



The saving–growth–inequality triangle in China

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ABSTRACT

China's fast growth is perceived as a major determinant of its savings glut that contributes to global imbalances, but China's income inequality has been largely overlooked as the economy moves rapidly toward the Kuznets curve peak. This paper provides a new explanation for the complex issue of Chinese saving using a structural vector autoregressive (SVAR) model. We find that China's growth is positively affected by saving but has a limited effect on saving, that inequality mainly has a negative impact on growth but has a positive impact on saving, and that inequality is a stronger factor than growth in explaining high saving. Therefore, inequality must be mitigated to lower the high saving rate in China, and growth will be unaffected by lowering both inequality and saving.

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1. Introduction

China's high aggregate saving rate has become a central issue for global imbalances (Greenspan, 2009), and various explanations have recently emerged for this phenomenon. The first set of explanations points to reform-induced income uncertainty as a motive for precautionary saving (Blanchard and Giavazzi, 2006; Chamon and Prasad, 2010; Meng, 2003). The second set uses the life cycle hypothesis to discuss output growth and population dependency as saving determinants (Chao et al., 2011; Horioka and Wan, 2007; Modigliani and Cao, 2004; Song and Yang, 2010). The third set connects Chinese saving behavior with other possible factors, such as an imperfect financial system, an underdeveloped service sector, an undervalued currency, a low urbanization level, a strong desire for social-status seeking, an imbalanced sex ratio that causes competition for brides via saving, and a powerful policy-led force creating numerous structural distortions (Aziz and Cui, 2007; Guo and N'Diaye, 2010; Jin et al., 2011; Kuijs, 2006; Wei and Zhang, 2011).

China's saving issue is so complex that the extant explanations do not correspond closely with observed evidence. First, the saving rate fell as

life was less secure in the late 1990s, which saw a high tide of economic reforms leading to massive urban layoffs and state subsidy removals (Bonham and Wiemer, 2012). But the saving rate increased when life became more secure after 2003, which witnessed significant progress in social welfare (Wong, 2010). Second, young earners can borrow against future wealth to spread consumption more evenly over their lifetime; thus, higher growth, if anticipated, may lead to lower saving (Carroll et al., 2000). Nonetheless, high saving has been accompanied by sustained fast growth in China. Third, consumer credit or mortgage lending was previously unavailable in China; individuals could not borrow to consume, so they had to save for large purchases. China's financial sector is much better developed today than a few years ago, but the saving rate is still increasing under lessened liquidity constraints (Wei and Zhang, 2011). Fourth, although the income distribution in China recently shifted away from households, their savings have remained high; in some instances, they have even increased (though to a lesser extent compared to the rise in aggregate saving) (Bonham and Wiemer, 2012).

The above inconsistencies between the observed phenomena and available theories have become what economists call the “Chinese saving puzzle” (Chao et al., 2011; Modigliani and Cao, 2004). Something very important is absent from the existing discussion so that there is no satisfactory solution to the “puzzle”. The missing point is China's increasing inequality (Benjamin et al., 2008; Chen et al., 2010; Jones et al., 2003; Wan, 2001; Wu and Perloff, 2004; Yang, 1999). Escalating inequality and fast growth have become economic twins for three decades in China. Although the role of rising inequality in China's savings glut

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has been recognized in opinion editorials, this link is still overlooked in formal studies. China's aggregate saving, although relevant to global imbalances and hinging on inequality, was nearly absent from the literature a few years ago, with only household saving under active study. Our work fills this literature gap by examining the forgotten effect of inequality on aggregate saving in China. We tackle this effect as a potential solution to the "puzzle" while generating some new insights into this issue.

Income inequality has long been an active subject of policy concern and academic research due to its important implications for saving, investment, and growth (Alesina and Rodrik, 1994; Kaldor, 1957; Li and Zou, 2004; Malinen, 2011; Musgrove, 1980; Persson and Tabellini, 1994). However, existing studies are devoted to other economies, and there are no studies of China's inequality–saving–growth nexus similar to ours. Previous analytical and empirical research produced no conclusive or consistent results (Schmidt-Hebbel and Servén, 2000). The recent global crisis has spurred a new wave of research on the effects of inequality (Kumhof et al., 2012). We rely mainly on a quantitative analysis to evaluate whether escalating inequality in China is a main determinant of increasing aggregate saving.

We will not reconcile the previous competing explanations for China's saving spurt; instead, we provide an alternative explanation using a three-variable structural vector autoregressive (SVAR) model with a focus on the effect of inequality on saving. Our dataset spans the period of 1978–2009, which saw massive market reform and widened economic openness. The three endogenous variables in our model are China's saving rate, aggregate output, and the Gini index. The dynamic interactions among these macroeconomic variables merit serious attention. The SVAR model is a suitable technique for studying these interactions because the tremendous reforms that China witnessed in the past three decades of opening-up are difficult to be captured by structural models. We employ various econometric techniques to quantify the dynamic triangular relationships among these three important endogenous variables for China's economy. We also take into account the life cycle hypothesis and the precautionary saving motive by controlling for two variables: population structure and income uncertainty affected by policies.

