

Measures, Trends and Determinants of Economic Well-being in India

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Introduction

- Gross Domestic Product (GDP) has major limitations as a measure of overall well-being (Atkinson 1969, Allin 2014).
- Subjective variables are often been considered in creating index of well-being – helpful when one aims to study well-being by different background variables, e.g. gender.
- Human Development Index (HDI) takes care of this issue but it is actually a narrow measure of well-being.
- Recent arguments are in support to use more subjective indicators like *happiness, reduced unemployment rate, active civil society participation, better health* etc.
- Stiglitz, Sen and Fitoussi (2009) have a strong recommendation about using different subjective indicators. Multi-dimensional approach can give a broader and a more comprehensive understanding of human living conditions (Cohen 2000, White 2010).

Objectives

(1) To examine economic well-being by constructing three different measures or indices and thereby to study these measures by different demographic, social and regional background and also overtime.

(2) To explore the non-economic determinants of the three measures of economic well-being and thereby to compare the roles of the determinants across measures.

Data

- Young Lives longitudinal survey in India.

- a part of an international study of childhood poverty following the lives of **12,000 children** in Ethiopia, India (in the states of Andhra Pradesh and Telangana), Peru and Vietnam **over 15 years** and coordinated out of the Department of the International Development at the University of Oxford.

- First Round took place in 2002, followed by Round 2 (2006), Round 3 (2009) and Round 4 (2013).

- Surveyed two cohorts: Older Cohort and Younger Cohort

This paper focus on the Older Cohort children / households and utilized three rounds

- Round 2 (2006) children were 12 years old, n= 994

- Round 3 (2009) children were 15 years old, n = 977

- Round 4 (2013) children were 19 years old, n = 952

- A panel of total of 2,853 households /children (= 951*3)

Methods

Dependent variables:

(1) $ew1_{it} = \text{wealth index}_{it}$

(2) $ew2_{it} = ew1_{it} + \text{education}_{it} + \text{not doing paid work}_{it} + \text{not doing unpaid paid work}_{it}$

(3) $ew3_{it} = ew2_{it} + BMI_{it} + \text{subjective well-being}_{it}$

* ew = economic well-being for household i at round (time) t .

Independent predictors:

(1) Gender of the household head, (2) place of residence, (3) caste of the household head, (4) religion of the household head, (5) educational level of the household head, (6) base-level household size and (7) region.

Methods

Measures of economic well-being

(1) $ew1_{it}$ = already given in the data-sets.

(2) $ew2_{it}$ and (3) $ew3_{it}$ = obtained through Multiple Correspondence Analysis (MCA) technique.

Why MCA?

There are categorical variables: enrolment status, whether not engaged in paid and unpaid work

The Index

First dimension from MCA is used to create the index. So $ew2$ and $ew3$ are the row-scores for each household from the first dimension and have a mean of 0 and a standard deviation of 1.

Methods

Non-economic determinants of economic well-being

Used both pooled ordinary least square (OLS) and random-effects OLS regression models on three measures of economic well-being.

Pooled OLS

$$ew1 / ew2 / ew3 = b_0 + b_1 * gender + b_2 * place\ of\ residence + b_3 * caste + b_4 * religion + b_5 * educational\ level + b_6 * household\ size + b_7 * region \quad (\text{Model 1})$$

$$+ b_8 * round + e \quad (\text{Model 2})$$

Random-effects regression

$$ew_{ij} = \mu + \beta_1 Gender_{ij} + \beta_2 Residence_{ij} + \beta_3 Caste_{ij} + \beta_4 Educational\ level_{ij} + \beta_5 Household\ size_{ij} + \beta_6 Region_{ij} + u_i + e_{ij} \quad (\text{Model 1})$$

$$+ \beta_7 Round_{ij} + v_i + e_{ij} \quad (\text{Model 2})$$

Lagrange multiplier (LM) test is carried out to examine the validity of random-effects model over pooled OLS regression

Findings

Measures of economic well-being (1)

