Contents lists available at SciVerse ScienceDirect

Economic Systems

Income inequality in the U.S.: The Kuznets hypothesis revisited

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A B S T R A C T

Using annual data from 1919 to 2002, the structural transformation hypothesis proposed by Simon Kuznets helps explain the U-shape of U.S. top 1% or 0.01% income share distributions. Flexible autoregressive lag representations are employed and generalized methods of moments reinforce our results. First, as the employment share in goods producing activities falls, income inequality increases in the long run. Second, federal top taxation has only shortterm negative impacts. Third, these major results hold to business cycle controls (linear time trend and real output fluctuations) and to robustness checks of structural changes documented for the U.S. economy around the late 1970s.

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1. Introduction

A strong U-shape pattern of the top income share of highest income individuals has been documented for the U.S. in the long run. Fig. 1 displays the well known U-shape of the top 1% income share in the U.S. (percentile 99 or P99) together with the 0.01% income share in the U.S. (percentile 99.99 or P9999). The series come from Piketty and Saez (2003) and suggest that income concentration at the top increases in the 1920s, drops during WWII, and then starts to rise again in the 1980s. As one can see from the figure, the top 1% highest income individuals held about 16% of income in the U.S. in

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1919 *and* in 2002! Similarly, the top 0.01% highest income individuals held about 3.73% of income in the U.S. in 1928 (right before the onset of the Great Depression) *and* 3.44% in 2002![1]

At least two important explanations are possible for the U-shape of Fig. 1. First, the structural transformation of the economy has been directed into more service producing activities, which are usually conducive to more wage disparity than goods producing sectors. Second, the heavy taxation on top wage earners to finance war and large spending government programs is believed to have had an important role in ameliorating income inequality. We explore these two major explanations jointly in this paper, controlling for economic cycles.[2]

In order to address these two issues, we should place them in proper context. On the one hand, early analysis by Kuznets (1955, pp. 7–8) contrasted rural (the sector with lower average income per capita and narrower inequality in the percentage shares) to urban populations and concluded that, other conditions equal, the increasing share of urban population means an increasing share for the more unequal of the two components. The shift of labor from manufacturing into service activities within the recent U.S. economy has been addressed by several authors, including Kuznets (1973) himself.[3]

Theoretical models of the *structural transformation* start with the analysis of two sectors (progressive and stagnant) by Baumol (1967) and include Baumol et al. (1985), Laitner (2000), Kongsamut et al. (2001), Hansen and Prescott (2002), Gollin et al. (2002), Ngai and Pissarides (2007), and Blum (2008). The model by Kongsamut et al. (2001) displays a path of generalized balanced growth combining structural change with Kaldorian "balanced growth" facts. Blum (2008) builds a multi-sector general equilibrium model and finds that changes in the sectoral composition of the economy (from manufacturing to services and other non-tradable sectors) are the most important force behind the widening of the wage gap, accounting for about 60% of the relative increase in wages of skilled workers between 1970 and 1996. Income distribution changes as the new dynamic sector receives more capital than the more sluggish sector.

On the other hand, an overview of the collective research project on income distribution in the long run for over 20 countries for most of the 20th century in Piketty (2005, p. 382) emphasizes the role of progressive taxation in reducing income inequality: "One important conclusion is that the decline in income inequality that took place during the first half of the 20th century was mostly accidental, and does not have much to do with a Kuznets-type process. Top capital incomes

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[1] Smiley (2000, p. 1120) reports a similar pattern using other sources which included earlier periods: "Current estimates suggest that income inequality increased in the antebellum period and reached a 'plateau of high income inequality from the Civil War to 1929.' Inequality seems to have risen from the turn of the century to 1916 and then declined sharply during the First World War. The 1920s brought a new surge of income inequality which, by 1929, pushed inequality to about the 1916 level. From 1929 to 1950, there was a significant decrease in income inequality in the United States followed by a period of relative distributional stability. Thus, 1916 and 1929 appear to have marked peaks in income inequality in the history of the United States" Smiley (2000, p. 1120). As for the reasons for the increase in income inequality from 1923 onwards, Smiley (2000, p. 1126) has it as primarily driven by the booming stock market.

[2] For example, Hoover et al. (2009) use 60 years of U.S. data to consider whether economic upturns have a different impact on income inequality than economic downturns. The impact of GDP per capita on income inequality has been captured by cross-section regressions as reviewed by Frazer (2006) and there may be "reverse causation" arguments as well; see, e.g., Forbes (2000) and Banerjee and Duflo (2003) on the effect of inequality on economic growth. We thus control for the deterministic time trend and real output fluctuations in the empirical work below.

[3] Among the six characteristics of modern economic growth listed by Kuznets (1973) was the high rate of structural transformation of the economy. By that Kuznets (1973) meant not only the "shift away from agriculture to nonagricultural pursuits" but also away from industry to services. Caselli and Coleman (2001) refer to *structural transformation* as something larger than the increase of labor share in service activities. There is not only the well-known secular decline in the weight of farm goods in U.S. output and employment, but the relative price of farm goods is trendless and there is the convergence of U.S.-wide agricultural labor incomes to nonagricultural labor incomes. Explanations include traditional ones, ranging from inelastic income elasticity for farm products to faster TFP growth in farming relative to other sectors. Caselli and Coleman (2001) emphasize the downward shift in the farm-labor supply curve so that the decline in farm employment is consistent with the increase in farm wages. Their approach shows that the same forces driving the structural transformation also lead to regional convergence (the higher growth rate of labor earnings of workers in agriculture than elsewhere).