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Free to choose? Economic freedom, relative income, and life control perceptions

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Abstract: Recent research has shown that the degree to which people feel they are in control of their lives is an important correlate of individual happiness, where those that feel more in control are also found to be systematically happier. In turn, the economic sources of perceived life control are only insignificantly established in the relevant literature. The present paper employs individual data from the most recent version of the World Value Survey, covering the period from 1981 to 2013, to establish the macro-determinants of individual life control. We find that living in a country with high overall economic freedom is a major determinant of feeling in control of one's own life. The effect is very similar for individuals in high and low income countries, while the impact of democracy is negligible in both cases. Interacting relative income with economic freedom, we find that - contrary to conventional wisdom - it is by far the lower income groups that derive the biggest gain of perceived life control from living in a country with comparatively high economic freedom.

Keywords: Locus of control, Economic institutions, Well-Being, Democracy

JEL classifications: I31 • L51 • H11

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1 Introduction

The search for the determinants of happiness (or life satisfaction) has seen a constant increase in recent years. Innumerable articles of multidisciplinary research have produced a whole array of individual and social correlates of "the good life". These correlates range from individual life circumstances, like personal income, employment, or health status, trough traits like interpersonal trust, all the way to macro-determinants at the country-level, such as GDP per capita, democracy, and the quality of economic institutions.[1]

Recently, a number of articles have also found that the degree to which people feel they are in control of their own lives is also an important correlate of subjective well-being measures (e.g. Inglehart et al. 2008, Verme 2009, Bavetta and Navarra 2011). According to this literature, people who perceive they are comparatively more in control of their own fate are also found to be systematically happier as individuals. This enhanced feeling of life control could just be the product of personality characteristics, or also the outcome of changing economic and social circumstances that increase freedom of choice for the individual. The latter has been argued by Inglehart et al. (2008), who identify enhanced life satisfaction and control with greater individual freedom. However, from the perspectives of social psychology and consumer research, the relationship between enhanced freedom of choice and well-being is not so clear-cut: Schwartz (2000 and 2004), for example, argues that too much freedom of choice may be detrimental to individual well-being, as it involves high information and decision making costs. Hence, a choice-induced paralysis may be a sign of a "Tyranny of Freedom", where people are not able to cope with the perceived oversupply of different choices available to them.

The concept of *locus of control*, originally developed by Rotter (1966), refers to the degree to which individuals expect outcomes to be contingent on their own behavior or personal characteristics, versus the degree to which they expect outcomes to be a function of pure chance or fate. Individuals who perceive to have a high *internal locus of control* believe in their own ability to control life's course and

[1] Reviews by Dolan et al. (2008) or Frey (2008) provide good overviews of the topic.

influence the world around them. They interpret personal choices as the main cause of individual success or failure. In contrast, people with a high *external locus of control* believe that control over events is largely outside their influence. These individuals believe to be under the control of powerful others, or some supernatural being, where the outcome of situations is beyond their sphere of influence.

Comparing across different disciplines, the link between locus of control and subjective well-being has been studied somewhat more intensely in psychology up to date (e.g. April et al. 2012), where underlying individual characteristics are the main focal point. Recently however, a few papers also treat this relationship from an institutional-economic perspective: For example, Bavetta and Navarra (2011) find that economic freedom and locus of control, defined as autonomy freedom, complement each other in the determination of happiness. Verme (2009) provides a promising application by claiming that locus of control affects how people evaluate freedom of choice. So called *internals* believe that they have control of their lives and that outcomes are the consequences of effort and skills. For internals, freedom of choice is therefore a more significant source of happiness than for *externals*, who feel that they have little or no control over their lives. As Verme (2009) highlights, the degree to which individuals value free choice, a fundamental concept in neoclassical economics, might very well be regulated by the degree to which these same people feel they are in control of their lives.

According to similar arguments forwarded by Buchanan (2005), the demand for big government is associated with a certain fear of freedom and anxiety to be made responsibility for one's own actions. So if individuals feel capable of reaping the benefits of free choice and little government intervention, they are likely to value both highly and vice versa. In line with these ideas, Kouba and Pitlik (2014) show for a sample of EU- and OECD member states that an internal locus of control is strongly related to negative attitudes towards government interventionism.

If we take it as given that individual locus of control is a major determinant of personal life satisfaction and happiness, and that some people might be more capacitated to reap these benefits, the next logical question is to investigate the macro-determinants of life control itself: What are the factors that determine whether

people feel largely in control of their lives, or not? Up to date, this question is only insignificantly answered in the economic literature, even though the psychic capacity to make choices and assume their consequences is known to be vital for the existence of a market economy (c.f. Buchanan 2005, Verme 2009).

Notable exceptions are Inglehart et al. (2008) and a recent contribution by Welzel (2014). Both studies draw on lifestyle changes during the past thirty years to explain the perceived increase in life control, finding that these are driven by economic development, democratization, and increased tolerance. Still, these authors have not analyzed the possible connection between locus of control and economic freedom. Following Buchanan (1995), we do this in the current paper, recognizing that capitalism and free markets are an important element of individual freedom. In particular, we would like to find out if economic institutions that are built on the principle of *freedom of choice* are also drivers of individual life control perceptions.

It is almost surprising that this question has not been investigated earlier, because a variety of papers have found determinants of life satisfaction and other personality traits to be significantly influenced by economic institutions. For instance, Berggren and Jordahl (2006) find support for the idea that market economies, which are built on voluntary transactions with both friends and strangers and within the predictability provided by the rule of law, entail incentives for social trust to emerge. Similarly, Berggren and Nilsson (2013) recently encounter that the degree to which economic institutions and policies are market-oriented is related to tolerance. They find economic freedom to be positively related to tolerance towards homosexuals, especially in the longer run, while tolerance towards people of a different race and a willingness to teach kids tolerance are not strongly affected.

