

FINANCIAL GLOBALIZATION, FISCAL POLICIES AND THE DISTRIBUTION OF INCOME

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Abstract

This paper provides evidence that financial globalization—liberalization of the capital account—makes income distribution more uneven by raising the share of income that goes to the richest income deciles. We also offer evidence that changes in domestic fiscal policies in the aftermath of financial globalization are one channel through which these distributional effects could occur. Specifically, we show that episodes of capital account liberalization are followed by greater fiscal consolidation and reduced fiscal redistribution, both of which lead to increased inequality.

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1. INTRODUCTION

Inequality in income and wealth have been increasing worldwide in recent decades. A number of possible drivers for this have been put forward including skill-biased technological progress (Bound and Johnson, 1992; Acemoglu, 1988; Jaumotte et al., 2013), demographics (Karahan and Ozkan, 2013), macro-economic adjustments (Agénor, 2004) trade globalization (Feenstra and Hanson, 1996) and labor market policies (Jaumotte and Osorio Buitron, 2015; Ciminelli et al. 2018).

Recently, the discussion of potential drivers has turned to looking at the role played by financial globalization or capital account liberalization. Furceri et al. (2019) show that episodes of capital account liberalization have been followed by a significant increase in inequality. Furthermore, the distributional effects of financial globalization depend on the strength of financial institutions—lower levels of financial depth and inclusion are associated with higher increase in income inequality—and on whether liberalization episodes are followed by financial crises (the adverse effects of financial liberalization increase when they are followed by crises).¹

This paper provides additional evidence on the distributional effects of capital account liberalization. In particular, we contribute to the literature in the following ways. First, we provide new evidence of the impact of financial globalization on top income shares. We show that financial globalization exerts significant and long-lasting distributional impacts by raising the share of income going to the top (1, 5 and 10 percent) of the income distribution. Second, we analyze the interaction between capital account liberalization and fiscal consolidation. We find that episodes of liberalization are followed by a reduction in public debt over the medium/long term. While this increased fiscal discipline is a benefit of

¹ Furceri et al (2019) also find that the impact of capital account liberalization on output is, on average, small and statistically insignificant. The uncertain aggregate benefits associated with capital account liberalization have also been documented in the previous literature (Eichengreen 2001; Prasad et al. 2003; Edison et al. 2004; Kose et al. 2009) while the distributional impacts appear to be quite strong (Larrain 2015; (Furceri and Loungani 2018).

financial globalization, there is also some distributional cost: liberalization is followed by lower fiscal redistribution which increases inequality directly, and also indirectly by amplifying the adverse distributional effect of financial globalization.

The remainder of the paper is structured as follows. Section 2 presents the data and the empirical methodology. Section 3 describes the results. Section 4 concludes providing some policy implications.

2. DATA AND EMPIRICAL METHODOLOGY

Measuring Capital Account Liberalization

To measure capital account liberalization we follow the approach proposed by Furceri et al. (2019) by using large changes in a *de jure* indicator of capital account restrictions to identify better episodes of policy changes in liberalization. While *de jure* indicators are imperfect proxies for the true degree of openness of the capital account, they have the advantage in comparison with *de facto* measures (viz. capital flows) of being less sensitive to reverse causality issues (Collins, 2007).

Data for capital account openness are taken from the Chinn and Ito (2008) database. While alternative *de jure* measures of capital account openness have been proposed in the literature (e.g. Quinn, 1997; Quinn and Toyoda, 2008), the Chinn and Ito index (Kaopen) provides the largest country and time period coverage. The index measures a country's degree of capital account openness based on the tabulation of restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)* database.² The index is available for an unbalanced panel of 182 countries from 1970 to 2015, and it ranges from -1.9 (more restricted capital account) to 2.5 (less restricted). The score of the capital account openness index varies greatly across income groups, with higher restrictions typically recorded in low-income and lower-middle income countries.

² See Chinn and Ito (2008) for details on the methodology.

