Household Income Dynamics: A Four Country Story

by

Gary S. Fields
gsf2@cornell.edu

Paul L. Cichello
plc11@cornell.edu

Samuel Freije
sf27@cornell.edu

Marta Menendez
marta@java.ens.fr

David Newhouse
dln10@cornell.edu

Abstract

We analyze household income dynamics using longitudinal data from Indonesia, South Africa, Spain and Venezuela. With one exception, incomes regress towards the grand mean, even after greatly reducing the role of measurement error. We conclude empirically that factors encouraging convergence outweigh factors that cause divergence such as cumulative advantage, poverty traps, and labor market twist. Incomes also regress towards household-specific conditional means. In accounting for income changes, initial income and job changes of the head are consistently the most important variables, changes in income are more important than changes in household size, and changes in labor earnings are more important than changes in other sources of household income.

Paper prepared for the NBER Conference on Labor and the Global Economy, Cambridge, MA, May, 2001. Financial assistance from the International Finance Corporation is gratefully acknowledged.

I. Introduction

Who's getting ahead in economic terms, who's falling behind, and how? The rises and falls in income and consumption experienced by households are the most direct indicators available of who benefits how much from economic development. Yet studies of economic dynamics in developing countries remain scarce, largely because until very recently the comprehensive panel data surveys required to analyze income mobility in developing countries did not exist.[1] As a result, little is currently known about the factors and characteristics associated with the changes in economic well-being experienced by most of the world's families.

This work uses panel data to analyze household economic dynamics in four very different economies: Indonesia, South Africa, Spain, and Venezuela. Our four main questions are these: First, what is the unconditional relationship between initial economic position and income change? Did initially advantaged households gain more or less on average than initially poor households? Second, what is the relationship between initial economic position and income change, after conditioning on other household characteristics? Did households that had higher incomes than would have been predicted given their characteristics increase their advantage or regress towards their conditional means? Third, which variables are most important in explaining income change and which are unimportant? Fourth, which factors are most important in accounting for change in per capita income: changes in household income or changes in household size? And of the different sources of income that a household receives, such as labor earnings, transfer income, and remittance income, which are most important in explaining household income mobility?

In formulating the first of these questions (i.e., the unconditional relationship between base year economic position and subsequent income growth), we are guided by two sets of opposing theories, One guiding hypothesis is cumulative advantage, the idea that those who start ahead get further ahead because of higher skill and ability, greater ability to save, valuable connections, or political influence (Merton, 1968, Boudon, 1973, Huber, 1998). Coupled with the notion of cumulative advantage is the idea of a poverty trap: that those who start below some income level are trapped in poverty, from which they are unable to escape. (Nelson, 1956; Galbraith, 1979; Schultz, 1980; Dasgupta and Ray, 1986; Galor and Zeira, 1993, Banerjee and Newman, 1993). Together, sufficiently strong cumulative advantage or a poverty trap would lead to a *positive* relationship between base-year income and subsequent income growth.

In contrast, regression to the grand mean hypothesizes a negative relationship between base year income and income change. This model, which goes back to Galton (1889), holds that those who start in relatively favored positions revert to lower ones, while those who start behind catch up (Atkinson, Bourguignon, and Morrisson, 1992). Galton's model is a statistical one, not an economic one. In addition to this statistical pattern, more modern researchers recognize that part of the apparent regression to the mean could result from measurement error, which produces a spurious negative association between reported base year income and measured income change. In our empirical work below,

[1] For surveys of the available literature, see Baulch and Hoddinott (2000) and Fields (2001).

we pay careful attention to this issue and use both reported base year income and predicted base year income as explanatory variables in our income change analyses.

A third factor influencing convergence to or divergence from the grand mean is labor market twist. [2] This idea holds that in an increasingly globalized and technology-dependent world, the demand for skills is outpacing the available supply, bidding up the earnings of skilled workers while lowering unskilled wages. The literature agrees that skill-biased technological change and growing international trade are both responsible for this increased demand for skills, though the precise balance between the two remains a matter of controversy (Gottschalk, 1997; Johnson, 1997; Topel, 1997; Fortin and Lemieux, 1997; Friedman, 2000). But whatever the relative importance of these different underlying causes, the acknowledged effect of labor market twist is to propel those who started ahead further ahead, while leaving the unskilled behind – that is, a pattern of divergence from the grand mean.

Our second question is whether households regress to their conditional mean, i.e., their expected incomes given their observed characteristics. This is essentially a question about the nature of unobserved household abilities and income shocks: do they set observationally equivalent households on diverging income paths or are the shocks sufficiently independent that the effects wear off over time? These two types of shocks – divergent and convergent – both arise from path dependence in income dynamics. An alternative underlying structure is one of independent shocks. In our empirical work, we formulate a model that is consistent with divergent and convergent path-dependent stochastic structures; the special case of path-independence is tested for and rejected in the data for all four of our countries, as indeed it has been rejected elsewhere.

On the third question (i.e., which other variables are important in explaining income change), this research is guided more by empirics than by theory. Many studies have demonstrated rising income inequality within countries (Gottschalk and Smeeding, 1997; Inter-American Development Bank, 1998; World Bank, 2000). As already noted, rising within-country inequality is often attributed to labor market twist in favor of the highly skilled. In addition, there is also evidence in many countries that earnings inequality *within* narrowly-defined gender-age-education groups is also rising (Freeman and Katz, 1995). These empirical facts lead us to believe that those who started in the best position within these gender-age-education groups would get ahead the most, because of observed or unobserved variables associated with economic advantage within such groups. Together, these previous empirical findings and theoretical arguments lead us to suspect that in our four countries, initial income is an important variable and those households with the best non-income characteristics – education, geographic region, economic sector, and job type – would be the ones that gained the most economically.

Our fourth set of questions deals with the relative importance of different sources of per capita income change. A household's per capita income can change because income changes, because the number of household members changes, or some of each. First, we ask, how important are each of these? Secondly, total household income change can be decomposed into percentages due to changes in labor income, capital income, remittance

[2] Throughout this paper, use of the term convergence is meant that on average incomes converge towards the mean and does not imply that anything about the variance.

income, and other income sources. We quantify the relative importance of changes in these different sources of income in explaining income change. Owing to absence of past research on these questions in our four countries, we are agnostic as to what these analyses will show.

The remainder of this paper is laid out in seven sections. Section II briefly describes the four panel surveys and the macroeconomic conditions they captured. Section III explains our methodology. Section IV presents a detailed analysis of the unconditional relationship between base-year income and subsequent income change, while Section V addresses this relationship conditional on other household characteristics. Section VI quantifies the importance of other household characteristics in explaining changes in household income. Section VII analyzes the role of demographic and labor market characteristics in income mobility and also considers which sources of household income appear most important in accounting for changes in total household income. Section VIII summarizes the main conclusions, caveats, and directions for further research.

II. The Four Countries

This research is a comparative study of four countries: Indonesia, South Africa, Spain, and Venezuela. Publicly accessible panel surveys were undertaken in each country during the mid 1990's. Other than that, these countries have little in common, differing in both base levels of economic development and the ongoing macroeconomic conditions during the mid 1990s. Together, the panel data sets present a unique chance to search for common underlying causes of change in household economic well-being in economies that differ in terms of location, time period, and macroeconomic conditions. As the results will make clear, the similarities are numerous and, often, surprising.

The Indonesian data come from the first and second rounds of the Indonesian Family Life Survey, a panel survey conducted jointly by the Rand Corporation and the Demographic Institute of the University of Indonesia. The survey samples 320 villages in 13 of Indonesia's 27 provinces and is representative of 83% of the national population of roughly two hundred million. The first round of the survey interviewed approximately 7,200 households in 1993. Ninety-four percent of these households were re-interviewed in 1997. This time period captures the final five years of an enduring trend of real GDP growth and relatively stable economic management that characterized much of the 30-year Soeharto regime. Real GDP grew at about 7% per year from 1993 to 1997, while prices held steady, rising about 8% per year. The stunning collapse of the rupiah that led to massive economic dislocation and political chaos began in September 1997 and climaxed in January 1998. This survey was mostly conducted from August to November of 1997, largely before the adverse effects of the crisis were apparent.[3] The data are described in more detail in Frankenberg and Thomas (2000).

[3] There are two other reasons why the Indonesian results do not capture the economic crisis. First, income is reported for the previous year. Second, initial evidence shows that nominal wages stayed relatively constant during the start of the crisis. The government's inflation numbers jump in November and December, but that jump is still a small factor in the 1997 price index that was used to deflate incomes in this study.

The South African data come from the 1,003 African households in the KwaZulu-Natal Income Dynamics Study (KIDS) panel data set.[4] The 1993 SALDRU national household survey provides information for the base period. A follow up 1998 survey was conducted in the KwaZulu-Natal region, which is home to roughly 20 percent of the South African population. 1993 was a watershed year in South Africa, marking the end of Apartheid. Thus, this research enables us to analyze which African households got ahead by how much in the first five post-Apartheid years. The country's macroeconomic performance in the time period was not stellar, with GDP averaging 2.7 % real growth per annum and with particularly low growth in 1998. In contrast, income growth among African households in the panel sample used in this work was 6.0 % real growth per annum. The data are described in more detail in May, et al (2000).

The data used for Spain come from the ECPF (Encuesta Continua de Presupuestos Familiares) or Spanish Household Panel Survey, from the years 1995 and 1996. It is a national quarterly rotating panel that follows households for a maximum of two years (after each quarter, 1/8 of the sample rotates). The target sample size each quarter rounds off to 3,200 households. A one-year panel of 1,233 households was constructed for this study, consisting of those households interviewed in the first quarter of 1996 and again in 1997 where at least one member remained the same. The income variable used corresponds to household real monetary income of the previous three months. The Spanish economy grew during this period, with real GDP expanding by 2.3% and the unemployment rate slightly diminishing from 22.9% to 22.2%.

The Venezuelan data come from the Sample Household Survey (Encuesta de Hogares por Muestreo) conducted by the Oficina Central de Estadística e Informática, Venezuela's government agency for the collection of statistics. It is a nationally representative survey whose rotation mechanism follows households for a maximum of six consecutive semesters. We matched households from the second semesters of 1997 and 1998 using a unique dwelling identification number and the condition that at least one member be the same in both periods. The resulting panel consists of a total of 7,521 households.

The Venezuelan economy experienced a sharp macroeconomic decline between 1997 and 1998 due to the decline of oil prices and a highly contentious electoral process. Output growth fell from 5.9% in 1997 to -0.7% in 1998. Inflation also declined but stayed high, going from 50% to 36%. Open unemployment grew from 10.7% to 11.3% and informal employment grew from 47.5% to 50.2%.

[4] "African" is a racial term in sub-Saharan Africa, denoting persons who are pure black. In local parlance, those of mixed blood are denoted "coloreds." The data used in this study do not include multiple African households when the tracking technique followed multiple households in 1998 from one base household in 1993. Instead, only the first household interviewed in 1998 is used.

III. Methodology and First Results

Our analysis of household income dynamics in the four countries rests on a number of methodological choices. The first was the unit of analysis. As a practical matter, there is a substantial degree of movement into and out of households among our panel participants. In general, our surveys do not track household members who move, and their economic outcomes are unobserved. We have chosen in this study to present a relatively accurate snapshot of the demographic and economic changes of households rather than an incomplete picture of the changes experienced by individuals.

Many explanatory variables pertain to the household head. The head is typically defined as the chief household decision-maker. However, especially in households with elderly parents in residence, the head is often not the primary earner of the household. We consider characteristics of the head rather than characteristics of the highest earner because we feel that the primary decision-maker has a legitimate effect on household income change. However, the head and the highest earner are often the same person – for instance, there is a 78% overlap in Indonesia.

Our next fundamental decision was to investigate income dynamics rather than consumption dynamics. Some studies on economic dynamics in developing countries look at household consumption (Dercon and Krishnan (2000), Glewwe and Hall (1998) Grootaert, et al. (1997), Maluccio, Haddad, and May (2000)) while others use income (Gunning et al. (2000), Drèze, Lanjouw, and Stern (1992)). The use of consumption is often justified on the grounds that smoothing makes consumption a more accurate measure of longer-term welfare and that income, particularly self-employment income, is more difficult to measure. In this study, however, data considerations alone necessitate the use of income, as not all of our surveys contain convincing data on consumption dynamics.

Having decided on income as one component of economic well-being, we next considered how to adjust for household size. The literature has come to no consensus on the proper way to take account of household economies of scale. Therefore, we chose to report the simplest and most popular household size adjustment, per capita income.

The final issue was the choice of dependent variable. We have chosen to conduct our analyses using two different dependent variables: first, change in log per capita income, and second, change in per capita income measured in currency units. Analyzing changes in log per capita income (Δlog PCI) is consistent with the widespread belief in concave utility functions -- that a fixed increase in per capita income leads to a greater increase in the economic welfare of a poor household than that of a rich household. For comparison purposes, results are also reported using the more traditional changes in income measured in currency units (hereafter denoted ΔPCI) rather than changes in logs (hereafter denoted Δlog PCI). In all cases, incomes are measured in inflation-adjusted terms.

The basic results on aggregate mobility rates in the four countries appear in Table 1, which presents quintile transition matrices for all four countries. These matrices show considerable mobility across quintiles in our samples. Part of the reason that these values are lower in Indonesia and South Africa is the longer time interval between surveys (four

and four and a half years in those two countries versus one year for Spain and Venezuela). As in other countries, the highest values are found in the 5,5 cells – that is, those who started in the highest income quintile are more likely to remain there than for any other base quintile-final quintile pair.

While quintile transition matrices measure relative mobility, the rest of the paper considers changes in households' own income independent of other households' mobility. We turn our attention now to the search for common factors that explain this economic mobility.

Figures 1a-1d plot kernel density functions of the mobility of different subsamples. We see, perhaps surprisingly, that the distributions of income changes by gender and by education level of the household head differ very little from one another. On the other hand, employment transitions clearly have some role to play in explaining income change. The largest differentiating factor, we see, is initial income quintile. We begin our study, therefore, by looking at base year income.

IV. The Unconditional Relationship Between Household Income Dynamics and Base Year Income

A. Univariate Regressions

Do household per capita incomes regress towards the grand mean or diverge away from it? A number of previous studies have regressed a measure of final year economic position (which we denote here by Y_2) on a measure of base year economic position (Y_1) with no other variables present. In these studies, economic position has been measured by per capita expenditure, annual earnings, or its logarithm. A slope less than one has been found in studies of the United Kingdom (Creedy and Hart, 1979; Thatcher, 1971), the United States (Moffitt and Gottschalk, 1995), and Côte d'Ivoire (Grootaert et al., 1997), indicating convergence in these cases.[5, 6] However, in France and the United States, the results are mixed. In France, unconditional convergence is found for 1963-1966 but orthogonality is found for 1966-1970 (Hart, 1976), while in the United States, convergence is found for 1970-1975 and 1975-1980, orthogonality is found for 1980-1985, and divergence is found for 1985-1990 and 1990-1995 (Fields, forthcoming). Taken at face value (i.e., without considering the possibility of measurement error), these studies of other countries thus exhibit a variety of outcomes ranging from unconditional convergence to orthogonality to unconditional divergence.

Turning now to our four countries, the coefficients for regressions of this type are presented in Table 2. The first row demonstrates unconditional convergence of reported income per capita, measured in log terms, in our four countries. The second row demonstrates that reported incomes, measured in monetary terms, also converge towards

[5] Moffitt and Gottschalk provided variance and covariance terms for log earnings in various years from which the coefficient was constructed.

[6] The Grootaert et al. study for Côte d'Ivoire actually regresses change in consumption expenditure on initial consumption.

the grand mean. The suitability of this test for describing convergence in actual (rather than reported) income levels and further interpretation of these results will be discussed below. For now, we note that these results suggest unconditional convergence in per capita income in all four countries.

The final two rows report results using predicted initial (log) income as a measure of longer-term or more permanent income in the initial period. Income is predicted based on a variety of demographic and economic variables; the set of predictors includes all the base-year variables and instruments listed in Tables 9 and 10. To the extent that individuals smooth consumption and asset holdings, predicted incomes will not capture unobserved abilities and shocks to initial period income. Those with lower longer-term income, as measured by predicted income, increased their income the most in log terms. Households in South Africa and Venezuela maintain convergence towards the mean when households are classified according to their longer-term initial income. However, incomes exhibit unconditional divergence in Indonesia, and the relationship in Spain is insignificant.

Together, these results show a pronounced *negative* relationship between both reported income and predicted income on the one hand and subsequent income change on the other, with the exception of longer-term well-being in monetary terms in Indonesia. In other words, the evidence from these linear regressions is strongly in favor of *unconditional convergence* in all four countries.

It is possible that by allowing for non-linearity in the relationship between initial income and income change, a different pattern of income dynamics would emerge. Sections B-D address these concerns, presenting profile analysis based on quintiles of initial economic well-being and non-parametric regressions.

B. Profile of Change in Log PCI

Table 4.a relates Δlog PCI to our measures of short term and longer term base year income. For this purpose, all incomes are measured in quintiles in order to allow for the possibility of non-linear relationships. Using measured base year income quintile, the pattern is *significantly negative* in all four countries. In particular, households that reported income in the highest quintile did noticeably worse than everybody else.

We also gauge base year economic position in a number of other ways also shown in Table 4.a. These measures of longer term-economic position include predicted income quintile, consumption quintile, asset quintile, and housing rent quintile when available. [7]

When using fitted initial income quintile, a *significantly negative* relationship is found for Indonesia and South Africa. However, for Spain and Venezuela, there is no statistically significant pattern. This may be partly because the equations used to predict income were not as accurate in these two countries. Second, for three of the countries, consumption

[7] Predicted initial income quintiles were constructed by ranking predicted income values and assigning quintiles accordingly.

data are available. When base year consumption quintile is used in place of base year income quintile, we continue to get *significantly negative* results for Indonesia and South Africa. In Spain, though, this variable is statistically insignificant. Third, other variables measuring base year economic position are also available for some countries. In Indonesia, we have a measure of initial asset quintile, and this is *significantly negative.* In Spain, we have initial housing rent quintile, and it is statistically insignificant.

Overall, these mobility profile results show that those who reported higher initial incomes got ahead the *least.* These results are corroborated in Indonesia and South Africa using longer-term measures of base year income. There is *no evidence* in any of the four countries that those who started with the better base year incomes experienced *greater* income gains than others.

C. Profile of Change in PCI

Two further checks were performed to test the robustness of the conclusion of unconditional convergence. First, the analysis was redone taking as the dependent variable ΔPCI measured in currency units. These results appear in Table 4.b. For the reported initial income quintile, a *significantly negative* relationship is found here as well. In Spain and Venezuela, the relationship is monotonically negative, and it is nearly so in South Africa. In Indonesia, though, income changes were essentially the same in the first four quintiles, but significantly lower for the richest quintile.

Looking at the measures of longer-term economic position, we find a variety of patterns. In South Africa, using the other indicators, we continue to find that those who started in the richest quintile got ahead the *least*. In Indonesia, on the other hand, the longer-term indicators (predicted income quintile, consumption quintile, asset quintile) all show the opposite pattern: those who got ahead the most in currency units were the ones who started *ahead*. In Spain and in Venezuela, these other indicators exhibit no statistically significant pattern. Thus, there is no clear cross-country pattern: income per capita in currency units diverges in Indonesia, converges in South Africa, and no statistically significant pattern is found in the other two.

D. Non-Parametric Regressions

Another way of analyzing the relationship between base year economic position and household income mobility is to use non-parametric regressions. The plots in Figure 5 are obtained by using a running line smoother, which locally estimates slopes between each point taking into account the nearest neighboring points[8]. Analytic confidence intervals bracket the smoothed plot. These figures show the smoothed relationship between initial per capita income and its change, in log terms and currency units respectively.

[8] The number of neighbors to include is determined point by point by an algorithm that uses cross-validation techniques to minimize mean squared error. Running line estimators are similar to Cleveland's (1979) Lowess estimator; the difference is the lack of weighting kernel. For South Africa and Indonesia, graphs were also estimated using Lowess with very little difference in the results.

These non-parametric regressions generally confirm what we see in the quintile analysis above, namely: 1. The relationship between Δlog PCI and reported initial log PCI is markedly *negative* in all four countries. 2. The relationship between Δlog PCI and predicted log PCI is negative in South Africa and Indonesia, while confidence bands reveal that there is no clear statistically valid relationship in Venezuela and Spain. 3. The relationship between ΔPCI and reported initial PCI is markedly *negative* in Spain and Venezuela, generally negative but not monotonically so in South Africa, and negative only within the highest income quintile in the case of Indonesia. 4. In the case of predicted PCI, however, the non-parametric analysis reveals a statistically significant negative relationship in Venezuela and hints at a positive relationship in Spain though confidence bands still allow the possibility of convergence. The graphs provide further evidence of divergence in Indonesia and convergence in South Africa

E. Interpretation

So far, we have reported results using our best measures of short and longer-term measures of income, which are respectively reported and predicted base year income. Unfortunately, household income is notoriously difficult to measure in household surveys, leading to concerns that convergence in reported incomes may not imply convergence in true incomes. What can we learn about convergence or divergence in true income, as opposed to reported income?

To analyze this latent variable, we begin by writing base year income as the sum of true income y_{it}^* and stochastic reporting error, μ_{it}.

$$y_{it} = y_{it}^* + m_{it} \tag{1}$$

It is commonly assumed that reporting error across periods is mean zero, and independent across time.[9]

The coefficient from a regression of true income change on true initial income, $y^*_{it,}$ can be expressed as:

$$g^* = \frac{\mathrm{cov}[y_2^* - y_1^*, y_1^*]}{Var[y_1^*]} \tag{2}$$

The standard OLS estimate from a regression of income change on reported base year income comes from the equation:

$$y_2 - y_1 = g y_1 + e \ . \tag{3}$$

The OLS coefficient $\hat{g}$ is a biased and inconsistent estimator of g^*. Specifically,

[9] If reporting error consists of a random or fixed household-specific permanent component and a stochastic period-specific term, the results are unaffected, under the assumption that the household's fixed tendency to over- or underreport is uncorrelated to true income change.

$$\hat{g} = \frac{Cov[y_2 - y_1, y_1]}{Var[y_1]} \tag{4}$$

Assuming reporting error is orthogonal to true income, (4) can be rewritten as:

$$\hat{g} = g^* \frac{Var[y_1^*]}{Var[y_1^*] + Var[m_1]} - \frac{Var[m_1]}{Var[y_1^*] + Var[m_1]} \tag{5}$$

We can see from (4) that reporting error in base year income leads to a spurious negative correlation between reported initial income and change, captured by the second term of (4). In addition, the stochastic independent variable causes attenuation bias, reflected in the first term of (4). If true incomes diverge from the mean, so that g^* is positive, the reported regression coefficient unambiguously underestimates the extent of that divergence. On the other hand, if true incomes regress towards the mean, so that g^* is negative, these effects work in opposite directions and the bias is of indeterminate sign.