In addition, a large number of studies have shown that there is also an effect of economic institutions on happiness. Employing the Economic Freedom of the World (EFW) Index by the Fraser Institute, Ovaska and Takashima (2006), Gehring (2013), and Rode (2013) find economic freedom to be an important determinant of happiness or life satisfaction. Taking into account that all these authors omit the question on locus of control in their models, it might just as well be the case that the effect of economic

freedom on subjective well-being passes through the feeling of being in control of one's own life.

Employing individual data from the latest version of the World Value Survey (WVS), we find that living in a country with high overall economic freedom is a major determinant of the perception to be in control of one's own life. Interestingly, the effect is very similar for individuals in high and low income countries, while the impact of democracy is completely negligible in both cases. At the individual level, our results imply that a high personal income rank in society has a substantial positive impact on perceived control over one's own life. Interacting income rank with economic freedom, we further find that it is by far the lower income groups that derive the biggest life control gains from living in a country with comparatively high economic freedom. Using data on the number of children and whether one has a full time job as instruments for individual income status, we further confirm that the effect of income is not endogenously determined by life control. We thus conclude that the strong relationship between economic freedom at low income levels and life control is likely to be driven by a reduction of individual restrictions of choice which are not perceived by people with a high income.

The remainder of the paper is organized as follows: Section two focuses on the description of the data and the research strategy of our analysis. Section three presents a graphical analysis, the empirical estimations, and discusses the results. Section four concludes.

2 Data and research strategy

This paper employs data from the European Values Study and the World Values Survey (2014) to measure internal locus of control and other individual characteristics of respondents. We use the integrated data file that includes longitudinal aggregates from all seven waves of the EVS/WVS, covering the period between 1981 and 2014. In particular, perception of life control is based on the following survey question: "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 [...] to indicate how much freedom of choice and control you feel you have

over the way your life turns out." Respondents answer on a ten point scale, ranging from "none at all" (1) to "a great deal" (10). This survey question captures the notion of external versus internal locus of control almost perfectly.

Economic institutions are measured by the Economic Freedom of the World (EFW) Index (Gwartney et al., 2014). This index is published annually by the Canadian Fraser Institute and includes 43 specific components, all measured on a zero to ten scale, reflecting the degree to which the economic institutions and policies of a country correspond to free market principles. A '0' represents the least free and a '10' the most free. While the EFW index now covers 141 countries, the data for the compound index and the individual areas are available for approximately 100 countries at five year intervals between 1980 and 2000, and annually since the year 2000.

The EFW Index has been used extensively in social science research in recent years. It is based entirely on data published in secondary sources, which means it can be easily verified and duplicated by others (Berggren 2003). This transparency feature adds to its credibility. The indicator has been related to a number of other important economic variables, such as overall income levels and growth (Pitlik 2002, de Haan et al. 2006, Doucouliagos and Ulubasoglu 2006, Rode and Coll 2012), inequality (Berggren 1999, Bennett 2014), political democracy (Rode and Gwartney 2012), and subjective well-being (Rode 2013).

The summary EFW Index is divided into five major areas: *1 Size of government: Expenditure, taxes, and enterprises*, *2 Legal structure and security of property rights*, *3 Access to sound money*, *4 Freedom to trade internationally*, and *5 Regulation of credit, labor, and business*. The summary score for each country is calculated by simply taking the mean of the ratings in each of the five areas.

To test our hypotheses, we perform pooled Ordinary Least Squares (OLS)[2] regressions of personal life control on the level of economic freedom, individual income rank (and an interaction of both terms), introducing a range of individual-level controls, country-level controls and country fixed effects to account for unobserved heterogeneity. To account for the Moulton-bias that causes the standard errors of

[2] Alternatively, the model can be estimated with ordered probit, which gives us very similar results. Since OLS estimations are generally easier to interpret though, we only report the results of our OLS fixed effects estimates. The ordered probit results are available upon request.

macro-covariates to be far too small and which is inherent in such a survey data setting (Moulton 1990), we corrected for clustering on the country-level.

EFW variables are chosen to be from the year before the actual survey was conducted. If data for a particular year was not available, we used linear interpolation to arrive at a hypothetical score. Such a procedure is only relevant for the 1980s and 1990s, where EFW-data is available at five-year-intervals. Formally, we model life control perceptions of individual *i* living in country *j* at time *t*, as follows:

$$\text{lifecontrol}_{ijt} = \beta_0 + \beta_1 \text{incomerank}_{ijt} + \beta_2 \text{EFW}_{jt} + \beta_3 (\text{incomerank}_{ijt} \times \text{EFW}_{jt}) + \beta_4 \text{individualcontrols}_{ijt} + \beta_5 \text{macrocontrols}_{jt} + \text{cfe}_j + \varepsilon_i,$$

Individual income rank is the self-reported income decile, from the WVS/EVS database. Controls include a full array of individual characteristics, which supposedly impact on personal life control perceptions. These include: age, gender, religiosity, trust in people, personal health, employment status, marital status, etc. In addition, we introduce a smaller set of country-wide covariates: the (log of) real Gross Domestic Product (GDP) per capita (lagged one year, in logs, from the Penn World Tables 8.1)[3] and the Freedom House (2014) political democracy index, which coincides with the respective survey year.[4] Country fixed effects *cfe* capture unobserved heterogeneity and cultural differences that drive institutions, the perception of institutions, and the subjective perception of one's own life control.

Descriptive statistics of all variables in our sample can be found in Table A1 in the appendix. Total sample size covers responses from 262,362 individuals in 76 countries. Due to the fact that a number of countries were repeatedly surveyed in the WVS, the actual number of country-level observations in our dataset is 178. The sample mean of the life control variable is 6.9, with a standard deviation of 2.3; the sample mean of the EFW summary index is 6.75, with a standard deviation of 1.1.

Figure 1 around here

[3] As PWT data for 2012 are not yet available, we used real GDP per capita growth rates for that year from the World Development Indicators to calculate the GDP per capita level in 2012.
[4] We re-coded the political democracy scale to a 0-10 scale, where higher scores also represent more democratic societies.