Examining the behavior of inequality before and after the removal of restrictions on the capital account requires information about the date on which the restrictions were lifted. This information is difficult to obtain for a large set of countries, as ideally it would require information on dates of policy decrees or legislative changes. To infer the timing of major policy changes, Furceri et al. (2019) identify capital account liberalization episodes by assuming that a liberalization takes place when, for a given country at a given time, the annual change in the Kaopen indicator exceeds by two standard deviations the average annual change over all observations (i.e. exceeds 0.76).³ This criterion identifies 224 episodes of liberalization, with the majority of them occurring during the last two decades. In particular, the largest number of episodes has occurred during the 1990s and among middle-income countries. We examine the robustness of our results by using alternate cutoffs; specifically, we use one standard deviation and three standard deviations as alternate thresholds to identify a policy change.

We test the validity of this de jure measure by looking at what happened to capital flows in the aftermath of these episodes—as we show in the paper, liberalization episodes are followed by large changes in capital flows.

Empirical methodology

Following Furceri et al. (2019), we assess the impact of capital account liberalization by estimating the following specification:

$$g_{it} = a_i + \gamma_t + \sum_{k=0}^l \delta_k D_{i,t-k} + \sum_{k=0}^l \vartheta_k X_{i,t-k} + \varepsilon_{it} \quad (1)$$

where g is the annual change in the top shares of incomes⁴; D is a dummy variable which is equal to 1 at the start of a capital account liberalization episode and zero otherwise; a_i are country fixed effects included to control for unobserved cross-country heterogeneity; γ_t are

³ In addition to Furceri et al. (2019), a similar strategy has been followed in previous papers to identify episodes of stock market liberalizations (Henry, 2007) and labor and product market reforms (Bernal-Verdugo et al. 2013 and Bouis et al. 2012).

⁴ Data on top income shares are taken from Atkinson, Piketty and Saez (2011).

time fixed effects to control for global shocks. Since several types of economic reforms are often implemented simultaneously—this is particularly the case for current account and capital account reforms—we also include in the baseline specification a set of other structural reform variables (X) to distinguish the effect of capital account liberalization episodes from others. Specifically, we include control variables that accounts for reforms in trade and the current account as well as product and labor markets (employment protection legislation).⁵

Equation (1) is estimated using OLS on an unbalanced panel of annual observations from 1970 to 2015 for 149 advanced and developing economies. In addition to the regression results, we present the impulse response functions (IRFs) to describe the response of output following a capital account liberalization episode. The confidence bands associated with the estimated impulse-response functions are obtained using the standard errors of the estimated coefficients, based on clustered (at country-level) heteroskedasticity-robust standard errors.

3. FINANCIAL GLOBALIZATION, INCOME DISTRIBUTION AND FISCAL POLICES

The effects of financial globalization on capital flows

As discussed earlier, if changes in our de jure measure are subsequently followed by an increase in capital flows, it would suggest that our measure tends to reflect, at least on average, genuine policy changes. Before turning to the distributional effects of financial liberalization, in this section we first analyze how changes in our capital account liberalization episodes affect capital flows.

For this purpose, we estimate equation (1) using the share of capital flows—defined as the changes in total asset and liabilities in GDP—as the dependent variable. Figure 1 shows that the capital account liberalization episodes identified in this paper lead to a long-lasting increase capital flows, with a statistically significant contemporaneous increase of about 5 percent of GDP (Table 1).

Financial globalization and income distribution

⁵ See Ostry, Prati, and Spilimbergo (2009) for a description of how the data are constructed.

Capital account liberalization episodes tend to have substantial distributional effects. Figure 2 shows that capital account liberalization episodes lead to statistically significant and long-lasting increase in the top shares of income. In particular, the estimates suggest that liberalization has typically increased the income share of the top 1% by about 0.8 percent in the medium term—5 years after the reform. The effects are even larger when looking at the top 5%- and top 10%-income shares. The increase in top 5% (top 10%) income share following capital account liberalization episodes is about 1.3 (1.2) percent in the short term—1 year after the reform—and about 2.2 (1.7) percent in the medium term (Table 2).

Table 2 reports additional results based on different cutoffs of our financial liberalization measure. In these cases, we identify capital account liberalization episodes when the annual change in the Kaopen indicator exceeds, alternatively, by one or three standard deviations the average annual change over all observations. The results for both top income shares (Table 2 – columns 4-9) confirm our findings. Although point estimates are slightly different, they suggest that our evidence of the distributional costs associated with financial liberalization is not sensitive to the threshold used to identify liberalization episodes.

