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Unemployment Needs Context

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Unemployment needs context: How societal differences between countries moderate the loss in life-satisfaction for the unemployed

Abstract

The notion of voluntary unemployment held by orthodox economic theory could be refuted by happiness research, showing that those unemployed experience a persistent loss in life-satisfaction. However, most current research addressing this question is conducted at the individual level or taking into account only simple economic aggregate indicators, such as unemployment rates or inflation.

The effects of unemployment on life-satisfaction however are likely to vary between societies depending on factors beyond the economic realm. This paper demonstrates the need to consider a wider set of country-level characteristics, including economic, demographic and attitudinal indicators, if the relationship between unemployment and life-satisfaction is to be understood adequately.

Using data from the World Values Survey multi-level models are computed for up to 40 European and Anglo-Saxon societies. While economic indicators such as GDP per capita and income inequality appear to be relevant, unemployment rates seem to not affect the relationship greatly, contrary to results from several previous studies. Other factors however do, either mitigating the loss in life-satisfaction when becoming unemployed (such as the mean level of the perception of autonomy in a society), or further depressing life-satisfaction (such as the mean emphasis of work in a society, the age-dependency ratio or the proportion of women in the labour force). Possible explanations are discussed and suggestions for improved further research made.

Unemployment is not voluntary by definition – at least not in a simplistic way, as decisions about employment or unemployment are complex evaluations people make - partially contingent on contextualising factors beyond the characteristics of individuals themselves. What might seem like a trivial statement is not. Traditional micro-economic theory conceptualised unemployment as a gap between the supply and demand for labour, expressed by a non-optimal price of (the wage for) that labour. When the gain from work is too low as compared to the standard held at unemployment (e.g. through welfare provisions), the approach implies, affected people will choose not to work voluntarily (Frey & Stutzer 2002). Obviously the models developed to make predictions about labour market behaviour were more sophisticated than the basic statement made here, but in their majority they relied on this basic presumption implicitly or explicitly and inform policy making accordingly. In essence, the choice for unemployment would be considered the *optimal choice* for the individual, as this choice would represent the point of maximised personal utility from income.

However, critical questions have been raised about the applicability of this approach from other disciplines arguing that income may not be the only motivating factor that affects the decision people make regarding employment or unemployment. Even if a sufficient number of jobs could be supplied, orthodox views had suggested that if the cost of unemployment was not high enough, a substantial number of people would choose this as an alternative to work and the extent of this would be determined by the labour market structure alone. This approach however neglects other, non-income based reasons for taking up employment such as social contact or, self-fulfilment (Bosco 2005; Di Tella & MacCulloch 2006). Furthermore, there may simply be insufficient opportunities to work.

Early critiques however had only a limited impact on economic models of labour market policy as they largely engaged with the topic externally to economic discourse. The emergence and establishment of happiness research in the mid-1990s changed this. If unemployment is indeed to be considered the optimal choice individuals take, there should be no negative, lasting impact of unemployment on how people evaluate their lives – in particular if well-being would be equated with utility. If it is the optimal personal choice people take, as orthodox theory suggests, we should see no reduction in their satisfaction with their lives – as unemployment for those who are unemployed should be considered the subjectively better alternative to employment.

Substantial support has been collected, illustrating that indeed, individuals often make decisions that are not economically 'optimal,' as other mechanisms influence personal decision making as well (Frey 2008, pp. 127). In consequence it has been found that unemployment indeed relates to different levels of life-satisfaction. Since the seminal work by Clark & Oswald (1994) the connection between unemployment and substantive and lasting decreases in life-satisfaction has been established and confirmed repeatedly, both in cross-sectional and longitudinal study designs, questioning the simplistic idea of unemployment as a merely optimal, utility-maximising choice.

The robust relationship of unemployment and reduced life-satisfaction has been incorporated into most relevant analyses. This however raises a new concern: most of these analyses only work at the individual level. Even in their early piece Clark & Oswald (1994) suggested that reference effects play an important role in defining

the relationship. Contextual unemployment rates seem to affect the perception of individual unemployment. This finding has been further investigated in some studies (for example Clark 2003; Di Tella & MacCulloch 2006; Pittau et al. 2010), but no full consensus has been established yet with regards to the exact nature of the contextual impacts. Many new questions have opened up, but they mainly focus on the role of the impacts of regional or national unemployment or the reference effects of economic indicators such as inflation rates (Di Tella et al. 2001).

All studies clearly illustrate that context matters in understanding the relationship between unemployment and life-satisfaction. However, few engage with these contextual factors in a systematic manner. Factors tend to be limited to rather simple economic indicators. But the individual experience of unemployment may well depend on factors that are not represented by market interactions (Bosco 2005), considering the multitude of ways work is meaningful for individuals (Diener & Biswas-Diener 2008; Salanova et al. 2006)

The relationship between unemployment and life-satisfaction

As introduced above, the individual-level relationship between unemployment and life-satisfaction has been established robustly. Numerous studies have shown that those who are unemployed show lower levels of well-being than those employed. This applies to different conceptions of subjective well-being ranging from mental distress (Clark & Oswald 1994) to cognitive life-satisfaction (Ouweneel 2002).

Cognitive life-satisfaction will be at the centre of this paper, since most studies investigating unemployment and well-being make use of this concept. [1]

While some endogeneity exists, the causal mechanism has been established dominantly from unemployment to well-being, rejecting arguments suggesting that this relationship is mainly due to self-selection mechanisms (Winkelmann 2009). Using panel studies this has been substantiated, showing that the decline in life-satisfaction occurs for a particular individual at the point they become unemployed (Clark et al. 2001; Green 2011; Kassenböhmer & Haisken-DeNew (2009).

Most changes in well-being (hedonic or cognitive) are not maintained over long periods of time. People tend to adjust to changed circumstances that might have caused an increase or decrease in their life-satisfaction (Parducci 1995). This in turn means that their life-satisfaction tends to return to their respective baseline level through this adaptive process after most changes (Kahnemann 1999). This is not the case for unemployment. While some adaptation occurs after the initial decrease in life-satisfaction, this adaptation tends to end at a level substantially below the level a person held before becoming unemployed (Lucas et al. 2004). The severity becomes even greater when understanding that even after re-employment people do not tend to regain their pre-unemployment baseline level of life-satisfaction (Clark et al. 2001). Grün et al. (2010) show that for most people having any job is better with regards to life-satisfaction than having no job at all, even if the job is below the status of previous employment (within moderation).

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1. Please see the data and methods section for the description and operationalisation of the concept.

The influence of contextual factors on the unemployment and life-satisfaction relationship

<u>Economic factors</u>

The relationship described above is strong. However, several authors cited here point to important moderating factors that can intensify or mitigate the impact of unemployment on life-satisfaction partially. Clark & Oswald (1994) suggested that evaluations of unemployment would depend on reference groups. According to their work higher unemployment in a reference area reduces the extent of the negative effect of unemployment on life-satisfaction to some extent. It has been suggested that unemployment has a lower depressing effect, when the experience of it is more common in the surroundings, thus leading to less of a feeling of deviation from a norm when becoming unemployed. This finding has been replicated in several analyses (Clark 2003), however it was not found in all situations. It seems that its applicability might depend on the level of analysis. Pittau et al. (2010) for example were not able to detect such a moderating reference effect at larger levels of aggregation (such as the country level). This moderating effect of unemployment rates seems to be most prominent at a sub-national level of aggregation (Clark et al. 2010).