To illustrate the positive relationship between average life control and economic freedom scores, Figure 1 shows a simple scatterplot of both variables at the country level, where the EFW Index is lagged by one year. The resulting graphical association strongly supports our basic idea of a positive relationship between economic freedom and life control. However, the direction of causality is far from clear at the aggregate country level: Does economic freedom cause higher life control, or does a higher (average) life control perception lead to increased political support for economic freedom? Findings by Kouba and Pitlik (2014) would suggest the latter, since individuals with higher life control also support less government interventionism. But while this problem of reverse causality cannot be ruled out in any macro-level analysis, it is a much less severe issue at the individual level. Here, overall economic freedom levels may surely have an effect on the personal perception of life control, but the impact of a single individual's life control perception on country-wide economic freedom policies is marginal, at best (we assume that dictators do not take part in the surveys). Therefore, we opted for estimating the effects at the individual level, which also gives us the possibility to make a tentative statement on the direction of causality. Results are presented in the next section.

3 Results

3.1 Baseline estimates

Results of our baseline OLS fixed effects regressions are displayed in Table 1, where we also present the full set of individual control variables. Columns (1) - (5) show estimates for the entire sample of 76 countries, which is based on more than 260,000 single observations. Here, equations (1) and (2) employ the full set of individual covariates and the three country-level covariates: lagged economic freedom (EFW), the logarithm of lagged GDP per capita (GDPPC), and contemporary political democracy (FHPOLDEM).[5] In line with our expectations, EFW has a positive coefficient (+0.19) and is statistically significant at the 1%-level. Political democracy is positive but

[5] Equation (2) differs from (1) only in the specification of the individual income rank. See remarks below.

far from any conventional significance level. GDPPC is positively related to individual life control, but also insignificant.

Table 1 around here

This outcome may certainly be influenced by a high collinearity between economic freedom, economic development, and political freedom. In equation (3) we therefore dropped GDPPC from the set of explanatory variables. As a consequence, the coefficient of EFW increases to +0.23, indicating that part of the effect that economic freedom exerts on life control operates through the overall income channel. Also in this equation, our democracy measure FHPOLDEM remains insignificant and when we drop this variable in equation (4), coefficients of EFW and GDPPC stay practically the same. This shows us that the effect of political freedom on life control does not pass through economic freedom or development either. Equation (5) further confirms these findings: Dropping the EFW variable instead of GDPPC substantially raises the coefficient of GDPPC from +0.11 to 0.42, and it is now significant at the 1% level. Therefore, perceived life control is positively affected by economic freedom via the latter's impact on GDP per capita [6] In contrast, electoral democracy does not appear to be substantially related to life control perceptions. We checked this by employing a number of different democracy indicators, including the Polity IV scores, the Database of Political Institutions, the Democracy-Dictatorship dataset, or the World Banks' Good Governance Indicators. In all cases, the democracy indicators are positively related to life control perceptions, once we do not control for economic freedom. Nonetheless, the democracy variables are still statistically insignificant in most cases, and they always loose significance when we control for economic freedom. To account for the effects of economic development in our analysis, we further divided our dataset in two subsamples of almost equal size. Columns (6) - (8) report the results for a sample of 39 rich OECD and EU-countries, including also Taiwan and Singapore. The *rest of the world*

[6] These results are also robust with regards the estimation method employed. Random-slope multilevel regressions (available upon request) confirm our findings in almost every detail. The only substantial difference is that, in contrast to our OLS fixed effects model, the political democracy variable is statistically significant and shows a positive sign, although the effect is rather weak (+0.02).

sample, shown in columns (9) – (11), contains 37 less developed countries from around the globe, including some of the more recent OECD members, such as Turkey, Mexico, and Chile. Both selections are specified in Table A2 of the appendix.

In both subsamples, economic freedom remains positive and significantly related to life control, showing also coefficients of very similar size. Most notably, the EFW coefficients rise in both subsamples when we do not control for GDPPC, and again FHPOLDEM is never significant for explaining individual variation in life control. One notable difference is, however, that GDPPC is not significantly related to life control perceptions in the poor country sample, even when the EFW index is dropped as a covariate (not shown)[7]. It thus seems as if economic freedom does not have an equally important impact via the income channel in developing countries.

Table 1 also displays some interesting results when considering individual-level covariates. These will be commented some more in the following. First, consider the ordinal income rank, where survey respondents have placed themselves into income deciles. As expected, the coefficients are negative and highly significant. The effect of moving one step up on the income ladder for individual life control is on average +0.1 across all income groups. So having a smaller *relative income* has a negative impact on life control. When we employ dummy variables for income quintiles 1 to 4 (the 5th quintile serves as reference group) as an alternative measure in equation (2), the effect tends to show a small non-linearity: Households in the 4th income quintile still report a smaller life control perception than the ones from the highest quintile. However, the difference is only 0.1, while for lower ranked incomes an upward move of one step to the higher quintile increases life control perceptions by roughly 0.2 points. This also helps us to interpret the effects of higher economic freedom: A one point increase of the EFW index - which amounts to roughly one standard deviation - increases life control by +0.2 points. This corresponds to an upward leap of roughly two income deciles.

We also observe that the impact of an increase in relative income is much stronger in the poorer country sample than in the rich country sample. Income rank therefore appears to be more important for individual life control perceptions in less

[7] Results available upon request.

developed countries and this may point to a different valuation of relative incomes in both subsamples.

Second, other socio-economic variables also show the expected association with life control: Having a full time job or being self-employed is positively related to individual perceptions of life control, where the effects of self-employment are always stronger. Unemployment is a strong predictor of reduced life control, but interestingly this effect is stronger in the rich country sample. Both, younger (below the age of 30) and older (above the age of 60) individuals report to have a higher life control, as compared to the group of 30-59 years old. However, this association is also encountered in the high income country sample only. Interestingly, there are only very weak effects (or no effects at all) of being married, or in a regular partnership. Being separated, divorced, or widowed however reduces life control almost as much as moving one rank downward on the income scale. A self-reported good, or very good, health status is strongly related to life control (+0.5), in all samples. Notably, gender does not play a significant role for life control in the rich country sample, while in the poor country sample the perceived life control of females is significantly lower (-0.15 points) than that of men. Religiousness is only weakly related to life control (+0.1) and this is only the case for individuals living developed countries.

