Inequality and Growth Reconsidered Once Again: Some New Evidence from Old Data.

By

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Abstract: In recent literature the famous Kuznets relationship between inequality and income has been reformulated in terms of levels of inequality and subsequent rates of growth. In this paper we criticize the World Bank data set on which these studies have been based, and present contrasting evidence on pay differentials derived from the 2000 release of the UNIDO Industrial Statistics, a rich source of information on inter-industry pay rates. Our evidence supports the original Kuznets formulation relating *levels* of inequality to *levels* of income (or *changes* in inequality to *changes* in income). We find that in modern data most countries are to be found on the downward-sloping portion of an inverted Kuznets U-Curve, and we find some support for an "augmented Kuznets curve" in which a few of the very highest-income countries experience rising inequality as their incomes rise.

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1. Introduction

In an article published in the September, 2000 *American Economic Review*, Kristin Forbes reexamines the relationship between economic inequality and growth, and concludes that over short time intervals, increases in inequality tend to precede increases in growth. She thus calls into question earlier findings, notably those of Birdsall, Ross and Sabot (1995), who related the egalitarian character of East Asian economies to their rapid growth in the 1980s and 1990s.

Forbes' analysis rests heavily on new data, specifically the "high quality" data set compiled for the World Bank by Deininger and Squire. Forbes summarizes this work:

> "In the past few years, however, Deininger and Squire (1996) have painstakingly compiled a far more consistent and comprehensive data set on inequality. They began by assembling as many income distribution variables as possible. Then they filtered out those observations that satisfied three minimum standards of quality. Their standards were: data must be based on household surveys; the population covered must be representative of the entire country; and the measure of income (or expenditure) must be comprehensive, including income from self-employment, non-wage earnings, and non-monetary income."

These criteria reduce the universe of acceptable coefficients from 2600 to only 682, and would exclude coefficients used in the "most well-known analyses of inequality and growth." Still, the new data set "has a significantly greater number of observations and covers a broader range of countries than any previous data compilation." Further, "the new data set compiled ... has a time-series dimension for enough countries so that panel estimation is finally viable."

The present paper raises objections to the Deininger and Squire data set. We then propose an alternative that, we believe, provides better information on the evolution of inequality in most countries. Our data do not meet the Deininger and Squire "standards of quality." But they offer about four times as many observations over nearly twice as many countries, and we believe that they do meet standards of *accuracy* to which the Deininger and Squire data cannot aspire. Finally we discuss briefly the implications of our measures for the debates over the relationship between inequality and economic growth.

2. Problems with Deininger and Squire

The D&S data set suffers from two defects. The first is unbalanced coverage, and the second is inaccuracy.

The problem of unbalanced coverage in the D&S data set is freely acknowledged, including by Forbes herself (2000, Table 2 and surrounding discussion). Poor countries and earlier time periods are grossly under-represented. In Forbes's study, Gini coefficients are presented for just 45 countries, of whom 21 are members of the OECD. Only 13 countries report Gini coefficients for the 1961-1965 interval, and only 21 report for the 1966-1970 interval. In effect, studies of this kind amount largely to studies of the OECD from 1975 to 1990, with an admixture of developing countries that includes such city-states and small island economies as Singapore, Hong Kong, and Trinidad and Tobago, but not South Africa, Egypt, Nigeria, the USSR or Argentina, to name only a few. Moreover, even in the subset of supposedly high-quality inequality measures, "the gini coefficients are *not* based on identical units of account", but are rather a mixture of household, individual, income and expenditure measures, with some adjustments to alleviate problems of incomparability (Forbes, 2000, p. 873, emphasis added).

And how good are the D&S measures, where they exist? We believe that the problem of inaccuracy is very serious. In many cases, the coefficients are simply not credible, so that statistical inferences drawn from either cross-section or time-series use of this data set are not to be believed.

The D&S method is to mine the universe of past studies of income distribution. This universe consists of household surveys, mainly conducted by independent researchers in widely differing circumstances and at widely separated times. Deininger and Squire are able to certify only that each study attempted to follow their quality precepts. They do not evaluate whether the effort to do so succeeded. They thus provide *official* imprimatur to *unofficial estimates* of income inequality from widely varying sources.

The problem of evaluating the quality of individual estimates raises the question: in comparison to what? Is a Gini of 37.5 for Norway in the early 1960s a reasonable number? This is hard to answer in the abstract. But, was inequality in Norway in the early 1960s higher than in the United States (34.6)? Was it higher than in Germany (28.1)? Was it roughly the same as in East Pakistan (37.3)? Was it higher in Norway in the 1980s than in Spain (33.1 and 32.5, respectively)? An inequality measure that places the United States and India in the same league (37.8 and 36.3, respectively, in the 1980s) at the very least sparks doubt that the relationship between inequality and income could be linear – but are such coefficients to be believed?

In other work (Conceição, Ferreira and Galbraith 1999) we have called attention to discrepancies between the D&S inequality orderings for Europe and those of the meticulous Luxembourg Income Studies. But the LIS orderings – which among other plausible findings show Scandinavian countries as having the lowest inequality in Europe – are available so far for only one or two years in countries for which they are available at all. They do not meet coverage requirements for a minimally persuasive panel estimation.

Clearly, it would be useful to have a broader standard of comparison. But where can such a thing be found?

3. An Alternative Approach to a Measure of Distribution

The development literature seems to have taken it as an article of faith that the "standards of quality" imposed by Deininger and Squire are well chosen. But are they? We briefly consider each in turn.

