiences of unemployment influenced by labour market policies?

This paper explores interactions between the psychological costs of unemployment and a country's level of Employment Protection Legislation. The main outcome of interest is the difference in life satisfaction between the employed and unemployed. Data for this analysis are available for 52 countries from the fifth round

of the World Value Survey and for 29 formerly socialist economies in Eastern Europe and Central Asia from the Life In Transition survey (LITs). We complement these surveys with various indices of *de facto* and *de jure* labour market regulations with coverage of developed and developing nations (Botero et al 2004, Gwartney et al. 2010). This combination of individual-level and aggregate data enables us to analyse how relative wellbeing levels of the unemployed vary across countries with more and less regulated labour markets.

Our findings suggest that labour market regulations make an important contribution to the cross-country variation in work-related differences in subjective wellbeing. When we compare country-by-country estimates of the welfare effect of unemployment we find that cross country variation is more systematically associated with differences in national levels of labour regulations than with other potential determinants of the welfare effect of unemployment, such as a country's level of economic development or its national unemployment rate. Moreover, the observed cross-country differences hold across multiple indices of worker protection and they are robust to the inclusion of controls for personal attributes, work attitudes, national levels of economic informality, government quality, as well for measurement error and other omitted country-level biases. However, impacts of worker protection are smaller in transition economies and developing nations, probably reflecting more fluid boundaries between joblessness and (informal) employment in these countries.

While our results seem to indicate relatively clear and generalizable psychological effects of labour market regulations, we are cautious to conclude that more extensive polices of worker protection *have* to lead to tensions between people in and out of employment. In our data there are no indications that higher levels of labour market regulation are associated with more profound incidences of social and political exclusion among the unemployed. This suggests that relative differences between people in and out of work may be driven by other processes, such as comparatively high levels of wellbeing for those in more protected forms of employment. We also find no evidence that increases in the distance between the unemployed and employed are systematically associated with lower levels of absolute life satisfaction for people out of work. Generally, absolute wellbeing of the employed and unemployed tends to vary jointly with labour market institutions and other social and political contexts of a country. These results are consistent with the notion that

even societies with very persistent differences between labour market ‘insiders’ and ‘outsiders’ often have remarkably high levels of average life satisfaction and social cohesion (Larsen 2007, Rothstein and Uslaner 2005).

The paper proceeds as follows. The next section discusses the policy relevance of our study and presents existing evidence on the consequences of labour market regulations. Section III describes our data and empirical approach. Section IV presents initial evidence on the welfare effect of unemployment across countries. Section V analyses how these effects vary across nations with different levels of worker protection. This section also presents robustness tests for other omitted country-level influences and for measurement error. Section VI presents added evidence on the interaction between the wellbeing of the unemployed and wider social, economic and institutional contexts of a country. The last section discusses policy implications of our findings and concludes.

II. Labour market policies and subjective wellbeing

Policy makers who aim to strengthen social cohesion in and around the labour markets of their country often face complex trade-offs. Most observers agree that labour market regulations and welfare systems that insure workers against the costs of economic adjustment have social advantages beyond the individual benefits incurred by persons who fall under these protections. At an aggregate level policies that protect workers from the effects of economic transformations can reduce political costs of reform and restrain the rapid shedding of workers in times of economic recession (Alesina and Drazen 1991, Fernandez and Rodrik 1991, World Bank 2012). This may explain why countries with more regulated labour markets and consensual and cohesive institutions often experience shorter adjustment periods after periods of economic crisis (Forteza and Rama 2006, Freeman 2009, Rodrik 1999). There is also no clear evidence that worker protection leads to lower economic growth rates (Freeman 2008, 2009, OECD 2011).

The main drawbacks of employment protection are economic and social inequalities within labour markets. Freeman (2008) has suggested that employment protection laws can be described as dealing with property rights at work – the extent to which a worker has protected claims to his job and the conditions under which

work is carried out. This not only affects the balance between capital (employers) and labour (employees), but also between workers in more protected forms of employment and those with fewer rights and fixed-term contracts (Freeman 2008, OECD 2011: 161f). Research from middle and high income countries suggests that high levels of worker protection can increase inequalities in the incidence and duration of unemployment, as well as in the rate of labour force participation (Botero et al. 2004, Di Tella and MacCulloch 2005, Heckman and Pages 2000).

We would expect that economic consequences of worker protection also spill over into differences in subjective wellbeing between the employed and unemployed. The recent literature on subjective wellbeing documents that unemployment has considerable negative effects on individual life satisfaction, even when losses to earnings are separately accounted for (Clark and Oswald 1994, Di Tella et al. 2001, 2003, Frey et. al. 2008).¹ These non-monetary consequences of unemployment are likely to weigh heavier in settings where higher barriers of entry into the labour market reduce the prospect of immediate re-employment. Moreover, anecdotal evidence and research from more regulated economies in Europe suggests that high levels of worker protection may be associated with more profound experiences of social exclusion, political disenfranchisement, and psychological ill-being (Altindag and Mocan 2010, Silver 1994). Research also indicates that societies with more robust worker protection often have deeper political divides over employment and redistributive policies between labour market ‘insiders’ and ‘outsiders’ (Di Tella and Mc Culloch 1996, Luttmer 2001, Rueda 2005, 2006, Shayo 2009).

At the same time, we would anticipate that relative differences in wellbeing between the employed and unemployed are also influenced by higher levels of wellbeing among those in more protected types of employment. For instance, evidence from around the world suggests that more secure jobs and cleaner and safer work environments boost job satisfaction; often with direct positive consequences for overall individual life satisfaction (Origo and Pagani 2009, Pagan 2012, Silla et al. 2009, Theodossiou and Vasileiou 2007). This suggests that higher levels of worker protection can enlarge differences in wellbeing between people in and out of work,

¹ Estimated welfare effects of unemployment are also generally robust to controls for time-invariant personal attributes. See for example Winkelmann and Winkelmann (1998).

both by depressing job prospects for the unemployed and by exerting a ‘pull effect’ on the welfare of those fortunate to be in more secure jobs.

In spite of these initial indications that policies of worker protection can enlarge differences in subjective wellbeing there is relatively little systematic evidence how national regulatory frameworks influence subjective outcomes of different groups in the labour market. Much of the literature on the link between unemployment and subjective wellbeing has tended to concentrate on the individual; for instance, by studying interactions between personal employment status and other individual or social correlates of subjective wellbeing. However, these studies usually do not incorporate information on national policy contexts (for exceptions see Di Tella et al. 2001, 2003, Di Tella and MacCulloch 2008).² On the other hand, cross country comparisons of the link between subjective wellbeing and macro-economic and political environments have tended to concentrate on average national outcomes, with little attention to differences between groups within national labour markets (see for example Easterlin 1974, Easterlin et al 2010, Easterly et al. 2006, Larsen 2007, Rothstein and Uslaner 2005).

The few studies with information on national policy frameworks we are aware of identify slight social preference for employment generation over anti-inflationary policies (Di Tella et al. 2001, MacCulloch, and Oswald 2001), a preference for shorter working hours and less trade-openness (Di Tella and MacCulloch 2008), as well as positive links between life satisfaction and unemployment benefits (Di Tella et al. 2003). However, not all of these studies systematically analyse interactions between policy frameworks and outcomes for specific groups in the labour market. Those that do find that even societies with relatively evolved social safety nets and redistributive policies can register very persistent differences in social outcomes between groups in the labour market. For example Di Tella et al. (2003) find that, while increases in unemployment benefits in Europe raised overall wellbeing levels, they did not reduce the gap in subjective wellbeing between the employed and unemployed. This finding is probably explained by the fact that experiences of social and financial security associated with stronger social institutions and safety nets are often shared between

² Moreover, most of this literature is limited to advanced industrialized economies, with only few contributions from middle income and transition countries (for exceptions see Blanchflower and Freeman 1997, Eggers et al. 2006, Graham 2008, Graham and Pettinato 2002).

the employed and unemployed (Di Tella et al. 2003, see also Di Tella and MacCulloch 2008, Helliwell 2002). As such, it is consistent with the hypothesis that effects of labour market regulations on the relative wellbeing of the unemployed may be relatively robust across societies with very different institutional and social policy frameworks.

III. Empirical strategy and data

This paper focuses on the non-monetary consequences of Employment Protection Legislation (EPL). EPL includes legal rules in areas such as centralized bargaining, mandated dismissal costs, or overtime regulations. Even though labour laws are often perceived to be more evolved in advanced economies, recent reviews find that nominal levels of worker protection are not remarkably different across developing and advanced economies (Freeman 2008, 2009, see also Botero et al. 2004).³ These reviews also show surprisingly little variation within the group of developing nations. For instance, while levels of worker protection differ somewhat across Latin American and Asian economies, variations are much larger among high income countries, with particularly large differences between the market-oriented US and UK on the one hand and more highly regulated economies in continental Europe on the other (Botero et al. 2004).⁴

We use two sources of information on EPL. The first are taken from the Fraser Institute's 'economic freedom' indexing project (Gwartney et al. 2010). These indices are based on the 'Employing Workers' section of the World Bank's annual Doing Business Reports. The measures draw on detailed expert surveys of employment regulations and are thus likely to also capture differences in *de facto* levels of worker protection.⁵ Earlier validation exercises against other international expert surveys of

³ However, collective bargaining arrangements tend to be weaker in lower income countries (Freeman 2008).

⁴ Of course this also reflects differences between common law countries and the Napoleonic and Germanic legal traditions followed by most continental European nations (Botero et al. 2004). Within the developing world levels of worker protection tend to be higher in Latin American nations and lower in Asian economies (Freeman 2008).

⁵ See <http://www.doingbusiness.org/methodology/employing-workers> (last accessed August 2012). The authors of the Doing Business Reports have validated expert views against labour laws and secondary data sources.

the level and effectiveness of national labour regulations support this claim (Freeman 2008).

