Feeling Richer or Poorer than Others:

A Cross-Section and Panel Analysis of Subjective Economic Status in Indonesia

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Abstract

This paper examines what makes us feel richer or poorer than others. It investigates cross-sectional and longitudinal determinants of individual's subjective economic status in Indonesia. Using two waves of Indonesian Family Life Surveys of 1997 and 2000, I show that individual perceptions of where they are on the economic scale are more dependent on a number of socio-economic characteristics, as well as attitudes towards future economic status, than the current spending capacity would normally reveal. I also find significant, albeit weaker, expenditure and income effects on individual's subjective economic status once individual fixed effects are controlled for in the regression.

Key words: expenditure, income, Indonesia, poverty, subjective economic status, IFLS

JEL: O53, I3

1. Introduction

For about three decades (1965-1995), Indonesia has been regarded by the World Bank as one of the eight economic miracles, defined as experiencing rapid and sustained growth with equitable income distribution. Indonesia's economy during these times grew, on average, at around 7% per annum (World Bank, 1993). However, the Asian financial crisis of the late 1990s saw the nation experiencing major political and economic turmoil.

According to the Central Statistical Bureau of Indonesia, output in 1998 has fallen by 15% from its level in 1997. Inflation is estimated to be about 75-80% for 1998. The proportion of households below the poverty line between 1997 and 1998 is estimated to have risen by 25% with larger effects in urban than rural areas (Frankenberg *et al*, 1999). Despite signs of economic recovery in the year 2000, the Asian financial crisis has left Indonesia with a persistently high incidence of expenditure poverty by the beginning of the new millennium (for reviews on consumption poverty during the economic crisis, see Pradhan *et al*, 2000; Suryahadi & Sumarto, 2003).

The impact of the financial crisis on the economic status of the Indonesian population has so far been analysed in terms of loss in real purchasing power of the average household, as measured by per capita levels of expenditure. This paper, however, takes a more psychological approach to the analysis of individuals' economic status three years after the economic crisis by attempting to address the following question: What makes Indonesian people *feel* poorer or richer compared to others in the country?

In an effort to find some insights into the individual's perception of economic status in Indonesia, this paper analyses the responses to the subjective economic ladder

(SEL) similar to those used in other surveys to gauge the influence of reference norms, that is, how people compare themselves financially to others in their country. In particular, it examines the extent to which subjective assessments of economic status in Indonesia are deviated from objective expenditure-based measures at the cross-section. Could the differences between the two measures be explained by non-economic variables widely reported in past studies on subjective economic status? Or could the discrepancies reflect the endogeneity bias that results from innate characteristics such as personality traits? While I am able to demonstrate that the two measures (subjective and objective) of economic status have a strong positive correlation with one another, the overall estimates imply that individual perceptions of economic status in Indonesia are more dependent on a number of socio-economic characteristics, as well as attitudes towards future economic status and underlying personality traits, than current spending capacity would normally reveal.

This is not the first paper to study the determinants of subjective economic status. The paper follows a long line of research that assesses the interactions between individual's subjective economic welfare and the effects of social norms and the incomes of others, which is sometimes referred to as the Leyden approach research (Kapteyn et al, 1978; Van Praag & Frijters, 1999). More recent works on subjective economic status – with a special focus on the developing economies – comes from a study by Graham and Pettinato (2002) on reference norms in Latin America. Using the Latinobarometro dataset, their results showed the majority of respondents placing themselves in the middle categories of subjective economic ladder of nine steps, where the steps running from poorest to richest, even if they are slightly above or below them according to an objective

index of wealth. They also found from regressions on SEL responses that socioeconomic status other than wealth (i.e., years of education and being married) are positively correlated with reported SEL for Latin America. In a similar study conducted on the Russia Longitudinal Monitoring Survey (RLMS), Ravallion and Lokshin (2002) were able to show both household income and expenditure to be associated positively and strongly with SEL at the individual level. They also found that both married and highly educated people were *ceteris paribus* more likely to put themselves in the higher SEL rungs. Divorcees, widowers, and people with poor health, on the other hand, were more likely to perceive themselves to be financially poorer than others in their country.

Ravallion and Lokshin (2001) also carried out another study on SEL responses for Russia. By making use of the longitudinal nature of the RLMS, the authors were able to control for the unobserved individual fixed-effects that may be correlated with both subjective economic status and the observed characteristics of the individual. Controlling for unobserved heterogeneity, the authors found both household income and expenditure to be strong predictors of subjective economic status. Becoming unemployed or sick, on the other hand, continue to be associated with lower perception of economic ranking for people in Russia, even if there is a full replacement of income loss for these shocks. This paper follows closely the analysis made by Ravallion and Lokshin. However, the Indonesian dataset is more likely to provide a different set of tests to be carried out on the SEL responses than previous studies on the subject, and it may offer some insights into how perceptions of 'upper' and 'lower' economic classes are determined in Indonesia, and possibly in South East Asia in general.

2. Measuring Subjective Economic Status

In assessing subjective economic status in Indonesia, this article uses the Indonesia Family Life Survey (IFLS) for the year 2000. The IFLS is an on-going panel survey in Indonesia, designed to provide data for studying individual and household level behaviour during the rapid economic changes in the 1990s. The survey contains a wealth of information collected at the individual and household level, including multiple indicators of economic status (i.e., incomes, expenditures, and assets), education, and labour market outcomes, as well as health and marital status. The first two waves of the IFLS were conducted in 1993 and then in 1997, with approximately 22,000 adults from 13 of the 27 in the country taking place in the survey. The latest wave of the IFLS - the IFLS3 - was conducted in 2000 (three years after the economic crisis) and expanded to include 25,289 adults from 10,085 households. The IFLS3, however, extends to include a set of questions on an individual's attitudes towards past, present, and future economic status. I shall be using, for the first part of this article, the following subjective economic ladder (SEL) question – sometimes referred to as a Cantril-ladder (Cantril, 1965) – as proxy for the individual's subjective economic status: "Please imagine a six-step ladder where on the bottom (the first step), stand the poorest people, and on the highest step (the sixth step), stand the richest people. On which step are you today?[1]" The raw distribution of SEL responses is given in Table 1.