Data should be based on household surveys. In principle, surely research into household income is best based on household surveys. But suppose no survey was taken? Should all other sources of information be excluded? Is a blank in the record better than an approximation – particularly when the record remaining is so spotty that observations are available for fewer than a quarter of all countries and a tiny fraction of all possible years?

The population covered must be representative. Suppose reliable data are available on some part of the population – city dwellers, manufacturing workers, income earners – but not on the others? Should it be assumed that the movement of inequality within the observed set bears *no* relationship to the movement of inequality in the larger society? Or is it more reasonable to suppose that an increase (or decrease) in inequality within the observed set *probably* reflects an increase (or decrease) in inequality on the perimeters of the set? After all, set boundaries are artificial: the city trades with the countryside; manufacturing trades with agriculture. When relative wages fall in low-skilled manufacturing (e.g., the garment trades) is it unreasonable to suppose they are also falling in low-skilled services?

The measure of income must be comprehensive. Here even the principle is not so clear. The theoretical arguments relating inequality to growth are generally not couched in terms of non-wage and non-monetary incomes. They relate, rather, to rates of pay in the process of industrialization. If the objective is to assess the relationship between inequality and industrial development – or for that matter the effects of trade or technological change on pay structures – is it reasonable to reject evidence narrowly based on measures of manufacturing pay?

These reflections lead us to consider the *dispersion of manufacturing pay* as a measure of inequality -- both within manufacturing sectors *per se*, and also as a reasonable proxy for cross-country comparative levels and time-series changes in income inequality.

This dispersion can be computed using the between-groups component of Theil's T statistic (Conceição and Galbraith 1998). Data requirements are modest: one needs only aggregated total employment and total payroll for a comprehensive set of industrial categories at a sufficient level of disaggregation. (In practice we find that twenty-five to thirty industrial categories is sufficient to obtain moderately robust estimates for purposes of time-series and cross-section comparison. See Conceição, Galbraith and Bradford (2000) for details.) Data sets providing annual observations for many countries across consistently defined categories are now available from numerous sources, including especially the UNIDO Industrial Statistics, 2000 release. This one source alone permits us to compute about 3200 coefficients for over 150 countries in the years 1963-1998.

In contrast to D&S, the UTIP approach is to compute *unofficial* inequality estimates from a large pool of *official* data. The admitted disadvantage of our approach is a narrow focus on the dispersion of manufacturing pay – a dispersion which may, in some instances, behave differently from the larger income distribution of which it is a part. The advantages are coverage, consistency, and accuracy. We believe that these advantages are, in practice, overwhelming.

4. Comparing the World Bank and UTIP data: Cross Section

Table 1 presents data on the coverage of the Dollar and Kraay (2000) expansion of the D&S data set, as against the coverage of the University of Texas Inequality Project data set drawn from the UNIDO Industrial Statistics, 2000 release. The figure shows that UTIP is able to present more than 30 annual observations for 42 countries, and more than 20 observations for an additional 42. The World Bank's data set (expanded version) has more than 20 observations for only 7 countries. The World Bank relies on a single observation for 25 countries, and on fewer than five observations for an additional 46 countries. The UTIP data set therefore has an advantage of replication; measures in adjacent years lend confidence as respects the accuracy of any particular coefficient.

Frequency Distribution of Observations		
	Dollar and Kraay	UTIP
1	25	8
<5	46	14
<10	22	20
<20	17	25
<30	4	42
<40	2	42
<50	1	

Table 1. Source: Dollar and Kraay (2000), UTIP

Figure 1 presents the World Bank data in a map. The method is crude: we averaged every value for every country, divided the resulting measures into sextiles, and color-coded the legend. This enables us to present every country for which there is a reported coefficient, irrespective of when the measurement was taken. The result is ahistoric: it cannot show the evolution of inequality. It may also be unbalanced, over-weighting recent decades (particularly, we use only post-Soviet data for various FSU countries.) But the sextiles are not actually dissimilar to maps computed using only data from narrower bands in time.[1]

[1] In this figure, we use the original D&S measures; the Dollar and Kraay additions have not been incorporated but would not change the picture materially.

World Bank Inequality

D&S Gini Coefficients, 1950-1997

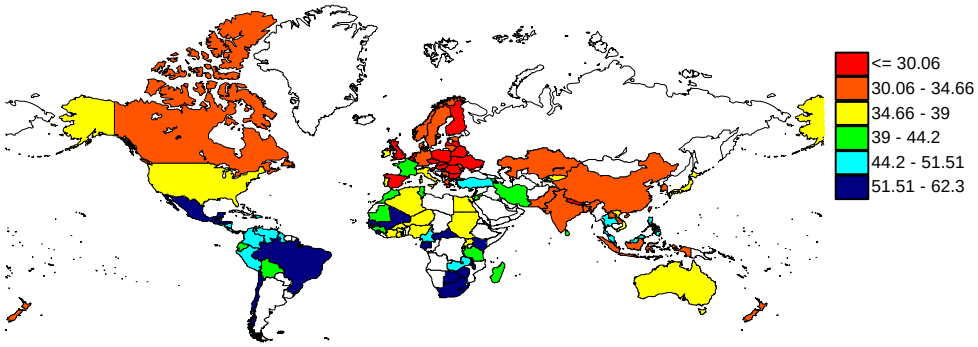

Figure1
Source: Deininger and Squire (1996)

Some parts of this classification scheme are plausible. The high measures for Brazil, for instance, or through Southern Africa, raise few questions. But others cry out for explanation. Is inequality in France, and Ireland, *really* higher than in *Spain*? Is inequality in India, Pakistan and Indonesia *really* in the same class as China, let alone Sweden, Norway and Canada? Is inequality in the United States and Australia in the same sextile as in Nigeria and the Sudan? We find this unlikely *a priori*, though without a standard for comparison it is difficult to be sure.