The remainder of the paper proceeds as follows. Section 2 applies economic theory to China's reality. Section 3 provides the data description. Section 4 presents the econometric results. Section 5 concludes the paper.

2. Model specification

2.1. Channels through which inequality affects saving in China

We identify several potential channels through which inequality may affect saving in China on the basis of certain observational facts. The first channel is the extremely unequal distribution of income in favor of the state sector (including state-owned enterprises (SOEs) and governments at central and local levels) in China. The real wage paid to working-class people is well below their productivity, as evidenced by the drop in the ratio of wage to GDP from a low level of 15.6% in 1978 to an even lower level of 10.7% in 2009 (the U.S. level is at 56.4%). An increasing portion of the national income is captured by the state sector, and much of the state-sector income has been contributing to aggregate saving in China because the consumption propensity is much lower in the state sector than in the household sector. In the state sector, firms usually have no consumption, and unlike its Western counterparts, China's governments interested in capital investment devote only small amounts of revenue for public consumption.

The second channel through which inequality affects saving is a high incidence of "gray income" transformed from public money as China's national income is increasingly concentrated in the hands of public

and corporate officials.² The enormous gray income that officials have seized is well beyond their needs for consumption at any level and in any style, so most of gray income must be saved. In fact, gray income has resulted mostly in private saving, and partly in unproductive investment, luxury spending, and capital flight.³ This type of income, initially distributed to the state sector and later to the household sector, still has little or no effect on consumption because the spending propensities of the officials are not high relative to those of working-class households.

The third channel is unequal access to public consumption and social security. The state sector has captured too much of national income for capital formation, but remains reluctant to provide ordinary people with adequate social security (Zhang, 2007), thus leading to involuntary saving as a substitute for social programs. Moreover, most "public" consumption and "social" security have been enjoyed not by the general public but by the state-sector personnel, enabling these wealthy people to save more because they substitute their private consumption with public consumption and because they face no uncertainty about the future due to their privileged access to social security. This widespread phenomenon partially explains why their saving propensity is extremely high.

The effects of inequality can be clarified further by examining the differences in saving behavior among three social groups in China (Shi, 2010). First, hundreds of millions of poor people in China do not have sufficient money to cover their subsistence consumption.⁴ Thus, they cannot save or contribute to China's high (and rising) saving rate. Second, working-class households lower their consumption spending because they must save for an uncertain future. Third, the top-class public and corporate officials receive a mounting income that is well beyond their current and future needs for any level of consumption; therefore, they will continue to save. It has been recently recognized that rising inequality in China is likely to boost both aggregate and household saving (Gan et al., 2012); thus, studying this phenomenon is a worthwhile task.

2.2. Theoretical discussions on the effect of inequality on saving

Because VAR models are often viewed as an atheoretic approach to economic issues, we base our SVAR model on related economic theories to improve the reliability of empirical results. We will not propose a structural theory with a microeconomic foundation because theoretical models often either resort to restrictive or ad hoc assumptions to avoid intractability in their analysis or end up with ambiguity in their predictions (Li and Zou, 2004). Instead, our paper has an empirical focus on the effect of inequality. We conduct an aggregate macroeconomic analysis to provide theoretical bases for our empirical tests.

² A substantial amount of public money in China has turned into so-called "gray income" for state-sector officials as their personal wealth (CNW, *China News Weekly*, 2010). Gray income equaled 5.4 trillion yuan in 2009, which was well above the central government receipts of 3.59 trillion yuan (1 U.S. dollar is worth 6.35 Chinese yuan). This finding is based on a major project undertaken by an economist, Xiaoru Wang, and his research team. They estimate that China's gray income is almost one-third of its GDP; this income is not included in its official statistics for tax evasion and anti-corruption circumvention. This problem originates from the policy-distorted distribution of national income that has allowed the state sector to seize more than half of the GDP in the form of tax revenues and SOE profits. Additionally, the size of the underground economy in China is estimated to be at least half of its GDP, whereas its U.S. counterpart is 30% (Walker et al., 2004). In fact, no one can measure the various sources of abnormal or illegal income captured by a small number of people, but this huge income certainly contributes greatly to the rise in both inequality and saving in China.

³ For example, China overtook the U.S. a few years ago and will soon catch up with Japan as the world's largest consumer of luxury goods, even if China is still a poor country in terms of income per capita. Chinese spending on various forms of gambling worldwide is approximately US\$ 92.3 billion a year (CEW, *China Economic Weekly*, 2009; Gu and Tam, 2011). Many newly wealthy Chinese are seeking immigration to advanced countries and depositing their wealth abroad.

⁴ According to China's Prime Minister Wen Jiabao (XNA, 2010a,b), approximately 150 million Chinese live below the international poverty line (i.e., US\$ 1 dollar per person per day), 200 million Chinese do not have jobs, and many more are underemployed (i.e., working less than 40 h a week).

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