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Kuznets's Inverted U-Curve Hypothesis: The Rise, Demise, and Continued Relevance of a Socioeconomic Law

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This paper provides a historical analysis of the changing significance of the most influential statement ever made on inequality and development—Simon Kuznets's "inverted U-curve hypothesis." The shifting interpretations and appropriations of the hypothesis over time—from its status as a speculative supposition in 1955, to its rise and fall as a reified socioeconomic law, to its contested standing in the social sciences today—demonstrate how Kuznets's arguments, originally advanced under more limited conditions, became transformed into overarching theoretical, empirical, and political constructions. This history suggests that even empirically grounded and testable social science models are contingent on the broader social and political contexts in which they are produced and negotiated.

KEY WORDS: Kuznets's U-curve; income inequality; development; comparative theory; social scientific knowledge.

Simon Kuznets's "inverted U-curve hypothesis" is one of the most enduring and remarkable arguments in the history of the social sciences. First made public in his 1954 Presidential Address to the American Economic Association, the hypothesis, simply stated, is that inequalities first rise with the onset of economic growth, eventually level off over time, then begin to fall in advanced stages of development—thus the growth–equity relationship is characterized by a trajectory in the shape of an inverted U. At the time, Kuznets could not possibly predict that this pattern he half detected and half intuited of rising then falling inequalities would become one of the

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most significant and consequential propositions in development academics and policy. In the 30 years following its 1955 publication, the inverted U-curve was transformed across the social sciences from a speculative hypothesis to an inevitable and unavoidable socioeconomic "law" that provided both scholars and policy makers with an articulated worldview of the nature of growth and inequality. Kuznets's hypothesis shifted the framing of income inequality as a social problem to the examination of size distributions, spurred the first worldwide efforts to collect such data, created a prolific program of research, and helped establish world economic policy at a time when policy mattered. Characterizing the prevailing view at the height of the U-curve's ascendancy, Srinivasan (1977:15) called the hypothesis "some sort of 'iron law' of development."

Now nearly 50 years later, the theoretical and empirical standing of the hypothesis is still ambiguous, controversial, and relevant. According to the *Social Science Citation Index*, in the 5 years prior to 2000, nearly 500 articles from a wide cross-section of social science inquiry referenced the U-curve article. With various amounts of fervor, many scholars now aim to refute the hypothesis, while others continue to argue in its favor. Nielsen (1994:654), for example, concludes that "despite some isolated skepticism . . . the existence of this curve has been well documented for developing societies by later research." Dovring (1991:101) under the heading "Is the U-Curve Inevitable?" states that "the empirical material does, on the whole, support Kuznets' hypothesis. . . . [It] has withstood the test of time as well as that of ongoing research." Other scholars writing in the last decade still refer to the U-curve as "a natural and unavoidable (growth–equity) conflict" (Fei and Ranis, 1997:324), "Kuznets's law" (Sundrum, 1990:78), or just plain "conventional wisdom" (Lantican *et al.*, 1996:243).

In this article, I analyze the history of the theoretical and empirical conceptualization of the world known as "Kuznets's inverted U-curve," with the aim of accomplishing two goals. The study's primary aim is to provide time and place context to the shifting applications and interpretations of the U-curve historically. Understanding how the U-curve (and by extension inequality itself) fit within larger academic and policy contexts, and how this fit changed through time, will help us to understand both past evaluations of the U-curve as well as the current ambiguities surrounding a set of arguments central to many areas of current sociological inquiry. Second, the analysis has important implications for a broader set of theoretical issues concerning the nature of social scientific practice and its location within larger sociopolitical contexts. In this sense, the story of the U-curve—a theory that triumphed in certain times and places and failed in others, yet is still hotly contested half a century after its publication—is relevant to models of "progress" in social scientific knowledge (as explored, for example,

by Rule, 1997 and Hamilton, 1991) and of change in the research fields that produce it (Crane, 1972; Latour, 1987; Yonay, 1998).

The intellectual history of the U-curve hypothesis can be partitioned into three periods. After a review of Kuznets's original contribution, I analyze the first period, from 1955 through the 1970s, when the U-curve became what sociologists of scientific knowledge call a "black box"—an unproblematic and largely undisputed fact that served as a "foundation" for the new field of development economics (Fuchs, 1992).[2] In the second period—from the 1980s into the early 1990s—the unanimity regarding the U-curve became widely challenged, leading to a long decade of contradictory findings and ambiguous conclusions: the opening of the black box. This shift in the interpretation of the U-curve is explained by the broader counterrevolution that dismantled developmentalism in theory and practice, and reinvented the academic and policy climates in which inequality was interpreted. As opposed to a Kuhnian (Kuhn, 1962) process of a gradual accumulation of problematic anomalies, the story of the U-curve, it is argued, supports the constructivist school's claim that "facts do not speak for themselves" but are produced and interpreted within sociopolitical contexts (Fuchs, 1992; Latour and Woolgar, 1986; Rule, 1997; Yonay, 1998). The third period—from the mid 1990s to today—is characterized by continued controversies regarding the U-curve hypothesis resulting from the intellectual persistence of old black boxes and different conceptualizations of what the U-curve means as a theoretical, analytical, and/or political statement. I conclude by summarizing these different "U-curves," and examining the implications of this historiography for future work as well as analyzing the production and interpretation of social-scientific knowledge.

THE INVERTED U-CURVE AND SIMON KUZNETS'S HYPOTHESIS

Kuznets's central purpose was to establish the character and causes of secular trends in the size distribution of income, and specifically to question whether income inequality increases or decreases during the process of economic growth. His concluding hypothesis was derived using a combination of sparse empirical data, simplistic mathematical extrapolation,

[2]There is a great deal of debate today surrounding naming and classification issues in the sociology of science field. I use the phrase "sociology of scientific knowledge" to refer to the work of the constructivist scholars who research the internal workings and contents of science, the "internal dynamics of science in the making" (Fuchs, 1992:3). This approach is cognitively differentiated by its practitioners from both "classical" sociology of knowledge, and Mertonian sociology of science perspectives.

and pure theoretical speculation. Kuznets began by examining what tentative empirical evidence was available at the time.[3] Using historical data on the size distribution of income within the United States, England, and Germany, Kuznets found that inequality was characterized by long-term stability, before beginning to decline starting at least around 1920 (and probably since the period before World War I). This trend was accompanied by significant increases in real income per capita. Thus, he concluded that at advanced stages of economic development, inequality first leveled off then began to decline as these economies continued to expand.

Kuznets was somewhat surprised by these findings, noting that "a long-term constancy, let alone reduction, of inequality . . . is a puzzle" (7). More specifically, he wondered how two developmental processes that economists had long assumed to be fundamentally inegalitarian—the concentration of savings at the top of the income distribution, and the simultaneous intersectoral shift from agricultural to industry—could result in converging incomes. After summarizing the prevailing thinking on the former, Kuznets delved more analytically into the latter part of the puzzle. Through a simple mathematical exercise conducted on a stylized, dual-sector economy (one split into agricultural/rural and industrial/urban sectors), Kuznets suggested that the narrowing of inequality observed in these three developed countries was actually "relatively recent and probably did not characterize the earlier stages of their growth" (18).

Since, according to Kuznets, the intrasectoral distribution of income is necessarily wider in the urban sector than in the rural sector, a major shift in population from a sector with low inequality to one with greater inequality increases the weight of the unequal sector, thus raising overall inequality. Perhaps more significantly, however, this pattern holds even if the assumption of wider inequality in the urban sector is relaxed. If income *levels* between urban and rural sectors widen (due to greater productivity gains in the former), then overall inequality will again have to rise, even if intrasectoral inequalities are assumed to be the same. These two mathematical truisms provide the basis for explaining increasing inequality simultaneous with economic growth in less developed countries, and lead to the "inevitability" of the growth–equity tradeoff, as many authors have come to characterize the "Kuznets process." While either one of these scenarios alone would lead to increasing inequality, Kuznets thought that both conditions were probably present in developing economies.

