Working Paper

DOES KUZNETS STILL MATTER?

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By

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# 1.	Introduction

I first met Montek Ahluwalia in Oxford in 1977. The impressions we had of each other were, I am sure, asymmetric. I was in awe of him. He was the youngest ever "Division Chief" at the World Bank, the well known co-author of "Redistribution with Growth" (Chenery et. al., 1974), in many ways the intellectual foundation of the McNamara years at the World Bank. He had come to Oxford from the World Bank on a recruiting visit. I was a graduate student. But I was a graduate student with great interest in his work on income distribution.

I had just finished my B. Phil and had embarked on a D. Phil. My doctoral work was on the theory of risk taking and income distribution, but I had separately also started work with Sudhir Anand on the empirics of income distribution and development. In particular, Sudhir and I had started a careful, and critical, evaluation of the influential work of Montek and his colleagues at the World Bank (Ahluwalia, 1976a, 1976b, and Ahluwalia, Carter and Chenery, 1979) which claimed to find evidence in favor of the famous Kuznets "inverted-U" hypothesis, that inequality first increases and then declines with development.

Montek's work had refreshed and brought up to date the classic work of Simon Kuznets (1955), by formulating his hypotheses in the context of modern development theory, and testing it using cross-section data from developing as well as developed countries. The Anand-Kanbur critique questioned the empirical foundations of the Ahluwalia findings (Anand and Kanbur, 1984, 1993a and 1993b). We argued that if appropriate econometric techniques were used, no "inverse-U" was found in the cross-section data that formed the basis of the Ahluwalia et. al. work. And if there was no inverse-U, the policy conclusions that might flow from it would not stand up either.

As a "Young Turk" development economist, I reveled in the critique we had advanced. It helped make my career. But now, thirty five years after Ahluwalia and more than half a century after Kuznets, I am less sure. I am not of course saying that our technical critique was not valid—in its own terms it was a perfectly legitimate econometric assessment of that body of World Bank based research. But it was a cross-section critique of a cross-section finding. The validity of the critique is quite consistent, of course, with the hypothesis being valid as a time series proposition. The increase of inequality during the spurt of high growth in many developing countries over the past quarter century is the key factor that has given me pause for thought. Maybe Kuznets still matters, after all.

But in my view Kuznets still matters also because of the Kuznets (1955) paper itself. The paper is little read these days, but I think scholars of inequality and development would benefit greatly from reading it carefully. As I will argue, the paper contains within it not only the famous "inverse-U", but a whole range of arguments and intuitions about the evolution of income distribution during the course of development. Many of these have been rediscovered, and many remain to be developed by modern day analysts. One of the objectives of my contribution to Montek's Festschrift is to bring the many dimensions of the Kuznets (1955) paper to a current readership.

The outline of the paper is as follows. Section 2 revisits Kuznets (1955) and shows that the paper is truly a classic—it set out the issues very clearly, and anticipated developments in the literature decades before they happened. Section 3 takes up the story of the Ahluwalia and post-Ahluwalia literature, which left us, I think, uncertain about the empirical support for the inverse-U. Section 4 comes up to date with assessment of the evolution of inequality in fast growing countries over the past two decades, and it argues that the time series experience provides support for the processes of distributional change hypothesized by Kuznets. Section 5 concludes.

2.   **Kuznets in the Original**

Very few people these days actually read the original Kuznets (1955) paper. It is a magisterial tour de force, comparable to and in many ways related to Lewis (1954), another Nobel Prize winning paper. He starts with a clear statement of the problem:

"The central theme of this paper is the character and causes of long term changes in the personal distribution of income. Does inequality in the distribution of income increase or decrease in the course of a country's economic growth? What factors determine the secular level and trends of income inequalities?" (p. 1).