Returning to the results reported above, in all cases the OLS results indicate that reported incomes converged, which does not imply with certainty that true incomes regressed towards the mean. To overcome this problem, we ran a two stage least squares regression using the identifying instruments listed in Table 3. Under the assumption that these instruments are orthogonal to reporting error, the estimated IV coefficient is consistent.

The IV estimates, however, suffer from finite sample bias; in this setting, this bias is negative due to the negative spurious correlation between reported income and its change. This finite sample bias of the IV estimator, relative to the bias of the OLS estimate, is approximately inversely proportional to the F statistic on the instruments in the first stage regression (Bound, Jaeger, and Baker, 1995). These F statistics, which range from twenty to thirty-eight, are reported for each country in Table 3. These values imply that the magnitude of the finite sample bias ranges from 0.03 to 0.05 times the variance of reporting error for the log of initial income, divided by the variance of the residual from the prediction equation. The variance of this measurement error in log income would have to be extremely large for the convergence we observe to be consistent with divergence in true income. For instance, considering the Indonesian and South African regressions of log income change on initial income, the variance of the reporting error would have to be roughly four times the variance of reported household income for our results to be consistent with divergence in true income.

To sum up, the positive sign of the IV coefficient indicates that incomes significantly diverged in Indonesia when change is measured in currency units, and this result is robust to measurement error. In other cases, we conclude that barring exceptionally large measurement error, the statistically negative coefficients from the instrumental variable regression indicates convergence towards the grand mean in true household income.

F. Conclusions About the Unconditional Relationship Between Base Year Income and Income Change

Overall, from this analysis of the unconditional link between base year economic position and income change, we have found three patterns that generalize across the four countries and one that does not. First, the higher is the reported initial income position, the *lower* is income change in log units for all four countries. Second, the same is true when household income change is measured in currency units rather than in log-currency units. Third, when income change is measured in log-currency units, the relationship between longer-term initial position and income change is either negative or flat depending on the country. Clearly, though, there is no evidence of a positive relationship. Finally, however, there is no pattern across countries when income changes in currency units are linked to measures of longer term base economic position. A negative relationship is found for South Africa, but the opposite is found for Indonesia, and no significant relations are found for the other two countries.

Given that true household income is measured with error, convergence in reported incomes does not imply convergence in true incomes. For this reason, we reinterpret predicted income as a proxy for true income. The significantly positive relationship between income change and longer-term indicators in Indonesia, when change is measured in currency units, indicates significant divergence in true incomes in this case. We are confident that our conclusion that unconditional convergence in incomes measured in logarithmic terms is robust to measurement error.

In terms of the guiding hypotheses articulated in Section I, we find evidence that for three of the four countries, regression towards the grand mean outweighs the divergent effects of cumulative advantage, labor market twist and poverty traps.. The one exception is Indonesia, where the evidence supports regression to the mean in log PCI terms, but cumulative advantage outweighs regression to the mean when incomes are measured in currency units.

The overall pattern (Indonesia excepted) is a much more progressive pattern of economic dynamics than we had expected. This is a surprising result in a world where cross-sectional results lead to talk of globalization driving increasing inequality within countries (Friedman, 2000). Yet, the two results can be consistent if household income inequality is widening but individuals are changing positions at a high rate. This discussion reinforces the benefits of using panel data to evaluate the economic outcomes of the poor.

V. The Conditional Relationship Between Household Income Dynamics and Base Year Income

Having found support for regression to the grand mean, we now look to see if we find regression to the conditional mean as well. The question here is: Do households that start ahead of observationally similar households move further ahead or do they fall towards the level of their peers? Regression towards the grand mean does not imply regression towards the conditional mean. Panel (a) of Figure 3 presents simple hypothetical examples of data showing convergence to the grand mean along with convergence to the

conditional mean, while Panel (b) of the same figure shows convergence to the grand mean but divergence from the conditional mean.

Conditioning is carried out here by means of multiple regression analysis. The causal structure underlying the econometric estimation is the following. Per capita income, whether measured in log units or in currency units, is denoted here by Y and its change by ΔY. Time-invariant characteristics Z determine time-varying characteristics in the base year, X_1. Together, Z and X_1 determine base year income Y_1 as well as time-varying characteristics in the next year, X_2. Together Z, X_1, Y_1, and X_2 determine final year income Y_2. We shall now talk about various models of the determinants of income change, where ΔY is either the change in PCI or its log.

The true reduced form of the system just described would be a regression of ΔY on Z; the results of these regressions appear in Column (1) of Tables 9 and 10. A quasi-reduced form would regress ΔY on Z and X_1;[10] these results appear in Column (2). Finally, we have a full descriptive equation, which models log income changes as the difference of the level of log incomes. Starting from a modified version of Duncan's (1983) model of natural logarithms of family income:

$$\ln(y_{it}) = X_{it}\boldsymbol{b}_t + Z_i\boldsymbol{g} + \boldsymbol{d}_i + \boldsymbol{e}_{it}, \tag{6}$$

$$\boldsymbol{e}_{it} = \boldsymbol{r}\boldsymbol{e}_{i,t-1} + \boldsymbol{h}_{it}, \quad E[\boldsymbol{h}_{it}] = 0, \quad Var[\boldsymbol{h}_{it}] = \boldsymbol{s}_h^2 \tag{7}$$

$$\boldsymbol{d}_i = \boldsymbol{l}Z_i + \boldsymbol{u}_i, \quad E[\boldsymbol{u}_i] = 0, \quad Var[\boldsymbol{u}_i] = \boldsymbol{s}_u^2 \tag{8}$$

where X_{it} is a vector of time-variant family characteristics, Z_i is a vector of time-invariant family characteristics, δ_i stands for unobservable time-invariant family characteristics, and ε_{it} is a serially correlated error term. [11] Subtracting $\rho\ln(y_{i,t-s})$ from both sides of equation (6), we get:

$$\ln(y_{i,t}) - \boldsymbol{r}\ln(y_{i,t-1}) = X_{i,t}\boldsymbol{b}_t - X_{i,t-1}\boldsymbol{r}\boldsymbol{b}_{t-1} + Z_i(\boldsymbol{g}_t - \boldsymbol{r}\boldsymbol{g}_{t-1} + \boldsymbol{l}(1-\boldsymbol{r})) + \boldsymbol{w}_{it}.$$

After adding $\rho\ln(y_{t-1})$ and $-\ln(y_{t-1})$ to both sides and some rearranging, we get:

$$\ln(y_{i,t}) - \ln(y_{i,t-1}) = \Delta X_t\boldsymbol{b}_t + X_{i,t-1}\tilde{\boldsymbol{b}}_t + Z_i\tilde{\boldsymbol{g}}_t + (\boldsymbol{r}-1)\ln(y_{i,t-1}) + \boldsymbol{w}_{it} \tag{9}$$

[10] This is called a quasi-reduced form, because the determination of X_1 by Z is ignored, and therefore the Z variables and the X_1 variables are regarded as predetermined from the point of view of ΔY in the same way.

[11] Duncan credits Hause (1977) with originating this model, but it is very much like the model adopted by Lillard and Willis (1978) and all others doing variance components analysis. The difference is that Duncan uses family/needs income as dependent variable instead of head or individual earnings. We adopt most of Duncan's specification but include a time invariant observable vector Z_i. In addition, we model the unobservable family effect as a function of observable time invariant characteristics.

where

$$\Delta X_i = (X_{i,t} - X_{i,t-1})$$
$$\tilde{\beta}_t = \beta_t - \rho\beta_{t-1}$$
$$\tilde{\gamma}_t = \gamma_t - \rho\gamma_{t-1} + \lambda(1-\rho)$$
$$w_{it} = (1-\rho)u_i + h_{it}$$

Equation (9) is of the form $\Delta Y_1 = f(X_1, \Delta X, Z, Y_1)$, which is used in Tables 9 and 10.

If there is measurement error, then what we observe is not true income y_t but rather reported income y_t^{rep}, which is related to true income y_t by:

$$\ln(y_t^{rep}) = \ln(y_t) + \mu_t$$
$$E[\mu_t] = 0,\ Var[\mu_t] = \sigma^2_{\mu}. \tag{10}$$

Now, the model using reported change in income is:

$$\ln(y_{i,t}^{rep}) - \ln(y_{i,t-s}^{rep}) = \Delta X_i\beta_t + X_{i,t-1}\tilde{\beta}_t + Z_i\tilde{\gamma}_t + (\rho - 1)\ln(y_{i,t-s}) + \varepsilon_{it},$$
$$\varepsilon_{it} = \omega_{it} + \mu_t - \mu_{t-1}. \tag{11}$$

However, we do not observe true initial income, i.e., $\ln(y_{i,t-1})$, but reported income. Therefore, when running equation (11) using reported initial income, we face similar issues of spurious correlation bias and attenuation bias due to measurement error in the initial income variable as described in the previous section. Consequently, we run an IV estimation using a new set of variables for predicting true initial income

$$\ln(y_{i,t-s}) = \beta_{t-1}X_{t-1} + \gamma_{t-1}Z + \kappa_{t-1}W_{t-1} + \zeta_{it}, \tag{12}$$

where W_{t-1} is a set of identifying variables, such as consumption expenditures and household or production assets. Table 3 lists the variables included in W for each country and the goodness of fit of the regressions of predicted income.

Using reported income as a proxy for Y_1 gives (11), which is the basis for the regressions in Column (3). Based on (12), we instrument for reported initial income and the results are reported in Column (4).

The coefficients on Y_1 in Columns (3) and (4) are the basis for our test of conditional convergence. These coefficients relate to conditional convergence in the following way. Suppose that we have a growing economy, so that the families with a given set of characteristics (X, Z) are achieving income gains over time. We shall refer to these average conditional incomes as "expected incomes" and shall ask, how do the income changes of those who start with greater than expected incomes differ from those who start below? Four possibilities may be distinguished, as shown in Figure 4:

- Full conditional convergence: On average, those who started above the initial line and those who started below the initial line have the same final year income.

- Partial conditional convergence: On average, those who started above the initial line fall down closer to the line and those who started below the initial line rise up closer to it.
- Orthogonality: On average, those who started above the initial line and those who started below get ahead at the same rate.
- Conditional divergence: On average, those who started above the initial line get even further ahead while those who started below the initial line get ahead less rapidly or even fall behind.

The tests of these four hypotheses are gauged by the coefficients on the Y_1 variable in multiple regressions based on (11) or (12). The regression coefficients relate to the ρ in (11) and (12) in the following way:

- Full conditional convergence: $\rho = 0 \Leftrightarrow$ coeff = -1
- Partial conditional convergence: $0 < \rho < 1 \Leftrightarrow -1 <$ coeff < 0
- Orthogonality: $\rho = 1 \Leftrightarrow$ coeff = 0
- Conditional divergence: $\rho > 1 \Leftrightarrow$ coeff > 0

The regression coefficients we obtain empirically are summarized for ease of reference in Table 5. We see that when reported income is used, conditional convergence appears in all four countries, both for change in log PCI and for change in PCI. On the other hand, when initial income is instrumented, partial conditional convergence is found only some of the time; in many instances, the results are statistically insignificant.

Overall, the results of this section have shown that conditional convergence is the dominant pattern, and in no case do we get statistically significant conditional divergence. Thus, the empirical results for these four countries are much more consistent with independent or autoregressive shocks than with positive feedback shocks or with increasing returns to unmeasured ability.

VI. The Relationship Between Household Income Dynamics and Other Household Characteristics.

In Section IV, we showed that average household income changes vary a great deal depending on households' base year income. In this section, we ask: Which other factors are also important in accounting for variation in income change?

A. Results from Mobility Profiles

Tables 6.a and 6.b present mobility profiles for Δlog PCI and ΔPCI respectively. These tables show that several variables are statistically significant determinants of household income change. In the case of Δlog PCI, the significant variables are household location (significant in two countries), gender of the head of the household (2), education of the head of the household (1), number of children (2), family type (2), employment status of the head of the household (4), change in the number of children (3), change in the gender of the head (3), change in family type (3), and change in employment status of the head (4). In the case of ΔPCI, the numbers are only slightly different.

Statistical significance alone tells us nothing about the explanatory importance of these different factors in accounting for income changes. Accordingly, we turn to two other measures of the importance of different factors.

B. Gauging the Importance of Individual Factors Using Simple Regressions

The R^2 from a simple regression of income change on household characteristics is one measure of explanatory power. These partial R^2s are presented in the first column of Tables 7.a-b for each country. We find that reported initial income quintile is far and away the most important variable in explaining Δlog PCI. However, this explanatory power is partially due to an unidentified mix of true changes and measurement error. Taking instead predicted log PCI as a proxy for true base year income, we find predicted income quintile is an important variable in Indonesia and South Africa, but its importance is much diminished as compared with reported base year income. The next most important variables are change in employment status and in household composition.

What is remarkable about these results is the *unimportance* of head's schooling (with one exception) and head's gender (with one exception). Innumerable studies have shown that these variables are enormously important in explaining income *levels*, so it is somewhat surprising to find that these variables are not only small but in fact statistically insignificant correlates of income *changes*.

The effect of the head's education variable, is not straightforward. In the profiles and in the simpler regressions (columns 1 and 2 of Tables 7.a and 7.b), schooling is generally statistically insignificant. However, in the regressions of column 3, in which we gauge the ceteris paribus effect of schooling controlling for initial income, we find that the effect of schooling is almost always significantly positive. We know from earnings functions in these and other countries that schooling raises income levels. We thus have two offsetting effects of schooling on income mobility: 1. On the one hand, those with higher base year income have smaller income gains, and schooling raises base year income. 2. On the other hand, once base year income is controlled for, those with more schooling have more positive income gains. This may explain why schooling is statistically insignificant without controls but statistically significant (and positive) with controls.

C. Gauging the Importance of Individual Factors Using Decomposition Analysis

Head's education is one example of a factor that appears to be of little importance in a univariate setting but is of greater importance in a multivariate one. In general, it is striking how few variables are found to be statistically significant in a multivariate setting. Rather than trying to sum up this mass of regression coefficients, we shall gauge the importance of one group of variables in the presence of others by using decomposition analysis.

In all four countries, we decompose the observed inequality in per capita income changes across households. How much of the inequality in ΔPCI is attributable to factors such as initial income quintile, education, age, etc.? The following decomposition may be used to answer this question (Fields, 1999; Fields and Yoo, 2000). Let Y_i denote the i'th

household's ΔPCI. The equation determining Y (the regression corresponding to Table 10) can be written as follows:

$$Y_{it} = \sum_j a_{jt} p_{ijt} = a'P \qquad (13)$$

where

$a = [\alpha \ \beta_1 \ \beta_2 \ \ldots \beta_J \ 1]$

and

$Z = [1 \ p_1 \ p_2 \ \ldots p_J \ \varepsilon]$.

Given the mobility function (8)-(10), let an inequality index I(Y) be defined on the vector of Y_i's: $Y \equiv (Y_1, \ldots, Y_N)$. Let $s_j(Y)$ denote the share of the inequality of Y that is attributable to the j'th explanatory factor, let $R^2(Y)$ be the fraction of inequality that is explained by all of the P's taken together. Then, the inequality of Y can be decomposed as

$$s_j(Y) = \text{cov}[a_j P_j, Y] / \sigma^2(Y) = \frac{a_j * \text{cov}[P_j, Y]}{s^2(Y)} \qquad (14)$$

where

$$\sum_j s_j(Y) = 100\%, \qquad (15)$$

$$\sum_{j=1}^{J+1} \text{cov}[a_j P_j, Y] / s^2(Y) = R^2(Y) \qquad (16)$$

holds for <u>any</u> inequality index $I(Y_1, \ldots, Y_N)$ which is continuous and symmetric and for which $I(\mu, \mu, \ldots, \mu) = 0$. Virtually all inequality indices, such as the Gini coefficient and the Theil index, satisfy these properties.

The shares of different factors in accounting for the observed inequality in mobility experiences appear in the s_j columns of Table 7.a. In the middle column the decomposition is based on equation (11) using reported income, and the right column reports the factor shares using predicted income instead of reported income.[12] The two variables besides initial income that show the biggest effects in all four countries are change in head's employment status and change in number of children. The remaining variables account for very little inequality.[13] For all of these non-income variables, the factor inequality shares are very similar.

---

[12] Predicted income was substituted as an explanatory variable rather than employing the more conventional two stage least squares estimator which calculates standard errors using reported income. This was done so that the covariance term in equation (2.a) would be free of spurious correlation due to measurement error.

[13] The sharp decline in s_j in going from reported initial PCI to predicted PCI suggests that household-specific shocks and/or measurement error are extremely important in accounting for income changes. It may also reflect inaccurate predictions of PCI, particularly in the case of Spain and Venezuela.

Turning now from change in logs to change in currency units, Table 4.b reveals a more mixed picture. Initial PCI (reported) remains the single most important variable in South Africa and Venezuela. In those two countries, change in head's employment status is second in importance. In Spain, the role of those two variables is reversed. Indonesia, however, is different: measured in terms of s_j, initial PCI is of primary importance and change in head's employment status accounts for virtually nothing.

The multivariate analysis establishes the primary importance of initial economic position and change in household head's employment sector in accounting for the observed inequality in income changes. In Indonesia, change in the number of children appears important as well. Perhaps surprisingly, human capital characteristics of the household head such as education and age consistently account for little of the observed inequality in income change. A priority for future research is to better understand the underlying causes of changes in employment and sector.

VII. Decomposing the Sources of Change in Per Capita Income

A. Gauging the Importance of Change in Income versus Change in Household Size

The decomposition analysis of Section VI pointed to employment dynamics of the household head as a crucial aspect of the change in per capita income. Change in the number of children in the home also proved to be an important variable in some countries, though it was generally less important than change in head's employment status.[14]

In searching for important determinants of income change, there is a basic accounting question of whether changes in household income or changes in household size drive the changes we observe. Change in log PCI can be easily decomposed into the portion due to change in the household log income and the portion due to change in the household size. We calculate the fraction of households for which the change in log-income accounts for at least half the total change in log PCI. These percentages -- 84% in Indonesia, 73% in South Africa, 96% for Spain, and 88% for Venezuela -- demonstrate that for the vast majority of households, change in the household income numerator account for the bulk of their income changes.

[14] Furthermore, considering change in per capita income without adjusting for household economies of scale may overestimate the importance of change in the number of children in explaining changes in household welfare.

B. Gauging the Relative Importance of Change in Different Income Sources

Next we seek to find which sources of income drive these income changes. Since our measure of household income in a given year is a sum of various income components, change in household income can be additively decomposed into the change in its component parts. We use two popular methods for assigning quantitative importance to various income components. The first was devised by Fei, Ranis, and Kuo (1978, 1979) and Pyatt, Chen, and Fei (1980) for work on Taiwan, which has since been used as well in studies of Pakistan (Ayub, 1977), Colombia (Fields, 1979), and the United States (Shorrocks, 1983; Karoly and Burtless, 1995). The inequality of total income is decomposed into components attributable to each factor component (e.g., labor income, capital income, land income). Fei, Ranis, and Kuo showed that the Gini coefficient of total income can be decomposed into a weighted sum of "pseudo-Ginis," the weights being given by the corresponding factor shares:

$$G(Y) = \sum_k \phi_k \mathcal{G}(Y_k), \qquad (17)$$

where Y = total income, Y_k = income from the k'th factor component,

$\phi_k \equiv \sum_i Y_{ik} / \sum_k \sum_i Y_{ik}$ = the share of income from factor k in total income, and $\mathcal{G}(Y_k)$ is the "pseudo-Gini coefficient" of income from factor k. (The pseudo-Gini coefficient of a factor component is the Gini coefficient that is obtained if income recipients are arrayed in increasing order of total income rather than in increasing order of income from that factor.) Pyatt, Chen, and Fei showed that the pseudo-Gini coefficient (which they call the "concentration ratio") is in turn the product of the ordinary factor Gini $G(Y_k)$ and a "rank correlation ratio"

$$R_k = \frac{\mathrm{cov}(Y_k, r)}{\mathrm{cov}(Y_k, r_k)}$$

$$= \frac{\text{covariance between factor income amount and total income rank}}{\text{covariance between factor income amount and factor income rank}} \qquad (18)$$

and therefore

$$G(Y) = \sum_k \phi_k G(Y_k) R_k . \qquad (19)$$

Dividing (3) by G(Y), one obtains

$$100\% = \sum_k \phi_k G(Y_k) R_k / G(Y) \equiv \sum_k s_k, \qquad (20)$$

the sum of the Fei-Ranis-Kuo-Pyatt-Chen relative factor inequality weights. These weights are used in the first decomposition exercise reported below.

The second method is the one developed by Shorrocks (1982), which was used to interpret the decomposition of inequality shares above. As above, the i'th recipient unit's total income Y_i is the sum of its income from each of several factor components, e.g., labor income, capital income, transfer income, etc.:

$$Y_i = \sum_k Y_{ik}. \quad (21)$$

Shorrocks defines a "relative factor inequality weight" s_k to be the percentage of income inequality that is accounted for by the k'th factor -- for instance, how much of the inequality of total income is accounted for by the inequality of labor income, capital income, transfer income, etc.? He then shows that under a number of axioms on the decomposition itself, the relative factor inequality weights s_k are given by

$$s_k = \text{cov}(Y_k, Y) / \sigma^2(Y) \quad (22)$$

such that

$$\sum_k s_k = 1 \quad (23)$$

for *any* inequality index $I(Y_1, \ldots, Y_N)$ which is continuous and symmetric and for which $I(\mu, \mu, \ldots, \mu) = 0$. Virtually all inequality indices satisfy these conditions, including the Gini coefficient, the Atkinson index, the generalized entropy family, the coefficient of variation, and various centile measures.

We then have two alternative source decomposition methods, the Fei-Ranis-Kuo-Pyatt-Chen method given by (17)-(20) and the Shorrocks method given by (21)-(23). The relative inequality weights given by the two methods (the ϵ_k in equation (20) and the s_k in equation (22)) are not the same as each other, the difference being due to the different decomposition rules used by the different authors.

After replacing income with income change in the above descriptions, these methods are immediately applicable. Results of these factor inequality weights are found in Table 3.2. The share of inequality accounted for by labor earnings ranges from two-thirds for Indonesia to nearly 90% in Venezuela. For these four countries the message is strikingly clear: labor income change is the most important source of income change.

In sum, this section has reached two main conclusions. First, for the great majority of households, income change is more important than family size change in accounting for change in log PCI. Second, change in household income is attributable more to change in labor earnings than to change in non-labor income. These conclusions, along with the employment dynamics results in the previous section, point to further study into the changes in labor market earnings of both the head and non-head members of the household as a vital component to understanding changes in household economic well-being.