Figure 2 provides a standard for comparison. It presents the UTIP data on dispersions of manufacturing pay, using exactly the same method: simple averages over all available observations. We show here 3196 observations averaged for each of 151 countries.[2]

[2] Blow-ups of these maps are available on the UTIP web-site at http://utip.gov.utexas.edu they are posted on the "Presentations" frame of the page in Powerpoint format.

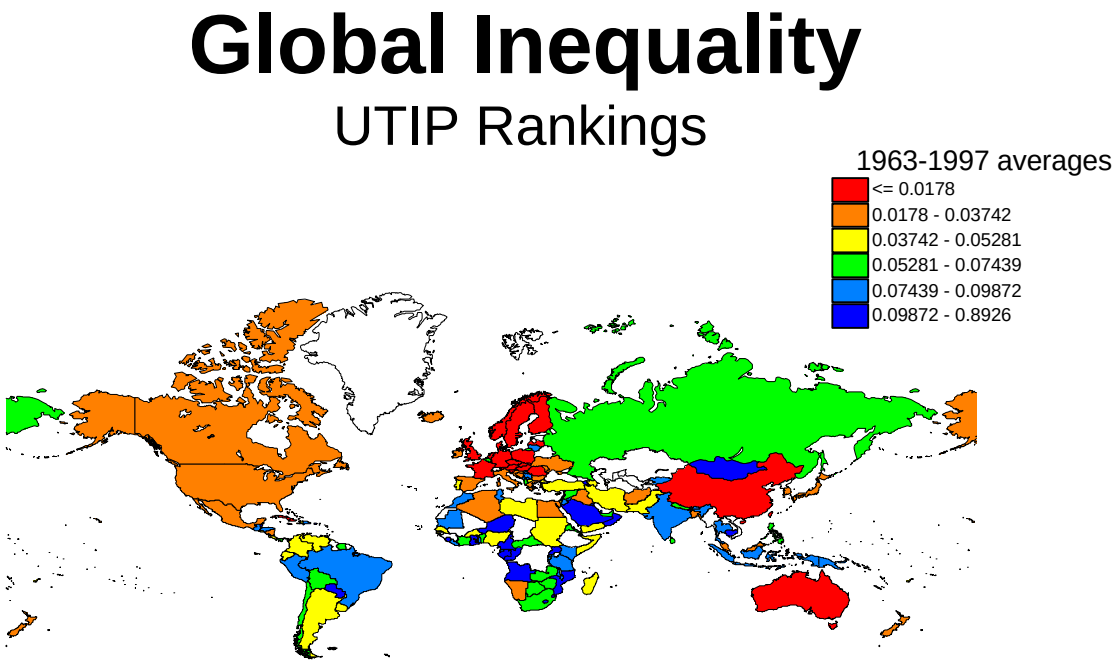

Figure 2. Source: UNIDO Industrial Statistics 2000 and authors' calculations

In the UTIP measurements, the countries of Europe are almost uniformly in the lowest inequality sextiles, along with Australia, China, and Taiwan.[3] The North American countries are in a second sextile, along with Korea, Japan, and a handful of middle-income developing countries. Higher inequalities are seen in Latin America, Africa, Russia, and South Asia, with the highest in a broad equatorial belt.

The UTIP measures are accurate measures of the degree of dispersion in manufacturing pay. They provide dense and consistent measurement of what they purport to measure, and this alone gives them value. But are they also more reasonable as proxies for the larger economic inequalities of income? A bit of common sense can help to form a conceptual bridge between measures of inequality in household income, and measures of inequality in manufacturing pay, and so help us to evaluate the data on income. Consider these two generalizations.

First, countries with strong welfare states should rank lower on an income inequality measure than on a pay measure. But as one can clearly see, in the World Bank's data they do

[3] We know of an error in our data for Belgium, for the years 1985 and after.

not. The strong welfare states of Northern Europe -- particularly France, but also Germany, Sweden and Norway -- rank *higher* on some of the World Bank's household income measures than they do on the pay dispersion measures. The small pay dispersions in Australia and, to a lesser extent, the U.S., as measured by UTIP, also translate to larger household income inequalities – even though Australia also has a strong welfare state.

Second, where welfare states are weak, inequalities in household income should roughly correspond to inequalities in manufacturing pay. Where the gap between apparel and chemical workers' pay is large, in other words, it is reasonable to fear that household income inequalities more generally will also be large, and *vice versa*.

But again, we see that this is not the case if the World Bank data are to be taken seriously. Large pay dispersions in India, Pakistan and Indonesia, measured by UTIP, do not correspond to large observed household income dispersions. One might argue that in heavily rural and agrarian societies income inequalities will be low – but if this is true for India and Indonesia, why isn't it also true in the World Bank's data for Zambia, Zimbabwe, Mexico or Brazil? Mexico, moreover, had strong historic protection for farmers and relatively high rural incomes; are we to believe that rural/urban gaps in Mexico are greater than in India?