Financial globalization and fiscal policies

One of the potential benefits of capital account liberalization is to increase discipline in the conduct of macroeconomic policies. Since investment decisions are highly affected by the quality of macroeconomic policies, free capital movements may reward good policies and penalize bad ones, and thus force national authorities to adopt sounder macroeconomic policies (Obstfeld 1998; Kose et al. 2009). In addition, greater financial integration can also be interpreted as a signal that country's authorities wish to introduce and follow sound policies (Bartolini and Drazen 1997).

Moreover, international risk-sharing by decreasing growth volatility may reduce the incentive to use macroeconomic policy as a stabilization tool. Tytell and Weil (2004), for example, find that countries with higher levels of financial openness are likely to generate better monetary policy outcomes in terms of inflation. Kim (2003) finds that capital account liberalization has disciplinary effects on fiscal policy and contributes to reducing fiscal

deficits. Similarly, Furceri and Zdzienicka (2012) find that countries with higher level of financial openness and more open capital account tend to have lower deficits, higher cyclically-adjusted balances and lower government spending volatility.

While pursuing sound fiscal policy is key to enhance macroeconomic stability, reductions in deficits may come at some macroeconomic and distributional costs if growth-enhancing and/or redistributive spending is cut. In this subsection, we re-examine the effect of capital account liberalization episodes on improving fiscal sustainability and we provide new evidence on their effect on redistribution. The empirical specification is similar to Equation (1), but we alternatively use as the dependent variables: (i) real debt; and (ii) fiscal redistribution—defined as the difference between market and net inequality.⁶

The results confirm that capital account liberalization tends to improve fiscal discipline by reducing the stock of debt by about 25 percent over the long term (Figure 3, Panel A). At the same time, we find that liberalization is also associated with reductions in redistribution of about 50 percent points 10 years after the reform. (Figure 3, Panel B). The regressions on which these impulse responses are based are given in Table 3.

Fiscal redistribution, carried out in a way that is consistent with macroeconomic efficiency, can directly reduce inequality without harming growth (Ostry et al. 2014). An interesting question is whether fiscal redistribution plays also an indirect effect by shaping the response of output and inequality to capital account liberalization reforms. To test for this hypothesis, we estimate a specification similar to previous ones by interacting capital account liberalization episodes with a smooth transition function of the level of redistribution.⁷ Specifically, following Furceri et al. (2019), we estimate the following equation:

$$g_{it} = a_i + \gamma_t + \sum_{j=0}^l \delta_j^- D_{i,t-j} G(z_{it}) + \sum_{j=0}^l \delta_j^+ D_{i,t-j} (1 - G(z_{it})) + \sum_{j=0}^l \vartheta_j X_{i,t-j} + \varepsilon_{it} \quad (2)$$

⁶ We use real debt rather than the debt-to-GDP ratio to isolate the effect of capital account liberalization on fiscal discipline from the effect on GDP. Data on income inequality are taken from the Standardized World Income Inequality Database (SWIID 5.1). The SWIID includes measures of net (post-tax, post-transfers) and market (pre-tax, pre-transfers) income.

⁷ In this case we look at the effect of capital account liberalization on net Gini.

with $G(z_{it}) = \frac{\exp(-\gamma z_{it})}{1 + \exp(-\gamma z_{it})}$, $\gamma > 0$, in which z is an indicator of redistribution, normalized to have zero mean and unit variance, and $G(z_{it})$ is the corresponding smooth transition function. This approach is equivalent to the smooth transition autoregressive (STAR) model developed by Granger and Teravistra (1993) to assess non-linear effects above/below a given threshold or regime.⁸

The results presented in Figure 4 show that redistribution not only helps to mitigate the negative effects of capital account liberalization on inequality, but it also does not lead to smaller output gains. The difference between low and high redistribution is not statistically significant in the case of output. In contrast, capital account liberalization leads to a medium-term increase in inequality of about 4.5 percent in countries with very low redistribution, whilst in countries with very high redistribution, inequality increases only by about 1.5 percent over the medium term (Table 4).⁹

Overall these results highlight important interactions of financial globalization and fiscal consolidation—another likely driver of inequality. Financial globalization binds the conduct of domestic fiscal policy and leads to more limited fiscal redistribution, which directly and indirectly—by shaping the distributional effect of capital account liberalization reforms—increases inequality.