[3]Speaking to the quality of the data he employed, Kuznets (1955:4) characterized the results as "preliminary informed guesses." This work is subsequently cited by page number in the text.

If the nature of sectoral imbalances leads to widening inequality as population shifts from rural to urban production, what causes the reversal of this trend? Kuznets's answer was rooted in the dynamics of the production process, but he also recognized the importance of political, sociological, and demographic processes. Kuznets argued that "the major offset to the widening inequality. . .must have been a rise in the income share of the lower groups within the nonagricultural sector of the population" (17). This is accomplished through the institutional and political changes inherent in "the dynamism of a growing and free economic society." These changes involve shifts in the economic and political expectations regarding the "long-term utility of wide income inequalities," the growth of a "native" urban population "more able to take advantage of the possibilities of city life in preparation for the economic struggle," and the growing political power of this group leading to protective and supporting legislation (9–17). In other words, the dislocating effects of the industrial revolution eventually lead to social and political organization at the bottom, which ultimately translates into improving absolute and relative economic positions over time.

In keeping with his unique scientific philosophy, Kuznets was deliberate in recognizing the limitations of both the available data and his theoretical ventures. He openly cautioned that "no adequate empirical evidence is available for checking this conjecture" (19), and he prefaced his concluding remarks with the caveat that the inverted U-curve was based on "perhaps 5% empirical information and 95% speculation, some of it possibly tainted by wishful thinking" (26). But evoking his genuine concern for the scientific enterprise, Kuznets argued that "as long as (this research) is recognized as a collection of hunches calling for further investigation rather than a set of fully tested conclusions, little harm and much good may result" (26).[4] The U-curve, however, was quickly appropriated by practitioners who were much less cautious, an academic process of which Kuznets was well aware:

> The time lag may be long between the establishment of empirical findings and their absorption into a tested theory of reliably invariant patterns . . . But the time lag is short between new findings and their use to enrich the background against which broad current problems are considered. Indeed, the danger is not that such findings will be used for practical purposes, but rather that the results will be eagerly seized upon to yield a spate of hypotheses that claim too much generality, . . . (that) may provide a starting point for distorted use or for unwarranted dogmatic generalizations. (Kuznets, 1961:13)

[4]Kuznets practiced a distinctive and nearly invariant approach to social scientific research. As Lundberg (1984:528) summarizes in his excellent review of Kuznets's scholarship, "The special features of Kuznets's analysis are derived from his attempts to combine quantitative precision with total overview, including thought-provoking speculations on different ways and means to identify secular interconnections."

PART I: THE RISE OF A SOCIOECONOMIC "LAW"

In the first two decades after its publication, the inverted U-curve hypothesis that Kuznets had cautiously warned was based on "95 percent speculation" was transformed into an unproblematic "black box" so widely accepted throughout the social sciences that its existence was seen as a matter of fact, and the processes that created it were considered lawlike. Using the language of Latour and Woolgar (1986), black boxes are established—or ordinary statements turned into universal facts—through the "deletion of modalities" such as those identifying time, context, or other factors that bound statements by particularities. For the U-curve, such modalities were removed within three intersecting discourses that together defined the academic and political consensus in the nascent field of development economics in the 1960s and 1970s: the empirical discourse surrounding newly collected socioeconomic data; the theoretical discourse surrounding dualistic development; and the political discourse surrounding the developmental project writ large.

The U-Curve as an Empirical Regularity

One of the most profound and lasting impacts of Kuznets's article was a new sense of urgency regarding the need to collect and analyze reliable cross-national data on income inequality. Inspired by Kuznets's preliminary research, economists began to move away from conceiving of inequality as the functional distribution between factor shares and started to assemble data on the size distribution of personal income within nations.[5] Kravis (1960), a student of Kuznets's, was the first to apply such data to the U-curve hypothesis. He found a positive (although complex) relationship between income inequality and income per capita, and in general confirmed most of Kuznets's arguments. Oshima (1962), in a study of four Asian countries, then concluded that although changes in income distribution are not a result of economic growth per se, the relationship is indeed curvilinear and explained by the process of dualistic development. Using intersectoral income distribution data collected by Kuznets (1963) himself, Cutright (1967:578) conducted one of the first quantitative inequality studies in sociology and ended by stating that "the economist may be heartened

[5]This movement represents a significant intellectual shift. Although the study of personal income distributions dates back to Pareto and earlier, social scientists prior to Kuznets conceptualized inequality as differentiation between the factors of production more than people or households. In fact, many thought the latter to be an uninteresting if not unimportant social phenomena.

that his interpretation of inequality as a function of the level of economic development also received solid empirical support."

The number of studies addressing Kuznets's hypothesis surged in the 1970s. Scholars affiliated with various international development agencies (primarily the World Bank) began a concerted effort to collect and consolidate significant amounts of national survey data, and the appearance of several large aggregates of cross-national data by the mid-1970s begot substantial amounts of quantitative literature.[6] The cross-sectional (as opposed to longitudinal) character of this early data proved important for evaluations of the U-curve. During this period, in nearly every dataset and for nearly every time period, high-income countries showed the lowest levels of inequality followed by the low-income countries, and the middle-income countries displayed levels of inequality considerably greater than those of the other groups. Thus when levels of economic development were plotted on the horizontal axis against levels of inequality on the vertical, the resultant shape was a clear inverted U with the fitted regression function invariably revealing a negative, statistically significant quadratic term. Although the shortcomings of such data were well known at the time, and although most recognized a degree of scatter around the curve, scholars proceeded to take this place-in-time snapshot and infer that the countries forming the inverted U-shape in cross-section got to these positions by following an inverted U-trajectory of rising then falling inequalities over time. In retrospect, Fei and Ranis (1997:324) describe this tradition of research as "providing verification of the seemingly incontrovertible nature of Kuznets's cross-sectional evidence, accompanied by some plausible, if loose, hypotheses as to its causes."

Major studies of the period include Adelman and Morris (1973, 1978), Ahluwalia (1974, 1976a,b), Chenery and Syrquin (1975), Jain (1975), Paukert (1973), Srinivasan (1977), and Weisskoff (1970). In perhaps the most influential of these papers, Ahluwalia (1976b:38) certifies that "there is strong support for the proposition that relative inequality increases in the early stages of development, with a reversal of this tendency in the later stages." In a rare instance where longitudinal data was available, Fishlow (1972, 1973) found that the Brazilian high-growth "miracle" of the late 1960s and early 1970s was not egalitarian but detrimental to low-income groups. In the late 1970s, Ranis (1977:44) reviewed the assembled empirical

[6]The most prominent datasets to emerge during this era were compiled by Montek Ahluwalia (1974) and Shail Jain (1975) with the World Bank; Oscar Altimir (1974) with the World Bank in conjunction with the Economic Commission for Latin America; Felix Paukert (1973) and Jacques Lecaillon *et al.* (1984) with the International Labour Organization; Malcolm Sawyer (1976) with the OECD; and an independent effort by Irma Adelman and Cynthia Taft Morris (1973).

research and concluded that "it is fair to say that the overwhelming evidence to date points in the direction of an inevitable, and rather severe, conflict between most measures of equity for a given society and its growth performance."

