ADBI Working Paper Series

The People's Republic of China and Global Imbalances from a View of Sectorial Reforms

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No. 393
November 2012

Asian Development Bank Institute

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The authors thank Jacinta Bernadette Rico and Erica Clower for excellent research assistance. Hiro Ito thanks Portland State University for its financial support. Helpful comments by Guonan Ma, Gunther Schnabl, Naoyuki Yoshino, and other conference participants on a presentation given at the conference "Intra-European Imbalances, Global Imbalances, International Banking, and International Financial Stability" on 17–18 September 2012 in Berlin are gratefully acknowledged. The authors accept responsibility for any errors in the paper.

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Suggested citation:

Ito, H. and U. Volz. 2012. The People's Republic of China and Global Imbalances from a View of Sectorial Reforms. ADBI Working Paper 393. Tokyo: Asian Development Bank Institute. Available: http://www.adbi.org/working-paper/2012/11/02/5308.prc.global.imbalances.sectorial.reforms/

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Abstract

This paper examines the impact of sectorial reforms on current account imbalances, with a special focus on the People's Republic of China (PRC). In particular, we investigate to what extent reforms pertaining to the financial sector, social protection, and healthcare may contribute to a rebalancing of the PRC's persistent current account imbalances. Our forecasting results suggest that reforming the financial sector would be a significant contributor to the country's rebalancing with an effect much larger than that of capital account liberalization. Strengthened provisions of social protection and publicly-funded healthcare are also found to contribute to a rebalancing of the PRC economy.

JEL Classification: F32, F41

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1. INTRODUCTION

Many economists argue that global imbalances have contributed to the fragility of the world economy. Although the threat to financial stability from current account deficit countries may appear more obvious or imminent, given the dependency of deficit countries on external finance, it is important to bear in mind that current account surplus countries have also contributed to the instability of the world economy. Since market pressure is asymmetrical between deficit and surplus countries, the latter usually face much less rebalancing pressure than deficit countries. However, to guide the world economy toward increased macroeconomic stability, both deficit and surplus countries need to make efforts toward rebalancing.

Since the outbreak of the global financial crisis in 2008, the international community has taken renewed initiative to address the problem of excessive current account imbalances. Upon request of the Group of Twenty (G20), the International Monetary Fund (IMF) established a scheme, the so-called Mutual Assessment Process (MAP), to monitor current account imbalances and provide countries with recommendations to correct the imbalances if necessary. Given the frequent claim that correcting microeconomic distortions can help mitigate macroeconomic imbalances, the MAP has focused on examining the state of global imbalances and providing corrective policy proposals from microeconomic or sectorial perspectives (Srinivasan 2012). However, despite the importance of the sectorial approach, there has been little research that investigates the impact of microeconomic or sectorial reforms on current account imbalances.[1]

In this paper, we examine the impact of sectorial reforms on current account imbalances with a special focus on the People's Republic of China (PRC), one of the biggest contributors to global imbalances. In particular, we investigate the impact on the current account of reforms in the financial sector, social protection, and healthcare. While researchers have discussed the impact of each of these sectorial reforms on the PRC's economic behavior including external balances, few studies have looked at these reforms in a comprehensive and systematic way. With this paper, we seek to fill this gap and look into how reforms in the financial sector, social protection, and healthcare programs are likely to affect current account imbalances as well as saving and investment. To this end, we conduct panel data analysis using a comprehensive dataset that covers 83 countries during the last two decades. Using cross-country characteristics or regularity found in the analysis, we then unravel the PRC's possible peculiarities and shed light on its prominent role in the global imbalances debate. We also extend the cross-country analysis to provide forecasting on how the PRC's sectorial reforms will affect the country's current account imbalances.

The remainder of the paper is structured as follows. Section 2 briefly highlights some characteristics of the PRC's financial sector, public social protection, and healthcare system, and discusses how reforms in these sectors may impact the country's saving, investment and current account balances. Section 3 presents estimation results based on a cross-sectional model of current account balances as well as national saving and investment. In Section 4, we conduct scenario analysis using forecasts based on the estimation results. This exercise will show how sectorial reforms could affect the PRC's current account balances, saving, and investment in the foreseeable future under different scenarios. In Section 5, we will make concluding remarks.

[1] On the link between microeconomic and macroeconomic distortions, especially for the PRC, see Chinn and Ito (2011), Kuijs (2006), Ma and Wang (2010), Prasad (2011), Prasad and Wei (2007), and their references. These studies also talk about both external and internal imbalances the economy has been facing.

2. THE PRC'S "SECTORIAL IMBALANCES"—FROM MICROECONOMICS TO MACROECONOMICS

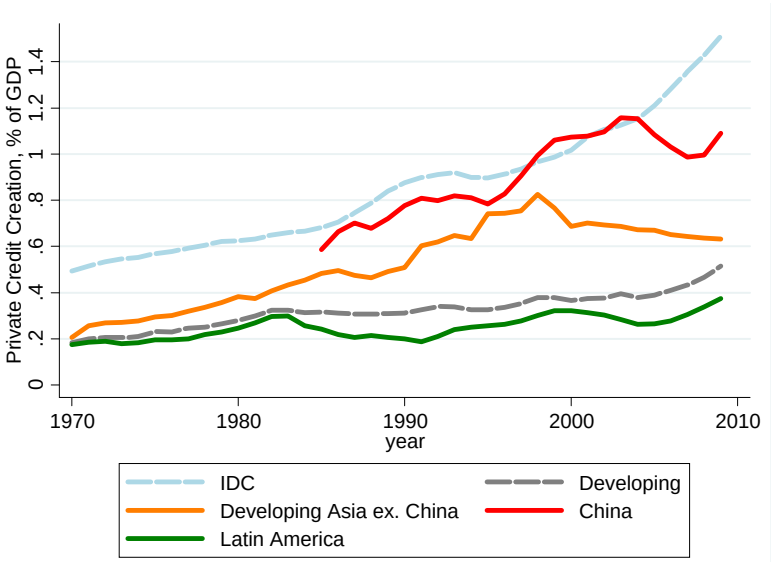
It has been long argued that correcting microeconomic distortions in countries with persistent current account imbalances is a central precondition for global macroeconomic rebalancing. For the PRC, the country with the largest current account surplus, it has been frequently argued that the country's massive current account surplus derives from microeconomic or sectorial distortions that have led to excessive saving (e.g., Lardy 2012). In particular, underdeveloped public social safety net systems as well as a repressed financial sector are commonly blamed for the excessive or distortive saving.

Recently, the World Bank, together with the Development Research Center of the State Council (DRC), argued in a comprehensive study on the PRC's future development model that the PRC will need to implement drastic structural reforms and strengthen the social safety net including social security and healthcare to help a rebalancing of the PRC economy (World Bank and DRC 2012). The report also emphasized that rebalancing is essential for the country to proceed on a trajectory of sustainable development. In the following, we will briefly discuss some characteristics of the PRC's financial sector and the social protection and healthcare systems, and how reforms in these sectors may affect the PRC's saving, investment, and current account balances.

2.1 Financial sector

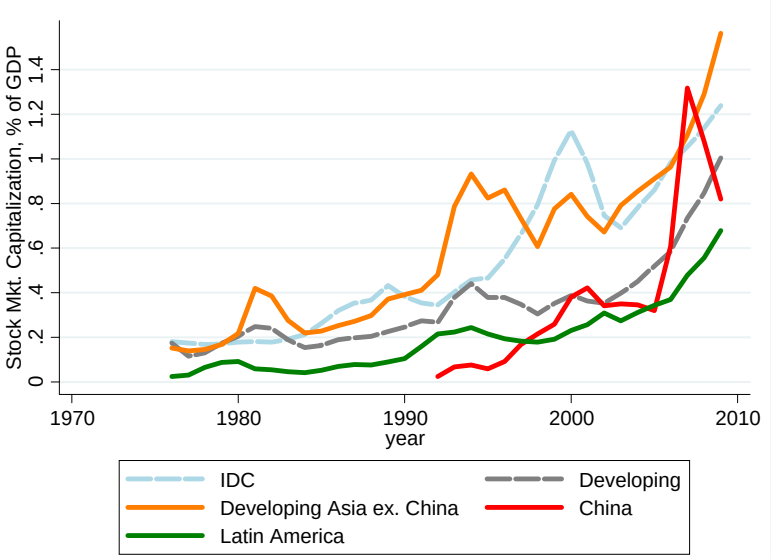
While it is difficult to measure the level of financial development in general, it is even more challenging for a country in which the government is actively meddling with market activities, as is the case in the PRC. Standard, broad measures of financial development such as private credit creation (Figure 1) and stock market capitalization (Figure 2), both as shares of gross domestic product (GDP), can obscure the real picture of the PRC's financial development. According to these measures, the PRC stands relatively well as a "financially developed" economy compared with other developing countries, including those in Asia. However, because the government authorities can manipulate credit provision—as it did in the immediate aftermath of the global financial crisis of 2008—or directly influence stock market prices, measuring the level of financial development in terms of private credit creation and stock market capitalization can be meaningless for the PRC. Considering that only highly developed or sophisticated markets can have developed private bond markets, we could measure the PRC's financial development by focusing on private bond market capitalization (as a share of GDP). With this measure (shown in Figure 3), the PRC does appear as an economy with underdeveloped financial markets. But still this measure does not provide the real picture of the country's financial development, given that in many cases banks are the major holders of corporate bonds, which are essentially vehicles to circumvent curbs on credit growth.

Figure 1: Financial Development—Private Credit Creation



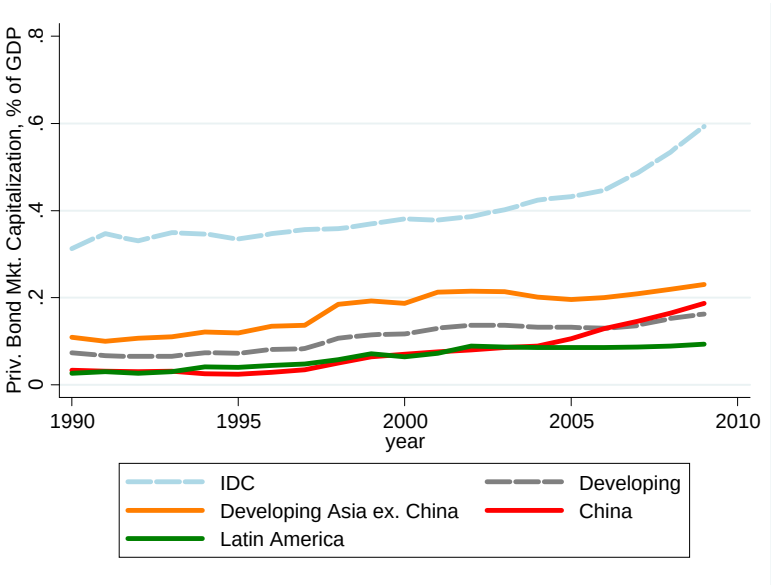
Source: Authors' calculations.

Figure 2: Financial Development—Stock Market Capitalization



Source: Authors' calculations.

Figure 3: Financial Development —Private Bond Market Capitalization



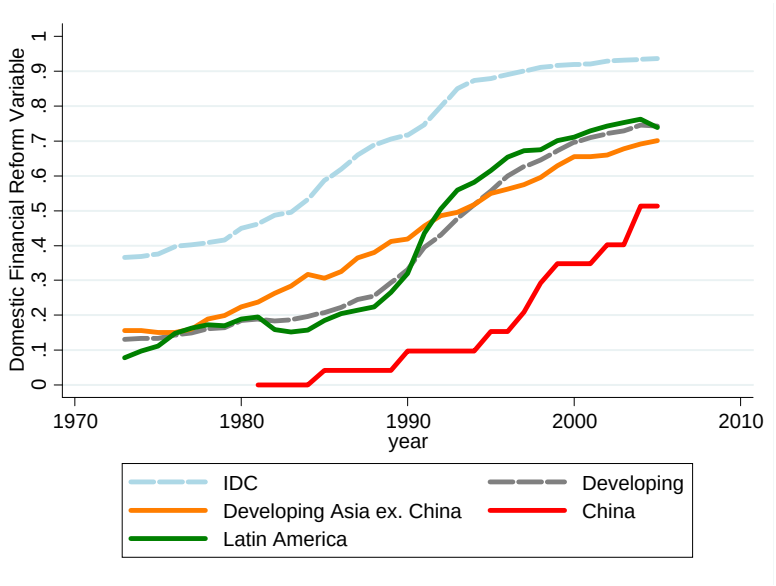
Source: Authors' calculations.

Along with the government's active involvement in credit creation, the government authorities also maintain a tight control over domestic financial markets, which causes serious distortions in capital allocation at the expense of privately owned businesses and in favor of state-owned enterprises (SOEs), and allows the latter to extract large profits.