However, while unemployment rates may not be a robust determinant at the national level, there is ample evidence suggesting that other country-level characteristics may affect the relationship between unemployment and life-satisfaction. Graham (2009, pp. 173) highlights the relevance of considering income inequality, not just as a direct effect on life-satisfaction (Wilkinson & Picket 2009,

Hadler 2005), but as a moderator for the effect of unemployment on life-satisfaction, finding that greater inequality may alter the reference group framework, as the distance to those an individual makes comparisons to could shift. Di Tella et al. (2001) present a comparison between the effects of national-level unemployment and inflation rates, finding that both affect life-satisfaction negatively with unemployment showing a stronger impact. These indications suggest that considering only unemployment rates or economic development to contextualise the role of unemployment for subjective well-being in a cross-country comparison may be insufficient. Not only may the addition of inflation contribute to making the reflection of a country's economic situation more representative, taking into account income inequality may reveal another characteristic potentially mitigating part of the negative effect of unemployment.

Demographic factors

However, relying only on economic indicators to find out whether national differences matter for this analysis would be insufficient. Beyond differences in socio-economic levels also demographic or cultural differences are likely to affect subjective well-being (Hadler 2005). Many studies demonstrated the variety of influences that personal contexts have on the effect of unemployment on life-satisfaction. However, few of them have been considered in national-level context analyses. While it is well established that unemployment has different effects for men and women (Green et al. 2010; Kassenböhmer & Haisken-DeNew 2009), the gender composition of the labour force is usually not taken into account. It is well conceivable though that the differences we find between men and women regarding the role of unemployment may translate into contextual effects. In societies with

comparatively more women being part of the active labour force, the societal meaning of work may be influenced through a change of perceived identities of labour market participants and consequential differences in preference formation (MacInnes 2004). By extending the labour force, being unemployed may manifest a more deviant situation from the majority of people who act as reference points, thus intensifying the negative effect of unemployment.

Similarly to gender, age is a factor that has been explored at great length for the individual level usually finding a U-shaped quadratic relation (though a more comprehensive analysis suggests a cubic function; Brockmann 2010). However, the age structure of a country – and in particular the ratio of pensioners to workers – is likely to be influential when considering what role unemployment in contrast to working plays as certain generational tensions arise. In a society where the transfers from fewer people working to more retired people may be comparatively more important, as the age-dependency ratio shifts towards older people, being in paid employment may be perceived as particularly significant, as the social system relies on the revenue from the work done. Accordingly the effect of unemployment on life-satisfaction may be more detrimental in older societies.

Attitudinal or cultural factors

An analysis of unemployment effects is commonly associated with economic considerations at first. In doing that we often forget to take into account that the role certain personal economic circumstances, such as unemployment, play may be affected by differences in attitudes and norms related to these concepts. Anticipation of future circumstances has been shown to be important for the cognitive evaluation

of life-satisfaction (Bouazzaoui & Mullet 2002, 2005) and autonomy as relevant when considering perceptions of the role of work (Reher et al. 2008). Inglehart et al. (2008) demonstrate that besides economic indicators countries are found to show greater mean levels of life-satisfaction when a greater perception of freedom of choice and autonomy is prevalent.

Pointing into a similar direction are investigations distinguishing between different forms of value orientations and their impact on life-satisfaction. Li & Bond (2010) show that effects of personal attitudes can only be evaluated with regards to their effect on subjective well-being when taking into account prevailing value structures in the respective societies highlighting the importance of a certain amount of congruence between individuals and the respective societies they live in – a finding further substantiated by Eichhorn (2011) regarding the effect of religiosity on life-satisfaction. Delhey (2010) demonstrates that in economically richer societies post-materialistic value orientations enhance life-satisfaction, while the importance of material characteristics decreases. This suggests that differences in the value that is attached to doing paid work – thus defining how much individuals are perceived and evaluated by the means of earning their income – may affect how influential the effect of unemployment on life-satisfaction may be. Following this logic we would expect that unemployment would be more detrimental in societies in which paid work has a higher social importance associated with it.

Whether these economic, demographic and attitudinal national-level context factors do affect the relationship between personal unemployment and life-satisfaction will be explored empirically in this paper.

Data and Method

Data Source and Approach

The individual-level data for this analysis is taken from a pooled sample of countries included in the fourth (2000-2004) and fifth (2005-2007) wave of the World Values Survey (WVS 2010). Countries included are from Europe (East and West) as well as Anglo-Saxon societies. A greater number of countries is available in the WVS, however the application of life-satisfaction across a wider array of culturally distinct conceptions of happiness and well-being has been repeatedly shown to be questionable. This has been demonstrated particularly for general comparisons between European/American and Asian perspectives (Lu & Gilmour 2004; Uchida et al. 2004). It is therefore more feasible to rely on societies where the conceptions of life-satisfaction are less heterogeneous. While this still does not warrant perfect equivalence of the concept of life-satisfaction, applicability is more justified than in a less restrictive sample of countries. This particularly holds as it is important to have a reliable number of cases in the analysis in order to be able to investigate country-level effects and in particular cross-level interactions. The approach chosen here allows for the inclusion of 40 countries for which data was available for most of the analysis.[2]

Figure 1 about here

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2.   A survey question relating to orientations towards the role of work was only available for 38 of these countries (but missing for Austria and Bosnia). Analyses incorporating this measure are therefore based on only 38 societies.

Respondents in the survey were selected only when they could be considered to be part of the potential labour market, meaning that they could potentially be taking up employment if they were unemployed at the time of the survey. Thus respondents who were retired or in full-time education and persons permanently keeping house were excluded.

A hierarchical, linear model (with a random intercept and slope) was applied in which the survey respondents were placed within the context of their countries. Country-level data was either obtained as an aggregation from survey items or through official statistics from the World Bank (2011) or the IMF (2011).[3] Assumptions for linearity were checked and adjustments made where necessary (logarithmic transformations were applied to GDP per capita, unemployment rates and inflation). Using a multi-level approach allows us to investigate whether there is variation in the slope of a particular predictor variable across countries. If there is, it suggests that the effect of this predictor on the dependent is not the same in all aggregate units we are looking at. By adding contextual factors at the country-level and interactions between those and the individual-level predictor, we may be able to explain this variation, thus enhancing our understanding of how the individual-level relationship may be partially dependent on contextual factors.

This approach of course has two main limitations. First, a cross-sectional analysis does not allow us to consider changes over time and is therefore not sufficient to develop conclusive claims regarding causality. Second, not all contexts that affect the

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3. All computations were done using HLM 6.06.

relationship between unemployment and life-satisfaction may be placed at the national level. In particular the moderating effects of unemployment rates seem to occur mainly at a regional level (Pittau et al. 2010). Keeping these limitations in mind there still is great value for an analysis of contextual factors at the national level in a cross-sectional analysis.