Table 1: Economic Subjective Status in Indonesia, 2000

Subjective Economic Ladder	Observations	Percentage	Cumulation
Poorest 1	1,020	4.64%	4.62%

2	4,530	20.60%	25.24%
3	12,490	56.80%	82.04%
4	3,651	16.60%	98.65%
5	226	1.03%	99.68%
Richest 6	71	0.32%	100.00%
Total	21,998	100.00%	

Note: The actual wordings of the SEL question is, "Please imagine a six-step ladder where on the bottom (the first step) stands the poorest people, and on the highest step (the sixth step) stands the richest people. On which step are you today?

There is a very high response rate to the SEL question of around 98% of the total adult sample. The distribution in Table 1 also shows skewness in the reported SEL towards the middle income range in the subjective economic ladder, with a mean of 2.90 and a standard deviation of 0.78. I will examine in the next section how these SEL responses vary with a wide range of individual and household characteristics.

3. Empirical Results

3.1 Preliminary Findings at the Cross-Section

Central to the question of how individuals assess their economic status is the understanding of how individuals rate their economic status with other people in their country. Given that few of us know exactly the incomes or spending capacity of others, it would be presumptuous to assume that there is a perfect match between individual's assessment of subjective economic ranking and objective indicators of economic status in the economy. However, it remains of research interest to investigate which of the socioeconomic characteristics of the individuals are associated with the feelings of being relatively richer or poorer than others living in the country.

A number of indicators of economic factors are potentially relevant. In this section I shall begin by focusing on objective expenditure-based measures. One of the most commonly used expenditure-based indicators in the analysis of living standards in Indonesia is the real monthly household expenditure per capita[2]. Such an expenditure variable is often discussed in the literature to be less prone to measurement error than income and, because it incorporates a household's ability to maintain a living standard by borrowing or spending down savings, it is likely to give a more accurate picture of economic status over a longer period than income. It is also the most widely used indicators of objective economic status in Indonesia (Frankenberg *et al*, 1999).

Table 2 reports the joint distribution of household expenditure (in quintiles) and reported subjective economic status for the year 2000. For illustrative purposes, I have decided to merge in Table 2 the highest fifth and sixth rungs of the SEL into one due to a very small number of respondents in the highest rung (only 71 of 21,991 individuals have placed themselves in the 6th rung). This makes our SEL scale directly comparable to the one used elsewhere in other studies.

Table 2: Cross-Tabulation of Economic Subjective Status with Expenditure Quintiles in Indonesia, 2000

	Subjective Economic Status					
Expenditure Quintiles	**Lowest 1**	**2**	**3**	**4**	**Highest 5+**	**Total**
1	40.0% (9.3%)	30.8% (31.6%)	17.3% (48.9%)	10.6% (8.7%)	17.3% (1.4%)	4,401 (100%)
2	22.9% (5.3%)	26.2% (26.9%)	19.7% (55.8%)	13.0% (10.8%)	14.0% (1.2%)	4,399 (100%)
3	15.9% (3.7%)	18.9% (19.4%)	21.4% (60.6%)	17.9% (14.8%)	17.5% (1.5%)	4,395 (100%)

4	13.9% (3.2%)	15.9% (16.4%)	20.9% (59.1%)	23.3% (19.2%)	25.6% (2.2%)	4,401 (100%)
5	7.2% (1.7%)	8.2% (8.4%)	20.7% (58.6%)	35.3% (29.1%)	25.6% (2.2%)	4,395 (100%)
Total	1,018 100%	4,522 100%	12,447 100%	3,633 100%	371 100%	21,991

Cramer's V = 0.1435; Pearson Chi-square = 1.8e+03 (p = 0.000).

Note: Rungs 5-6 of economic subjective status were aggregated because of small number of responses. The figures in parentheses are the percentages out of the total values in each row; otherwise, the figures are the percentages out of the total values in each column. For example, the top left hand corner reads 40% of those who reported to be on the poorest rung of economic status were on the lowest expenditure quintile, whilst only 9% of those in the lowest expenditure quintile reported to be on the lowest economic rung.

Approximately 24% of the SEL respondents have on average placed themselves where there were complete agreements between the objective and subjective economic status groups. The weak correlation between household expenditure per capita and SEL responses is confirmed in the Cramer's V test; the Cramer's V -statistic is closer to 0 than 1 or -1 at 0.1435[3]. Despite the low correlation between expenditure variable and subjective economic status, we can nevertheless reject based on the Pearson- χ^2 - the null hypothesis of zero correlation between the two status measures at the 1% level.

The weak matching of household expenditure and reported subjective economic status suggests that other factors, such as household composition and income, may influence an individual's responses to the SEL question. For instance, self-rated economic status may also depend on the structure of the family (i.e., how many adult males there are compared to the number of young children in the household), as well as on the moving average of past expenditures rather than just on current household

consumption. This calls for a multivariate approach. Assuming that we can model the SEL response as a continuous latent variable, running from 'poorest rung' to 'richest rung', an ordered probit can be used to estimate the following simple-form equation

$$w_i = \beta \ln(e)_i + \gamma X_i + \varepsilon_i, \qquad (1)$$

where w_i represents the reported economic status by individual *i* and is assumed to be dependent on the natural log of real monthly household expenditure per capita, $\ln(e)$, as well as other household variables, denoted by X. The error term ε_i is thought to capture the inability of respondents to evaluate accurately their own true status levels. I also control for provincial dummies as well as correct for underestimated standard errors by including cluster community controls in the estimations so as to capture any grouping effects present within the dataset.

Table 3: Economic Subjective Status Regressions for Indonesia, 2000 (Ordered Probit) - Household Composition and Wealth included

	Panel A			Panel B		
	B	SE		B	SE	
Expenditure-based variables						
Log of real household expenditure per capita, 2000	0.298	0.012	***	0.190	(0.013)	***
Log of real household expenditure per capita, 1997				0.069	(0.012)	***
Income-based variables						
Log of estimated worth of total assets, 1997				0.108	(0.006)	***
Household income per capita (in 100,000), 2000				0.003	(0.000)	***
Reported household debt (in 1,000,000), 1997				-0.000	(0.002)	
Income in-kind (in 100,000), 2000				0.012	(0.008)	
Food transfer (in 100,000), 2000				0.078	(0.037)	**
Household characteristics						
Household size				0.019	(0.003)	***
Proportion of adult male (age 16-65)				(Reference)		
Proportion of small children (age<10)				-0.043	(0.075)	

Proportion of older children (10<=age<16)		-0.275	(0.080)	***
Proportion of adult female (age 16-65)		0.142	(0.064)	**
Proportion of old-age pensioners (age 65+)		-0.073	(0.090)	
Provincial dummies	Yes		Yes	
N	21,885		21,565	
Log pseudolikelihood	-24377		-23711	
Pseudo R-squared	0.0338		0.0567	

Note: * 10% C.I., ** 5% C.I., *** 1% C.I. Reference group: proportion of pensioners.