Showing himself to be the careful empirical economist he was, Kuznets sets out the data requirements for answering these questions:

"First, the units for which incomes are recorded and grouped should be family-expenditure units, properly adjusted for the number of persons in each--rather than income recipients for whom the relations between receipt and use of income can be widely diverse. Second, the distribution should be complete, *i.e.,* should cover all units in a country rather than a segment either at the upper or lower tail. Third, if possible we should segregate the units whose main income earners are either still in the earning or already in the retired stages of their life cycle--to avoid complicating the picture by including incomes not associated with full-time, full-fledged participation in economic activity. Fourth, income should be defined as it is now for national income in this country, *i.e.,* received by individuals, including income in kind, before and after direct taxes, excluding capital gains. Fifth, the units should be grouped by *secular* levels of income, free of cyclical and other transient disturbances…. Furthermore, if one may add a final touch to what is beginning to look like a statistical economist's pipe dream, we should be able to trace secular income levels not only through a single generation but at least through two-connecting the incomes of a given generation with those of its immediate descendants." (pp. 1-2).

He then comes to the observed *trends*, in other words, he looks to *time series data* to trace the evolution of inequality over the course of development:

"Forewarned of the difficulties, we turn now to the available data. …. [T]he trends in the income structure can be discerned but dimly, and the results considered as preliminary informed guesses…. In the United States, in the distribution of income among families (excluding single individuals), the shares of the two lowest quintiles rise from 13% per cent in 1929 to 18 per cent in the years after the second world war (average of 1944,

1946, 1947, and 1950); whereas the share of the top quintile declines from 55 to 44 per cent, and that of the top 5 per cent from 31 to 20 per cent. In the United Kingdom, the share of the top 5 per cent of units declines from 46 per cent in 1880 to 43 per cent in 1910 or 1913, to 33 per cent in 1929, to 31 per cent in 1938, and to 24 per cent in 1947; the share of the lower 85 per cent remains fairly constant between 1880 and 1913, between 41 and 43 per cent, but then rises to 46 per cent in 1929 and 55 per cent in 1947. In Prussia income inequality increases slightly between 1875 and 1913-the shares of the top quintile rising from 48 to 50 per cent, of the top 5 per cent from 26 to 30 per cent; the share of the lower 60 per cent, however, remains about the same. In Saxony, the change between 1880 and 1913 is minor: the share of the two lowest quintiles declines from 15 to 14% per cent; that of the third quintile rises from 12 to 13 per cent, of- the fourth quintile from 16% to about 18 per cent; that of the top quintile declines from 56% to 54% per cent, and of the top 5 per cent from 34 to 33 per cent. In Germany as a whole, relative income inequality drops fairly sharply from 1913 to the 1920's, apparently due to decimation of large fortunes and property incomes during the war and inflation; but then begins to return to prewar levels during the depression of the 1930's…. Even for what they are assumed to represent, let alone as approximations to shares in distributions by secular income levels, the data are such that differences of two or three percentage points cannot be assigned significance. One must judge by the general weight and consensus of the evidence-which unfortunately is limited to a few countries. It justifies a tentative impression of constancy in the relative distribution of income before taxes, followed by some narrowing of relative income inequality after the first world war-or earlier." (pp. 4-5).

I have quoted extensively from Kuznets (1955), and will continue to do so in this section and in this paper, because I would like to give readers a sense of the care and circumspection with which Kuznets made his claims. Since few scholars now read the original paper, they also miss the fact that many of the issue we grapple with in the modern literature were in fact raised in the original paper:

"Three aspects of this finding should be stressed. First, the data are for income before direct taxes and exclude contributions by government (e.g., relief and free assistance)….[T]he distribution of income after direct taxes and including free contributions by government would show an even greater narrowing of inequality in developed countries….Second, such stability or reduction in the inequality of the percentage shares was accompanied by significant rises in real income per capita….a reduction in inequality of the shares means that the per capita income of the lower-income groups is rising at a more rapid rate than the per capita income of the upper-income groups. The third point can be put in the form of a question. Do the distributions by annual incomes properly reflect trends in distribution by secular incomes? …. [D]istributions by longer-term average incomes might show less reduction in inequality than do the distributions by annual incomes; they might even show an opposite trend." (pp. 5-6).