Our analysis uses sub-indices for hiring and firing regulations, overtime regulations, as well as centralized bargaining arrangements. The indices have been standardized on a scale from 1-10 to facilitate comparisons across countries. Especially in low and middle income countries the correlation between these sub-indices is not always very high, suggesting that the measures capture different aspects of a country's regulatory framework for labour relations (Table 2). The sub-indices are also not very strongly correlated with other measures of a country's economic and institutional development (GNI per capita and measures of government effectiveness and accountability from Kaufmann, et al. 2010). This supports our earlier point that levels of labour regulation are often quite independent from other economic and political attributes of a country.

The Fraser indices give higher scores to countries with lower levels of labour market regulation, reflecting the conservative, pro-market outlook of the Fraser institute. As a consequence low-income countries with weaker worker protection (such as Zambia or Haiti) usually rank higher than countries with more regulated labour markets (France, Sweden). Nonetheless, the rank order produced by these indices is generally consistent with ad hoc perceptions of labour institutions. For instance, among the group of high income countries, more liberal economies like the US receive higher scores than more regulated continental European or Scandinavian economies.

Additional information on the level of labour market regulation are taken from Botero et al. (2004). These authors constructed measures of *de jure* employment regulations and industrial relations, based on a review of coded laws that regulate employment contracts and collective bargaining arrangements.⁶ Originally available for 85 countries these data cover a smaller number of countries in the WVS sample and only few nations in the LIT survey. We consequently do not apply this index to the LITs sample. Moreover, as we will see below, nominal labour regulations captured by this index appear to be a less reliable predictor of social experiences of

⁶ We use the inverse of the original indices to facilitate comparisons with the Fraser Institute's measures.

unemployment in less advanced economies with weaker rule enforcement (see also Flanagan 2006, Freeman 2008).

a.) Individual level data

International survey and other observational data on subjective wellbeing are now widely available. These data usually do not permit dealing with a number of omitted factors that may influence both an individual's employment status and his or her level of life satisfaction – for instance we cannot distinguish whether people with lower initial subjective wellbeing are also more likely to be unemployed. However, international survey data can give an indication of the extent of the differences in subjective wellbeing across societies that vary by their level of labour market regulation. The aim of this study is to document these international differences, without direct claims for causality.

The main outcome of interest to our analysis are differences in individual responses of employed and unemployed individuals to variants of the question “*generally speaking how satisfied are you with your life today?*”. As other studies on happiness and subjective wellbeing before us we take this question as an indication of people's global evaluation of their longer-term economic and social situation, distinct from short term expressions of ‘hedonic’ pleasure or ‘happiness’ (Kahneman 1999). Unless stated otherwise we include household income on the right hand side, as we speculate that labour market regulations affect personal wellbeing primarily through non-monetary channels (such as due to differences in job quality and security among those in work or a perceived loss of employment opportunities among the unemployed, see above).

Our estimation strategy is inspired by earlier studies in similar settings and consists of two stages (see for example Bianchi 2012). In a first step we estimate pooled estimates of the effect of unemployment on life satisfaction. These results are followed by country-specific estimates of the same model to illustrate international variation in the welfare effect of joblessness. The estimation model for the pooled sample takes the following form:

$$Y_{ic} = \alpha + \beta unemp_{ic} + \gamma X_{ic} + \xi_c + \varepsilon_{ic} \quad (1)$$

Where Y refers to a respondent's level of life satisfaction and $unemp$ is a dummy equal to 1 if individual i in country c is unemployed. As in other specifications encountered in the literature on subjective wellbeing all our estimates control for age, age squared, family status (married, widowed, or divorced), level of education (secondary or higher), number of children, gender, and a person's religious attitudes (Vector X_{ic}). We also control for self-expressed work ethics (work is "very" or "somewhat" important). We do so in an attempt to account for personal attributes that could simultaneously affect whether a person is employed and satisfied with his or her life.⁷ Pooled sample regressions further include a vector of country fixed effects (ξ_c) in order to cancel out unobserved country-level attributes and variations in average subjective wellbeing in society. Obviously these fixed effects are dropped from individual country-level regressions.

In a second step we return to the pooled cross country regressions to test our hypothesis that the wellbeing differential between people in and out of work varies according to an economy's level of economic development or its extent of labour market regulation. We do so by augmenting equation (1) by an interaction term between individual employment status and country-specific measures of macro-economic outcomes and labour market regulations. This leads to the following specification:

$$Y_{ic} = \alpha + \beta unemp_{ic} + \pi unemp_{ic} * EPL_c + \gamma X_i + \xi_c + \varepsilon_{ic} \quad (2)$$

The interaction term estimates the effect of labour market regulations on the unemployed after having controlled for the effect on the whole population and other country-level differences in average national life satisfaction. As such it is the main parameter of interest to this paper.

⁷ The LIT survey reports no self-perceived importance of work. Our analysis may be subject to other biases. For instance, the estimated association between the level of worker protection and the welfare effect of unemployment, could be biased if individuals with lower initial levels of life satisfaction are less likely to find employment in societies with more regulated labour markets. The unemployed in societies with higher barriers of entry into formal employment may become used to their situation and report higher levels of wellbeing (Clark and Oswald 1994). These adjustments could lead to a potential downward bias in our estimation of the welfare effect of unemployment in countries with more regulated labour markets. Unfortunately we are unable to account for these possibilities with the available data.

To facilitate interpretation the coefficients we estimate outcomes on the life satisfaction variables with a linear OLS model. Results from these models were not substantively different from estimates of an alternative ordered probit model.⁸ However, inspection of the life satisfaction question in the WVS data indicates that over 15% report the highest level of satisfaction on the 10 point scale offered by the questionnaire. This may reflect measurement error (for instance, respondents might want to please the examiner and so report the highest possible level of life satisfaction). To deal with this problem we estimate a tobit model that censors on values higher than 9 on the 10 point life satisfaction scale. While results were not qualitatively different when we use a regular linear regression, we report the more conservative tobit estimates in this paper.

IV. Unemployment and life satisfaction across countries

We begin by documenting the impact of unemployment on life satisfaction across regions and countries in our survey data. In a first step we estimate the effect of unemployment for pooled samples of high and middle and low income countries from the WVS, as well as the Eastern European and the Central Asian transition economies included in the LIT survey. This will be followed by separate country-by-country estimates of the same model, to document variation across nations within the three sub-samples.

Table 3 presents estimates of the effect of unemployment on life satisfaction for the pooled samples of high and middle and low income (WVS) and LITs countries. Life satisfaction is reported on an ordinal scale of 1-10 in the WVS and on a 1-5 Likert Scale in the LITs. To establish comparability across the two surveys we also report results from probit estimates of a binary variable that identifies respondents who are “very” or “somewhat” satisfied with their life (see Columns 3, 6 and 9). We initially report separate estimates with and without controls for income to

⁸ Another reason not to use ordinal probit or logit models are jumps in the distribution of responses on the life satisfaction scale. These lead to violations of the parallel regression assumption imposed by ordinal probit and logit models (Long and Freese 2006).

document differences between the monetary and non-monetary effects of unemployment.

Formal unemployment may be a less meaningful indicator of life satisfaction in less advanced economies, where many people are involved in informal income generating activities. This is also supported by the results from our three sub-samples. The coefficient of unemployment is highest in the group of high income countries (-0.889); it decreases to -0.516 in the WVS sample of developing and industrializing nations; Eastern European and Asian transition economies from the LITs sample fall between these two country groups (probit estimates). In all sub-samples the inclusion of controls for income reduces the effect of unemployment. This reduction is proportionally largest in middle and low income countries where the effect is roughly reduced by half (Table 3, Columns 2, 5, and 8). However, the estimate remains statistically robust in all three sub-samples.

In spite of the relative robust link between life satisfaction and unemployment in the pooled sample estimates we find considerable variation when we turn to country specific estimates of equation (1). Graphs in Panel 1 plot coefficients and standard errors of the effect unemployment for countries in the three sub-samples (for comparison purposes we report results with and without controls for income). In the high and the middle and low income country samples of the WVS the size of the coefficient of unemployment ranges from -2. to a small number of estimates above 0. In the case of the LITs sample the differences in the scale of the life satisfaction variable leads to smaller coefficients. But again there is considerable variation across countries (-1.2 to 0.1).

Graphs in Panel 2 plot t-statistics of country-specific coefficients of unemployment (with controls for income) against per capita Gross National Income, national unemployment rates and our measures of labour market regulation. Gross National Income, reported in the top left Figure in Panel 2, emerges a factor that explains mostly differences between high and low /middle income countries but it accounts for less variation within these groups. High and low/middle income countries form two distinct clusters, with larger wellbeing differences between the employed and the unemployed in the former group. However, within these two clusters the size of the estimated welfare gap only varies little with national income.

This provides additional justification for the separation of the WVS sample into high and middle and low income countries in our analysis.

National unemployment rates also have no discernible effects on the experience of unemployment. The fitted regression line between the t-statistic of the unemployment coefficient and national unemployment rates is almost flat.⁹ This result reiterates findings from earlier studies that high unemployment rates tend to have more generalized effects on the average life satisfaction of a population (Di Tella et al. 2001). Probably, reductions in economic opportunities and the sense of economic insecurity associated with high unemployment are experienced in similar ways by people still in work and those who are unemployed.

Turning to our indicators of worker protection we find comparatively stronger support for our initial hypothesis that labour market regulations may drive the size of the wellbeing difference between the employed and unemployed. Across the three indicators considered here the difference between the unemployed and employed is smaller in societies with less regulated labour markets. This difference is clearest for the index on centralised bargaining but it is also clearly visible in the case of the other two indices of worker protection.