One possible way to measure the government's involvement in meddling or protecting the financial sector is to examine the progress of financial reforms, especially the extent to which market forces are allowed, or not allowed, to affect the allocation and price of capital. Abiad, Detragiache, and Tressel (2008) developed such a measure of financial reforms for more than 90 economies.[2] According to their index, as Figure 4 shows, the PRC's domestic financial markets are far less deregulated or liberalized than the average "developing country." This outcome is no surprise considering that the state maintains majority ownership of the country's banking system and grants banks only limited room to offer deposit and lending rates that can deviate from the official rates set by the People's Bank of China (PBC).

[2] Abiad, et al. (2008) classify financial reforms into seven categories: those pertaining to interest rates controls; credit controls and reserve requirements; entry barriers; state control in the banking sector; capital account restrictions; regulations and supervisions in the banking sector; and security market policies. However, because we use a separate index for capital account liberalization, we recalculate the index of financial reforms by excluding the one for capital account restrictions and adding only six measures of financial reforms. In this paper, we treat the sum of the six measures as the index of "domestic financial reform."

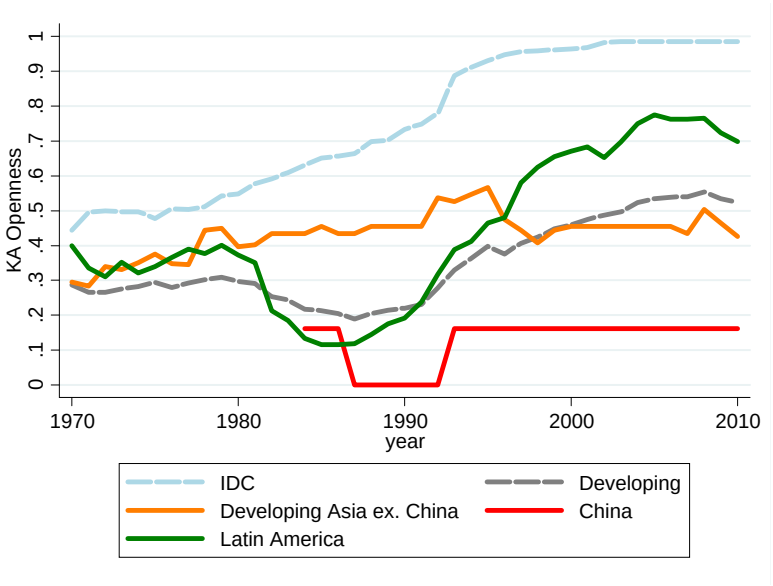
Figure 4: Index for Domestic Financial Liberalization



Source: Authors' calculations.

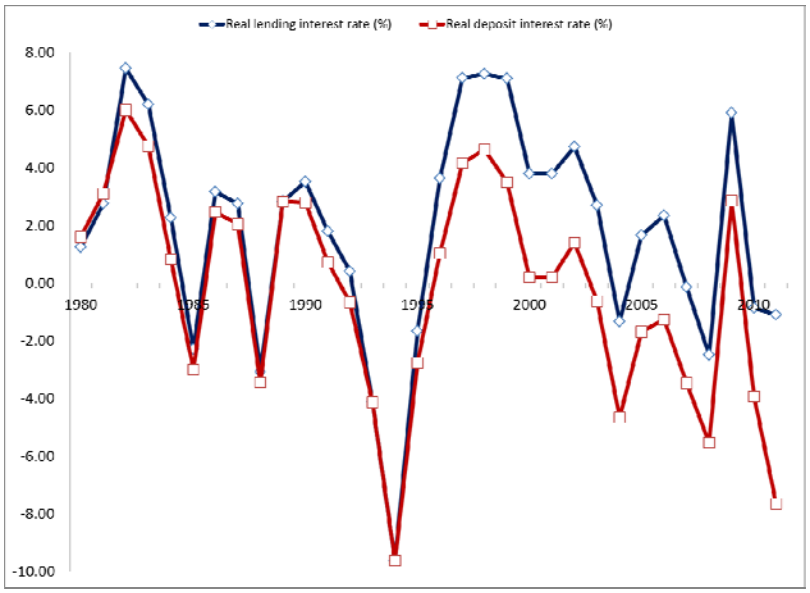
The PBC manages the macroeconomy through a mix of quantitative measures aimed at steering the amount, rather than the price of credit through interest rates (Prasad 2008; Reade and Volz 2012). Even after the abolition of credit plans, which had formed the basis of bank lending until the end of 1997, the PBC continues to issue direct lending guidelines and orders to commercial banks through the so-called window guidance policy. Protecting domestic markets with tight capital controls (Figure 5) and relying on other policy instruments than the interest rate (such as required reserve ratios) has granted the PBC leeway to exert relatively autonomous monetary policy despite the de facto peg against the United States (US) dollar. However, this kind of policy arrangement has yielded serious costs (Reade and Volz 2012; Prasad 2008). In particular, the repressions on banks imposed by the PBC, which sets a ceiling on the deposit rate, have led to negative real interest rates for depositors (Figure 6). This is in effect an implicit "financial repression tax imposed on Chinese households" (Pettis 2012: 9), which reduces household income and thereby depresses consumption. Freeing the household sector from this financial repression tax would arguably help boost the household consumption, which would in turn contribute to rebalancing the economy and reducing the PRC's excessive dependency on exports.

Figure 5: Financial Openness, Chinn-Ito index



Source: Authors' calculations.

Figure 6: Real Lending and Deposit Interest Rates



Source: Authors' calculations.

For PRC banks, negative real deposit rates are in essence subsidies—depositors are paying banks for keeping their deposits. Moreover, low interest rates have also benefited SOEs, which have enjoyed privileged access to credit from the state-owned banking system. The ability to secure cheap, subsidized funding from the state-owned banking system has contributed not only to overinvestment, but also to high corporate profits, much of which SOEs have retained, because, until recently, they were not required to redistribute them to shareholders (i.e., the

government) as dividends.[3] The tendency to retain earnings internally has resulted in high corporate saving, which has been the most important contributor to the increase in the PRC's aggregate saving in recent years (Hofman and Kuijs 2006; Ma and Wang 2010).[4]

In contrast, privately-owned small and medium enterprises, which typically redistribute a much larger fraction of their profits than SOEs, often face difficulty in obtaining finance from the formal banking sector because of the lending rate floor or loan quotas imposed by the PBC.[5] With limited access to external finances, privately-owned firms also tend to retain earnings so as to internally finance themselves, which is another contributor to corporate saving.[6]

Overall, due to the lack of financial development (not in terms of the size, but of the variety of means to diversify risk), whether SOEs or privately-owned firms, corporate profits are neither effectively reinvested in financial instruments nor redistributed as dividends.[7]

Many economists argue that it is not so much about overinvestment as "misinvestment" that has been distorting the PRC economy internally. With misinvement, capital tends to overly concentrate on capital-intensive industries, especially those with tradable goods in the manufacturing sector, thwarting the development of labor-intensive industries such as service industry and overly promoting exports. This has also contributed to a declining share of labor income in the economy in the last decade. The decline in labor income has not been compensated by a rise in interest income, which has been also declining in the last decade. All these factors have led to stagnation of disposable income growth despite the impressive growth of the overall economy, contributing to a decline in private consumption. Thus, the financial system in the PRC has allowed corporate saving and household saving to rise hand in hand.

Abolishing interest rate controls and encouraging bank competition while minimizing government interventions to the market would enhance the efficiency of capital allocation and improve private small and medium enterprises' accessibility to credit. That would help boost private corporate profitability and the disposable income of the household sector.[8] Moreover, financial sector reform would help reduce the power of SOEs over the economy and spur the development of the private corporate sector, especially small and medium-sized firms, a large

[3] In 2007, the State Council mandated SOEs to begin paying dividends, with the required dividend rates ranging from 0 to 10% depending on the type and the profitability of industries. In 2012, the dividend rates were increased by 5% for all categories. It must be noted, however, that SOE dividends are usually recycled to finance other, usually failing, SOEs. More on SOEs and their dividends, see Mattlin (2009) and Lin and Milhaupt (2011).

[4] Brandy and Zhu (2010) and Dollar and Wei (2007) argue that if SOEs had not been given privileged access to capital, the PRC's investment rates or capital stock level would have been lower without sacrificing its economic growth.

[5] For these firms, credit provision can be also affected by capricious political decisions. Figure 6 clearly shows that the ceiling for the deposit rates and the floor for the lending rates are set to ensure the profitability of banks.

[6] While financial repression maintains deposit rates at low levels and prevents financial institutions from providing alternative means for people who want to store their financial wealth, the shadow banking system, which usually provides higher returns, has been prospering as an alternative investment destination. It has been argued that the shadow banking system may help lessen the efficacy of the country's monetary policy and possibly make its financial system prone for boom and bust cycles through encouraging risky investments.

[7] Rapid rise in profitability among PRC firms, whether private or state-owned, surely contributed to a rise in corporate saving in the second half of the 2000s. For the causes of high saving in households and firms, refer to Kuijs (2006) and Ma and Wang (2010).

[8] A further way through which financial repression contributes to a higher household saving rate is limited accessibility to mortgage financing. Despite increased private house ownership, the lack of financial accessibility as well as risk averseness of the government authorities and financial institutions has limited the availability of mortgage financing. Currently, mortgage financing requires a high down payment requirement, thereby motivating people in the PRC to save.

fraction of which has been excluded from bank credit thus far. A higher distribution of corporate profits would boost household income, as would an abolition of the financial repression tax on households.

Recently, the PRC government seems to be pushing domestic financial reforms through more active capital account liberalization with the hope that further penetration of foreign financial institutions would increase market competition and help make domestic financial institutions become more efficient.[9] At least, it appears clear that policymakers in Beijing are aware of and determined about the need for further financial sector reform, although such a reform encounters fierce resistance from vested interest groups (Volz 2012).

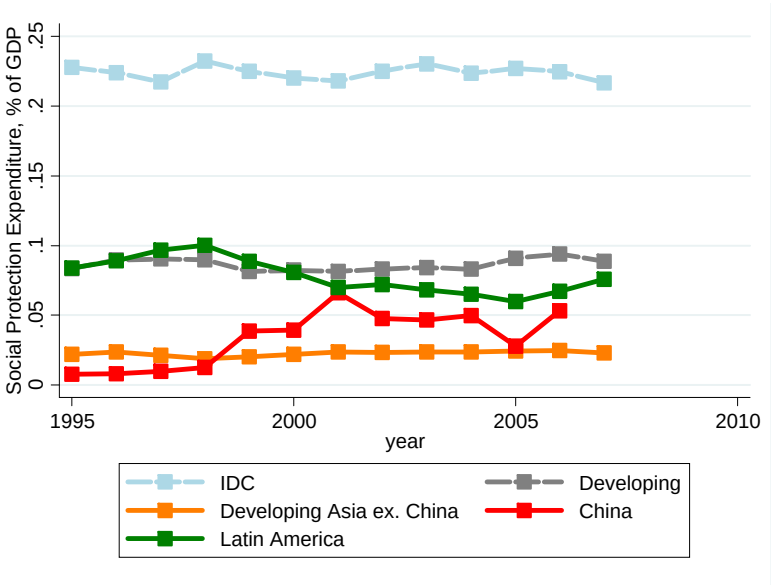
2.2 Public expenditure on social protection and healthcare

Thanks to rapid economic growth the country has been experiencing in the last decades and also to the government's recent recognition that social equity must be an important component of sustainable development (as was incorporated into the 11th Five-year Plan in 2006), the country has been increasing its spending for public social expenditure in recent years. In the 12th Five-year Plan (for the period 2011–15), the government pledged to strengthen and widen the coverage of the social protection system especially for the people who had been neglected by the system (such as people in the rural areas, migrant workers, dependents of registered urban employees, and students). As a result, public healthcare coverage, for example, increased rapidly in recent years to cover 95% of the population as of 2011 according to OECD (2012). The OECD report also shows that the PRC's social protection expenditure as a ratio to GDP as of 2010 is comparable to the Republic of Korea's or Mexico's as of 2007.

Despite the rapid growth, however, there is more evidence showing that the PRC's public expenditure for social protection is not sufficient given its level of economic development. As Figures 7 and 8 show, the PRC's social protection expenditure (as a share of GDP), whether or not to include healthcare, is lower than the average for all developing countries. Furthermore, the coverage of social protection is still far from universal or uniform. Hence, limited coverage of or accessibility to social safety nets, public health insurance, and the public pension system have encouraged households to save for precautionary reasons or for risk diversification, failing to erase the general perception (especially in the rural areas) that people need to protect themselves from economic uncertainty by allocating some portion of their income for a rainy day.