Table 3 reports a simple regression-equation test of whether household composition and wealth variables are significantly correlated with the reported, subjective economic status[4]. With no additional control variables, the natural log of real household expenditure per capita enters the regression in Panel A with a positive and statistically well-defined coefficient. Panel B sees the size of the coefficient on log expenditure reduces by nearly a half when past expenditure, as well as income based variables (i.e., real household income, income in-kind, the amount of food transfer, the estimated worth of total household assets, and reported household debt) are included into the regression. There is a positive and statistically significant association between household size and reported economic status, while households with high ratios of small children, older children, and pensioners appear to perceive themselves as poorer than others *ceteris paribus*. Surprisingly higher ratios of adult female in the household seem to be associated positively and statistically significantly with how an average individual perceives his or her economic status. The coefficient on past expenditures (represented by the natural log of real household expenditure per capita in 1997) is approximately 0.07, which is around one-third of the size of the coefficient on log of current household spending.

Real household income per capita (in 100,000 Rupiah) enters the SEL equation in a positive and statistically well-defined manner. The result suggests that higher savings (i.e., an increase in income, holding the level of expenditure constant) is also a strong predictor of subjective economic status for the Indonesian people. This corresponds to one of the coping strategies that Indonesian people adopted after the Crisis in 1997 in order to help them protect expenditure levels which cannot be sustained over the long term. The coefficient of estimated worth of total household assets in 1997 is positive and statistically well-determined, whilst reported household debt (in 1,000,000 Rupiah) is negatively albeit statistically insignificantly related to reported SEL. The household's ability to transfer food to people living elsewhere is also associated positively and significantly with subjective economic status. The estimated coefficient of income in-kind, on the other hand, is positive though highly insignificant. These positive correlations between the reported SEL and other objective variables suggest that self-perception of economic status may also be dependent on income-based variables that are sustainable over longer periods of time than current household spending would reveal.

According to Ravallion and Lokshin (2002), there may well be factors other than objective indicators at the household level that affect an individual's assessments of economic status. Personal attributes such as education and marital status, for example, may influence how people feel at their current expenditure level, through their effects on future economic status.

Subjective economic status may also be associated with the relative expenditure or income standings against others that live locally. Taking this into account, Panel A of Table 4 extends X in equation (1) to include a vector of personal characteristics, adding

variables for age gender, marital status, and education, as well as health, illiteracy, religion, and a dummy representing whether the individual worked last year. We also include two additional geographical variables, adding average level of household expenditure at the community cluster level, and average level of total household income per capita at the community cluster level, as well as including dummies for previous household circumstances, as represented by recalled economic disturbances in the past year.

Table 4: Economic Subjective Status Regressions for Indonesia, 2000 (Ordered Probit) - Personal and Attitudinal Variables included

	Panel A			Panel B		
	B	SE		B	SE	
Expenditure-based variables						
Log of real household expenditure per capita, 2000	0.156	0.013	***	0.076	0.013	***
Log of real household expenditure per capita, 1997	0.034	0.012	***	0.014	0.013	
Income-based variables						
Log of estimated worth of total assets, 1997	0.093	0.006	***	0.059	0.007	***
Household income per capita (in 100,000), 2000	0.004	0.001	***	0.001	0.000	***
Reported household debt (in 1,000,000), 1997	0.000	0.001		-0.001	0.001	
Income in-kind (in 100,000), 2000	0.012	0.008		0.006	0.009	
Food transfer (in 100,000), 2000	0.079	0.037	**	0.069	0.026	***
Household characteristics						
Household size	0.014	0.003	***	0.003	0.003	
Proportion of adult male (age 16-65)	(Reference)			(Reference)		
Proportion of small children (age<10)	-0.108	0.078		-0.137	0.076	*
Proportion of older children (10<=age<16)	-0.196	0.083	**	-0.106	0.088	
Proportion of adult female (age 16-65)	0.057	0.066		0.021	0.068	
Proportion of old-age pensioners (age 65+)	-0.057	0.093		-0.126	0.089	
Individual characteristics						
Age	0.002	0.000	***	0.008	0.001	***
Female	(Reference)			(Reference)		
Male	-0.116	0.016	***	-0.050	0.018	***
Never been married	(Reference)			(Reference)		
Married	-0.018	0.024		-0.100	0.026	***
Separated	-0.340	0.116	***	-0.246	0.108	***
Divorced	-0.222	0.060	***	-0.262	0.072	***
Widowed	-0.113	0.046	***	-0.138	0.049	***
Education: None	(Reference)			(Reference)		