V. Life satisfaction and labour market regulations

To obtain more robust evidence for the link between labour regulations and welfare impact of employment we now turn to estimates of equation (2). Again we separate the World Value Survey sample into high income and developing and transition economies. Results for these two samples are presented in Table 4a and for the LIT survey in Table 4b. Estimates account again for household income and the same set of personal attributes and country fixed effects as in our pooled samples above. Even though national income levels do not appear to have a strong effect on

⁹ This finding holds when we exclude outliers from the analysis. The two countries excluded are Ethiopia and Germany

the coefficient of unemployment after we separate the sample by country income level, we also include an interaction term between unemployment and GNI.¹⁰

The results provide some support for the notion that levels of labour market regulation influence the welfare effect of employment, albeit to different degrees across higher and lower income countries. Across all three samples, unemployment has the expected negative effect on life satisfaction. The positive coefficient of the interactions between unemployment and the labour regulation indicators suggest that this difference is generally reduced in countries that are described as more liberal by the labour market indices of the Fraser institute. However, both the effect of unemployment and its reduction in less regulated labour markets is largest in high income countries, where labour markets are probably more formalized and regulatory frameworks more effective. Moreover, in the LITs sample more liberal countries on the Fraser Institute's centralized bargaining index are associated with larger differences between the employed and unemployed. In the case of the labour law indices by Botero et al. (2004) only the industrial action index has a significant effect across the two WVS samples, while the labour law index only has a significant effect on welfare outcomes in high income nations. This result probably reflects the fact that nominal levels of worker protection captured by this index may be less salient in lower-income countries with less stringent rule enforcement.

a. Controls for other country level attributes

Even though the extent of worker protection appears to be relatively independent of the economic and institutional development of a country (see above), our estimate of the effect of labour market regulations may be influenced by a range of other omitted economic and political influences.

The first potentially confounding influence arises from variations in the level of economic informality and governance effectiveness of a country. The difference in the effect of labour market regulations on wellbeing between high and middle and low

¹⁰When these interactions were included without interactions between unemployment and labour regulations, they were either not statistically significant (WVS high and middle and low income country samples), or negligible in size (LITs countries).

income countries documented above suggests that measures of labour market regulation may be less meaningful in countries with larger shadow economies and weaker rule enforcement. This could interfere with other problems of measuring the welfare effect of unemployment in ways that could lead to biases in our estimates above. For instance, higher levels of economic informality may also influence experiences of joblessness, by reducing the stigma of unemployment or by offering ‘easy’ entries into non-formal income generating activities. Resulting measurement errors may be correlated with our measures of worker protection, if the latter implicitly rank countries with higher levels of economic informality as more market oriented.

The size of the informal economy is by definition hard to measure. We use estimates of the shadow economy as a share of GDP as reported in Schneider (2004), by our knowledge the most complete attempt to estimate the size of the shadow economy around the world.¹¹ In addition, we control for possible variations in the implementation of labour laws with the help of a measure of government effectiveness from the World Governance Indicators data base by Kaufmann, et al. (2010).¹² Both of these controls enter the model in the form of interactions with the unemployment dummy.

The inclusion of these controls only has a very marginal impact on the significance levels of our earlier results. The sole exception is the estimate of hiring and firing regulations in low and middle income countries from the WVS sample, which is no longer significant (Tables 5a-5c). Interactions between informality and unemployment have no separate effect on the difference in welfare between the employed and unemployed. Government effectiveness reduces the difference in wellbeing between the employed and unemployed in high income countries and enlarges it in low and middle income countries (see below).

¹¹ Estimates of informality are based on a latent variable model that combines multiple indicators of economic development and informality. An alternative measure of informality, based on the physical input method was only available for a smaller sample of countries (see Schneider and Enste 2000). Interactions between this measure and unemployment did not have significant effects on life satisfaction.

¹² We use average government effectiveness for the years 1996-2005.

Another concern is that the effect of labour regulation may pick up other institutional attributes at the country-level that could drive observed relative differences in welfare between the employed and unemployed. Countries with high levels of worker protection may also have more developed welfare states and social protection policies. In this case the observed increase in the welfare gap between the employed and unemployed could simply proxy for the effect of better social safety nets; for example because those in work benefit from higher transfer payments or because they feel that they would be protected against financial losses if they were to become unemployed (Di Tella et al. 2003. Recall that our estimates control for personal income, which may filter out the income-effects of welfare payments for those currently out of work).

It is also possible that countries with higher levels of worker protection may also have more accountable governance institutions. Provided that mechanisms of political participation in these societies are more frequently used by labour market ‘insiders’ than by ‘outsiders’, we would again expect larger differences in wellbeing between the unemployed and the employed.

We account for these omitted influences by adding interactions between personal unemployment and indicators for the development of a country’s social safety nets and governance institutions. In the case of high income countries we use the average per capita amount of unemployment benefits as indicator for the quality of safety nets. In low and middle income countries we use information on a country’s total government transfers available from the Fraser institute’s economic freedom index. Institutional quality is measured by the rule of law and the voice and accountability indices from the Kaufman et al. governance indicators (Kaufmann et al. 2010).¹³

Again these controls do not significantly affect the robustness of our earlier results for worker protection. Across most of the estimates the effects of interactions with our variables for labour standards remain significant at the 5% level or higher (Tables 5a-c). The only exception is again the estimate of hiring and firing regulations, which is only robust at the 10% level in low and middle income countries (WVS sample). Also

¹³ We use the 1996-2005 average of these measures.

the effect of the Botero et al. labour laws index remains non-significant in this sub-sample.

The negative sign on the interaction between unemployment and unemployment benefits in high income countries suggests that higher levels of unemployment benefits tend to enlarge the difference between those in and out of work. This result is consistent with the aforementioned hypothesis that even safety nets that are directly targeted at the unemployed can increase the wellbeing of those currently in work, for example by raising the feeling of financial security for those still in work (Di Tella et al. 2003). However, this effect is very small and it does not hold for the more general measure of government transfers in our samples of low and middle and LITs countries.

a. Measurement error

Our use of country fixed effects and the fact that we use macro-level variables to predict individual outcomes reduces the likelihood of omitted variable biases and reverse causality (Bianchi 2012, Di Tella et al. 2001). However, even with controls for economic informality included in the model legitimate concerns arise from the possibility of measurement error. Especially in low and middle income countries our variables of unemployment and labour market regulations may be measured with a great degree of inaccuracy.

In dealing with measurement error it is not straightforward to find instruments that simultaneously satisfy the relevant exclusion restrictions and account for sufficient variation in employment protection across the samples of countries considered here. Legal origin, an instrument for labour regulations that was proposed in the literature (Botero et al. 2004, see also Bianchi 2012), is a less reliable predictor of the level of labour regulation in low and middle countries (see correlations in Table 2).¹⁴ As a consequence, we also use a country's average share of the labour force in manufacturing between 1975 and 1989 (data are taken from Rama and Artecona

¹⁴ Separate analysis of data provided along with Botero et al's (2004) original paper also revealed that the correlation between legal origin and the employment laws and industrial relations indices is only about half as high in non-OECD countries than in OECD countries.

2002). The choice of this last instrument is motivated by the assumption that larger numbers of manufacturing workers within the work force of their country would be better able to negotiate favorable working conditions for themselves.¹⁵

The results of instrumental variable estimates broadly suggest that our earlier estimates are robust. However, there are variations across instruments in low and middle income countries. As can be expected from the weak association between EPL and legal origin in low and middle countries, the association between labour market regulation and legal origin is not robust in the first stage for this group when we control for other country-level attributes. Second stage results are thus only robust when we instrument for labour regulations with the past share of the manufacturing work force. For high income countries second stage results are robust with both instruments (Table 6a and 6b).

VI. Discussion and mechanisms

The results from the preceding section leave us with the question how higher levels of worker protection influence relative differences in subjective wellbeing between the employed and unemployed. We first explore the possibility that these differences are driven by higher incidences of social exclusion among the unemployed.

As noted in Section II of this paper, lower levels of relative wellbeing among the unemployed in more regulated labour markets may be explained by weaker job prospects and experiences of social isolation among those out of work. These effects could be particularly marked if higher levels of worker protection are associated with deeper divides between labour market ‘insiders’ and ‘outsiders’ (Rueda 2005, Shayo 2009).

We tested for this possibility with the help of controls consisting of interaction terms between unemployment and the national share of WVS respondents who thought that it was “humiliating to receive money without working”. Again these tests

¹⁵ Legal origin also does not vary sufficiently in the LITS sample and information on the share of the manufacturing labour force is not available for a sufficient number of former Eastern bloc economies.

did not affect the robustness of our results for labour market regulations (Table 5a, 5b). In our data there are also few indications that higher levels of worker protection translate into larger differences in other domains of social and political development. When we replicated our estimations from the previous section with indicators of social exclusion and political activism as the dependent variable (number of civic and political associations, signing a petition, participating in a peaceful demonstration, trust in government), we generally find lower outcomes among the unemployed. However, there was no indication that political attitudes and levels of social activism differ along with a country's extent of labour market regulation.¹⁶ This suggests that, at least in our data, relative differences in life satisfaction may be driven by other processes, such as higher average levels of wellbeing among those in more protected types of employment (see above).¹⁷

It is also instructive to compare our estimates of the relative differences in wellbeing between the employed and unemployed with trends in absolute levels of life satisfaction among the two groups. Evidence from multiple cross-country studies suggests that societies with relatively rigorous worker protection can have very high levels of generalized social cohesion and wellbeing – Nordic countries, such as Norway or Sweden are obvious examples (Larsen 2007, Rothstein and Uslander 2005, see also Easterly et al. 2006, Helliwell 2002). There is also evidence that countries with higher average incomes tend to have higher levels of overall life satisfaction, even though this association begins to level out beyond a certain income threshold (Easterlin 1974, Easterlin et al 2010). While our results above suggest that Gross National Income levels do not influence relative wellbeing of the unemployed, higher living standards may have a positive effect on absolute wellbeing for this group, if benefits of better institutional environments and economic growth are shared relatively evenly across the population.