We conclude that, so far as comparisons of levels of household income inequality across countries are concerned, the World Bank's data are not credible. The UTIP measures, on the other hand, are not only accurate as measures of relative dispersions in manufacturing pay. We believe that they are also plausible as a guide to larger income inequalities. Indeed, we suggest that they are actually a better proxy for this elusive phenomenon than are the World Bank's attempts to measure income inequalities directly.

5. Comparing the UTIP and World Bank data: Time Series

Most of those who have used the D&S data set are only slightly interested in the cross-section comparison of Gini coefficients. Their larger interest lies in the relationship between inequality and economic growth over time. Forbes relates the level of inequality as measured by D&S to subsequent periods of economic growth, using panel methods that allow her to incorporate information from both cross-section and time-series evidence.

The original position of the famous World Bank report on the *East Asian Miracle* (1993) was that low inequality in Asia promoted economic growth in the region. A number of models have been offered to account for this finding; they variously emphasize externalities in the distribution of human capital, greater perfection of the capital markets in egalitarian countries, and lower degrees of corruption. Forbes, in her effort to refute the empirical case relating equality to growth, offers no competing model, but to construct such a model *a priori* would not be a particularly difficult challenge.

But the UTIP data refute the idea that Asian countries had uniformly low inequality at the start of the miracle period. They rather show extreme diversity in pay differentials across the region. Taiwan, Korea and China did have low pay inequality by world standards early on – though UTIP data show higher inequality in Korea in the early 1960s than at present. Malaysia's inequality readings were moderate at the outset of the miracle; they also declined with rapid growth in the 1990s. Those of Indonesia, the Philippines, and Singapore were high. Indeed, many of the second tier "tigers" had high inequality even in comparison with Latin America. Yet, this did not prevent them from enjoying a decade of rapid growth (along with declining pay dispersions) from the end of the 1980s.

More generally, researchers on both sides of this issue should think again about what sort of relationship between growth and inequality it is reasonable to expect. Kuznets, in his famous argument, related the *level of inequality* to the *level of income*. Kuznets argued that the level of inequality would rise as the industrialization process got underway, but would then fall as industrialization deepened and countries converged toward the condition of the advanced world.

Conceição and Galbraith (2001) update and augment the Kuznets hypothesis in two respects. First, we argue that virtually all developing countries have by now reached, to some degree, the deepening phase of industrialization. Very low income countries where inequality rises with growth should be rare in the modern record. Second, we argue that a handful of very high income countries – notably the United States, the UK and Japan – that supply capital goods to the world economy will experience rising inequality in times of strong growth, and therefore will find themselves on an upward-sloping tail of an "augmented Kuznets curve."

A correlation of the relationship between inequality and income levels in the Deininger and Squire data set produces unimpressive results. But in the UTIP data there is an impressive Spearman's rank-order correlation of -0.48, between inequality and per capita GDP, consistent with a Kuznets hypothesis where most observations are found on the downward-sloping part of the curve. The Pearson product-moment correlation is -0.18. Both coefficients are separately negative (though not always significant) in each calendar year. There are about 2600 paired GDP/inequality observations underlying these correlation coefficients.

This relationship, if valid, implies a straightforward negative relationship -- for most countries at most times -- between *changes in inequality* and *changes in growth*. In other work (Calmon et al. 2000) we demonstrate that such a relationship is strongly at work in the cases of Brazil and Mexico, and Garza and Galbraith (2001) report weaker but consistent findings along similar lines for nine countries in Latin America.[4] No causality is implied in this correlation, only that strong growth *tends to be associated with* declining inequality, and that slumps or recessions coincide with (often, sharply) increasing inequalities in the pay structure.

[4] Kum and Lee have posted only slightly less consistent findings for the Asian countries on the UTIP web-site.

It follows from this, though, that there should be *no* consistent relationship between the *level of inequality* and the *subsequent rate of growth.* Instead, the sign of the correlation over any given historical period should depend on (a) the position of countries on the augmented Kuznets curve, and (b) whether the group of countries in question is experiencing convergence or divergence of incomes over that period.

Consider those countries on the downward slope of the inverted-U. In case of convergence, poorer countries with high inequality will grow more rapidly than wealthier ones with low inequality, and the relationship will appear positive. As convergence occurs, the converging country's inequality measure will fall relatively, presaging a slowdown in growth and completing the illusion that high inequality precedes high growth. In case of divergence, on the other hand, the relationship will appear negative; high-income, low-inequality countries will grow faster. And if periods are chosen so that convergence and divergence cancel each other out, or if countries are chosen from different parts of the Kuznets curve, then no relationship at all will reliably be found.[5]

With the global coverage of the UTIP data set, we can, in principle, test these propositions for developing and developed countries taken together. This is a work in progress. By way of preliminary evidence, we present three figures that show the broad relationship between pay inequality, per capital gross domestic product (measured in real 1995 U.S. dollars), and time over the 36 years from 1963 to 1998.

Figure 3 presents a simple bivariate scatterplot of GDP per capita and the UTIP Theil statistic. A logarithmic fit depicts the general trend of the data, which is clearly downward sloping in inequality as income grows.

[5] Conceição (2000) has developed a simple and elegant test for economic convergence – the movement of the between-countries component of a Theil index measured across a region or group of countries. Applying this to the OECD, he finds that convergence dominates the picture of the past thirty years, due mainly to the high growth rates of the two Asian OECD members, Japan and Korea. However, the OECD countries are not all on the downward sloping portion of the Kuznets curve; there are OECD countries for whom growth and inequality tend to rise and fall together. This being so, Conceição does not find evidence of a positive relationship between inequality and subsequent economic growth within the OECD.

