Beyond Shared Prosperity: Measuring Progress of the Bottom 40 Per Cent using Subjective Well-Being Date

Martijn Burger (EHERO, Erasmus University Rotterdam, Netherlands), Elena Ianchovichina (World Bank), Efstratia Arampatzi (EHERO, Erasmus University Rotterdam, Netherlands), Shantayanan Devarajan (World Bank), Ruut Veenhoven (EHERO, Erasmus University Rotterdam, Netherlands), and Caroline Witte (Erasmus University Rotterdam, Netherlands)

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Martijn J. Burger,[♣] Elena I. Ianchovichina,[ℵ] Efstratia Arampatzi[Π],

Shantayanan Devarajan[•] , Ruut Veenhoven[♥] and Caroline T. Witte,[♦]

[♣] Martijn J. Burger is academic director at the Erasmus Happiness Economics Research Organisation and an assistant professor in the Department of Applied Economics, Erasmus University, Rotterdam and Tinbergen Institute, P.O. Box 1738, 3000 DR Rotterdam, the Netherlands, Tel: +31 (0) 10 4089579, Fax: +31 (0)10 4089141. E-mail: mburger@ese.eur.nl. URL: http://www.mjburger.net.

[ℵ] Elena I. Ianchovichina is the lead economist at the Chief Economist Office, Middle East and North Africa Region, the World Bank, 1818 H Street NW, Washington, DC 20433, USA, Tel.: +1 202 458 8910, E-mail: eianchovichina@worldbank.org.

[Π] Efstratia Arampatzi is PhD researcher at the Erasmus Happiness Economics Research Organisation, Erasmus University, Rotterdam.

[•] Shantayanan Devarajan is chief economist, Middle East and North Africa Region, the World Bank.

[♥] Ruut Veenhoven is emeritus professor at the Erasmus Happiness Economics Research Organisation, Erasmus University, Rotterdam.

[♦] Caroline T. Witte is a PhD Candidate in the Department of Applied Economics, Erasmus University, Rotterdam, Erasmus Research Institute of Management (ERIM).

I. Introduction

In 2013 the World Bank adopted the goal of promoting shared prosperity, formally defined as *'fostering income growth of the bottom 40 per cent of the welfare distribution in every country',* and *'measured by annualized growth in average real per capita consumption or income of the bottom 40 per cent'.* The notion of shared prosperity, proposed in Basu (2013) is closely linked to the concept of inclusive growth, which is discussed in detail in the work of Ianchovichina and Lundstrom Gable (2012). In order to achieve progress with shared prosperity, economic growth needs to be inclusive of the least well off in societies through productive employment. Tracking the income growth of the bottom 40 per cent (B40) facilitates an empirical analysis of the effect of economic growth on the income of the poor and vulnerable in a country.

The concept of shared prosperity is also closely linked to the notion of income inequality. Recording the income growth of the poor sheds light on whether inequality is falling or rising. In line with this reasoning, the Global Monitoring Report (World Bank and International Monetary Fund, 2015) introduced the concept of 'shared prosperity premium', defined as a faster income growth of B40 relative to total population. The report argues that progress with shared prosperity is more sustainable if there is a *premium*; otherwise increasing income inequality along with growth may limit development progress and increase political instability.

This paper discusses the need to use different measures to track progress with shared prosperity. Nobel Laureate Amartya Sen (1990) argued that development cannot be simply measured by economic growth and suggests that there are other necessary conditions for improvements in individuals' capabilities, such as increased access to health and education. This has also been acknowledged in one of the most recent Global Monitoring Reports (World Bank and International Monetary Fund, 2015), which recognizes the importance of progress in education, health, nutrition, access to infrastructure, and raising voice and participation of the poorest in society for progress with shared prosperity: *'the goal itself is much broader in that it aspires to sustainably elevate the well-being of the poorer segments of society'* (1.35, p.40), where it is believed that *'monetary and non-monetary aspects of shared prosperity feed into each other and together can produce greater well-being for the poorer segments of society'* (1.37, p. 40-41). The authors of the report are aware of the severe limitations of measuring progress with shared prosperity through income or consumption data and opt to track progress on the non-monetary dimensions of shared prosperity using the adjusted multidimensional headcount ratio that measures poverty by focusing on the breadth or multiplicity of deprivations including education, health, housing and food consumption. They note significant deviations in the patterns of monetary and multidimensional poverty at the country level. However, the concept of shared

prosperity as defined and measured by the World Bank ignores these non-monetary aspects of welfare, as they are not adequately captured by measures of income or expenditures growth.

In this paper, we make the case for measuring progress with shared prosperity using alternative welfare measures constructed using subjective well-being data that take in both monetary and non-monetary human needs for a good life (Veenhoven, 2000). In the spirit of the Stiglitz-Sen-Fitoussi Commission' 'Beyond GDP' report (Stiglitz et al., 2009) and the United Nations' World Happiness Report (Helliwell et al., 2016), we argue that measuring shared prosperity using subjective well-being data can tell us more about shared prosperity than just income data or even objective multidimensional poverty data can do. Subjective well-being – also known as happiness or life satisfaction – has generally been defined as *'the degree to which an individual judges the overall quality of his/her own life-as-a-whole favorably'* (Veenhoven 1984, Chapter 2).[1] Biologically, high levels of subjective well-being are a signal that we are thriving and indicate the presence of good life chances in society, such as income, education, access to infrastructure, and high quality institutions. When our basic human needs are satisfied and there is a good fit between opportunities in a society and our capacities, this will be translated in good mood and subsequently into higher levels of life satisfaction (Veenhoven, 2000). In addition, subjective well-being has been found to predict future health, mortality, productivity, and income (Oswald and Wu, 2010; De Neve et al., 2013). In other words, being satisfied with life embodies *both* subjective and objective welfare.

Although subjective data have often been criticized as being a noisy approximation of the facts and therefore discarded from economic analyses, we argue that subjective well-being can complement the measurement of 'broad welfare' with existing objective measures in several ways. Although the measurement of subjective data comes with its own problems related to the validity and reliability of the measures (discussed at the end of the paper, but see e.g., Bertrand and Mullainathan, 2001), they can also provide useful information that cannot be obtained from objective data (e.g., Veenhoven, 2002; Deaton et al., 2009; Diener et al., 2009; Ravallion, 2012) for four different reasons.