In our sample of WVS countries there are indeed signs that described losses in relative wellbeing for the unemployed do not always translate into losses in absolute life satisfaction. Looking only at wellbeing levels in the sample of low and middle

¹⁶ These estimates are not reported here due to space limitations. However, results are available on request from the author.

¹⁷ Unfortunately the WVS and LIT surveys do not include information on job satisfaction or security. As a consequence it was not possible to formally explore this hypothesis.

income countries, we observe striking similarities in the way absolute levels of life satisfaction of the employed and unemployed move along with other institutional and economic contexts of a country (Panel 3, note that the absolute measures considered here do not control for individual and other country level attributes). For instance, levels of subjective wellbeing increase for both groups in countries with better governance performance and higher average per capita income, even though subjective wellbeing tends to be slightly lower in the countries with the highest incomes and most effective governments. In the case of labour market regulations similar parallels in absolute wellbeing patterns emerge. Absolute levels of life satisfaction of both groups are lowest in the most regulated countries, increase in nations with slightly more liberal labour markets, and decrease again in nations that have the most flexible labour standards.¹⁸

These findings suggest that, even though more robust policies of worker protection may enlarge differences between the employed and unemployed, actual living standards of the latter group are also influenced by other social and economic contexts in ways that can potentially mitigate tensions over labour market outcomes. This reiterates the obvious, but important point that social and political consequences of labour market reforms should not be analysed in isolation. They need to be considered in the context of other social and policy environments that also shape the extent of social and political cohesion in a society.

VII. Conclusion

There is growing recognition that fair and effective labour market policies not only matter for economic growth but also for social and psychological wellbeing (OECD 2011, World Bank 2012). Yet, to this point there has been surprisingly little comparative analysis how employment policies influence non-monetary outcomes of different groups in the labour market. This study has documented that employment protection legislation may lead to important differences in the relative level of wellbeing between the employed and the unemployed. These effects are generally robust to a range of other factors that could potentially influence relative differences in life satisfaction between those in and out of work.

¹⁸ For presentational purposes we use a summary index of the Fraser labour laws indices.

The association between labour market policies and subjective wellbeing differences raises some concerns for policy makers who wish to protect their societies from the social impacts of rapid economic change. On the one hand, policies of worker protection can reduce political costs of reform and shorten periods of economic adjustment. On the other hand our findings clearly indicate that more rigorous labour market regulation can exacerbate wellbeing differences between those in and out of work.

However, our cross country comparisons may also contain lessons how conflicts over labour market outcomes can be mitigated. In our sample larger differences in relative wellbeing between the employed and unemployed in more regulated labour markets are not necessarily accompanied by lower levels of absolute life satisfaction for the latter group. In particular increases in average incomes and better institutional frameworks appear to have positive consequences for the absolute wellbeing of the unemployed. This in turn can help reduce conflicts between winners and losers of economic transformation.

In spite of these optimistic conclusions our findings also have potentially more problematic implications for economies whose social and political institutions are already under stress. Social and governance institutions are difficult to change in the short term, and social protection policies and safety-nets that distribute benefits of economic growth between winners and losers of reform may be too costly for many lower income countries. This complicates the challenge of managing negative consequences of economic transformation and political reform in countries with already-strained social and political institutions.

In addition, it is difficult to predict when or why latent tensions in the labour market will erupt into actual conflict. Recent histories in the Arab World, North Africa and some high income countries suggest that even societies with relatively large differences between groups in the labour market can be remarkably stable over time, until latent tensions between groups quickly become politically 'salient' as economic or political outlooks change. However, whether or when these tensions actually erupt into conflict appears to be driven by a multitude of other factors that are harder to predict with the quantitative data and methods available for this study. In

this sense, the broad cross-country comparisons documented in this study only represent a first step that should be followed by much more in-depth, and possibly inter-disciplinary, analysis of the country-specific contexts and processes that underpin ongoing conflicts over labour market outcomes.

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Table 1a. descriptive statistics World Value Survey

| | <i>High income</i> | | | | <i>Low and middle income</i> | | | |
|---|--------------------|---------|------------|---------|------------------------------|---------|------------|---------|
| | employed | | unemployed | | employed | | unemployed | |
| | mean | sd | mean | sd | mean | sd | mean | sd |
| life satisf | 7.52 | 1.66 | 6.48 | 2.16 | 6.64 | 2.35 | 6.03 | 2.59 |
| work very important | 0.51 | 0.50 | 0.52 | 0.50 | 0.72 | 0.45 | 0.76 | 0.43 |
| work important | 0.42 | 0.49 | 0.37 | 0.48 | 0.24 | 0.43 | 0.19 | 0.39 |
| age | 42.68 | 12.92 | 39.21 | 13.31 | 38.69 | 12.82 | 33.77 | 14.39 |
| age ² | 1988.64 | 1155.61 | 1714.23 | 1087.26 | 1661.04 | 1106.97 | 1347.12 | 1225.09 |
| income | 5.57 | 2.50 | 3.27 | 2.08 | 4.64 | 2.25 | 4.01 | 2.26 |
| savings | 0.31 | 0.46 | 0.11 | 0.31 | 0.23 | 0.42 | 0.14 | 0.35 |
| widowed or divorced | 0.12 | 0.32 | 0.17 | 0.38 | 0.08 | 0.27 | 0.08 | 0.28 |
| married | 0.67 | 0.47 | 0.44 | 0.50 | 0.68 | 0.47 | 0.45 | 0.50 |
| female | 0.49 | 0.50 | 0.50 | 0.50 | 0.40 | 0.49 | 0.48 | 0.50 |
| religious | 0.14 | 0.34 | 0.10 | 0.31 | 0.20 | 0.40 | 0.27 | 0.45 |
| secondary education | 0.51 | 0.50 | 0.46 | 0.50 | 0.40 | 0.49 | 0.40 | 0.49 |
| higher education | 0.22 | 0.41 | 0.09 | 0.28 | 0.16 | 0.37 | 0.08 | 0.27 |
| unemployed | 0.09 | 0.28 | 0.09 | 0.28 | 0.16 | 0.37 | 0.16 | 0.37 |
| central bargaining (Fraser) | 6.10 | 1.82 | 6.10 | 1.82 | 6.63 | 1.19 | 6.63 | 1.19 |
| hire fire (Fraser) | 4.17 | 1.68 | 4.17 | 1.68 | 4.87 | 1.21 | 4.87 | 1.21 |
| overtime (Fraser) | 7.43 | 2.11 | 7.43 | 2.11 | 7.65 | 1.42 | 7.65 | 1.42 |
| industrial action (Botero) | 0.27 | 0.17 | 0.27 | 0.17 | 0.26 | 0.10 | 0.26 | 0.10 |
| labour laws index (Botero) | 0.50 | 0.23 | 0.50 | 0.23 | 0.55 | 0.17 | 0.55 | 0.17 |
| gov transfer ^a | 254 | 140.24 | 254 | 140.24 | 8.20 | 1.15 | 8.20 | 1.15 |
| share informal | 15.13 | 6.88 | 15.13 | 6.88 | 34.37 | 12.95 | 34.37 | 12.95 |
| gov' effectiveness | 1.67 | 0.42 | 1.67 | 0.42 | -0.21 | 0.57 | -0.21 | 0.57 |
| voice and account' | 1.40 | 0.21 | 1.40 | 0.21 | -0.36 | 0.67 | -0.36 | 0.67 |
| rule of law | 1.55 | 0.37 | 1.55 | 0.37 | -0.34 | 0.54 | -0.34 | 0.54 |
| GNI pc | 25434.78 | 9199.27 | 25434.78 | 9199.27 | 2844.47 | 4555.06 | 2844.47 | 4555.06 |
| Share of labforce in manuf | 0.351 | 0.059 | 0.351 | 0.059 | 0.214 | 0.116 | 0.214 | 0.116 |
| Legal origin UK | 0.332 | 0.471 | 0.332 | 0.471 | 0.234 | 0.424 | 0.234 | 0.424 |
| humiliating to receive money w/o work | 0.363 | 0.189 | 0.363 | 0.189 | 0.514 | 0.271 | 0.514 | 0.271 |

^a Unemployment benefits in OECD countries

Table 1b. Descriptive statistics LITs

| | <i>employed</i> | | <i>unemployed</i> | |
|--------------------------------|-----------------|---------|-------------------|---------|
| | mean | sd | mean | sd |
| life satisfy | 3.29 | 1.10 | 2.65 | 1.16 |
| age | 45.46 | 12.44 | 46.76 | 12.95 |
| age ² | 2221.24 | 1194.77 | 2354.13 | 1272.32 |
| income | 5.01 | 0.89 | 4.58 | 0.89 |
| female | 0.25 | 0.44 | 0.33 | 0.47 |
| secondary education | 0.23 | 0.42 | 0.24 | 0.42 |
| higher education | 0.32 | 0.47 | 0.28 | 0.45 |
| children | 0.65 | 0.97 | 0.71 | 1.02 |
| married | 0.38 | 0.49 | 0.37 | 0.48 |
| widowed_di~d | 0.07 | 0.26 | 0.06 | 0.23 |
| religion | 0.42 | 0.49 | 0.46 | 0.50 |
| central bargaining (Fraser) | 7.39 | 0.70 | 7.39 | 0.70 |
| hire fire (Fraser) | 5.44 | 1.12 | 5.44 | 1.12 |
| overtime (Fraser) | 6.84 | 1.64 | 6.84 | 1.64 |
| gov' transfer ^a | 6.50 | 1.69 | 6.50 | 1.69 |
| share informal | 37.80 | 12.22 | 37.80 | 12.22 |
| gov' effectiveness | -0.20 | 0.65 | -0.20 | 0.65 |
| voice and account' | -0.08 | 0.82 | -0.08 | 0.82 |
| rule of law | -0.32 | 0.70 | -0.32 | 0.70 |
| GNI pc | 3222.26 | 2816.93 | 3222.26 | 2816.93 |