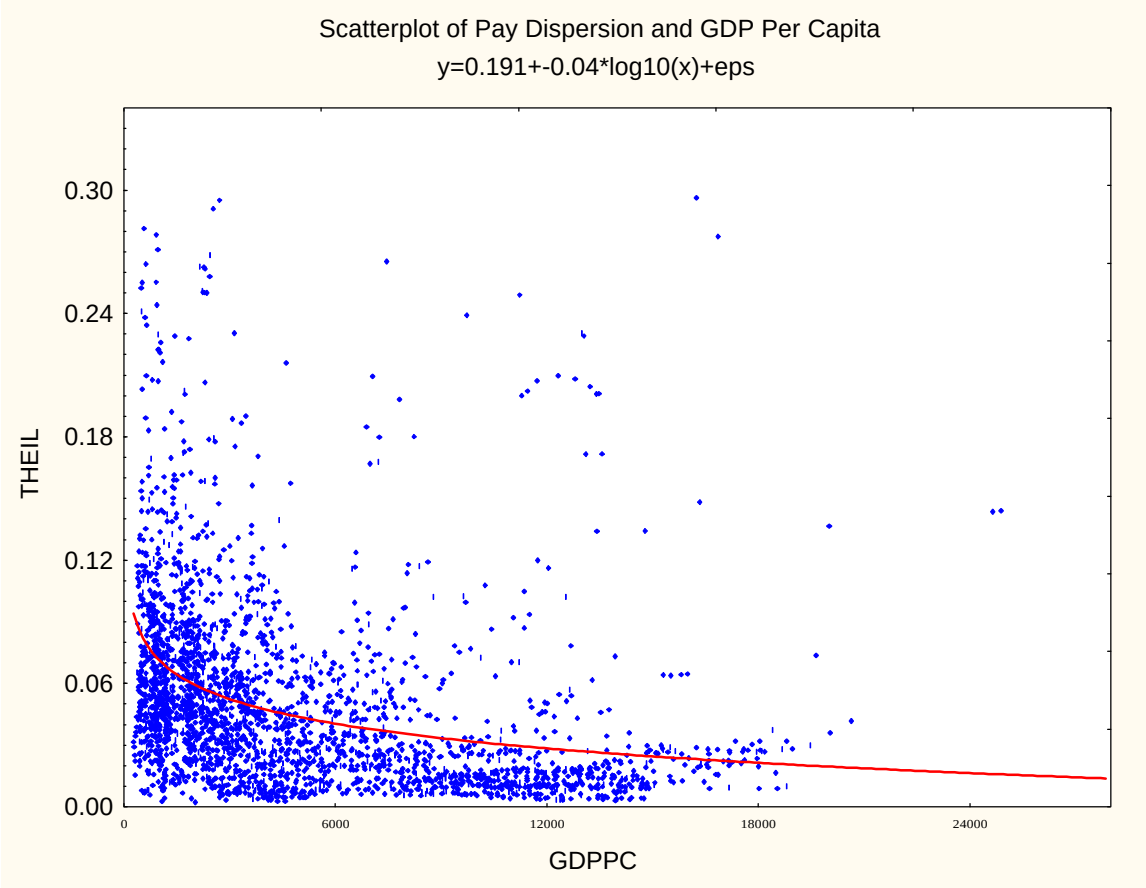

Figure 3. Sources: UTIP and World Bank Macro Data.

Figure 4 brings in the dimension of time – something made possible by the dense character of the UTIP data. Here we present a linear contour plot fitting inequality, income and time. The plot clearly shows the general tendency of income and inequality to rise over the period for which we have data. But at the same time, it also shows the predominant tendency, at each point in time, for higher incomes to be associated with lower inequality. The implication is that most countries are indeed to be found on a downward sloping portion of the Kuznets curve.