VIII. Conclusion

For many people, judgments about the extent to which economic development occurs depend critically on which people experience income gains. This paper has examined change in per capita household income, in both logarithmic and monetary terms, in four

very diverse economies: Indonesia, South Africa, Spain, and Venezuela. Despite differences in types of data, years of observation, macroeconomic conditions, and income levels, major patterns - some expected and some unexpected - emerged:

The first question was whether incomes converged or diverged relative to the grand mean. In all four countries, reported income regressed towards the grand mean, whether measured in currency units or in log-currency units. Those households that reported low base year income experienced the highest or most positive average income gains and those with high base year income experienced the lowest or most negative average changes. Because measurement error in initial income could lead to an apparent regression to the mean due to misreporting of income, we also approximated true base year income by predicted income. Using this measure, we find the initially poor experienced the highest income gains in log terms only in Indonesia and South-Africa; however, the relationship between longer-term initial position and income change in monetary terms is not consistent across countries. In particular, Indonesia differs from the others in that we find a divergent pattern of changes in true PCI.

Turning to the question of divergence from or convergence to the conditional mean, the evidence overwhelmingly supports convergence to expected income in all four countries, as models with partial adjustment to permanent income would predict. Nowhere does the evidence support conditional divergence.

Third, of the variety of characteristics and events besides initial income that we considered, changes in the employment sector of the household head appeared as a quantitatively important variable in all four countries. This is not surprising. What is surprising, at least to us, is that in all four countries, no important role emerged either for the education of the head of household nor the head's gender.

Finally, for over 70% of households in each country, the change in per capita income was primarily accounted for by their change in income and not by change in number of household members. In addition, changes in labor earnings are more important causes of change in household income than are changes in all other income sources combined.

Looking ahead, we see several priorities for future work. First, the paramount role of changes in labor earnings demonstrates the centrality of labor market analysis in understanding economic mobility. This points to the importance of understanding earnings dynamics and employment transitions more fully. Second, further work is needed to examine the role of initial income in subsequent income change. Can the effect of transitory income shocks on mobility be separately distinguished from measurement error? How does the effect of initial income on subsequent income change interact with other household characteristics? What is the effect of initial income on income change after controlling for unobserved heterogeneity? Further research is needed, in each of these countries and in others, to answer these and other questions relating to income dynamics. Third, the methods developed in this study can of course be applied to other countries. Establishing the stylized facts on these issues in a wide range of countries still lies ahead.

REFERENCES

Atkinson, Anthony B., François Bourguignon, and Christian Morrisson, Empirical Studies of Earnings Mobility. (Chur, Switzerland: Harwood Academic Publishers, 1992).

Ayub, Mahmood, Income Inequality in a Growth-Theoretic Context: The Case of Pakistan, Yale University, 1977.

Banerjee, Abhijit and Andrew Newman, "Occupational Choice and the Process of Development," Journal of Political Economy, 1993.

Baulch, Bob and John Hoddinott, "Economic Mobility and Poverty Dynamics in Developing Countries," Journal of Development Studies, August, 2000.

Bound, John, David Jaeger, and Regina Baker, "Problems with Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogenous Explanatory Variable is Weak," Journal of the American Statistical Association, 1995.

Boudon, R., Mathematical Structures of Social Mobility, Elsevier, Amsterdam, 1973.

Creedy, J. and P.E. Hart, "Age and the Distribution of Earnings," Economic Journal, 1979.

Dasgupta, Partha and Debraj Ray, "Inequality as a Determinant of Malnutirition and Unemployment: Theory," Economic Journal, 1986.

Dercon, Stefan and Pramila Krishnan, "Vulnerability, Seasonality and Poverty in Ethiopia," Journal of Development Studies, August, 2000.

Drèze, Jean, Peter Lanjouw, and Nicholas Stern, "Economic Mobility and Agricultural Labour in Rural India: A Case Study," Indian Economic Review, Special Number, 1992.

Duncan, Greg J., "The Implications of Changing Family Composition for the Dynamic Analysis of Economic Well-being" in Atkinson, A.B., and F.A. Cowell, eds., Panel Data on Incomes. London School of Economics, 1983.

Fields, Gary S., "Income Inequality in Urban Columbia; A Decomposition Analysis", Review of Income and Wealth, 1979.

Fields, Gary S., "Accounting for Income Inequality and Its Change," Cornell University, processed, 1999.

Fields, Gary S., Distribution and Development: A New Look at the Developing World. (Cambridge, MA: MIT Press and Russell Sage Foundation, 2001).

Fields, Gary S. and Gyeongjoon Yoo, "Falling Labor Income Inequality in Korea's Economic Growth: Patterns and Underlying Causes," Review of Income and Wealth, June, 2000.

Fields, Gary S., "Divergence of Earnings in the United States", forthcoming

Fortin, Nicole and Thomas Lemieux, "Institutional Changes and Rising Wage Inequality: Is There a Linkage?" Journal of Economics Perspectives, Spring, 1997.

Frankenberg, Elizabeth and Duncan Thomas. The Indonesia Family Life Survey (IFLS): Study Design and Results from Waves 1 and 2. DRU-2238/1-NIA/NICHD, 2000.

Freeman, Richard B. and Lawrence F. Katz, eds, Differences and Changes in Wage Structures. (Chicago : University of Chicago Press, 1995).

Friedman, Thomas, The Lexus and the Olive Tree. (New York: Anchor Books, 2000).

Galbraith, John Kenneth, The Nature of Mass Poverty. (Cambridge, MA: Harvard University Press, 1979).

Galor, Oded and Joseph Zeira, "Income Distribution and Macroeconomics," Review of Economic Studies , 1993.

Galton, F., Natural Inheritance. (London: Macmillan, 1889).

Glewwe, Paul and Gillette Hall, "Are Some Groups More Vulnerable to Macroeconomic Shocks Than Others?" Journal of Development Economics, 1998.

Gottschalk, Peter, "Inequality, Income Growth, and Mobility: The Basic Facts," Journal of Economic Perspectives, Spring, 1997.

Gottschalk, Peter and Timothy M. Smeeding, "Cross-National Comparisons of Earnings and Income Inequality," Journal of Economic Literature, June, 1997.

Grootaert, Christiaan, Ravi Kanbur, and Gi Taik Oh, "The Dynamics of Welfare Gains and Losses: An African Case Study," Journal of Development Studies, 1997.

Gunning, Jan et al. "Revisiting Forever Gained: Income Dynamics in the Resettlement Areas of Zimbabwe, 1983-1996," Journal of Development Studies, August 2000.

Hause, J.C., "The Covariance Structure of Earnings and the On-the-Job Training Hypothesis", Annals of Economic and Social Measurement, 1977.

Hart, P.E., "The Dynamics of Earnings, 1963-1973," Economic Journal, 1976.

Huber, John C., "Cumulative Advantage and Success-Breeds-Success: The Value of Time Pattern Analysis," Journal of the American Society for Information Science, 1998.

Inter-American Development Bank, Facing Up to Inequality in Latin America. Economic and Social Progress in Latin America 1998.

Johnson, George E., "Changes in Earnings Inequality: The Role of Demand Shifts," Journal of Economic Perspectives, Spring, 1997.

Karoly, Lynn A. and Gary Burtless, "The Effects of Rising Earnings Inequality on the Distribution of US Income", Demography, 1995.

Lillard, L.A. and R.J.Willis, "Dynamic Aspects of Earnings Mobility," Econometrica, 1978.

Maluccio, John, Lawrence Haddad, and Julian May, "Social Capital and Household Welfare in South Africa, 1993–98", Journal of Development Studies, August, 2000.

May, Julian, Michael Carter, Lawrence Haddad, and John Maluccio, "KwaZulu-Natal Income Dynamics Study (KIDS) 1993-98: A Longitudinal Household Data Set for South African Policy Analysis. " University of Natal - Durban, University of Wisconsin - Madison, and IFPRI, 2000.

Merton, Robert K. "The Matthew Effect in Science", Science, 1968.

Moffitt, Robert A. and Peter Gottschalk, "Trends in the Autocovariance Structure of Earnings in the U.S.: 1969-1987", Brown University and Boston College, July, 1995.

Nelson, Richard R., "A Theory of the Low-Level Equilibrium Trap in Underdeveloped Economies," Ameridan Economic Review, 1956.

Pyatt, Graham, Chau-Nan Chen, and John Fei, "The Distribution of Income by Factor Components," Quarterly Journal of Economics, 1980.

Schultz, Theodore W., "Nobel Lecture: The Economics of Being Poor," Journal of Political Economy, August, 1980.

Shorrocks, Anthony F, "Inequality Decomposition by Factor Components," Econometrica, January, 1982.

Shorrocks, Anthony F, "The Impact of Income Components on the Distribution of Family Incomes", Quarterly Journal of Economics, 1983.

Thatcher, A.R., "Year-to –Year Variations in the Earnings of Individuals," Journal of the Royal Statistical Society, 1971.

Topel, Robert H., "Factor Proportions and Relative Wages: The Supply-Side Determinants of Wage Inequality," Journal of Economic Perspectives, Spring, 1997.

World Bank, World Development Report 2000/2001.

Table 1: Quintile Transition Matrices

INDONESIA: Per Capita Income Transition Matrix
Percent of Sample in 1997 Log PCI Quintile,
Conditional on 1993 Log PCI Quintile

1993 \ 1997	1	2	3	4	5
1	**43.9**	28.0	15.3	10.1	2.7
2	28.6	**27.8**	22.8	15.3	5.6
3	15.2	22.5	**28.6**	23.1	10.5
4	9.4	15.1	22.3	**31.2**	21.0
5	3.2	6.1	10.2	22.8	**57.5**

SOUTH AFRICA: Per Capita Income Transition Matrix
Percent of Sample in 1998 Log PCI Quintile,
Conditional on 1993 Log PCI Quintile

1993 \ 1998	1	2	3	4	5
1	**39.8**	21.1	18.1	12.3	8.8
2	27.5	**28.1**	22.8	14.0	7.6
3	17.7	21.8	**24.7**	20.0	15.9
4	11.1	20.5	23.4	**25.7**	19.3
5	4.1	8.8	10.6	28.2	**48.2**

SPAIN: Per Capita Income Transition Matrix
Percent of Sample in 1996 Log PCI Quintile,
Conditional on 1995 Log PCI Quintile

1995 \ 1996	1	2	3	4	5
1	**65.4**	22.2	6.0	5.4	1.1
2	19.7	**56.3**	17.0	5.7	1.3
3	3.4	23.4	**53.1**	17.2	2.9
4	2.1	3.9	20.3	**58.0**	15.7
5	0.0	0.7	2.4	18.9	**78.1**

VENEZUELA: Per Capita Income Transition Matrix
Percent of Sample in 1998 Log PCI Quintile,
Conditional on 1997 Log PCI Quintile

1997 \ 1998	1	2	3	4	5
1	**49.5**	23.0	14.6	9.6	3.3
2	25.2	**29.8**	23.6	14.7	6.7
3	17.6	21.8	**27.4**	21.8	11.4
4	10.3	11.7	22.4	**34.7**	20.8
5	3.8	5.1	11.0	21.0	**59.2**

Table 2: Coefficients from a Regression of Income Change on Base Year Income

DEPENDENT VARIABLE	***BASE YEAR INCOME***	***INDONESIA***		***SOUTH AFRICA***		***SPAIN***		***VENEZUELA***	
Change in log PCI	Reported log income	-0.51*	Unconditional convergence	-0.57*	Unconditional convergence	-0.52*	Unconditional convergence	-0.64*	Unconditional convergence
Change in PCI	Reported income	-0.17*	Unconditional convergence	-0.37*	Unconditional convergence	-0.07*	Unconditional convergence	-0.35*	Unconditional convergence
Change in log PCI	Predicted log income	-0.24*	Unconditional convergence	-0.36*	Unconditional convergence	-0.13*	Unconditional convergence	-0.21*	Unconditional convergence
Change in PCI	Predicted income	0.09*	Unconditional divergence	-0.21*	Unconditional convergence	0.01	None	-0.37*	Unconditional convergence
Source: Authors' calculations									

** denotes statistical significance at the 5% level*

Table 3: Prediction of Base Year Log Income, with Additional Facts Regarding Use in Instrumental Variables Estimation

	INDONESIA	***SOUTH AFRICA***	***SPAIN***	***VENEZUELA***
R^2 from OLS regression with base year log income as the independent variable (first stage regression)	0.435	0.594	0.329	0.337
Identifying instruments (assumed uncorrelated to reporting error in income)	Assets, expenditure per capita quintile, type of floor and toilet facilities, number of household earners, cluster-average income	Expenditure, cluster average log income, presence of household durables.	Housing rent value, detailed family type (with or without children, with one or two or more adults, other types).	Household durables (i.e. refrigerator, TV, stove, number of automobiles, etc.)
F statistic on identifying instruments	37.96	31.43	20.29	29.64

Table 4a: Mobility Profiles by Initial Position: Mean Changes in Log PCI

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Total population	0.42	0.03	***Total population***	0.16	0.05	***Total population***	0.076	1.05	***Total population***	-0.043	0.036
By starting income quintile *			***By starting income quintile*** *			***By starting income quintile*** *			***By initial income quintile*** *		
Poorest Quintile	1.53	0.08	Poorest Quintile	1.10	0.13	Poorest Quintile	0.27	0.17	Poorest Quintile	1.150	0.118
2nd quintile	0.48	0.05	2nd quintile	0.26	0.08	2nd quintile	0.06	0.02	2nd quintile	-0.150	0.060
3rd quintile	0.22	0.04	3rd quintile	0.09	0.09	3rd quintile	-0.01	0.05	3rd quintile	-0.461	0.075
4th quintile	0.03	0.04	4th quintile	-0.21	0.09	4th quintile	0.00	0.02	4th quintile	-0.335	0.049
Richest quintile	-0.18	0.04	Richest quintile	-0.44	0.07	Richest quintile	-0.02	0.01	Richest quintile	-0.408	0.027
By fitted initial income quintile *			By fitted initial Income quintile *			By fitted initial income quintile			By fitted initial income quintile		
Poorest Quintile	0.74	0.06	Poorest Quintile	0.61	0.13	Poorest Quintile	0.04	0.08	Poorest Quintile	0.065	0.075
2nd quintile	0.45	0.05	2nd quintile	0.20	0.08	2nd quintile	0.05	0.07	2nd quintile	-0.188	0.090
3rd quintile	0.32	0.04	3rd quintile	0.27	0.11	3rd quintile	0.01	0.08	3rd quintile	-0.021	0.078
4th quintile	0.25	0.04	4th quintile	-0.02	0.09	4th quintile	0.06	0.03	4th quintile	-0.030	0.059
Richest quintile	0.17	0.03	Richest quintile	-0.26	0.07	Richest quintile	0.14	0.09	Richest quintile	-0.041	0.065
By initial Consumption quintile *			By initial Consumption quintile *			By initial Consumption quintile					
Poorest Quintile	0.52	0.05	Poorest Quintile	0.48	0.10	Poorest Quintile	0.06	0.16			
2nd quintile	0.53	0.05	2nd quintile	0.21	0.10	2nd quintile	0.02	0.04			
3rd quintile	0.40	0.05	3rd quintile	0.18	0.10	3rd quintile	0.06	0.02			
4th quintile	0.27	0.04	4th quintile	0.17	0.10	4th quintile	0.04	0.04			
Richest quintile	0.29	0.04	Richest quintile	-0.24	0.06	Richest quintile	0.14	0.06			
By initial Asset quintile *						By initial Housing rent quintile					
Poorest Quintile	0.55	0.06				Poorest Quintile	0.06	0.09			
2nd quintile	0.43	0.05				2nd quintile	0.07	0.02			
3rd quintile	0.35	0.05				3rd quintile	-0.01	0.07			
4th quintile	0.40	0.04				4th quintile	0.05	0.03			
Richest quintile	0.31	0.04				Richest quintile	0.14	0.10			

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 4b: Mobility Profiles by Initial Position: Mean Changes in PCI

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Total population	18.9	1.2	***Total population***	46.2	13.1	***Total population***	9.24	48.41	***Total population***	2.19	0.86
By starting income quintile *			***By starting income quintile*** *			***By starting income quintile*** *			***By initial income quintile*** *		
Poorest Quintile	24.7	1.7	Poorest Quintile	141.93	22.14	Poorest Quintile	20.99	2.36	Poorest Quintile	20.66	1.17
2nd quintile	22.8	1.8	2nd quintile	74.35	15.24	2nd quintile	11.45	2.43	2nd quintile	13.44	1.04
3rd quintile	22.0	1.9	3rd quintile	88.06	20.12	3rd quintile	9.88	2.83	3rd quintile	8.20	1.32
4th quintile	19.4	2.4	4th quintile	26.64	25.28	4th quintile	7.12	3.51	4th quintile	-0.53	1.49
Richest quintile	5.7	4.0	Richest quintile	-100.74	36.67	Richest quintile	-2.60	4.13	Richest quintile	-31.83	2.94
By fitted initial income quintile *			By fitted initial Income quintile *			By fitted initial income quintile			By fitted initial income quintile		
Poorest Quintile	13.4	1.2	Poorest Quintile	56.32	13.47	Poorest Quintile	6.01	2.50	Poorest Quintile	4.46	0.96
2nd quintile	16.8	1.7	2nd quintile	59.51	16.73	2nd quintile	9.14	2.27	2nd quintile	4.03	1.11
3rd quintile	17.5	2.2	3rd quintile	96.23	25.41	3rd quintile	11.78	3.10	3rd quintile	3.05	1.27
4th quintile	22.5	2.8	4th quintile	24.38	22.27	4th quintile	9.19	3.20	4th quintile	0.05	1.73
Richest quintile	28.6	3.8	Richest quintile	-0.10	33.34	Richest quintile	11.07	3.64	Richest quintile	0.15	2.75
By initial Consumption quintile *			By initial Consumption quintile *			By initial Consumption quintile					
Poorest Quintile	10.2	1.1	Poorest Quintile	69.24	14.85	Poorest Quintile	9.21	2.71			
2nd quintile	17.8	1.6	2nd quintile	42.46	14.96	2nd quintile	2.27	2.38			
3rd quintile	17.3	1.9	3rd quintile	68.36	20.54	3rd quintile	10.23	3.05			
4th quintile	20.8	2.5	4th quintile	95.52	27.8	4th quintile	12.15	3.81			
Richest quintile	32.9	4.3	Richest quintile	-39.78	29.62	Richest quintile	13.53	4.20			
By initial Asset quintile *						By initial Housing rent quintile					
Poorest Quintile	19.6	1.7				Poorest Quintile	7.35	2.64			
2nd quintile	13.1	1.5				2nd quintile	8.79	2.58			
3rd quintile	12.5	1.7				3rd quintile	8.96	2.73			
4th quintile	19.6	2.4				4th quintile	6.40	3.43			
Richest quintile	32.3	3.6				Richest quintile	15.48	4.00			

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 5: Regression of Income Change on Base Year Income, Controlling for Household Characteristics

DEPENDENT VARIABLE	***BASE YEAR INCOME***	***INDONESIA***		***SOUTH AFRICA***		***SPAIN***		***VENEZUELA***	
Change in log PCI	Reported log income	-0.67 *	Conditional convergence	-0.80 *	Conditional convergence	-0.59 *	Conditional convergence	-0.60 *	Conditional convergence
Change in PCI	Reported income	-0.38 *	Conditional convergence	-0.55	Conditional convergence	-0.10 *	Conditional convergence	-0.40 *	Conditional convergence
Change in log PCI	Predicted log Income	-0.21 *	Conditional convergence	-0.59 *	Conditional convergence	0.09	None	-0.01	None
Change in PCI	Predicted Income	0.13	None	-0.42 *	Conditional convergence	0.00	None	-0.10	None
Source: Tables 2.3, regressions (3) and (4)									

** denotes statistical significance at the 5% level*

Table 6a: Mobility Profiles: Mean Changes in Log PCI

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Total population	0.42	0.03	***Total population***	0.16	0.05	***Total population***	0.076	1.05	***Total population***	-0.043	0.036
Household location			***Household location*** *			***Household location***			***Household location*** *		
Urban	0.43	0.03	Urban	0.26	0.12	>10000 residents	0.13	0.07			
Rural	0.41	0.04	Rural	0.12	0.05	<10000residents	0.03	0.04			
Java	0.41	0.03	KZ	0.20	0.05				Capital	0.031	0.044
Outer Islands	0.44	0.03	Natal	-0.15	0.12				Other regions	-0.064	0.045
Head gender *			***Head gender***			***Head gender*** *			***Head gender***		
Head male	0.38	0.02	Head male	0.09	0.06	Head male	0.03	0.04	Head male	-0.059	0.040
Head female	0.56	0.07	Head female	0.22	0.07	Head female	0.20	0.07	Head female	0.002	0.068
Head Age			***Head Age***			***Head Age***			***Head Age***		
Under 25	0.56	0.11	Under 25	0.45	0.31	Under 30	0.08	0.11	Under 25	-0.249	0.140
25-40	0.36	0.03	25-34	0.16	0.14	[30,40]	-0.11	0.17	[25,45]	-0.042	0.055
40-55	0.46	0.04	35-44	0.02	0.08	[40,50]	0.13	0.04	[45,65]	-0.005	0.054
55 and over	0.43	0.04	45-54	0.18	0.11	[50,65]	0.11	0.05	More than 65	-0.107	0.092
			55-59	0.26	0.14	More than 65	0.07	0.03			
Head's education			60 and over	0.21	0.05				***Head's education***		
Illiterate	0.47	0.06				***Head's education***			No formal	0.018	0.086
0-5th grade	0.37	0.04	***Head's education*** *			Incomplete primary	0.07	0.04	Incomplete primary	-0.117	0.066
6th grade	0.45	0.05	None	0.21	0.08	Complete primary	0.07	0.08	Complete primary	-0.103	0.062
7th-9th grade	0.41	0.05	1-4 yrs	0.32	0.10	Some secondary	0.03	0.02	Incomplete Secondary	-0.038	0.077
10th-12th grade	0.33	0.04	5-7 yrs	-0.05	0.10	Complete secondary	0.01	0.07	Complete Secondary	-0.013	0.103
University	0.31	0.07	8-10 yrs	0.18	0.10	Higher education	0.14	0.07	Incomplete college	0.039	0.126
			>10 yrs	0.20	0.11				Complete College	0.079	0.122
Number of children *			***Number of children*** *			***Number of children***			***Number of children***		
0	0.32	0.05	0	-0.15	0.09	0	0.07	0.04	0	-0.017	0.061
1	0.42	0.05	1	0.22	0.11	1	0.03	0.07	1	-0.066	0.063
2	0.41	0.04	2	0.11	0.09	2	0.11	0.05	2	0.022	0.066
3+	0.50	0.04	3	0.45	0.09	3+	-0.13	0.23	3 +	-0.113	0.069
			4	0.24	0.10						
			5+	0.17	0.09						

Table 6a: Mobility Profiles: Mean Changes in Log PCI (cont.)