First, objective indicators such as income and education are not well able to capture people's values and preferences in that objective conditions of a society merely indicate the conditions for a good life, but not necessarily the outcomes of a good life (Veenhoven, 2000; 2002). Although the domains encapsulated in the shared prosperity measure and multidimensional poverty index may contribute to subjective well-being, they do not necessarily do so. In this regard, the importance of these domains to overall well-being is also questionable because their choice reflects the subjective

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[1] See also Ravallion (2012) for an overview of the use of subjective data in measuring poverty.

opinion of the respective researcher or policy-maker of what constitutes a good life (Deaton et al., 2009). Here, it is not only a problem that it is presumed that an adequate list of social characteristics that are good for quality of life can be made (Dolan and White, 2007), but also how the different aspects should be weighted when aggregating them into an index (Diener et al., 2009). Instead, subjective data can provide additional information about progress as it provides us with an overall picture of quality of life (Veenhoven, 2002). In addition, subjective well-being can uncover what objective conditions matter for individual well-being using regression analyses.

Second and related to the previous point, there might be some systematic differences in how the different aspects of objective well-being are valued across countries as well as across different groups within countries (Deaton et al., 2009). In addition, values and preferences within a given society may change over time as people calibrate their subjective well-being based on the 'ideal' they have for their personal life ('reference point'). In low income countries, for example, people tend to care less about corruption (Tay et al., 2014; Abdur Rahman et al., 2017) as the poor are many oriented towards survival and fulfillment of basic needs. Economic development leads to awareness and demands for greater integrity, as reflected by higher levels of disapproval towards corruption (Abdur Rahman et al., 2017). Likewise, not all cultures value safety or climate to the same degree as not all population groups within countries equally value religion. Therefore, the use of objective social indicators might not properly capture well-being in societies, and cross-country comparisons might not be accurate.

Third, subjective data include information that is often absent in objective measures, which makes them useful as standalone indicators (Veenhoven, 2002; Diener et al., 2009; Okulicz-Kozaryn, 2011; Jahedi and Méndez, 2014). While objective measures can capture the objectively measurable part of a concept, they often fail to capture all its relevant components. Certainly, objective indicators are preferred, when clearly defined concepts are being measured. However, with regards to broader concepts, such as prosperity, subjective measures are considered to be useful tools given their ability to capture unobserved components of that concept by gauging people's evaluations and experiences (Diener et al., 2009; Jahedi and Méndez, 2014). If we would like to quantify human right violations, for example, the objective indicator would likely capture the number of human right violation incidents that took place. However, the same measure would fail in capturing incidents that could have happened but were avoided because of random events (other occasions, avoiding certain environments, etc.). On a similar note, unemployment statistics may improve as more people drop out of the work force and household expenditures may rise as a result of an increase in food prices. Although the latter events would be considered to be an objective improvement of quality of life in a country, they do not signify progress as the decline in living

standards remains obscured. In the case of household expenditures, people can be asked about whether they are 'satisfied with their standards of living' or whether they 'experience stress to make ends meet'. In this regard, literature on the relative performance of objective and subjective indicators has suggested that in absence of perfectly measured objective information, subjective measures generally perform better and complement objective data (Jahedi and Méndez, 2014).

Fourth, subjective data can also be used to capture useful aspects of shared well-being when relevant objective information is absent. Although proposed multidimensional poverty measures for the B40 already complement existing monetary measures that are used in the Global Monitoring Report, objective data on many of the aspects measured is thin on the ground. Information on the health, education and living conditions of the B40 is for many countries lacking or only collected once every four or five years. This is, for example, evidenced by many missing values for middle-income countries for the Health Nutrition and Population Statistics by Wealth Quintile Database that is used to measure multidimensional poverty for the B40 in the Global Monitoring Report. Subjective data from, for example, the annually held Gallup World Poll can be a substitute for this missing data.

In this study, we compare progress with shared prosperity based on the monetary measures, reported in the Global Monitoring Report (World Bank and International Monetary Fund, 2015), and progress with shared prosperity ('shared well-being') based on subjective well-being measures. We look at the evolution of subjective well-being scores of the poorest people (B40), where subjective well-being refers to the appreciation of one's own life-as-a-whole and can be measured using survey questions. The evaluations of subjective well-being include both emotional reactions and cognitive judgments. Subjective well-being in terms of hedonic affect refers to feelings, emotions, and moods that occur, while subjective well-being as a cognitive construct focuses on contentment, in which current life is compared to the worse and best possible life one can imagine (Diener et al., 1999; Veenhoven, 2000).

In building the shared prosperity indicator, we focus on the cognitive component of subjective well-being by measuring subjective well-being using the Cantril ladder (Cantril, 1965) from the Gallup World Poll 2006-2015: '*Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time*?'[2] In our analysis, we focus on the developing countries that are included in the assessment of the Global Monitoring Report (World Bank and International Monetary Fund, 2015). For 52 out of the 71

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[2] We assume here cardinality of scale responses. See Ferrer-i-Carbonnell and Frijters (2004) for a discussion of this.

developing countries included in the report, subjective well-being data could be obtained for the relevant years with data on the monetary measures of shared prosperity. This way we could compare the progress with the monetary measure of shared prosperity, provided in the report, and the progress with the measure of shared wellbeing, proposed in this paper.

We find qualitatively different results. For only 50% of the reported country cases, the conclusions reached using subjective wellbeing data and monetary measures are similar. Many countries that made progress with shared prosperity did not make progress with shared well-being. Analysis of the factors associated with the discrepancy between the shared prosperity and shared well-being indicators suggests that standards of living and quality of governance can explain the discrepancy between monetary and subjective well-being measures observed in parts of the developing world, particularly Eastern Europe and the Middle East and North Africa. This finding underlines the importance of moving beyond income and expenditures to track progress with shared prosperity and of using subjective data as input for the indices that track shared prosperity.

The remainder of this paper is organized as follows. The conceptual framework is further elaborated in Section II. Section III presents the empirical analysis of the drivers of the differences between shared prosperity and shared well-being while conclusion can be found in Section IV.

II. Comparing Shared Prosperity and Shared Well-Being in Developing Countries

Both prosperity and subjective well-being data provide an indication of quality of life. However, where prosperity mainly focuses on the livability of the environment or *opportunities* for a good quality of life, subjective well-being predominately reflects *experienced* quality of life. In other words, where shared prosperity is mainly geared at an identification of *life chances* in a given society, shared prosperity is centered on *life outcomes* or how people appreciate the quality of their own lives. Following Veenhoven (2000), this distinction between life chances and life outcomes is of pivotal importance: opportunities and outcomes are related, but not necessarily same. Chances can fail to be realized, while at the same time people sometimes make much of their life in spite of poor opportunities. Hence, increased income or expenditures do not necessarily indicate rising subjective well-being levels. At the same time, it should also be taken into account that monetary welfare only constitutes one element of the livability of the environment and other aspects such as the quality of education and housing matter as well.