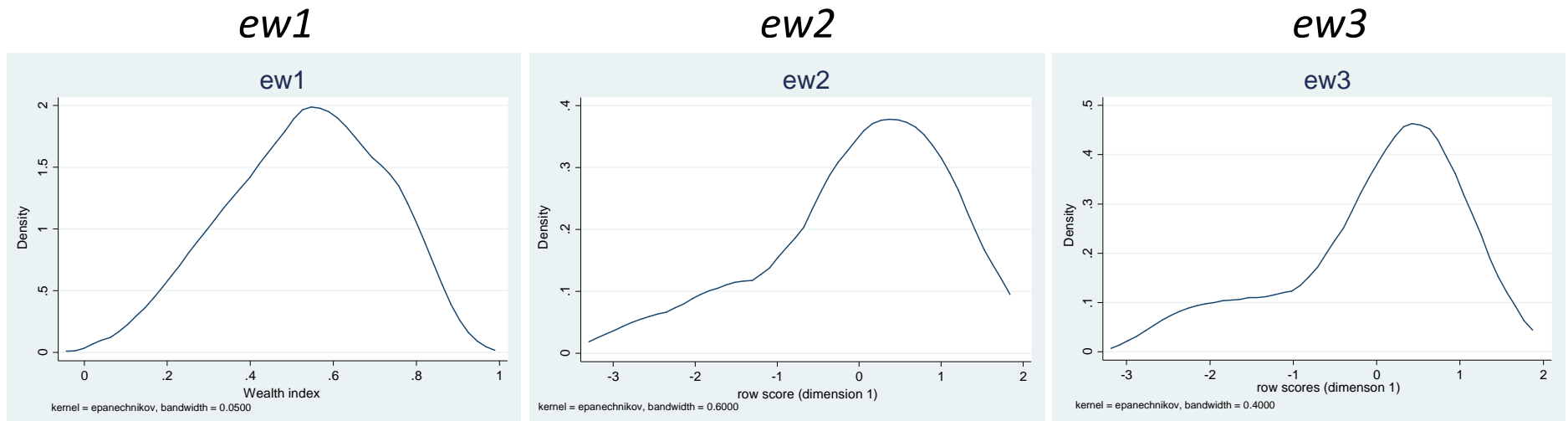
Original Variables used for constructing index of economic of well-being

| Round | <i>ew3</i> | | | | | |
|----------|------------|-----------------------------------|--|--|---------------------------------|-----------------------|
| | <i>ew2</i> | | | | % of children having normal BMI | Subjective well-being |
| | <i>ew1</i> | Enrolment in school / institution | % of children not engaged in unpaid work | % of children not engaged in paid work | | |
| 2 (2006) | 0.47 | 89.05 | 42.06 | 95.06 | 8.70 | 3.66 |
| 3 (2009) | 0.52 | 77.56 | 28.71 | 86.54 | 26.13 | 4.77 |
| 4 (2013) | 0.61 | 49.15 | 18.19 | 76.03 | 52.23 | 4.97 |

Findings

Measures of economic well-being (2)

Kernel density plot for three measures of well-being



Note: X-axis represents wealth index for *ew1* and row-scores of dimension 1 for *ew2* and *ew3* as obtained from Multiple Correspondence Analysis.

Findings

Levels of economic well-being

by time-invariant and non-economic factors

| Predictors [^] | <i>ew1</i> | <i>ew2</i> | <i>ew3</i> |
|-------------------------|------------|------------|------------|
| Gender | | | |
| Male | 0.534* | 0.041*** | 0.041*** |
| Female | 0.517 | -0.280 | -0.312 |
| Place of residence | | | |
| Urban | 0.701*** | 0.369*** | 0.368*** |
| Rural | 0.472 | -0.129 | -0.134 |
| Caste | | | |
| Scheduled Caste | 0.455 | -0.234 | -0.260 |
| Scheduled Tribe | 0.429 | -0.106 | -0.129 |
| Backward Class | 0.544 | -0.033 | -0.033 |
| Other Caste | 0.637*** | 0.357*** | 0.374*** |
| Religion | | | |
| Hindu | 0.527 | -0.005 | -0.013 |
| Non-Hindu | 0.568*** | 0.026 | 0.044 |

| Predictors [^] | <i>ew1</i> | <i>ew2</i> | <i>ew3</i> |
|-------------------------|------------|------------|------------|
| Educational level | | | |
| Below primary | 0.464 | -0.270 | -0.284 |
| Above primary | 0.607*** | 0.306*** | 0.309*** |
| Household size | | | |
| Up to 5 members | 0.539*** | 0.021 | 0.011 |
| 5 + members | 0.517 | -0.049 | -0.041 |
| Region | | | |
| Coastal Andhra | 0.549*** | 0.171*** | 0.158*** |
| Ryalaseema | 0.530 | -0.071 | -0.096 |
| Telangana | 0.515 | -0.087 | -0.066 |

Significance level: *** $p < 0.01$.