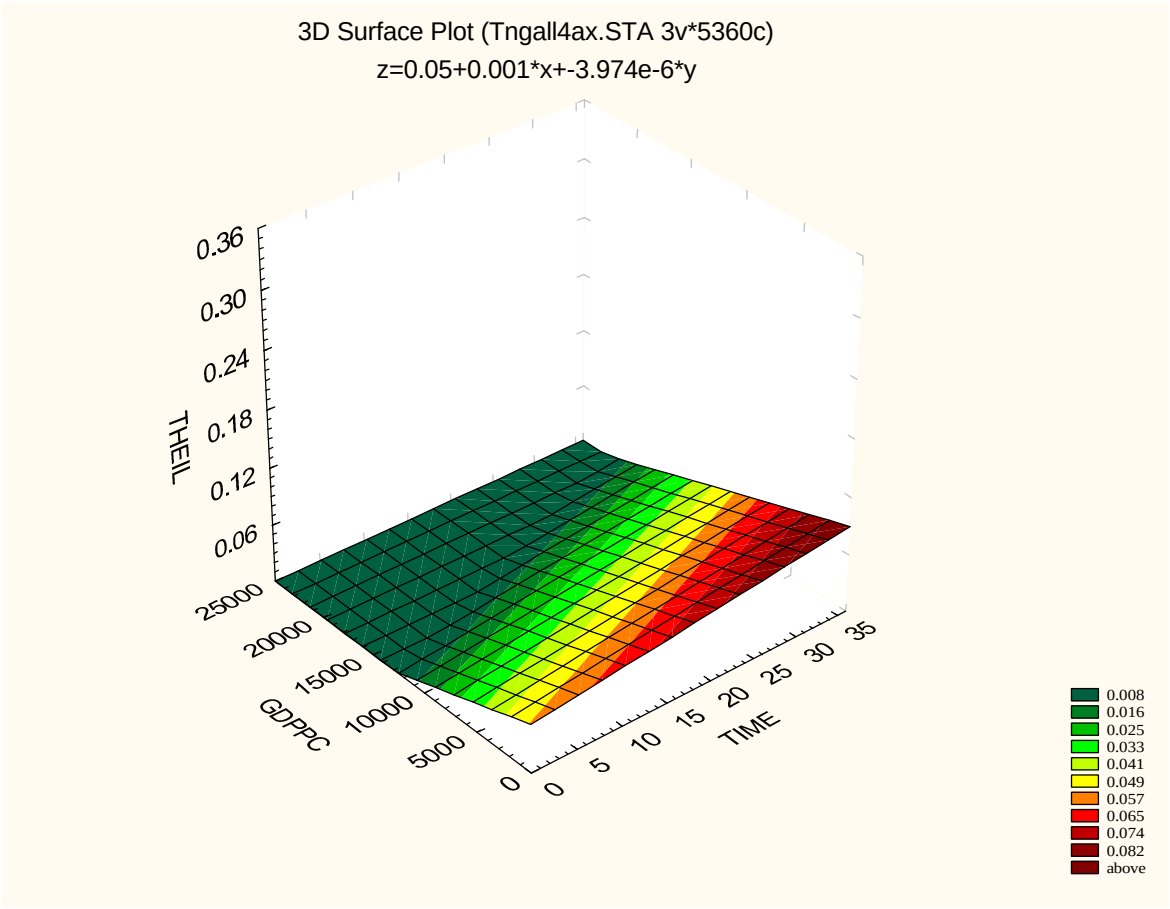

Figure 4. Sources: UTIP and World Bank Macro Data

Figure 5, finally, fits a quadratic surface to the same data. Here, the augmented Kuznets hypothesis comes into view: a few countries with very high incomes show drive the tail of the Kuznets curve back upward. But, as the figure makes clear, most data points fall on a downward sloping surface. We remain persuaded that, on the whole, Simon Kuznets' original hypothesis relating the level of GDP to the level of inequality emerges from this evidence remarkably intact.

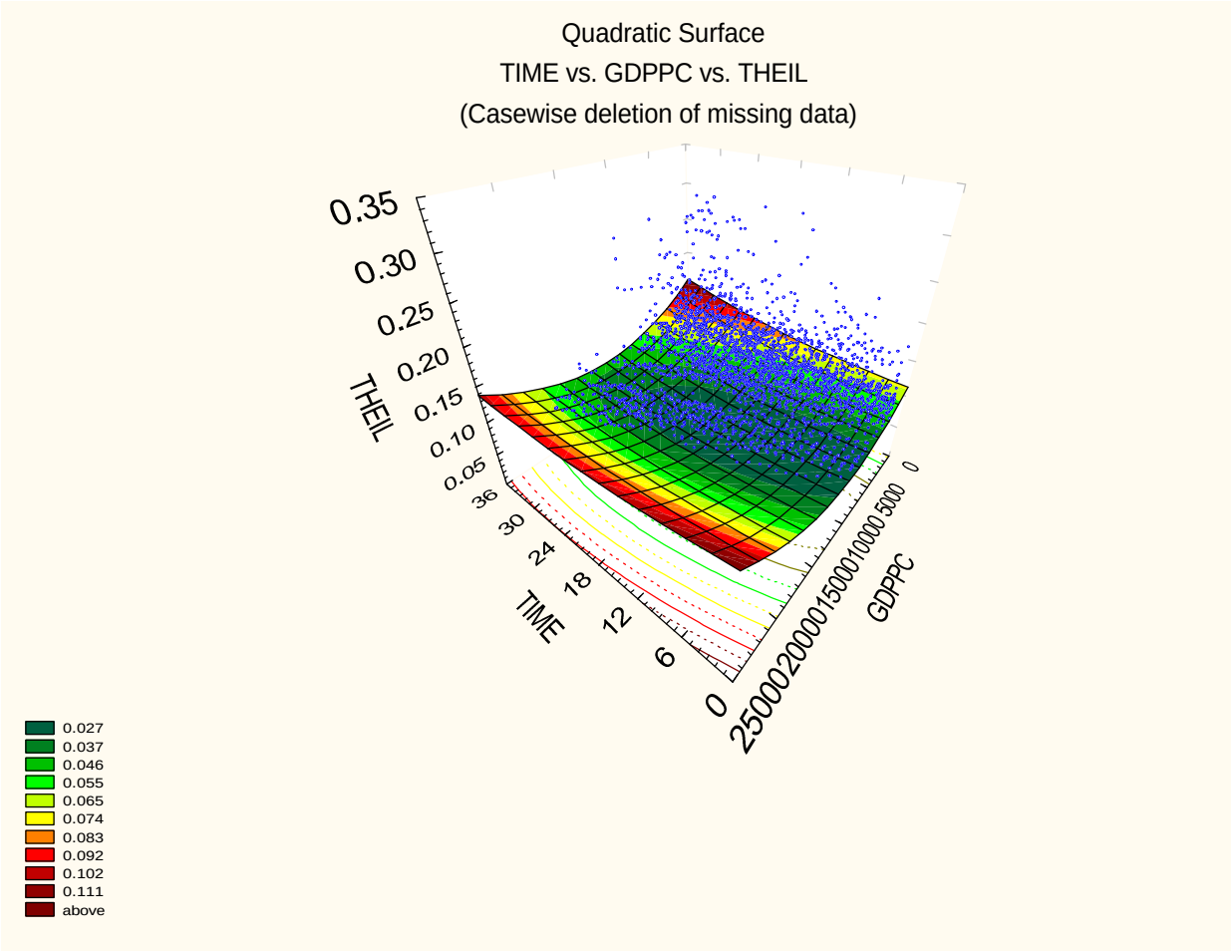

Figure 5. Inequality, Income and Time. Blue dots indicate data points. Sources: UTIP and World Bank Macro Data.