The U-Curve as an Implicit Assumption

While the U-curve emerged as an empirical regularity in the early cross-national literature, plenty of seemingly confirmed ideas do not ascend to lawlike status; that is, they do not become closed black boxes. As Yonay (1998:20) explains, it is not enough for a contribution to be recognized as "valid" and then set aside; it must "become part of a larger apparatus which can be used regularly without need to justify (its) use." For the U-curve, the larger apparatus was the academic and political consensus that defined the postwar developmentalist regime from the 1950s to the 1970s.

Much has been written from various perspectives on the research and politics of the formative period of development economics following World War II (Datta, 1986; Escobar, 1995; Hunt, 1989; Leys, 1996; Meier and Seers, 1984; Sachs, 1976). Nearly all agree, however, to the high degree of paradigmatic consensus that defined the period. Newly identified "development economists" combined a strong practical orientation with real optimism that intellectual efforts to understand the "vicious circle of poverty" (as Nurkse (1953) famously stated the problem) would translate into theoretically informed, state-led planning that would yield rapid results. As Martin (1991:27) recalls, by the end of the 1950s "something like a mainstream theory of Economic Development had emerged," a set of propositions and a common logic of approach emanating from England and the United States, rooted in classical traditions, that equated "development" with rising output growth, agrarian transition, and industrialization.

Hunt (1989:86) calls the early development consensus the "paradigm of the expanding capitalist nucleus," because at the time nearly everyone agreed that the initial goal for poor countries seeking to jump-start the process of industrialization was to nurture a class of investors that could slowly accumulate capital and transfer underutilized labor out of agriculture into industry. At the discursive core of this paradigm was agrarian transformation based on the concept of the dual economy, best exemplified by Arthur Lewis's (1954, 1958) highly influential "surplus labor model." Dualism referred to the asymmetrical coexistence of (and conflict between) a "modern" (somewhat industrialized) sector with a "backward" (mostly agricultural) sector. According to Escobar (1995:78), the concept of dualism "pervaded the development view of most economists and international organizations for several decades."

In Lewis's model, later elaborated mathematically by Fei and Ranis (1964), industrial production slowly expands on the basis of agricultural surplus available as wage goods and unlimited "surplus labor" drawn from the countryside. The key ingredient in this process, emphasized by Nurkse (1953), Lewis (1954), and many others, was the role of savings and specifically its relative contribution to national product. As Lewis (1954) explains,

> The central problem in the theory of economic development is how to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income or less, converts itself into an economy where voluntary saving is running at 12 to 15 percent of national income or more.

The emphasis on savings in the dualistic framework proved important for the ascendence of the U-curve because it implied a necessary link in the early stages of development between the goal of rapid capital accumulation and the need to (re)distribute income to those who can best save and invest. This "growth–equity tradeoff" is one of the oldest tenets in economics, and it proved to be a central idea in the early development consensus. Development scholars held a fundamental belief in the classical presumption that, since wages are fully spent on consumption, the savings rate of workers is always assumed to be zero. Kalecki's (1942) aphorism tersely articulated the idea: "Workers spend what they earn and capitalists earn what they spend." Since only capitalists save and invest (at least to a significant degree), economic growth requires a change in the class distribution of control over these resources; hence, the wealth-generating advantages of inequality are not only to be expected, but inequality is actually seen as a necessary precondition to growth (indeed, this was one of the reasons Kuznets expressed surprise at his initial findings). Inequality's role in the development process is explained quite clearly by Lewis (1954): "We are not interested in the people in general, but only say in the 10 percent of them with the largest incomes . . . the remaining 90 percent of the people never manage to save a significant fraction of their income. . . . The central fact of economic development is that the distribution of incomes is altered in favor of the saving class."

While the growth–equity tradeoff Kuznets discovered was theoretically built into the structure of early models of development, empirical research at the time also seemed to confirm the intersectoral assumptions of Kuznets's model; thus, it became an intuitive belief that the existence of the inverted U-curve could be explained by the problems inherent in dualistic development. Weisskoff (1970) and Swamy (1967), for example, showed that inequality in low-income countries is generally greater in the industrial sector than in the agricultural sector. Adelman and Morris (1973) also confirmed that economic growth usually proceeds in a dualistic

fashion—growth in the industrial sector was found to be more rapid than growth in the agricultural sector. These two factors combined with rapid population growth, and rural-to-urban migration, ensure that, *ceteris paribus*, national income becomes more concentrated in the early stages of development and more equally distributed later on. Robinson (1976:437) derived the U-curve from a simple, two-sector econometric specification and concluded that the hypothesis is a "*necessary implication* of the workings of such models" (emphasis added).

Combined with such overwhelming empirical support, Kuznets's hypothesis thus provided an eloquent and coherent synthesis of the analytical and theoretical consensuses that defined the field of development economics in the 1960s and 1970s. It afforded an empirically grounded model of the prevailing expectation that intersectoral inequalities must rise as surplus labor moves from the country to the city, and may only be mitigated in an advanced stage of development when the modern sector becomes large enough to continue generating capital as wages simultaneously start to rise (i.e., after the labor surplus process runs its course). The U-curve demonstrated the inevitable results of dualistic development working in practice, and the hypothesis can be seen as an important corollary to this theoretical construct. Some argue that the theoretical consensus and the U-curve to which it fit combined to form a sort of self-fulfilling developmental prophecy, as Datta explains:

> The Kuznets inverted U hypothesis can be derived from the Lewis model and hence, undermining the inverted U hypothesis also undermines the Lewis model... Neither in its original elaboration nor in its prevalent implementation has the Lewis model been different in spirit or approach from the perception of the Kuznets hypothesis, so much so that in writing a critical survey Ranis (1977) himself lumped Kuznets and Lewis together in his paper. (Datta, 1986:18)

As a result of its paradigmatic "fit" within the larger apparatus of the developmental consensus, the inverted U-curve ascended in status until, as Srinivasan (1977) and Robinson (1976:437) state, it had "acquired the force of economic law." By the end of the 1970s, the inverted U-curve process was universally considered a general statement of the historical and universal relationship between income inequality and economic growth. As early as 1974, Ahluwalia (1974:17) refers to the inverted U-pattern as "a characteristic of the development process affecting underdeveloped countries." Frank and Webb (1977:10) call the hypothesis a "natural effect" caused by dualistic development and reinforced by government policy. In an influential and widely cited review of the distribution and development literature in which they call the U-curve a "stylized fact," Adelman and Robinson (1989:960) write, "The initial decline in the share of income of the poor is inevitable and arises through the introduction of a small high-income

island in a large low-income sea;... overall the tendency is for inequality to increase for a considerable time." It is during this time that the scope of the U-curve's stature spreads from development economics to widespread recognition across the social sciences. In sociology and political science, as well as economics, scholars stopped testing for the presence of the U-curve and began to debate the relative weight of different independent variables involved in its persistence in cross-sectional data.

The U-Curve as Political Affirmation

The transformation of the U-curve into a universal "black box" entailed a third intersecting discourse in which the U-curve became an important political metaphor in the historically radical and revolutionary idea that the rich countries of the world could and would facilitate "developing" the former colonies of the so-called Third World. From the very start of this project in the 1940s, the concept of development was reduced to growth in income per capita. As discussed above, developmental thinking quickly coalesced around the problems of limited capital accumulation and inefficient labor and capital allocation, and these concerns came to be regarded as *the* problems of development, irrespective of the social, cultural, or political implications involved. Inequality and poverty in this worldview were either ignored, or considered automatic byproducts, "undesirable" certainly, yet necessary preconditions and inevitable outcomes of the successful development process. As Lewis (1976:26) flatly stated, "development must be inegalitarian."