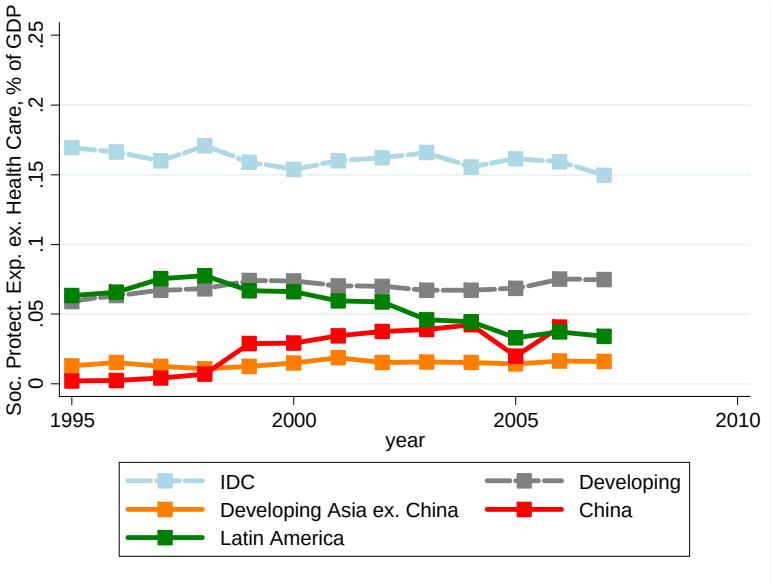
[9] In February 2012, the PBC issued a report, presenting its prospects for capital account liberalization. The report, which was viewed observers as progressive, illustrates the country's short-, medium-, and long-term approach toward liberalizing controls on both in- and outflows of capital. For more details on the discussions on the PRC's capital account liberalization efforts or their macroeconomic impact, refer to Chinn, et al. (2011), Chinn and Ito (2011), and Hung (2009). For more details on general financial reform in the PRC, refer to Huang et al. (2010).

Figure 7: Social Protection Expenditure (% of GDP)



Source: Authors' calculations.

Figure 8: Social Protection Expend. (% of GDP), ex. Healthcare



Source: Authors' calculations.

While social protection has been lagging its impressive rapid economic development, the restructuring and streamlining efforts as part of the marketization of the corporate sector after the 1990s, along with the large-scale influx of migrants from the rural areas, have increased the extent of economic uncertainty by making the labor markets highly fluid and drastically shrinking the once comprehensive, "cradle-to-grave" social safety net, or "iron rice bowl". Clearly, these trends have motivated PRC households toward precautionary saving. As has been widely pointed out, the share of household consumption in GDP declined in the PRC from an average

of 51.2% in the 1980s to 46.0% in the 1990s and is the lowest among the major economies in the world today, accounting for only 35.3% in 2008 (Wang 2011). While the household income share also dropped in the same period, the average propensity to save (as a share to GDP) went up by 10 percentage points in the 2000s, resulting in both a shrinkage of private consumption and a rise in household saving as shares in GDP.

Wang (2011) argues that providing broader social security and increasing other social spending "would not only mitigate unemployment shocks in the short term, but it would also guarantee individuals and households more security for spending that could reduce the high savings rate and help achieve a balanced growth path in the long run".[10]

Baldacci et al. (2010) examine the impact of increasing government social expenditures on household consumption for Organisation for Economic Co-operation and Development (OECD) countries and find that if the estimation results are also applied to PRC household survey data, a one percentage increase in the public social protection expenditures can increase the household consumption of the PRC by 1.25 percentage points (both as ratios to GDP). In this view, reforms that bring about a stronger social safety net with wider social security coverage and a better government-funded healthcare system will lower the motive for precautionary saving and raise consumption levels of PRC households. Moreover, a more equitable distribution of income among urban and rural households through public transfers would lower the vulnerability of low-income groups to shocks and strengthen their consumption, which, in the aggregate, would lead to a significant boost of household consumption.

3. ESTIMATIONS

3.1 Estimation model and data

We now estimate a simple analytical model of current account balances as well as national saving and investment in order to systematically analyze the impact of the structural characteristics of the financial, social, and healthcare systems. To this end, we build on the work of Chinn and Prasad (2003), and Chinn and Ito (2007) and estimate the following model:

$$y_{i,t} = \alpha + X_{i,t}\mathrm{B} + Z_{i,t}\Gamma + u_{i,t} \,. \qquad (1)$$

where $y_{i,t}$ refers to three dependent variables: the current account balance, national saving, and investment, all expressed as a share of GDP. *X* is a vector of conventional macroeconomic and policy control variables that are often used in the literature. It includes government budget balance (*BB*); net foreign asset as a ratio to GDP based on the dataset created by Lane and Milesi-Ferretti (2007); private credit creation (*PCGDP*) as a measure of financial deepening; *KAOPEN*, the Chinn-Ito (2006, 2008) measure of financial openness; and *LEGAL* a measure of legal/institutional development, which is the first principal component of law and order (*LAO*), bureaucratic quality (*BQ*), and anti-corruption measures (*CORRUPT*). It also includes net foreign assets as a ratio to GDP; relative income (to the US); its quadratic term; relative dependency ratios on young and old population; terms of trade (*TOT*) volatility; output growth

[10] Chamon and Prasad (2010); and Chamon, Liu, and Prasad (2010) who provide an analysis of the factors driving the trend increase in saving rates of urban households, argue in the same direction.

rates; trade openness (measured as exports plus imports over GDP); dummies for oil exporting countries; and time fixed effects.

$Z_{i,t}$ is a vector of microeconomic or sectorial variables pertaining to domestic financial reform, public expenditure on social protection, and public healthcare expenditure. The variable for domestic financial reforms is based on the dataset created by Abiad et al. (2008). While Abiad et al. use the sum of seven component indexes as the measure of financial reform (with the full extent of liberalized/reformed markets taking the value of 21), we use the sum of six component indexes by excluding the index for capital account openness, because we include the capital account openness index (*KAOPEN*) separately in our estimation. That makes the total value of the index 18. Since the index only refers to financial liberalization/deregulation efforts pertaining to domestic issues, we call the modified index the "domestic financial liberalization/reform" index. For the sake of easy interpretation, we normalize the aggregate measure to make it range between zero and one.[11]

Another variable included in $Z_{i,t}$ is public social protection expenditure (such as unemployment benefits) provided by the government as a ratio to GDP (*SPHC*). This variable is available from the IMF for the period 1994–2008. A subset of this variable, *SPEXHC,* refers to public social protection expenditure excluding healthcare expenditure (as a ratio to GDP). The variable for the difference between *SPHC* and *SPEXHC*, or *HC*, represents healthcare expenditure provided by the government (as a ratio to GDP). These three variables are available for 1995 through 2007 or 2008. *PUBHC* is another variable for public healthcare expenditure as a ratio to GDP. The latter is extracted from the World Bank's *World Development Indicator* and available for the period 1995–2009.

We construct panels of non-overlapping 5-year averages for all explanatory variables except for net foreign assets to GDP, TOT volatility, and trade openness.[12] The data are mostly extracted from publicly available datasets such as the *World Development Indicators*, *International Financial Statistics*, and *World Economic Outlook*.

The original annual data include 23 industrial and 64 developing countries covering the period 1995–2008.[13] We regress current account balances, national saving, and investment on the same set of regressors separately for the full sample, and the subsamples of industrialized countries (IDC), developing countries (LDC), and emerging market economies (EMG).[14]

[11] The original data are available for the period 1973 to 2005. To update the index to more recent years, we regress the (modified and normalized) index of "domestic" financial liberalization on the time trend for each of our sample countries, and make out-of-sample forecasts up to 2008. The visual of the data and the adjusted R2 of the regressions confirm the goodness of fit for most of the countries. If the extrapolated value goes beyond the value of 1, it is set equal to 1.

[12] The net foreign asset data are sampled from the first year of each 5-year panel. TOT volatility and trade openness are included as the 1970–2008 average.

[13] The five year panels are 1991–95, 1996–2000, etc. However, the last panel is composed of only three years: 2006–08. We can consider the last panel as the years of the global imbalances.

[14] The emerging market countries (EMGs) are defined as the countries classified as either emerging or frontier during the period of 1980–1997 by the International Financial Corporation plus Hong Kong and Singapore. 28 EMGs are included in the estimations.

3.2 Estimation results and interpretations

Tables 1–3 provide our estimates of the determinants of the current account, national saving, and investment, respectively. We will examine these three sets of regressions collectively. This way allows us to examine how the variables of our concern affect current account balances while we can also see how they affect national saving and investment. Conceptually, the effects of the explanatory variables from the national saving and investment models should add up to those in the current account estimation. However, this does not have to be the case due to the following two reasons. First, while the current account regressions account for the covariance of national saving and investment, simply adding two coefficients does not.[15] Second, due to differing data conventions (balance of payments accounting versus national income accounting definition), the flows may not add up exactly. However, it is still worthwhile to compare the results from the national saving and investment estimations with those in the current account estimations so that we can have some ideas about through which, either saving or investment channels, variables can affect the current account.

Tables 1–3 show that the estimates of the standard macro variables are in line with the findings of previous empirical analyses. For example, budget balances are found to contribute to current account balances; a one percentage improvement in budget balances would lead to a 0.19 to 0.45 percentage point improvement in current account balances (as a share of GDP). The impact on current account balances for developing countries and emerging markets is found to be smaller, however. The results from the national saving and investment estimations indicate that the improvement in current account balances happens mainly through increasing the level of national saving, especially for industrialized countries. This implies that the Ricardian equivalence does not hold for these countries—if the Ricardian equivalence holds, a rise in public saving would necessarily involve a comparable *fall* in private saving, leaving national saving unchanged.

In the following, we concentrate our discussion on the estimated coefficients for the variables that pertain to sectorial reforms which are often argued to be necessary for the PRC to implement, namely, domestic and external financial sector reforms and reforms of expenditures for social protection and healthcare.

In Table 1, we can see that domestic financial liberalization can have a negative impact on the current account balance among developing or emerging market countries, though the result is only sporadically significant. This finding is consistent with Johansson and Wang (2012), who detect a significant and positive effect of financial repression—the reciprocal of financial liberalization—on the current account. This suggests that domestic financial market reform may be one policy area through which governments could actually affect the current account balance.

Statistically weaker results of domestic financial reform on current account balances do not mean it is not important for saving or investment determination. In fact, domestic financial reform is found to contribute to both national saving and investment more significantly. The insignificant results of the current account estimations may arise because the effects of domestic financial reform found in the national saving and investment estimations tend to cancel out each other.

[15] If some change in one variable affects national saving and investment independently, as long as the change in national saving and investment does not affect each other, the net effect of the change ($\Delta NS - \Delta I$) would be the same as that on current account balances. However, if national saving and investment are highly correlated, as has been found in many studies such as Feldstein and Horioka (1980) and Frankel et al. (1987), simply adding two coefficients does not yield the coefficient in the current account regression.

Table 1: Determinants of Current Account Balances (% of GDP)