Third, a very interesting finding is made in the case of interpersonal or social trust: in the overall sample, respondents who state that they generally trust other anonymous people also have a higher perception of life control. But we find that this effect is exclusively driven by responses from the rich country sample (+0.31), while the relationship between social trust and perceived life control completely disappears in the poor country sample. One tentative explanation for this finding is that average social trust is overall much lower in our poor country sample. If social trust as an institution is generally absent in a society, it doesn't provide the individual that happens to be trusting with a sensation of higher life control anymore. So a sufficient amount of people in a society probably need to trust in others, in order for the trusting individual to gain some type of life control from this personal trait.[8]

[8] Controlling for the country average of social trust shows that it is not significant in the rich sample but strongly negative related to life control in the poorer countries sample.

We also checked whether perceptions and personal ideological position are related and found that (self-assessed) political right wingers generally report a higher average life control (not shown). As a consequence, we did not follow this route any further, as this would create a severe causality question for our investigation: Do political right-wingers perceive more life control, or are people with higher life control perceptions more likely to become political right-wingers?[9] What is important in this context, is the fact that all our results are unaffected by the inclusion of a political ideology variable.

3.2 Who gains the most life control from economic freedom?

A widespread common prejudice is that economic freedom benefits primarily people at the top of the income distribution. Policies that increase economic freedom in a certain country are often perceived to be a program for big-business that pays off only for the already rich and powerful. For example, Bergh and Nilsson (2010) claim that economic freedom may increase income equality in richer countries. Using US state level data, Compton et al. (2014) recently show that that increases in economic freedom positively contribute to income growth. however, the benefits are not equally distributed across the population. In particular, these authors find that higher income quintiles tend to enjoy higher rates of income growth, as a consequence of more economic freedom, and that this positive effect generally does not extend to the lowest income groups.

From a life control perspective this effect is, however, not so obvious. We have already seen that higher income groups experience more overall individual life control, regardless of the degree of economic freedom that is present in a country. Therefore, a more liberalized economy, which is characterized by increased freedom of choice and competition for all, must not automatically contribute to life control perceptions of the (already) rich. On the contrary, increased choice and competition may comparatively strengthen life control perceptions of relatively poor people more than that of relatively rich people. To test for a possible asymmetrical effect of economic

[9]This is closely related to Kouba and Pitlik (2014) and their discussion on interventionist preferences and life control.

freedom on life control perceptions, conditional on relative income levels, we added an interaction term of the income variables with the EFW index score to our estimations. Results are shown in Table 2.

Table 2 about here

Column (1) reports the results for the full sample, including the interaction of individual income rank assessment and the average country EFW index score. We find a negative and significant interaction effect, which is in line with the notion that higher levels of economic freedom benefit lower income groups relatively more, when compared to higher income groups.[10] For the full sample, Figure 2 further illustrates the marginal effects of economic freedom increases on perceived life control, conditional on income rank. In addition to the point estimate line, we also display the 90%-confidence interval. It can easily be seen here that a marginal increase of economic freedom at the 1st income decile is associated with a comparatively higher life control perception of almost +0.3 points. The effects becomes weaker, the further an individual moves up the income ladder. At the 8th decile the effect is still positive, but it seizes to be significant at conventional levels. We replicated the whole analysis using income decile- and income quintile dummies, finding very similar results (not shown): While the effect of increased economic freedom on life control is now relatively strong at lower income deciles (quintiles), it disappears at high levels of income.

Figures 2, 3, and 4 about here

Turning to the group of high income countries in equation (2), the pattern is very similar (see also Figure 3). Only the impact of life control for the 1st income decile is somewhat weaker (slightly above +0.25), while the highest income category again shows no significant increase in life control perceptions from an increase of economic freedom. This makes perfect sense, as encountering oneself on the lower part of the

[10] Again these results are confirmed when employing mixed level regressions instead of simple OLS fixed effects.

income distribution probably means something very different, if one is living in a relatively rich country, as compared to a relatively poor country. In the former case, the relative gain in life control from more economic freedom should therefore be lower. For the group of poor countries in equation (3), the positive marginal effects of higher freedom are almost exclusively concentrated on the lowest five income deciles; while the coefficient is still positive for higher income deciles, it is no longer significant at a 10% confidence level (see Figure 4).

The results from Table 2 are quite instructive, as they seem to suggest that low income groups indeed derive relatively more life control from the presence of economic freedom, as compared to high income groups. The latter seems to be especially true for the upper income groups of developing countries, where relatively high regulation and market entry barriers often shield elites from domestic and foreign competition. Where these barriers are diminished, as represented by a high level of economic freedom, life control perception of relatively poor people are increased, while it does not change for relatively rich people. As a consequence, the overall effect appears to be driven by a positive impact of economic freedom on lower income households.

3.3 Causality between income and life control

The main problem with this last investigation is that we can't exclude an endogenous relationship between relative income and perceived life control of our survey respondents. Previous research has indicated for individuals with a high internal locus of control to be more enterprising and therefore also more likely to succeed in the business world (e.g. Muller and Thomas 2000, Hansemark 2003). If this is the case, we are simply relating the socioeconomic status of our individual respondents with the underlying personality aspect that drives their economic success in the first place. Surely, it is not correct to speak of a causal effect under these circumstances.