But the worsening of wages and living standards were not somehow peripheral to the models and policies of development practice; indeed, they "belonged to their inner architecture" (Escobar, 1995:80). Within the dualistic framework, it was all too easy to rationalize measures to hold down wages in rural-urban terms of trade in the "efficient" allocation of labor and use of profits. In this sense, the metaphor of the inverted U-curve could be invoked, either explicitly or by unstated intuition, to pacify concerns over the detrimental effects of the ideology of economic growth—anything that's wrong with economic growth will eventually go away, all that's needed is more growth.[7]

At the same time, a real (some have said naive) optimism permeated the developmental consensus based on widespread faith in the inherently progressive nature of industrialization. The development community of the

[7]The political message of the inverted U-curve metaphor lives on in the various "U-curves" in existence today, including the environmental U-curve and the demographic transition U-curve to name two.

1950s and 1960s expected quick success, and scholars and policymakers sketched optimistic pictures of steady progress from underdevelopment toward advanced, industrial capitalism. Kuznets's hypothesis presented the calculated message that the growth process itself was eventually equalizing. Thus high-growth polices antithetical, or at least ambivalent, toward equality would not condemn society to accepting current inequalities forever—the institutional and political changes inherent in "the dynamism of a growing and free economic society" would eventually prove to be egalitarian (Kuznets, 1955:9). A common practice in the empirical articles cited above, for example, involved solving the quadratic equations yielding the inverted U-curve shape to obtain "turning points" indicating when in fact these changes could be expected. As Kuznets (1955:17) himself remarked, "Much is to be said for the notion that once the early turbulent phases of industrialization and urbanization had passed, a variety of forces converged to bolster the economic position of the lower-income group within the urban population."

Thus, beyond the unquestionable impact of the U-curve hypothesis in the academy, its largely unqualified acceptance was also grounded in the politics of the international policy arena. During this period, development scholars regularly worked for international organizations such as the United Nations and World Bank and often advised industrializing governments directly, exerting "enormous influence upon the development discourse . . . and therefore on development in practice" (FitzGerald, 1991:16).

PART II: THE OPENING OF A BLACK BOX

The unanimity surrounding the U-curve hypothesis began to face a wide challenge in the 1980s. By the end of the decade, the interpretation of the U-curve turned from being generally regarded as an "iron law of development" to a contentious hypothesis associated with contradictory findings and ambiguous conclusions. At first glance, this transition might seem like an apt description of the sort of scientific revolutions Kuhn (1962) described—routinized puzzle-solving leading to the discovery of empirical anomalies that could not be explained within the U-curve framework. But the reinstatement of modalities that were previously considered deleted—the transition of an unproblematic black box into a limited statement dependent on particular contexts—needs to be preceded by the deconstruction of the wider apparatus within which the black box was seen as an essential foundation. In the case of the U-curve, this process was accomplished through the very un-Kuhnian counterrevolution in development economics that by the end of the 1980s left the field in complete ruins.

A Paradigm Destroyed

During the 1970s, the sociopolitical climate surrounding development academics and policymaking was being completely transformed from the one that emerged during the formative period. As Leys (1996:20) characterizes the shifting times, "The world in which Keynesian policy making—and its offshoots, development economics and development theory—made sense had changed fundamentally." During this decade, the developmentalist project began to draw fire from all political directions for two reasons. First, it became increasingly clear that the identification of social progress with economic growth was not solving the long-standing problems of inequality and poverty as the early developmental models had predicted. Fishlow's (1972, 1973) celebrated finding that the Brazilian high-growth "miracle" was inegalitarian to such an extent that the poor (and especially the rural poor) had become worse off despite rapid growth, was followed by Bardham's (1973) study, which found the same effect in India. Second, a series of political disasters occurred in the Third World, ranging from civil wars in Africa to the spread of violent military dictatorships throughout Latin America, and these were taken to be, in the words of one development pioneer, "clearly *somehow* connected with the stresses and strains accompanying development and 'modernization' " (Hirschman, 1981:23). In short, developmentalism was not working, and by the end of the 1970s the postwar doctrine of Third World development was being both "destroyed" (Martin, 1991:52) from within and "radically redefined" (Arrighi and Silver, 2000:24) from outside.

The initial response within the development community was not to abandon the field but, ironically, to enlarge it through internal self-critique. The meaning of development was expanded to include new objectives such as social welfare, environmental protection, and women's rights, and in the early 1970s the Robert McNamara administration introduced a poverty agenda at the World Bank. According to this new approach no tradeoff was necessary between the goals of output growth and worsening social conditions such as inequality; the fruits of growth, it was now thought, could be better distributed without effecting future economic performance. In 1974, Hollis Chenery and his associates at the World Bank wrote *Redistribution with Growth*, a seminal culmination of work under the new World Bank approach that ultimately "changed the course of development thinking" (Bruno and Pleskovic, 1996:2). Chenery and his colleagues attempted to refocus the field on the need to allocate a greater share of investment gains into forms that would benefit the poorest groups in society.

But, as Korzeniewicz and Smith (2000:30) explain, "No clear and generally accepted framework had been established as yet for these concerns;

. . . the Bank's staff was only weakly committed to the McNamara agenda, and even the institution's knowledge about poverty, inequality, and possible policies was limited." Thus, despite internal reevaluations within the development orthodoxy, the black box of the inverted U-curve remained closed. The theoretical framework underlying *Redistribution with Growth* was not so much a refutation of the "iron law," but a tacit acceptance of it. Since income distribution shows a natural tendency toward increased polarization in the first stages of development, Chenery's group was left to argue that policy could make a difference in speeding the Kuznets process along (Bourguignon, 1996; Fishlow, 1996). In a separate series of papers by Montek Ahluwalia and others at the World Bank (1974, 1976a,b; Ahluwalia *et al.*, 1979), often reprinted and widely cited throughout the field, the U-curve hypothesis was still understood to be a central construct. Regarding the policy implications of this series, Anand and Kanbur (1993b:20) say, "In an influential literature, these have become influential papers." Based on this research, the World Bank adopted the inverted U-relationship in the late 1970s and early 1980s to make projections of inequality and poverty to the year 2000, and published these forecasts in the 1978, 1979, and 1980 *World Development Reports* (Anand and Kanbur, 1993b).

Lacking the means for effective implementation as well as experiencing "opposition to its aims by a broad range of actors," the McNamara agenda was rapidly dropped in subsequent World Bank administrations (Korzeniewicz and Smith, 2000:31). Worse still, the very concept of development as an intellectual and political project was in deep crisis. The field faced not only increasingly vocal criticisms from the old guard (Bhagwati, 1989; Lewis, 1984; Sen, 1983; Stern, 1989; and the various contributions in Meier and Seers, 1984), but also caustic attacks from professed critics with titles such as *The Poverty of "Development Economics"* (Lal, 1985), and *Development Economics on Trial* (Hill, 1986). While some were characterizing the field as being merely at an "impasse" (Booth, 1985; Schuurman, 1993; Sklair, 1988; Vandergeest and Buttell, 1988), others, including prominent former pioneers, were writing obituaries of the developmental project (Hirschman, 1981; Seers, 1979). In short, the old consensus was "witnessing its progressive dissolution" (Escobar, 1995:94). What came to be known as "dependancy" and "world-systems" perspectives provided alternative conceptualizations of the problems (and possibilities) of national development and industrialization, and became penetrating critiques of mainstream development orthodoxy. The field was growing cognitively fractured and increasingly controversial, and "development" was becoming "a shapeless, amoeba-like word" (Sachs, 1990:109).