Table 2: Pairwise correlations of EPL with other country attributes (WVS survey)

| | Low and middle income countries | | | | High income countries | | | |
|---------------------------------------|---------------------------------|--------------------|---------------|-----------------------------------|------------------------------|--------------------|---------------|-----------------------------------|
| | Hiring and firing regulation | Central bargaining | Over time reg | Labour laws index (Botero et al.) | Hiring and firing regulation | Central bargaining | Over time reg | Labour laws index (Botero et al.) |
| Hiring and firing regulation | 1.000 | | | | 1.000 | | | |
| Central bargaining | 0.604 | 1.000 | | | 0.708 | 1.000 | | |
| Over time reg | 0.048 | 0.014 | 1.000 | | 0.674 | 0.756 | 1.000 | |
| Labour laws index (Botero et al.) | -0.234 | -0.145 | 0.042 | 1.000 | 0.570 | 0.809 | 0.927 | 1.000 |
| GNI pc | 0.125 | 0.070 | 0.368 | 0.373 | 0.338 | 0.113 | 0.267 | 0.293 |
| Gov transfer | 0.018 | 0.075 | 0.069 | 0.312 | 0.675 | 0.815 | 0.914 | 0.834 |
| Rule of law | -0.237 | -0.044 | 0.557 | 0.486 | 0.295 | -0.010 | 0.262 | 0.193 |
| Gov' effectiveness | -0.251 | -0.088 | 0.534 | 0.369 | 0.265 | -0.072 | 0.170 | 0.087 |
| Unemployment rate | -0.358 | -0.243 | -0.117 | 0.070 | -0.204 | -0.201 | -0.442 | -0.485 |
| Legal origin UK | -0.039 | 0.002 | 0.456 | 0.527 | 0.531 | 0.601 | 0.790 | 0.779 |
| Share of labforce in manuf | -0.244 | -0.105 | -0.132 | -0.105 | -0.201 | -0.408 | -0.574 | -0.434 |
| humiliating to receive money w/o work | -0.244 | -0.235 | 0.051 | 0.058 | 0.152 | -0.069 | 0.015 | -0.149 |

Table 3: Unemployment and life satisfaction. Pooled sub-samples

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------|----------------------|----------------------|----------------------|------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | High income | | | Low and middle income (WVS) | | | LITs | | |
| | Life satisfaction | Life satisfaction | satisfied | Life satisfaction | Life satisfaction | satisfied | Life satisfaction | Life satisfaction | satisfied |
| unemployed | -0.889*** (0.075) | -0.646*** (0.075) | -0.437*** (0.050) | -0.516*** (0.043) | -0.255*** (0.041) | -0.129*** (0.023) | -0.447*** (0.026) | -0.377*** (0.027) | -0.372*** (0.034) |
| Income | | Yes | Yes | | Yes | Yes | | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| sigma | 1.733*** (0.017) | 1.706*** (0.017) | | 2.393*** (0.011) | 2.308*** (0.011) | | | | |
| Constant | 7.825*** (0.212) | 7.716*** (0.209) | 1.577*** (0.204) | 5.691*** (0.178) | 4.697*** (0.173) | -0.612*** (0.103) | 3.762*** (0.111) | 2.427*** (0.135) | -1.132*** (0.176) |
| Observations | 10624 | 10624 | 10624 | 33323 | 33323 | 33323 | 15031 | 14572 | 14572 |

All estimates control for age, age squared, family status (married, widowed, or divorced), level of education (secondary or higher), number of children, gender, religious. Estimates on WVS data also account for work attitudes. Results in column 3, 6, and 9 are estimated with a probit model on a binary variable that identifies respondents who report they are “very” or “somewhat satisfied” with their life. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4a. Life satisfaction. Determinants of cross-country variation. World Value Survey

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|-----------------------------|-----------------------------|-----------------------------|------------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|------------------------------------|--------------------------|
| | High income | | | | | Low and middle income (WVS) | | | | |
| | Labour regulations (fraser) | | | Labour regulations (Botero et al.) | | Labour regulations (fraser) | | | Labour regulations (Botero et al.) | |
| unemp | -1.609*** (0.290) | -1.133*** (0.237) | -1.406*** (0.260) | -1.293*** (0.262) | -0.859*** (0.213) | -1.011*** (0.232) | -0.576*** (0.177) | -0.613** (0.244) | -0.979*** (0.289) | -0.038 (0.194) |
| uneXcentbarg | 0.186*** (0.037) | | | | | 0.132*** (0.036) | | | | |
| uneXhirefire | | 0.209*** (0.045) | | | | | 0.084** (0.036) | | | |
| uneXovertime | | | 0.181*** (0.034) | | | | | 0.059* (0.032) | | |
| uneXindustrial relation laws (Botero) | | | | 1.960*** (0.421) | | | | | 1.219** (0.502) | |
| uneXemployment laws (Botero) | | | | | 1.706*** (0.357) | | | | | -0.468 (0.331) |
| Country f.e. | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sigma | 1.715*** (0.016) | 1.716*** (0.016) | 1.715*** (0.016) | 1.716*** (0.016) | 1.716*** (0.016) | 2.334*** (0.013) | 2.334*** (0.013) | 2.349*** (0.013) | 2.362*** (0.014) | 2.362*** (0.014) |
| Constant | 7.579*** (0.193) | 7.623*** (0.193) | 7.657*** (0.193) | 7.648*** (0.193) | 7.627*** (0.193) | 6.703*** (0.196) | 6.731*** (0.196) | 4.752*** (0.189) | 6.863*** (0.206) | 6.889*** (0.205) |
| Observations | 11773 | 11773 | 11773 | 11773 | 11773 | 24116 | 24116 | 25668 | 21752 | 21752 |

Tobit estimates. All estimates control for age, age squared, family status (married, widowed, or divorced), level of education (secondary or higher), number of children, gender, religious and work attitudes, income and an interaction term between individual unemployment and GNI per capita. Source: author's estimates based on WVSs round V. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

**Table 4b. Life satisfaction. Determinants of cross-country variation.
Eastern European and central Asian transition economies**

| | (8) | (9) | (10) |
|---------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| | Labour regulations (fraser) | | |
| unemp | 0.798** (0.401) | -1.285*** (0.300) | -0.775*** (0.174) |
| uneXcentbarg | -0.151*** (0.054) | | |
| uneXhirefire | | 0.150*** (0.046) | |
| uneXovertime | | | 0.060*** (0.022) |
| Country fixed effects | Yes | Yes | Yes |
| Individual level controls | Yes | Yes | Yes |
| Constant | 2.425*** (0.152) | 2.415*** (0.152) | 2.403*** (0.152) |
| Observations | 11376 | 11376 | 11376 |

OLS estimates. All estimates control for age, age squared, family status (married, widowed, or divorced), level of education (secondary or higher), number of children, gender, religious attitudes and income. Source: authors' estimates based on LITs data for 2006. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 5a Robustness tests Worker protection, welfare states and institutional quality. WVS, high income countries

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| | uneXcentbarg | | | | uneXhirefire | | | | uneXovertime | | | |
| Coefficient | 0.249*** | 0.279*** | 0.221*** | 0.179*** | 0.205*** | 0.222*** | 0.200*** | 0.215*** | 0.232*** | 0.266*** | 0.223*** | 0.26*** |
| | (0.056) | (0.063) | (0.056) | (0.045) | (0.056) | (0.064) | (0.056) | (0.059) | (0.050) | (0.058) | (0.050) | (0.055) |
| uneXgov' effectiveness | 0.674** | | | | 0.177 | | | | 0.452* | | | |
| | (0.287) | | | | (0.249) | | | | (0.261) | | | |
| uneXunemp benefits | | -0.001** | | | | -0.000 | | | | -0.001** | | |
| | | (0.001) | | | | (0.001) | | | | (0.001) | | |
| uneXrule of law | | | 0.276 | | | | 0.635 | | | | 1.164* | |
| | | | (0.650) | | | | (0.673) | | | | (0.697) | |
| uneXvoice and accountab. | | | 0.321 | | | | -1.366 | | | | -1.826* | |
| | | | (1.108) | | | | (1.101) | | | | (1.106) | |
| uneXhumiliating to receive money w/o work (country mean) | | | | 0.013 | | | | -0.436 | | | | -0.435 |
| | | | | (0.407) | | | | (0.448) | | | | (0.452) |
| uneXGNI pc | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| uneXinformal sec | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Unemp | -3.13*** | -2.79*** | -2.683* | -1.454** | -1.161 | -1.114* | 0.346 | -0.770 | -2.73*** | -2.7*** | -0.721 | -0.971* |
| | (0.980) | (0.858) | (1.445) | (0.597) | (0.718) | (0.638) | (1.051) | (0.515) | (0.899) | (0.824) | (1.120) | (0.532) |
| Constant | 7.584*** | 7.567*** | 7.594*** | 7.582*** | 7.627*** | 7.625*** | 7.606*** | 7.604*** | 7.678*** | 7.678*** | 7.653*** | 7.63*** |
| | (0.193) | (0.193) | (0.193) | (0.194) | (0.193) | (0.193) | (0.193) | (0.193) | (0.193) | (0.193) | (0.193) | (0.193) |
| Observations | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 |