In the following, we try to remedy this problem by employing an instrumental variable approach for relative income, so as to reduce possible endogeneity problems. Of course, the success of this strategy crucially depends on the quality of the respective excluded instruments for income rank. We opted for WVS/EVS information

on respondents with a full time job and no children. For both instruments, it can be assumed with relative certainty that they are directly related to individual income: Having a full time work is usually associated with higher earnings, as is having no children, due to the costs that the latter create for the individual. The story is a little more difficult when considering the possibility of a direct relationship between both, a full time job and no children, with the explained variable life control: While these two instruments are probably not perfectly exogenous, their theoretical relationship with life control is ambiguous. It can either be assumed that a full time job decreases life control, due to the working obligations and loss of free time. Alternatively, a full time job increases life control, as it gives additional meaning to the individual. Something similar is true for having children and it may increase or decrease life control, depending on personal preferences.

Econometrically speaking, the analysis of the first stage regressions confirms the statistical validity and reliability of our excluded instruments, as shown in Table 2. According to Hansens's J, over-identification restrictions are valid, under-identification is also rejected, and the C-test rejects exogeneity. The Angrist-Pischke multivariate F-Test is strong for equation (4), and only performs somewhat weaker in equation (5).

Column (4) reports the results of our exercise for the full sample, neglecting for now the interaction effect. Comparing the outcome to equation (1) in Table 1, we find a substantial increase of the income rank coefficient from a value of 0.1 to 0.26. This result is surprising, as it is supportive of the idea that higher life control perceptions have a decreasing impact on income rank. OLS-regressions substantially underestimate the impact of individual income rank on life control.

In equation (5) we include the interaction term of EFW and income rank.[11] Again, we find a negative and highly significant interaction term, which supports the idea that economic freedom is especially good for life control perceptions of people at lower ranks of the income distribution. While one should be careful not to over-emphasize our IV-exercise due to the general problem of finding good and exogenous instruments, our OLS results are confirmed by the Two-Stage-Least-Squares analysis. In addition, we experimented with using only one excluded instrument (either fulltime or

[11] The interaction term is also (by definition) endogenous. We therefore use an additional instrument, i.e., an interaction term of EFW with the "full time job" dummy.

no children, not reported)[12]. Here, full time job appears to be a stronger instrument, while the results hold in both cases.

4 Conclusions

The individual and societal determinants of happiness have been heavily investigated in recent years and relatively new findings indicate that one important correlate is the degree to which people feel they are in control of their own lives. In turn, the economic sources of life control are only insignificantly established in the current literature, despite the fact that Bavetta and Navarra (2009) find economic freedom and locus of control to complement each other in the determination of happiness. Verme (2009) also claims that locus of control affects how people evaluate freedom of choice. Following Buchanan (1995), we try to find out if economic institutions that are built on the principle of free choice are also drivers of individual life control perceptions.

Employing individual data from the latest version of the World Value Survey (WVS), covering the period from 1981 to 2014, we find that living in a country with high overall economic freedom is a mayor determinant of feeling in control of one's own life. Interestingly, the effect is very similar for individuals in high and low income countries, while the impact of democracy is completely negligible in both cases. Interacting relative income with economic freedom, we further find that it is by far the lower income groups that derive the biggest life control from living in a country with comparatively high economic freedom.

Of course, we cannot rule out an endogenous relationship between relative income groups and perceived life control a priori, because previous research has found individuals with a high internal locus of control to also be more successful in the business world. Using questions on the number of children and whether one has a full time job as instruments for individual income status, we further confirm that the effect of income is not endogenously determined by life control.

[12] Results are available upon request.

We speculate that the strong relationship between economic freedom and life control at low income levels is likely to be driven by people with an intrinsically entrepreneurial character. Previous research has linked entrepreneurs to a high internal locus of control, and these individuals are likely to see their life control increased when conditions of economic freedom prevail (e.g. McMullen et al. 2008). In this context, economic freedom probably acts as a kind of compensation mechanism vis-a-vis to income: Low income earners are comparatively more compensated by the presence of economic freedom, which gives them the possibility to exercise free choice in the market. For high income earners, this effect is much less important, as their income already gives them the access to more choices. From a standpoint of life control, economic freedom policies are therefore a real redistribution mechanism that relatively benefits the low income earners with enhanced free choice.

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Appendix

Table A1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
individual					
lifecontrol	262362	6.900	2.339	1	10
incomedecile	262362	4.842	2.440	1	10
socialtrust	262362	0.298	(0-1 dummy)	0	1
religiosity	262362	0.695	(0-1 dummy)	0	1
female	262362	0.517	(0-1 dummy)	0	1
age1530	262362	0.302	(0-1 dummy)	0	1
age60plus	262362	0.169	(0-1 dummy)	0	1
married/together	262362	0.636	(0-1 dummy)	0	1
separated	262362	0.126	(0-1 dummy)	0	1
goodhealth	262362	0.673	(0-1 dummy)	0	1
selfemployed	262362	0.105	(0-1 dummy)	0	1
unemployed	262362	0.075	(0-1 dummy)	0	1
macro					
EFW	178	6.752	1.096	3.4	8.6
GDPPC	178	9.310	1.087	5.437	11.280
DEMPOL	178	7.996	2.769	0	10

Table A2: Country sample

high income sample	**lower income sample**
Australia	Albania
Austria	Argentina
Belgium	Bangladesh
Bulgaria	Brazil
Canada	Chile
Switzerland	China
Cyprus	Colombia
Czech Republic	Dominican Republic
Germany	Egypt
Denmark	Ghana
Spain	Guatemala
Estonia	Indonesia
Finland	India
France	Iran
United Kingdom	Jordan
Greece	Morocco
Croatia	Mexico
Hungary	Mali
Ireland	Malaysia
Iceland	Nigeria
Italy	Pakistan
Japan	Peru
Korea	Philippines
Lithuania	Russia
Luxembourg	Rwanda
Latvia	El Salvador
Malta	Thailand
Netherlands	Trinidad and Tobago
Norway	Turkey
New Zealand	Tanzania
Poland	Uganda
Portugal	Ukraine
Romania	Uruguay
Singapore	Venezuela
Slovak Republic	South Africa
Slovenia	Zambia
Sweden	Zimbabwe
Taiwan	
United States of America	