4. CONCLUSIONS

This paper provides additional evidence on the distributional effects of capital account liberalization and its interactions with fiscal policies. By using large changes in the Kaopen index for a broad sample of 149 advanced and developing countries over the period

⁸ The main advantage of this approach relative to estimating SVARs for each regime is that it uses a larger number of observations to compute the impulse response functions of only the dependent variables of interest, improving the stability and precision of the estimates. This estimation strategy can also more easily handle the potential correlation of the standard errors within countries, by clustering at the country level.

⁹ The specification also includes redistribution not interacted.

1970-2015, we show that capital account liberalization episodes lead to an increase in top income shares. In addition, we find that capital account liberalization reforms tend, on average, to affect the conduct of domestic fiscal policy and lead to lower public debt. While the increased discipline in the conduct of fiscal policy is an important benefit of financial globalization, it often comes at some costs in terms of reduced fiscal redistribution, which directly and indirectly—by amplifying the adverse distributional effect of financial globalization—increases inequality.

Countries where reduction in inequality is an important policy goal may thus need to design liberalization in a manner that balances this consideration against the other effects. Overall, our findings do not imply that countries should not undertake capital account liberalization, but they support the case for complementary policies. In particular, fiscal redistribution, carried out in a way that is consistent with macroeconomic efficiency, can help mitigate the distributional consequences of financial globalization without reducing their output effect.