Education: Elementary	0.088	0.041	**	0.094	0.042	**
Education: Junior high school	0.177	0.049	***	0.060	0.052	
Education: High school	0.323	0.051	***	0.137	0.052	***
Education: College or university	0.382	0.055	***	0.128	0.058	**
Education: Other	0.162	0.060	***	0.066	0.066	
Not able to read and write (Yes=1)	-0.176	0.033	***	-0.005	0.035	
Health: Very healthy	(Reference)			(Reference)		
Health: Somewhat healthy	-0.041	0.030		-0.021	0.036	
Health: Somewhat unhealthy	-0.161	0.038	***	-0.055	0.043	
Health: Unhealthy	-0.266	0.175		0.094	0.147	
Religion: Non-Islam (Yes = 1)	-0.230	0.050	***	-0.093	0.045	**
Worked last year? (Yes=1)	-0.088	0.018	***	-0.104	0.020	***
Geographical characteristics						
Average expenditure at the community level	0.001	0.002		0.000	0.001	
Average income at the community level	-0.001	0.001		0.002	0.002	
Economic disturbance in the past year						
Death of a family member	-0.049	0.039		-0.046	0.042	
Sickness and hospitalization of a family member	-0.028	0.033		-0.020	0.033	
Crop loss	-0.010	0.030		0.005	0.029	
Household/business loss due to natural disaster	0.071	0.076		-0.048	0.081	
Loss of job for the householders	-0.102	0.047	**	-0.101	0.051	**
Fall in income due to very low price of products	0.055	0.040		-0.058	0.043	
Attitude variables						
Expected SEL at time t+1: Step 1				(Reference)		
Expected SEL at time t+1: Step 2				2.317	0.113	***
Expected SEL at time t+1: Step 3				4.184	0.133	***
Expected SEL at time t+1: Step 4				5.468	0.146	***
Expected SEL at time t+1: Step 5				6.240	0.157	***
Expected SEL at time t+1: Step 6 (Richest)				5.131	0.185	***
Few poor people in the community				(Reference)		
Many poor people in the community				-0.130	0.022	***
Provincial dummies		Yes			Yes	
N		21,557			21,557	
Log pseudolikelihood		-23475			-16042	
Pseudo R-squared		0.0673			0.3614	

Note: * 10% C.I.; ** 5% C.I., *** 1% C.I. Additional reference groups: female, single (marital status), no formal education, very unhealthy (health status), Islam, few poor people in the community.

It can be seen that by adding the above variables into the regression, I can significantly improve the explanatory power of the model, as indicated by a 19% increase in the

pseudo-R^2 from the Panel B of Table 3. Both expenditure and income variables in the year 2000 continue to enter the equation in a positive and significant manner. The coefficients on past expenditures, the estimated value of total assets, and food transfer also continue to be positive and significant at the 1%. Whilst the size of the coefficient on past expenditures has reduced by half, with the additional variables in the regression, the size of the coefficient on current household expenditure and income remain relatively the same as in Table 3. The positive and well-defined coefficient on the proportion of adult female obtained in Table 3 is now insignificant with controls on the individual characteristics. Other main results in Panel A of Table 4 show that age is positively correlated with higher economic status; this probably reflects earning potentials with age in Indonesia. I have also tried including age-squared into the regression, but this produces insignificant results for both age and age-squared coefficients.

Table 4's other results are also consistent with previous findings by Ravallion and Lokshin (2002) and Graham and Pettinato (2002). Females report a significantly higher economic status on average than their male counterparts. Contrary to the standard economic assumption, being married to someone is not significantly correlated with the feeling of being more economically secure for the respondents, as compared to being single. On the other hand, separated individuals, divorcees, and widowers are more likely than others to place themselves on the lower rungs of SEL. Self-rated economic status rises with education levels, while less healthy people (by their own rating) have a lower self-evaluation of economic status, *ceteris paribus*. One plausible explanation for this is that education and a stock of good health contribute to expected income gains in the future. Illiterate individuals put themselves on a lower rung of economic status

controlling for expenditure and income. Self-rated economic status is lower amongst non-Islamic respondents, which suggests that people of religious minorities (12% of the whole sampled population) are more likely to feel financially inadequate than others living in the same country.

Surprisingly, the coefficient on employment status, as represented by a dummy variable for whether the respondent worked in the past year, is negative and statistically significant in the cross-section equation. The inclusion of additional dummy variables for a number of employment status (i.e., attending school, retired, housekeeping, disabled, unemployment - searching and non-searching) did not significantly change the estimated coefficient on whether the person worked last year or not, whilst the dummies on employment status themselves are mostly insignificant.

The coefficients of the average wealth at the community level (as measured by the mean levels of household expenditure and income in the community cluster[5]), on the other hand, are positive albeit highly insignificant. There is only one significant relationship between the recalled economic disturbances in the past year and the reported SEL; only those respondents whose households have suffered job loss for the householders report lower economic status *ceteris paribus*.

There may also be determinants of self-rated economic status that can only be assessed through more subjective attitudinal questions, and not by readily observable characteristics. Panel B of Table 4 adds in a set of attitudinal variables related to the expected position of economic status ladder one year into the future and whether the respondent thinks there are too many poor people in the community.

Adding these attitudinal variables to the first panel's estimation greatly improves the explanatory power of the model, as indicated by the fact that the pseudo-R^2 is more than quadrupled. Respondents who expect to be moving up the economic ladder one year into the future are less likely to see themselves as poor today, controlling for current household spending and other variables. This cancels out the effects of household size, illiteracy problem, and health. Similarly, the size of educational variables reduces by more than half from that obtained in Panel A. This suggests that the number of people in the household, subjective evaluation of health, as well as education levels and the ability to read and write, are significant in Panel A's estimation, because they pick up expectations about future economic status.

The coefficient of past expenditure is now insignificantly related to the reported economic status, suggesting that experiences of expenditure growth only matter to the current level of self-rated economic status if they signify possible significant improvements in the future economic status. On the other hand, respondents who feel that there may be too many poor people in the local community are significantly more likely to see themselves as poor, suggesting that people tend to feel financially richer than others in the country – the majority of whom they do not have sufficient information on how rich and poor they are – from living in wealthier areas than poorer ones. One explanation for this may be that people might feel that by living in a more affluent area, others' wealth will rub off on them. In other words, it is possible that comparison in Indonesia is more likely to be made upwards at the community level but downwards at the national level. It is worth noting here that while these variables may well have significantly improved the explanatory power of the self-rated economic status model, we

realise that they also create concerns about their endogeneity to the reported SEL. As a result of this, the estimated coefficients in Panel B's regression should be treated with care.

3.2 Observed Discrepancies in the Reported Economic Status Over-time

One of the issues known to affect an individual's self-rated status is the omitted inborn dispositions of the respondent, which do not to change over time. According to the literature of psychology, people who are born with persistent personality traits such as extroversion and agreeableness, for example, are likely to report higher levels of subjective status than those who were not born with the same attributes (De Neve & Cooper, 1999). Given that these psychological factors may jointly influence reported status and observed socio-economic factors (such as current spending behaviour and unemployment), cross-section equations will be unreliable if unobserved heterogeneity are not controlled for in the regressions (Clark & Oswald, 2002; Ferrer-i-Carbonell & Frijters, 2004). For instance, it may be possible that certain personality traits (like self-esteem) make people disinclined to say that they are poor in the survey, while at the same time encouraging them to spend their incomes on various consumptions. Thus, it may be argued that the correlation between expenditure and subjective economic status will be overestimated.