Similar distinctions between opportunities and outcomes can be found in public-health research (Veenhoven, 2000). Health indicators reflecting conditions for a good health such as access to healthcare and adequate nutrition are considered to be very different from indicators reflecting

outcomes of a healthy life such as disease and mortality figures. Along these lines, a substantial amount of health research aims at assessing the relationship between conditions and outcomes. For example, do public expenditures on mental healthcare really improve mental health? However, in the literature on quality of life, means and ends are often less well distinguished than in the health-related research: in our daily language and policy discussions we often confuse life satisfaction with livability of the environment.

Table 1: Progress with Shared Prosperity and Shared Well-being Explained

Groups	Progress with Shared Prosperity	Progress with Shared Well-Being
Strong Progress	$0 < g\_INC \leq g\_INC_{B40}$	$0 < g\_LS \leq g\_LS_{B40}$
Weak Progress	$0 < g\_INC_{B40} < g\_INC$	$0 < g\_LS_{B40} < g\_LS$
No progress	$g\_INC_{B40} < 0 < g\_INC$ or $g\_INC < 0 < g\_INC_{B40}$	$g\_LS_{B40} < 0 < g\_LS$ or $g\_LS < 0 < g\_LS_{B40}$
Regress	$g\_INC_{B40} < g\_INC < 0$ or $g\_INC \leq g\_INC_{B40} < 0$	$g\_LS_{B40} < g\_LS < 0$ or $g\_LS < 0 < g\_LS_{B40}$

Following the original definition of shared prosperity (Basu, 2013), shared well-being can be defined as improvements in the Cantril ladder score of the B40. An overview is presented in Table 1, where g_INC refers to income growth and g_LS refers to improvements in subjective well-being. With regard to both income growth and life satisfaction development, we focus specifically on the developments of the poorest 40% of the population (B40). Countries making strong progress towards shared well-being are those where subjective well-being improves on average and where there is a shared well-being premium in that the subjective well-being level of the poorest people improves more than the subjective well-being level on average ($0 < g\_LS \leq g\_LS_{B40}$). Countries where the average subjective well-being level increases but the subjective well-being of the B40 improves less than average subjective well-being have weak progress towards shared well-being ($0 < g\_LS_{B40} < g\_LS$). Countries are not making progress with shared well-being when subjective well-being increases on average but the B40 are worse off ($g\_LS_{B40} < 0 < g\_LS$) or when people in a country are worse off on average despite increases in well-being for the B40 ($g\_LS < 0 < g\_LS_{B40}$). Countries where happiness declines on average regardless of whether it declines more for the B40 or on average ($g\_LS_{B40} < g\_LS < 0$, $g\_LS \leq g\_LS_{B40} < 0$) are also not successful at improving shared prosperity.

When we apply this classification to the subjective well-being data we find that during the last decade many countries, most of them Latin American economies, made strong progress with shared well-being (Figure 1; Appendix A). Strong progress was also observed in some Eastern

European and Central Asian countries and a couple of African economies. In a number of cases, there was weak progress with shared well-being (e.g. Albania and Thailand). There were also many cases when countries regressed and were not successful at improving shared well-being. These countries are located in different parts of the world and stand out as laggards in reform. Examples include Belarus and Serbia in Eastern Europe, Laos in East Asia, Sri Lanka in South Asia, and Uganda and Tanzania in Africa. There are relatively few countries where the well-being of the B40 improved but average well-being deteriorated (e.g. Hungary) or where the well-being of the B40 deteriorated but average well-being improved (e.g. Iran).

At the same time, a different picture emerges with the household income and expenditures data (Figure 2) in the Global Monitoring Report 2015/2016 (World Bank and IMF, 2015). The countries that made strong progress in shared prosperity based on the subjective well-being data are not necessarily the countries that made strong progress in shared prosperity based on the income and expenditures data. In some countries, there was a strong growth in household income or expenditures of the B40, but a declining well-being level of the B40 (e.g., Belarus, Cambodia, and Uganda). However, in other cases, there was a decline in household income or expenditures of the B40, but a rising well-being level of the B40 (e.g., Albania, Malawi, and Montenegro).

Both measures are combined in Figure 3. Progress with shared prosperity on both monetary and subjective well-being dimensions can be referred to as 'happy growth', while decline in both the household incomes[3] and subjective well-being of the B40 can be regarded as 'deprivation' or 'unhappy decline'. When income is increasing, but annualized growth rate in subjective well-being of the B40 is negative, the term 'dissonance' or 'unhappy growth' is applied, and the combination of declining income and increasing subjective well-being is labeled 'compensation' or 'happy decline'.

We find that progress or decline with shared well-being and shared prosperity coincides mostly in the cases of Latin American economies and many Eastern European and Central Asian countries (Figure 3, top right and bottom left quadrants). There was dissonance marked by progress with shared prosperity but not shared well-being, mostly in countries in the Middle East and North Africa, a couple of countries in East Africa and East Asia, and a few economies in other parts of the world (Figure 2, bottom right quadrant). Arampatzi et al. (2015) call this dissonance unhappy development and associate it with deterioration in the quality of life, particularly the standards of

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[3] In this paper we use incomes and expenditures interchangeably.

living, quality of public services, unemployment, and poor governance.[4] In these cases, the shared prosperity measure overstates the progress made with improving the well-being of the B40. Finally, in some Eastern European countries, the incomes of the B40 deteriorated but their well-being improved. People in these countries have had to adapt to sluggish economic growth in the aftermath of the global financial and economic crisis, but other aspect of life improved leading to increases in happiness levels.