Table 2 presents the results of a panel estimation of the effect of log GDP per capita on the Theil index. Five specifications are presented: a pooled regression (1), and panel estimates using fixed and random effects for a country-effects-only specification (2&3), and for a specification employing dummy variables for both countries and years (4 & 5). Specification (4) is clearly the preferred one, showing the negative relationship between income level and inequality when both country and year effects are taken into account. Adding second- and higher order polynomial terms to the regression did not improve the results. From this, we again infer that most countries in the modern period are to be found on a downward sloping Kuznets relation. However, there is clearly a strong effect of rising inequality over time as well, which may well prove to be related to changing structural and institutional conditions, including globalization.

Table 2. Panel estimates of the relationship between income and inequality.

	Pooled	**Country Effects Only**		**Country and Year Effects**	
		Fixed Effects	Random Effects	Fixed Effects	Random Effects
	(1)	(2)	(3)	(4)	(5)
Constant	**0.19****		**0.09****	**0.34****	**0.24****
Std. Err.	0.0098		0.0236	0.0312	0.0270
t-ratio	19.6		4.0	10.8	8.7
p-value	0.0000		0.0000	0.0000	0.0000
log GDPPC	**-0.017****	**-0.002**	**-0.002**	**-0.035****	**-0.021****
Std. Err.	0.0012	0.0029	0.0027	0.0039	0.0032
t-ratio	-14.1	-0.5	-0.9	-9.1	-6.5
p-value	0.000	0.5967	0.3824	0.0000	0.0000
Adj. R^2	0.07	0.62	0.07	0.65	0.07
Observations	2763	2763	2763	2763	2763

Dependent Variable: Pay Dispersion in Manufacturing, as measured by the Theil Index, computed from UNIDO's 2000 release of Industrial Statistics by the authors.

We conclude that credible estimation of the relationship between growth and inequality requires not only sophisticated econometrics, but also trustworthy data and a specification in accord with economic common sense. For common sense, the original insights of Simon Kuznets can be improved on -- but not by very much. For trustworthy data, we urge that official sources and a narrow focus on what can be measured *reliably* have their merits. Better a partial measure accurately taken, than comprehensive measurements that cannot be compared either across countries or through time. In the end, and again allowing that the results obtained so far are provisional, the UTIP measurements rather powerfully endorse Kuznets' view that, in the course of industrialization, inequality declines with increasing income levels. These measurements therefore also undermine the entire range of *ad hoc* theoretical models, and equally *ad hoc* empirical studies, that purport to find any consistent relationship – whether negative or positive – between *levels* of inequality and subsequent *rates* of growth.

Appendix : Comparing Changes in Inequality Over Time

Forbes' panel data set, constructed from Deininger and Squire, consists of six five-year intervals, from 1961-65 through 1986-90. In each interval, she chooses the data point closest to the end point of the interval. Rates of change of inequality are then calculated from endpoint to endpoint.

The results are displayed here in Figure A1 for the period 1986-1990 -- a period chosen because it is reasonably representative of the coverage in this data, and because we lack space here to analyze each period separately.

Plainly, there is not much to go on; most countries of the world are not present. For this reason alone, conclusions about the relationship between changes in inequality and changes in any other variable are probably not warranted. Second, the pattern is fraught with anomalies, among them a divergent movement of inequality in Scandinavia (rising in Norway and Sweden but declining in Finland), declining inequality in Canada and Brazil (but rising in Mexico), sharply rising inequality in South Asia. Overall, in this data, half of the countries shown have declining inequality in the late 1980s. This seems very unlikely to be representative of the world economy as a whole at this moment in time.

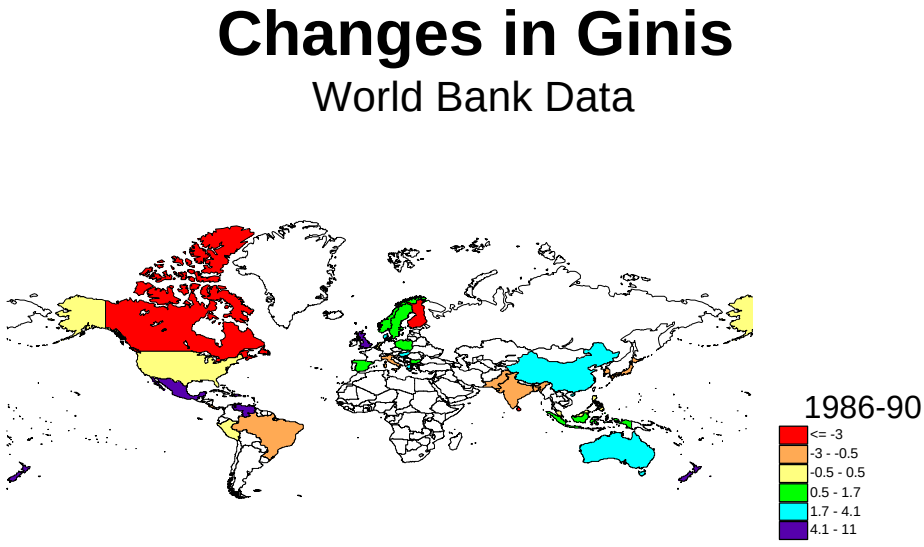

Figure A1. Source: Forbes (2000)