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Family type *			***Family type*** *			***Family type***			***Family type***		
Single, no children	0.29	0.15	Single adult	-0.29	0.12	Single head	0.03	0.03	Single head	-0.057	0.041
Couple, no children	0.21	0.09	Two or more adults	0.22	0.05	Married head	0.07	0.21	Married head	-0.009	0.060
Single adult, children	0.77	0.15									
Two adults, children	0.36	0.04									
Other	0.48	0.03									
Employment status of head *			***Employment status of head*** *			***Employment status of head*** *			***Employment status of head*** *		
Inactive	0.91	0.07	Inactive	0.19	0.06	Employer	0.07	0.04	Jobless	0.175	0.078
Unemployed	1.48	0.26	Searching/discouraged	0.94	0.18	Self-Employed	0.16	0.07	Public employee	-0.006	0.058
Government	0.29	0.05	Informal	0.35	0.09	Employee	-0.03	0.05	Private employee	-0.232	0.060
Agriculture	0.37	0.04	Private Formal	-0.24	0.05	Unemployed	0.17	0.25	Self-Employed	-0.099	0.140
Informal Sales	0.38	0.09	Public Formal	-0.09	0.08	Inactive	0.11	0.04	Employer	0.101	0.067
Other Formal	0.28	0.03									
Family	0.99	0.30				Change in number of children *					
						Less	0.23	0.06			
Change in number of children *			Change in number of children *				0.07	0.04	Change in number of children		
Less	0.64	0.04	Less	0.41	0.07	Same					
Same	0.41	0.04	Same	0.13	0.07	More	-0.27	0.04	Less	-0.052	0.083
									Same	-0.037	0.038
More	0.10	0.05	More	-0.15	0.08	Change in head's gender					
									More	-0.071	0.085
						Became male head	0.18	0.33			
Change in head's Gender *			Change in head's gender *				0.06	0.04	Change in head's gender *		
						Same					
Male both	0.39	0.02	Became Male	0.49	0.15	Became female head	0.11	0.33	Became married	0.508	0.217
Female both	0.48	0.07	Unchanged	0.13	0.05				Same	-0.042	0.037
Became female	0.08	0.51	Became Female	0.08	0.15	Change in family type *			Became single	-0.308	0.155
Became Male	1.15	0.16				Became 2 adult hh	-0.24	0.11			
						Same	0.06	0.04			
Change in family type *			Change in family type *			Became single adult hh	0.32	0.13	Change in family type		
One adult both	0.33	0.15	Became one adult	1.10	0.21	***Family type***			Became married	-0.064	0.281
Became one adult	0.51	0.17	Unchanged	0.18	0.05	Single head	0.03	0.03	Same	-0.026	0.037
Became two adult	0.66	0.16	Became two adult	-0.42	0.16	Married head	0.07	0.21	Became single	-0.507	0.238
Two+ adults both	0.41	0.02									

Table 6a: Mobility Profiles: Mean Changes in Log PCI (cont.)

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Change in employment status of the head *			***Change in employment status of the head*** *			***Change in employment status of the head*** *			***Change in employment status of the head*** *		
From Inactive to working	1.55	0.13	Same	0.10	0.05	same	0.05	0.03	same	-0.020	0.041
From Unemployed to working	1.62	0.31	Left Inactive Status	0.32	0.14	From inactive to unemployed	0.36	0.12	From public to private employee	-0.025	0.318
From Government to working	0.30	0.05	Moved to Inactive Status	0.26	0.11	From inactive to employer	0.25	0	From public to self-employed	-0.276	0.463
From Agriculture to working	0.40	0.04	Left Search/Disc Status	1.08	0.22	From inactive to self-employed	1.06	0	From public to employer	-0.721	0.669
From Informal to working	0.44	0.10	Moved to Search/Disc Status	-0.26	0.14	From inactive to employee	0.2	0.2	From public to jobless	-0.539	0.402
From Formal to working	0.32	0.03	Left Informal Sector	0.36	0.1	From unemployed to inactive	0.07	0.15	From employee to public	-0.152	0.304
From Family to working	1.32	0.29	Moved to Informal Sector	-0.14	0.14	From unemployed to self-employed	0.51	0.06	From employee to self-employed	-0.145	0.143
From Inactive to not working	0.66	0.08	Left Private Formal Sector	-0.28	0.1	From unemployed to employee	0.93	0.38	From employee to employer	0.319	0.324
From Unemployed to not working	0.87	0.35	Moved to Private Formal Sector	0.64	0.14	From employer to self-employed	-0.03	0.1	From employee to jobless	-0.689	0.164
From Government to not working	0.12	0.18	Left Public Formal Sector	-0.27	0.13	From self-employed to inactive	0.25	0.17	From self-employed to public	-0.080	0.271
From Agriculture to not working	0.12	0.16	Moved to Public Formal Sector	0.92	0.19	From self-employed to employer	-0.04	0	From self-employed to employee	-0.228	0.197
From Informal to not working	0.01	0.27				From self-employed to employee	0.33	0.08	From self-employed to employer	-0.062	0.268
From Formal to not working	-0.23	0.12				From employee to inactive	-0.06	0.09	From self-employed to jobless	-0.484	0.104
From Family to not working	-0.16	0.54				From employee to unemployed	-1.47	0.91	From employer to public	1.765	1.067
						From employee to self-employed	0.57	0	From employer to employee	0.591	0.541
						From employer to self-employed	-0.03	0.1	From employer to self-employed	0.025	0.239
						From self-employed to inactive	0.25	0.17	From employer to jobless	-0.526	0.494
									From jobless to public	0.068	0.598
									From jobless to employee	0.304	0.194
									From jobless to self-employed	0.503	0.166
									From jobless to employer	0.832	0.219

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 6b: Mobility Profiles: Mean Changes in PCI

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**		**Mean**	**Std. Dev.**
Total population	18.9	1.2	***Total population***	46.2	13.1	***Total population***	9.24	48.41	***Total population***	2.19	0.86
Household location *			***Household location***			***Household location***			***Household location*** *		
Urban	31.0	2.1	Urban	88.7	39.9	>10000 residents	9.71	2.32			
Rural	12.6	1.4	Rural	32.1	11.3	<10000residents	9.30	1.79			
Java	19.0	1.6	KZ	52.9	14.3				Capital	6.13	2.36
Outer Islands	18.6	1.6	Natal	-2.8	27.9				Other regions	1.11	0.86
Head gender			***Head gender***			***Head gender*** *			***Head gender***		
Head male	18.4	1.2	Head male	29.3	18.5	Head male	7.81	1.41	Head male	2.48	0.97
Head female	21.5	2.9	Head female	61.9	16.2	Head female	16.49	3.99	Head female	1.35	1.51
Head Age *			***Head Age***			***Head Age***			***Head Age***		
Under 25	41.3	9.5	Under 25	58.4	63.0	Under 30	-8.02	11.03	Under 25	-3.71	3.64
25-40	14.8	1.6	25-34	74.0	29.3	[30,40]	7.07	3.49	[25,45]	1.30	1.16
40-55	21.9	2.0	35-44	11.4	19.8	[40,50]	12.20	2.84	[45,65]	4.10	1.31
55 and over	18.5	2.0	45-54	66.7	31.3	[50,65]	13.69	3.00	More than 65	1.18	2.30
			55-59	58.5	39.7	More than 65	7.08	2.13			
			60 and over	45.0	16.2						
Head's education *			***Head's education***			***Head's education***			***Head's education*** *		
Illiterate	11.9	1.4	None	42.0	17.6	Incomplete primary	7.95	2.16	No formal	6.38	1.30
0-5th grade	13.0	1.6	1-4 yrs	63.4	28.7	Complete primary	9.82	1.97	Incomplete primary	0.12	1.36
6th grade	21.7	2.4	5-7 yrs	16.0	27.5	Some secondary	5.24	3.56	Complete primary	-0.04	1.29
7th-9th grade	22.3	4.0	8-10 yrs	60.6	23.9	Complete secondary	10.22	5.09	Incomplete Secondary	0.92	1.55
10th-12th grade	32.5	3.8	>10 yrs	91.3	41.4	Higher education	19.36	5.78	Complete Secondary	2.18	2.71
University	51.4	9.6							Incomplete college	3.40	4.41
									Complete College	9.12	7.61
Number of children *			***Number of children***			***Number of children***			***Number of children*** *		
0	17.8	2.9	0	-20.3	37.5	0	11.14	2.05	0	-0.61	1.94
1	19.6	1.9	1	75.5	34.3	1	6.27	3.11	1	1.36	1.56
2	18.8	2.0	2	42.0	17.6	2	7.98	2.26	2	4.77	1.41
3+	19.2	1.6	3	100.2	19.9	3+	6.33	3.28	3 +	4.13	1.02
			4	81.2	26.2						
			5+	24.9	12.8						

Table 6b: Mobility Profiles: Mean Changes in PCI (cont.)

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.
Family type *			***Family type*** *			***Family type***			***Family type*** *		
Single, no children	17.8	8.8	Single adult	-49.4	34.2	Married head	10.24	1.48	Married head	3.24	0.99
Couple, no children	7.8	3.5	Two or more adults	59.3	12.1	Single head	1.98	5.05	Single head	-0.32	1.53
Single adult, children	18.7	4.6									
Two adults, children	15.1	1.6									
Other	23.3	1.7									
Employment status of head *			***Employment status of head*** *			***Employment status of head***			***Employment status of head*** *		
Inactive	31.6	3.6	Inactive	52.3	14.6	Employer	19.70	9.19	Jobless	9.26	2.57
Unemployed	53.1	11.3	Searching/discouraged	133.8	32.0	Self-Employed	13.83	5.46	Public employee	2.12	1.45
Government	34.3	4.5	Informal	97.8	28.4	Employee	6.31	2.32	Private employee	-1.86	1.46
Agriculture	9.3	1.4	Private Formal	-19.1	23.2				Self-Employed	1.17	3.93
Informal Sales	16.5	2.3	Public Formal	-20.2	29.6				Employer	-3.25	1.37
Other Formal	19.6	1.9									
Family	31.3	6.3									
Change in number of children *			Change in number of children *			Change in number of children *			Change in number of children *		
Less	28.1	1.9	Less	111.8	20.3	Less	16.94	6.11	Less	9.36	1.44
Same	20.3	1.8	Same	40.5	23.9	Same	10.30	1.48	Same	2.35	1.03
More	2.6	1.9	More	-34.5	15.4	More	-50.16	11.61	More	-7.72	2.11
Change in head's gender			Change in head's gender			Change in head's gender			Change in head's gender *		
Male both	18.4	1.2	Became male	112.3	33.2	Became male	25.10	31.36	Became male	31.94	17.65
Female both	5.3	10.6	Same	41.4	14.0	Same	9.23	1.46	Same	2.37	0.85
Became female	29.1	4.7	Became female	19.6	31.7	Became female	22.33	20.70	Became female	-19.12	5.24
Became Male	20.5	3.3									
Change in family type *			Change in family type *			Change in family type *			Change in family type *		
One adult both	24.2	8.3	Became one adult	259.7	52.8	Became 2 adult hh	-12.88	62.08	Became married	-0.06	5.11
Became one adult	45.1	10.4	Unchanged	53.5	12.3	Same	9.25	1.38	Same	2.67	0.91
Became two adult	10.3	6.5	Became two adult	-103.1	63.4	Became one adult hh	53.91	25.27	Became single		
Two+ adults both	18.3	1.2								-10.10	5.74

Table 6b: Mobility Profiles: Mean Changes PCI (cont.)

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.
Change in employment status of the head *			***Change in employment status of the head*** *			***Change in employment status of the head***			***Change in employment status of the head*** *		
From Inactive to working	35.0	4.2	Same	23.7	14.3	same	83.35	14.06	same	2.9	1.1
From Unemployed to working	49.4	12.0	Left Inactive Status	115.7	33.9	From inactive to unemployed	60.99	28.79	From public to private employee	0.0	6.0
From Government to working	34.0	4.7	Moved to Inactive Status	43.6	22.3	From inactive to employer	37.79	0	From public to self-employed	20.7	8.7
From Agriculture to working	10.1	1.4	Left Search/Disc Status	149.9	39.7	From inactive to self-employed	11.75	0	From public to employer	-5.3	28.1
From Informal to working	17.5	2.5	Moved to Search/Disc Status	-22.6	23.3	From inactive to employee	27.51	19.34	From public to jobless	-26.7	6.0
From Formal to working	20.9	1.9	Left Informal Sector	114.3	34.0	From unemployed to inactive	19.56	17.00	From employee to public	12.1	7.1
From Family to working	38.8	6.6	Moved to Informal Sector	1.2	21.7	From unemployed to self-employed	33.16	3.36	From employee to self-employed	4.6	3.7
From Inactive to not working	30.4	4.5	Left Private Formal Sector	-20.7	25.8	From unemployed to employee	37.42	10.06	From employee to employer	15.3	9.0
From Unemployed to not working	66.4	24.2	Moved to Private Formal Sector	148.4	38.7	From employer to self-employed	11.31	19.14	From employee to jobless	-15.4	3.6
From Government to not working	40.0	20.7	Left Public Formal Sector	-87.7	40.6	From self-employed to inactive	44.69	32.34	From self-employed to public	2.2	15.1
From Agriculture to not working	2.1	3.1	Moved to Public Formal Sector	279.5	70.7	From self-employed to employer	-3.72	0.69	From self-employed to employee	-1.0	2.8
From Informal to not working	10.8	7.4				From self-employed to employee	38.05	13.81	From self-employed to employer	9.6	6.2
From Formal to not working	3.5	6.3				From employee to inactive	-16.7	17.40	From self-employed to jobless	-11.2	2.7
From Family to not working	3.5	6.3				From employee to unemployed	-21.3	11.65	From employer to public	3.9	15.0
									From employer to employee	-8.6	10.7
									From employer to self-employed	-16.4	7.4
									From employer to jobless	-36.1	9.7
									From jobless to public	13.9	5.4
									From jobless to employee	14.6	4.0
									From jobless to self-employed	19.0	3.2
									From jobless to employer	42.6	12.6

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 7a: Relative Importance of Explanatory Variables on Change in Log PCI

	INDONESIA			***SOUTH AFRICA***			***SPAIN***			***VENEZUELA***		
	R^2	S_j	S_j	R^2	S_j	S_j	R^2	S_j	S_j	R^2	S_j	S_j
Initial log PCI	0.245 *	41.4%		0.275 *	36.6%		0.011 *	28.7%		0.072 *	28.1%	
Predicted log PCI	0.028 *		5.0%	0.067 *		3.7%	0.000		0.0%	0.000		0.0%
Region	0.000	0.1%	0.1%	0.014 *	2.2%	1.9%	0.002	0.0%	0.3%	0.000	0.2%	0.0%
Initial number of children	0.003 *	-0.7%	-0.4%	0.058 *	-1.9%	-0.4%	0.002	0.6%	0.0%	0.001	0.1%	0.0%
Head's gender	0.003 *	0.0%	0.0%	0.003	-0.4%	0.1%	0.046 *	0.4%	0.6%	0.000	0.0%	0.0%
Initial family type	0.007 *	-0.1%	-0.1%	0.021 *	-1.4%	-1.6%	0.000	0.1%	0.1%	0.000	0.0%	0.0%
Head's age	0.002	0.0%	0.0%	0.032	0.6%	0.4%	0.007	0.5%	0.6%	0.001	0.1%	0.0%
Head's schooling	0.002	-0.6%	-0.3%	0.014 *	0.5%	0.2%	0.001	0.0%	0.0%	0.001	0.1%	0.1%
Head's employment status	0.033 *			0.075 *	-2.3%	-0.5%	0.006 *	-1.1%	-0.2%	0.005 *	0.1%	0.4%
Change in number of children	0.027 *	2.3%	2.4%	0.046 *	5.7%	4.5%	0.002 *	0.1%	0.1%	0.000	0.0%	0.0%
Change in head's gender	0.009 *	0.6%	0.8%	0.009 *	0.5%	0.2%	0.000	0.0%	0.0%	0.007 *	0.0%	0.1%
Change in family type	0.003 *	0.1%	0.2%	0.047 *	3.9%	5.0%	0.001 *	0.0%	0.0%	0.002	0.1%	0.1%
Change in head's employment status	0.058 *	1.9%	4.1%	0.109 *	8.4%	7.5%	0.057 *	6.8%	7.6%	0.012 *	0.8%	1.0%
Total explained		*45.0%*	*11.8%*		*52.5%*	*21.3%*		*36.0%*	*9.0%*		*29.5%*	*1.7%*
Unexplained		*55.0%*	*88.2%*		*47.5%*	*78.7%*		*64.0%*	*91.0%*		*70.5%*	*98.3%*
Total		*100%*	*100%*		*100%*	*100%*		*100%*	*100%*		*100%*	*100%*

R^2 values correspond to simple OLS regression of change in log PCI on corresponding variable. S_j represents the share of explanatory power of the corresponding variable in a multivariate regression that includes all other variables in the table.
** denotes statistical significance at the 5% level*

Table 7b: Relative Importance of Explanatory Variables on Change in PCI

	INDONESIA			***SOUTH AFRICA***			***SPAIN***			***VENEZUELA***		
	R^2	S_j	S_j	R^2	S_j	S_j	R^2	S_j	S_j	R^2	S_j	S_j
Initial PCI	0.012 *	5.9%		0.103 *	10.2%		0.025 *	3.8%		0.112 *	18.7%	
Predicted PCI	0.008 *		-0.6%	0.021 *		3.7%	0.000		0.1%	0.001		0.2%
Region	0.019 *	1.7%	1.5%	0.012	1.8%	1.9%	0.000	0.0%	0.0%	0.001 *	0.4%	0.2%
Initial number of children	0.000	-0.1%	0.0%	0.001	-0.5%	-0.4%	0.002	0.5%	0.1%	0.002 *	-0.3%	-0.1%
Head's gender	0.000	0.0%	0.0%	0.003	0.2%	0.1%	0.005 *	0.7%	0.7%	0.000	0.0%	0.0%
Initial family type	0.006 *	0.0%	0.0%	0.014 *	-1.0%	-1.6%	0.003	0.2%	0.4%	0.000 *	0.1%	0.1%
Head's age	0.006 *	0.4%	0.3%	0.003	0.4%	0.4%	0.011	0.7%	0.9%	0.001 *	0.1%	0.1%
Head's schooling	0.021 *	3.7%	2.4%	0.006	0.3%	0.2%	0.004	0.9%	0.4%	0.001 *	0.6%	0.3%
Head's employment status	0.021 *			0.027 *	-1.2%	-0.5%	0.004	-0.2%	0.0%	0.007 *	-0.1%	0.3%
Change in number of children	0.021 *	3.2%	3.2%	0.046 *	4.6%	4.5%	0.025 *	2.4%	2.4%	0.007 *	0.8%	0.7%
Change in head's gender	0.001	0.1%	0.1%	0.006	0.2%	0.2%	0.001	0.0%	0.0%	0.005 *	0.4%	0.5%
Change in family type	0.000	0.4%	0.4%	0.018 *	4.6%	5.0%	0.023 *	1.8%	2.1%	0.002 *	0.1%	0.1%
Change in head's employment status	0.024 *	1.7%	1.4%	0.079 *	8.0%	7.5%	0.033 *	4.3%	4.3%	0.027 *	2.5%	2.5%
Total explained		*17.0%*	*8.6%*		*29.1%*	*21.3%*		*14.9%*	*11.3%*		*23.3%*	*4.9%*
Unexplained		*83.0%*	*91.4%*		*70.9%*	*78.7%*		*85.0%*	*88.7%*		*76.7%*	*95.1%*
Total		*100%*	*100%*		*100%*	*100%*		*100%*	*100%*		*100%*	*100%*

R^2 values correspond to simple OLS regression of change in PCI on corresponding variable. S_j represents the share of explanatory power of the corresponding variable in a multivariate regression that includes all other variables in the table.
** denotes statistical significance at the 5% level*

Table 8: Factor Weight Inequality Measures for Change in PCI
(1) Fei-Ranis-Pyatt-Kuo-Chen and (2) Shorrocks

INDONESIA			*SOUTH AFRICA*			*SPAIN*			*VENEZUELA*		
	(1)	**(2)**		**(1)**	**(2)**		**(1)**	**(2)**		**(1)**	**(2)**
Labor Earnings	62.6%	66.8%	Labor Earnings	81.1%	88.2%	Labor Earnings	79.5%	83.2%	Labor Earnings	89.8%	88.9%
Transfer Income	14.7%	11.1%	Rental	7.8%	4.5%	Capital Income	3.9%	3.5%	Private Transfers	3.1%	3.0%
Remittance Income	21.8%	18.6%	Remittance	3.4%	1.7%	Transfer Income	13.9%	11.1%	Social Security	3.2%	4.2%
Asset Income	0.9%	3.4%	Other Non-labor income	7.8%	5.7%	Other Non-labor Income	2.7%	2.1%	Other Non-labor Income	3.9%	3.9%

Note: All income sources are in per capita terms

Table 9a: Regression of Change in Log PCI for Indonesian Households, 1993-1997

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	4999		4999		4999		4999	
R-squared	0.0039		.0444		0.4502		0.2786	
		S.E.		S.E.		S.E.		
Constant	2.695	1.400	3.089 *	1.266	4.688 *	0.947	2.580	1.167
Initial log PCI					-0.672 *	0.022	-0.206 *	0.051
Region:					*		*	
Java (omit)								
Non-Java	0.046	0.044	0.027	0.044	-0.019	0.044	0.021	0.040
Rural (omit)								
Urban	0.059	0.047	0.046	0.049	0.313	0.041	0.152	0.045
Head's age:					*			
Age	-0.201	0.124	-0.208	0.113	-0.195	0.082	-0.118	-1.16
Age squared	0.006	0.004	0.007	0.004	0.006	0.003	0.004	1.08
Age cubed	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-1.02
Age fourth	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.97
Head's school:					*			
Illiterate (omit)								
Incomplete primary	-0.101	0.070	0.067	-1.35	0.130	0.053	-0.016	0.058
Complete primary	-0.023	0.072	0.074	0.06	0.345	0.056	0.123	0.065
Some or Complete Jr. high	-0.077	0.081	0.080	-0.72	0.481	0.060	0.119	0.074
Some or Complete High School	-0.159	0.072	0.081	-1.07	0.664	0.061	0.160	0.080
Some or Complete college	-0.189	0.092	0.100	-1.09	0.943	0.080	0.215	0.110
Initial number children			0.022 *	4.55	-0.145 *	0.019	-0.039	0.025
Head's gender:								
Male (omit)								
Female			0.78	0.09	-0.016	0.066	-0.001	0.070
Initial family type:					*			
Married head (omit)								
Single head			0.119	0.14	-0.304	0.112	-0.192	0.140
Head's employment:			*					
Inactive (omit)								
Unemployed			0.267	1.85				
Government			0.108	-6.54				
Agriculture			0.088	-6.9				
Informal Sales			0.122	-4.91				
Other formal			0.092	-7.85				
Family Worker			0.322	0.26				

Change in number of children					-0.214 *	0.021	-0.225 *	0.026
Change in head's sex:					*		*	
Same (omit)								
Became male					0.567	0.106	0.703	0.153
Became female					-0.426	0.314	-0.243	0.421
Change in number of adults:								
Same (omit)								
More adults					0.293	0.143	0.304	0.182
Fewer adults					-0.105	0.123	-0.097	0.137
Change in head's employment:					*		*	
From inactive to not working								
From unemployed to not working					0.107	0.302	0.115	0.316
From government to not working					-0.060	0.214	-0.429	0.193
From agriculture to not working					-0.534	0.190	-0.520	0.169
From inf. sales to not working					-0.361	0.269	-0.551	0.255
From other formal to not working					-0.292	0.127	-0.715	0.142
From family to not working					-0.475	0.505	-0.642	0.539
From inactive to working					0.389	0.118	0.743	0.142
From unemployed to working					0.489	0.152	0.825	0.252
From government to working					0.260	0.106	-0.163	0.121
From agriculture to working					-0.108	0.092	-0.185	0.087
From informal sales to working					0.102	0.119	-0.092	0.128
From other formal to working					0.136	0.093	-0.184	0.098
From family to working					0.436	0.143	0.626	0.232

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year log per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include assets, expenditure per capita quintile, type of floor and toilet facilities, number of household earners, and cluster average log per capita income.