	Full Baseline (1)	Full Model 1 (2)	Full Model 2 (3)	Full Model 3 (4)	Full Model 4 (5)	Full Model 5 (6)	IDC Baseline (7)	IDC Model 1 (8)	IDC Model 2 (9)	IDC Model 3 (10)	IDC Model 4 (11)	IDC Model 5 (12)
Gov't budget balance	0.251 (0.073)***	0.255 (0.073)***	0.249 (0.079)***	0.281 (0.088)***	0.282 (0.088)***	0.235 (0.073)***	0.438 (0.126)***	0.450 (0.134)***	0.417 (0.150)***	0.409 (0.150)***	0.407 (0.152)***	0.461 (0.133)***
Net Foreign Asset§	0.070 (0.007)***	0.069 (0.007)***	0.069 (0.007)***	0.068 (0.007)***	0.067 (0.008)***	0.073 (0.007)***	0.071 (0.010)***	0.070 (0.010)***	0.074 (0.010)***	0.077 (0.011)***	0.077 (0.011)***	0.070 (0.010)***
Relative income	-0.024 (0.051)	-0.005 (0.055)	-0.040 (0.057)	0.011 (0.065)	0.013 (0.065)	0.014 (0.057)	0.354 (0.179)*	0.424 (0.196)**	0.344 (0.200)*	0.322 (0.193)	0.321 (0.197)	0.428 (0.193)**
Rel. income sq.	0.038 (0.039)	0.027 (0.041)	0.065 (0.042)	0.040 (0.048)	0.041 (0.048)	0.017 (0.041)	-0.206 (0.110)*	-0.249 (0.120)**	-0.196 (0.125)	-0.176 (0.122)	-0.175 (0.123)	-0.246 (0.118)**
Young dependency ratio	-0.013 (0.016)	-0.012 (0.016)	-0.006 (0.020)	0.001 (0.022)	0.001 (0.022)	-0.008 (0.016)	-0.002 (0.035)	0.014 (0.036)	0.003 (0.036)	-0.009 (0.036)	-0.009 (0.037)	0.020 (0.038)
Old dependency ratio	-0.020 (0.014)	-0.020 (0.014)	-0.048 (0.017)***	-0.055 (0.019)***	-0.053 (0.019)***	-0.016 (0.015)	0.081 (0.028)***	0.085 (0.028)***	0.054 (0.032)	0.041 (0.035)	0.041 (0.036)	0.098 (0.033)***
Financial Develop.	-0.002 (0.009)	-0.002 (0.009)	0.001 (0.010)	0.006 (0.011)	0.005 (0.011)	-0.000 (0.009)	-0.017 (0.011)	-0.015 (0.011)	-0.025 (0.017)	-0.024 (0.017)	-0.024 (0.017)	-0.015 (0.011)
Legal Dev.	0.095 (0.025)***	0.095 (0.025)***	0.064 (0.031)**	0.035 (0.032)	0.037 (0.032)	0.094 (0.025)***	0.144 (0.042)***	0.136 (0.042)***	0.130 (0.043)***	0.123 (0.043)***	0.123 (0.044)***	0.140 (0.043)***
KAOPEN	-0.035 (0.011)***	-0.031 (0.012)***	-0.040 (0.014)***	-0.037 (0.015)**	-0.036 (0.015)**	-0.029 (0.012)**	-0.004 (0.031)	0.001 (0.030)	0.011 (0.033)	0.012 (0.032)	0.012 (0.033)	0.005 (0.031)
TOT volatility	0.117 (0.030)***	0.115 (0.030)***	0.138 (0.037)***	0.136 (0.038)***	0.129 (0.039)***	0.099 (0.031)***	0.093 (0.057)	0.086 (0.060)	0.078 (0.084)	0.068 (0.077)	0.070 (0.084)	0.058 (0.065)
Output growth	-0.193 (0.102)*	-0.192 (0.101)*	-0.082 (0.129)	-0.056 (0.132)	-0.068 (0.134)	-0.211 (0.099)**	-0.144 (0.328)	-0.119 (0.331)	0.068 (0.386)	0.149 (0.337)	0.157 (0.381)	-0.217 (0.349)
Trade Openness	0.002 (0.007)	0.002 (0.007)	0.010 (0.007)	0.010 (0.007)	0.009 (0.007)	0.004 (0.008)	0.039 (0.014)***	0.039 (0.014)***	0.038 (0.014)**	0.033 (0.014)**	0.033 (0.014)**	0.037 (0.015)**
Oil exporters	0.060 (0.019)***	0.062 (0.019)***	0.048 (0.021)**	0.062 (0.025)**	0.062 (0.026)**	0.065 (0.020)***						
D2006-08	0.008 (0.009)	0.014 (0.010)	0.006 (0.011)	0.007 (0.012)	0.007 (0.012)	0.013 (0.010)	-0.008 (0.014)	-0.005 (0.015)	-0.006 (0.018)	-0.005 (0.017)	-0.005 (0.018)	-0.003 (0.016)
Domestic Fin. Reform		-0.024 (0.024)	-0.032 (0.030)	-0.056 (0.032)*	-0.055 (0.031)*	-0.020 (0.023)		-0.048 (0.058)	-0.003 (0.064)	-0.000 (0.063)	0.001 (0.065)	-0.049 (0.055)
Social Protection			0.282 (0.073)***						0.152 (0.122)			
Soc. Protect. ex. Healthcare				0.454 (0.084)***	0.444 (0.087)***					0.200 (0.102)*	0.205 (0.126)	
Healthcare					-0.116 (0.189)						0.012 (0.125)	
Pub. Healthcare (WDI)						-0.390 (0.247)						-0.461 (0.470)
R^2	0.58	0.58	0.63	0.66	0.66	0.58	0.78	0.78	0.83	0.83	0.83	0.79
N	304	304	217	191	191	300	83	83	75	74	74	83

Notes: § Net foreign asset (% of GDP) is sample from the first year of each five year panel. ¶ TOT volatility and trade openness are included as the 1995-2008 average. * p<0.1; ** p<0.05; *** p<0.01.

Table 1: Determinants of Current Account Balances (% of GDP), continued

	LDC Baseline (13)	LDC Model 1 (14)	LDC Model 2 (15)	LDC Model 3 (16)	LDC Model 4 (17)	LDC Model 5 (18)	EMG Baseline (19)	EMG Model 1 (20)	EMG Model 2 (21)	EMG Model 3 (22)	EMG Model 4 (23)	EMG Model 5 (24)
Gov't budget balance	0.224 (0.104)**	0.236 (0.103)**	0.265 (0.123)**	0.321 (0.151)**	0.323 (0.157)**	0.189 (0.102)*	0.185 (0.106)*	0.224 (0.102)**	0.221 (0.110)**	0.255 (0.127)**	0.249 (0.131)*	0.189 (0.101)*
Net Foreign Asset§	0.069 (0.011)***	0.067 (0.011)***	0.042 (0.009)***	0.041 (0.011)***	0.041 (0.011)***	0.073 (0.011)***	0.055 (0.012)***	0.054 (0.011)***	0.037 (0.012)***	0.040 (0.014)***	0.041 (0.014)***	0.064 (0.014)***
Relative income	-0.042 (0.077)	-0.013 (0.083)	-0.192 (0.079)**	-0.156 (0.086)*	-0.159 (0.095)*	0.024 (0.091)	-0.010 (0.097)	0.066 (0.117)	-0.134 (0.153)	-0.107 (0.196)	-0.100 (0.197)	0.076 (0.128)
Rel. income sq.	0.050 (0.108)	0.026 (0.110)	0.344 (0.090)***	0.341 (0.091)***	0.346 (0.104)***	-0.008 (0.114)	0.034 (0.137)	-0.037 (0.149)	0.289 (0.175)	0.289 (0.214)	0.277 (0.214)	-0.063 (0.162)
Young dependency ratio	-0.019 (0.021)	-0.017 (0.021)	-0.027 (0.024)	-0.012 (0.031)	-0.013 (0.031)	-0.012 (0.021)	-0.003 (0.028)	0.001 (0.028)	-0.019 (0.027)	-0.013 (0.031)	-0.010 (0.032)	0.005 (0.028)
Old dependency ratio	-0.021 (0.018)	-0.021 (0.018)	-0.036 (0.020)*	-0.033 (0.025)	-0.033 (0.025)	-0.016 (0.018)	-0.029 (0.025)	-0.034 (0.026)	-0.033 (0.034)	-0.030 (0.040)	-0.027 (0.041)	-0.028 (0.026)
Financial Develop.	0.022 (0.013)	0.022 (0.013)*	0.024 (0.015)*	0.030 (0.016)*	0.030 (0.018)*	0.024 (0.013)*	0.004 (0.015)	-0.000 (0.015)	0.010 (0.019)	0.014 (0.027)	0.015 (0.027)	0.004 (0.016)
Legal Dev.	0.053 (0.030)*	0.054 (0.029)*	0.015 (0.039)	-0.010 (0.042)	-0.011 (0.045)	0.050 (0.030)*	0.071 (0.040)*	0.081 (0.041)*	0.025 (0.064)	0.008 (0.076)	0.009 (0.077)	0.066 (0.044)
KAOPEN	-0.038 (0.013)***	-0.033 (0.014)**	-0.033 (0.016)**	-0.031 (0.017)*	-0.031 (0.017)*	-0.031 (0.014)**	-0.047 (0.018)***	-0.039 (0.018)**	-0.037 (0.021)*	-0.035 (0.024)	-0.035 (0.025)	-0.038 (0.018)**
TOT volatility	0.139 (0.038)***	0.137 (0.037)***	0.132 (0.043)***	0.140 (0.046)***	0.141 (0.048)***	0.119 (0.037)***	0.145 (0.048)***	0.134 (0.047)***	0.099 (0.058)*	0.112 (0.056)**	0.106 (0.061)*	0.121 (0.050)**
Output growth	-0.193 (0.107)*	-0.200 (0.106)*	-0.147 (0.120)	-0.120 (0.128)	-0.118 (0.129)	-0.214 (0.108)**	-0.041 (0.129)	-0.060 (0.124)	-0.087 (0.148)	-0.079 (0.157)	-0.082 (0.159)	-0.076 (0.124)
Trade Openness	-0.002 (0.018)	0.000 (0.018)	-0.024 (0.014)*	-0.025 (0.014)*	-0.025 (0.015)	0.005 (0.018)	0.013 (0.021)	0.017 (0.021)	-0.018 (0.022)	-0.022 (0.023)	-0.021 (0.023)	0.021 (0.022)
Oil exporters	0.056 (0.020)***	0.059 (0.020)***	0.056 (0.022)**	0.076 (0.024)***	0.076 (0.024)***	0.062 (0.020)***	0.038 (0.025)	0.049 (0.026)*	0.066 (0.024)***	0.072 (0.025)***	0.073 (0.026)***	0.047 (0.026)*
D2006-08	0.011 (0.012)	0.021 (0.014)	0.004 (0.014)	0.007 (0.016)	0.006 (0.017)	0.020 (0.014)	0.030 (0.014)**	0.051 (0.022)**	0.008 (0.031)	0.015 (0.037)	0.015 (0.038)	0.043 (0.022)*
Domestic Fin. Reform		-0.034 (0.026)	-0.035 (0.032)	-0.071 (0.036)*	-0.071 (0.036)*	-0.027 (0.026)		-0.063 (0.043)	-0.020 (0.063)	-0.063 (0.072)	-0.060 (0.073)	-0.046 (0.042)
Social Protection			0.199 (0.110)*						0.063 (0.137)			
Soc. Protect. ex. Healthcare				0.389 (0.150)**	0.385 (0.147)**					0.196 (0.208)	0.216 (0.219)	
Healthcare					0.044 (0.328)						-0.187 (0.541)	
Pub. Healthcare (WDI)						-0.519 (0.317)						-0.207 (0.371)
R^2	0.58	0.58	0.65	0.68	0.68	0.58	0.61	0.62	0.70	0.73	0.73	0.61
N	221	221	142	117	117	217	138	138	95	80	80	134

Notes: § Net foreign asset (% of GDP) is sample from the first year of each five year panel. ¶ TOT volatility and trade openness are included as the 1995-2008 average. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. Source: Authors' calculations.

Table 2: Determinants of National Saving (% of GDP)

	Full (1) Baseline	Full (2) Model 1	Full (3) Model 2	Full (4) Model 3	Full (5) Model 4	Full (6) Model 5	IDC (7) Baseline	IDC (8) Model 1	IDC (9) Model 2	IDC (10) Model 3	IDC (11) Model 4	IDC (12) Model 5
Gov't budget balance	0.318 (0.093)***	0.332 (0.090)***	0.288 (0.092)***	0.378 (0.100)***	0.380 (0.100)***	0.300 (0.090)***	0.764 (0.124)***	0.790 (0.129)***	0.751 (0.149)***	0.747 (0.144)***	0.742 (0.148)***	0.787 (0.130)***
Net Foreign Asset§	0.056 (0.009)***	0.052 (0.009)***	0.042 (0.009)***	0.042 (0.010)***	0.039 (0.010)***	0.058 (0.008)***	0.069 (0.011)***	0.069 (0.010)***	0.068 (0.009)***	0.071 (0.009)***	0.071 (0.009)***	0.069 (0.010)***
Relative income	-0.186 (0.063)***	-0.111 (0.064)*	-0.070 (0.068)	0.015 (0.077)	0.024 (0.074)	-0.087 (0.064)	0.427 (0.183)**	0.579 (0.175)***	0.574 (0.163)***	0.557 (0.168)***	0.553 (0.171)***	0.578 (0.176)***
Rel. income sq.	0.092 (0.046)**	0.046 (0.047)	0.061 (0.050)	0.011 (0.057)	0.015 (0.055)	0.035 (0.047)	-0.284 (0.110)**	-0.379 (0.107)***	-0.370 (0.105)***	-0.353 (0.107)***	-0.351 (0.109)***	-0.379 (0.109)***
Young dependency ratio	-0.121 (0.018)***	-0.116 (0.017)***	-0.100 (0.019)***	-0.081 (0.023)***	-0.079 (0.023)***	-0.111 (0.017)***	-0.157 (0.032)***	-0.123 (0.033)***	-0.136 (0.031)***	-0.146 (0.030)***	-0.146 (0.030)***	-0.125 (0.034)***
Old dependency ratio	-0.052 (0.016)***	-0.053 (0.016)***	-0.050 (0.018)***	-0.048 (0.022)**	-0.041 (0.021)*	-0.046 (0.017)***	-0.037 (0.027)	-0.029 (0.027)	-0.058 (0.032)*	-0.068 (0.033)**	-0.070 (0.034)**	-0.032 (0.032)
Financial Develop.	0.037 (0.012)***	0.037 (0.011)***	0.033 (0.012)***	0.035 (0.013)***	0.031 (0.012)**	0.038 (0.011)***	0.004 (0.010)	0.008 (0.009)	0.002 (0.013)	0.003 (0.012)	0.003 (0.013)	0.008 (0.009)
Legal Dev.	0.149 (0.031)***	0.151 (0.030)***	0.107 (0.035)***	0.059 (0.036)	0.068 (0.036)*	0.156 (0.029)***	0.087 (0.034)**	0.071 (0.035)**	0.068 (0.035)*	0.063 (0.035)*	0.063 (0.036)*	0.070 (0.036)*
KAOPEN	-0.031 (0.011)***	-0.016 (0.012)	-0.023 (0.013)*	-0.026 (0.014)*	-0.021 (0.014)	-0.013 (0.011)	-0.029 (0.027)	-0.019 (0.027)	-0.004 (0.028)	-0.003 (0.029)	-0.004 (0.030)	-0.020 (0.027)
TOT volatility	0.196 (0.037)***	0.190 (0.034)***	0.181 (0.040)***	0.180 (0.043)***	0.151 (0.041)***	0.166 (0.034)***	0.259 (0.059)***	0.245 (0.056)***	0.274 (0.073)***	0.261 (0.068)***	0.267 (0.073)***	0.251 (0.064)***
Output growth	0.765 (0.145)***	0.768 (0.136)***	0.984 (0.155)***	1.001 (0.164)***	0.959 (0.161)***	0.727 (0.129)***	0.047 (0.262)	0.102 (0.268)	0.191 (0.310)	0.249 (0.276)	0.270 (0.312)	0.122 (0.280)
Trade Openness	0.016 (0.008)*	0.018 (0.008)**	0.017 (0.008)**	0.017 (0.008)**	0.011 (0.008)	0.019 (0.009)**	0.053 (0.012)***	0.053 (0.012)***	0.053 (0.012)***	0.049 (0.012)***	0.049 (0.012)***	0.054 (0.012)***
Oil exporters	0.096 (0.025)***	0.105 (0.025)***	0.103 (0.018)***	0.113 (0.017)***	0.113 (0.017)***	0.110 (0.025)***						
D2006-08	0.012 (0.009)	0.036 (0.010)***	0.032 (0.012)***	0.033 (0.013)**	0.036 (0.013)***	0.039 (0.010)***	0.001 (0.015)	0.008 (0.014)	0.005 (0.017)	0.007 (0.017)	0.006 (0.017)	0.007 (0.015)
Domestic Fin. Reform		-0.096 (0.027)***	-0.120 (0.031)***	-0.154 (0.034)***	-0.150 (0.032)***	-0.091 (0.026)***		-0.105 (0.030)***	-0.061 (0.035)*	-0.060 (0.033)*	-0.058 (0.035)	-0.105 (0.031)***
Social Protection			0.017 (0.076)						0.152 (0.102)			
Soc. Protect. ex. Healthcare				0.133 (0.085)	0.098 (0.091)					0.187 (0.090)**	0.199 (0.108)*	
Healthcare					-0.434 (0.223)*						0.032 (0.116)	
Pub. Healthcare (WDI)						-0.651 (0.292)**						0.094 (0.475)
R^2	0.68	0.70	0.72	0.73	0.74	0.71	0.83	0.85	0.88	0.88	0.88	0.85
N	304	304	217	191	191	300	83	83	75	74	74	83