Table 5a Robustness tests Worker protection, welfare states and institutional quality. WVS, high income countries (continued)

| | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
|--|-----------------|-----------------------|-----------------|-----------------|-----------------|---------------------|-----------------|-----------------|
| | | uneXIndust. relations | | | | uneXEmployment laws | | |
| Coefficient | 1.993*** | 1.938*** | 2.322*** | 1.997*** | 3.108*** | 4.841*** | 2.184*** | 2.010*** |
| | (0.578) | (0.609) | (0.606) | (0.598) | (0.694) | (0.930) | (0.622) | (0.546) |
| uneXgov' effectiveness | -0.159 | | | | 0.947*** | | | |
| | (0.234) | | | | (0.331) | | | |
| uneXunemp benefits | | 0.000 | | | | -0.003*** | | |
| | | (0.000) | | | | (0.001) | | |
| uneXrule of law | | | 0.416 | | | | 0.400 | |
| | | | (0.660) | | | | (0.661) | |
| uneXvoice and accountab. | | | -1.759 | | | | -0.048 | |
| | | | (1.131) | | | | (1.084) | |
| uneXhumiliating to receive money w/o work (country mean) | | | | -0.054 | | | | -0.435 |
| | | | | (0.411) | | | | (0.452) |
| uneXGNI pc | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| uneXinformal sec | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Unemp | -1.122 | -1.269* | 0.406 | -1.315** | -3.417*** | -4.155*** | -1.728 | -0.971* |
| | (0.742) | (0.723) | (1.039) | (0.659) | (1.051) | (1.009) | (1.332) | (0.532) |
| Constant | 7.647*** | 7.648*** | 7.624*** | 7.646*** | 7.665*** | 7.671*** | 7.645*** | 7.609*** |
| | (0.193) | (0.193) | (0.193) | (0.193) | (0.193) | (0.192) | (0.193) | (0.194) |
| Observations | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 | 11773 |

Tobit estimates. Same estimation sample and controls as in Tables 4a. All regressions include country fixed effects. Data on government effectiveness, rule of law and voice and accountability are taken from Kaufmann et al. (2010). Robust standard errors in parentheses . *** p<0.01, ** p<0.05, * p<0.1

Table 5b. Robustness tests Worker protection, welfare states and institutional quality. WVS, low and middle income countries

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|--|----------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|-----------------|----------------|
| | uneXcentbarg | | | | uneXhirefire | | | | uneXovertime | | | |
| Coefficient | 0.093** | 0.133*** | 0.156*** | 0.132*** | 0.008 | 0.121*** | 0.083* | 0.087** | 0.089*** | 0.074** | 0.107*** | 0.068** |
| | (0.041) | (0.037) | (0.045) | (0.036) | (0.047) | (0.038) | (0.047) | (0.037) | (0.034) | (0.036) | (0.038) | (0.034) |
| uneXgov' effectiveness | -0.22** | | | | -0.34*** | | | | -0.37*** | | | |
| | (0.111) | | | | (0.122) | | | | (0.096) | | | |
| uneXgov' transfers | | 0.043 | | | | 0.025 | | | | -0.003 | | |
| | | (0.038) | | | | (0.038) | | | | (0.041) | | |
| uneXrule of law | | | -0.255* | | | | -0.199 | | | | -0.404** | |
| | | | (0.150) | | | | (0.150) | | | | (0.173) | |
| uneXvoice and accountab. | | | 0.162 | | | | 0.056 | | | | 0.026 | |
| | | | (0.112) | | | | (0.114) | | | | (0.098) | |
| uneXhumiliating to receive money w/o work (country mean) | | | | 0.042 | | | | 0.072 | | | | -0.111 |
| | | | | (0.342) | | | | (0.342) | | | | (0.213) |
| uneXGNI pc | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| uneXinformal sec | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| unemp | -0.73** | -1.13** | -1.14*** | -1.06*** | -0.175 | -0.540 | -0.515** | -0.591* | -0.98*** | -0.64* | -1.21*** | -0.741** |
| | (0.320) | (0.452) | (0.305) | (0.389) | (0.263) | (0.392) | (0.235) | (0.351) | (0.317) | (0.384) | (0.357) | (0.310) |
| Constant | 7.00*** | 7.102*** | 7.026*** | 6.996*** | 6.959*** | 4.830*** | 6.960*** | 6.940*** | 6.713*** | 6.740*** | 4.762*** | 4.750*** |
| | (0.190) | (0.197) | (0.191) | (0.190) | (0.190) | (0.200) | (0.190) | (0.190) | (0.194) | (0.200) | (0.189) | (0.189) |
| Observations | 24105 | 22911 | 24105 | 24105 | 24105 | 22911 | 24105 | 24105 | 25657 | 24463 | 25657 | 25657 |

Table 5b. Robustness tests Worker protection, welfare states and institutional quality. WVS, low and middle income countries (continued)

| | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | | |
|--|---------------------------|--------------------------|----------------------------|----------------------------|--------------------------|----------------------------|--------------------------|--------------------------|--|--|
| | | uneXIndust. relations | | | | | uneXEmployment laws | | | |
| Coefficient | 1.099** (0.504) | 0.997* (0.524) | 1.866*** (0.593) | 1.445*** (0.520) | -0.313 (0.344) | -0.818** (0.355) | -0.446 (0.371) | -0.420 (0.335) | | |
| uneXgov' effectiveness | -0.217** (0.110) | | | | -0.223* (0.114) | | | | | |
| uneXgov' transfers | | 0.055 (0.044) | | | | 0.111** (0.045) | | | | |
| uneXrule of law | | | -0.395** (0.179) | | | | -0.030 (0.173) | | | |
| uneXvoice and accountab. | | | 0.193* (0.114) | | | | 0.023 (0.105) | | | |
| uneXhumiliating to receive money w/o work (country mean) | | | | -0.657 (0.400) | | | | -0.346 (0.393) | | |
| uneXGNI pc | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | |
| uneXinformal sec | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | |
| Unemp | -0.799** (0.323) | -1.006** (0.449) | -1.259*** (0.356) | -0.518 (0.409) | -0.057 (0.255) | -0.529 (0.417) | -0.057 (0.272) | 0.207 (0.384) | | |
| Constant | 6.888*** (0.206) | 5.035*** (0.211) | 4.906*** (0.203) | 6.854*** (0.206) | 6.913*** (0.206) | 5.059*** (0.211) | 4.926*** (0.203) | 6.887*** (0.205) | | |
| Observations | 21752 | 20558 | 21752 | 21752 | 21752 | 20558 | 21752 | 21752 | | |

Tobit estimates. Same estimation sample and controls as in Tables 4a. All regressions include country fixed effects. Data on government effectiveness, rule of law and voice and accountability are taken from Kaufmann et al. (2010). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5c. Robustness tests Worker protection, welfare states and institutional quality. LITs countries

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|
| coefficient | | uneXcentbarg | | | uneXhirefire | | | uneXovertime | |
| uneXcentbarg | -0.134** (0.059) | -0.144*** (0.055) | -0.119** (0.059) | 0.154*** (0.058) | 0.166*** (0.056) | 0.163*** (0.062) | 0.061*** (0.023) | 0.064*** (0.022) | 0.060** (0.025) |
| uneXgovef9605 | -0.043 (0.121) | | | -0.056 (0.117) | | | -0.038 (0.122) | | |
| uneXinformsec | 0.003 (0.004) | 0.004 (0.004) | 0.001 (0.004) | -0.002 (0.004) | -0.002 (0.004) | -0.005 (0.005) | 0.006 (0.004) | 0.006* (0.004) | 0.004 (0.005) |
| uneXgovtrans | | -0.007 (0.021) | | | -0.010 (0.021) | | | 0.002 (0.021) | |
| uneXlrule of law | | | 0.051 (0.136) | | | 0.159 (0.142) | | | 0.111 (0.138) |
| uneXvoice and accountab. | | | -0.130 (0.131) | | | -0.169 (0.128) | | | -0.129 (0.133) |
| uneXGNI pc | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) |
| unemp | 0.490 (0.519) | 0.637 (0.518) | 0.476 (0.505) | -1.265*** (0.302) | -1.233*** (0.324) | -1.120*** (0.334) | -1.082*** (0.249) | -1.103*** (0.289) | -0.938*** (0.299) |
| Constant | 2.431*** (0.152) | 2.437*** (0.153) | 2.436*** (0.153) | 2.409*** (0.153) | 2.416*** (0.153) | 2.424*** (0.153) | 2.415*** (0.152) | 2.415*** (0.153) | 2.426*** (0.153) |
| Observations | 11376 | 11376 | 11376 | 11376 | 11376 | 11376 | 11376 | 11376 | 11376 |
| R-squared | 0.176 | 0.176 | 0.176 | 0.176 | 0.176 | 0.176 | 0.176 | 0.176 | 0.176 |

Same estimation sample and controls as in Tables 4b. All regressions include country fixed effects. Data on government transfers are from Fraser Institute 2009. Data on government effectiveness, rule of law and voice and accountability are taken from Kaufmann et al (2010). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6a. Life satisfaction and labour market regulation. IV estimates. High income countries

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|
| uneXcentbarg | 0.233*** (0.048) | | | | | 0.245*** (0.054) | | | | |
| uneXhirefire | | 0.278*** (0.057) | | | | | 0.292*** (0.064) | | | |
| uneXovertime | | | 0.188*** (0.038) | | | | | 0.227*** (0.050) | | |
| uneXIndustrial relat. | | | | 2.416*** (0.497) | | | | | 3.348*** (0.734) | |
| uneXemploy. law | | | | | 1.903*** (0.389) | | | | | 3.178*** (0.698) |
| unemp | -1.879*** (0.346) | -1.332*** (0.265) | -1.436*** (0.277) | -1.469*** (0.282) | -0.897*** (0.217) | -1.978*** (0.387) | -1.392*** (0.293) | -1.714*** (0.340) | -1.753*** (0.349) | -1.196*** (0.266) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Instrument | | | Legal origin | | | | | Share workforce in manuf. | | |
| Constant | 7.580*** (0.193) | 7.639*** (0.193) | 7.660*** (0.193) | 7.665*** (0.193) | 7.633*** (0.193) | 7.526*** (0.196) | 7.587*** (0.196) | 7.626*** (0.197) | 7.643*** (0.198) | 7.619*** (0.197) |
| Observations | 11773 | 11773 | 11773 | 11773 | 11773 | 11203 | 11203 | 11203 | 11203 | 11203 |