Figure A2 shows changes in manufacturing pay inequality in an interim data set of 99 countries for the same period; data in this case always coincide with exact time-frames indicated. Inspection reveals both geographic consistency and reasonable correspondence to known history:

rising inequality in the Soviet sphere, relative stability in North America (after sharp increases earlier) and in Europe, declining inequality in South Asia in a time of strong economic growth. Overall, about two-thirds of the countries have rising inequality in the 1986-1990 time frame.

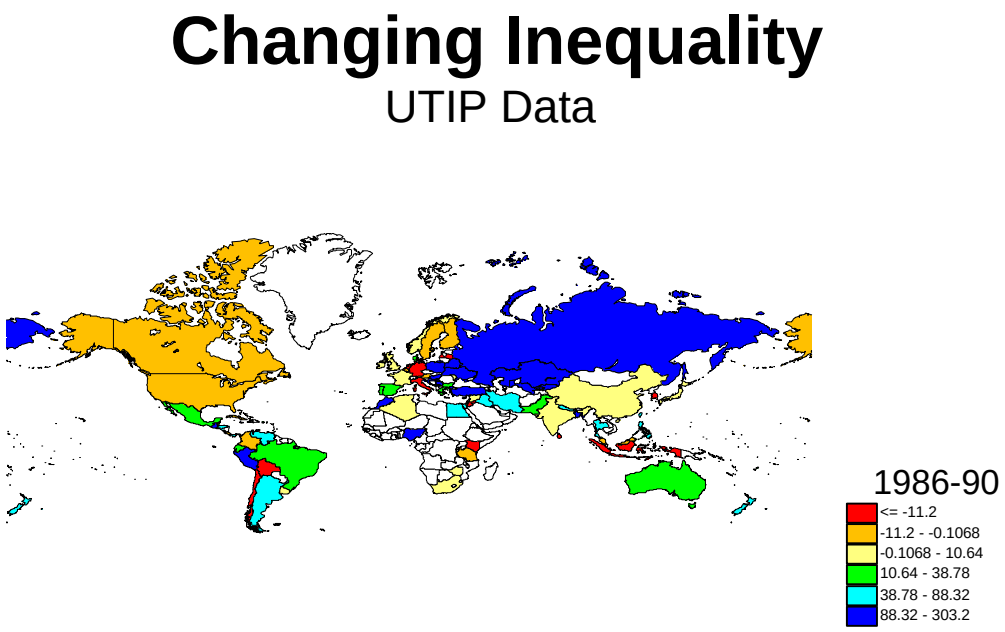

Figure A2. Source: UTIP Time Series data set.

We know that the UTIP data are reasonably accurate as measures of changing dispersions in manufacturing pay. We might expect that if the World Bank's data are observed with similar accuracy, the general patterns of increasing and decreasing inequality across countries in each time interval – as between manufacturing pay and incomes – should resemble each other. In fact they do not: in three of five time intervals, the correlation of changes across the two measurements is *negative*; in only one of five is the correlation ratio significantly greater than zero. Inspection of the larger increases and decreases in income inequality found in Forbes's data set reveals a few cases of corresponding changes in the dispersion of pay. But not very many.

This is not the place to examine every movement in the World Bank's data in detail, but it is worth contrasting the UTIP map to a listing of the largest declines and increases in inequality in the Forbes' data set for the 1986-1990 period, shown in Table A1. Increases marked for Venezuela, the UK, New Zealand, China, and Mexico may well be correct. But if inequality rose sharply in Sweden, Norway and Denmark in the late 1980s, if it fell in Brazil, Pakistan and India, no trace of this can be found in the dispersion of manufacturing pay. And as for sharply declining

inequality in Sri Lanka or Trinidad and Tobago, we suggest that specific empirical investigation is in order before allowing such observations to influence a major study of the relationship between inequality and growth for the world economy as a whole.

Changing Inequality in the World Bank Data: 1986-1990			
Biggest Declines		Biggest Increases	
Sri Lanka	-8.6	Sweden	1.3
Canada	-5.2	Norway	1.7
Finland	-4.6	Greece	1.9
Trinidad and Tobago	-4.4	Denmark	2.2
Hong Kong	-3.2	Hungary	2.3
Singapore	-3.0	China	3.2
Brazil	-2.2	Australia	4.1
India	-1.8	Mexico	4.4
Pakistan	-1.0	New Zeal	4.4
Costa Rica	-0.9	United Kir	5.2
Japan	-0.9	Dominica	7.2
Korea	-0.9	Venezuel	11.0

Table A1. Largest increases and decreases in inequality in the World Bank data set, 1986-1990. Source: Deininger and Squire.

We are thus not saying that *none* of the World Bank's measures reflect events that occurred. Undoubtedly some of them did occur. But a score of, let us, say, half or two thirds on the *sign* of inequality changes is not really good enough. And we *are* saying that in many cases, the changes in inequality underlying the Forbes findings probably did *not* occur. The data are epiphenomenal. And the results, however carefully estimated, should not be relied on.

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