The degree of endogeneity bias may also depend on the unobserved characteristics which may have been shaped in the early years of the individual by the cultural norm that he or she lives in (Diener & Suh, 2000). This could well be the case

for Indonesia where "collectivism" (i.e., a cultural characteristic that increases the tendency among those above and below the average to conform to the socially acceptable means) dominates the majority of people (Hofstede, 1980)[6], which probably explains why more than half of the poorest 40% of the Indonesian population put themselves on the middle rung of economic ladder. It would also give rise to an apparent "optimism" among poorer households and "pessimism" among richer households, which would apply equally to current and future subjective poverty. If these culturally related characteristics happened to be uncorrelated with the other variables of interest, then we would not need to control for them when measuring the effect of income, say. Explanatory power will be lower, but the unobserved fixed effects stemmed from collectivism will not bias the results.

However, it is plausible that people with higher degrees of collectivism (i.e., those growing up in a family with many collectivist members) are more likely than others to place a much greater weight on family life than income and consumption, eventually leading to individualistic people becoming significantly wealthier than collectivists over time (Ahuvia, 1999). Given that the degree of collectivism is higher among lower income individuals and those placing themselves on the middle rung of SEL, ordered probit regression will produce an estimated relationship between income and subjective economic status that is biased upward for the lower income group and possibly downward for the upper income group.

In summary, cross-sectional inferences may well have a hard time measuring the true effects of changes in socioeconomic characteristics, and that the general direction of bias is unclear on *a priori* grounds.

In allowing for the presence of an individual's unobserved heterogeneity in our subjective economic status model, I first rewrite equation (1) in the following simple form:

$$w_{it} = \beta_t \ln(e)_{it} + \gamma_t X_{it} + \eta_i + \varepsilon_{it}, \quad t = 1, 2, \tag{2}$$

where the subscript *t* represents the time periods, and η_i is a vector of time-invariant individual effects, representing personality traits and any other sources of latent heterogeneity; η_i is allow to be correlated with log of real expenditure per capita, $\ln(e)_{it}$, and the other observable household and personal characteristics of interest, X_{it}. Note that I allow for the parameter vectors β_t and γ_t to vary over time, reflecting the fact that the impacts of (say) household expenditure and the value of total household assets may be dependent on the mean levels set by the respondent's social reference-group at each survey date, as discussed in the previous section. I also make the standard assumption that the function is static, in that w_{it-1} does not affect w_{it} given $\ln(e)_{it}$ and X_{it}.

To correct for time-invariant effects, I adopt the same estimation technique as described by Ravallion and Lokshin (2001) in estimating a 'utility gap function' on the reported economic status in Russia. To outline the method more formally, let us begin by taking first-difference of equation (2) so as to eliminate η_i in the normal way. Equation (2) now becomes

$$\Delta w_{it} = \beta_t \Delta \ln(e)_{it} + \Delta\beta_t \ln(e)_{it-1} + \gamma_t \Delta X_{it} + \Delta\gamma_t X_{it-1} + \Delta\varepsilon_{it}, \tag{3}$$

where $\Delta w_{it} = w_{i2} - w_{i1}$ is the change in subjective economic status for individual *i*, $\Delta \ln(e)_{it} = \ln(e)_{i2} - \ln(e)_{i1}$ is the change in real monthly household expenditure per capita, $\Delta X_{it} = X_{i2} - X_{i1}$ is the vector of changes over time in the observed characteristics, while $\Delta\beta_t = \beta_2 - \beta_1$ and $\Delta\gamma_t = \gamma_2 - \gamma_1$ are the corresponding vectors of changes over time in the parameters. Note that a variable (such as gender) that does not change over time still has a non-zero parameter in equation 3) if the parameters of the subjective economic status function in levels (as in equation 2) change over time. However, having eliminated η_i from the utility function, we are unable to identify permanent effects on subjective economic status of these time-invariant variables.

We cannot estimate equation (3) directly as Δw_{it} is not directly observable. Rather, we know the respondent's position at each two given survey dates on the reported economic ladder with *R* rungs. There is no one-to-one mapping from changes in subjective economic status to changes in the economic ladder position, since respondents on the same ladder rung can have different initial status levels. Let $g_{it}(k)$ be the perceived increment to status required by individual *i* to advance k rungs. For example, if between dates $t-1$ and *t* status falls by more than $g_{it}(-2)$, then one will be at least two rungs lower at *t* than at $t-1$. If Δw_{it} falls within the interval $[g_{it-1}(-1),\ g_{it}(1)]$, then one will be on the same rung at period *t* as $t-1$.

Since it is unlikely that the status gaps are the same across all individuals, the key assumption is that the status gap function, $g_{it}(k)$, contains a common additive component across all individuals, and an idiosyncratic component that depends on current

characteristics similar to that of the status function. The specific functional form we assume is

$$g_{it}(k) = c(k) + \delta \ln(e)_{it} + \varphi X_{it} + \upsilon_{it}, \tag{4}$$

where $c(k)$, δ, and φ are parameters and υ_{it} is the zero-mean error term[7]. While equation (4) allows for heterogeneity in status gaps across all individuals, it does not allow for a latent individual effect, just as equation (2) does not allow for an individual fixed effect in the changes in subjective economic status. Thus, equation (4) implies that people with the same observed characteristics tend to agree, on average, on the status gap required to move up the subjective economic ladder by *k* rungs.