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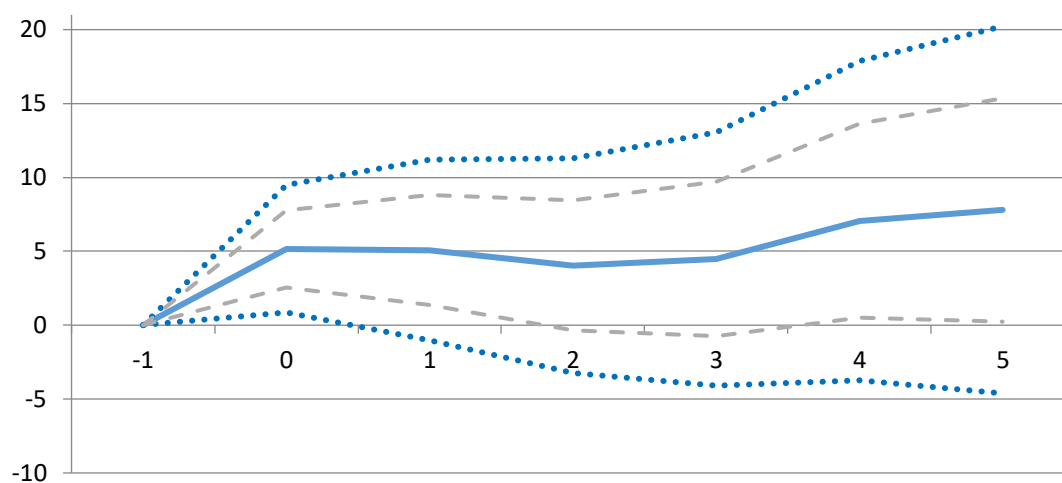
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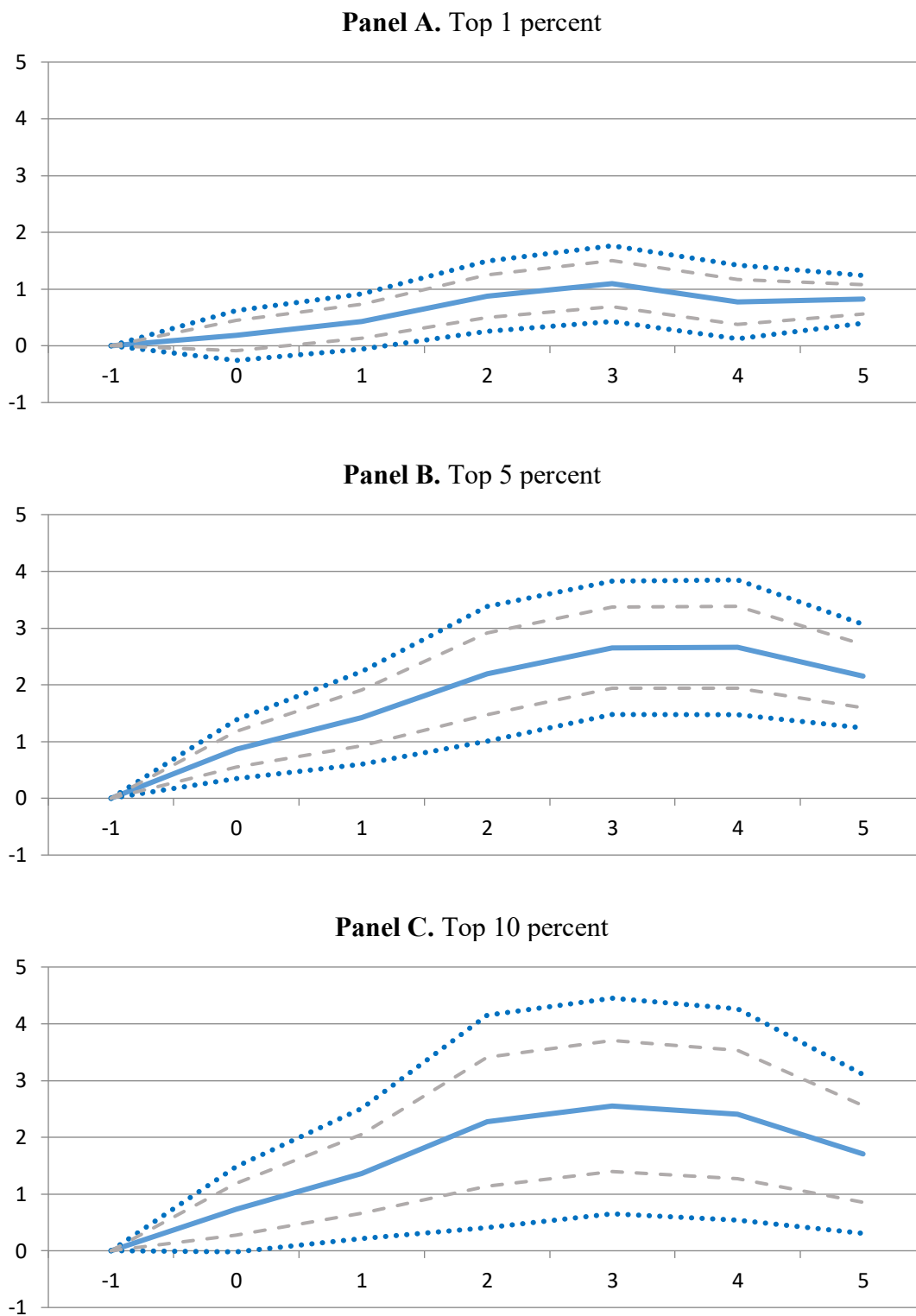
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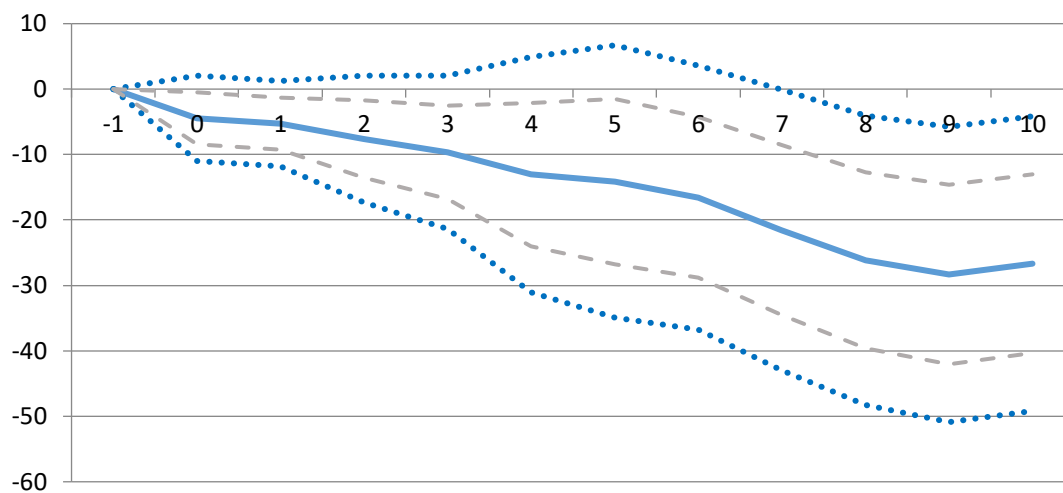
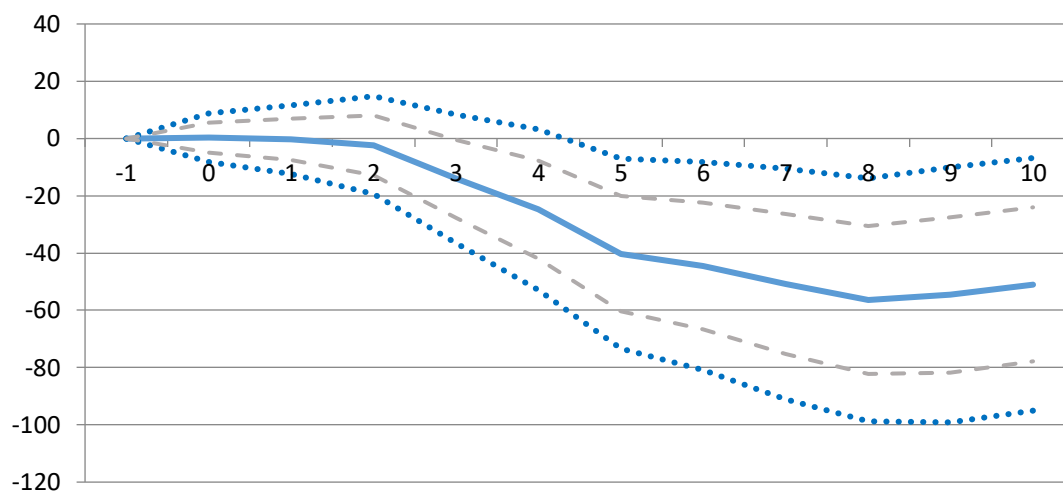
Figure 1. The impact of capital account liberalization on capital flows (percentage points)