Thus Kuznets (1955) introduced the "modern" questions of (i) inequality of pre-tax versus post-tax income, (ii) inequality versus poverty when there is significant growth in mean income and (iii) the implications of volatility for measured inequality.

Moving to the second of his two overarching questions, the causes of inequality trends, Kuznets has a highly sophisticated and detailed discussion of a range of explanations that will repay close reading. The explanation which has become best known to development economists is what Anand and Kanbur (1993a) call the "Kuznets process", a well defined process of distributional shift as population moves from agricultural (rural, traditional) to non-agricultural (urban, modern) sectors during the course of development. The Kuznets paper was in fact his Presidential Address to the American Economic Association in 1954, and in the same year Arthur Lewis (1954) published his celebrated paper on dualistic development which presented the logic of such population shifts. Kuznets (1955) translated this to the distributional realm, providing a numerical illustration to make his basic point:

"The numerical illustration is only a partial summary of the calculations, showing the shares of the lowest and highest quintiles in the income distribution for the total population under different assumptions. The basic assumptions used throughout are that the per capita income of sector B (nonagricultural) is always higher than that of sector **A;** that the proportion of sector **A** in the total number declines; and that the inequality of the income distribution within sector A may be as wide as that within sector B but not wider. With the assumptions concerning three sets of factors--intersector differences in per capita income, intrasector distributions, and sector weights--varying within the limitations just indicated, the following conclusions are suggested: .... [E]ven if the differential in per capita income between the two sectors remains constant and the intrasector distributions are identical for the two sectors, the mere shift in the proportions of numbers produces slight but significant changes in the distribution for the country as a whole. In general, as the proportion of A drifts from 0.8 downwards, the range tends first to widen and then to diminish." (pp. 12-15).

So there it is—the famous Kuznets inverted-U: "the range tends to first widen and then to diminish." Though much has been done to formalize the process, the assumptions and the conclusions through specific models (for example, Anand-Kanbur, 1993a), it is worth seeing the hypothesis at the creation, so to speak.

Although we must now stop this exploration of the Kuznets paper, he does not stop here. In the second half of the paper there is a rich discussion of the limited data for developing countries and its implications for the development discourse. Truly, this classic paper is worth revisiting!

3.   U or not U?

Two decades after the Kuznets (1955) paper, Ahluwalia (1976b) launched a furious debate about the applicability of the "inverse-U hypothesis" to developing countries. There were, of course, other papers, (for example, Adelman and Morris, 1973; Paukert, 1973; Robinson, 1976), but it is Ahluwalia (1976b) which stands as the originator of the modern literature on inequality and development. Here is how he saw his task:

"The relationship between the distribution of income and the process of development is one of the oldest subjects of economic enquiry….The purpose of this paper

is to explore the nature of this relationship on the basis of cross country data on income inequality. The use of cross country data for the analysis of what are essentially dynamic processes raises a number of familiar problems. Ideally, such processes should be examined in an explicitly historical context for particular countries. Unfortunately, time series data on the distribution of income, over any substantial period, are simply not available for most developing countries. For the present, therefore, empirical investigation in this field must perforce draw heavily on cross country experience." (p. 307).

The central and striking estimation in Ahluwalia (1976b) was that of a log-quadratic relationship between inequality and per capita income in the cross-section of countries. Here is how the main conclusions are summarized at the end of the paper:

"(i) There is strong support for the proposition that relative inequality increases substantially in the early stages of development, with a reversal of this tendency in the later stages…. (ii) There are a number of processes occurring *pari passu* with development which are correlated with income inequality and which can plausibly be interpreted as causal. These are intersectoral shifts in the structure of production, expansion in educational attainment and skill level of the labour force, and reduction in the rate of growth of population…. (iii) The cross section results do not support the stronger hypothesis that the deterioration in relative inequality reflects a prolonged absolute impoverishment of large sections of the population in the course of development…. (iv) Finally, the cross section results do not support the view that a faster rate of growth is systematically associated with higher inequality than can be expected given the stage of development achieved." (p. 338).