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 9b: Regression of Change in Log PCI for South African Households, 1993-1998

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	857		857		857		857	
Adjusted R-squared	.0213		.0988		.5168		.4957	
				S.E.		S.E.		S.E.
Constant	1.905	1.867	1.761	2.097	4.190 *	1.319	3.876 *	1.343
Initial log PCI					-0.800 *	0.042	-0.592 *	0.068
Region:	*		*		*		*	
Rural (omit)								
Urban	0.216	0.145	0.298	0.101	0.533	0.073	0.468	0.081
Natal (omit)								
KZ	0.399	0.141	0.128	0.117	0.328	0.131	0.278	0.111
Head's age:					*		*	
Age	-0.166	0.145	-0.120	0.156	-0.038	0.095	-0.085	0.098
Age squared	0.005	0.004	0.003	0.004	0.001	0.003	0.002	0.003
Age cubed	5.5E-5	4.6E-5	3.5E-5	4.7E-5	-5.7E-6	3.0E-5	2.2E-5	3.2E-5
Age fourth	2.3E-7	1.9E-7	1.5E-7	1.9E-7	1.9E-8	1.3E-7	9.2E-8	1.3E-7
Head's school:	*		*		*		*	
None (omit)								
1-4 yrs	0.107	0.140	0.115	0.137	0.139	0.095	0.122	0.100
5-7 yrs	-0.269	0.116	-0.243	0.125	0.075	0.075	-0.010	0.076
8-10 yrs	-0.071	0.131	-0.019	0.132	0.396	0.111	0.278	0.105
>10 yrs	-0.077	0.184	-0.011	0.169	0.463	0.138	0.312	0.128
Initial number children			0.013	0.017	-0.127 *	0.016	-0.096 *	0.019
Head's gender:					*			
Male (omit)								
Female			0.057	0.089	-0.170	0.080	-0.123	0.078
Initial family type:			*		*			
Two adult or more (omit)								
Single adult			-0.453	0.115	0.384	0.191	0.277	0.180
Head's employment:			*		*		*	
Inactive (omit)								
Searching/discouraged			0.722	0.203	0.107	0.264	0.200	0.272
Informal			0.168	0.115	0.078	0.161	0.095	0.166
Private Formal			-0.370	0.124	0.371	0.172	0.226	0.157
Public Formal			-0.370	0.142	0.641	0.124	0.451	0.137

Change in number of children					-0.140 *	0.015	-0.131 *	0.016
Change in head's sex: Same (omit)					*		*	
Became male					0.135	0.122	0.133	0.124
Became female					-0.304	0.095	-0.291	0.099
Change in family type: Same (omit)					*		*	
Became two adult					-0.610	0.199	-0.598	0.207
Became single adult					0.516	0.171	0.597	0.176
Change in head's employment: Same (omit)					*		*	
Left Inactive Status					-0.195	0.312	-0.205	0.322
Moved to Inactive Status					0.240	0.270	0.289	0.284
Left Srch/Disc Status(dropped)								
Moved to Search/Disc Status					-0.266	0.280	-0.209	0.302
Left Informal Sector					-0.191	0.305	-0.261	0.325
Moved to Informal Sector					0.005	0.313	0.029	0.325
Left Private Formal Sector					-0.550	0.331	-0.545	0.333
Moved to Private Formal Sector					0.522	0.278	0.565	0.293
Left Public Formal Sector					-0.730	0.321	-0.710	0.326
Moved to Public Formal Sector					1.002	0.305	1.033	0.318

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year log per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include expenditure per capita, presence of household durables, and cluster average log per capita income (excluding household).

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 9c: Regression of Change in Log PCI for Spanish Households, 1995-1996

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	1233		1233		1233		1233	
Adjusted R-squared	0.0009		0.0060		0.3426		.	
		S.E.		S.E.		S.E.		S.E.
Constant	3.880	2.78			8.028	3.41	3.807	2.49
Initial log PCI					-0.590 *	0.13	0.094	0.29
Region:								
>10000 residents								
<10000residents	-0.096	0.08	-0.109		0.009	0.06	-0.135	0.12
Head's age:								
Age	-0.335	0.24	-0.283		-0.094	0.29	-0.427	0.42
Age squared	0.010	0.00	0.008	0.00	0.002	0.00	0.013	0.01
Age cubed	-0.000	0.00	-0.000	0.00	-0.000	0.00	0.000	0.00
Age fourth	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00
Head's school:					*			
Incomplete primary (omit)								
Complete primary	0.022	0.06	0.043		0.105	0.06	0.013	0.10
Some secondary	0.042	0.09	0.093		0.246	0.06	-0.016	0.09
Complete secondary	0.039	0.12	0.087		0.323	0.10	-0.010	0.13
Higher education	0.137	0.10	0.208		0.524	0.10	0.057	0.19
Initial number children			-0.003	0.09	-0.17	0.10	0.007	0.14
Head's gender:							*	
Male (omit)								
Female			0.230		0.179	0.10	0.233	0.12
Initial family type:								
Two adult HH (omit)								
Single adult HH			-0.167		-0.198	0.22	-0.155	0.24
Head's employment:			*		*		*	
Employer			0.075	0.06	0.093	0.09	-0.032	0.12
Self-Employed			0.179	0.08	-0.061	0.08	0.096	0.11
Employee (omit)								
Unemployed			0.229	0.21	-0.934	0.33	-0.514	0.26
Inactive			0.163	0.08	-0.194	0.12	0.001	0.13

Change in number of children							*	
Same (omit)								
Less					0.073	0.14	0.280	0.16
More					-0.162	0.12	-0.211	0.10
Change in head's sex: Same (omit)								
Became male					-0.251	0.30	-0.108	0.35
Became female					0.093	0.14	-0.242	0.24
Change in family type: Same (omit)					*		*	
Became 2 adult hh					0.506	0.28	0.160	0.18
Became single adult hh					0.073	0.12	-0.189	0.22
Change in head's employment: same					*		*	
From inactive to unemployed					0.341	0.19	0.368	0.24
From inactive to employer					0.212	0.13	0.080	0.15
From inactive to self-employed					0.466	0.11	0.886	0.20
From inactive to employee					0.096	0.10	0.035	0.12
From unemployed to inactive					0.547	0.30	0.559	0.33
From unemployed to self-employed					0.780	0.40	1.115	0.47
From unemployed to employee					1.137	0.42	1.575	0.59
From employer to self-employed					-0.265	0.27	0.045	0.22
From self-employed to inactive					0.056	0.18	-0.019	0.24
From self-employed to employer					-0.176	0.07	-0.232	0.12
From self-employed to employee					0.083	0.19	0.208	0.18
From employee to inactive					-0.247	0.12	-0.321	0.15
From employee to unemployed					-1.729	0.96	-1.474	0.83
From employee to self-employed					-0.809	0.37	0.635	0.57

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year log per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include housing rental value and more detailed family type breakouts.

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 9d: Regression of Change in Log PCI for Venezuelan Households, 1996-1997

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	7521		7521		7521		7521	
Adjusted R-squared	0.0007		0.0052		0.2911		0.0203	
				S.E.		S.E.		
Constant	0.095	2.011	0.272	2.025	6.120 *	1.804	0.471	2.422
Initial log PCI					-0.603 *	0.026	-0.011	0.120
Region: Capital (omit)								
Non-capital	-0.083	0.064	-0.102	0.065	-0.527 *	0.060	-0.100	0.108
Head's age: Age	-0.028	0.176	-0.020	0.177	0.016	0.146	-0.036	0.178
Age squared	0.002	0.006	0.002	0.006	0.000	0.004	0.002	0.006
Age third	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Age quartic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Head's school: No formal (omit)					*			
Incomplete primary	-0.135	0.109	-0.070	0.107	0.055	0.092	-0.033	0.106
Complete primary	-0.123	0.102	-0.045	0.102	0.031	0.087	-0.031	0.102
Incomplete High School	-0.059	0.119	0.022	0.119	0.156	0.100	0.042	0.117
Complete High School	-0.044	0.135	0.023	0.142	0.223	0.123	0.047	0.147
Incomplete college	0.016	0.159	0.096	0.161	0.450	0.148	0.114	0.183
Complete College	0.029	0.162	0.096	0.166	0.669	0.149	0.119	0.196
Initial number children			-0.003	0.020	-0.113 *	0.020	-0.008	0.026
Head's gender: Male (omit)								
Female			-0.051	0.116	0.002	0.098	0.022	0.121
Initial family type: Married head (omit)								
Single head			0.007	0.104	-0.025	0.086	-0.019	0.103
Head's employment: Jobless (omit)			*		*		*	
Public sector employee			-0.318	0.120	0.196	0.112	-0.050	0.129
Private sector employee			-0.527	0.097	-0.043	0.112	-0.310	0.129
Self employed			-0.344	0.094	0.113	0.106	-0.058	0.122
Employer			-0.173	0.162	0.367	0.176	0.049	0.211

Change in number of children					-0.071 *	0.033	-0.026	0.086
Change in head's sex: Same (omit)					*		*	
Became male					0.602	0.130	0.714	0.222
Became female					0.016	0.137	-0.118	0.185
Change in family type: Same (omit)								
Became married					-0.077	0.228	-0.003	0.287
Became single					-0.368	0.222	-0.295	0.263
Change in head's employment: same					*		*	
From public to private employee					-0.047	0.253	-0.073	0.324
From public to self-employed					-0.314	0.418	-0.425	0.467
From public to employer					-0.659	0.620	-0.833	0.659
From public to jobless					-0.700	0.340	-0.548	0.419
From employee to public					-0.054	0.285	-0.013	0.309
From employee to self-employed					-0.003	0.133	0.046	0.154
From employee to employer					0.010	0.382	0.508	0.348
From employee to jobless					-0.522	0.193	-0.423	0.192
From self-employed to public					0.087	0.243	-0.112	0.272
From self-employed to employee					-0.309	0.202	-0.276	0.208
From self-employed to employer					-0.103	0.244	-0.095	0.280
From self-employed to jobless					-0.379	0.125	-0.463	0.131
From employer to public					1.079	0.580	1.607	1.048
From employer to employee					0.120	0.286	0.437	0.561
From employer to self-employed					-0.067	0.231	-0.103	0.286
From employer to jobless					-0.618	0.457	-0.567	0.504
From jobless to public					-0.036	0.560	-0.027	0.594
From jobless to employee					0.131	0.206	0.211	0.226
From jobless to self-employed					0.212	0.163	0.426	0.176
From jobless to employer					0.813	0.275	0.768	0.244

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year log per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include household durables.

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 10a: Regression of Change in PCI for Indonesian Households, 1993-1997

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	4999		4999		4999		4999	
R-squared	0.0364		0.0459		0.1701		0.0173	
Constant	252.60 *	83.60	266.83 *	82.94	246.39 *	76.98	188.30 *	81.38
Initial PCI					-0.380 *	0.044	0.125	0.064
Region:	*		*		*		*	
Java (omit)								
Non-Java	0.399	2.112	0.419	2.105	-0.402	2.041	1.558	2.114
Rural (omit)								
Urban	13.633	2.564	11.771	2.708	16.715	2.661	10.355	2.892
Head's age:	*		*		*			
Age	-21.440	7.010	-21.831	6.931	-17.300	6.396	-14.506	6.743
Age squared	0.648	0.210	0.663	0.207	0.503	0.191	0.415	0.202
Age third	-0.008	0.003	-0.008	0.003	-0.006	0.002	-0.005	0.003
Age quartic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Head's school:	*		*		*		*	
Illiterate (omit)								
Incomplete primary	0.907	1.978	1.055	2.147	4.770	2.034	-0.228	2.197
Complete primary	8.622	2.894	8.702	3.108	13.607	2.822	6.194	3.095
Some or Complete Jr. high	6.699	4.778	5.960	4.954	18.012	4.820	2.413	4.972
Some or Complete High School	16.625	4.376	15.606	5.023	36.072	4.744	10.976	5.104
Some or Complete college	33.560	9.383	32.072	9.700	72.706	9.159	23.861	9.556
Initial number children			1.7106	0.953	-7.624 *	0.885	-2.231 *	1.076
Head's gender:								
Male (omit)								
Female			2.632	3.482	-2.871	3.174	-1.056	3.498
Initial family type:								
Married head (omit)								
Single head			-3.256	5.883	6.008	7.553	6.521	7.993
Head's employment:			*					
Inactive (omit)								
Unemployed			20.114	11.467				
Government			-8.706	6.386				
Agriculture			-16.263	3.449				
Informal Sales			-11.030	4.185				
Other formal			-14.426	4.300				
Family Worker			4.802	6.784				

Change in number of children					-14.337 *	1.281	-14.343 *	1.480
Change in head's sex:					*		*	
Same (omit)								
Became male					19.129	4.978	23.171	6.058
Became female					-16.628	9.976	-4.439	9.201
Change in number of adults:					*		*	
Same (omit)								
More adults					-11.669	9.510	-13.51	10.65
Fewer adults					20.378	9.103	23.124	9.384
Change in head's employment:					*		*	
From inactive to not working								
From unemployed to not working					10.022	20.811	24.639	24.25
From government to not working					3.214	21.590	-10.130	20.40
From agriculture to not working					-23.753	4.625	-22.023	4.83
From inf. sales to not working					-17.352	8.293	-20.392	8.47
From other formal to not working					-21.413	7.298	-35.065	8.15
From family to not working					-24.447	17.915	6.309	
From inactive to working					-2.963	6.178	22.147	6.02
From unemployed to working					8.575	11.049	-12.188	12.74
From government to working					1.037	7.143	-14.485	7.610
From agriculture to working					-15.337	4.684	-9.755	4.797
From informal sales to working					-9.582	5.330	-14.256	5.556
From other formal to working					-7.582	5.435	15.248	5.589
From family to working					6.636	7.514	6.309	6.823

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include assets, expenditure per capita quintile, type of floor and toilet facilities, number of household earners, and cluster average per capita income.

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 10b: Regression of Change in PCI for South African Households, 1993-1998

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	857		857		857		857	
Adjusted R-squared	.0097		.0478		.2979		.2894	
		S.E.		S.E.		S.E.		S.E.
Constant	-314.8	463.4	-369.5	465.9	-529.0	417.3	-412.5	393.4
Initial PCI					-0.55 *	0.07	-0.42 *	0.11
Region:			*		*		*	
Rural (omit)								
Urban	63.1	47.2	82.6	31.2	143.4	28.5	129.0	35.2
Natal (omit)								
KwaZulu	67.9	32.8	7.7	33.1	80.6	35.2	64.9	37.3
Head's age:								
Age	22.8	38.3	35.15	38.6	40.6	31.3	32.6	30.9
Age squared	-0.62	1.10	-1.00	1.10	-1.06	.87	-.86	.87
Age third	.0066	.0131	.0110	.0130	.0115	.0103	.0092	.0104
Age quartic	-2.2E-5	5.5E-5	-4.0E-5	5.4E-5	-4.2E-5	4.4E-5	-3.2E-5	4.4E-5
Head's school:								
None (omit)								
1-4 yrs	22.1	33.6	19.8	33.1	16.8	27.9	15.0	28.6
5-7 yrs	-28.2	29.8	-28.0	30.5	9.0	24.8	-1.3	25.5
8-10 yrs	7.3	33.2	14.1	32.0	58.3	28.5	46.9	26.2
>10 yrs	28.8	56.2	54.0	55.9	101.6	47.4	83.4	46.3
Initial number children			0.8	3.9	-21.9 *	4.3	-18.0 *	5.0
Head's gender:								
Male (omit)								
Female			20.0	23.9	4.9	23.4	7.8	22.7
Initial family type:			*					
Two adult or more (omit)								
Single adult			-116.9	36.7	183.8	113.1	152.5	98.0
Head's employment:			*		*		*	
Inactive (omit)								
Searching/discouraged			72.5	38.4	61.2	57.5	66.0	58.1
Informal			44.6	27.7	12.9	40.1	15.8	41.3
Private Formal			-73.0	27.2	110.1	46.8	81.9	39.9
Public Formal			-128.7	38.3	120.4	44.4	90.5	45.0

Change in number of children					-39.9 *	6.7	-38.9 *	6.6
Change in head's sex: Same (omit)								
Became male					14.2	30.1	14.1	30.7
Became female					-33.5	28.2	-37.1	28.9
Change in family type: Same (omit)					*		*	
Became two adult					-252.5	127.6	-245.5	126.9
Became single adult					166.2	53.1	169.5	52.8
Change in head's employment: Same (omit)					*		*	
Left Inactive Status					38.1	79.5	41.4	80.0
Moved to Inactive Status					5.3	60.9	9.2	61.4
Left Srch/Disc Status (dropped)								
Moved to Search/Disc Status					-78.3	66.6	-78.3	67.5
Left Informal Sector					33.3	72.5	27.4	73.5
Moved to Informal Sector					-21.6	70.8	-21.4	70.6
Left Private Formal Sector					-127.1	94.7	-112.7	91.2
Moved to Private Formal Sector					72.3	65.0	71.4	66.9
Left Public Formal Sector					-169.5	66.9	-162.3	69.4
Moved to Public Formal Sector					255.2	96.1	248.7	96.3

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include expenditure per capita, presence of household durables, and cluster average per capita income (excluding household).

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 10c: Regression of Change in PCI for Spanish Households, 1995-1996

	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	1233		1233		1233		1233	
Adjusted R-squared	0.0074		0.0205		0.1253		0.1212	
		S.E.		S.E.		S.E.		S.E.
Constant	98608	104427	33149	114901	53928	102416	108653	100677
Initial PCI					-0.1 *	0.0	0 *	0
Region:								
>10000 residents								
<10000residents	-769	2934	-1313	2908	300	2873	-1144	2984
Head's age:								
Age	-10070	8411	-5083	9372	-3568	8571	-9631	8595
Age squared	340	244	206	269	127	251	311	254
Age third	-4	3	-3	3	-1.6	3.1	-4	3
Age quartic	0	0	0	0	0.0	0.0	0	0
Head's school:								
Incomplete primary (omit)					*			
Complete primary	1936	3125	2343	3105	4626	3122	2078	3367
Some secondary	660	4658	2554	4758	4944	4940	519	4977
Complete secondary	6557	5587	8008	5568	14600	5819	7364	5582
Higher education	12658	6666	15349	6742	30129	7409	16173	9059
Initial number children			-1368	1757	-6897 *	1957	-2771	2439
Head's gender:					*		*	
Male (omit)								
Female			14025	5205	11648	4379	12124	4501
Initial family type:								
Two adult HH (omit)								
Single adult HH			-15046 *	6907	-6442	5969	-11208	6226
Head's employment:					*			
Employer			13371	8852	13039	10194	-816	5303
Self-Employed			8355	5991	-1403	5969	1877	5768
Employee (omit)								
Unemployed			8431	6726	-30642	6344	-23034	7086
Inactive			9159	5009	-4601	4874	10412	10336

Change in number of children Same (omit)					*			*	
Less					10647	7637	-57274		10897
More					-56710	9742	12815		7343
Change in head's sex: Same (omit)									
Became male					-7206	31224	-4114		21173
Became female					3527	19088	-5198		31597
Change in family type: Same (omit)					*			*	
Became 2 adult hh					-102249	49769	39126		26116
Became single adult hh					36272.	23874	-126521		58785
Change in head's employment: same					*			*	
From inactive to unemployed					48063	25545	52035		26206
From inactive to employer					21013	5349	26084		5800
From inactive to self-employed					93963	4092	102345		5153
From inactive to employee					11408	13769	11751		14127
From unemployed to inactive					25099	16711	28020		17720
From unemployed to self-employed					41929	5443	45985		6490
From unemployed to employee					52088	10734	52893		11519
From employer to self-employed					-12150	25114	-5316		23616
From self-employed to inactive					28933	29989	28157		30445
From self-employed to employer					-16554	6625	-16572		6304
From self-employed to employee					21808	17103	23573		16736
From employee to inactive					-36006	14375	-36034		15834
From employee to unemployed					-31775	11290	-26669		11515
From employee to self-employed					-8247	4179	-1941		4974

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include housing rental value and more detailed family type breakouts.