Note: The solid line indicates the response of capital flows to a capital account liberalization episode. The dotted lines correspond to 90% confidence bands. The dashed lines correspond to 68% confidence bands. The x-axis denotes time; $t=0$ is the year of the reform. The estimates are based on equation (1).

Figure 2 .The effects of capital account liberalization to income shares (percent) – Baseline

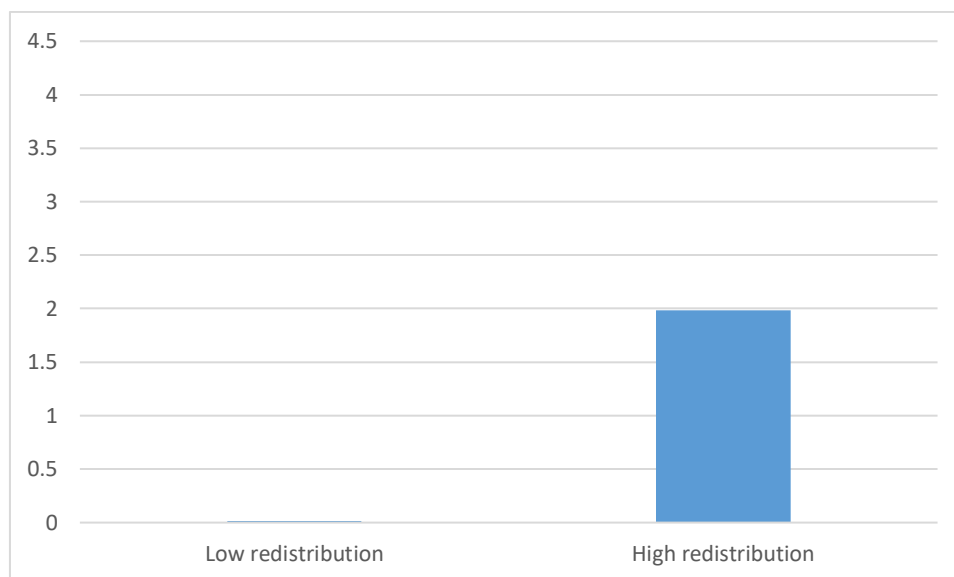
Note: The solid lines indicate the response of top income shares to a capital account liberalization episode. The dotted lines correspond to 90% confidence bands. The dashed lines correspond to 68% confidence bands. The x-axis denotes time; $t=0$ is the year of the reform. The estimates are based on equation (1).