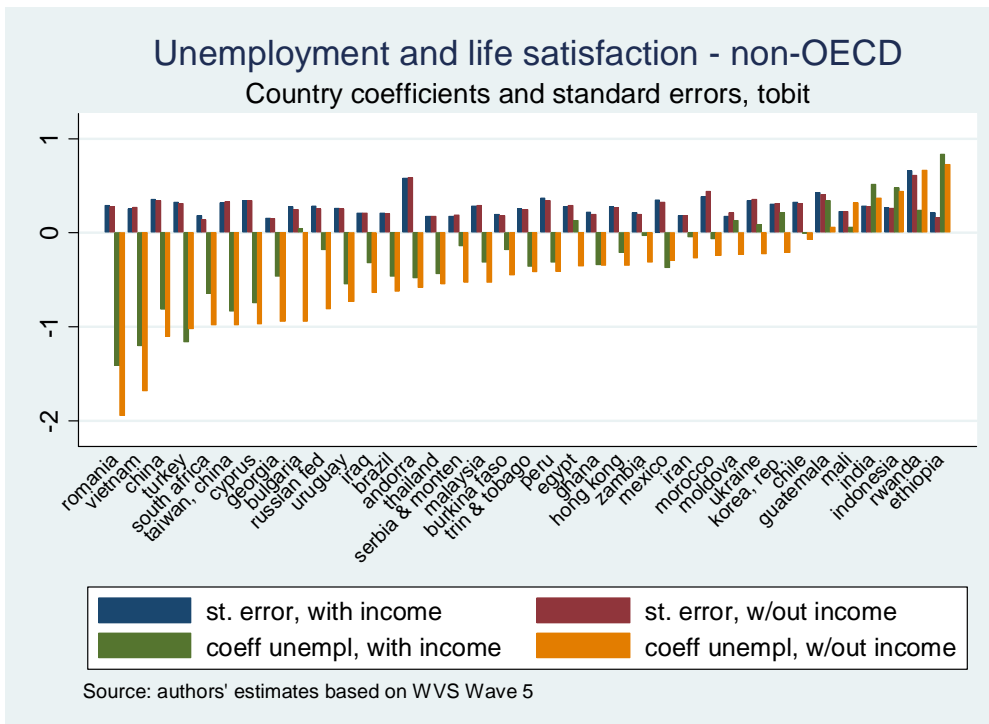
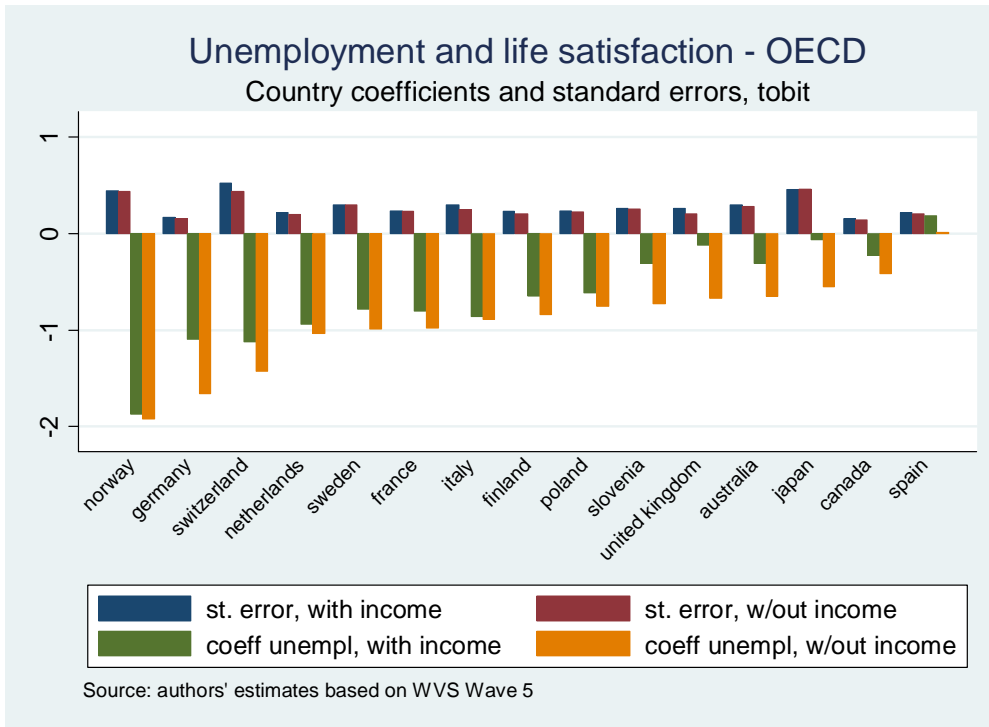
Second stage results from IVTobit. Same estimation sample and controls as in Table 4a. All regressions include country fixed effects. Data on legal origin are from Botero et al (2004). Data on share of workforce in manufacturing from Rama and Artecona (2002). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6b. Life satisfaction and labour market regulation. IV estimates. Low and middle income countries

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------------|--------------------------------|--------------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------------|
| uneXcentbarg | 0.003 (0.157) | | | | | | | | |
| uneXhirefire | | 0.001 (0.111) | | | | 0.585** (0.235) | | | |
| uneXovertime | | | -0.007 (0.111) | | | | 0.234** (0.095) | | |
| uneXindustrial relations | | | | 2.736 (3.072) | | | | 2.461** (1.161) | |
| uneXemployment law | | | | | 0.460 (0.509) | | | | 5.565* (2.896) |
| unemp | -0.205 (0.985) | -0.195 (0.522) | -0.130 (0.813) | -1.831 (1.726) | -0.543* (0.284) | -3.162** (1.254) | -1.838** (0.738) | -1.605** (0.682) | -3.271** (1.618) |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Instrument | | | Legal origin | | | Share workforce in manuf. | | | |
| Constant | 6.745*** (0.202) | 6.746*** (0.197) | 4.743*** (0.190) | 6.831*** (0.216) | 6.889*** (0.206) | 4.571*** (0.230) | 6.674*** (0.207) | 4.925*** (0.209) | 5.007*** (0.211) |
| Observations | 24105 | 24105 | 25657 | 21752 | 21752 | 22149 | 23701 | 20488 | 20488 |

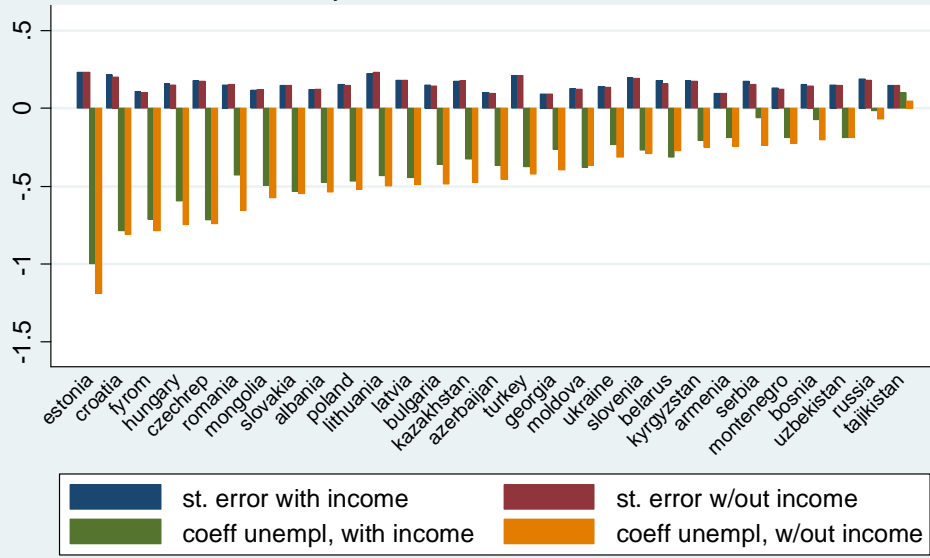
Second stage results from IVTobit. Same estimation sample and controls as in Tables 4a. Data on legal origin are from Botero et al (2004). Data on share of workforce in manufacturing from Rama and Artecona (2002). The model for uneXcentbarg did not converge when the past share of manufacturing workers was used as IV. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Panel 1. Country specific estimates of unemployment and life satisfaction



Unemployment and life satisfaction - LITs

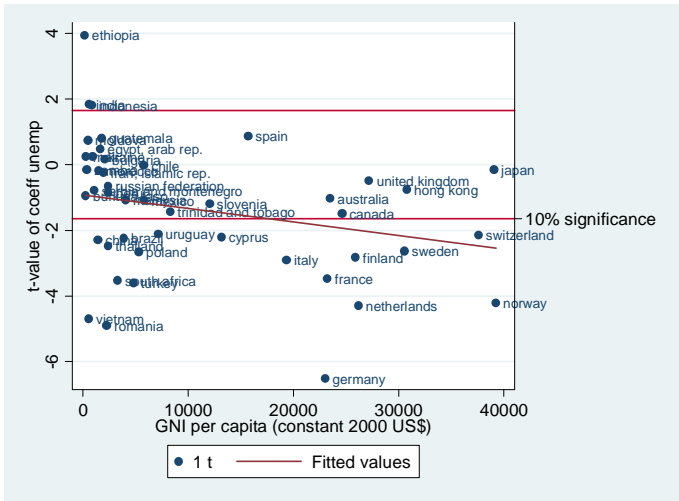
Country coefficients and standard errors