** denotes statistical significance at the 5% level using an F-test on category variables*

Table 10d: Regression of Change in PCI for Venezuelan Households, 1996-1997

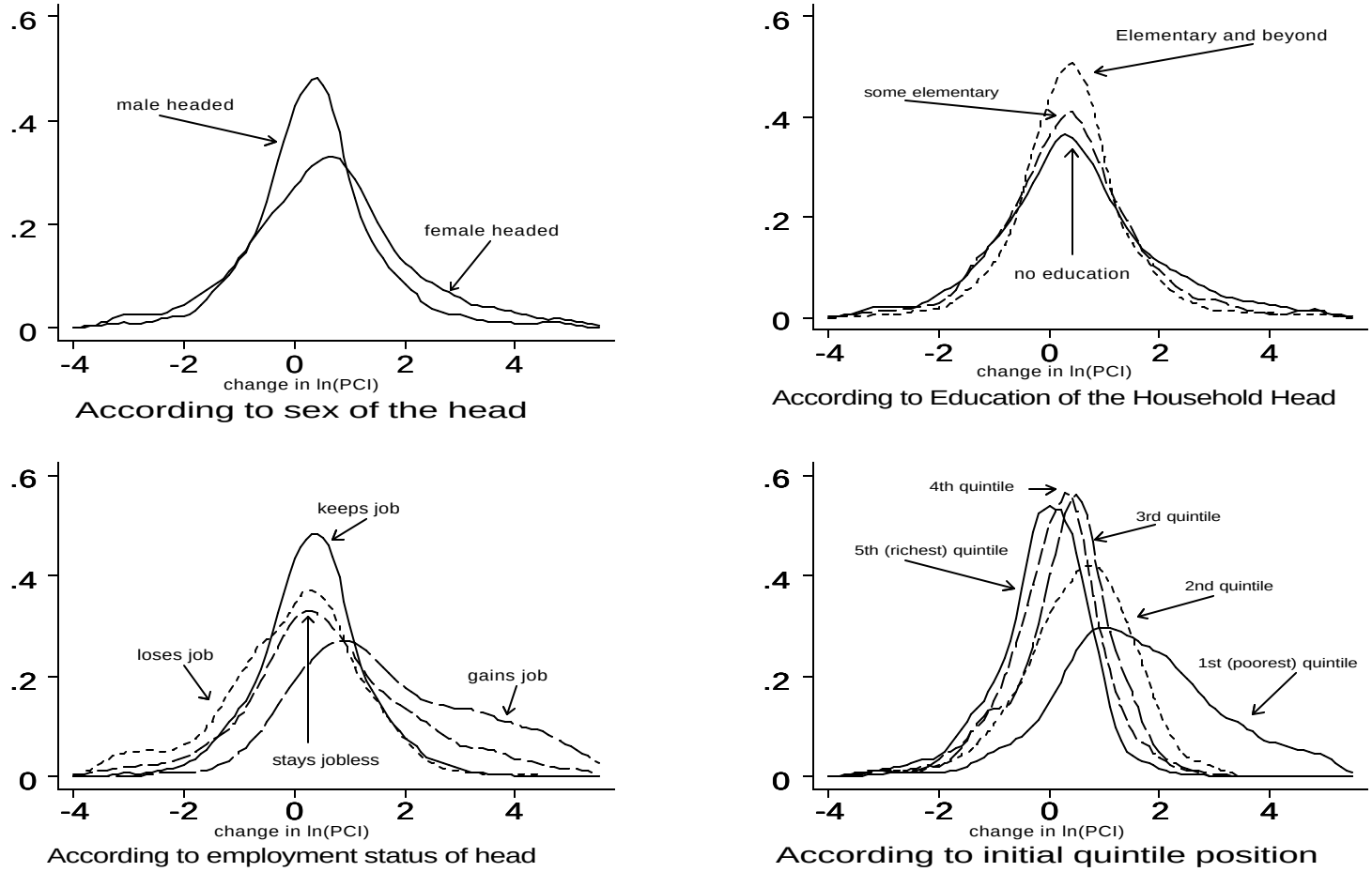
	OLS on Z		OLS on Z, X		OLS on Z, X, Y, DX		IV on Z, X, Y, DX	
Number of observations	7557		7557		7557		7557	
Adjusted R-squared	0.0034		0.0146		0.2282		0.1100	
		S.E.		S.E.		S.E.		
Constant	44.39	48.00	74.30	48.01	79.0 *	42.6	90.7	45.7
Initial PCI					-0.4 *	0.0	-0.1	0.1
Region:								
Capital (omit)								
Non-capital	-4.90 *	2.38	-5.38 *	2.38	-15.4 *	2.6	-6.9 *	2.6
Head's age:								
Age	-3.96	4.23	-6.03	4.21	-4.3	3.8	-7.0	4.1
Age squared	0.15	0.13	0.22	0.13	0.2	0.1	0.2	0.1
Age third	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0
Age quartic	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0
Head's school:	*				*			
No formal (omit)								
Incomplete primary	-6.64	1.87	-4.83	1.77	-0.9	1.7	-2.7	1.8
Complete primary	-6.99	1.98	-4.50	1.98	0.3	1.9	-2.8	2.0
Incomplete High School	-6.03	2.27	-3.09	2.29	3.6	2.2	-1.3	2.5
Complete High School	-5.08	3.36	-1.54	3.29	12.5	3.5	1.6	3.8
Incomplete college	-3.69	4.62	0.12	4.58	21.6	4.7	5.2	5.2
Complete College	0.56	7.53	4.48	7.62	46.5	6.4	12.9	7.8
Initial number children			1.49 *	0.42	-3.9 *	0.5	0.0	0.7
Head's gender:								
Male (omit)								
Female			-0.68	2.55	0.4	2.2	2.8	2.5
Initial family type:								
Married head (omit)								
Single head			-6.15	2.68	-3.6	2.4	-6.5	2.7
Head's employment:			*		*		*	
Jobless (omit)								
Public sector employee			-11.84	2.84	0.6	3.4	-1.7	3.5
Private sector employee			-15.43	2.16	-3.7	2.7	-7.8	3.0
Self employed			-11.00	2.17	1.0	2.6	-1.9	2.8
Employer			-16.29	4.49	22.5	5.8	9.2	6.4

Change in number of children					* -6.2	0.7	* -10.2	2.1
Change in head's sex:					*		*	
Same (omit)					28.6	20.0	32.0	17.5
Became male					-13.0	3.9	-14.5	5.1
Became female								
Change in family type:								
Same (omit)					4.1	4.6	5.1	5.3
Became married					-6.3	5.5	-6.6	5.8
Became single								
Change in head's employment:					*		*	
same					-2.0	5.9	-3.7	6.4
From public to private employee					8.8	7.9	11.5	8.4
From public to self-employed					-11.6	21.4	-14.6	25.6
From public to employer					-25.6	5.2	-27.1	6.3
From public to jobless					4.3	7.0	8.7	7.4
From employee to public					7.5	4.0	6.2	3.8
From employee to self-employed					15.7	9.7	15.5	9.4
From employee to employer					-13.7	3.6	-11.9	3.8
From employee to jobless					3.0	13.4	0.0	15.0
From self-employed to public					-5.3	2.9	-4.8	3.1
From self-employed to employee					10.9	5.6	7.0	6.0
From self-employed to employer					-16.3	3.1	-14.3	3.3
From self-employed to jobless					-15.5	15.5	-14.1	15.7
From employer to public					-27.7	9.6	-20.4	11.6
From employer to employee					-23.3	8.0	-27.1	8.6
From employer to self-employed					-50.6	9.0	-47.0	10.2
From employer to jobless					8.8	6.0	7.3	6.1
From jobless to public					6.7	4.1	7.6	4.5
From jobless to employee					9.5	3.5	12.0	3.7
From jobless to self-employed					31.0	14.3	36.1	13.0
From jobless to employer					-6.2	0.7	-3.7	6.4

Z={Region, head's age, head's schooling}, X={number of children, head's gender, family type, head's employment}, Y={base year per capita income}, ΔX={change in number of children, change in head's sex, change in number of adults, change in head's employment}. Instruments for IV include household durables.

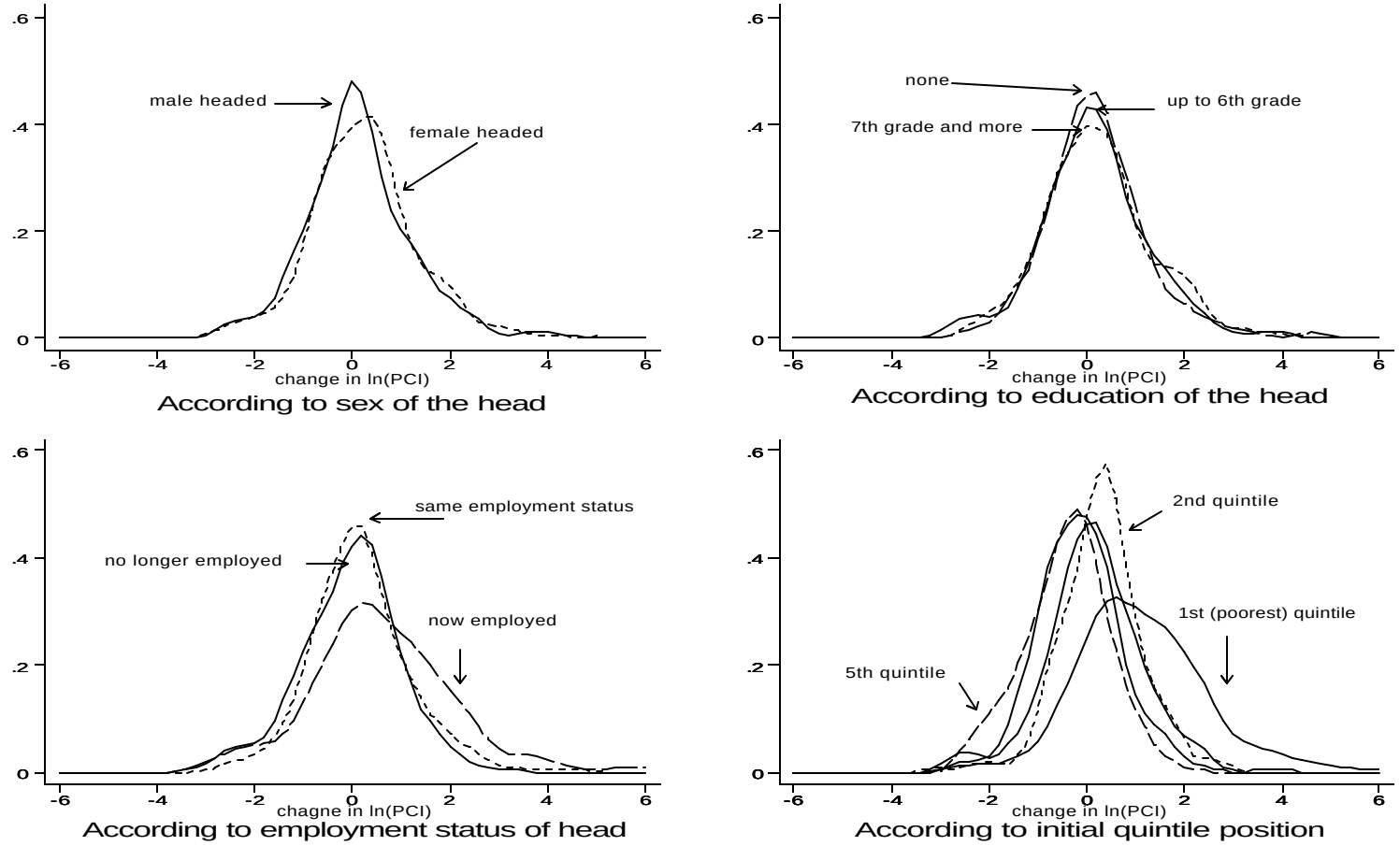
** denotes statistical significance at the 5% level using an F-test on category variables*

Figure 1.a



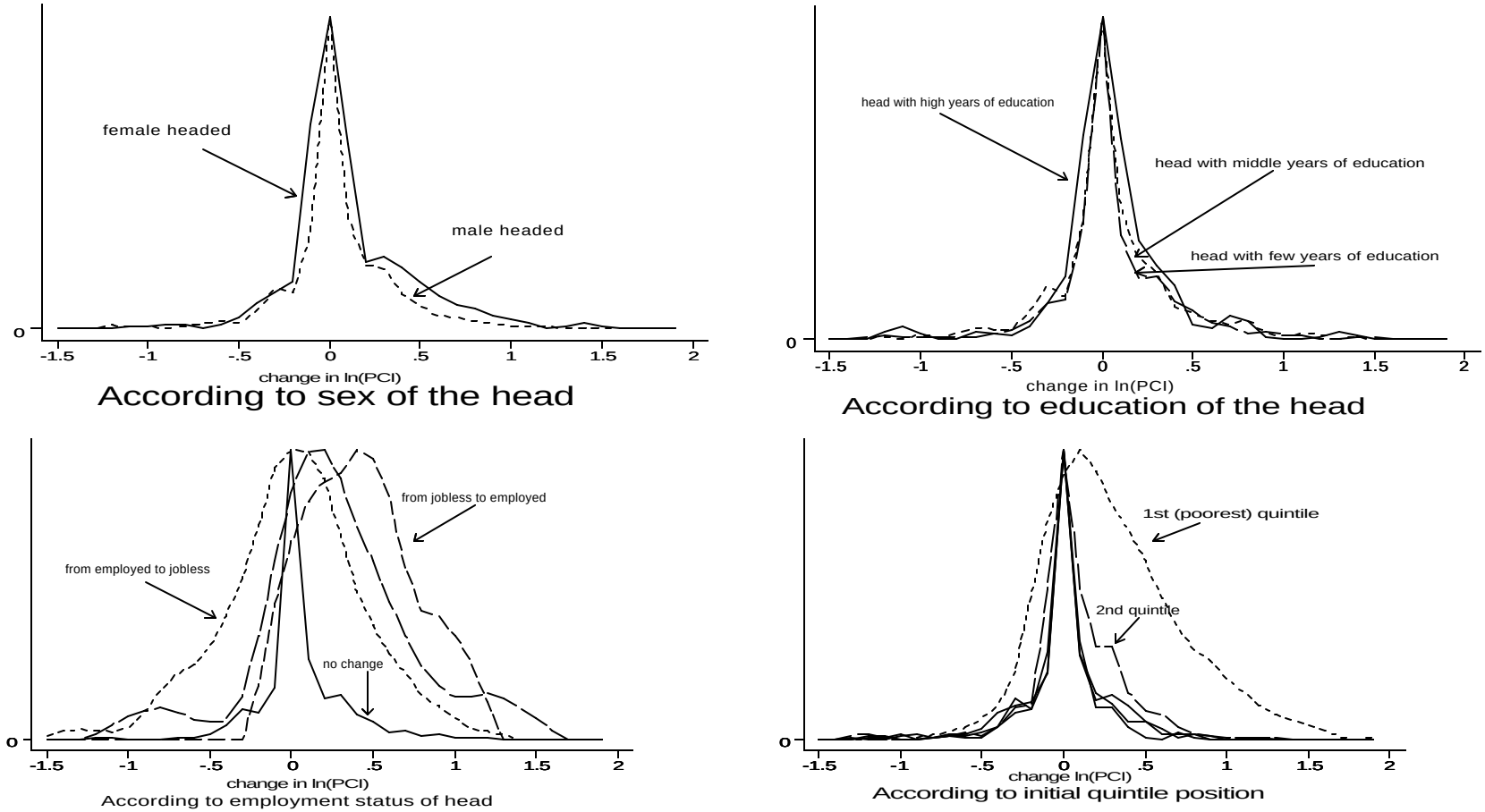
Kernel densities for Indonesia (1993-1997)

Figure 1.b



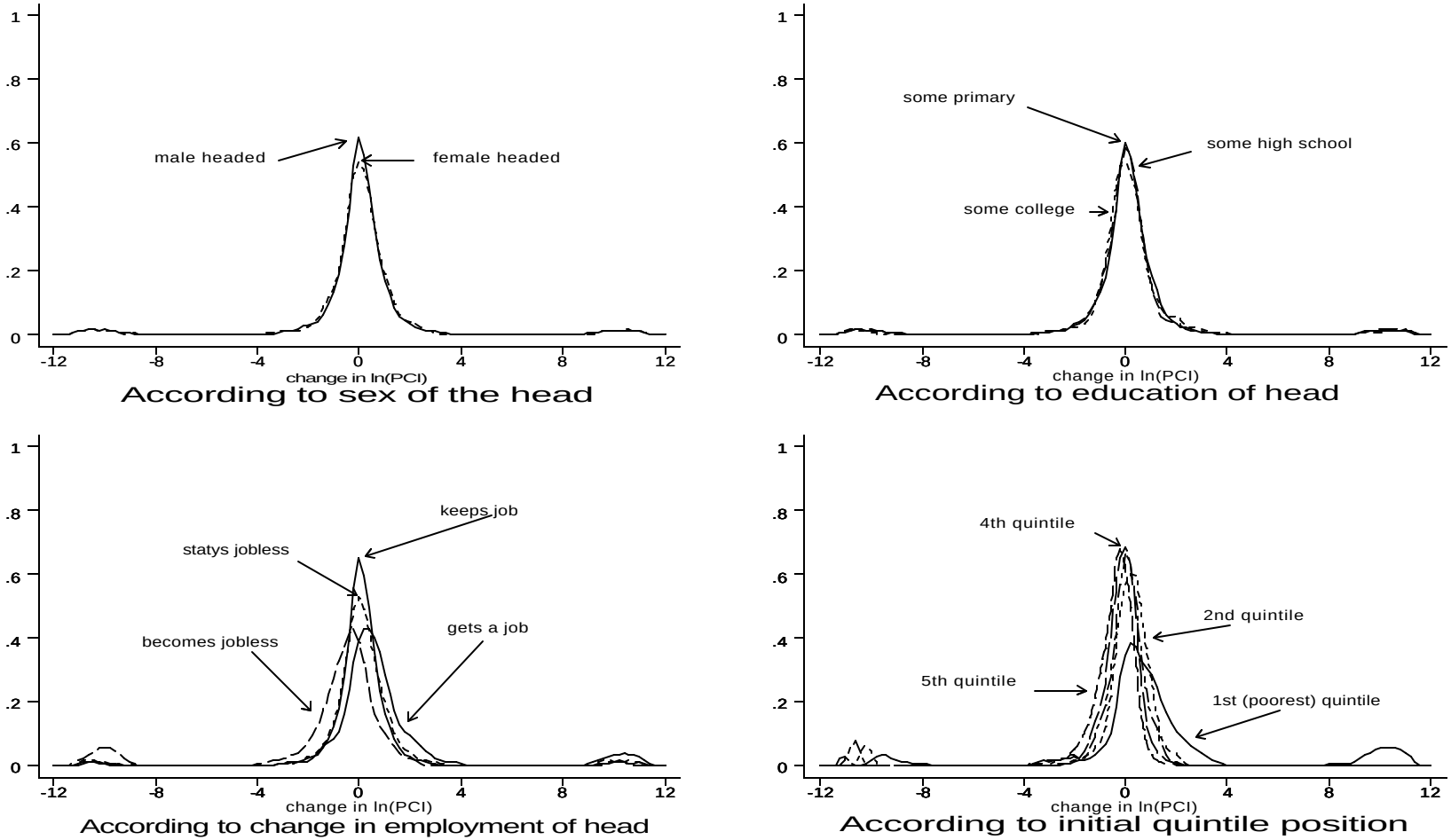
Kernel Densities for South-Africa (1993-1998)

Figure 1.c



Kernel densities for Spain (1995-1996)

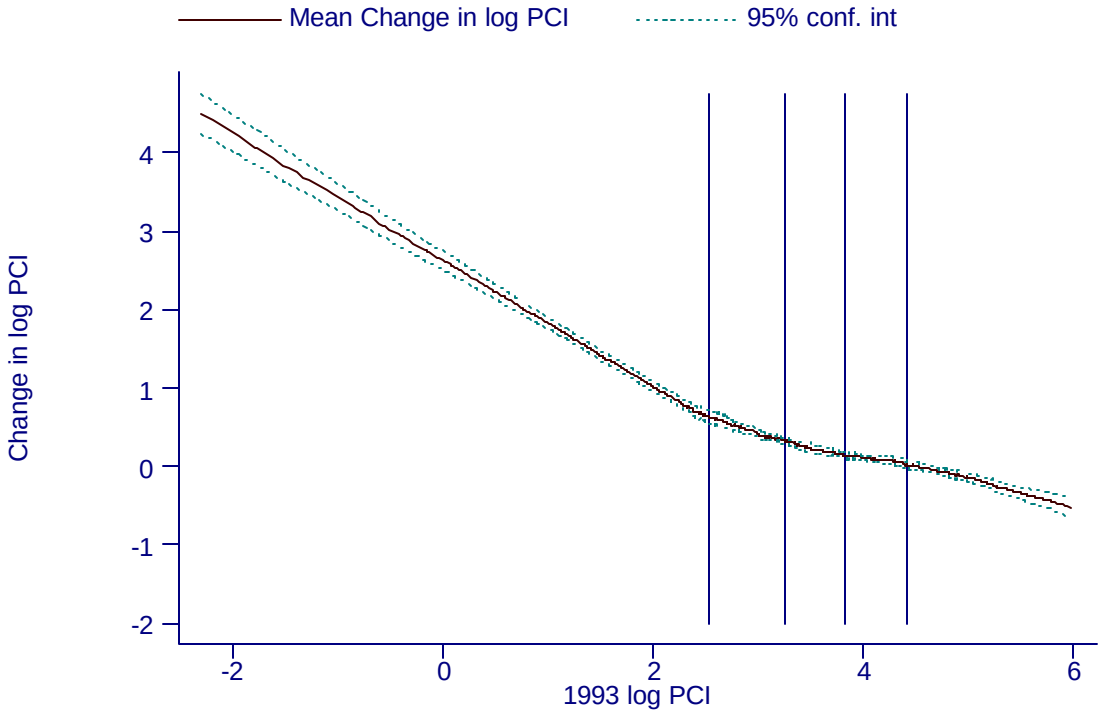
Figure 1.d



Kernel densities for Venezuela (1997-1998)

Figure 2.a: Non-parametric regression of change in log PCI on initial log PCI (extreme outlier data not shown)