* The same groups of population have significantly better economic well-being in all three measures

Findings

Determinants of economic well-being

Pooled OLS Estimates (1)

| Predictors | ew1 | | ew2 | | ew3 | |
|---------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | Model 1 | Model 2 | Model 1 | Model 2 | Model 1 | Model 2 |
| Gender | | | | | | |
| Female | -0.007 (0.008) | -0.021*** (0.008) | -0.260*** (0.060) | -0.168*** (0.057) | -0.284*** (0.064) | -0.194*** (0.057) |
| Place of residence | | | | | | |
| Rural | -0.188*** (0.006) | -0.181*** (0.006) | -0.330*** (0.042) | -0.376*** (0.039) | -0.315*** (0.042) | -0.360*** (0.038) |
| Caste | | | | | | |
| Scheduled Tribe | -0.0257 ** (0.013) | -0.026** (0.012) | 0.0366 (0.071) | 0.040 (0.067) | 0.040 (0.070) | 0.043 (0.067) |
| Backward Class | 0.052*** (0.007) | 0.052*** (0.006) | 0.012 (0.050) | 0.014 (0.046) | 0.040 (0.050) | 0.042 (0.046) |
| Other Caste | 0.092*** (0.009) | 0.094*** (0.008) | 0.284*** (0.057) | 0.276*** (0.053) | 0.328*** (0.057) | 0.321*** (0.053) |
| Religion | | | | | | |
| Non-Hindu | -0.025*** (0.009) | -0.023*** (0.009) | -0.176*** (0.058) | -0.187*** (0.053) | -0.157*** (0.058) | -0.169*** (0.054) |
| Educational level | | | | | | |
| Above primary | 0.067*** (0.006) | 0.068*** (0.006) | 0.425*** (0.039) | 0.420*** (0.036) | 0.437*** (0.039) | 0.433*** (0.036) |
| Household size | | | | | | |
| More than 5 members | -0.005 (0.007) | -0.005 (0.005) | -0.010 (0.038) | -0.005 (0.036) | 0.006 (0.038) | 0.011 (0.036) |
| Region | | | | | | |
| Ryalaseema | -0.022*** (0.007) | -0.022*** (0.007) | -0.281*** (0.045) | -0.283*** (0.042) | -0.300*** (0.045) | -0.301*** (0.042) |
| Telangana | -0.036*** (0.007) | -0.036*** (0.007) | -0.221*** (0.043) | -0.218*** (0.040) | -0.189*** (0.043) | -0.186*** (0.040) |
| Round | | | | | | |
| 3 (2009) | | 0.055*** (0.006) | | -0.301*** (0.036) | | -0.244*** (0.036) |
| 4 (2013) | | 0.130*** (0.006) | | -0.802*** (0.040) | | -0.765*** (0.040) |
| Constant | 0.623 (0.010) | 0.557 (0.010) | 0.206 (0.068) | 0.595 (0.064) | 0.152 (0.068) | 0.510 (0.064) |
| R ² | 0.392 | 0.475 | 0.139 | 0.249 | 0.147 | 0.249 |
| F-statistic | 266.90 | 286.77 | 52.01 | 84.94 | 54.87 | 84.13 |

Significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard error in parentheses.

Reference category: male (gender), urban (place of residence), Scheduled Caste (caste), Hindu (religion), below primary (educational level), up to 5 members (household size), Coastal Andhra (region) and Round 2, 2006 (round).