Notes: § Net foreign asset (% of GDP) is sample from the first year of each five year panel. ¶ TOT volatility and trade openness are included as the 1995-2008 average. * p<0.1; ** p<0.05; *** p<0.01. Source: Authors' calculations.

Table 3: Determinants of Investment (% of GDP), continued

	LDC (13) Baseline	LDC (14) Model 1	LDC (15) Model 2	LDC (16) Model 3	LDC (17) Model 4	LDC (18) Model 5	EMG (19) Baseline	EMG (20) Model 1	EMG (21) Model 2	EMG (22) Model 3	EMG (23) Model 4	EMG (24) Model 5
Gov't budget balance	0.062	0.086	-0.104	-0.019	-0.066	0.059	0.005	0.069	-0.127	-0.067	-0.071	0.044
	(0.088)	(0.087)	(0.092)	(0.106)	(0.100)	(0.090)	(0.099)	(0.094)	(0.103)	(0.112)	(0.114)	(0.094)
Net Foreign Asset§	-0.018	-0.022	-0.035	-0.040	-0.041	-0.019	-0.024	-0.026	-0.040	-0.045	-0.045	-0.019
	(0.009)**	(0.009)**	(0.012)***	(0.014)***	(0.012)***	(0.010)*	(0.012)**	(0.011)**	(0.011)***	(0.011)***	(0.011)***	(0.014)
Relative income	-0.108	-0.050	0.074	0.043	0.124	-0.021	-0.108	0.016	0.161	0.160	0.165	0.080
	(0.071)	(0.073)	(0.085)	(0.102)	(0.094)	(0.081)	(0.080)	(0.091)	(0.127)	(0.140)	(0.141)	(0.099)
Rel. income sq.	-0.017	-0.063	-0.166	-0.086	-0.194	-0.096	0.052	-0.064	-0.215	-0.173	-0.181	-0.144
	(0.083)	(0.085)	(0.103)	(0.124)	(0.115)*	(0.093)	(0.096)	(0.109)	(0.160)	(0.172)	(0.173)	(0.121)
Young dependency ratio	-0.093	-0.088	-0.078	-0.079	-0.066	-0.086	-0.085	-0.079	-0.096	-0.098	-0.097	-0.071
	(0.016)***	(0.016)***	(0.019)***	(0.023)***	(0.024)***	(0.017)***	(0.020)***	(0.021)***	(0.019)***	(0.023)***	(0.025)***	(0.023)***
Old dependency ratio	-0.029	-0.029	0.016	0.020	0.022	-0.026	-0.014	-0.021	-0.021	-0.022	-0.019	-0.012
	(0.015)*	(0.015)*	(0.018)	(0.021)	(0.021)	(0.016)	(0.020)	(0.020)	(0.024)	(0.026)	(0.029)	(0.021)
Financial Develop.	0.045	0.045	0.038	0.038	0.027	0.043	0.057	0.051	0.033	0.032	0.033	0.048
	(0.014)***	(0.013)***	(0.014)***	(0.017)**	(0.016)*	(0.013)***	(0.015)***	(0.014)***	(0.015)**	(0.019)*	(0.019)*	(0.015)***
Legal Dev.	0.078	0.080	0.074	0.044	0.070	0.085	0.040	0.056	0.083	0.051	0.051	0.052
	(0.035)**	(0.034)**	(0.039)*	(0.044)	(0.040)*	(0.034)**	(0.047)	(0.047)	(0.051)	(0.053)	(0.053)	(0.046)
KAOPEN	0.010	0.020	0.014	0.014	0.017	0.020	0.025	0.037	0.040	0.042	0.042	0.034
	(0.010)	(0.012)*	(0.014)	(0.014)	(0.014)	(0.012)*	(0.014)*	(0.015)**	(0.016)**	(0.016)**	(0.016)**	(0.015)**
TOT volatility¶	0.039	0.034	0.005	0.006	-0.032	0.025	0.074	0.056	0.069	0.063	0.059	0.022
	(0.038)	(0.037)	(0.039)	(0.046)	(0.045)	(0.037)	(0.048)	(0.046)	(0.050)	(0.053)	(0.058)	(0.050)
Output growth	0.982	0.969	1.252	1.243	1.214	0.951	1.173	1.142	1.370	1.338	1.336	1.128
	(0.121)***	(0.117)***	(0.132)***	(0.144)***	(0.136)***	(0.115)***	(0.164)***	(0.157)***	(0.150)***	(0.169)***	(0.168)***	(0.145)***
Trade Openness¶	0.015	0.018	0.025	0.011	0.023	0.021	-0.003	0.005	0.027	0.017	0.018	0.008
	(0.014)	(0.014)	(0.013)*	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.019)	(0.021)	(0.021)	(0.017)
Oil exporters	0.052	0.058	0.080	0.077	0.075	0.059	0.024	0.041	0.079	0.072	0.073	0.039
	(0.017)***	(0.016)***	(0.016)***	(0.023)***	(0.020)***	(0.016)***	(0.019)	(0.022)*	(0.018)***	(0.020)***	(0.020)***	(0.021)*
D2006-08	-0.004	0.017	0.018	0.017	0.025	0.021	-0.029	0.005	0.025	0.015	0.015	0.004
	(0.012)	(0.014)	(0.017)	(0.019)	(0.018)	(0.015)	(0.013)**	(0.020)	(0.025)	(0.025)	(0.025)	(0.020)
Domestic Fin. Reform		-0.068	-0.060	-0.071	-0.061	-0.066		-0.103	-0.160	-0.158	-0.156	-0.084
		(0.028)**	(0.032)*	(0.038)*	(0.035)*	(0.028)**		(0.040)**	(0.044)***	(0.048)***	(0.050)***	(0.041)**
Social Protection			-0.472						-0.294			
			(0.082)***						(0.093)***			
Soc. Protect. ex. Healthcare				-0.544	-0.438					-0.338	-0.325	
				(0.110)***	(0.107)***					(0.128)**	(0.146)**	
Healthcare					-1.104						-0.127	
					(0.339)***						(0.513)	
Pub. Healthcare (WDI)						-0.408						-0.697
						(0.301)						(0.414)*
R^2	0.55	0.57	0.70	0.69	0.72	0.57	0.60	0.62	0.77	0.78	0.78	0.64
N	221	221	142	117	117	217	138	138	95	80	80	134

Notes: § Net foreign asset (% of GDP) is sample from the first year of each five year panel. ¶ TOT volatility and trade openness are included as the 1995-2008 average. * p<0.1; ** p<0.05; *** p<0.01. Source: Authors' calculations.

Our estimations confirm that financial repression contributes to higher levels of national saving, or conversely that domestic financial reform would help reduce national saving. As we previously discussed, domestic financial reform would increase the accessibility to financial resources and therefore lessen the motive for precautionary saving.[16]

Domestic financial reform is also found to contribute to lower levels of investment. As previously discussed, countries with financial repression often experience overinvestment by mobilizing financial resources to certain, strategically important, industries through industrial policy or governmental guidance as we have observed in the PRC now and also in several other Asian countries in the past. Financial reforms would mitigate financial repression and may correct overinvestment, thus making the predicted correlation between domestic financial liberalization and investment negative.

The magnitude of the estimated coefficients of the domestic financial reform variable are usually slightly higher in the national saving estimations than those in the investment estimations. This may explain the insignificant or positive estimates of the domestic financial reform variable in the current account estimations.

Increasing social protection expenditure, excluding healthcare, would *increase* national saving for industrialized countries, but it would *reduce* national saving for developing or emerging market countries, though the effect is not statistically significant for the latter groups of countries. For the investment determination, on the other hand, social protection, whether including healthcare or not, is found to contribute negatively. One explanation may be that more spending on social protection programs causes externality in the sectors that provide social protection, shifting resources from traditional, more manufacturing-oriented, investment-intensive sectors to more service-oriented and less investment-intensive sectors such as senior care and healthcare. Hence, as more social protection is being provided, more service-oriented sectors would grow, reducing the level of investment in more capital-intensive, traditional industrial sectors. The larger, negative impact of this variable on investment than that on national saving can explain the positive impact of social protection, whether or not including healthcare, on current account balances.

The variable particularly for healthcare is persistently found to be a negative contributor to both national saving and investment, especially for developing and emerging market countries. When we use the public healthcare variable from the WDI database, which covers a larger number of countries, the impact is negative and significant especially for developing and emerging market countries. Thus, public healthcare expenditure would lower national saving for these countries. If the public sector takes care of part of the healthcare expenditure, individuals would face less need for saving to prepare for a rainy day, as we discussed above. This basically supports the mainstream policy recommendation that the PRC should increase public safety nets and public health/pension systems to reduce the national savings rate, which would increase domestic consumption, thereby reduce export dependency, and eventually contribute to rebalancing of the economy.

[16] That financial liberalization, which would result in higher interest rates should bring down savings rates may seem counterintuitive if one considers higher interest rates to be a major motivator for more investment. But if one considers that for PRC households saving decisions are primarily determined by considerations on future financial needs, e.g., for child education, the purchase of property, healthcare, or retirement needs, it would make sense for a household to actually reduce savings now in face of a higher interest rate, because the higher interest rate would help generate the same outcome at time t as a higher savings amount under a lower interest rate. The empirical literature on the effect of financial market development on saving rates is mixed. Loayza et al. (2000), and Horioka and Yin (2010) find a negative effect of financial sector development on the savings rate. Horioka and Terada-Hagiwara (2012) find a nonlinear relationship between private credit and the domestic saving rate, suggesting that financial sector development drives the savings rate up to a point, after which it falls again.

Let us focus on three more variables, though they are not necessarily micro-sectorial variables, since they are quite relevant to policy issues facing the PRC. The first two variables of our interest are those pertaining to demography, namely young and old dependency ratios. In an open economy setting where agents maximize their utility subject to an intertemporal budget constraint, as long as a Ponzi scheme is being ruled out, the current account would have to behave in a way that would maintain the intertemporal budget constraint (Trehan and Walsh 1991; Clower and Ito 2012). From this standpoint, a country with higher young population should tend to run current account deficit with its investment opportunities while the borrowing from the rest of the world will be paid off once the young segment of the population becomes the working population. Or, if a country with high volume of working population exports capital to the rest of the world, i.e., runs current account surplus, as it starts aging, that country can live on repayments from the rest of the world, in which case it should run current account deficit (e.g., Japan lately). This prediction is essentially the same as that of the life-cycle income hypothesis. Thus, the relationship between the saving rate and demographical distribution can be depicted with a hump or an inverted U-shape, which is also applicable to the investment rate.