By assuming cardinality in reported subjective economic status, the above assumptions allow us to estimate an ordered probit on the observed changes in economic ladder positions where the latent continuous variable is the change in status net of the idiosyncratic component in the lagged status gap:

$$y_{it} \equiv \Delta w_{it} - g_{it-1}(k) + c(k) = \beta_t \Delta \ln(e)_{it} + (\Delta\beta_t - \delta)\ln(e)_{it-1} + \gamma_t X_{it} + (\Delta\gamma - \varphi)_t X_{it-1} + \omega_{it}, \tag{5}$$

where the composite error term, $\omega_{it} = \Delta\varepsilon_{it} - \upsilon_{it-1}$, is normally distributed under the assumptions specified above. The reported ladder position will be unchanged if y_{it} is within the interval [$c(-1)$, $c(1)$], which is equivalent to requiring that Δw_{it} is found in

[$g_{it-1}(-1)$, $g_{it-1}(1)$], given the definition of y_{it} in equation (5) and the assumed form of the gap function as specified in equation (4). In a ladder of *R* rungs, there are 2(*R* − 1) possible rung changes and 2(*R* − 1) values of *c(k)*, giving the appropriate common cut-offs in the y_{it} dimension. While *c(k)* is strictly increasing in *k*, we do not require that *c(k)* be positive (negative) when *k* is positive (negative). Thus, an ordered probit for the changes in the economic ladder rungs allows us to estimate the β_t parameters in the economic status function and the cut-offs in status gap. In addition, the estimates will no longer be biased as a result from the presence of the latent individual effects in the status function.

This section aims to apply the above econometric technique on the SEL data in Indonesia. Nonetheless, despite the longitudinal nature of the IFLS data, it is only the most recent survey - the IFLS3 - that contains a set of attitudinal questions on the respondent's perception of economic status. There is, however, one attitudinal question that asks the respondent to recall his or her position on the economic ladder three years ago. The actual wordings of this past subjective economic status question are: "Please imagine a six-step ladder where on the bottom (the first step), stand the poorest people, and on the highest step (the sixth step), stand the richest people. On which step were you just before economic crisis occurred (end of 1997)?"

I shall be using the responses to the above SEL question as the individual's subjective position on the economic ladder at period *t*-1. The raw distribution of the recalled SEL responses is given in Table 5. The respective mean and standard deviation of this SEL distribution is 2.93 and 0.88.

Table 5: Subjective Economic Status in Indonesia, 1997

Subjective Economic Ladder	Observations	Percentage	Cumulation
Poorest 1	1,118	5.11%	5.11%
2	5,109	23.33%	28.44%
3	11,080	50.60%	79.04%
4	3,979	18.17%	97.21%
5	553	2.53%	99.74%
Richest 6	57	0.26%	100.00%
Total	21,896	100.00%	

Note: The actual wordings of the economic status question is, "Please imagine a six-step ladder where on the bottom (the first step) stands the poorest people, and on the highest step (the sixth step) stands the richest people. On which step were you just before the economic crisis (end of 1997)?

While the so-called self-rated 'recalled economic status' data may contain important information about the true status experienced by the respondent at $t-1$, it also creates concerns about the likely measurement errors associated with the way people assess their past status. For instance, there is no good reason to assume that the ability to recall experienced status is constant across all respondents, given the three-year gap between survey dates. Some people may have a clear memory of their financial situation three years ago, while others may only possess a vague memory of what their lives were like just before the economic crisis occurred. Hence, individuals may only rate their past economic status as based on how they feel about their economic situations today, making it possible that w_{it-1} will be strongly correlated with w_{it}, and weakly correlated with $\ln(e)_{it-1}$ and X_{it-1}. Despite the potential measurement errors in the data, I have been able to show, from running an ordered probit on the recalled economic status against other explanatory variables measured in 1997, and comparing the estimates with the results

from the year 2000, that self-rated economic status equations have a generally similar patterns today, in terms of the coefficient sign and significance, as three years ago[8]. In other words, the estimates suggest that people's recollections of past status are relatively stable across all respondents at the cross-section. This therefore helps to ease some of the fears about the validity of the recalled economic status data.

Table 6 reports the results from the status-gap equation regression analogous to that of equation (5) and its marginal effects (the probability of moving from no change in perceived status (0) to an increase of one economic rung from the previous year (+1)). I continue to include a set of variables that do not (or are not likely to) change over time, such as gender and religion, since their coefficients may change over time. It is also worth noting that equation (5) does not allow for a latent personality trait in status gaps, nor does it allow for a latent individual mood effect in the same manner. This can be explained by the fact that the responses to the recalled economic status question are likely to suffer from the same endogeneity bias with respect to mood effects at the time of the interview as the responses to the current subjective status question. Assuming that mood effects are relatively stable across all attitudinal questions for each individual, we can eliminate them by taking first difference of the reported economic status in the normal way[9].

While there is an increase in the size of the (change in) expenditure variable from that obtained in Panel A of Table 4, the coefficient is now only (just) significant at the 10% level when individuals' fixed-effects are controlled for in the regression; the estimated coefficient on log of household expenditure is now 0.39, with a standard error of 0.16. Both income and food transfer continue to enter the regression in a statistically

well-defined manner at the 1% level, though with smaller impacts than what have been obtained previously. Changes in household size between 1997 and 2000 is associated positively albeit weakly with the observed discrepancy in the SEL responses between the two periods, holding household size in 1997 and other things constant. Loss of business and job for at least one of the household members are also associated negatively and significantly with drops in the reported SEL in 2000.

Table 6's other results reveal only weak evidence of socio-demographic effects. Male respondents, as well as individuals of non-Islamic minorities and older respondents, tend to report that their economic status had worsened over time. In contrast to our earlier cross-sectional results, respondents who became unemployed tended to say that they are worse off compared to those in employment during 1997 and 2000, controlling for the loss of expenditure and income. The same goes for those who were unemployed in 1997 but found job in 2000. However, it appears that people who remained unemployed in both years were insignificantly different in terms of SEL responses from those in employment during 1997 and 2000. Divorcees and people with ill-health are more likely than others to report lower SEL scores in 2000 than in 1997, *ceteris paribus*.

With respect to the 'goodness of fit' of the model, the bulk of the log-likelihood of qualitative perceptions of economic status is left unexplained even with a full set of controls; the pseudo-R^2 of 0.014 is much smaller compared to what had been obtained earlier in our cross-sectional analysis.