It was against this backdrop that the neoliberal counterrevolution in the 1980s effectively ended internal efforts to recast the developmental

project in what became a motivated destruction of all that the developmental regime had come to be (Arrighi and Silver, 2000; Leys, 1996; Toye, 1993). As Arrighi and Silver (2000:21) argue, "This was no Kuhnian scientific revolution. It was a strictly political counterrevolution." Just as the birth of development in the 1940s did not result from a natural process of scientific advancements, neither was its death hastened by theoretical, institutional, or methodological "progress" that somehow uncovered problems and eventually dealt with them. Both were radical, political responses by powerful actors in the capitalist world-economy. By the end of the decade, the research and practice of development economics quickly went "from promised land to wasteland" (Arrighi and Silver, 2000:11), until the field became "a ruin in the intellectual landscape" (Sachs, 1990:2), a "mined, unexplorable land" (Esteva, 1992:22).

The origins and processes involved in the neoliberal counterrevolution, and the consequent collapse of the postwar development regime, have not been the subject of much scholarly inquiry, and the full explanation is obviously beyond the range of this study.[8] Scholars have largely focused on the effects of the transformation, and for our more limited purposes here it is enough to analyze how changes in the broader apparatus in which the U-curve previously fit (in this case the complete rejection of the apparatus) produced changes in the way the U-curve was interpreted in theory and applied in practice. The developmental paradigm that emerged in the postwar period had formed, as Escobar (1995:40) describes, a "system that allowed the systematic creation of objects, concepts, and strategies . . . [and] defined the conditions under which objects, concepts, theories, and strategies can be incorporated into the discourse." The counterrevolution destroyed this system, allowing for the reinterpretation of its component parts—the opening of previously closed black boxes.

Questioning an Empirical Regularity

Beginning in the 1980s, scholars began finding difficulties with the overwhelming empirical support the U-curve received in the 1960s and

[8]There have been a few attempts to explain the counterrevolution. Arrighi and Silver (2000) attribute the events to a concerted political movement, led by a radical change in United States military and financial policies, to respond to the hegemonic crisis of the 1970s and (re)consolidate the established hierarchy of global wealth. Cockett (1995) emphasizes the role of a handful of economists in slowly developing neoliberal/anti-Keynesian doctrine until material forces (similar to those emphasized by Arrighi and Silver, 2000) changed in their direction. Similarly Sklair (1997:524) argues that the counterrevolution was a "social movement *for* capitalism" led by a "transnational capitalist class."

1970s. This empirical incrimination was based on two interrelated critiques that combined to reveal the U-curve to be a sort of "empirical mirage"—a self-contradictory pattern often visible in cross-section (and with certain data and methods) while simultaneously disappearing longitudinally (or with other data and methods). One line of argument focused on the reliability of the cross-sectional data itself in light of wide intercountry variation in data-collection methods, and possible measurement errors resulting from systematic reporting biases (e.g., Gagliani, 1987; Nugent, 1983). As a group, the inequality estimates assembled in the 1970s were associated with large inconsistencies in variable definitions and collection techniques rendering comparability between countries (and often within countries over time) suspect at best. Plagued by severe limitations in the documentation of secondary sources and accuracy of the data, inequality estimates were often extrapolated from informed guesses based on national accounts, or established using surveys conducted on nonrepresentative subsets of the national population (e.g., taxpayers, or urban residents only). On many occasions, it was not altogether clear who conducted the original survey or how it was actually administered.[9] Saith (1983:367) used Ahluwalia's (1974) material to argue that the inverted U-curve has only been confirmed because of statistical difficulties, noting that "even marginal variations" in available datasets lead to the "virtual disappearance" of the inverted U-curve. Fields (1984a) conducted a similar reevaluation using Paukert's (1973) data, and again voiced considerable doubt concerning the commonality of the U-curve findings.

Another critical track concerned the use of cross-sectional research designs to infer longitudinal patterns of change. Primarily because historical information was lacking, empirical research following Kuznets relied on relatively simple, cross-sectional methods that entailed "(1) measuring the degree of inequality in each (country), (2) measuring other characteristics of each country (e.g., level of GNP, rate of growth, importance of agriculture in total product, etc.), and (3) relating the level of inequality to that economy's characteristics, using correlation or regression analysis" (Fields, 1980:59). The idea was to take these place-in-time snapshots, almost always depicting an inverted U growth-equity pattern, and infer that the countries

[9]Over time these datasets grew into jumbled configurations of different types of aggregated estimates. Important definitional differences became blurred or forgotten to the point of rendering the data virtually incomparable across (and often within) countries. For example, Paukert's (1973:124) widely used dataset is based on a compilation of 44 countries produced by Adelman and Morris "as set forth in various papers by these authors." He then deletes four countries in which data were "so bad that they were unsuitable," replaces 3 countries with "superior data from other sources," and adds information for 19 countries from new sources.

forming the curvilinear shape in time t_v got to these positions by following the path of the U-curve from some time t_0.[10]

These procedures came under heavy criticism in the 1980s and in time became the target of one of the most damaging critiques of the U-curve hypothesis (Datta, 1986; Fields, 1980, 1984a; Gagliani, 1987; Papanek, 1978; Saith, 1983; Stewart, 1978; Sundrum, 1990). The argument was that while an inverted U-curve might accurately describe the growth–equity trajectory of the three nations included in Kuznets's longitudinal analysis, and even though such a curve might also be observed in cross-sectional data, the actual path of change for most countries might not be accurately represented by the U-curve model. As Gagliani (1987:323) explains, "The available cross-sectional scatter might perfectly fit an increasing 45° line while each country is silently moving along a 45° decreasing one." Or as Tilly (1984:35) argues more broadly, "There is no logical connection between the sequence of change . . . followed by individual countries and the differences that show up in cross-section."

Some maintained that the U-curve represented cross-regional (as opposed to cross-national) variation in inequality structures, arguing that the U-curve is little more than a depiction of averages among groups of similarly developed countries (Fields, 1980). Papanek (1978:265) recognized that, instead of curvilinear shape existing across the entire sample, "there are probably four groups of countries with differences in average income per capita and inequality, which may permit in cross-country analysis an inverted U form to be imposed upon the data." Papanek's four groupings were developed nations, Eastern Europe, raw material exporters, and other LDCs, but this observation also applies to clusters of nations grouped by geographic region and/or by similar institutional arrangements (see, for example, Fields, 1984b; Papanek and Kyn, 1987; Sundrum, 1990). Lecaillon *et al.* (1984) further observed that small variations in sample composition, or minor adjustments to individual observations, can make the U-curve statistically disappear.

Given the purposes of this study, it is interesting to note that these empirical critiques were well known yet overlooked in the decades in which the U-curve gained ascendence. Researchers often recognized the seemingly random and insignificant nature of the growth–equity relationship, especially within the left-hand portion of the U-curve pattern. Ahluwalia's (1974) contribution to *Redistribution with Growth*, for example, analyzes 13 developing countries in the 1960s and finds that as many countries

[10] Previous scholars were working within a well-established practice pioneered at Harvard that drew longitudinal inferences about dynamic growth processes from joint estimates that integrated limited time-series information with cross-section data (see Chenery, 1960; Chenery and Syrquin, 1975; Chenery and Taylor, 1968).

experience declining inequality (6) as rising, with 1 showing no change. He then concludes (1974:13) that, "the scatter suggests considerable diversity of country experience in terms of change in relative equality . . . [and] there is no strong pattern relating changes in the distribution of income to the growth of GNP." Moreover, the relationship between cross-section and time-series patterns has long been debated (with broader implications than testing the U-curve (see, for example, Kuh and Meyer, 1957), and these debates were also well known to researchers of the 1960s and 1970s. They knew the limitations of cross-national data, as Srinivasan (1977) states in his study: "There are well-known difficulties with interpreting and projecting a cross-sectional relationship over time." Kuznets himself warned in the late 1960s:

> The value of such (cross-section) evidence for generating some preliminary hunches cannot be denied. But unless innovational changes can somehow be taken onto account in the use of cross-section data proper, use of its results may lead to erroneous inferences concerning past changes in structure in the process of growth. And the same applies, pari passu, to application of cross-section analysis to projections into the future. (Kuznets, 1966:436)

When the black box was being closed, these critiques were overlooked, often mentioned in footnotes and as asides, and modalities surrounding the U-curve continued to be deleted. Not until the social and political climate shifted did these same critiques become accepted; they were moved out of footnotes and into central arguments, and modalities began to be added back on. This suggests, as the constructivist school claims, that the value and meaning of empirical evidence is not objectively given but in some ways is also contingent upon the time-and-place context within which such evidence is being produced and negotiated.