Our estimation results are consistent with these predictions at least for the national saving estimation with the full sample; both young and old dependency ratios have significantly negative estimates. However, it is more of the young dependency ratio that is persistently found to be a negative contributor to the national saving rate and the investment rate. The old dependency ratio is a negative contributor to national saving and investment, but the results are more significant for industrialized countries.

Many observers of the PRC are concerned about the potential impact of the population aging in the PRC, which is argued to be faster than that of Japan. As far as our estimation results are concerned, a potential increase in the old population is not expected to have much impact on the current account balances, national saving, and investment. However, a drop in the young population, which is about to become a big issue for the country (Tyers and Golley 2010), seems to contribute to lowering both national saving and investment. Yet, a drop in investment may be bigger than that in national saving, which would eventually lead to an *improvement* in the current account of the PRC.

Lastly, we should mention that the capital account openness index (*KAOPEN*) is found to be a negative and significant contributor to current account balances persistently for the subgroup of developing countries. For these countries, *KAOPEN* is found to contribute negatively, but insignificantly, to national saving and insignificantly positively to investment. In any case, a developing country with more open financial markets tends to become a recipient of capital. This finding is particularly relevant to the PRC, because its financial markets are relatively closed despite the country's rapid economic growth and rise as an economic and geopolitical superpower. As of the 2006–08 period, its *KAOPEN*'s period average scores a mere 0.16 (with the value of 1.00 being the most open) while Brazil and Russia score 0.53 and 0.41, respectively, though the PRC's level of financial openness is on par with India. Although the PRC has started advocating internationalization of its currency lately, the biggest bottleneck of such an effort is its extremely risk-averse, gradualist approach toward external financial liberalization. Our estimation results indicate that further external financial liberalization may also help the country rebalance its current account surplus.

4. IMPLICATIONS OF THE ESTIMATION RESULTS FOR THE PRC

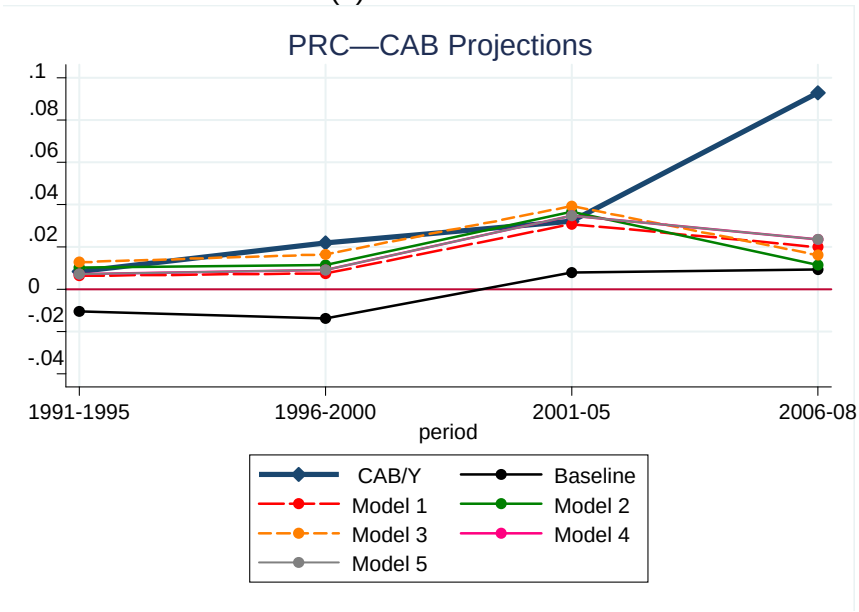
4.1 Contributions of sectorial variables

In this study, we focus on the impact of the variables pertaining to sectorial reforms, which the PRC is especially encouraged to undertake so that its current account imbalances can be corrected. In the previous estimation exercises, we have seen that reforms in the financial sector, social protection, and healthcare do matter for national saving and investment among developing and emerging countries, but less so for current account balances.

Figure 9 provides some visual evidence that these sectorial factors matter for saving and investment for the PRC. The figure illustrates the predictions of current account balances, national saving, and investment based on the baseline model and the five models that were presented in Tables 1–3 with different sets of variables pertaining to sectorial policies, namely, domestic financial liberalization, social protection expenditure with and without healthcare, and healthcare.[17]

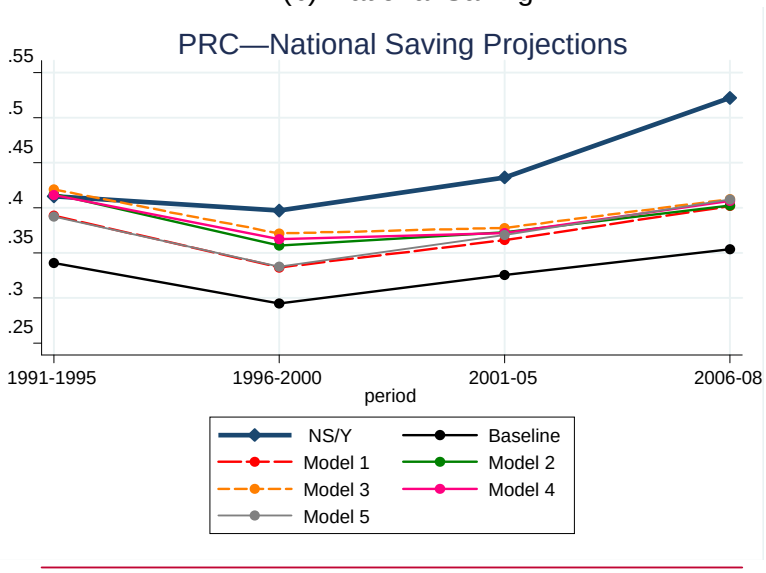
Figure 9: Projections of the PRC's CAB, NS, and Investment

(a) Current Account

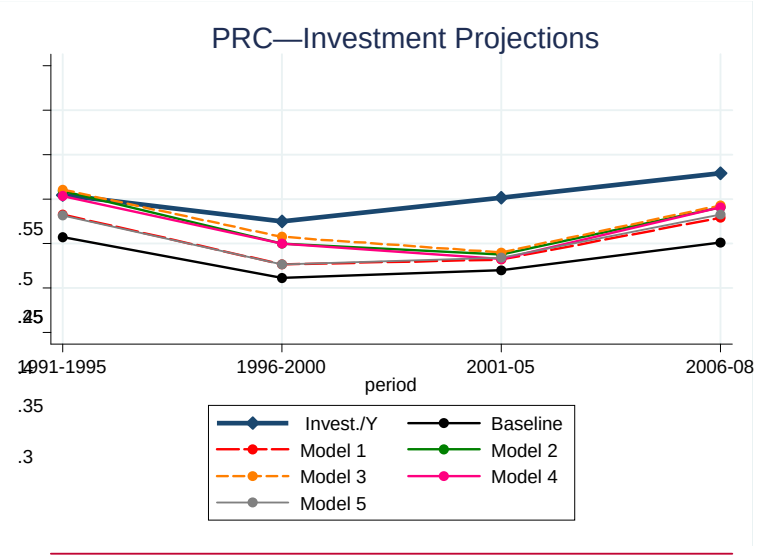


[17] Predictions are made using the estimation results for the subsample of developing countries, i.e., columns 13–18 in each of Tables 1–3.

(b) National Saving



(c) Investment



Source: Authors' calculations.

The panels of figures show that, for all of current account balances, national saving, and investment, the models with sectorial variables outperform the baseline model in their predictions. However, there is still an unexplainable component in the current account balances and national saving in the period 2006–08 although including these sectorial variables narrows the gap between the actual current account balance and the baseline prediction by 0.2% to 1.4% (Table 4). Chinn, Ito, and Eichengreen (2011) identify a structural break in the series of current account balances for emerging market countries. In our estimation, the variables for domestic financial liberalization and social protection policies somewhat help narrowing the unexplainable portion of the current account of the PRC in the period, but as Table 4 shows, our models still underpredict the country's current account by 6.9 to 8.4 percentage points. This

means that other factors are contributing to the country's excessively high current account surplus in the period.

Table 4: Projections of Current Account Balances, National Saving, and Investment for the PRC in 2006–08

	Current Account Balance			National Saving			Investment			
		Dev. from actual value	Dev. from Baseline		Dev. from actual value	Dev. from Baseline		Dev. from actual value	Dev. from Baseline	Net Saving
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10) = (1) – (7)
Actual	9.3%			52.2 %			42.9 %			9.3%
Baseline	0.9%	-8.4%		35.4 %	-16.8%		35.1 %	-7.8%		0.3%
Model 1	2.0%	-7.3%	1.1%	40.2 %	-12.0%	4.8%	37.9 %	-5.0%	2.8%	2.3%
Model 2	1.1%	-8.1%	0.2%	40.2 %	-12.0%	4.8%	39.1 %	-3.8%	4.0%	1.1%
Model 3	1.6%	-7.7%	0.7%	40.9 %	-11.2%	5.5%	39.3 %	-3.6%	4.2%	1.6%
Model 4	2.4%	-6.9%	1.4%	40.8 %	-11.4%	5.4%	39.1 %	-3.8%	4.0%	1.7%
Model 5	2.4%	-6.9%	1.4%	40.9 %	-11.3%	5.5%	38.3 %	-4.7%	3.1%	2.6%

Notes: "Actual" refers to actual values of current account balances, national saving, and investment. "Baseline" refers to predictions based on the "Baseline" model while "Models 1–5" refer to those made by "Models 1–5." Columns (2), (5), and (8) show the deviations of the model predictions from the actual values of current account balances, national saving, and investment. "Models 1–5." Columns (3), (6), and (9) show the deviations of the model predictions from the predictions of the "Baseline" model. Column (10) reports net saving as the different between actual or predicted national saving and investment.

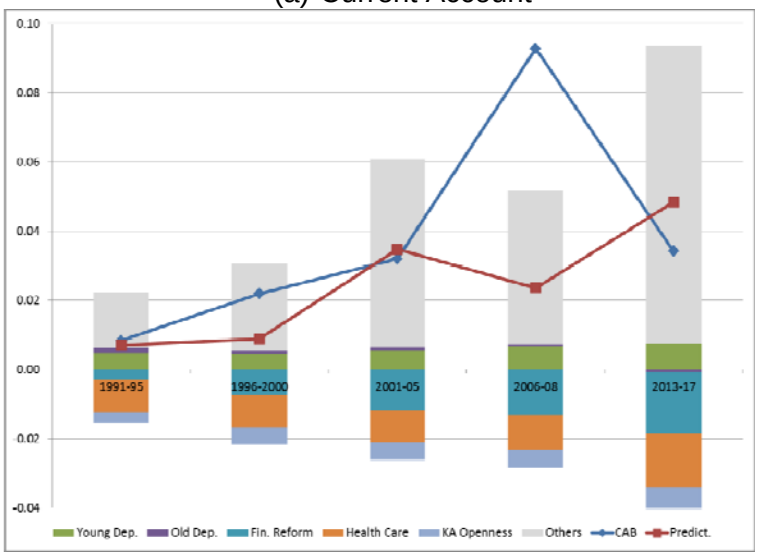
Source: Authors' calculations.

The models with sectorial variables predict national saving better than the baseline model by 4.8 to 5.5 percentage points, but still underpredicting the national saving in the period by 11 to 17 percentage points. Considering that our estimation models predict investment relatively well, we can conclude that the underprediction of the PRC's current account balances in the period 2006–08 is mainly a reflection of the underprediction of the country's saving.

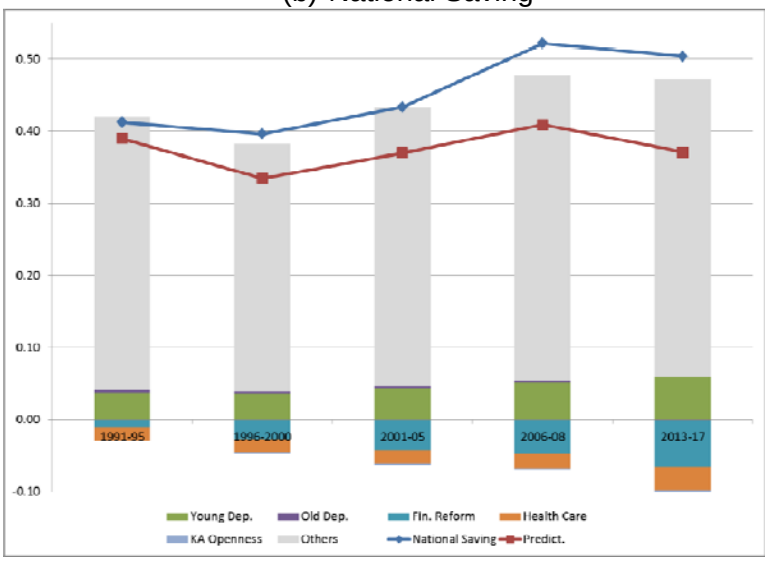
Among the variables of our focus, let us see how our sectorial variables contribute to the PRC's current account balances, national saving, and investment. Figure 10 illustrates how the contributions of the variables of our interest to the PRC's current account balance, national saving, and investment have evolved over time. In the figure, we also have out-of-sample predictions for the next five years, 2013–17, based on the estimates from the regressions of Model 5 and using the assumptions we describe in the Appendix.