It was the first finding which was central to the subsequent literature, and helped to structure the debates of the coming decades, right up to the present. Hedged though it was a by a multitude of caveats in the paper itself, the Ahluwalia (1976b) findings provided a hard target for critiques, much as they provided an anchor for subsequent policy discourse. This is such a huge literature that it is simply not possible to summarize it. Suffice it to say that in my view the consensus is that the Kuznets inverse-U cannot be found in cross-section data. Anand and Kanbur (1993b) conducted a thorough analysis based on the Ahluwalia (1976b) data set itself:

"The object of this paper has been to undertake a critical appraisal of the empirical literature on inequality and development, and particularly the influential examples of it due to Ahluwalia (1976b) and Ahluwalia et al. (1979). Their results are central to this literature, since they have served to confirm the Kuznets U-hypothesis and have been used as the basis of projections of inequality and poverty (including by the World Bank). We have tested for the robustness of Ahluwalia's estimates with respect to variations in functional form and data set, and find them to be lacking. A rigorous statistical methodology is used for testing non-nested functional forms against one another, and it is found that alternative forms which are equally well supported by the data imply very different shapes for the inequality-development relationship….We have indicated the deficiencies of the data used in this literature and constructed a minimally consistent data set from the original sample of 60 countries. Estimates of the inequality-development relationship for this data set are

striking. Not only do the data reject the log-quadratic form in favour of a straight quadratic form, but the preferred form displays a *reversal* of the commonly accepted U-hypothesis." (pp. 41-42).

In the late 1990s a new data set by Deininger and Squire (1998) set off another frenzy of dueling estimations. Although by this time some observations over time were becoming available, it is perhaps fair to say that the nature of the exercise still remained cross-sectional in nature. In my view it is equally fair to say that the broad consensus is one of lack of empirical support for the inverse-U relationship between inequality and development—this is the view taken, for example, by Fields (2001), in his survey of the literature up to turn of the millennium (see also Piketty, 2006).

What is the relevance of the existence or otherwise of an inverse-U in a cross-section of countries? The answer, surely, has to be "not very much in and of itself." It can only be significant as an indication of a time series phenomenon, which in turn highlights fundamental underlying development processes. Of course, Ahluwalia (1976b) is well aware of this:

"The results presented above therefore should not be viewed as definitive either in defining the prospects facing particular developing countries or in providing unambiguous policy guidelines. They are best viewed as a useful documentation of empirical regularities--the so-called 'stylised facts' of cross country experience. More ambitiously, they can also be viewed as providing some clues to the mechanisms through which the development process affects the degree of inequality. They can be no more than clues precisely because the essential complexity of a dynamic process, and its great variety across countries, cannot be adequately captured in a single equation." (p. 338).

Of course, despite these caveats, the reason why the Ahluwalia (1976b) findings took on such a significance in the debates was precisely because they were interpreted as intertemporal causal relationships (for example, they were used as the basis for projections by Ahluwalia, Carter and Chenery (1979). In fact, two interesting lines of argument emerged. One said that since there was a "natural tendency" for inequality to increase in the early stages of development, it was appropriate for policy interventions to mitigate the negative consequences of this increase. Another said that since inequality would eventually turn down, it might be worth waiting out the initial increase, and not use measures to hold back the initial inequality increase. This was especially true if these measures led to a decrease in the growth rate, which would only postpone the turning point of the inverse-U. This second strand of argument was strengthened by the third of Ahluwalia's findings, also present in the Kuznets (1955) simulations, that despite inequality increase the absolute incomes of the poor did increase because of the effects of growth.