Figure 1: Progress with Shared Prosperity using Subjective Well-Being Data

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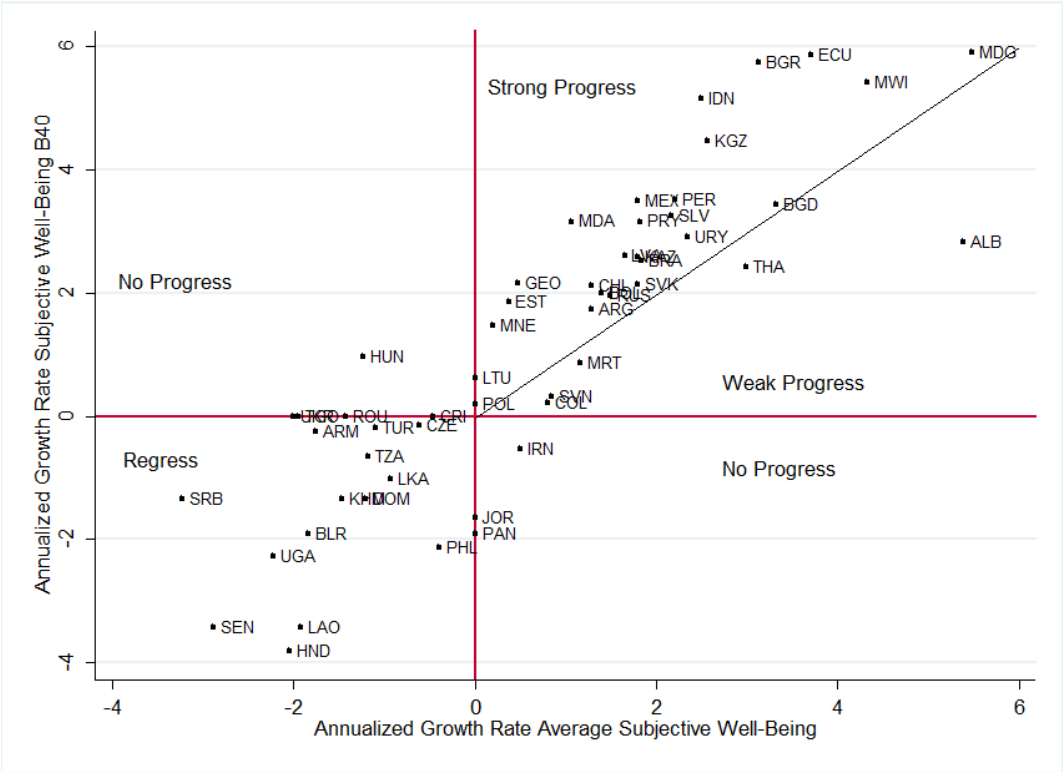
[4] This observation is related to the literature on economic growth and happiness, which has found that people living in fast-growing economies are on average less happy than those living in slow-growing economies (Deaton, 2008; Stevenson and Wolfers, 2008; Graham and Lora, 2009).

Figure 2: Progress with Shared Prosperity using Household Income and Expenditures Data

Figure 3: Progress with Shared Prosperity: Household Income vs. Subjective Well-Being Data
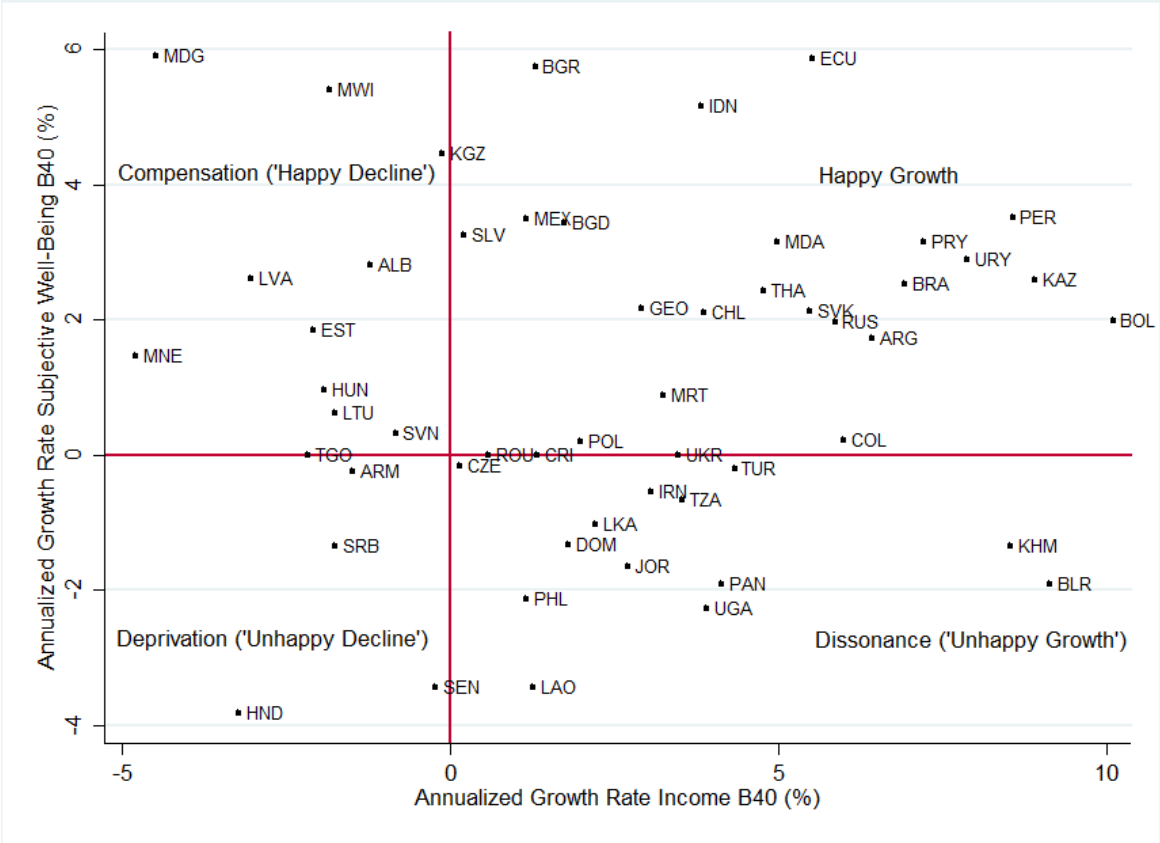
III. Explaining Discrepancies between Shared Prosperity and Shared Well-Being

Explanations for the discrepancy between shared prosperity and shared well-being can be put into three categories reflecting the limitations of the use of income data to measure progress with prosperity. First, there can be a difference between objective and subjective economic development indicators. The incomes or expenditures of the B40 might have been rising but at the same time this group experienced deterioration in their ability to meet basic needs. This deterioration might be the result of either rising energy or food prices, or changes in reference points of what a good standard of living constitutes. Second, other poverty-related aspects of quality of life have not improved or have deteriorated, offsetting the positive effect that economic growth has on subjective well-being. For example, if increasing income coincides with decreasing quality or access to education or healthcare, overall well-being effects can be negative while income may be rising. Third and related to the previous point, other factors that co-determine subjective well-being, such as quality of governance and democracy, might have declined, stagnated or not improved sufficiently. Especially when these factors are more important in the national well-being function, income growth do not translate into increasing well-being levels.

To examine these different explanations, we utilize data from the Gallup World Poll for the same years as the reported subjective well-being data, except for some of the data reflecting quality of institutions, which are obtained from the Worldwide Governance Indicators (Kaufmann et al., 2006). All indicators obtained from the Gallup World Poll reflect the changes and average scores of the B40. A full overview and description of the variables included in the analysis can be found in Appendix B. Note that for each dimension, we explore whether the average level and changes in the level over the period of study are associated with group membership.