Findings

Summary

Pooled OLS Estimates (2)

- (1) Female headed households are significantly negatively related to all three measures of economic well-being compared to boys except in the model 1 for *ew1*, particularly stronger in case of model 1 for both *ew2* and *ew3*.
- (2) Rural households have also shown strong significant negative association with *ew1*, *ew2* and *ew3* than urban households.
- (3) Scheduled Tribes are found to show the lowest economic wellbeing than Scheduled Caste in *ew1* but for *ew2* and *ew3*, Scheduled Castes households themselves are found to be in most disadvantaged position and compared to these households
- (4) Non-Hindu households are found negatively related with all three economic well-being measures.
- (5) Household heads with above primary level education have significantly higher chance of attaining *ew1*, *ew2* and *ew3* than household heads with below primary level education.
- (6) Ryalaseema emerged as the worst amongst three regions in all three measures.
- (7) Survey years (rounds / time) have significant correlation with all measures of economic well-being but it has two distinct patterns. While with *ew1*, the chance of attaining better well-being has increased over the years, it has become reverse in case of *ew2* and *ew3*.

Findings

Determinants of economic well-being Random-effects regression(1)

| Predictors | ew1 | | ew2 | | ew3 | |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | Model 1 | Model 2 | Model 1 | Model 2 | Model 1 | Model 2 |
| Gender | | | | | | |
| Female | 0.009 (0.009) | -0.014* (0.008) | -0.265*** (0.068) | -0.109* (0.062) | -0.291*** (0.067) | -0.135** (0.061) |
| Place of residence | | | | | | |
| Rural | -0.185*** (0.009) | -0.159*** (0.010) | -0.256*** (0.051) | -0.331*** (0.050) | -0.239*** (0.052) | -0.319*** (0.051) |
| Caste | | | | | | |
| Scheduled Tribe | -0.026 (0.013) | -0.029 (0.018) | 0.031 (0.092) | 0.038 (0.092) | 0.035 (0.091) | 0.043 (0.091) |
| Backward Class | 0.053*** (0.009) | 0.053*** (0.009) | 0.016 (0.061) | 0.020 (0.061) | 0.044 (0.062) | 0.047 (0.062) |
| Other Caste | 0.093*** (0.009) | 0.097*** (0.012) | 0.295*** (0.070) | 0.283*** (0.069) | 0.339*** (0.071) | 0.325*** (0.071) |
| Religion | | | | | | |
| Non-Hindu | -0.025** (0.013) | -0.019 (0.013) | -0.160** (0.070) | -0.179** (0.071) | -0.139** (0.071) | -0.159** (0.072) |
| Educational level | | | | | | |
| Above primary | 0.069*** (0.009) | 0.073*** (0.009) | 0.440*** (0.048) | 0.434*** (0.048) | 0.452*** (0.049) | 0.446*** (0.049) |
| Household size | | | | | | |
| More than 5 members | -0.004 (0.008) | -0.005 (0.008) | -0.010 (0.048) | -0.001 (0.048) | 0.005 (0.049) | 0.014 (0.048) |
| Region | | | | | | |
| Ryalaseema | -0.024** (0.009) | -0.026*** (0.009) | -0.282*** (0.055) | -0.279*** (0.054) | -0.298*** (0.055) | -0.294*** (0.055) |
| Telangana | -0.034*** (0.009) | -0.036*** (0.009) | -0.223*** (0.054) | -0.214*** (0.054) | -0.193*** (0.054) | -0.183*** (0.054) |
| Round | | | | | | |
| 3 (2009) | | 0.055*** (0.004) | | -0.303*** (0.026) | | -0.246*** (0.026) |
| 4 (2013) | | 0.130*** (0.005) | | -0.806*** (0.034) | | -0.770*** (0.034) |
| Constant | 0.616 (0.013) | 0.537 (0.014) | 0.139 (0.081) | 0.539 (0.080) | 0.083 (0.083) | 0.456 (0.081) |
| R ² - Within | 0.057 | 0.371 | 0.001 | 0.262 | 0.003 | 0.255 |
| R ² - Between | 0.502 | 0.508 | 0.238 | 0.239 | 0.242 | 0.244 |
| R ² - Overall | 0.392 | 0.473 | 0.139 | 0.248 | 0.146 | 0.248 |

Significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard error in parentheses.

Reference category: male (gender), urban (place of residence), Scheduled Caste (caste), Hindu (religion), below primary (educational level), up to 5 members (household size), Coastal Andhra (region) and Round 2, 2006 (round).