Both of the above arguments rely on the inverse-U being a "law". We now know that the initial confidence placed in an inverse-U in cross-section data was misplaced. But what about country specific time series evidence and its policy interpretation? We now turn to that topic.

4.   **Kuznets in the New Millennium**

It is worth recalling that the central empirical information deployed by Kuznets (1955) in his classic paper was *time series* information, on the United States, United Kingdom, and Germany. Even for these, he only picked up a declining trend, not an inverse-U. The increasing portion of the inverse-U was hypothesized on the basis of theory and simulations. His paper did have a whole section devoted to developing countries, but he only had a single snapshot for three countries—India for 1949-50, Ceylon in 1950 and Puerto Rico in 1948. He confined himself to level comparisons between developed and developing countries, extrapolating every now and then to draw conclusions on how inequality in developing countries might evolve:

   "Is the pattern of the older developed countries likely to be repeated in the sense that in the early phases of industrialization in the underdeveloped countries income inequalities will tend to widen before the leveling forces become strong enough first to stabilize and then reduce income inequalities? While the future cannot be an exact repetition of the past….if and when industrialization begins, the dislocating effects on these societies, in which there is often an old hardened crust of economic and social institutions, are likely to be quite sharp-so sharp as to destroy the positions of some of the lower groups more rapidly than opportunities elsewhere in the economy may be created for them." (pp. 24-25).

For me, it is the last part of the above paragraph which is key. If indeed there is a "natural tendency", it must surely be one where the disruptive forces of growth create inequalities as they create new opportunities which are more easily accessed by those who have the capacity to do so it in terms of physical, human or social capital. Arthur Lewis (1976) makes a similar point:

   "Development must be inegalitarian because it does not start in every part of the economy at the same time.... There may be one such enclave in an economy, or several; but at the start development enclaves include only a small minority of the population." (p. 26).

However, perhaps this is too strong a position. Initially inegalitarian development may happen sometimes or even a large number of times, but it must surely depend on the initial conditions, and the conclusion cannot be independent of policy. If policy can make the process less disruptive, and perhaps redistribute after the event to mitigate the effects of greater inequality, then there is no necessary reason for inequality to increase. Ahluwalia (1976b) makes the following perceptive observation:

   "But if we cannot deny that certain types of high growth processes lead to greater inequality than can be structurally expected, we can at least assert that the cross section evidence does not suggest that *all fast growers* systematically display this pattern. If there are countries in which this is true, there are others which display the opposite pattern, so that no systematic pattern emerges across countries. Such time series evidence as is available tends to support this point of view. The experience of Brazil, where the high growth was accompanied by worsening relative inequality, can be contrasted with the

experience of Taiwan, where substantial growth has taken place with an actual reduction in income inequality….Recognising this diversity of country experience is perhaps the most important lesson to be learned from the data. At the very least, it shifts attention from an unquestioning suspicion of high growth rates as such towards an examination of the particular nature of growth in different countries and the implications of different types of growth for inequality. A systematic investigation along these lines can only be conducted in the context of an in-depth analysis of the historical experience of particular countries." (p. 337).

What then, does the recent experience of developing countries tell us? I have addressed this question in Kanbur (2010). The basic stylized facts of the past quarter century can be summarized as follows. Where there has been no growth, there has been no poverty reduction. However, the tendency for increasing inequality in growing economies has been present, unless actively counteracted by policy. The increasing inequality has been seen for example in India (Deaton and Dreze, 2002), in China (Kanbur and Zhang, 2005), in South Africa (Bhorat and Kanbur, 2006), in Ghana (Aryeetey and McKay, 2007), in Bangladesh (Deb et. al., 2008), and in Latin America before 2000 (see Birdsall and Szekely 2003 for Chile and Mexico). The causes of this increasing inequality are being debated, but the opening up of opportunities as a result of globalization, which only a few can access initially, has been stressed by some contributors. For example, the surging ahead of regions close to markets, and regions with good infrastructure in place, has been identified as a major cause of rising spatial inequality within countries (Kanbur and Venables, 2007).