Figure 3. The effect of capital account liberalization on fiscal policy**Panel A.** Real public debt (percent)**Panel B.** Redistribution (percent)

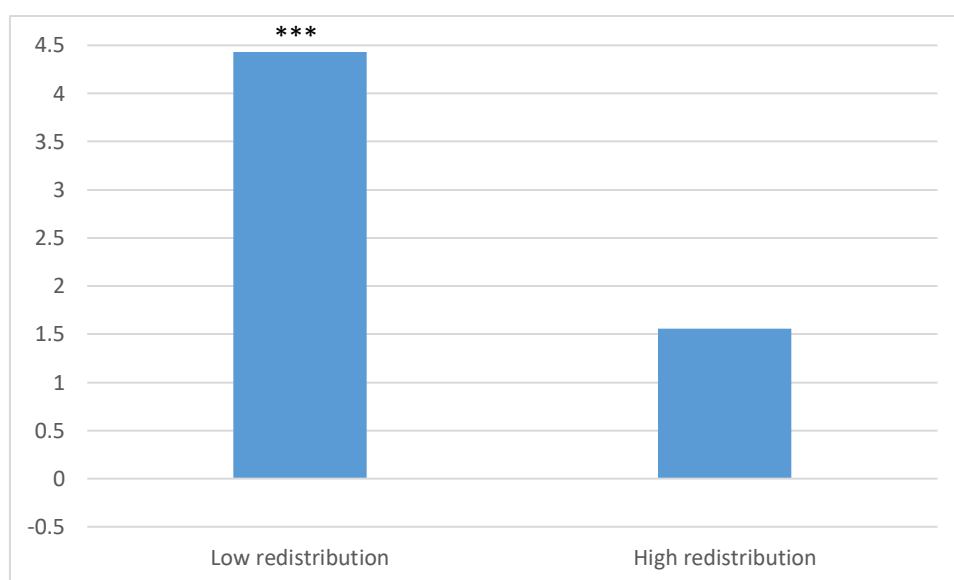
Note: The solid lines indicate the response of real public debt and redistribution (computed as the difference between Gini Market and Gini Net) to a capital account liberalization episode; the dotted lines correspond to 90% confidence bands. The dashed lines correspond to 68% confidence bands. The x-axis denotes time. $t = 0$ is the year of the reform. The estimates are based on equation (1).

Figure 5. The effect of capital account liberalization on output and inequality – the role of redistribution, (%)

Panel A. Output effects



Panel B. Inequality effects



Note: The charts show the medium-term effects (i.e. the effects of capital account liberalization episodes 5 years after the reform). ***, **, and * denote significance at 1%, 5% and 10%, respectively. The estimates are based on equation (2).

Table 1. The effect of capital account liberalization on capital flows

	Capital Flows
Capital account reform (t)	5.165* (1.975)
Capital account reform (t-1)	-0.079 (-0.044)
Capital account reform (t-2)	-1.039 (-0.634)
Capital account reform (t-3)	0.431 (0.316)
Capital account reform (t-4)	2.587 (1.194)
Capital account reform (t-5)	0.739 (0.371)
Medium term effect	7.804
F-test medium term effect	1.07
Observations	1,960
R-squared	0.535

Note: *t*-statistics based on robust clustered standard errors at the country level are in parentheses. ***, **, and * denote significance at 1%, 5% and 10%, respectively. The medium-term effect denotes the effect of capital account liberalization episodes 5 years after the reform. The estimates are based on equation (1). The set of controls, not reported, include lagged reforms in current account, trade, product and labor market as well as country and time fixed effects.

Table 2. The effects of capital account liberalization on income shares – different cutoffs