Shifting Theoretical Discourse

Remarkable shifts in the broader social and political context led to intellectual shifts in the ways inequality was being conceptualized, thus bringing changes to the realization of the U-curve and its academic and policy relevance. New debates emerged outside of economics around the relative importance of social and political factors effecting growth–equity processes. Some investigated the impact of differential access to education (e.g., Meyer, 1977; Milner, 1987; Teachman, 1983). A different line of interpretation emphasized the importance of nondemocratic forms of political rule in promoting greater inequality (e.g., Muller, 1985, 1988, 1989; Simpson, 1990; Stewart, 1978). This perspective was challenged by a group of scholars analyzing the impact of democracy on inequality (e.g.,

Bollen and Jackman, 1985; Jackman, 1974; Rubinson and Quinlan, 1977; Weede, 1982; Weede and Tiefenbach, 1981). Still another series of debates developed around the issue of economic dependency and a country's position in the structure of the world-economy. Some argued that the dynamics of "dependent development," most often operationalized as the degree of multinational corporation penetration or the amount of foreign direct investment, promotes inequality in noncore economies (e.g., Bollen and Jackman, 1985; Bornschier, 1983; Bornschier and Ballmer-Cao, 1979; Bornschier and Chase-Dunn, 1985; Chase-Dunn, 1975; Evans and Timberlake, 1980; Rubinson, 1976).[11] World-systems scholars questioned the utility of conceptualizing growth and inequality as a national-level phenomena in the first place, arguing that the axial division of labor between core and peripheral zones of the capitalist world-economy was the key process generating and reproducing inequalities.

In the shifting academic landscape, inequality was no longer conceptualized as a black box simplistically and mechanically generated by growth processes; it was a social problem that itself needed to be theorized. Regarding the interpretation of the U-curve, this opened to question more specifically the twin metaphors of the U-curve argument as developed in the previous two decades: (1) that a growth–equity tradeoff is economically necessary at low levels of development; and (2) that growth processes eventually reduce this inequality at advanced levels of development.

The first of these theoretical challenges was generated by the discovery of the East Asian development experience. In 1979, Fei *et al.* published their influential volume *Growth with Equity: The Taiwan Case*, a study that raised the lid on what would later be called "the East Asian Miracle" (Birdsall *et al.*, 1995; Findlay and Wellisz, 1993; World Bank, 1993). The development experiences in East Asia were particularly challenging to the U-curve hypothesis. In the last half of the twentieth century, these were the only poor countries actually "developing" to any significant and lasting degree, and they did so via dualistic rural to urban industrialization. Yet the developmental experience of East Asia largely challenged the theoretical assumptions Kuznets made regarding dualistic development and showed why, the U-curve process far from inevitable, could be altogether avoidable.

Underlying Kuznets's original analysis was an important presumption that the industrial sector is the only dynamic sector in the economy. Contrary to what Kuznets (and other scholars of that time) thought, development in East Asia showed that intersectoral transitions could lead to rising

[11] Yet this argument was actively disputed by others (Weede, 1980; Weede and Kummer, 1985; Weede and Tiefenbach, 1981; and later by Crenshaw, 1992; Firebaugh, 1992; and Simpson, 1990).

incomes in the agricultural sector and falling urban–rural inequalities. Fei *et al.* (1979) found the most important contribution to Taiwan's "equity with growth" phenomenon was a more labor-intensive agricultural output mix, combined with a tremendous expansion of rural nonagricultural activities. These factors together disproved Kuznets's assumptions by demonstrating that: (1) A shift from agricultural to nonagricultural activities "does not have to entail a shift from a more equal distribution to a less equal distribution if output mixes and technologies in the nonagricultural sector are becoming increasingly labor-intensive, absorbing the poorest and landless farmers" (Ranis, 1996:51); and (2) income levels in the rural sector could improve with growth (as a consequence of rising productivity and increasing labor-intensive technologies).

What Fei *et al.* (1979) found in Taiwan became increasingly confirmed when the broader "miracle" was analyzed as a more regional phenomenon. In six of the Asian economies experiencing rapid economic growth during the last half of the twentieth century—Indonesia, Japan, Korea, Malaysia, Thailand, and Taiwan—the agricultural sectors were substantial and highly dynamic.[12] Traditionally equitable land ownership patterns (Indonesia and Thailand) or extensive land reform (Korea and Taiwan) allowed for initially equitable rural sectors (Berry and Cline, 1979), while wide adoption of Green Revolution technology, high investments in rural infrastructure, and limited taxation of agriculture meant that rural incomes and productivity rose more rapidly in East Asia than in other regions. As a result, rural incomes actually improved with industrial growth, and urban–rural income differentials were smaller in East Asia than in most other developing economies.[13]

The East Asian experience was not kind to the labor surplus model, nor the concepts of dualistic development and the growth–equity tradeoff upon which it was based. Theoretically, the concept of inequality became inverted. Thinking of inequality as a necessary and unavoidable side-effect of growth gives way to a transposed relationship where initial distribution of assets determines (or is at least a precondition of) future rates of growth. Instead of generating wealth accumulation, as in the dualistic models, inequality is now seen as growth-adverse. Various theories now seek to capture this phenomenon, whether by emphasizing the unequal distribution of

[12] Hong Kong and Singapore are two countries within the "East Asian miracle" that almost entirely lack agricultural sectors.

[13] According to Turnham (1993; reproduced in World Bank, 1993:34), between 1965 and 1988, agricultural incomes grew at an average annual rate of 3.2% in East Asia (compared to 2.4% in South Asia, 2.3% in Latin America, and 1.9% in sub-Saharan Africa), and productivity rose by 2.2% on average annually (compared to 0.6% in South Asia, 1.55% in Latin America, and 0.3% in sub-Saharan Africa).

land, unequal investments in human capital (especially education), or the political and macroeconomic instability generated by conflict over distributional issues.

While the East Asian model fundamentally changed thinking about inequality and dualistic development, a second theoretical challenge came via changing patterns of inequality in the developed world. In what has been called the "great U-turn," long periods of converging incomes in several wealthy nations have ended, giving way to a significant resurgence in inequalities (Atkinson, 1995; Danziger and Gottschalk, 1993; Harrison and Bennett, 1988). While there is some debate on the extent to which this phenomenon extends beyond the United States and Great Britain, the idea that equality could worsen in developed economies undermines the second Kuznets metaphor, that "the dynamism of a growing and free economic society" is fundamentally and unendingly egalitarian.

The theoretical arguments used to explain this effect emphasize shifting patterns in the location and dynamics of industrial production and the terms of international trade. More broadly, so the consensus goes, the dynamics of technological change have resulted in the "deindustrialization" of wealthy countries and the simultaneous rise of a new skill-driven economy in which high-value information and technological services replace high-volume manufacturing as the leading economic sector. This shift in leading sectors has drastically altered the relative demand for and supply of skilled and unskilled workers, generating downward pressures on the wages of the unskilled, while dramatically increasing returns to the skilled, thus creating a newly polarized earnings distribution (Bluestone and Harrison, 1982; Bound and Johnson, 1992; Katz and Autor, 2000).