First, panel analyses have shown that the dominant causal link runs from unemployment to life-satisfaction (Clark et al. 2010, Green 2011). Second, the focus of this paper is not to further deepen the understandings of the exact pathways and mechanisms that underpin this individual-level causal mechanism. Instead it aims to widen the focus of the contextually relevant factors used for investigations on this issue, in particular in contrast to those (mainly cross-sectional) studies cited above that only consider rather crude economic indicators as important societal factors that affect the unemployment and life-satisfaction relationship. To develop this contrast and to show the significance of other contextual measures, a cross-sectional design is appropriate and informative. Furthermore, just because contextual unemployment may be more important at lower levels of aggregation does not mean that this holds true for other measures. As Veenhoven (1991) pointed out already in the early stages of investigations into this field, the evaluation of personal subjective well-being depends on a comparison relative to reference groups in a person's surrounding – but it is not all that matters. Apart from personal fixed characteristics, other contextual levels may be impacting as well, though not necessarily with regards to all indicators. A focus on the national level is therefore insightful and relevant in particular with regards to national-level policy making.

Finally two robustness checks are conducted. First, as we can see in figure 1, Central- and Eastern-European countries tend to have lower levels of life-satisfaction than Western-European and Anglo-Saxon ones – as demonstrated by previous studies (see for example Inglehart et al. 2008). Therefore a direct and interaction effect for a dummy variable coding for Central- and Eastern European countries was included to see whether results were altered. A second robustness check relates to the role of welfare regimes. The effects of unemployment on well-being could differ depending on the extent and type of welfare state provisions in a country. Ideally, this would have been one of the aggregate factors included in the analysis. However, indicators that were comparable across the set of countries selected did not provide an appropriate measure of this, but only of total expenditure volumes of which this expenditure would have been a part of.[4] A measure specifically addressing the extent of unemployment compensation would be required but is not available in a comparable manner for all of the countries presented here. In order to account for some differences in welfare regimes, a robustness check is conducted including dummy variables differentiating six welfare regimes. Extending the well-known Esping-Andersen framework ('Conservative-corporatist type', 'social-democratic type' and 'liberal type', Fenger (2007) identifies three additional regimes in Central- and Eastern Europe, distinguishing between 'former USSR type,' 'post-communist European type' and 'developing welfare state type'). Adding a dummy variable for each of these types compared to the reference group (set to conservative-

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4. Including total government expenditure, government revenue per capita, subsidies and transfer as well as tax revenue and social contributions (in total or as percentage of GDP) did not alter the results of the analyses presented here. The indicators themselves were not significant or substantial.

corporatist), this allows to at least identify whether there may be some variance that is unexplained by the model indicators but due to differences between countries that could be reflective of differences in their welfare state arrangements. It also enables us to further see, whether the effects found for the predictors included remains robust. At the same time it should be noted that any findings from this robustness check can only be considered preliminary and should be followed up by investigations that employ country samples which can make use of comparable unemployment compensation indicators.

Measures

The dependent variable chosen was cognitive life-satisfaction operationalised in the WVS through the question *'All things considered, how satisfied are you with your life as a whole these days?* Responses were rated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied). The indicator might appear crude at first sight, but has been demonstrated to be very robust (Lucas 2007; Frey 2008; Martin 2005) if used in analysis comparing relatively homogeneous societies with regards to the understanding of life-satisfaction. Furthermore, it is the indicator most commonly applied in investigations exploring the relationship between unemployment and life-satisfaction, so it seems sensible to also choose it for this analysis that aims to contextualise previous findings.

TABLE 1 about here

Strictly speaking the variable is at the ordinal level of measurement, however a linear hierarchical model was applied. It has been demonstrated extensively though that

regression-style analyses, in particular multi-level ones, are very robust for life-satisfaction measures. Results from ordinal and linear specifications tend to not differ substantially (Ferrer-i-Carbonell & Frijters 2004, Frey & Stutzer 2002), even when only a 4-point response scale is applied (Pittau et al. 2010).

At the individual level the key independent variable is a dummy that identifies people to either be currently employed or unemployed.[5] This is based on the WVS coding, reflecting a self-classification. While the possibility of some error in this self-evaluation can obviously not be ruled out, the great advantage is that this indicator is not biased by differences in state-specific classifications of unemployment.

In order to properly identify the effect of personal unemployment, control variables from the survey have been added, reflecting the most important indicators commonly related to life-satisfaction in quantitative analyses. These include: sex, age, age^2, income, education, marital status and whether respondents had children. These measures may appear simplistic, as more elaborate individual-level focused analyses for example present a greater variety of age operationalisations. The focus of this paper however lies on the interaction between national factors and the unemployment-life-satisfaction relationship. These variables are therefore simply treated as control factors – meaning that the effect of unemployment on life-satisfaction is estimated having taken into account the effects of these variables on life-satisfaction as well.

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5. Persons on maternity or paternity leave were considered employed.

The number of missing cases in the data is small for most of the variables, with the exception of income (about 11%). While this amount of missing cases is generally acceptable, it means of course that there were cases excluded from the analysis mainly when respondents did not reply to the personal income question. That is no problem, if there is no systematic pattern in the missing cases. However it is well known that in particular respondents with high incomes have lower response rates. The results may therefore be somewhat biased with regards to the reflection of the population concerning their income structures. Considering the exploratory nature of this investigation the findings can still be understood as meaningful however especially as most of the studies they are contrasted with employed the same approach.

The first set of indicators used at the aggregate level (see table 2) included GDP/capita (at purchasing power parity), unemployment rates (Worldbank harmonised), inequality (Gini coefficient) and inflation to model the economic situation of a country (models 1-3). To reflect demographic characteristics the female labour force as a proportion of the total labour force and the age-dependency ratio of the societies were added (models 4-5). Finally, in order to model differences in attitudes (see table 3), reflective of cultural manifestations, the mean level of self-perceived autonomy and the emphasis on the role of work were incorporated as well (models 6-7). [6] Aggregate indicators are mean values for the years 2000-2005 (where available) in order to accommodate the fact that data collection in the WVS took place over a wide period of time. As the investigation focuses on a comparison of country-specific characteristics (applying a cross-sectional design) that could be

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6. For a detailed operationalisation of these indicators, please see table 1.

considered relatively stable over time, this approach is more appropriate than selecting main effects for each country relating to the year the survey was conducted there. This alternative would place attention on the impact of events and is more suited for a longitudinal study that explores causal patterns in more detail.

When an aggregate factor was included, its main effect as well as its interaction effect with individual unemployment were both modelled. In a first step the economic indicators were investigated regarding their role and relevance. The substantial ones were retained for all further analyses. Each further indicator was added separately to the economic ones to identify its effect. Finally, two full models (8-9) were computed incorporating the economic, demographic and attitudinal variables. All indicators are included in the final model with 38 societies, whereas the model without the variable measuring the emphasis on work was computed for the full set of 40 societies.

The number of aggregate-level indicators in the full models may seem somewhat large in comparison to the number of cases at that level. However, the results obtained were robust, with a substantial increase in explained variance for the full models regarding the impact of personal unemployment (see below for more detail) despite their relatively large number of indicators. Also, multi-collinearity between the indicators did not appear to be a great concern, with the highest correlation between any two aggregate variables being around 0.6 and most others substantially lower. Considering that the interactions are all related to the same individual-level variable (unemployment) and the limited amount of correlation between the predictors, 38-40 aggregate units seem to be sufficient to justify the models presented here (Hox 2002).