Alternative Indicators for Levels and Changes in Monetary Well-being (B40 Specific)

1. Level and changes in satisfaction with standards of living
2. Level and changes in capability that people have to meet their basic needs for food and shelter
3. Level and changes in economic expectations
4. Level and changes in income inequality (Gini)
5. Level and changes in inflation

Multidimensional Poverty Indicators (B40 Specific)

1. Level and changes in percentage of people with health problems
2. Level and changes in satisfaction with healthcare
3. Level and changes in unemployment

4. Level and changes in job market expectations

5. Level and changes in education system satisfaction levels

Other Aspects Contributing to Subjective Well-being: Institutional Quality and Public Services (B40 Specific)

1. Level and changes in perceived corruption

2. Level and changes in quality of public services

3. Level and changes in approval of leadership and confidence government

4. Level and changes in self-reported freedom

5. Institutional quality (Kaufmann Index, non-B40 specific)

Empirical Analysis

To formally test why some countries experience happy growth, while other countries experience unhappy growth, we estimate several discrete choice models to examine the drivers of group membership (Wrigley, 1985; Long, 1997). One of the most frequently used models to analyze group membership is the multinomial logit model (MNL). In the MNL model, the choice probabilities among a set of categorically distributed alternatives (in our case, the five types of groups) are simultaneously estimated.[5] A common problem with the interpretation of MNL outcomes is the large number of coefficients that has to be taken into account. To facilitate interpretation, odds-ratio plots are used to display the results (Long and Freese, 2006). Due to the limited number of countries and a strong correlation between some of the variables in the empirical analysis, we test the designated indicators one-by-one. We recognize this problem and caution that our results should be interpreted as conditional associations, rather than reflecting causal relationships.

In our analysis, we distinguish between five different groups based on classification introduced in Figure 3: (1) deprivation or unhappy decline countries, (2) dissonance or unhappy growth countries, (3) compensation or happy decline countries, (4) thriving or happy growth countries, and (5) neutral countries. The group of neutral countries are countries that are difficult to group because they had either an annualized life satisfaction growth rate of around 0% (-0.5% – 0.5%) or an annualized income growth rate of around 0% (-0.5% – 0.5%).

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[5] However, MNL assumes the independence of irrelevant alternatives (IIA), meaning that the addition or removal of a category should not affect the odds among the remaining alternatives. As a result, MNL estimation would only function well when alternatives are dissimilar (Cheng and Long, 2007). A violation of the IIA assumption results in inconsistent estimates and would require the estimation of alternative models, such as the multinomial probit (MNP) model. To test for a potential violation of the IIA assumption, we performed a Hausman-McFadden test and a Small-Hsiao test. Because the results of both the Hausman-McFadden and Small-Hsiao tests pointed at a confirmation of the IIA assumption, we can safely use the MNL estimation.
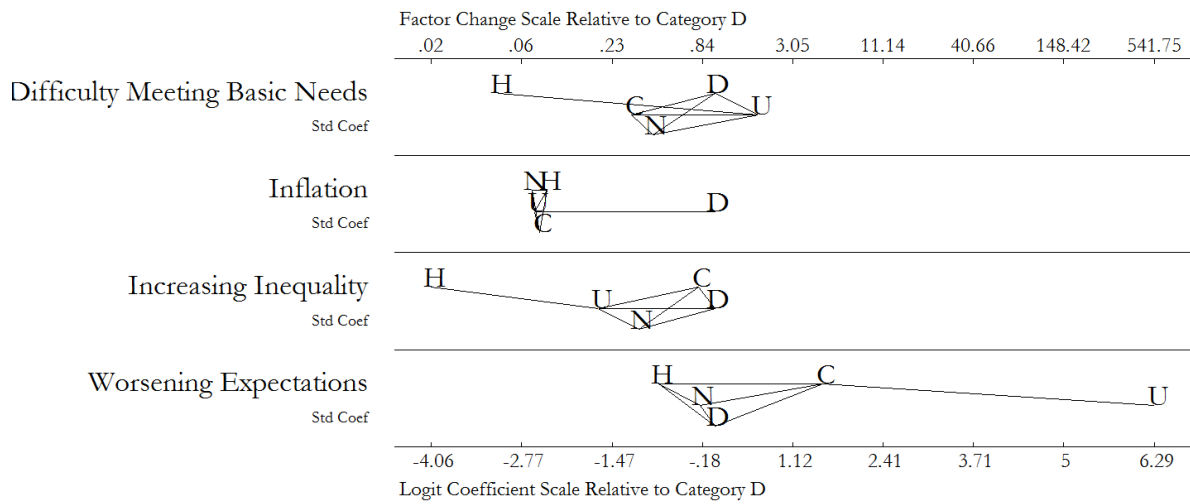
Figure 4-7 display the odds-ratio plots based on the MNL estimates for the different indicators[6], controlling for the baseline income and life satisfaction level of the B40. For brevity, we only report the statistically significant findings and due to multicollinearity issues we analyze the associations with group membership per block of variables. The symbols in the figures refer to countries with unhappy decline (U), countries with unhappy growth (D), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N). Correspondingly, each row in the figure represents the odds of ending up in a particular country group when the value of a particular variable increases by 1 standard deviation. The scale of the figure is set relative to unhappy growth countries. If a symbol is positioned to the right of another symbol, then an increase in that particular variable will make it more likely that the country will be positioned in that group. The distance between a pair of symbols indicates the magnitude of the effect, while a line between adjacent symbols shows that the difference between the two groups is not statistically significant (at the 10% level). Finally, it is important to take the base odds and the discrete changes in the odds into account. Note that an increase in the odds by a factor 10 has only a small impact when the current odds are 1 in 1000 and a large impact when the odds are 1 in 5. Therefore, the size of a symbol is proportional to the magnitude of the discrete change in the odds. The vertical spacing has no meaning and is only included to improve the legibility of the figure.

Several conclusions can be drawn from the figures.

First, other monetary variables explain part of the differences between the shared prosperity and shared well-being indicators. As shown in Figure 4, countries with higher levels of inflation and where the B40 have difficulties to meet their basic needs for food and shelter are more likely to fall in the group of unhappy growth countries than in the group of happy growth countries. In general, low levels of difficulty to meet basic needs substantiates the happy growth countries from the other country groupings, while relative high inflation rates characterize unhappy growth countries. These findings highlight one of the problems of using income data to capture shared prosperity in that these data do not always purchasing power well. In addition, we find that happy growth countries set themselves apart by decreasing inequality levels. This signifies that not only absolute income, but also relative income is strongly correlated with subjective well-being in developing countries, and, hence, the importance to also focus on shared prosperity premium in policy discourses. Finally, unhappy decline countries (only 2 in the data) are characterized by worsening expectations with regards to standards of living.
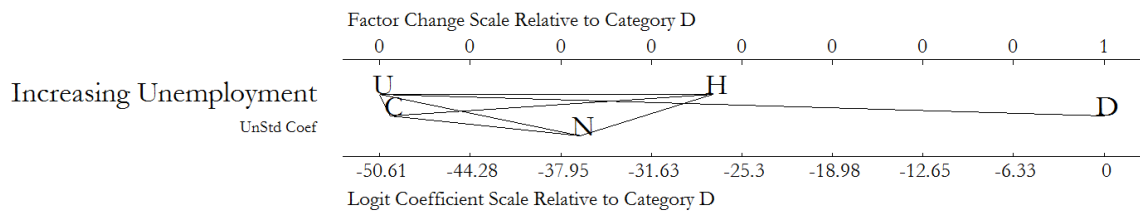
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[6] Regression outputs for Figure 4, Figure 5 and Figure 6 are presented in Appendix C in Table 1, Table 2 and Table 3, respectively.