PART 3: U-CURVE(S) IN THE TWENTY-FIRST CENTURY

> (This) study's findings offer broad support for Kuznets's hypothesis.
>
> —Randolph and Lott (1993)

> The empirical status of the Kuznets hypothesis in . . . multicountry contexts remains unsettled.
>
> —Ram (1997)

> The Kuznets curve is fiction.
>
> —Rodrik (1998)

What are we to make of Kuznets's U-curve hypothesis today? Have 50 years of continuous intellectual attention resulted in any substantive

progress regarding the general applicability of Kuznets's arguments? Obviously such an evaluation depends on one's idea of "progress," yet if value is measured simply by the power of theoretical insights to outlast the social and intellectual contexts in which they arise, Kuznets's hypothesis is certainly one of the most extraordinary statements in the social sciences. As the quotations above signify, contention still exists surrounding the U-curve, illustrating both the lasting intellectual legacy of Kuznets's contribution and the lingering allure of its intellectual and policy interpretations. As described above, shifting interpretive climates opened the U-curve as an unproblematic "black box." Yet the theoretical and empirical scrutiny that resulted did not lead to the abandonment of Kuznets's ideas, but to the creation of many "U-curves." The U-curve now means different things to different communities of scholars, and its status therefore remains contested and relevant across the social sciences.

The continued uncertainty surrounding the U-curve in the academic literature is mirrored by its mixed application in policy circles. In an influential report on inequality in Latin America produced by the Inter-American Development Bank (1998:2), U-curve processes are still presented as "frustrating" necessities on the "tortuous path" of development—that is, until the long-run optimism of the U-curve can be evoked: "It has long been accepted that economic development worsens income distribution, at least in the early stages. . . . After a certain point, the relationship between development and equality is a win–win situation, but until then, results can be frustrating at best." Yet elsewhere the World Bank (2000:15), once a devout adherent of the U-curve, now concedes that "[e]vidence from recent decades has not validated [Kuznets-based theories], and it now appears likely that growth, equality, and reductions in poverty can proceed together."

Finding the Empirical U-Curve

Despite the empirical criticisms in the 1980s, quantitative assessments of Kuznets's hypothesis have continued uninterrupted and undeterred. Notwithstanding the sheer volume of articles addressing the inverted U-curve (or perhaps because of it), researchers continue to produce ambiguous empirical findings and contradictory assessments. Some are continuing the tradition of Fields (1980) and Robinson (1976) by attempting to model the "functional form" of Kuznets's hypothesis, including econometric conditions for a turning point in the inequality–development relationship (Anad and Kanbur, 1993a; Galor and Tsiddon, 1996; Glomm and Ravikumar, 1998; and Ram, 1995). Many more apply various regression techniques

to assorted cross-national samples. Of these, Dovring (1991), IADB (1998), Jha (1996), Randolph and Lott (1993), Milanovic (1994), Nielsen (1994), and Nielsen and Alderson (1995) continue to advocate the existence of the U-curve cross-nationally, while Fishlow (1996), Bourguignon and Morrison (1998), Lantican *et al.* (1996), and Ogwang (1995) offer more cautious or mixed support.

People continue to find empirical support for the U-curve for three reasons. First, no consistent criteria exists for what signifies "support" of the U-curve hypothesis. Is it a squared quadratic term in regression models? Or a statistically significant variable meant to capture dualistic development? Is it any indication that inequality has increased in less-developed countries? Or evidence of an up and then down inequality trajectory in any growth context? For example, Lantican *et al.* (1996) find evidence for the U-curve in urban but not rural areas, and in primary but not secondary school enrollment. Bigsten (1986) finds inequality rising then falling in Kenya, before again rising then falling.

The second source of empirical support, initially explained by Fields (1980) and recently reconfirmed by Anand and Kanbur (1993b), is that quantitative specifications employed to test the hypothesis (including data sources, sample composition, time period, accompanying independent variables, and regression techniques) determine the findings. The inverted U-curve relationship is inconsistent with respect to econometric specification, and statistically significant U-curve-related parameter estimates can still be derived in various cross-national samples. For example Ogwang's (1995) support for the U-curve varies by both the inequality and development indicators used. Deininger and Squire (1996:571) conclude that analyses of past aggregations of data, where comparisons are made without regard to consistent definitions, "could lead to virtually any type of growth-equity pattern." Examples of this effect in the U-curve literature include the appearance of large decreases in inequality in Kenya (Bigsten, 1986) and the presence of a U-curve effect in Malaysia (Meesook, 1975) and Korea (Kwack, 1990).

Lastly, much as in the old datasets, the latest data continues to illustrate an inverted U growth–equity pattern in cross-section—current inequality levels are usually lower at higher levels of income and higher inequalities are more prevalent in Latin America and other parts of the middle-income range. The persistence of the cross-national U-curve can be attributed to the various latent, country-level determinants of inequality (including historical inequality levels) that are significantly correlated with current income levels. Thus, authors have made the cross-sectional U-curve "disappear," or at least become less robust, in econometric models by simply including country-level "fixed effects" (Anand and Kanbur, 1993b; Bruno *et al.*, 1998;

Deininger and Squire, 1998; Ram, 1997).[14] In studies where country-specific dummy variables are added to models, the U-curve not only goes away, but in some cases is even reversed. Higgins and Williamson (1999:10) seem to agree with this line of interpretation, stating that over time "the Kuznets curve disappeared (from cross-section) when dummy variables for Asia and Latin America were added."

Yet while different econometric approaches and methodological specifications can lend various levels of support to the hypothesis as variously defined, the overwhelming empirical evidence today does not point to the existence of a meaningful inverted U-curve pattern either in terms of a by-product of dualistic development or simply a picture of rising then falling inequalities over time (Anad and Kanbur, 1993b; Bruno *et al.*, 1998; Deininger and Squire, 1996, 1998; Kim, 1997; Li *et al.*, 1998; Lipton, 1997; Ram, 1997; Ravallion, 1995). In terms of empirical generality, the most robust finding emerging from today's quantitative literature is that no systematic relationship exists between average income levels and/or subsequent growth and income inequality, either for nations on average or even within aggregated income groupings. As opposed to following a predictable pattern, trends in the contemporary world are characterized by tremendous heterogeneity of growth–equity experience. Deininger and Squire (1998:261, 282) review their comprehensive database of inequality estimates and conclude that in the few countries where a significant linear trend in inequality can be detected, "it contradicts the Kuznets hypothesis almost as often as confirming it." In a recent *New York Times* article, Gary Fields states the prevailing view that "the Kuznets's curve is neither a law nor even a central tendency.[15] The pattern is that there is no pattern" (Krueger, 2002). In sum, the U-curve as a contemporary empirical and policy heuristic is best characterized by Gustav Ranis (1996:50), who declares, "As I read the evidence, it suggests that it is time to give a decent burial to that famous 'law,' which was actually advanced not by Kuznets, who was much too cautious, but by Kuznetsians, who were not."

The U-Curve as a Theoretical–Historical Statement

As Ranis implies, Kuznets's formulation of the U-curve hypothesis was always more historically grounded, sociologically sophisticated,

[14] This is accomplished via a series of country-specific dummy variables added to the traditional quadratic model. The argument is that these dummy variables, while preserving the common Kuznets structure, allow inequality to differ across countries that are at the same level of development.