Table 1: Impact of economic freedom and income rank on life control perceptions

Country sample	1 full	2 full	3 full	4 full	5 full	6 high income	7 high income	8 high income	9 low income	10 low income	11 low income
EFW	**0.192**	**0.194**	**0.230**	**0.207**		**0.188**	**0.247**	**0.161**	**0.220**	**0.238**	**0.251**
	0.006	0.005	0.000	0.002		0.010	0.000	0.055	0.061	0.008	0.043
income rank (deciles)	**0.094**		**0.094**	**0.094**	**0.094**	**0.062**	**0.062**	**0.063**	**0.132**	**0.132**	**0.132**
	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st income quintile		**-0.681**				**0.062**	**0.062**	**0.063**	**0.132**	**0.132**	**0.132**
		0.000				0.000	0.000	0.000	0.000	0.000	0.000
2nd income quintile		**-0.457**				**0.062**	**0.062**	**0.063**	**0.132**	**0.132**	**0.132**
		0.000				0.000	0.000	0.000	0.000	0.000	0.000
3rd income quintile		**-0.276**				**0.062**	**0.062**	**0.063**	**0.132**	**0.132**	**0.132**
		0.000				0.000	0.000	0.000	0.000	0.000	0.000
4th income quintile		**-0.106**				**0.062**	**0.062**	**0.063**	**0.132**	**0.132**	**0.132**
		0.001				0.000	0.000	0.000	0.000	0.000	0.000
GDPPC	**0.114**	**0.105**		**0.109**	**0.412**	**0.184**		**0.202**	**0.051**		**0.043**
	0.481	0.505		0.476	0.006	0.332		0.299	0.809		0.821
FHPOLDEM	**0.022**	**0.023**	**0.021**		**0.052**	**-0.047**	**-0.054**		**0.033**	**0.033**	
	0.708	0.690	0.728		0.340	0.325	0.291		0.646	0.654	
socialtrust	**0.190**	**0.193**	**0.189**	**0.189**	**0.188**	**0.311**	**0.312**	**0.311**	**0.006**	**0.005**	**0.003**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.900	0.913	0.944
religiosity	**0.084**	**0.083**	**0.082**	**0.085**	**0.093**	**0.085**	**0.080**	**0.084**	**0.089**	**0.088**	**0.089**
	0.020	0.022	0.027	0.018	0.014	0.030	0.045	0.033	0.208	0.215	0.208
female	**-0.078**	**-0.079**	**-0.077**	**-0.078**	**-0.077**	**0.014**	**0.015**	**0.014**	**-0.190**	**-0.190**	**-0.191**
	0.002	0.001	0.002	0.002	0.002	0.569	0.543	0.564	0.000	0.000	0.000
age1530	**0.053**	**0.052**	**0.051**	**0.054**	**0.052**	**0.167**	**0.160**	**0.166**	**-0.034**	**-0.034**	**-0.035**
	0.057	0.063	0.062	0.056	0.075	0.000	0.000	0.000	0.268	0.264	0.255
age60plus	**0.072**	**0.069**	**0.074**	**0.071**	**0.074**	**0.090**	**0.094**	**0.090**	**0.022**	**0.023**	**0.021**
	0.061	0.072	0.054	0.062	0.057	0.044	0.031	0.044	0.762	0.758	0.773

Table 1 (continued): Impact of economic freedom and income rank on life control perceptions

	1	2	3	4	5	6	7	8	9	10	11
Country sample	**full**	**full**	**full**	**full**	**full**	**high**	**high**	**high**	**low**	**low**	**low**
married	**-0.040**	**-0.040**	**-0.041**	**-0.040**	**-0.043**	**-0.048**	**-0.052**	**-0.048**	**0.003**	**0.004**	**0.002**
	0.120	0.123	0.106	0.121	0.103	0.047	0.032	0.044	0.934	0.932	0.956
separated	**-0.057**	**-0.060**	**-0.058**	**-0.058**	**-0.054**	**-0.092**	**-0.095**	**-0.092**	**-0.002**	**-0.003**	**-0.005**
	0.104	0.091	0.097	0.102	0.122	0.004	0.003	0.004	0.970	0.969	0.940
goodhealth	**0.536**	**0.537**	**0.537**	**0.536**	**0.541**	**0.612**	**0.614**	**0.611**	**0.439**	**0.439**	**0.440**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
selfemployed	**0.124**	**0.125**	**0.125**	**0.124**	**0.122**	**0.210**	**0.211**	**0.212**	**0.073**	**0.073**	**0.073**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.054	0.053	0.061
unemployed	**-0.227**	**-0.230**	**-0.227**	**-0.226**	**-0.221**	**-0.392**	**-0.391**	**-0.393**	**-0.111**	**-0.112**	**-0.110**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.003
N	262362	262362	262362	262362	262362	139105	139105	139105	123257	123257	123257
countries	76	76	76	76	76	39	39	39	37	37	37
Adj. R-squared	0.109	0.107	0.108	0.108	0.108	0.114	0.114	0.114	0.109	0.109	0.109
F-stat (model)	60.8	64.0	65.5	62.8	67.1	66.6	71.1	67.2	30.5	32.9	29.9

Note: OLS-fixed effects regressions with standard errors clustered at the country level. P-values shown beneath bold typed coefficients. Constant not reported.