It should be noted that for each group (economic, demographic and attitudinal) of aggregate indicators a number of variables have been explored in preparation for this analysis. Those that appeared relevant and insightful in understanding differences between countries have been included in the investigation for this paper. This means of course that those indicators that did not appear to have an effect are not the focus of this paper, as the aim is to highlight the relevance of context factors when evaluating the relationship between life-satisfaction and unemployment.[7]

Results

<u>Control variables</u>

The results of the individual-level control variables were robust for all models. The results were largely in line with findings from other studies (Frey 2008) – with the exception of having children that did not show any substantial effect here, which could be due to the sample being different to other studies in its restriction to labour market participants. Results on the role of sex have varied somewhat between different studies. Here women tended to have higher levels of life-satisfaction than men (this should not be taken as conclusive though, considering studies finding no association or the opposite, depending on controls). Greater income and being married both contributed to life-satisfaction positively, as usually found. A negative effect of age coupled with the well-known U-shaped component measured by a

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7. A list of all indicators attempted with initial results can be obtained from the author upon request.

positive effect of age squared was also in line with other studies. The effect of education on life-satisfaction is positive here, but not always found, as it appears to vary depending on context and sample selection.

TABLE 2 about here

Unemployment

The direct effect of unemployment at the individual level was strong and robust across all model specifications. Being unemployed was associated with substantially lower levels of life-satisfaction (-0.761 to -0.785 points lower than those employed). This effect is the third strongest individual-level predictor (-0.12), after the age/ age squared variables (around -0.48/ 0.45) and income (0.18), thus showing a higher standardised score than marital status, education, sex and having children.

To understand to what extent the effect of unemployment and the effect of personal income on life-satisfaction may be conflated, the models have been computed also without income as control factor.[8] Most variables, both at the individual and aggregate level remained unaffected. The direct effect of inequality became slightly enhanced when income was omitted. In the model where robustness checks for welfare regimes were performed, the cross-level interaction effect with female labour market participation became slightly reduced. Apart from this all measures remained robust substantially and with regards to statistical significance. The most noted difference was that the negative effect of unemployment on life-satisfaction was

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[8] The results are not presented here due to the very limited changes observable.

more pronounced in magnitude for all models – which would be expected considering that there would be some shared variance between the two predictors.

A direct effect of unemployment rates as found by some (for example Di Tella et al. 2001) could not be confirmed. While some negative relationship to life-satisfaction could be observed in the simpler models (up to -0.322), the more comprehensive models rendered the effect insubstantial (below -0.1) and statistically insignificant. A measurable direct effect of unemployment rates at the national level could therefore be provisionally presumed to be spurious to other society-level control variables.

A moderating effect of unemployment rates could only be observed in the simpler models (particularly specifications 3 and 4). Contrary to previous findings they do not suggest a moderation effect that softens the impact of unemployment, but rather depress it further: Higher levels of country-level unemployment were associated with further a decrease in life-satisfaction (-0.216 for model 4, significant at the 5%-level) here. However, in all further specifications this interaction effect was smaller and statistically insignificant. Particularly in the full models the effect was reduced below -0.05. The often claimed reference effect of unemployment rates could therefore not be confirmed here when more comprehensive context models at the national level were applied.

Economic aggregate indicators

The material condition of countries plays a role in predicting life-satisfaction (Easterlin 1995), though not in a linear fashion overall. Considering that we do not have very-low income countries in this analysis and considering the logarithmic

transformation done, it is not surprising to find a substantial, positive direct effect of LnGDP/capita, statistically significant at the 1%-level for all models. It should be noted though that the size of the impact was reduced in the more comprehensive models in which non-economic factors were controlled for. The direct effect clearly is the strongest of all aggregate indicators with a standardised score of 0.22. A substantial moderation effect on the relationship between unemployment and life-satisfaction could not be found, apart from the most comprehensive model (9) where a depressing impact (-0.225), significant at the 5%-level was found. Considering that this was not present in any of the previous models, it would be premature to base any conclusions on this.

Inflation was found not to have an impact directly on life-satisfaction or in an interaction with unemployment. The effect size was so small (-0.048 and 0.023) that inflation was not retained for further model specifications. It is conceivable that this was partially due to the measure of mean inflation rates for the period from 2000 to 2005. A rise in price levels in a particular year may have an effect directly at this point. While the other measures used here may be reflective of a country's generally stable state over time and therefore an informative differentiating variable, the impact of inflation may be more pronounced as an immediate effect rather than a state. It may therefore be more helpful to investigate this relationship in a longitudinal setting.

Inequality had a robust direct effect for the models specified (statistically significant around the 5% level), but in effect its size was much smaller than that of GDP/capita (standardised score between -0.08 and -0.05). It was consistently negative, meaning that greater inequality was associated with lower life-satisfaction (-.020 to -.038).

There also was a consistent interaction effect with personal unemployment (statistically significant at least at the 5% level): Higher levels of country-level inequality were found to be substantially mitigating some of the depressing effect of unemployment. In other words, in countries where income inequality was greater, the personal experience of unemployment did not lead to as strong a reduction in life-satisfaction.

Demographic characteristics

For female labour force, a direct effect that was statistically significant (at the 5%- and 1%-level respectively) could be observed in the comprehensive model specifications (8-9). Higher levels of female labour force participation were associated with lower levels of life-satisfaction generally (-0.032 and -0.047 respectively). The standardised effect size was at about the same level as for income inequality. Additionally a greater proportion of women in the labour force was associated with a greater depressing effect of becoming unemployed (-0.036 for the most comprehensive model with statistical significance at the 1%-level).

For the age-dependency ratio a negative direct effect found in the simpler specification (5) disappeared nearly completely in the full model (9). However, a substantial moderation effect could be observed. The more old people (65+) there were in comparison to the potential working age population (15-64), the more did unemployment affect life-satisfaction negatively.

TABLE 3 about here

A greater perception of autonomy had a very substantial impact on life-satisfaction. With 0.644 in the simpler specification (model 6) and 0.575 in the most comprehensive model (both statistically significant at the 1% level), higher levels of mean perception of personal autonomy in a country were associated with greater levels of life-satisfaction. After economic development this was the second strongest aggregate main effect (0.15 – 0.17). In addition, a substantial interaction effect was also found (0.423 and 0.309 respectively). In countries where personal autonomy was perceived to be higher on average, the negative impact of unemployment on life-satisfaction could be partially mitigated.

Societies in which a greater emphasis is placed on the role of work did not show substantially differing results for life-satisfaction generally in the simpler specification (model 7). However, in the full model (9), a negative direct effect could be observed (-0.101). This probably does not suffice to make any conclusive statements, considering that the standardised score was not particularly high with -0.07 (similar to female employment and inequality). It does however suggest that societies in which the emphasis on work is greater tend to have lower levels of life-satisfaction, controlling for all other aggregate predictors. An interaction effect with unemployment could be observed for both the simpler and the full model, with the latter showing a more pronounced effect (-0.137, statistically significant at the 5%-level). Where a society holds a greater mean emphasis on the role of work, the personal experience of unemployment seems to be of somewhat greater detriment to life-satisfaction.

Computing an empty model about 77.5% of variation could be found at the individual level and about 22.5% at the aggregate level between societies. Considering that at the individual level only some important control variables were incorporated it is no cause for concern that only about 8% of variation is explained at this level (by the fixed individual level control predictors), as the focus is placed specifically on the contextualised relationship of unemployment and life-satisfaction.

Considering the comparatively lower variation at the aggregate level and the important role of GDP/capita in shaping life-satisfaction it is no surprise that the explained variance is much higher than for the individual level. It is important to note though that the addition of indicators increased the explained variance beyond the level of the simple economic based indicators (from about 78% to 90%). This was also reflected in the decreased direct effect size of the GDP predictor in the more comprehensive models.