[15] Of course, the fact that the inverted U-curve is being discussed in the *New York Times* in 2002 is itself a testament to the uncommon impact of Kuznets's hypothesis over time.

and intellectually cautious than is generally appreciated. And refuting the U-curve as a predictable pattern does not mean that Kuznets's original contribution is not rich with theoretical insight. As inequality reemerges in the social sciences as an important social problem, the analytical value of the U-curve lies more in its theoretical constructs than its empirical expectations. For example, the cases of Korea and Thailand provide evidence that political mobilization of the urban working class may have proceeded along patterns similar to those Kuznets would have predicted (albeit at a much faster rate). Conceiçao and Galbraith (2001:139,160) seek a "macroeconomic alternative" to current inequality literature and use Kuznets-type methods to explain rising inequality in the developed world, in the end hoping for a "renewed appreciation of the depth and durability of Simon Kuznets's fundamental insight." Stallings *et al.* (2000) compare the East Asian and Latin American growth–equity experiences and argue that the central contrast can be explained by the nature of the urbanization and industrialization process emphasized by Kuznets. Along these lines, Korzeniewicz and Moran (2005) recast Kuznets's original contribution within a Schumpeterian framework and explore how the fundamental insights of his research help explain world–historical patterns of inequality. As Stallings *et al.* (2000:106) argue, "Kuznets, indeed, may have had the economics of the story right even though empirical outcomes across regions and countries and within countries over time follow no neat pattern."

Recent historical research has also vindicated Kuznets's insights about the long-term egalitarian effects of industrialization, especially in the United States and Great Britain. Economic historians researching the historical dynamic of the U-curve from the eighteenth century onward have found Kuznets's hypothesized patterns to be reasonably accurate. The most notable work in this area has been conducted by Jeffrey Williamson (199la,b, 1997) and Lindert and Williamson (1985). Analyzing the best available historical data on inequality in Great Britain and the United States, they find strong validation for the descending arc of the U-curve, and some (admittedly more fragile) evidence for the early upswing. More broadly, they find that, with the possible exception of Germany, there is a clear trend toward converging incomes in the twentieth century for a large number of industrialized countries.[16]

As Williamson (1991a:34) is quick to point out, however, "no unambiguous theory of the Kuznets Curve emerges from . . . history." The historical evidence is admittedly fragile, and even where Kuznets-type curves

[16]Note, however, that while Williamson finds support for Kuznets curves, he does not fully support Kuznets's explanation of why they exist. While his basic model has much in common with Kuznets's framework, he tends to downplay the social–political factors that Kuznets argued would account for the long-run egalitarian tendency.

are found, Kuznetsian processes often are not. Söderberg (1991), for example, shows that the U-curve does apply in principle to the Swedish case, yet attributes the pattern to the role of inflation rather than sectoral imbalances. Dumke (1991) similarly argues for a German U-curve pattern, but his explanation is rooted in the processes of urbanization. Economic historians analyzing other parts of the world have found non-U-curve patterns. Japan, for example, is often cited as having missed the inverted U-curve altogether during its process of industrialization. Minami (1998:39) suggests that "the relatively equal distribution in contemporary Japan was not a natural consequence of [historical] economic growth." Thomas (1991) argues that industrialization in the Australian context was not associated with an early upswing in inequality but with a continuous egalitarian trend.

From a historical perspective, then, the central finding is that time and space matter, a contextualization Kuznets himself made all along. The inverted U-curve is probably a somewhat accurate representation of the development–inequality trajectory for the Anglo American industrial revolutions in the early nineteenth and twentieth centuries. But Kuznets always insisted that his was a historically bonded conclusion, not a forecast that the general pattern will be present wherever industrialization processes occur, or whenever they take place. As Williamson (1991b:60) argues, "Lavish attention to the Kuznets curve has tended to deflect our attention away from assessing the distributional impact of each country's idiosyncratic policies and institutions . . . [that account] for historical departures from the Kuznets curve. The issue is not so much whether the Kuznets curve exists in history, but rather to understand the forces which account for its presence *or* absence."

CONCLUSION: IMPLICATIONS FOR THE SOCIOLOGY OF SOCIAL-SCIENTIFIC KNOWLEDGE

In the preceding pages, I analyze the history of an extraordinary social scientific argument, and one of the most influential statements on inequality ever made—Simon Kuznets's inverted U-curve hypothesis. The history of Kuznets's theory is one of shifting interpretations and appropriations through time, demonstrating along the way how the applicability of a set of arguments changed with the social and political contexts in which inequality was conceptualized. A set of conjectures that the author himself claimed were based on "95% speculation" became a reified socioeconomic law, a closed "black box," at a time when the U-curve provided an aesthetically elegant, empirically grounded synthesis of the broad academic and policy consensus that prevailed in the developmentalist era. As such,

the U-curve became a foundation statement in this consensus as an empirical, theoretical, and political statement of fact. A widely accepted argument then became contentious, and its existence was paradoxically challenged by the very evidence previously used to support it, when this larger apparatus was destroyed. In a climate of intellectual fragmentation and critical empirical inquiry, the black box was opened. But what emerged was not a meaningless, discredited theory, but many versions of the "U-curve," each interpreted to mean something different than the others. That the U-curve is still vigorously debated and relevant today reflects not only the power of old black boxes to remain compelling, but also the theoretical and methodological richness of Kuznets's original study.

The history of the U-curve hypothesis has implications for those interested in the construction and progression of social-scientific knowledge. Although, as Randall Collins comments in the preface to Fuchs's book (1992:xv), the sociology of science has been "in flux" since the 1990s, two general frameworks have emerged in the discipline: those imposing a Kuhn-based approach and those considering the constructionist aspects of knowledge creation. During the 1960s and 1970s, Kuhn's (1962) model was certainly in vogue, and social scientists began to incorporate his ideas despite his explicit statement that social science had not reached the stage of paradigmatic science. Hall (1993), for example, contends that Britain's "policy paradigm" transformation under Thatcher occurred through a process of "puzzling out" and policy experimentation that went on until it precipitated "a shift in the locus of authority over policy and initiate[d] a wider contest between competing paradigms" (Hall, 1993:280). Hall's analogy to the Kuhnian model has been widely cited but, as Babb (2001:3) contends, it begs an important question: "[I]f neoliberalism 'works' so well, why was it not implemented forty years before?"

This is precisely the point of departure for the second general approach, one which emphasizes the social construction of knowledge. As Yonay (1998:18) explains, the goal is "not to show how 'good' theories win, but to document how the view of what is 'good' is being constituted and then used to resolve debates about Nature." Scholars in this tradition contend that the old debate between the internalists and externalists in the study of science is obsolete because the elements involved never appear as "purely internal" or "purely external." They do not deny the role of objectively gained empirical evidence, or that there can be good and bad arguments, but they understand these processes to be contingent. The rise and fall of the inverted U-curve hypothesis favors a constructionist reading of the history. In the end, the conceptualization of the U-curve over time was as much a product of the larger academic and political climates as it was a product of the original ideas themselves or the empirical "puzzling out" of evidence.

Thus far, most constructivist research has concerned the "micro" workings of scientific research—historical studies and ethnographic observations of the struggles among working scientists that draw attention to the social processes that shape the content of their work (see Knorr-Cetina, 1991, Latour, 1987; the contributions in Pickering, 1992). Yet the story of the U-curve supports recent efforts to expand the constructionist approach from one that focuses on micro-level analyses within the scientific community to one that better understands the sociology of *social*-scientific knowledge where outcomes must be explained by wider social and political factors that historically condition its production. This approach would seek to problematize both sides of this two-way street: the mechanisms by which social–political contexts affect the production of social-scientific knowledge and the ways in which this knowledge is simultaneously appropriated and interpreted in social–political contexts. Indeed, this is a weighty intellectual task, but it is in this sense that the vein of recent research carried out, for example, by Babbs (2001), Escobar (1995), Rueschemeyer and Skocpol (1996), and Yonay (1998) should become more commonplace.

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