Indonesia, 1993-1998



South Africa (Kwazulu-Natal), 1993-1997

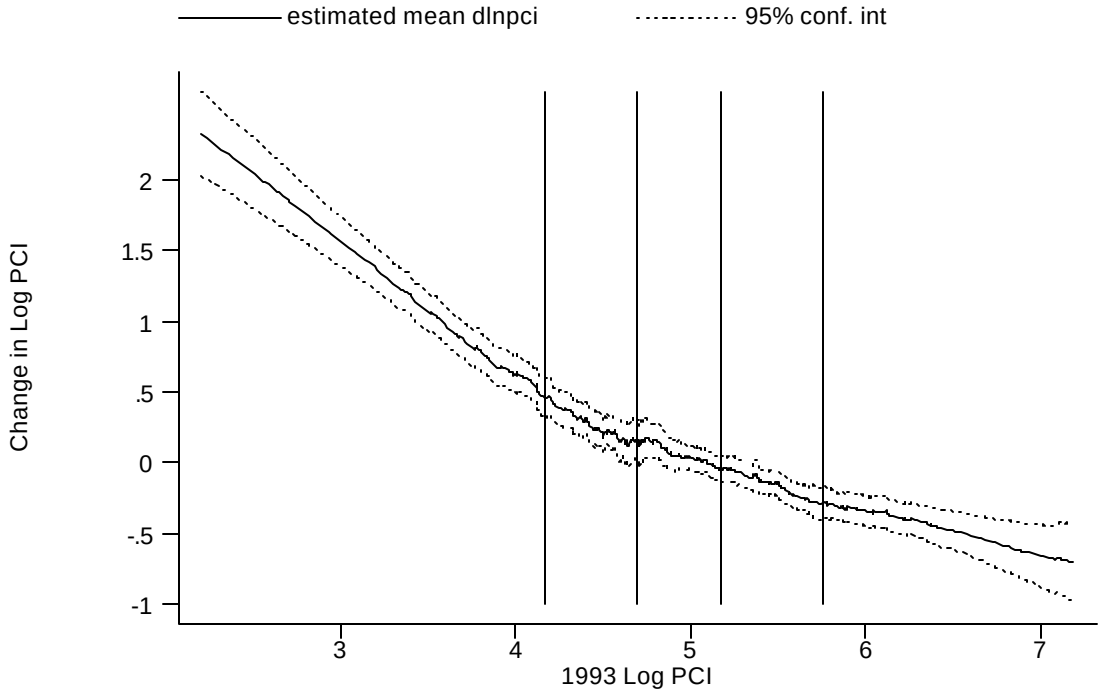
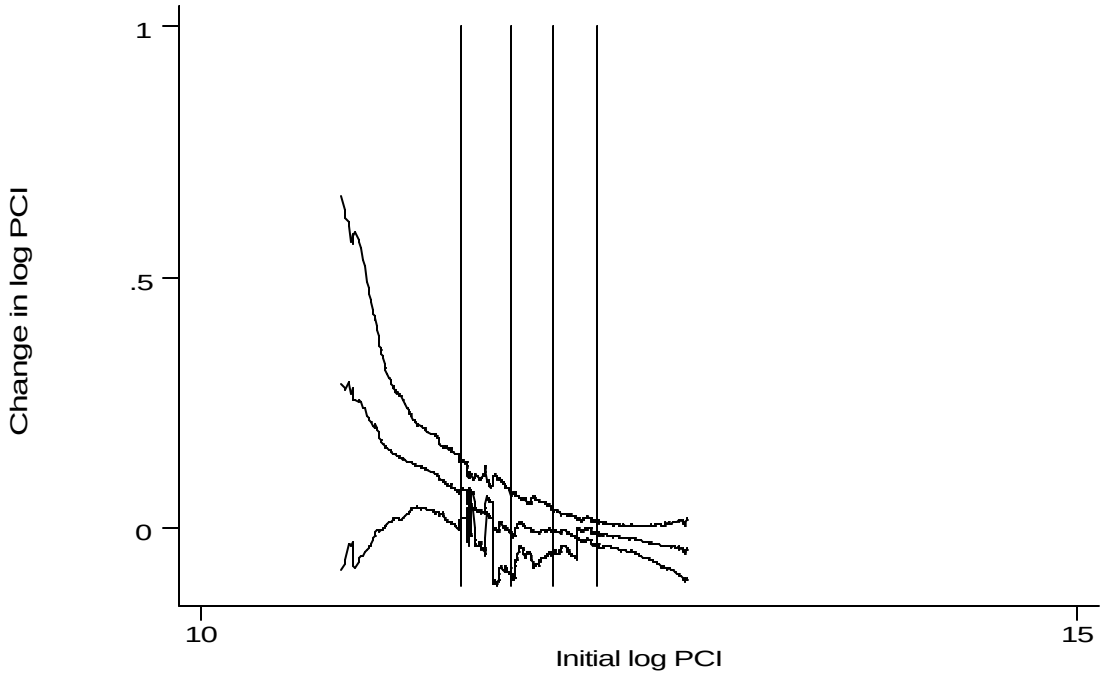


Figure 2.a (continued)

SPAIN, 1995-1996 (in real pesetas)



VENEZUELA, 1996-1997

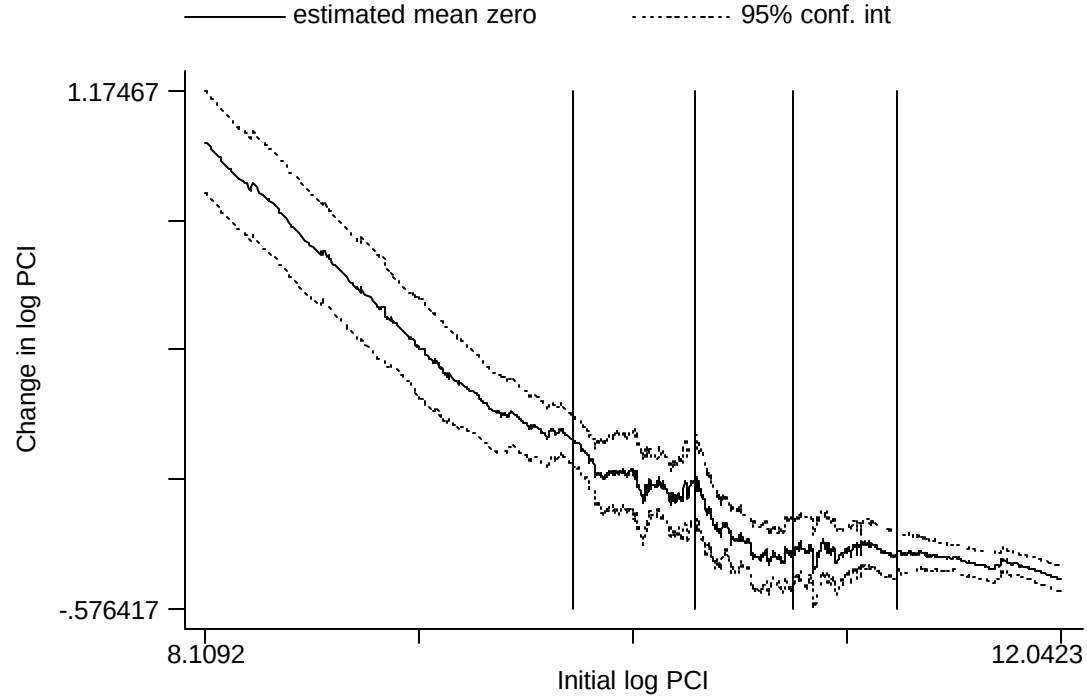
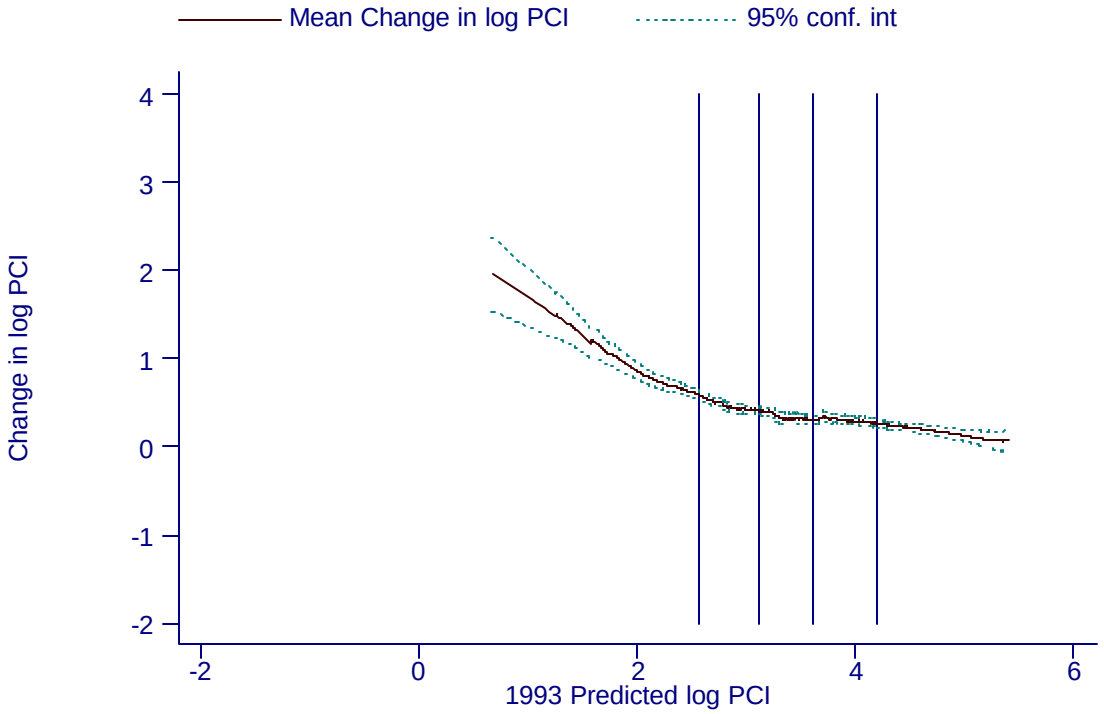


Figure 2.b: Non-parametric regression for change in log PCI on predicted log PCI (extreme outlier data not shown)

Indonesia, 1993-1998



South Africa (Kwazulu-Natal), 1993-1997

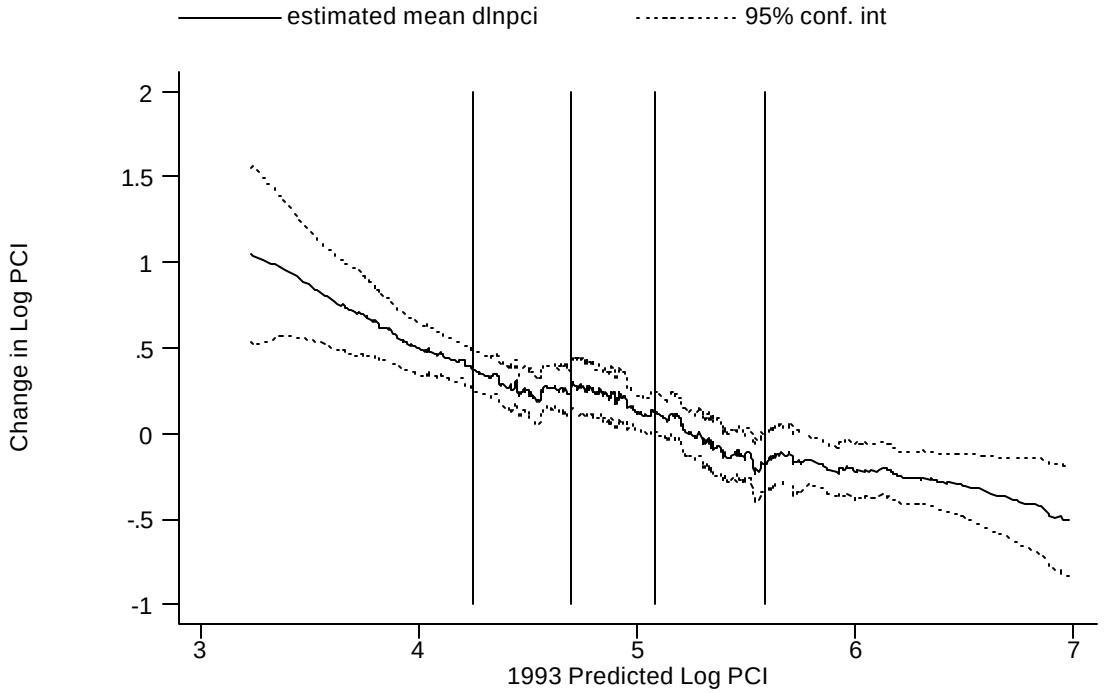
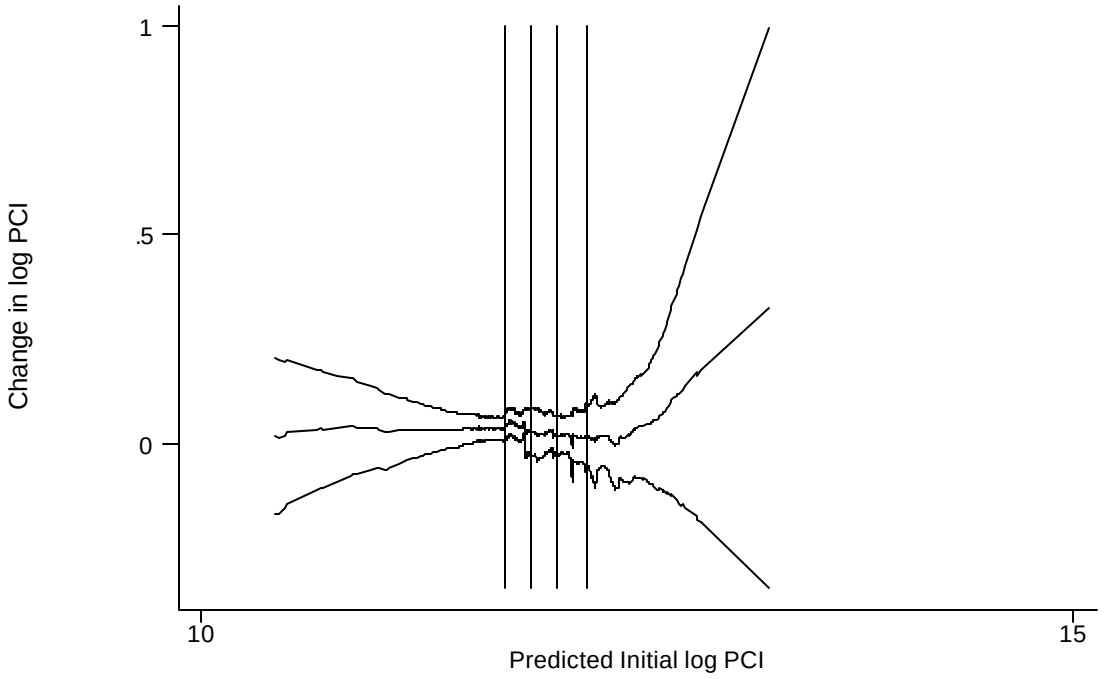


Figure 2.b (continued)

SPAIN, 1995-1996 (in real pesetas)



VENEZUELA, 1996-1997

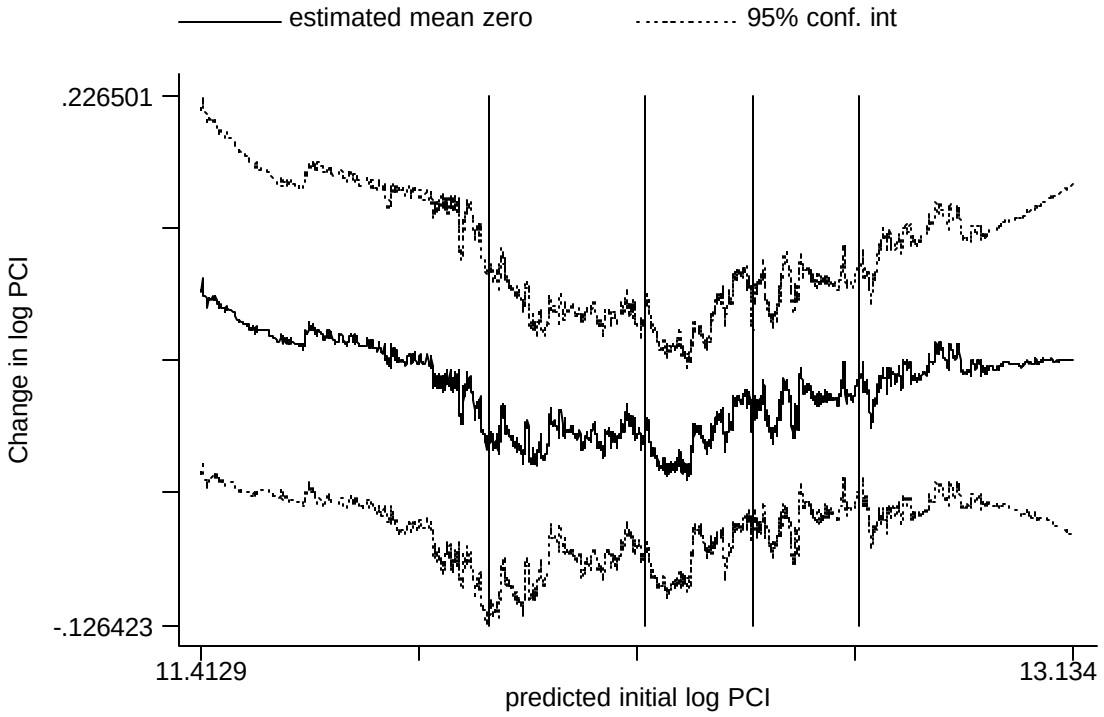
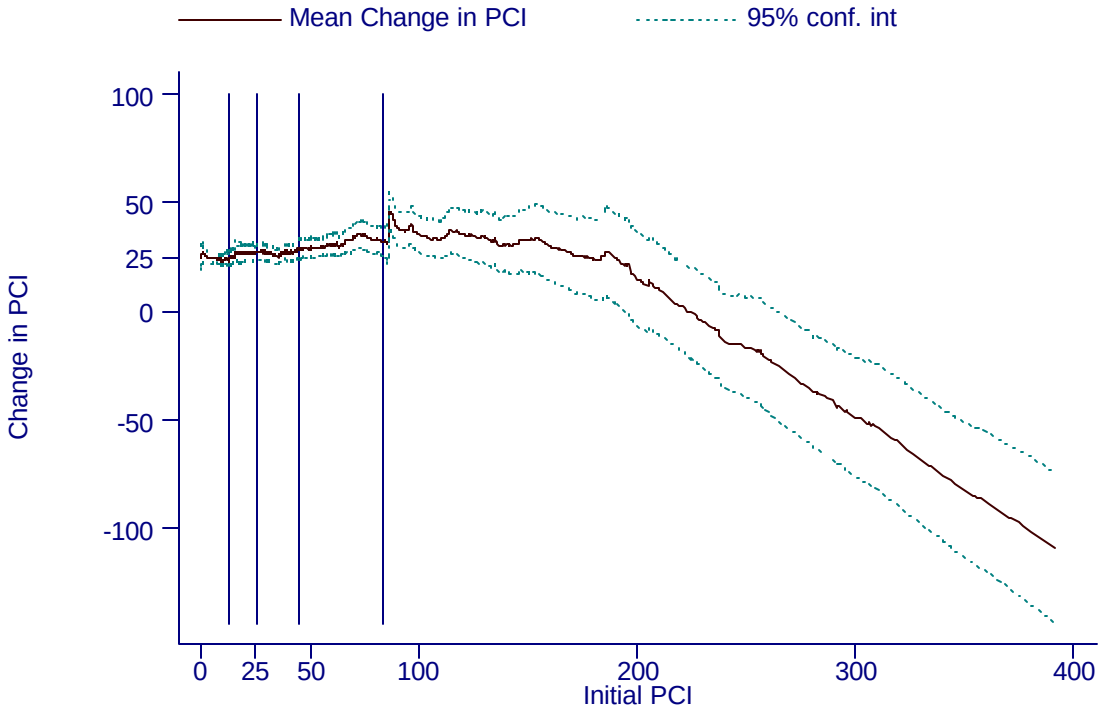


Figure 2.c: Non-parametric regression for change in PCI on initial PCI (extreme outlier data not shown)

Indonesia, 1993-1998



South Africa (Kwazulu-Natal), 1993-1997

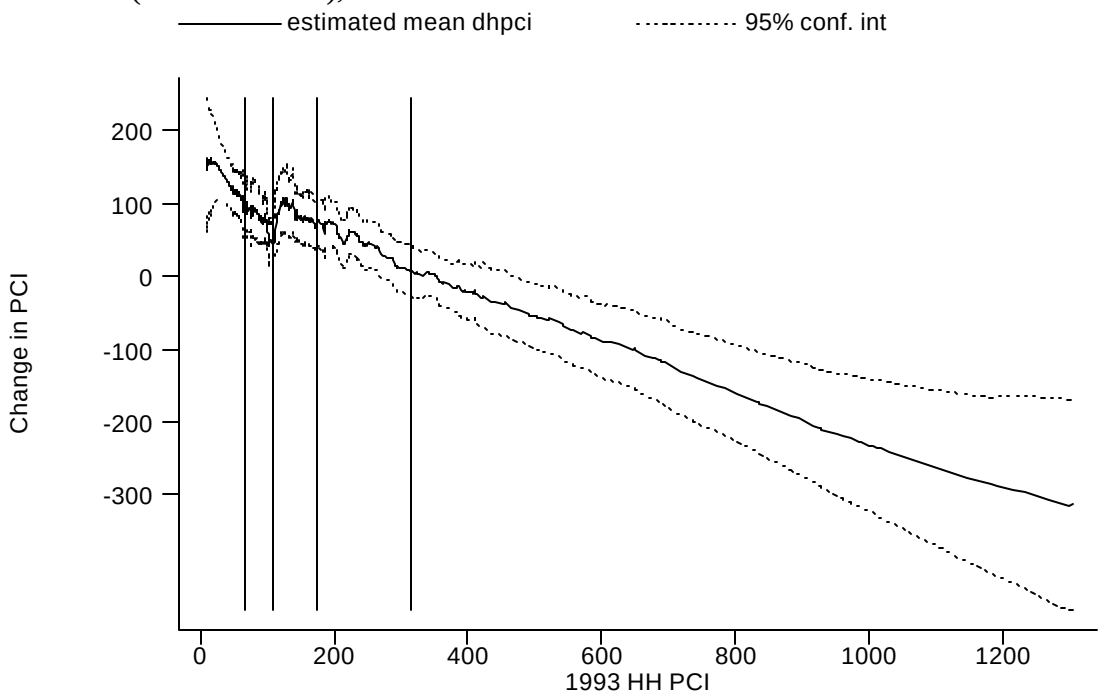
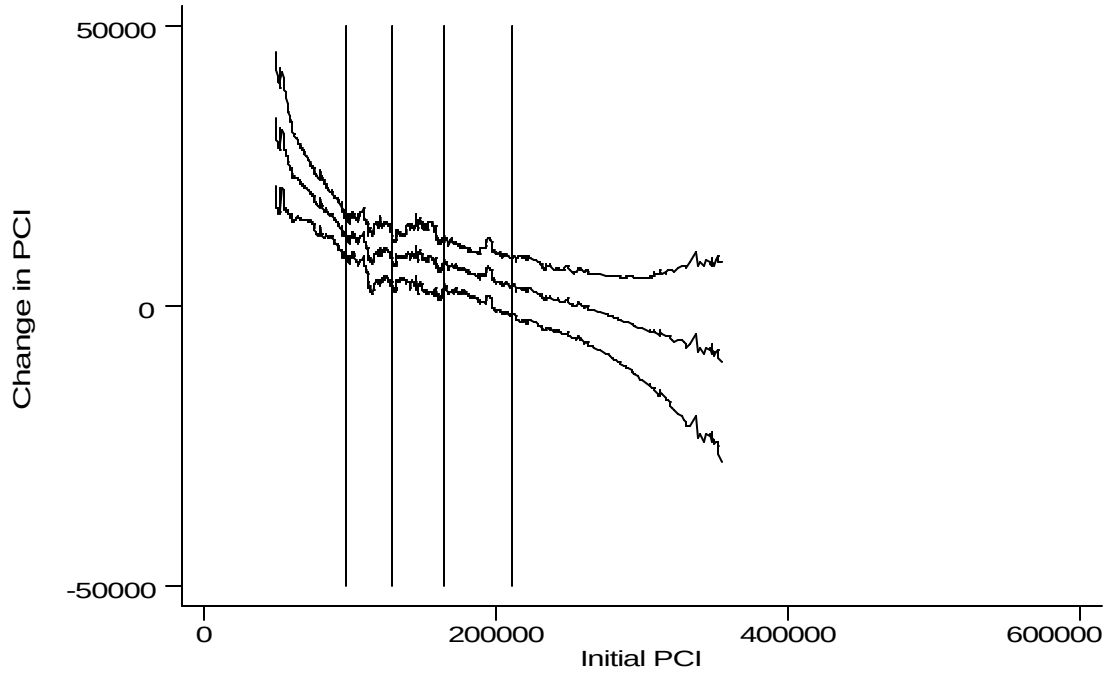


Figure 2.c (continued)

SPAIN, 1995-1996 (in real pesetas)



VENEZUELA, 1996-1997 (in thousand real Bs.)