Figure 4: Odds-Ratio Plot of Alternative Monetary Variables Relative to Unhappy Growth Regions

Factor Change Scale Relative to Category D

| .02 | .06 | .23 | .84 | 3.05 | 11.14 | 40.66 | 148.42 | 541.75 |

Difficulty Meeting Basic Needs
Std Coef

Inflation
Std Coef

Increasing Inequality
Std Coef

Worsening Expectations
Std Coef

| -4.06 | -2.77 | -1.47 | -.18 | 1.12 | 2.41 | 3.71 | 5 | 6.29 |

Logit Coefficient Scale Relative to Category D

Note: Letters refer to countries with unhappy decline (U), countries with unhappy growth (D), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N)

Figure 5: Odds-Ratio Plot of Increasing Unemployment Relative to Unhappy Growth Regions

Factor Change Scale Relative to Category D

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

Increasing Unemployment
UnStd Coef

| -50.61 | -44.28 | -37.95 | -31.63 | -25.3 | -18.98 | -12.65 | -6.33 | 0 |

Logit Coefficient Scale Relative to Category D

Note: Letters refer to countries with unhappy decline (U), countries with unhappy growth (D), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N)

Figure 6: Odds-Ratio Plot of Institutional Dimensions Relative to Unhappy Growth Regions

Factor Change Scale Relative to Category D

| .66 | .92 | 1.27 | 1.76 | 2.44 | 3.39 | 4.69 | 6.51 | 9.02 |

Institutional Quality
Std Coef

More Freedom in Life
Std Coef

| -.41 | -.09 | .24 | .57 | .89 | 1.22 | 1.55 | 1.87 | 2.2 |

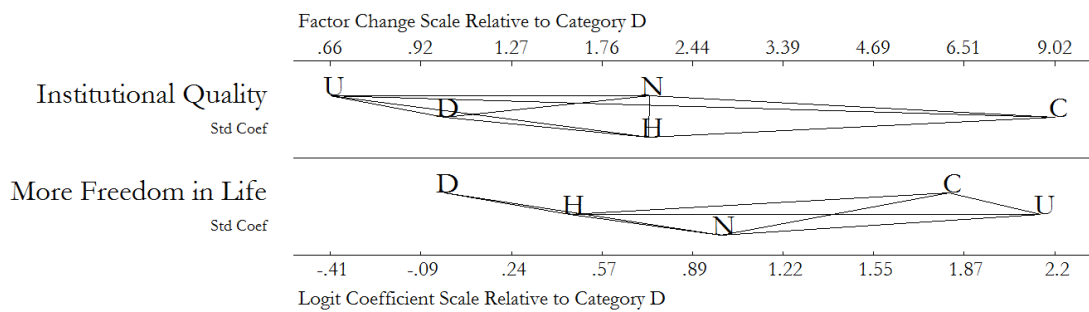Logit Coefficient Scale Relative to Category D

Note: Letters refer to countries with unhappy decline (U), countries with unhappy growth (D), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N)

Apart from monetary factors, there are several non-monetary factors that explain the difference between the shared prosperity and shared well-being indicators. Although the multidimensional poverty measures such as health and education are not significantly associated with group membership, we find that increasing unemployment rates (Figure 5) as well as institutions (Figure 6) matter. Countries characterized by unhappy growth are countries that also experience relatively high rising unemployment among the B40, which distinguishes them from the other country groups. Institutional quality and increasing freedom mainly sets the unhappy growth and happy decline countries apart. A further examination of the different components of the institutional quality variable uncovered that countries that fall in the happy decline appear to score much higher on democracy (Voice and Accountability) and regulatory quality. This signifies that good quality of institutions go hand in hand with progress in shared well-being and that economic growth in countries with low quality of institutions does not translate into higher levels of subjective well-being.

IV. Discussion and Conclusions

Measuring progress with shared prosperity entails several challenges. The most pronounced challenges probably originate from, and therefore on its optimal measurement. Shared prosperity has many faces (Global Monitoring Report, 2016) and its quantification is therefore an arduous task. Most notably, income based metrics of prosperity have been heavily criticized for limiting the concept of welfare to monetary measures (The UNDP's Human Development Reports, 1990) and therefore income data are found to be inadequate in capturing social changes and other social phenomena. In response to that critique, other approaches have been used as alternatives to monitor progress, including the incorporation of other objective factors such as literacy rates, infant mortality and life expectancy measures. Yet, the use of such objective data can sometimes be problematic in terms of the inability to capture are relevant aspects of a phenomenon, the arbitrariness of indicators that is chosen, as well as data availability.

In this study, we proposed the use of subjective well-being data to overcome this problem. The findings suggest that there are large discrepancies in progress as measured by income or expenditure data and subjective well-being data. Countries that are making progress with the income metrics of prosperity are not necessarily the countries that make progress with shared well-being. Plausible explanations for the discrepancy between shared prosperity and shared well-being were put in three categories and are related to instruments measuring monetary well-being, multidimensional poverty indicators as well as institutional quality and satisfaction with public services.

Specifically, we find that differences between countries that make progress in both measures (happy growth) and countries that make progress only with income-based prosperity (unhappy growth) are mainly driven by inflation and the inability to cover basic needs such as food and shelter. Countries with increasing inequality are by far less likely to fall in the happy growth group while increasing unemployment characterize the group of countries that experience unhappy growth.

On the other hand, the discrepancy between the compensation and dissonance group are driven by other factors related to quality of governance and institutions. We find that differences between countries that experience decline in subjective well-being despite their income growth and countries where well-being of the bottom 40 per cent improves despite the deterioration in their income are largely explained by institutional quality and freedom. In general, the factors found to be conditionally associated with the discrepancy observed by alternative welfare measures are related to both monetary and non-monetary dimensions. This finding indicates that well-being is contingent upon other factors that foster shared prosperity.