The proportional reduction in error for the random individual-level unemployment predictor was very low in the models relying on economic indicators only. With the addition of demographic and, even more so, attitudinal aggregate factors, the explained variance increased substantially. The inclusion of female employment resulted in only a limited increase in explained variance of the unemployment slope, while age-dependency ratio, autonomy and work emphasis helped explaining a much more substantive amount of variation. The full model taking into account both attitudinal factors (work emphasis and autonomy) showed by far the highest proportional reduction in error (0.490). This substantiates the meaningfulness of

including the aggregate indicators jointly, rather than independently in the analysis and supports the confidence in the robustness of the final results and the provisional conclusions that can be drawn from them.

Robustness checks

TABLE 4 about here

With -0.364, the negative effect of being a Central-/ Eastern-European country is observable, significant at the 10%-level and thus not fully explained by the factors in the model. However, the size of the effect is limited and with a standardised score of -0.08 smaller than the main aggregate predictors and at about the same level as inequality, female employment and work emphasis. The interaction effect with personal unemployment is very limited and statistically non-significant. Importantly, the other indicators are not changed substantially after the inclusion of this dummy variable. It should be noted that the explained variance in the random slope of unemployment has increased to 0.607 though. This implies that the impact of the predictors seen is rather robust to an Eastern-Europe control, however, there is explainable variation that is not captured by the model here with regards to differences between Central- and Eastern-European societies and the others included in this sample.

The inclusion of welfare regimes resulted in a few more alterations. After including the dummy variables, the direct effect of inequality basically disappeared completely - suggesting that welfare arrangements may account for the differences in inequality between the countries in the sample. Most other direct effects remained similar. Of

the welfare regimes themselves, former USSR showed the greatest, substantial difference to conservative-corporatist regimes (-0.565) followed by developing ones (-0.435). The differences to other regimes were not statistically significant at the 10%-level. With regards to interaction effects we find the latter type to be the only significant and rather substantial one. In developing welfare state type societies, being unemployed had a stronger negative impact than in the reference group (-0.430). The results for the other cross-level interactions did not change extensively. Finding again a greater amount of explained variance in the random slope of unemployment, we can provisionally conclude that there is a systematic amount of variation in the relationship between unemployment and life-satisfaction that is not captured in this model. However, at the same time we find that the indicators chosen (with the exception of the direct effect of inequality) are robust and insightful for the analysis.

Discussion

The analyses presented in this paper clearly confirm previous findings regarding the strong negative impact of personal unemployment on individual life-satisfaction. At the same time they demonstrate that considering the relationship between unemployment and life-satisfaction at the individual level only is insufficient. While the negative direct effect of personal unemployment persists, several moderating influences can mitigate or accentuate the impact of unemployment.

A direct effect of national unemployment rates found in simpler model specifications was rendered insignificant and unsubstantial in models taking into account demographic factors, suggesting that previously found direct effects of unemployment levels may well have been spurious. An often claimed reference effect of unemployment rates could not be confirmed in this analysis either. Higher national unemployment levels did not reduce the impact of personal unemployment in these analyses. The difference to a large number of other studies could be due to the inclusion of controlling aggregate factors that usually have not been incorporated in the analysis. It is also conceivable that reference effects of contextual unemployment only matter at a more local level (Pittau et al. 2010) or that both explanations complement each other.

Regarding the economic measures used in this paper, inflation was not found to have a direct or interaction effect on life-satisfaction. However, as discussed above, this may be due to the average inflation measure used here, as it is not able to detect the impact of a higher or lower inflation in a particular year. Income inequality levels on the other hand did affect the results, both directly and indirectly. Generally, inequality seems to be reducing life-satisfaction, but this effect disappears when including controls for welfare regime classifications. However, living in a society with greater income inequality seems to be partially reducing the impact of becoming unemployed robustly.

GDP per capita completes the set of economic indicators used and unsurprisingly showed a direct positive effect on life-satisfaction. However, the further models demonstrate that a reliance on these measures would have been insufficient in order

to fully understand the relationship between unemployment and life-satisfaction when taking into account the country-specific context.

The negative direct effect of greater female labour force participation on life-satisfaction and the depressing interaction effect with unemployment suggest that the composition of labour market participants influences how personal unemployment is perceived. In societies with a greater proportion of the labour force being female, the negative effect of unemployment on life-satisfaction is accentuated, again pointing to a possible reference effect where wider labour force participation means unemployment is perceived as a greater deviation from this norm. The effect size is limited however and in particular with regards to the cross-level interaction not as substantial as the age-dependency ratio.

While not impacting directly in this study, the age-dependency-ratio of a country affects how personal unemployment is perceived. In societies where more people at pension-age are contrasted by fewer people at working age, personal unemployment reduces life-satisfaction more extensively. When working is a differentiating factor to a large proportion of the population at retirement age, being unemployed may be of greater detriment, as it disengages a person from their reference group.

Attitudinal or cultural variables are rarely included to contextualise processes related to life-satisfaction. This is problematic, seeing that the models explaining the greatest amount of variance here are those that include measures based on attitudinal questions, reaching the highest levels in the full models, incorporating both measures of autonomy perceptions (which also showed the greatest direct effect of any aggregate indicator after economic development) and work emphasis.

Countries in which autonomy is rated higher on average show greater levels of life-satisfaction. Additionally, the negative effect of unemployment is mitigated partially when mean autonomy perception is higher. In such a context people supposedly have greater confidence that they can manage to overcome unemployment and difficulties arising from it. In contrast we find that in societies where the emphasis of the role of work is greater, personal unemployment depresses life-satisfaction more extensively. When work is valued higher normatively losing it means not only a loss of income, but furthermore a loss of something that is considered desirable by other members of the respective society, therefore reducing life-satisfaction further.

Conclusion

This paper investigated how national economic, demographic and attitudinal factors affect the relationship between the experience of personal unemployment and individual life-satisfaction. It suggests that the consideration of all these types of contextual factors is imperative if one wants to properly understand the way how unemployment affects life-satisfaction. This implies that less comprehensive and in particular individual-level only, models of subjective well-being indicators based on unemployment may not be accurate in their specification and policy suggestions. Resource allocation recommendations based on such models may therefore be mis-specified when not taking into account such contextual variables.

The analyses presented here are limited however to the extent that they allow for definitive conclusions to be drawn. As outlined earlier, contextual unemployment seems to be playing different roles at different levels of aggregation. This may well

be the case also for other indicators used in the analysis here. The findings presented should not be applied uncritically to other levels of aggregation than national contexts. Future research should investigate differences in regional contexts and ideally discuss models that take into account regional as well as country-level effects (though it is difficult to find appropriate and encompassing data for such analyses). Furthermore, this investigation was limited to European and Anglo-Saxon societies. Generalisations to other countries should not be undertaken, because of differences in economic composition and, probably more importantly even, differences in the cultural conceptions of life-satisfaction.

Furthermore, the study should be extended to take account of differences between the unemployed and dissatisfied employees, as currently all those employed are treated homogeneously. On average, those unemployed indeed show lower levels of life-satisfaction than those employed. It is however likely, that we would find differences within the group of those employed. Depending on their job-satisfaction some may be more and some even less similar with regards to life-satisfaction than those unemployed.