Table 2: Effect of economic freedom on life control, conditional on income rank

	1	2	3	4	5
Estimation method:	**OLS**	**OLS**	**OLS**	**2SLS**	**2SLS**
Sample:	**full**	**high income**	**low income**	**full**	**full**
EFW	**0.305**	**0.274**	**0.281**	**0.208**	**0.571**
	0.000	0.001	0.023	0.004	0.000
income decile	**0.276**	**0.203**	**0.234**	**0.259**	**0.864**
	0.000	0.002	0.002	0.000	0.000
EFW X income decile	**-0.027**	**-0.019**	**-0.016**		**-0.086**
	0.000	0.017	0.113		0.000
N	**262362**	**139105**	**123257**	**255969**	**255969**
countries	**76**	**39**	**37**	**76**	**76**
Adj. R-square	**0.109**	**0.115**	**0.109**		
F-stat (model)	**60.5**	**65.6**	**31.4**		
IV-Tests					
Angrist-Pischke				**74.8**	**3.2/3.6**
(multivariate F-test)				0.000	0.046/0.032
Underidentification				**37.2**	**33.8**
(Kleibergen-Paap rk LM)				0.000	0.000
Hansen J-Test				**0.876**	**0.252**
				0.349	0.615
Endogeneity C-Test				**26.0**	**30.9**
				0.000	0.000

Note: Columns (1) - (3): OLS-fixed effects regressions with standard errors clustered at the country level. P-values shown beneath coefficients. Columns (4) and (5): Two-Stage-Least squares estimates with income rank instrumented by "full time job" and "no children" (column 4); income rank and EFW X income rank (column 5) instrumented by "full time"-job and "no children" and an interaction of "full time job" with EFW. Additional control variables see Table 1.

Figure 1: Life control and economic freedom at the country level

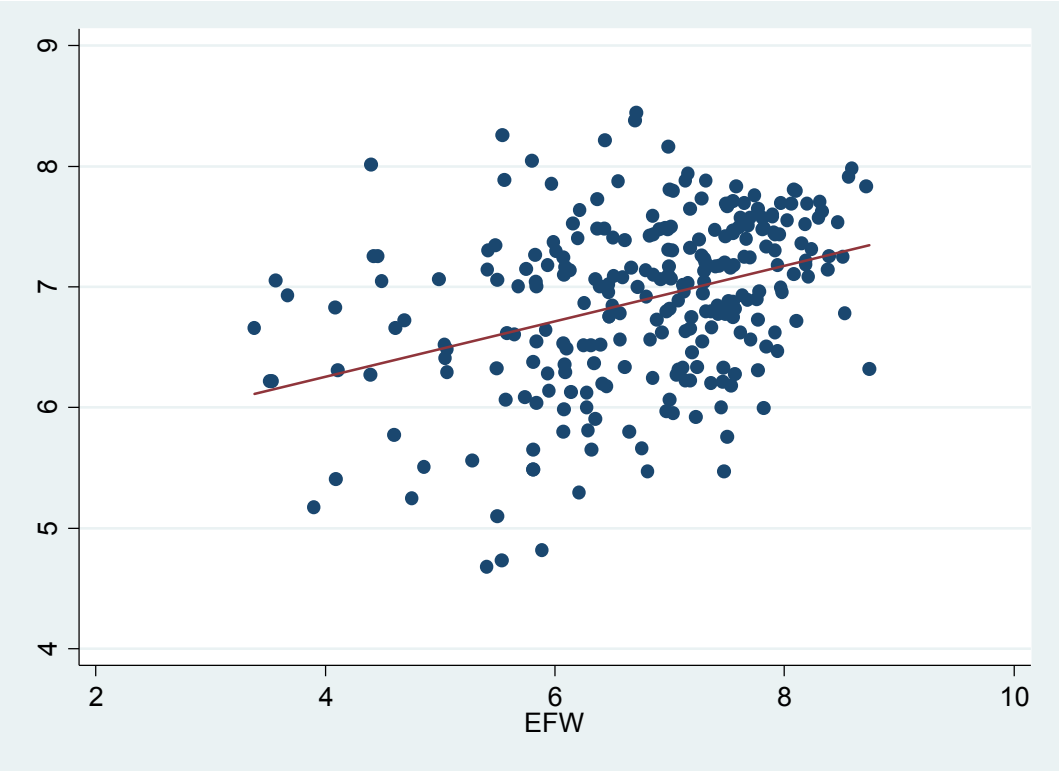

Figure 2: Marginal effect of economic freedom (full sample)

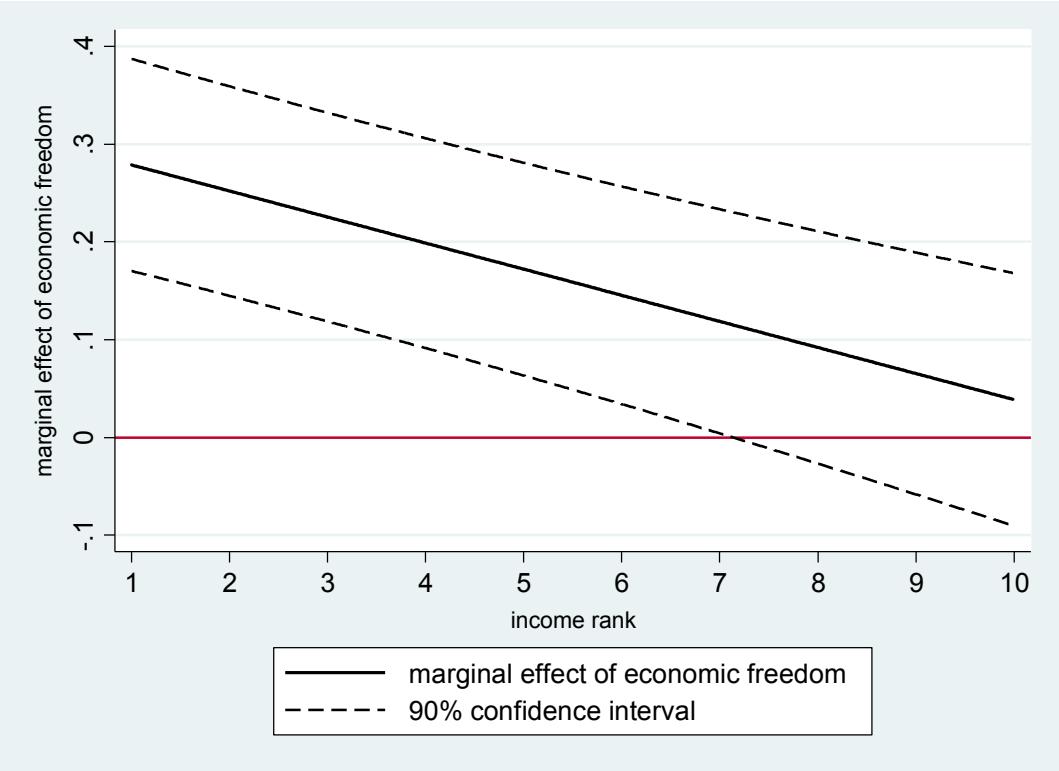

Figure 3: Marginal effect of economic freedom (high income countries)