Figure 10: Contributions of the Determinants of CAB, NS, and Investment

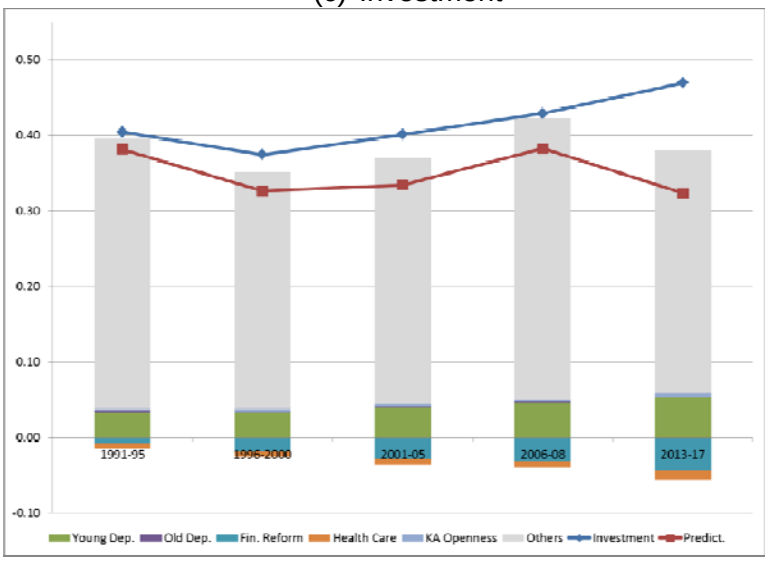
(a) Current Account



(b) National Saving



(c) Investment



Source: Author's calculations.

We can make several interesting observations. First, the contribution of domestic financial reform to the current account, national saving, and investment has been gradually, but steadily increasing over the years. Its contribution to the PRC's current account is about -1.3% in the period 2006–08, almost double compared to the period 1996–2000. The negative effect is expected to continue to rise to -1.8% in the period 2013–17.[18] Second, although its contribution is not as big as that of domestic financial reform, capital account openness also contributes to lowering the current account. As of the 2000s, the size of its contribution is as small as -0.5%, but given that there is still much room for the PRC to implement liberalization policy toward cross-border capital flows, such a policy can be expected to lower the current account surplus.

Third, the healthcare expenditure is another persistent negative contributor to the current account with the size of about -1%. As we will discuss later, if the PRC government decided to increase its public healthcare expenditure, its negative contribution can rise.

Fourth, young dependency ratios have contributed positively to the country's current account surplus until the period 2006–08. However, if the young population changes as the United Nations projects, its contribution will stabilize (at 0.7%) in the period 2013–17.

Fifth, similar observations can be made for national saving except for the impact of capital account openness. For the investment determination, however, young dependency ratios and domestic financial reform are found to be bigger contributors among the variables of our focus.

Last, the sum of the contributions of the variables of our interest to the PRC's current account, namely, young and old dependency ratios; domestic financial reform; healthcare expenditure; and capital account openness is -2.1% in 2006–08 and is expected to be -3.8% in 2013–17. The comparable figures for national saving and investment are -1.6% and 1.1%, respectively, for 2006–08 and -4.3% and 0.3% in 2013–17. We can see that these figures are economically significant. Also, we can expect these factors will contribute to lowering national saving and current account in the period 2013–17.

4.2 Scenario analysis—forecasts of the PRC's current account, national saving, and investment

We now know that sectorial reforms can have an important impact on the current account, national saving, and investment. The last question we cast is: how could they contribute to future rebalancing? To answer this question, we conduct scenario analyses for these sectors. More specifically, we will forecast the PRC's current account balances, national saving, and investment for the period 2013–17, but the forecasts will be conditional upon different scenarios for the sectorial development of our concern. As before, all the forecasts are made using the estimates of Model 5.

We first examine how the forecasts of current account balance, national saving, and investment change depend on the extent of progress in domestic financial reform. Except for the variable for domestic financial reform, we again use the assumptions described in the Appendix. As for the domestic financial reform variable, the baseline prediction is based on the assumption that the level of domestic financial reform will continue to increase its level with the annual trend. That is, the value of the domestic financial reform index rises from 0.48 in the period 2006–08 to

[18] We assume the level of domestic financial reform continues to rise with the annual trend.

0.63 in the period 2013–17, that is the level above the 2006–08 level of domestic financial reform of Brazil (see Table 5).[19]

Table 5: Domestic Financial Reform Index and Public Healthcare Expenditure (% of GDP) of Several Countries as of 2006–08

	Domestic Financial Reform Index (1.00 = max)	Public Health Care Expenditure (% of GDP)	Capital Account Openness (1.00 = max)
Argentina	0.91	5.01	0.24
Brazil	0.60	3.59	0.53
PRC	**0.48**	**1.94**	**0.16**
India	0.57	1.23	0.16
Indonesia	0.80	1.24	0.69
Rep. of Korea	0.85	3.39	0.43
Malaysia	0.85	1.94	0.50
Russia	0.89	3.30	0.41
Thailand	0.80	2.75	0.32
Viet Nam	0.54	2.57	0.24

Notes: The domestic financial reform index is based on Abiad et al. (2008). Because the original index ends in 2005, it is extrapolated using the linear annual trend. The healthcare expenditure is expressed as a share of GDP. The data are extracted from the World Bank's World Development Indicator. The capital account openness index is based on the Chinn and Ito index (2006, 2008). Normalization makes the maximal value 1.00 for both the domestic financial reform and capital account openness indexes.

Source: Authors' calculations.

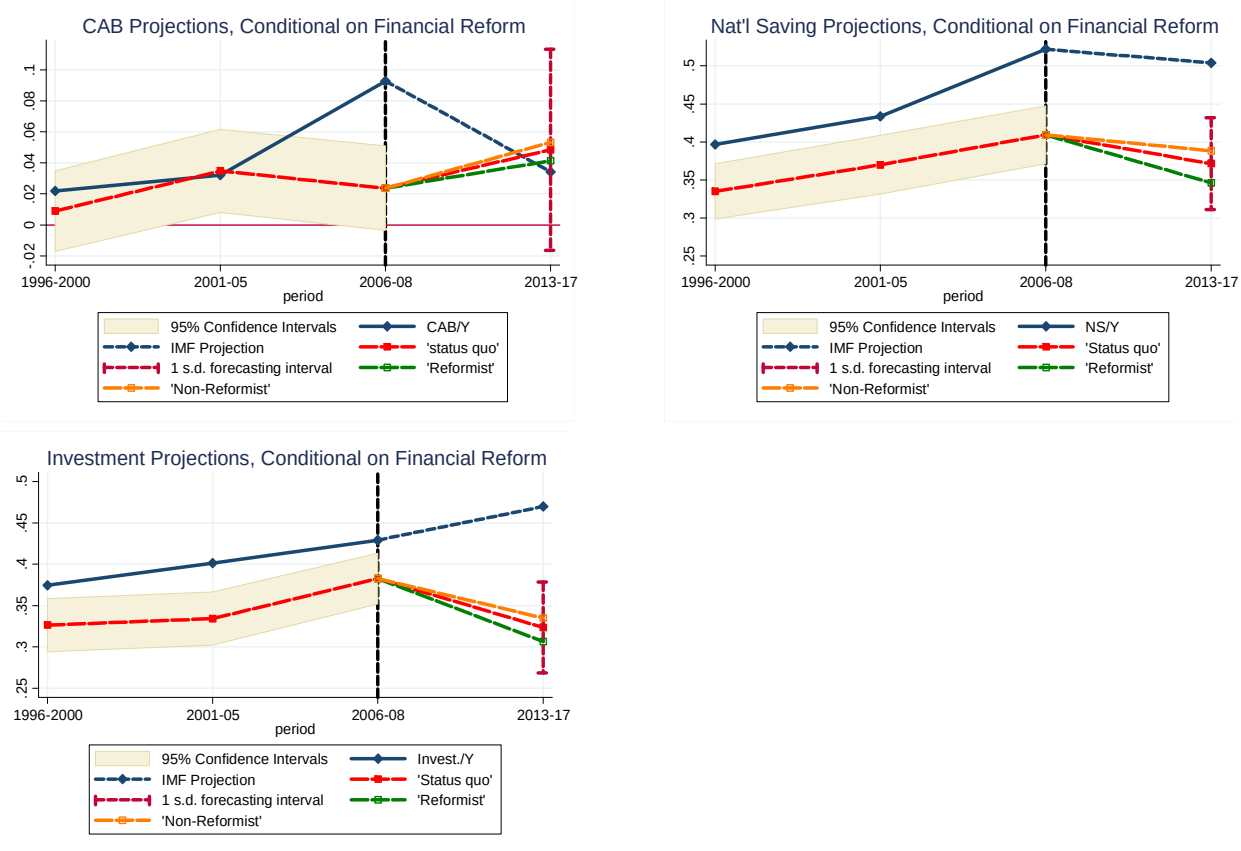
We also have two "reformist" and "non-reformist" scenarios, which we can consider the 'high state' and the 'low state,' respectively. In the reformist scenario, or the high state, we assume that the PRC will implement drastic domestic financial reform in the near future, so that the index for domestic financial reform will rise up to 0.91, the level Argentina enjoys as of 2006–08 (Table 5).

In the non-reformist scenario, or the low state, for whatever reason, the PRC does not proceed with domestic financial liberalization, in which case the index remains as 0.48, the lowest level among the countries reported in Table 5 and much lower than many other emerging economies.

[19] The healthcare expenditure is assumed to be 3% of GDP in 2013–17, slightly higher than the average of the period 2006–08.

Figure 11 displays the results of predictions for the different scenarios. In the reformist scenario, where the PRC implemented a drastic domestic financial reform, the current account balance would be lower than that in the baseline projection by 0.7 percentage points and lower than that in the non-reformist scenario by 1.2 percentage points. The national saving rate in the reformist scenario would be lower than that of the baseline by 2.5 percentage points while the investment rate in the reformist scenario would be lower than that of the baseline by 1.7 percentage points. Thus, if the PRC implements a drastic domestic financial reform, our analysis suggests a worsening of the current account balance primarily due to a deterioration of national saving.

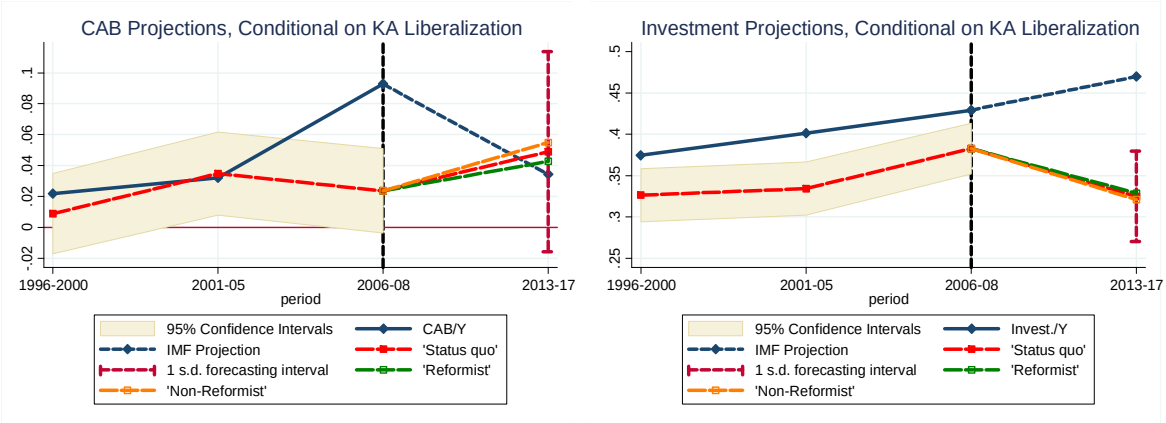
Figure 11: Projections of CAB, NS, and Investment, Conditional Upon Domestic Financial Reform



Source: Authors' calculations.