While the literature provides good evidence that the main causal mechanism runs from unemployment to life-satisfaction (Winkelmann 2009), the possibility of endogenous effects cannot be ruled out. Subjective well-being levels have been demonstrated to be partially set by personality/temperament types that are relatively stable over the life-course (Diener and Lucas 1999) and may lead to particular self-selection biases in the likelihood of being unemployed or not. Such influences are not accounted for here. In future analyses it might be worth considering to introduce

such characteristics as instrumental variables in order to investigate and account for potential endogeneity.

Another way of addressing this issue would be the use of longitudinal rather than cross-sectional models. These would also allow to not only consider unemployment comparatively between those employed and those unemployed, but to actually focus on the changes within persons when entering or leaving unemployment. It would also allow us to account for the duration of unemployment, another factor that previous research has shown to be relevant in understanding the impact unemployment has on a person's well-being as adaptation processes could be modelled.

The greatest addition to this research would be the incorporation of measures of government support during unemployment. The analyses presented here should be repeated (at least with the indicators found to be most relevant) and this additional contextual variable. Most likely a focus on a more limited sample of countries (OECD or European Union) with available comparable macro-economic data may be helpful in this regard, though they need to be complemented with comparable survey data from a large enough investigation to maintain a sufficiently large number of countries for a multi-level analysis.

Keeping these suggestions for further research in mind, integrating contextual factors, such as the ones demonstrated to be relevant in this paper with longitudinal analyses frameworks developed previously could greatly enhance our ability to comprehend the mechanisms that define the effects unemployment has on people. The findings presented here highlight both the robust negative effect of

unemployment and that explaining unemployment effects is aided greatly by considering more than economic context factors. They suggest access points for further investigations and what we might expect to learn from them. This is relevant beyond academic interests. Policy that focuses on designing programs for different groups of unemployed people, identifying them through individual-level characteristics only, are likely to miss important contextual influences that may not be attributable to individuals. At the same time, it may be inappropriate to work only at aggregate levels of analysis, as there are important interactions between both levels. In order to design programs that allow us to identify target groups and mechanisms that are creating desired impact, the use of multi-level approaches, integrating economic, demographic and also attitudinal context factors seems to be highly imperative.

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Table 1: Descriptives (using the sample of the most comprehensive model with 38 countries)

	Mean	S.D.	Min	Max
Individual level (N= 42,275)				
Life-Satisfaction	6.85	2.23	1	10
DV: Unemployed	0.12	0.33	0	1
Female	0.48	0.50	0	1
Age	39.75	11.91	15	98
Quadratic effect of age	1721	995	225	9604
Income	5.43	2.48	1	10
Higher Education	0.28	0.45	0	1
Married	0.58	0.49	0	1
Having Children	0.70	0.46	0	1
Societal level (N= 38)				
LN GDP/cap	9.81	0.73	7.55	11.05
GDP/cap	22254	12586	1908	62707
LN Unemployment Rate	2.04	0.58	0.85	3.51
Unemployment Rate	9.12	5.91	2.34	33.6
LN Inflation	1.20	0.75	-0.49	3.26
Inflation	4.56	4.92	0.61	25.9
Inequality	31.03	5.02	23	45
Female Labour Force	44.80	3.74	30.44	50.43
Age-Dependency Ratio	21.25	3.63	12.55	28.35
Autonomy	6.96	0.58	5.94	7.85
Work Emphasis	12.49	1.47	8.98	15.49

Data comes from the fourth and fifth wave of the World Values Survey, unless indicated otherwise. Where countries participated in both waves, mean values are used. Included are individuals categorised as employed/self-employed or unemployed. Respondents outside the labour market (students, pensioners etc.) are excluded.

Life-Satisfaction: "All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?"
Age: in years
Income: Subjective scale of incomes (1..10)
Higher Education: Holder of a university degree
Married: Respondent currently married
Having Children: Respondent has at least one child

LN GDP/cap: GDP per capita (Purchasing Power Parity) in $ (mean 2000-2005), logarithmised
LN Unemployment Rate: Unemployment Rate (mean 2000-2005), logarithmised (IMF)
LN Inflation: Inflation Rate (mean 2000-2005), logarithmised (IMF)
Inequality: Gini Coefficient (2005, IMF)
Female Labour Force: Percentage of women in the labour force (mean 2000-2005, World Bank)
Age-Dependency Ratio: Number of persons 65 and above as percentage of persons 15-64 (mean 2000-2005, World Bank)
Autonomy: "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "no choice at all" and 10 means "a great deal of choice" to indicate how much freedom of choice and control you feel you have over the way your life turns out." (mean)
Work Emphasis: Additive score of the items 'To fully develop your talents, you need to have a job', 'It is humiliating to receive money without working for it', 'People who don't work become lazy', ' Work is a duty towards society', 'Work should always come first, even if it means less free time.' Each item was measured on a 5-point scale (recoded: 1-strongly disagree .. 5-agree). Final score is the sum minus 5 (0..20).[9]

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9. Factor analyses using various specifications showed that all five items consistently loaded on one factor. Details can be obtained from the author upon request. As the minimum score was 5 (5 times score 1), 5 was deducted from the total scale to have it start at 0, and consequentially end at 20.

Table 2: Economic and demographic models

Dep.: Life-Satisfaction	1		2		3		4		5	
	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.
Intercept	6.626 (72.9)***		6.625 (74.3)***		6.622 (79.8)***		6.622 (82.8)***		6.623 (80.9)***	
Societal Level										
LN GDP/cap	1.010 (8.91)***	0.331	0.974 (5.73)***	0.598	0.989 (8.09)***	0.324	0.906 (6.26)***	0.557	1.092 (7.78)***	0.357
LN Unemployment Rate	-0.295 (-1.95)+	-0.077	-0.318 (-2.41)*	-0.083	-0.259 (-1.77)+	-0.067	-0.322 (-1.90)+	-0.084	-0.214 (-1.41)	-0.056
Inequality					-0.038 (-2.64)*	-0.086	-0.037 (-2.51)*	-0.083	-0.037 (-2.73)**	-0.083
Female Labour Force							-0.037 (-1.59)	-0.062		
Age-Dep. Ratio									-0.037 (-2.03)*	-0.060
Autonomy										
Work Emphasis										
LN Inflation			-0.048 (-0.26)	-0.016						
Individual Level										
Female	0.081 (2.98)**	0.018	0.081 (2.98)**	0.018	0.082 (3.00)**	0.018	0.082 (3.00)**	0.018	0.082 (3.00)**	0.018
Age	-0.090 (-10.3)***	-0.481	-0.090 (-10.3)***	-0.481	-0.090 (-10.4)***	-0.481	-0.090 (-10.3)***	-0.481	-0.090 (-10.3)***	-0.481
Quadratic effect of age	0.001 (9.57)***	0.446	0.001 (9.57)***	0.446	0.001 (9.58)***	0.446	0.001 (9.56)***	0.446	0.001 (9.54)***	0.446
Income	0.164 (7.55)***	0.182	0.164 (7.55)***	0.182	0.163 (7.55)***	0.181	0.163 (7.55)***	0.181	0.163 (7.55)***	0.181
Higher Education	0.167 (4.85)***	0.034	0.167 (4.85)***	0.034	0.167 (4.82)***	0.034	0.167 (4.82)***	0.034	0.167 (4.82)***	0.034
Married	0.412 (9.64)***	0.091	0.412 (9.64)***	0.091	0.412 (9.64)***	0.091	0.412 (9.64)***	0.091	0.412 (9.64)***	0.091
Having Children	-0.072 (-1.52)	-0.015	-0.072 (-1.52)	-0.015	-0.072 (-1.53)	-0.015	-0.072 (-1.51)	-0.015	-0.073 (-1.30)	-0.015
Cross-Level Interaction										
DV: Unemployed	-0.784 (-9.41)***	-0.116	-0.785 (-9.46)***	-0.116	-0.783 (-10.1)***	-0.116	-0.780 (-10.3)***	-0.115	-0.772 (-10.5)***	-0.114
X LN GDP/cap	-0.070 (-0.76)		-0.052 (-0.55)		-0.061 (-0.72)		-0.125 (-1.33)		0.069 (1.00)	
X LN Unemployment Rate	-0.137 (-1.31)		-0.123 (-1.05)		-0.166 (-1.77)+		-0.216 (-2.10)*		-0.134 (-1.39)	
X Inequality					0.028 (2.21)*		0.028 (2.18)*		0.027 (2.59)*	
X Female Labour Force							-0.030 (-2.28)*			
X Age-Dep. Ratio									-0.047 (-3.14)**	
X Autonomy										
X Work Emphasis										
X LN Inflation			0.023 (0.25)							
	Var expl.	Var	Var expl.	Var	Var expl.	Var	Var expl	Var	Var expl.	Var
Within Societies	0.078	3.610	0.078	3.610	0.078	3.610	0.078	3.610	0.078	3.610
Between Societies	0.785	0.243	0.779	0.249	0.811	0.213	0.814	0.199	0.820	0.203
Unemployed	0.023	0.133	-0.019	0.139	0.103	0.122	0.127	0.118	0.273	0.099
Deviance	151722.09		151726.48		151721.82		151729.68		151727.35	