Table 6: Ordered Probit for the Changes in Subjective Economic Status for Indonesia, 1997-2000

	B	SE	Marginal Effects

				(from 0 to +1 improvement in the rung)
Expenditure-based variables				
Δ Log of real household expenditure per capita	0.390	0.158	***	0.0659
Log of real household expenditure per capita, 1997	-0.006	0.013		-0.0001
Income-based variables				
Δ Household income per capita	0.002	0.000	***	0.0003
Household income per capita, 1997	0.003	0.001	***	0.0004
Δ Income in-kind	0.001	0.008		0.0002
Income in-kind, 1997	-0.022	0.008	***	-0.0026
Δ Food transfer	0.047	0.024	**	0.0069
Food transfer, 1997	0.055	0.025	**	0.0082
Log of estimated worth of total assets, 1997	-0.021	0.008	**	-0.0036
Reported household debt (in 1,000,000), 1997	-0.004	0.003	*	-0.0007
Household characteristics				
Δ Household size	0.007	0.004	*	0.0012
Household size, 1997	0.003	0.004		0.0006
Δ Proportion of small children (age<10)	0.138	0.095		0.0233
Proportion of small children (age<10), 1997	0.154	0.135		0.0260
Δ Proportion of older children (10<=age<16)	0.058	0.107		0.0098
Proportion of older children (10<=age<16), 1997	-0.044	0.089		-0.0074
Δ Proportion of adult female	0.122	0.075		0.0207
Proportion of adult female, 1997	0.049	0.077		0.0083
Δ Proportion of old-age pensioner	0.003	0.104		0.0004
Proportion of old-age pensioner, 1997	0.017	0.083		0.0029
Individual characteristics, 2000				
Age	-0.003	0.000	***	-0.0005
Female	(Reference)			
Male	-0.048	0.017	***	-0.0108
Never been married	(Reference)			
Married	0.046	0.027	*	0.0040
Separated	-0.158	0.121		-0.0320
Divorced	-0.179	0.068	***	-0.0309
Widowed	-0.031	0.048		-0.0085
Education: None	(Reference)			
Education: Elementary	0.065	0.034	*	0.0117
Education: Junior high school	0.025	0.044		0.0055
Education: High school	-0.000	0.044		-0.0012
Education: College or university	-0.001	0.055		-0.0018
Education: Other	0.080	0.053		0.0105
Not able to read and write (Yes=1)	0.004	0.035		0.0001
Religion: Non-Islam (Yes=1)	-0.082	0.044	*	-0.0145
Health: Very healthy	(Reference)			
Health: Somewhat healthy	-0.047	0.034		-0.0072
Health: Somewhat unhealthy	-0.050	0.046		-0.0076

Health: Unhealthy	-0.179	0.108	*	-0.0265
Geographical characteristics, 2000				
Average expenditure at the community level	0.000	0.001		0.0001
Average income at the community level	-0.002	0.002		-0.0004
Change in employment status				
Employed in both rounds (1997 & 2000)	(Reference)			
Unemployed to employment	-0.055	0.024	**	-0.0098
Employment to unemployment	-0.087	0.037	***	-0.0157
Unemployed in both rounds (1997 & 2000)	-0.036	0.024		-0.0060
Change in Economic disturbance				
Δ Death of a family member, 1997	-0.037	0.041		-0.0071
Death of a family member, 1997	-0.024	0.048		-0.0046
Δ Sickness and hospitalization of a family member	-0.010	0.030		-0.0004
Sickness and hospitalization of a family member, 1997	0.012	0.037		0.0036
Δ Crop loss	-0.038	0.028		-0.0069
Crop loss, 1997	-0.030	0.037		-0.0048
Δ Household/business loss due to natural disaster	-0.182	0.088	**	-0.0285
Household/business loss due to natural disaster, 1997	-0.187	0.088	**	-0.0293
Δ Loss of job for the householders	-0.168	0.042	***	-0.0293
Loss of job for the householders, 1997	-0.163	0.042	***	-0.0285
Δ Fall in income due to very low price of products	-0.059	0.042		-0.0121
Fall in income due to very low price of products	-0.054	0.042		-0.0114
Provincial dummies		Yes		
N		21556		
Log pseudolikelihood		-17336		
Pseudo R-squared		0.0141		

Note: * 10% C.I., ** 5% C.I., *** 1% C.I. for both the estimated coefficients and the marginal effects.

These results thus highlight the importance of the omitted latent individual heterogeneity, such as personality traits and mood effects, as one of the main determinants of self-rated economic status in Indonesia. Finally, it can be seen from the last column of Table 6 that the marginal effects of changes in household wealth (e.g., real household income per capita) are significantly smaller than those of other socio-economic variables. To illustrate this point further, we can calculate the estimated income effects in terms of compensating variation – i.e., how much income it would take to compensate an average

individual who experienced a drop in the perceived economic status from, say, unemployment (for a discussion on compensating variation, see Powdthavee, 2005). For example, the standard deviation of Δ in real household income per capita (in 100,000 Rupiah) is 0.20. Since the average household income in 1997 is 8.33, a move from one standard deviation below the mean of household expenditure to one standard deviation above is therefore a change of 0.40 from 8.13 to 8.53. Given a conservative central estimate of Δ in real household income per capita to be 0.002, the implied change in the (latent) status variable is approximately 0.001. Compare to other effects shown in Table 6, this is extremely small. The estimates imply that an increase in the household income of 4,350,000 Rupiah per month is required to compensate the negative effect on perceived economic status resulting from an individual's experience of unemployment.

4. Conclusions

This paper is an attempt to shed some lights on the determinants of subjective economic status in Indonesia. Given the fact that the majority of people in Indonesia do not know the incomes or spending capacity of others in the country, it seems impossible to have everyone in the country reporting a perfect match between their subjective and objective economic ranking in the economy. However, rather than trying to explain why there might be a large discrepancy between subjective and objective assessments of economic status, this paper examines the extent to which these differences can be explained by the individual's socioeconomic status and innate personal characteristics.

From the results, it appears that the responses to the subjective economic ladder depend not only on the current level of household expenditure, which is the most widely used indicator of objective economic welfare in Indonesia, but also on other income-based measures, the individual's own economic status in the past, as well as expected flows of wealth in the future. A significant proportion of SEL responses can also be explained by household characteristics (e.g., household size) and some of the socioeconomic attributes of the respondent (e.g., education and religious faith).