In Figure 12, we repeat the same exercise, but look into the impact of different extents of capital account liberalization.[20] In the baseline scenario, we assume the index of capital account openness rises to 0.35 in 2013–17 from 0.16 in 2006–08. Considering that policy makers in Beijing often are known for their preference for a gradualist approach, the assumed increase appears to be reasonable. In the reformist scenario, the PRC implements a drastic capital account opening, raising the *KAOPEN* index to 0.55, about the same as Brazil's 2006–08 level of financial openness. It may not be realistic, but is worth looking into. In the non-reformist scenario, we assume that the PRC makes no strives at capital account liberalization compared with the period 2006–08; it maintains the same level of financial openness as in the period 2006–08, i.e., takes the value of 0.16 for its *KAOPEN*.

Figure 12: Projections of CAB, NS, and Investment, Conditional Upon Capital Account Liberalization



Source: Authors' calculations.

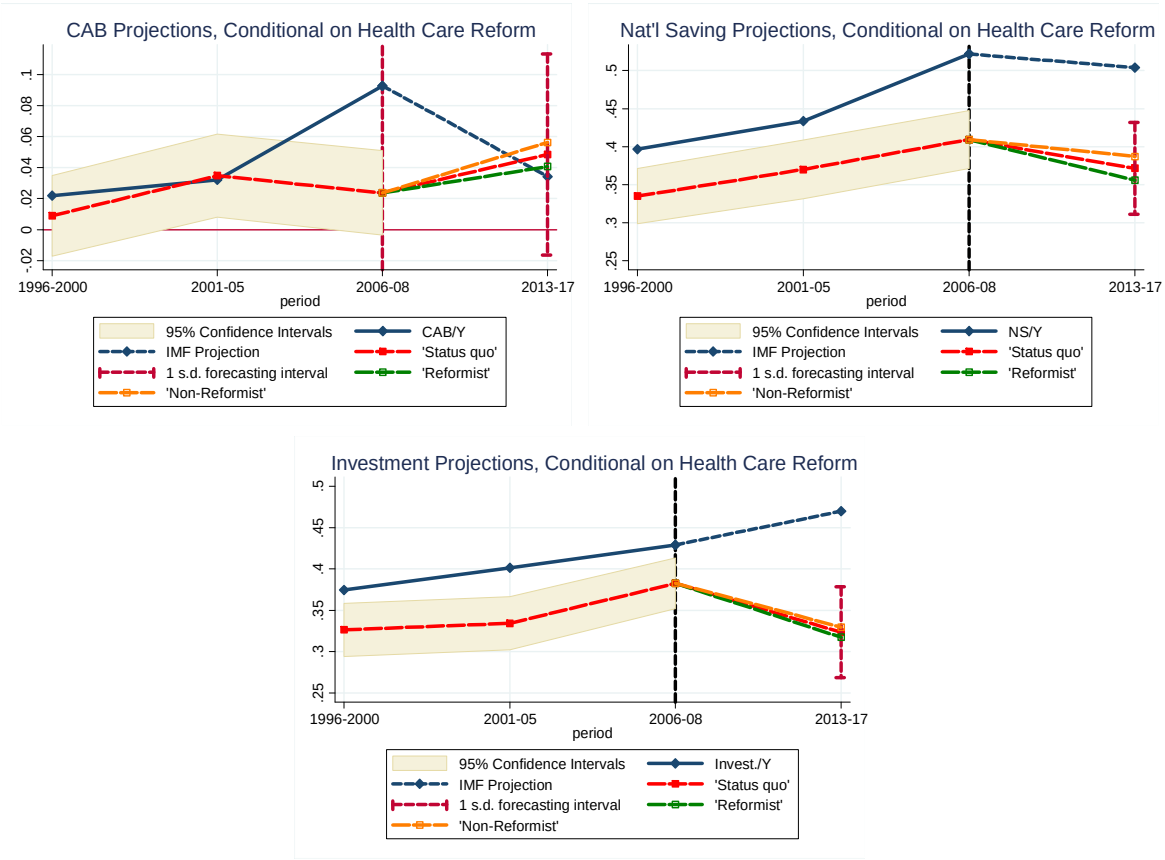
We can see that the impacts of capital account liberalization on the current account balances, national saving, and investment are minimal. In all scenarios, the impact on the three macroeconomic variables is less than 50 basis points above or below the baseline projection. These findings at least suggest that only large-scale capital account liberalization would affect the PRC's current account balances.

Lastly, we examine the effect of reforming healthcare expenditures. In the baseline scenario, we assume that the PRC increases the level of its healthcare expenditure as a ratio to GDP marginally to 3%, a little above the level as of the period 2006–08 (i.e., about 2% of GDP). In the reformist scenario, the PRC raises its healthcare expenditure to 4.5% of GDP, higher than the level of Brazil's but below that of Argentina as of 2006–08 (cf. Table 5). In the non-reformist scenario, the healthcare expenditure drops to 1.5% of GDP. This scenario is not implausible if the PRC experiences a high GDP growth which is accompanied by a less comparable rise in the healthcare expenditure.

[20] The domestic financial reform variable is set to remain the same as in the previous baseline case, i.e., 0.63.

Figure 13 shows that the PRC's current account surplus would fall by 0.8 percentage points if it increases its healthcare expenditure up to the high state level. The current account would worsen mainly through a fall in the level of national saving because investment is barely affected in the different scenarios. As in the case of domestic financial liberalization, improving public healthcare provisions could contribute to rebalancing the PRC's current account surplus.

Figure 13: Projections of CAB, NS, and Investment, Conditional Upon Healthcare Reform



Source: Authors' calculations.

4.3 Other factors

We have shown that our estimation models with variables representing sectorial development outperform those without. However, we have also shown that some large portions of the PRC's current account, national saving, and investment still cannot be fully explained by those models. An especially large portion of its national saving is left unexplained, leading us to suspect that other factors may be contributing to the country's high national saving.

For one, we can consider the high educational cost in the country as a big contributor to the high household saving while others point out Confucian values that emphasize the virtue of saving. The peculiarity of PRC corporate finance we previously discussed may not be fully captured by our domestic financial liberalization variable, raising the possibility that it may account for the unexplained component of the PRC's saving.

Du and Wei (2010) attribute part of the high saving tendency of PRC households to the sex imbalances that have become a serious social problem lately. In recent decades, the PRC's male population had been growing faster than the female counterpart, and many observers argue that the trend is expected to continue unless the one child policy is terminated or relaxed.[21] Du and Wei argue that in a country with deficit in female population, men are likely to hold more assets, i.e., savings, to win fierce competition in the marriage market.

Another factor is urbanization. The PRC's economic liberalization efforts since 1978 have led (often coastal) city areas to become more affluent than the inland rural areas.[22] Furthermore, the reform of the *Hukou*, or household registration, system in the mid-1990s made it easier for workers in the rural areas to migrate to city areas. These two factors contributed to rapid urbanization in the last two decades.[23] Economically, the influx of rural migrant workers has contributed to suppressed wage levels for workers, thereby disposable income in general. Furthermore, rapid urbanization without appropriate provisions or coverage of social safety net systems for migrated workers—a consequence of the *Hukou* system—has contributed to precautionary saving.

As we already discussed, the PRC's development has lopsidedly favored capital intensive industries over labor intensive industries, especially service industries. As was in the case of rapid urbanization, underdevelopment of service industries may have contributed to suppressing the wage income and also private consumption, contributing to higher levels of saving. Hence, one could expect the more developed the service industry is, the lower the level of national saving would be.

We now examine the impact of these three potential contributors to the current account, national saving, and investment. In particular, we now include data for the urban population ratio (to the total population); service industry ratio to GDP; and sex ratios (i.e., the number of male per female).[24] These variables are added to Model 5, both individually and collectively.

We do not report the estimation results to conserve space, but summarize the findings pertaining to the three variables.[25] The service industry ratio is found to be the most persistently

[21] The one-child policy exacerbates traditional, cultural preferences for male inheritance of family lines and properties.

[22] Per capita income level is three times higher in the former than in the latter in recent years.

[23] Recently, the PRC's urban population exceeded its rural population for the first time in history.

[24] Both urban population and service industry ratios are retrieved from the World Development Indicators. The sex ratio is from the United Nation's World Population Prospects Database.

[25] The estimates are available upon request.

significant contributor with a negative sign to the current account and national saving, a consistent result with our priors.[26] The more developed service industry is, the more likely national saving and the current account are to fall.

Urban population is found to be a significantly positive contributor to current account balances, but its effect comes through its negative impact on investment (while its impact on national saving is insignificant). While its negative impact on investment is somewhat difficult to interpret, one possible interpretation is that as more urbanization takes place, the geographical coverage of capital investment tends to be concentrated. With externality possibly arising from the geographical concentration of population, the investment ratio may fall because investing in geographically concentrated areas may be more productive (than in sporadically remote areas).

Lastly, the sex ratio is not found to have a significant effect on any of the dependent variables or the samples. In the cross-country context, the sex ratio does not seem to affect the behavior of saving or current account.

We must interpret these findings with caution, however. While these factors can be controlled or influenced by government policies—as they have been in the PRC, it is arguable whether they are policy variables or can have *direct* or *independent* impacts on saving, investment, and the current account. They can be effective interactively with other factors. For example, the impact of urbanization can be conditional upon the state of social safety net policies. Service industry and sex ratios can have impacts on saving depending on the state of domestic financial markets. These variables can also be inclusive of the impacts represented by other variables, which can make the interpretation harder. Hence, while these findings are suggestive, we should focus more on the sectorial variables we primarily investigated in the estimation exercise.

5. CONCLUDING REMARKS

In this paper we investigated the impact of reforms in the financial sector, social protection, and healthcare on saving and investment patterns and the current account. We complemented a discussion of the effect of such reforms on the PRC current account with a comprehensive cross-country analysis. Our findings suggest that that domestic financial liberalization has a negative impact on the current account balance among developing or emerging market countries. Moreover, domestic financial reform is found to affect both national saving and investment, changes in which will in turn affect the current account balance. In particular, our estimations confirm the often expressed view that financial repression contributes to higher levels of national saving, or conversely that domestic financial reform would help reduce national savings rates. Furthermore, domestic financial reform is found to lead to lower levels of investment, presumably by curtailing overinvestment resulting from directed lending through the state-owned banking sector.

While increasing social protection expenditure, excluding healthcare, is found to *increase* national saving for industrialized countries, it is found to *reduce* national saving for developing and emerging market countries, though the effect is not statistically significant for the latter group. Increases in social security spending have a negative effect on investment, which is possibly due to shifts of resources from traditional, more manufacturing-oriented, investment-intensive sectors to more service-oriented and less investment-intensive sectors, such as senior

[26] Including these variables whether individually or collectively does not affect the significance level of the other variables, though their magnitudes can be affected slightly. However, overall, these variables do not change the adjusted R-squared significantly.

care and healthcare. Hence, as more social protection is being provided, more service-oriented sectors would grow, thus reducing the level of investment in more traditional industrial sectors.

The paper also provides evidence that reforms relating to the financial sector and social safety and healthcare matter for saving and investment, as well as for the current account, of the PRC, the largest current account surplus country. We find that the contribution of domestic financial reform to the correction of imbalances has been gradually, but steadily, increasing over the years. Moreover, although its contribution is not as big as that of domestic financial reform, we find that capital account liberalization also contributes to a lowering of the PRC's current account surplus. Last but not least, we find healthcare expenditure to be another persistent negative contributor to the PRC current account.

Based on these results, we carry out scenario analysis and analyze the impact of various reform scenarios on the PRC's current account, national saving, and investment, respectively. Our predictions suggest that domestic financial liberalization would indeed contribute to a rebalancing the PRC's current account surplus. Moreover, the PRC's current account surplus would decline significantly if the country increased its healthcare expenditure to a level comparable to that of Brazil, another fast-growing emerging economy, an effect that would mainly derive from a fall in the level of national savings.

Our analysis highlights the impact of microeconomic reforms on macroeconomic imbalances. In particular, it provides support for those that have been arguing that a reform of the PRC's banking sector, with interest rate liberalization at the center of such reforms, as well as a development of the PRC's social security and pension system would help the country to reduce national saving and investment and allow domestic consumption to rise, all of which would help macroeconomic rebalancing.

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APPENDIX: ASSUMPTIONS FOR OUT-OF-SAMPLE FORECASTING OF THE PRC'S CURRENT ACCOUNT, NATIONAL SAVING, AND INVESTMENT

Variables	Assumptions
Government budget balance	World Economic Outlook projections (WEO, April 2012) are used.
Net foreign assets (initial)	Assumed to be 0.35 (It is 0.24 as of 2010)
Relative income	WEO (April 2012)
Youth and Old dependency ratios	Forecasts from the UN World Population Prospects Database are used.
Financial Develop. (PCGDP)	The average of the variable during the 2001–08 period is used.
Legal development (LEGAL)	Assumed to be 0.65, higher than the 2006–08 period's value of 0.51.
Financial openness (KAOPEN)	Assumed to be 0.35, higher than the sample period's average of 0.16.
TOT volatility	Same as 2006–08.
Average GDP growth	WEO (April 2012)
Trade openness	Same as the sample period average.