The Latin American case is very interesting, because there has been a turnaround in the trend of rising inequality. This has been documented by Lustig, Lopez-Calva and Ortiz-Suarez (2011):

"Between 2000 and 2009, the Gini coefficient declined in 13 of 17 Latin American countries for which comparable data exist. The decline was statistically significant and robust to changes in the time interval, inequality measures and data sources. In depth country studies for Argentina, Brazil, Mexico and Peru suggest that there are two phenomena which underlie this trend: (i) a fall in the premium to skilled labor (as measured by returns to education); and (ii) higher and more progressive government transfers. The fall in the premium to skills results from a combination of supply and demand factors and, in Argentina—and to a lesser extent in Brazil--, from more active labor market policies as well." (p. 1).

This phenomenon and the explanations are of great interest because they highlight the key importance of policy. The "natural tendency" of skill premia to rise as growth processes based on trade and market openness take hold can be counteracted by vigorous promotion of the spread of education. As Lustig et. al (2011) note for Latin America in the first decade of the new millennium:

"The fall in the skill premium seems to be associated with a push in the coverage of basic education which made low skilled labor relatively less abundant and changes in labor demand. Through both quantity and price effects, the expansion of education has been

equalizing. The distribution of human capital became more equal and the gap in returns to schooling by level narrowed. Using Tinbergen's language, in the race between education and technology, the former took the lead." (p. 13).

What about broad sectoral and spatial forces in the evolution of inequality? Recall again the Kuznets (1955) simulations and the Ahluwalia (1976b) estimations. These showed that a narrowing income gap between the agricultural and non-agricultural sectors would be a powerful force in mitigating inequality. A narrowing of this gap could occur for two reasons. First, policy interventions, through investments in physical, human and social capital in the lagging sector, could pull up the income of that sector. Second, the movement of labor from the lagging sector would eventually create labor shortage and start raising incomes and wages there. This latter tendency was pointed out by Lewis (1954). Both of these factors seem to have been present in China during the last decade. Kanbur and Zhang (2005) documented rising spatial income disparity in China in the twenty years prior to 2000. However, Zhang, Yang and Wang (2010) have argued that China has now reached the "Lewis turning point", and Fan, Kanbur and Zhang (2011) discuss various policy interventions to support the lagging regions in China. We will have to wait for the consequences of these to unfold over the coming decade.

The final element in the evolution of inequality is of course direct government intervention to redistribute through taxation and transfers. As Lustig et. al. (2011) note, these have been central in the turnaround in Latin American inequality, through transfers programs such as Oportunidades in Mexico and Bolsa Familia in Brazil. In India the incoming government after the 2004 elections introduced the National Rural Employment Guarantee Act, an intervention that was confirmed and strengthened by the reelection of the same government in 2009. Montek is of course a member of this government. As for Latin America, the implications of such interventions will only become clear in the coming decade, but if experience in other countries is anything to go by, they will have helped to mitigate inequality.

5.   **Conclusion**

So, does Kuznets still matter? Due to the seminal work of Montek Ahluwalia (1976b), discussion and debate on inequality and development in the last thirty five years has been structured around the Kuznets (1955) inverse-U hypothesis. As I have argued, even if the inverse-U is not to be found in the cross-section data, the broad forces in the dynamics of development identified by Kuznets and Ahluwalia continue to be present in the actual experience of individual countries, and are being confirmed by the time series evidence that has accumulated since the work of these two pioneers. It is these forces, and the policy interventions that shape them, which are central to the evolution of inequality during the course of development. It is only fitting that having started the post-Kuznets, literature on inequality and development, Montek is now at the heart of Indian policy making, addressing the distributional consequences of India's growth path. Thanks in large measure to his work, Kuznets still matters.

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