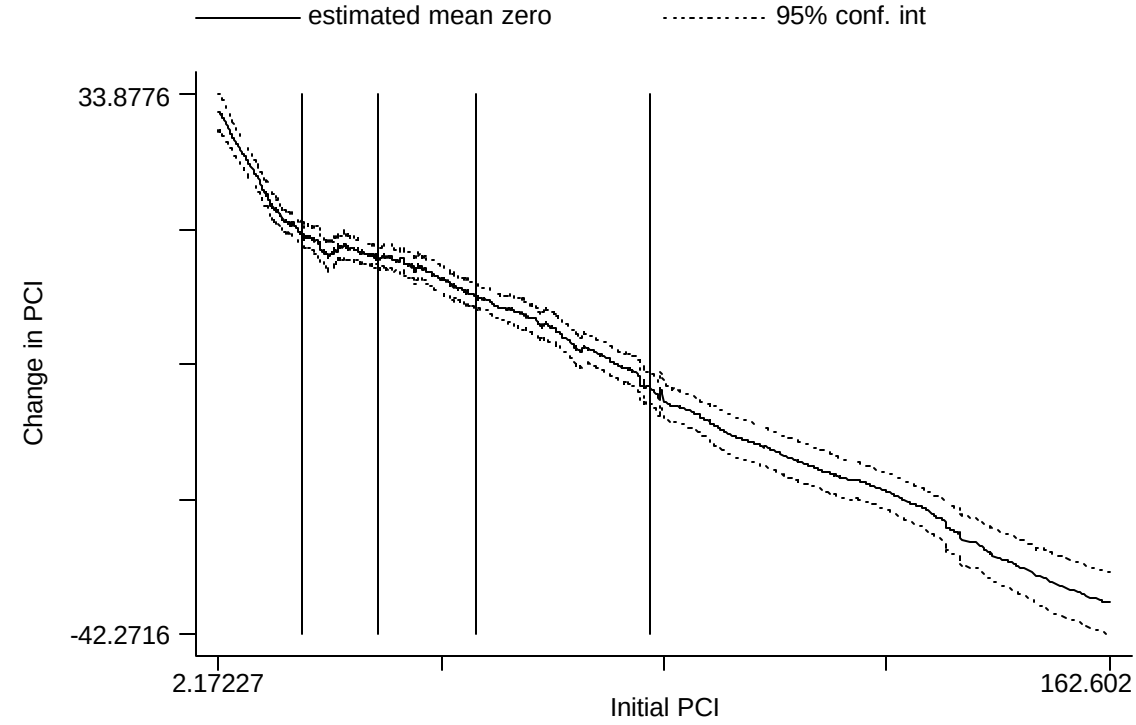
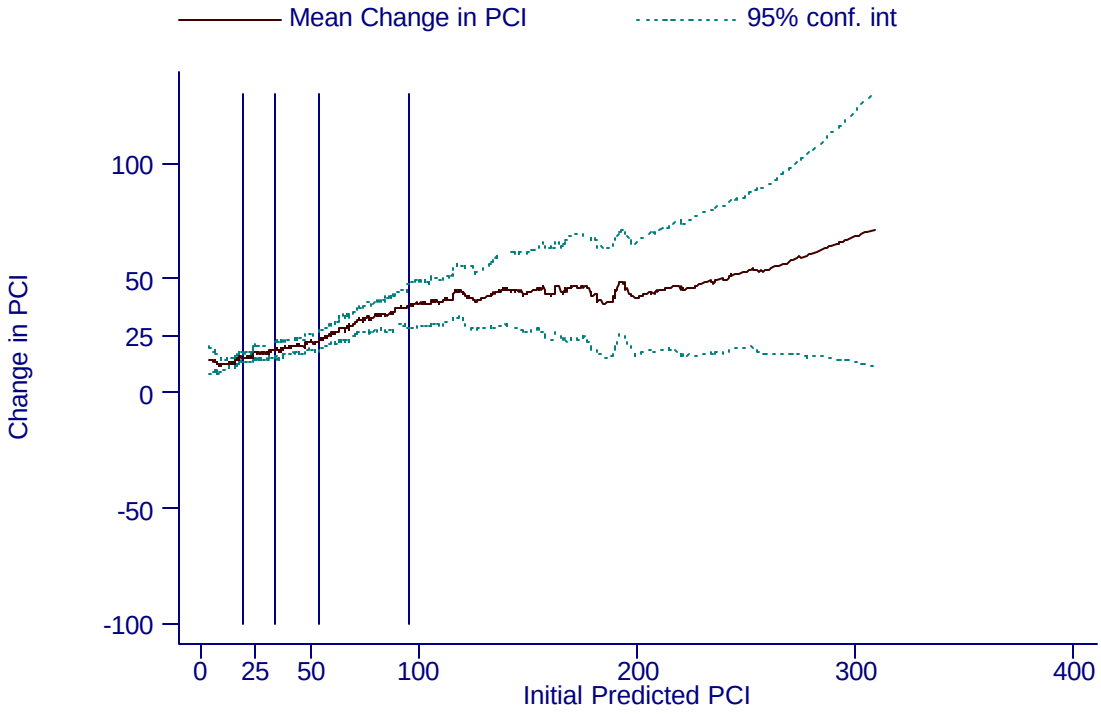


Figure 2.d: Non-parametric regression for change in PCI on initial predicted PCI (extreme outlier data not shown)

Indonesia, 1993-1998



South Africa (Kwazulu-Natal), 1993-1997

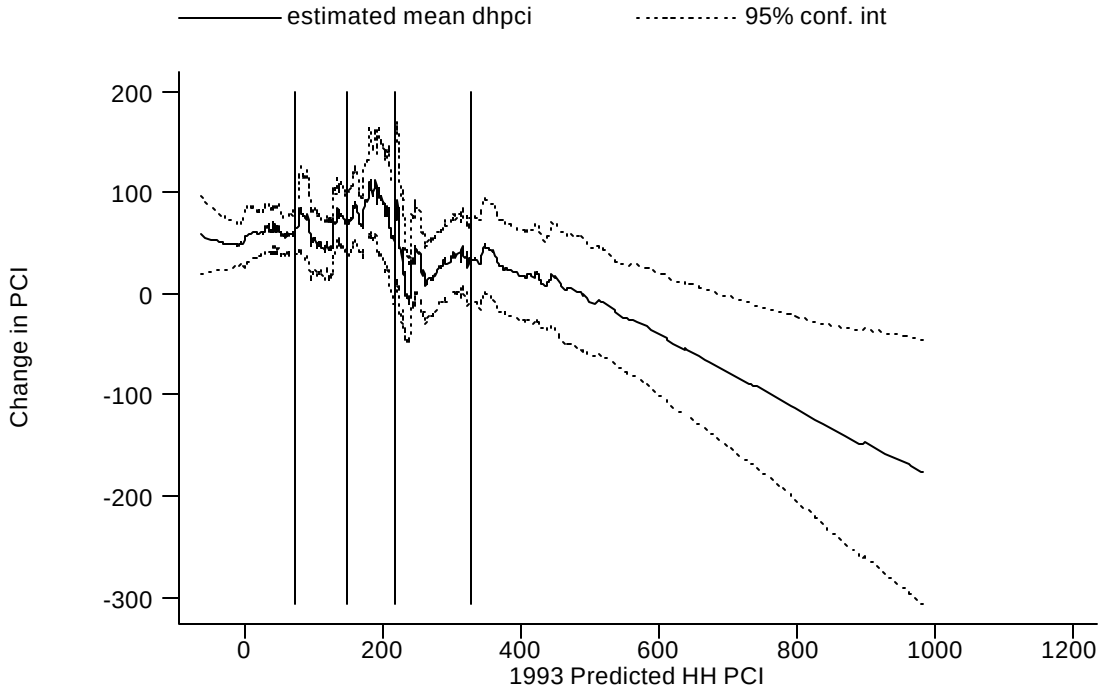
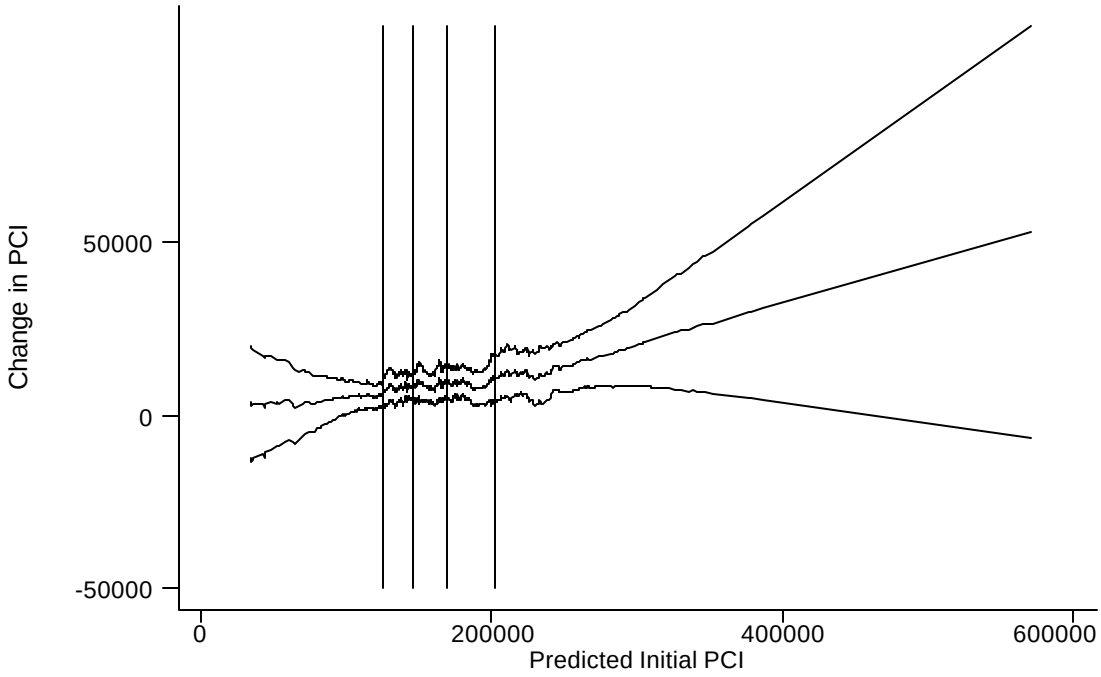


Figure 2.d (continued)

SPAIN, 1995-1996 (in real pesetas)



VENEZUELA, 1996-1997 (in thousand real Bs.)

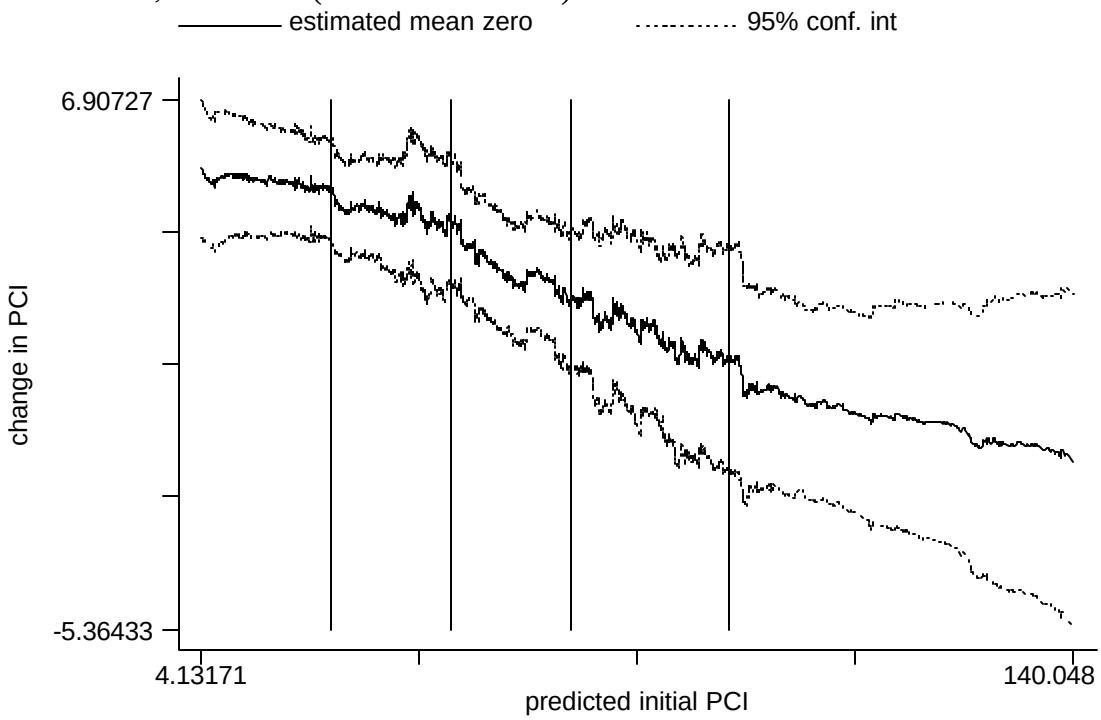
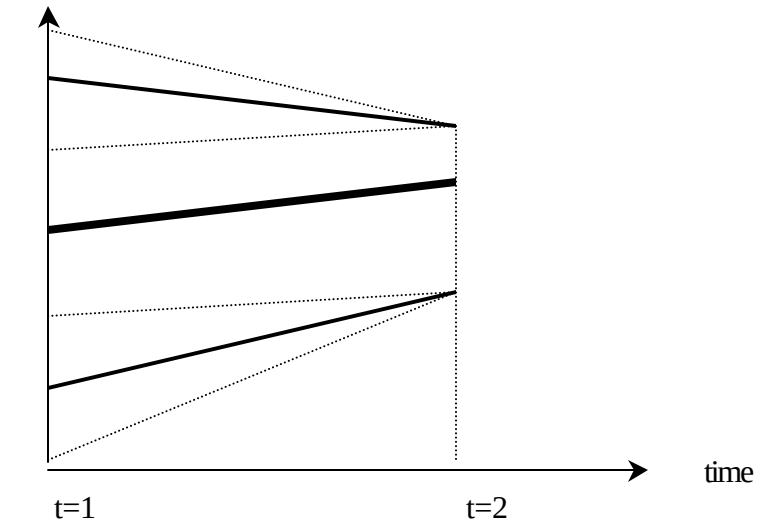


Figure 3

(a)

CONVERGENCE TO THE GRAND MEAN AND
CONVERGENCE TO CONDITIONAL MEAN



(b)

CONVERGENCE TO THE GRAND MEAN AND
DIVERGENCE TO CONDITIONAL MEAN

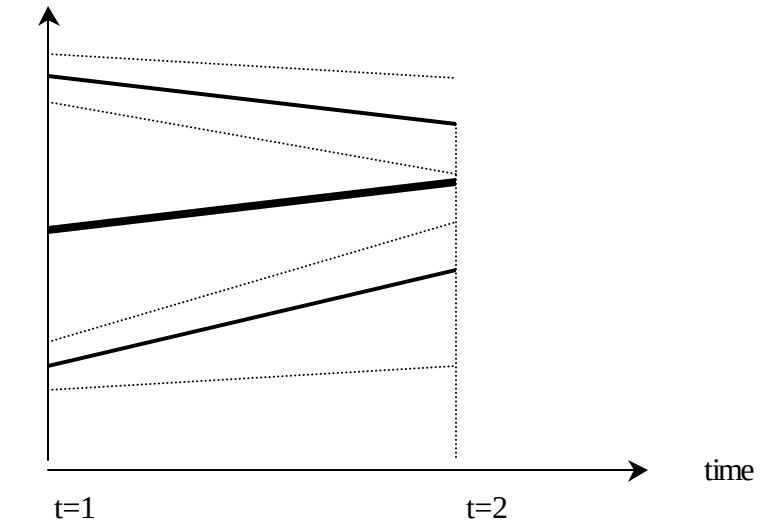
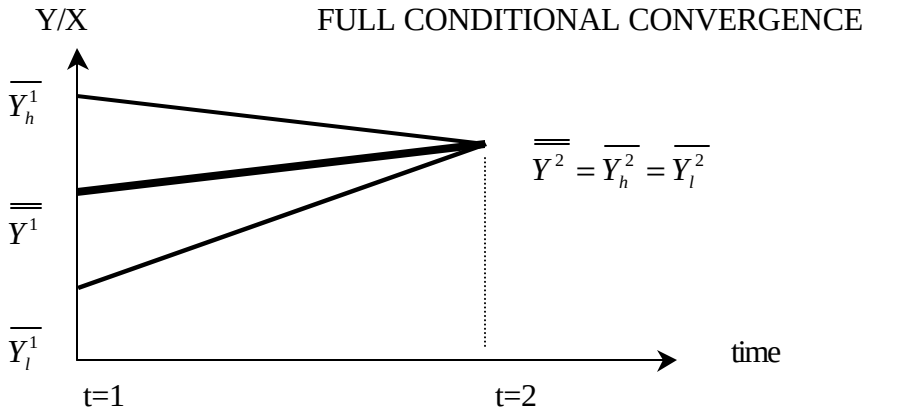
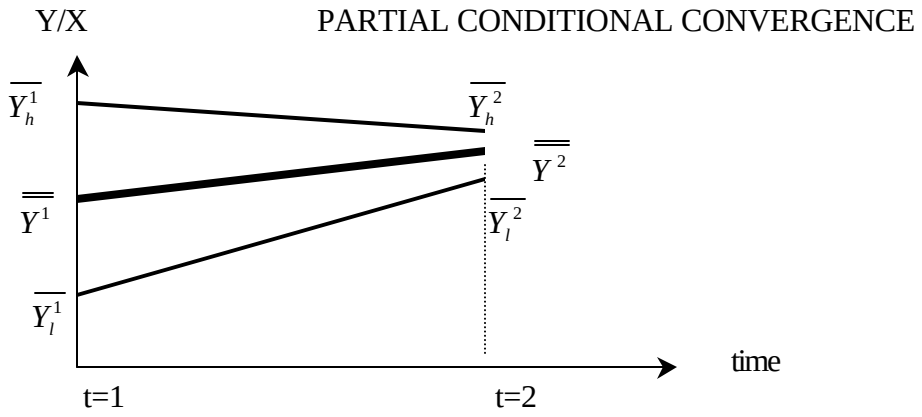
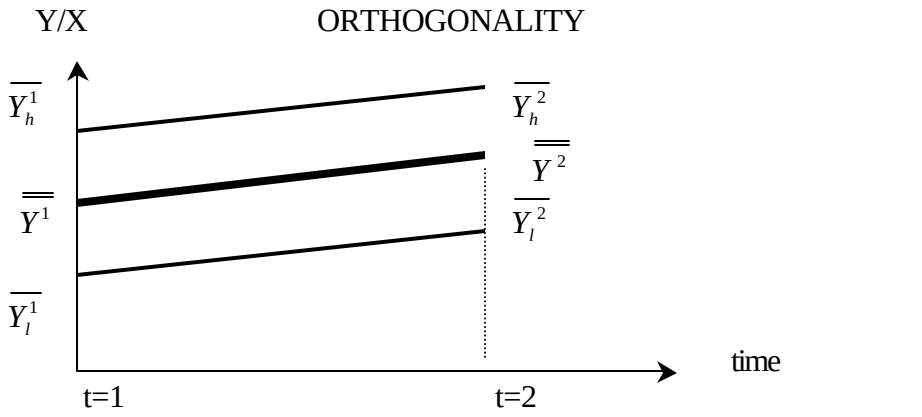
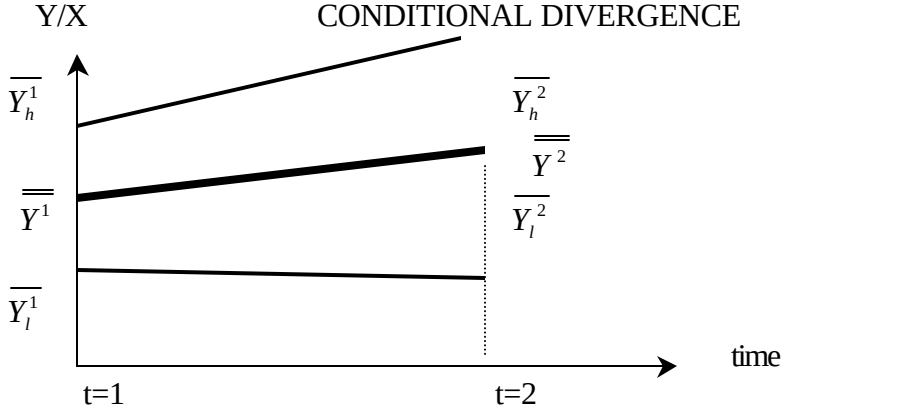


Figure 4


Y/X
FULL CONDITIONAL CONVERGENCE
$\overline{Y_h^1}$
$\overline{\overline{Y^1}}$
$\overline{Y_l^1}$
$\overline{\overline{Y^2}} = \overline{Y_h^2} = \overline{Y_l^2}$
time
t=1
t=2


Y/X
PARTIAL CONDITIONAL CONVERGENCE
$\overline{Y_h^1}$
$\overline{\overline{Y^1}}$
$\overline{Y_l^1}$
$\overline{Y_h^2}$
$\overline{\overline{Y^2}}$
$\overline{Y_l^2}$
time
t=1
t=2


Y/X
ORTHOGONALITY
$\overline{Y_h^1}$
$\overline{\overline{Y^1}}$
$\overline{Y_l^1}$
$\overline{Y_h^2}$
$\overline{\overline{Y^2}}$
$\overline{Y_l^2}$
time
t=1
t=2


Y/X
CONDITIONAL DIVERGENCE
$\overline{Y_h^1}$
$\overline{\overline{Y^1}}$
$\overline{Y_l^1}$
$\overline{Y_h^2}$
$\overline{\overline{Y^2}}$
$\overline{Y_l^2}$
time
t=1
t=2