This paper also propose and implement the use of panel data to address the issue of endogeneity bias, resulting from unobserved personality traits that are known to influence subjective economic status, as well as expenditure, income, and other personal and household characteristics. By treating these personality traits as time-invariant variables, we can use an ordered probit regression to retrieve the mean effects of changes in observed characteristics (between 1997 and 2000) from the reported differences in the perceived current and past economic status recorded in the year 2000 survey. Controlling for individual-specific effects, the positive relationship between subjective economic status and household expenditure is now only marginally significant at the 10% level. Income continues to be associated positively and statistically significantly with subjective economic status. However, the size of the estimated impact of income is roughly half of that obtained in the cross-sectional analysis. Also, losing one's job appears to have a huge negative impact on subjective economic status even when there is a full placement of income.

Whilst this paper mentions nothing about the relationship between 'feeling richer than others' and 'feeling happier with life', there is strong evidence elsewhere in the

happiness literature which suggests relative income and relative wealth in general matter significantly to individual happiness (Clark and Oswald, 1996; Frank, 1999; Ferrer-i-Carbonell, 2005, Powdthavee, 2006). Given the high degree of collectivism on the international scale for Indonesia (Hofstede, 1980), it may well be the case that feeling richer than others will not contribute much, if at all, to the general sense of well-being for individuals in Indonesia. Future research should return to investigate the extent to which comparison incomes and reference groups affect happiness in Indonesia.

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Appendix A: Data Description for Indonesia

Variable	Mean (SD)	Description
Subjective Economic Ladder, 1997	2.932 (0.884)	On which of the six steps were you just before the crisis occur (end of 1997)?
Subjective Economic Ladder	2.903 (0.783)	Please imagine a six-step ladder where on the bottom (the 1st step) stand the poorest people, and on the highest step (the 6th step), stand the richest people. On which step are you today?
Log of real household expenditure per capita, 1997	12.00 (1.045)	Log of real household expenditure per capita (per month) in 1997
log of real household expenditure per capita	12.06 (1.056)	Log of real household expenditure per capita (per month) in 2000
Household income per capita, 1997	8.33 (18.01)	Household income (less income in-kind & food transfer) per capita (per month) in 1997 (in 100,000 Rupiah)
Household income per capita	9.58 (17.56)	Household income (less income in-kind & food transfer) per capita (per month) in 2000 (in 100,000 Rupiah)
Income in-kind, 1997	0.13 (1.41)	Income in-kind (per month) in 1997 (in 100,000 Rupiah)
Income in-kind	0.14 (1.14)	Income in-kind (per month) in 2000 (in 100,000 Rupiah)
Food transfer, 1997	0.02 (0.31)	Food transfer to other parties living outside household in 1997 per month (in 100,000 Rupiah)
Food transfer	0.04 (0.28)	Food transfer to other parties living outside household in 2000 per month (in 100,000 Rupiah)
log of estimated worth of household assets, 1997	15.77 (1.72)	Log of estimated worth of total household assets in 1997
Reported household debt, 1997	0.54 (4.23)	Reported household debt in 1997 (in 1,000,000 Rupiah)
Household size	6.36 (2.896)	Number of family members in the household in 2000
Education: Elementary school	0.39 (0.48)	Education: completed elementary school
Education: Junior high school	0.14 (0.34)	Education: junior high school

Education: High school	0.22 (0.41)	Education: senior high school
Education: College or university	0.07 (0.26)	Education: college or university
Education: Others	0.05 (0.22)	Education: other
Not able to read and write (Yes=1)	0.17 (0.37)	Not able to read and write in any language (yes=1)
Small children	0.13 (0.14)	Proportion of small children (age less than 10)
Older children	0.09 (0.12)	Proportion of older children (10<=age<16)
Adult female	0.34 (0.16)	Proportion of adult female (16<=age<65)
Adult male	0.33 (0.17)	Proportion of adult male (16<=age<65)
Old-age pensioner	0.06 (0.14)	Proportion of old-age pensioner (age>=65)
Marital status	1.98 (0.99)	Marital status: single=1, married=2, separated=3, divorced=4, widowed=5
Age	37.25 (16.73)	Age of the respondent
Worked last year? (Yes=1)	0.64 (0.48)	Did the individual work in the last 12 months?
Health	2.05 (0.46)	Subjective evaluated health (1=very unhealthy, 3=very healthy)
Religion: Non-Islam	0.04 (0.20)	Religion: non-Islam dummy
Death of a family member	0.07 (0.25)	Death of a family member (last year) dummy
Sickness and hospitalization of a family member	0.11 (0.32)	Sickness and hospitalization of a family member (last year) dummy
Crop loss	0.12 (0.32)	Crop loss (last year) dummy
Household/business loss due to natural disaster	0.02 (0.13)	Household/business loss due to natural disaster (last year) dummy
Loss of job for the householders	0.05 (0.23)	Loss of job for the householders (last year) dummy
Fall in income due to very low price of products	0.05 (0.22)	Fall in income due to very low price of products (last year) dummy
Average expenditure at the community level	2.77 (2.82)	Average household expenditure in the community cluster (in 100,000)
Average household income at the community level	6.88 (6.06)	Average household income in the community cluster (in 100,000)
Rank of future economic status	3.30 (1.02)	On which step (of economic status) do you expect to find yourself one year from now? (1=poorest, 6=richest)
Are there any poor people in the community?	0.79 (0.40)	Are there any poor people in the community? (0=few, 1=many)
Observations	**21,988**	

Note: All variables are taken from the year 2000, if not stated otherwise.

Footnotes:

1) Information on the IFLS data sets and how to download them can be found on the following website: http://www.rand.org/labor/FLS/IFLS.
2) The average composite consumer price index (CPI) of 43 cities in Indonesia used in this chapter comes from the Central Bank of Republic of Indonesia. See http://www.bi.go.id
3) Cramer's V is a correlation coefficient that indicates the relationship among two categorical variables. Like Pearson's coefficient, Cramer's V ranges from -1 to 1, with 0 indicating no relationship and -1 or 1 indicating a perfect relationship.
4) See Appendix A for data description.
5) Community cluster is defined at the village level with an average of 65 villagers per community cluster.
6) Out of 53 countries of Hofstede's collectivism scale, Indonesia ranked 5th in the table.
7) Note that normalities imply that it is possible for the status gap to be negative, i.e., lower positions of status at t than at $t - 1$.
8) Results can be provided on request.
9) The endogeneity with respect to mood effects is one of the biases that were not dealt with by Ravallion and Lokshin (2003).