Significance values: +p≤0.10 *p≤0.05, **p≤0.01, ***p≤0.001.
N: 43614 individuals in 40 societies
Calculations done using HLM 6.06. Entries are un-standardised regression coefficients with t-ratios in parentheses, followed by standardised scores (based on Hox (2010, p.22): (unstandardised score – s.d. predictor)/ s.d. predictor). Individual-level variables are group mean centred (with the exception of sex and the dummy variables), societal-level variables are grand mean centred. Included are individuals categorised as employed/self-employed or unemployed. Respondents outside the labour market (students, pensioners etc). are excluded. Variation explained is calculated as proportional reduction in error to respective null-models. Data comes from the fourth and fifth wave of the World Values Survey, unless indicated otherwise. Where countries participated in both waves, mean values are used. Data is weighted using WVS design weights.
Life-Satisfaction: "All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?"; Age: in years; Income: Subjective scale of incomes (1..10); Higher Education: Holder of a university degree; Married: Respondent currently married; Having Children: Respondent has at least one child; LN GDP/cap: GDP per capita (Purchasing Power Parity) in $ (mean 2000-2005), logarithmised; LN Unemployment Rate: Unemployment Rate (mean 2000-2005), logarithmised (IMF); LN Inflation: Inflation Rate (mean 2000-2005), logarithmised (IMF); Inequality: Gini Coefficient (2005, IMF); Female Labour Force: Percentage of women in the labour force (mean 2000-2005, World Bank); Age-Dependency Ratio: Number of persons 65 and above as percentage of persons 15-64 (mean 2000-2005, World Bank); Autonomy: 10 point scale (0 .. 10), mean; Work Emphasis: 20 point scale (0 .. 10), mean [for a full description of autonomy and work emphasis indicators, please refer to Table I]

Table 3: Attitudinal and comprehensive models

Dep.: Life-Satisfaction	6		7		8		9	
	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.
Intercept	6.620 (86.5)***		6.612 (77.8)***		6.620 (89.4)***		6.610 (87.8)***	
Societal Level								
LN GDP/cap	0.804 (7.54)***	0.494	0.967 (8.16)***	0.317	0.770 (5.01)***	0.473	0.678 (5.43)***	0.222
LN Unemployment Rate	-0.019 (-0.14)	-0.005	-0.299 (-1.87)+	-0.078	-0.073 (-0.47)	-0.019	-0.098 (-0.60)	-0.025
Inequality	-0.023 (-2.59)*	-0.052	-0.030 (-2.28)*	-0.068	-0.027 (-2.51)*	-0.061	-0.020 (-1.81)+	-0.045
Female Labour Force					-0.032 (-2.06)*	-0.054	-0.047 (-3.05)**	-0.079
Age-Dep. Ratio					-0.001 (-0.58)	-0.002	-0.006 (-0.38)	-0.010
Autonomy	0.644 (3.60)***	0.167			0.612 (3.44)**	0.159	0.575 (4.16)***	0.150
Work Emphasis			-0.052 (-0.83)	-0.034			-0.101 (-2.12)*	-0.067
Individual Level								
Female	0.082 (3.00)**	0.018	0.083 (3.00)**	0.019	0.082 (3.00)**	0.018	0.084 (2.97)**	0.019
Age	-0.090 (-10.4)***	-0.481	-0.090 (-9.94)***	-0.481	-0.090 (-10.3)***	-0.481	-0.090 (-9.92)***	-0.481
Quadratic effect of age	0.001 (9.58)***	0.446	0.001 (9.22)***	0.446	0.001 (9.54)***	0.446	0.001 (9.20)***	0.446
Income	0.163 (7.55)***	0.181	0.163 (7.32)***	0.181	0.163 (7.55)***	0.181	0.163 (7.33)***	0.181
Higher Education	0.166 (4.78)***	0.033	0.168 (4.73)***	0.034	0.166 (4.79)***	0.033	0.167 (4.70)***	0.034
Married	0.412 (9.64)***	0.091	0.418 (9.61)***	0.092	0.412 (9.63)***	0.091	0.418 (9.60)***	0.092
Having Children	-0.073 (-1.54)	-0.015	-0.079 (-1.62)	-0.016	-0.072 (-1.51)	-0.015	-0.078 (-1.59)	-0.016
Cross-Level Interaction								
DV: Unemployed	-0.788 (-10.8)***	-0.117	-0.772 (-9.89)***	-0.114	-0.775 (-11.1)***	-0.115	-0.761 (-10.9)***	-0.113
X LN GDP/cap	-0.179 (-1.81)+		-0.111 (-1.44)		-0.112 (-1.25)		-0.225 (-2.46)*	
X LN Unemployment Rate	0.004 (0.04)		-0.150 (-1.33)		-0.042 (-0.41)		0.007 (0.06)	
X Inequality	0.034 (3.59)***		0.029 (2.12)*		0.033 (3.70)***		0.032 (2.99)**	
X Female Labour Force					-0.019 (-1.90)+		-0.036 (-3.19)**	
X Age-Dep. Ratio					-0.031 (-2.07)*		-0.034 (-2.19)*	
X Autonomy	0.423 (2.78)**				0.341 (2.59)*		0.309 (3.07)**	
X Work Emphasis			-0.080 (-1.76)+				-0.137 (-2.64)*	
	Var expl.	Var	Var expl.	Var	Var expl.	Var	Var expl	Var
Within Societies	0.078	3.610	0.078	3.591	0.078	3.610	0.079	3.591
Between Societies	0.865	0.152	0.873	0.212	0.873	0.143	0.885	0.131
Unemployed	0.289	0.098	0.354	0.117	0.354	0.088	0.490	0.067
Deviance	151710.45		146817.40		151727.12		146817.48	

Significance values: +p≤0.10 *p≤0.05, **p≤0.01, ***p≤0.001.