The establishment of subjective well-being as an alternative welfare measure was based on its several advantages to capture unobserved components of social phenomena. Subjective well-being measures, however, are not perfect. In terms of validity, self-reported subjective well-being data have been criticized for reflecting other phenomena that may affect the subjective well-being measures. Answers on the happiness questions would reflect their normative notions and desires, instead of the degree to which respondents are satisfied with their life-as-a-whole. Therefore, they might suffer from systematic biases from unrelated sources (Bertrand and Mullainathan, 2001; Redelmeier et al., 2003). However, even when objective matters, such as income and expenditures in the household surveys, are measured by self-report, the survey question might evoke responses that differ from those that the investigator initially had in mind. For instance, sometimes it is not clear to the respondent whether they are reporting consumption over a week or 2 weeks and whether the survey takes place before or after harvest (which matters in low income countries). Likewise, it might not always be clear whether to report personal income or family income, gross income or net income, and whether capital revenues and non-monetary income should be included.

In terms of reliability, subjective well-being measures have also received criticism. Subjective well-being is a self-reported measure on a scale from 0-10. Apart from the fact that these scales are rather imprecise, responses can be inconsistent and dependent on the mood and reference point of the respondent (Podsakoff, 2003). In addition, respondents have the tendency to conform to social desirability and answers can be affected by psychological factors (Bertrand and Mullainathan, 2001; Redelmeier et al., 2003). The same amount of well-being may be rated by one respondent

with a 6 and by another with a 7. Moreover, when the same subjective well-being question is asked twice in a survey, responses to this question are not always identical. There may also be systematic distortions in interviewing, item sequence, and response-formats (Schwartz and Strack, 1999). A related concern involves comparability of subjective well-being across nations, where observed differences in average scores might not reflect actual differences in pleasure in life. However, similar problems exist in household income data. Some example include issues related to misreporting of income and cross-country comparability issues in monetary measures as in many developing countries household data on income are so unreliable that household expenditures are instead used to track welfare changes.

Overall, there are several concerns regarding the use of subjective assessments of well-being which are far from perfect; however, the performance of subjective well-being measures can be empirically validated nowadays since they are widely available in representative studies. Evidence shows that despite the random noise that characterizes subjective well-being data, the evaluations tend to yield consistent results in large samples (Diener, 2009). Moreover, they constitute a valuable source of information that could be hardly observable in an objective way.

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Appendix A: Annualized Income and Subjective Well-Being Growth in a Selection of Developing Countries

Country	iso3	region	period	Ann. Inc. Growth Bottom 40 (%)	Ann. Inc. Growth Average (%)	Ann. SW Growth B40 (%)	Ann. SW Growth Average (%)
Indonesia	IDN	EAP	2011-2014	3.82	3.39	5.16	2.50
Thailand	THA	EAP	2008-2012	4.78	3.95	2.43	2.99
Cambodia	KHM	EAP	2007-2012	8.53	4.09	-1.35	-1.47
Lao PDR	LAO	EAP	2007-2012	1.25	1.96	-3.44	-1.92
Philippines	PHL	EAP	2006-2012	1.15	0.41	-2.13	-0.40
Slovenia	SVN	ECA	2008-2013	-0.84	-0.28	0.32	0.84
Lithuania	LTU	ECA	2008-2013	-1.77	-1.16	0.61	0,00
Georgia	GEO	ECA	2008-2013	2.91	2.63	2.16	0.47
Armenia	ARM	ECA	2008-2013	-1.49	-1.05	-0.25	-1.76
Latvia	LVA	ECA	2008-2013	-3.04	-4.33	2.61	1.65
Albania	ALB	ECA	2008-2012	-1.22	-1.31	2.82	5.38
Romania	ROU	ECA	2008-2013	0.58	-0.28	0,00	-1.42
Bulgaria	BGR	ECA	2008-2013	1.29	1.37	5.75	3.13
Serbia	SRB	ECA	2007-2010	-1.76	-1.33	-1.35	-3.23
Poland	POL	ECA	2007-2012	1.99	1.44	0.19	0,00
Hungary	HUN	ECA	2008-2013	-1.93	-0.67	0.96	-1.23
Kyrgyz Republic	KGZ	ECA	2008-2012	-0.13	-2.35	4.46	2.56
Belarus	BLR	ECA	2006-2011	9.13	8.14	-1.91	-1.84
Kazakhstan	KAZ	ECA	2009-2013	8.92	7.56	2.59	1.8
Russian Federation	RUS	ECA	2007-2012	5.86	5.27	1.96	1.49
Turkey	TUR	ECA	2007-2012	4.33	4.81	-0.20	-1.10
Slovak Republic	SVK	ECA	2008-2013	5.48	6.67	2.13	1.8

Ukraine	UKR	ECA	2008-2013	3.47	2.27	0,00	-2,00
Montenegro	MNE	ECA	2008-2013	-4.81	-3.64	1.46	0.20
Estonia	EST	ECA	2008-2013	-2.10	-1.24	1.85	0.37
Moldova	MDA	ECA	2008-2013	4.99	1.81	3.16	1.07
Czech Republic	CZE	ECA	2008-2013	0.15	0.37	0-.16	-0.62
Argentinae	ARG	LAC	2007-2012	6.43	3.13	1.73	1.28
Colombia	COL	LAC	2008-2012	5.99	3.59	0.22	0.80
Ecuador	ECU	LAC	2007-2012	5.51	0.97	5.86	3.71
Panama	PAN	LAC	2008-2012	4.14	3.63	-1.91	0,00
Uruguay	URY	LAC	2007-2012	7.87	4.33	2.90	2.34
El Salvador	SLV	LAC	2007-2012	0.21	-1.49	3.25	2.17
Chile	CHL	LAC	2006-2011	3.87	2.83	2.11	1.28
Bolivia	BOL	LAC	2007-2012	10.1	4.29	1.99	1.39
Peru	PER	LAC	2007-2012	8.57	3.99	3.52	2.21
Honduras	HND	LAC	2007-2012	-3.22	-2.68	-3.82	-2.04
Paraguay	PRY	LAC	2007-2012	7.21	5.2	3.16	1.82
Mexico	MEX	LAC	2008-2012	1.15	-0.22	3.5	1.79
Costa Rica	CRI	LAC	2010-2013	1.33	3.15	0,00	-0.46
Dominican Republic	DOM	LAC	2007-2012	1.79	-0.2	-1.34	-1.21
Brazil	BRA	LAC	2007-2012	6.93	4.54	2.53	1.84
Jordan	JOR	MENA	2006-2010	2.7	2.57	-1.65	0,00
Iran, Islamic Rep.	IRN	MENA	2009-2013	3.05	-1.2	-0.54	0.5
Sri Lanka	LKA	SA	2006-2012	2.21	1.66	-1.03	-0.93
Bangladesh	BGD	SA	2005-2010	1.73	1.37	3.44	3.32
Uganda	UGA	SSA	2009-2012	3.9	2.95	-2.27	-2.22
Mauritania	MRT	SSA	2008-2014	3.25	1.62	0.87	1.16
Tanzania	TZA	SSA	2007-2011	3.54	1.59	-0.66	-1.18