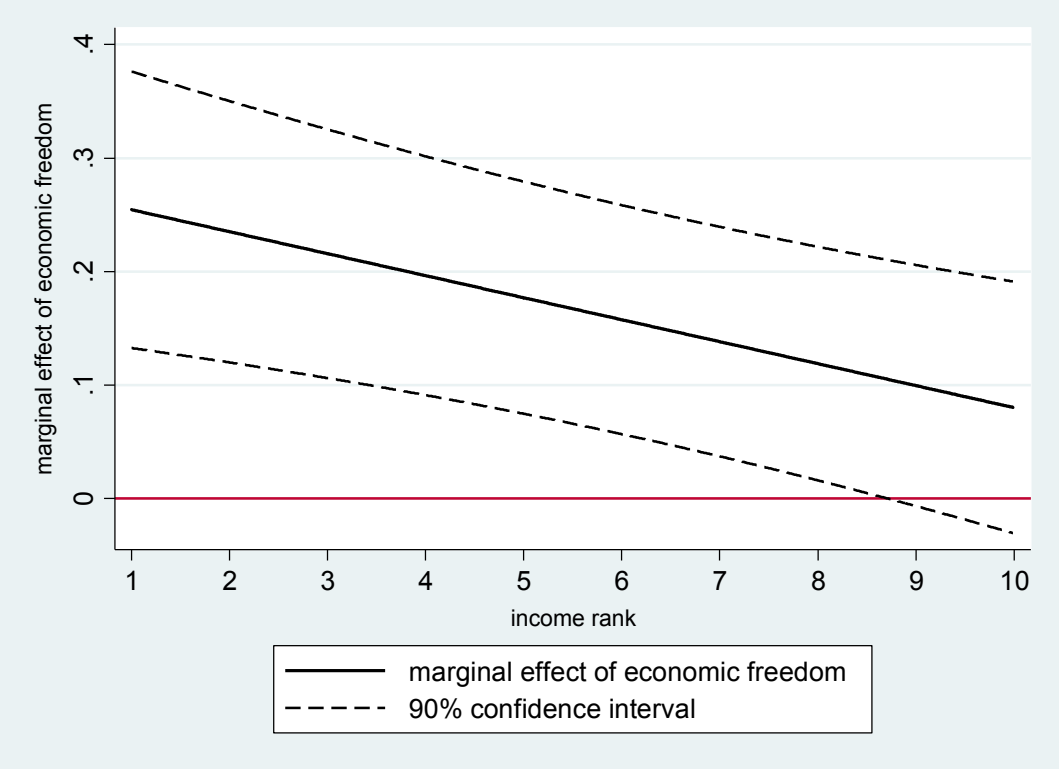

Figure 4: Marginal effect of economic freedom (low income countries)

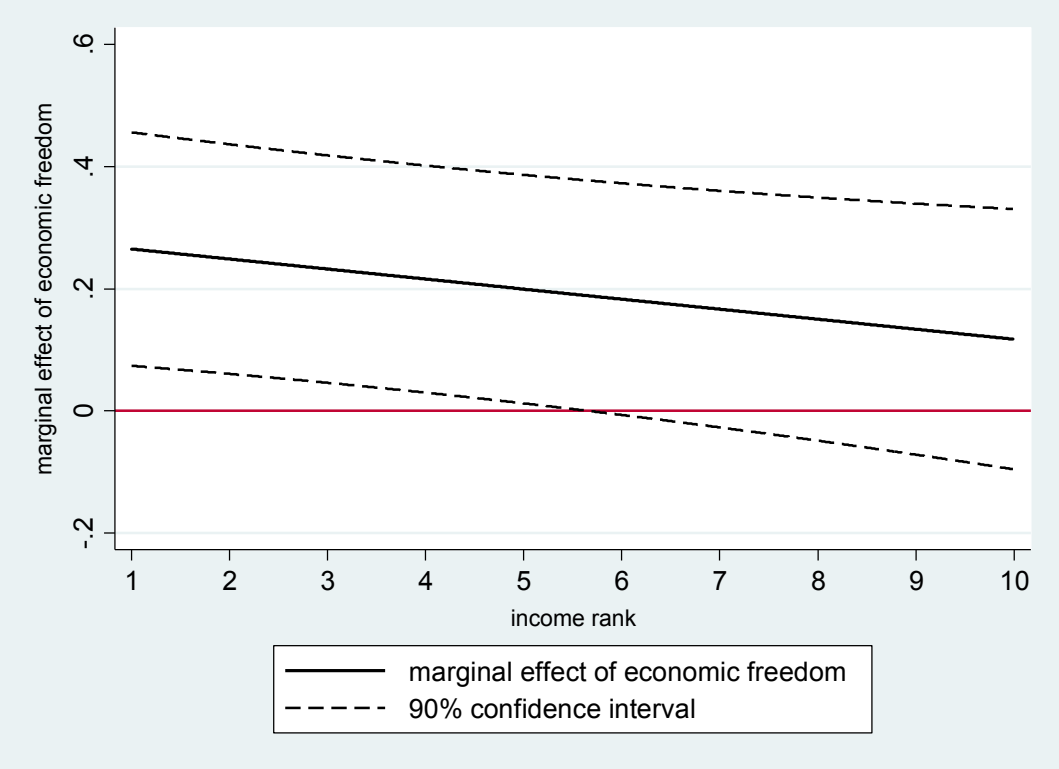

Figure 5: Marginal effect of economic freedom (full sample based on IV)