N: 43614 individuals in 40 societies (42275 individuals in 38 societies for models 7 and 9)

Calculations done using HLM 6.06. Entries are un-standardised regression coefficients with t-ratios in parentheses, followed by standardised scores (based on Hox (2010, p.22): (unstandardised score – s.d. predictor)/ s.d. predictor). Individual-level variables are group mean centred (with the exception of sex and the dummy variables), societal-level variables are grand mean centred. Included are individuals categorised as employed/self-employed or unemployed. Respondents outside the labour market (students, pensioners etc). are excluded. Variation explained is calculated as proportional reduction in error to respective null-models. Data comes from the fourth and fifth wave of the World Values Survey, unless indicated otherwise. Where countries participated in both waves, mean values are used. Data is weighted using WVS design weights.

Life-Satisfaction: "All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?"; Age: in years; Income: Subjective scale of incomes (1..10); Higher Education: Holder of a university degree; Married: Respondent currently married; Having Children: Respondent has at least one child; LN GDP/cap: GDP per capita (Purchasing Power Parity) in $ (mean 2000-2005), logarithmised; LN Unemployment Rate: Unemployment Rate (mean 2000-2005), logarithmised (IMF); LN Inflation: Inflation Rate (mean 2000-2005), logarithmised (IMF); Inequality: Gini Coefficient (2005, IMF); Female Labour Force: Percentage of women in the labour force (mean 2000-2005, World Bank); Age-Dependency Ratio: Number of persons 65 and above as percentage of persons 15-64 (mean 2000-2005, World Bank); Autonomy: 10 point scale (0 .. 10), mean; Work Emphasis: 20 point scale (0 .. 10), mean [for a full description of autonomy and work emphasis indicators, please refer to Table I]

Table 4: Robustness checks

Dep.: Life-Satisfaction	Central/Eastern Europe		Welfare Regimes	
	Unstd. (t-ratio)	Std.	Unstd. (t-ratio)	Std.
Intercept	6.714 (56.8)***		6.655 (61.1)***	
Societal Level				
LN GDP/cap	0.598 (4.92)***	0.196	0.548 (4.58)***	0.179
LN Unemployment Rate	-0.062 (-0.44)	-0.016	-0.142 (-0.88)	-0.037
Inequality	-0.028 (-2.92)**	-0.063	0.003 (0.22)	0.007
Female Labour Force	-0.035 (-2.07)*	-0.059	-0.046 (-2.51)*	-0.077
Age-Dep. Ratio	-0.009 (-0.60)	-0.015	-0.008 (-0.55)	-0.013
Autonomy	0.481 (3.90)***	0.125	0.445 (2.78)**	0.116
Work Emphasis	-0.065 (-1.40)	-0.043	-0.116 (-2.88)**	-0.076
Central and Eastern Europe	-0.364 (-1.78)[+]	-0.082		0.000
Welfare Regimes - Ref: Conservative-Corporatist				
Liberal			0.313 (1.45)	0.047
Socio-Democratic			-0.182 (-0.82)	-0.027
Former USSR			-0.565 (-2.36)*	-0.085
Post-Communist European Type			0.004 (0.02)	0.001
Developing			-0.435 (-1.91)[+]	-0.059
Individual Level				
Female	0.085 (2.57)*	0.019	0.085 (2.57)*	0.019
Age	-0.093 (-10.9)***	-0.497	-0.093 (-3.58)***	-0.497
Quadratic effect of age	0.001 (10.5)***	0.446	0.001 (10.5)***	0.446
Income	0.152 (7.56)***	0.169	0.152 (7.56)***	0.169
Higher Education	0.169 (4.98)***	0.034	0.170 (4.98)***	0.034
Married	0.437 (10.5)***	0.096	0.437 (10.6)***	0.096
Having Children	-0.053 (-0.94)	-0.011	-0.054 (-0.95)	-0.011
Cross-Level Interaction				
DV: Unemployed	-0.803 (-6.17)***	-0.119	-0.749 (-5.74)***	-0.111
X LN GDP/cap	-0.158 (-1.92)[+]		-0.406 (-3.58)**	
X LN Unempl. Rate	0.012 (0.10)		0.052 (0.39)	
X Inequality	0.031 (3.66)***		0.029 (2.31)*	
X Female Labour Force	-0.041 (-2.48)*		-0.042 (-2.11)*	
X Age-Dep. Ratio	-0.038 (-2.75)*		-0.029 (-2.88)**	
X Autonomy	0.294 (2.29)*		0.356 (2.44)*	
X Work Emphasis	-0.178 (-2.61)*		-0.175 (-3.65)***	
X Central and Eastern Europe	0.122 (0.50)			
X Welfare Regimes - Ref: Conservative-Corporatist				
X Liberal			-0.140 (-0.60)	
X Socio-Democratic			0.222 (1.14)	
X Former USSR			-0.081 (-0.36)	
X Post-Communist European Type			0.048 (0.27)	
X Developing			-0.430 (-2.06)*	
	Var expl.	Var	Var expl.	Var
Within Societies	0.079	3.591	0.079	3.591
Between Societies	0.896	0.119	0.902	0.112
Unemployed	0.607	0.049	0.653	0.043
Deviance	14.6809.89		146806.91	

Significance values: [+]p≤0.10 *p≤0.05, **p≤0.01, ***p≤0.001.
N: 42275 individuals in 38 societies

Calculations done using HLM 6.06. Entries are un-standardised regression coefficients with t-ratios in parentheses, followed by standardised scores (based on Hox (2010, p.22): (unstandardised score – s.d. predictor)/ s.d. predictor). Individual-level variables are group mean centred (with the exception of sex and the dummy variables), societal-level variables are grand mean centred. Included are individuals categorised as employed/self-employed or unemployed. Respondents outside the labour market (students, pensioners etc). are excluded. Variation explained is calculated as proportional reduction in error to respective null-models. Data comes from the fourth and fifth wave of the World Values Survey, unless indicated otherwise. Where countries participated in both waves, mean values are used. Data is weighted using WVS design weights.

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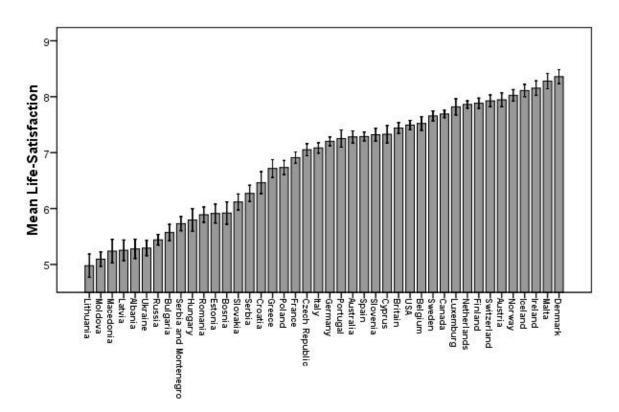
Figure 1: Mean life-satisfaction across sample countries (error bars show 2 standard errors)