Togo	TGO	SSA	2006-2011	-2.17	0.95	0,00	-1.95
Senegal	SEN	SSA	2005-2011	-0.23	0.31	-3.44	-2.89
Madagascar	MDG	SSA	2005-2010	-4.49	-3.52	5.91	5.48
Malawi	MWI	SSA	2004-2010	-1.84	1.27	5.41	4.32

Appendix B: Description of Variables

Alternative Indicators for Changes in Monetary Well-being				
Indicators	**Variable**	**Used Question**	**Level Indicator**	**Source**
Level and changes in satisfaction with standards of living	Wp30	Are you satisfied or dissatisfied with your standard of living, all the things you can buy and do?	% Satisfied	Gallup World Poll
Level and changes in capability that people have to meet their basic needs for food and shelter	Wp40 Wp43	Have there been times in the past twelve months when you did not have enough money to buy food that you or your family needed? Have there been times in the past twelve months when you did not have enough money To provide adequate shelter or housing for you and your family?	% Having Not Enough Money	Gallup World Poll
Level and changes in economic expectations	Wp31	Right now, do you feel your standard of living is getting better or getting worse?	% Standard of living Worse	Gallup World Poll
Level and changes in income inequality (Gini)	Gini Index			World Bank
Level and changes in inflation	Inflation			World Bank
Indicators for other Aspects of Poverty (multidimensional poverty)				
Level and changes in percentage of people with health problems	Wp23	Do you have any health problems that prevent you from doing any of the things people your age normally can do?	% with Health Problems	Gallup World Poll
Level and changes in satisfaction with healthcare	Wp97	In the city or area where you live, are you satisfied or dissatisfied with the availability of quality health care	% Dissatisfied	Gallup World Poll
Level and changes in self-reported unemployment	EMP_UNEMP	Unemployment Index		Gallup World Poll
Level and changes in job market expectations	Wp89	Thinking about the job situation in the city or area where you live today, would you say that it is now a good time or a bad time to find a job?	% Good Time to find a job	Gallup World Poll
Level and changes in education system satisfaction levels	Wp93	In the city or area where you live, are you satisfied or dissatisfied with the educational system or the schools	% Satisfied	Gallup World Poll

Institutional Quality and Public Services				
Level and changes in perceived corruption	Wp146	Is corruption widespread throughout the government, or not?	% No (Corruption Widespread)	Gallup World Poll
Level and changes in approval leadership Level and changes in confidence in government	Wp150 Wp139	Do you approve or disapprove of the job performance of the leadership of this country? In #COUNTRY#, do you have confidence in each of the following, or not? -How about National government?	% Approve % Having Confidence	Gallup World Poll
Level and changes in quality of public services	wp91-wp92; wp94-wp95	WP91 In the city or area where you live, are you satisfied or dissatisfied with _____? -The public transportation systems - The roads and highways - The quality of air - The quality of water	% Dissatisfied	Gallup World Poll
Level and changes in self-reported freedom	Wp134	In #COUNTRY# are you satisfied or dissatisfied with Your freedom to choose what you do with your life?	% Satisfied	Gallup World Poll
Level and changes in the Kaufmann Indicators		Control of Corruption, Voice and Accountability, Rule of Law, Regulatory Quality, Political Stability Government Effectiveness		World Bank

Appendix C: Multinomial Logistic Regressions

Table 1: Multinomial Logistic Regression: Alternative Monetary Variables Relative to Unhappy Growth Regions

VARIABLES	(1) U	(3) C	(4) H	(5) N
Difficulty Meeting Basic Needs	4.772	-9.184	-23.76***	-6.856
	(16.75)	(8.349)	(8.549)	(7.261)
Inflation	-0.671	-0.654*	-0.627**	-0.682**
	(0.512)	(0.362)	(0.316)	(0.325)
Increasing Inequality	-0.0315	-0.00440	-0.0764**	-0.0206
	(0.0546)	(0.0237)	(0.0316)	(0.0237)
Worsening Expectations	119.0*	29.27	-15.16	-3.828
	(70.81)	(44.57)	(37.69)	(38.20)
Base life satisfaction (B40)	-0.858	-4.532***	-3.244***	-2.502**
	(2.858)	(1.602)	(1.209)	(1.195)
Base Income (B40)	0.863	1.384**	0.641	1.155**
	(0.862)	(0.598)	(0.570)	(0.567)
Constant	-0.310	23.25**	27.89***	16.00*
	(21.16)	(9.696)	(9.157)	(8.649)
Observations	52	52	52	52

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, Note: Letters refer to countries with unhappy decline (U), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N), countries with unhappy growth (D). Reference group: countries with unhappy growth (D).

Table 2 Multinomial Logistic Regression: Increasing Unemployment Relative to Unhappy Growth Regions

VARIABLES	(1) U	(3) C	(4) H	(5) N
Increasing Unemployment	-56.33*	-38.40**	-25.85*	-36.13**
	(33.53)	(19.10)	(14.33)	(16.73)
Base life satisfaction (B40)	2.448	-2.382*	-0.872	-0.665
	(5.626)	(1.245)	(0.859)	(0.925)
Base Income (B40)	-0.681	1.744**	1.327*	1.550**
	(4.298)	(0.751)	(0.736)	(0.744)
Constant	-13.39	4.496	1.512	-1.213
	(20.82)	(4.820)	(3.176)	(3.642)
Observations	46	46	46	46

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, Note: Letters refer to countries with unhappy decline (U), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N), countries with unhappy growth (D). Reference group: countries with unhappy growth (D).

Table 3: Multinomial Logistic Regression: Institutional Dimensions Relative to Unhappy Growth Regions

VARIABLES	(1) U	(3) C	(4) H	(5) N
Institutional Quality	-0.660	3.519*	1.175	1.179
	(2.638)	(1.877)	(1.360)	(1.440)
More Freedom in Life	87.83*	74.38*	18.43	40.64
	(53.36)	(41.90)	(30.90)	(35.75)
Base life satisfaction (B40)	-1.538	-2.597***	-0.764	-0.878
	(1.406)	(1.008)	(0.619)	(0.683)
Base Income (B40)	0.702*	0.499	0.368	0.517*
	(0.417)	(0.327)	(0.293)	(0.302)
Constant	1.963	9.490**	3.509	2.821
	(6.485)	(4.539)	(3.101)	(3.411)
Observations	52	52	52	52

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, Note: Letters refer to countries with unhappy decline (U), countries with happy decline (C), countries with happy growth (H), and countries with no clear profile (N), countries with unhappy growth (D). Reference group: countries with unhappy growth (D).