Source: authors' estimates based on LIT 2006 data

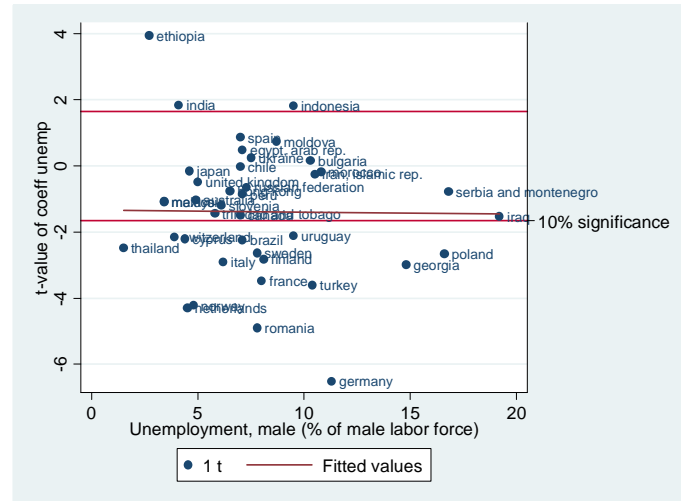
Panel 2. Sources of variation across countries

GNI pc



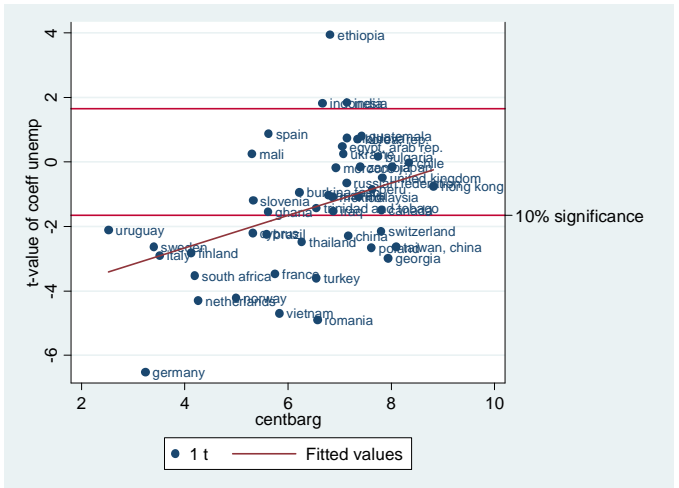
Fitted line excludes Ethiopia and Germany

National unemployment rate



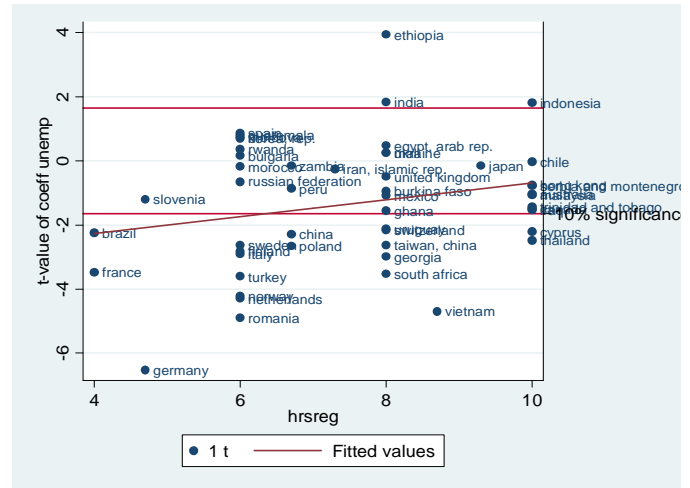
Fitted line excludes Ethiopia and Germany

Centralized bargaining



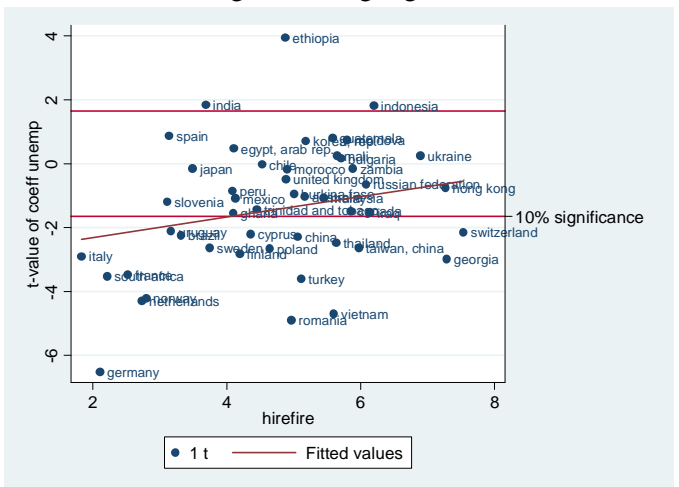
Fitted line excludes Ethiopia and Germany

Overtime regulation



Fitted line excludes Ethiopia and Germany

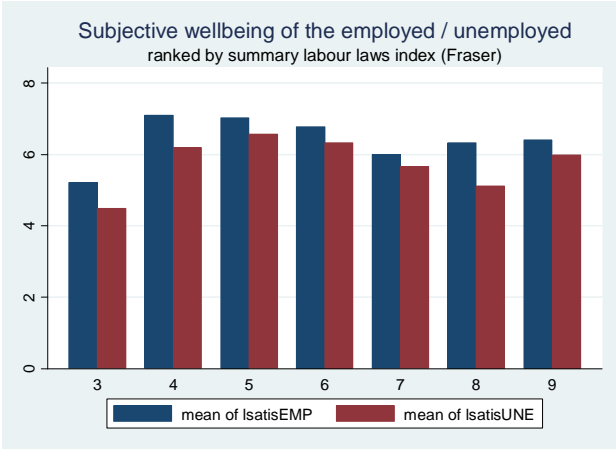
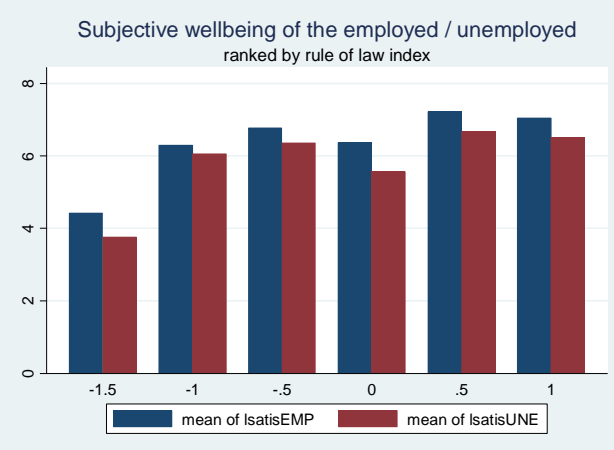
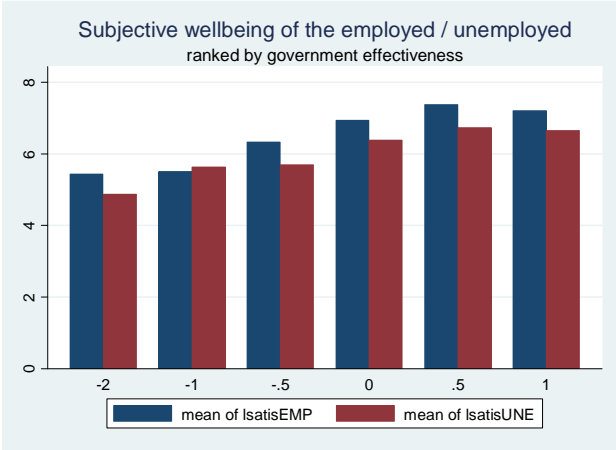
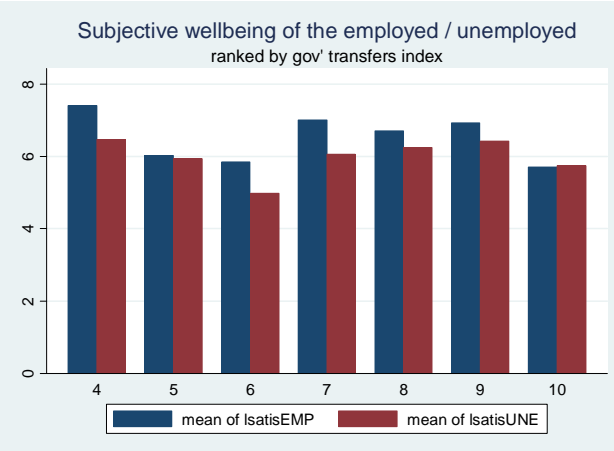
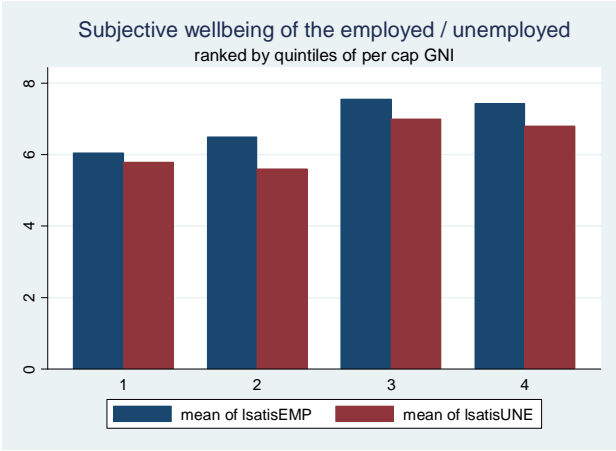
Hiring and Firing regulations



Fitted line excludes Ethiopia and Germany.

Source: authors' calculations based on WVS Round IV.

Panel 3 absolute levels of wellbeing of the employed and unemployed (low and middle income countries)



Source: author's estimates based on WVS survey. Low and middle income countries only