Findings

Summary

Random-effects Regression Estimates (2)

- (1) For *ew1* gender is not significantly associated in Model 1 and has shown a poor negative association in Model 2. But gender has shown strong significant associations with both *ew2* and *ew3*.
- (2) Rural households have shown significant negative correlation with all three measures of economic well-being but unlike the gender, the relationship in this case is stronger in Model 2 for *ew2* and *ew3*.
- (3) Households belong to Other Caste have significantly emerged as the most prosperous households in terms of *ew1*, *ew2* and *ew3*.
- (4) Non-Hindu households have significantly shown poorer economic conditions as compared to their counterparts.
- (5) Household heads with above primary level education significantly progress better in *ew1*, *ew2* and *ew3* than household heads having below primary education. The educational level of the household head has shown the strongest effect on *ew2* and *ew3*, indicating the role of education in attaining well-being.
- (6) Region Ryalaseema is found to be significantly worst performer in all measures of economic well-being followed by Telangana.
- (7) While there is a significant constant improvement in *ew1* over the years, both *ew2* and *ew3* have shown significant decrease in year 2009 and 2013.

Findings

Pair-wise comparisons of marginal linear predictions

| Predictors | Contrast | | |
|--|-------------------|-------------------|-------------------|
| | <i>ew1</i> | <i>ew2</i> | <i>ew3</i> |
| Gender | | | |
| Female vs Male | Lower chance * | Lower chance * | Lower chance * |
| Place of residence | | | |
| Rural vs Urban | Lower chance *** | Lower chance *** | Lower chance *** |
| Caste^ | | | |
| ST vs SC | Not significant | Not significant | Not significant |
| BC vs SC | Higher chance *** | Not significant | Not significant |
| OC vs SC | Higher chance *** | Higher chance *** | Higher chance *** |
| BC vs ST | Higher chance *** | Not significant | Not significant |
| OC vs ST | Higher chance *** | Higher chance *** | Higher chance *** |
| OC vs BC | Higher chance *** | Higher chance *** | Higher chance *** |
| Religion | | | |
| Non-Hindu vs Hindu | Not significant | Lower chance ** | Lower chance ** |
| Educational level | | | |
| Primary and above vs Below primary | Higher chance *** | Higher chance *** | Higher chance *** |
| Household size | | | |
| More than 5 members vs Up to 5 members | Not significant | Not significant | Not significant |
| Region | | | |
| Rayalaseema vs Coastal Andhra | Lower chance *** | Lower chance *** | Lower chance *** |
| Telangana vs Coastal Andhra | Lower chance *** | Lower chance *** | Lower chance *** |
| Telangana vs Rayalaseema | Not significant | Not significant | Not significant |
| Round | | | |
| 3 (2009) vs 2 (2006) | Higher chance *** | Lower chance *** | Lower chance *** |
| 4 (2013) vs 2 (2006) | Higher chance *** | Lower chance *** | Lower chance *** |
| 4 (2013) vs 3 (2009) | Higher chance *** | Lower chance *** | Lower chance *** |

Significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Conclusion

- (1) Along with the conventional wealth index; this paper added other economic and subjective variables in constructing measures of economic well-being which are also dynamic and sensitive to culture and time.
- (2) Multiple Correspondence Analysis (MCA) used as a technique of creating index. This is particularly helpful as many sample surveys collect categorical responses for some variables which may be relevant in the context of economic well-being research.
- (3) Findings shows that there are significant changes of economic well-being over time and by predictors. Educational level (above primary), caste (Other Castes), religious background (Hindu), place of residence (urban) and gender (male) of the household head are found to be in significantly better position than their counterparts in terms of all three measures of well-being.
- (4) But this association is especially stronger when other economic, health and subjective dimensions are taken into consideration. While considering with wealth alone the relationship is not that noticeable. These measures highlight that economic development have a socio-demographic dimension in India which is still persisting.
- (5) Considering the subjective and other economic dimensions in economic well-being overall economic well-being have actually decreased over the years. A composite measures of economic well-being have shown that there are needs of serious policy formulation must aimed at particular groups who are being deprived of education, leisure, better health and sound subjective well-being over the years.

Thank you...