		Baseline			Kaopen 1sd			Kaopen 3sd	
	Change in Top 1% income	Change in Top 5% income	Change in Top 10% income	Change in Top 1% income	Change in Top 5% income	Change in Top 10% income	Change in Top 1% income	Change in Top 5% income	Change in Top 10% income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Capital account reform (t)	0.181 (0.678)	0.863** (2.740)	0.732 (1.602)	0.217 (0.957)	0.817** (2.867)	0.874* (2.046)	0.234 (1.023)	0.690* (1.963)	0.215 (0.531)
Capital account reform (t-1)	0.251 (1.714)	0.555** (2.676)	0.628* (2.036)	0.115 (0.927)	0.539*** (2.965)	0.662** (2.145)	0.284** (2.458)	0.424* (2.087)	0.482 (1.413)
Capital account reform (t-2)	0.442** (2.752)	0.775** (2.439)	0.916* (1.835)	0.379** (2.313)	0.679** (2.111)	0.848 (1.719)	0.131 (0.954)	0.307 (1.276)	0.199 (0.760)
Capital account reform (t-3)	0.222*** (2.847)	0.462*** (2.927)	0.275 (0.998)	-0.264 (-0.735)	0.440** (2.511)	0.268 (0.924)	0.273 (1.677)	0.499* (1.844)	0.357 (0.730)
Capital account reform (t-4)	-0.321 (-1.441)	0.007 (0.022)	-0.146 (-0.369)	-0.422** (-2.227)	-0.002 (-0.007)	-0.113 (-0.303)	-0.200 (-0.850)	0.061 (0.190)	0.214 (0.381)
Capital account reform (t-5)	0.045 (0.212)	-0.510* (-1.750)	-0.698 (-1.619)	0.033 (0.174)	-0.435 (-1.620)	-0.533 (-1.326)	-0.212 (-0.948)	-0.660* (-1.968)	-0.660 (-1.268)
Medium term effect	0.820**	2.151**	1.708*	0.058	2.038*	2.005**	0.510	1.320*	0.807
F-test medium term effect	10.19	14.91	4.02	0.01	10.03	5.22	1.92	3.52	0.62
Observations	450	378	391	450	378	391	450	378	391
R-squared	0.127	0.169	0.139	0.135	0.162	0.137	0.118	0.142	0.109

Note: *t*-statistics based on robust clustered standard errors at the country level are in parentheses. ***, **, and * denote significance at 1%, 5% and 10%, respectively. The medium-term effect denotes the effect of capital account liberalization episodes 5 years after the reform. The estimates are based on equation (1). The set of controls, not reported, include lagged reforms in current account, trade, product and labor market as well as country and time fixed effects.

Table 3. The effect of capital account liberalization on fiscal policy

	Real public debt (1)	Redistribution (2)
Capital account reform (t)	-4.438 (-1.122)	0.333 (0.064)
Capital account reform (t-1)	-0.866 (-0.283)	-0.707 (-0.191)
Capital account reform (t-2)	-2.336 (-0.939)	-1.982 (-0.421)
Capital account reform (t-3)	-2.038 (-1.011)	-11.764** (-2.155)
Capital account reform (t-4)	-3.367 (-0.750)	-10.659** (-2.240)
Capital account reform (t-5)	-1.070 (-0.408)	-15.494*** (-2.674)
Capital account reform (t-6)	-2.444 (-1.164)	-4.225 (-0.824)
Capital account reform (t-7)	-4.978** (-2.364)	-6.351 (-1.321)
Capital account reform (t-8)	-4.643** (-2.123)	-5.554 (-0.857)
Capital account reform (t-9)	-2.149 (-0.767)	1.764 (0.411)
Capital account reform (t-10)	1.671 (0.809)	3.673 (1.251)
Long term effect	-26.658*	-50.965*
F-test long term effect	3.80	3.60
Observations	1,013	872
R-squared	0.139	0.174

Note: *t*-statistics based on robust clustered standard errors at the country level are in parentheses. ***, **, and * denote significance at 1%, 5% and 10%, respectively. The long-term effect denotes the effect of capital account liberalization episodes 10 years after the reform. The estimates are based on equation (1). The set of controls, not reported, include lagged reforms in current account, trade, product and labor market as well as country and time fixed effects.

Table 4. The effect of capital account liberalization on output and inequality – the role of redistribution, (%)

	Gini (1)	GDP Growth (2)
Capital account reform * G(z) (t)	0.817** (2.194)	-0.382 (-0.631)
Capital account reform * G(z) (t-1)	0.725* (1.835)	0.263 (0.478)
Capital account reform * G(z) (t-2)	0.303 (0.571)	-0.592 (-0.878)
Capital account reform * G(z) (t-3)	1.020** (2.501)	0.159 (0.286)
Capital account reform * G(z) (t-4)	0.705 (1.381)	0.399 (0.730)
Capital account reform * G(z) (t-5)	0.863* (1.922)	0.170 (0.266)
Capital account reform * [(1-G(z)) (t)	0.691* (1.987)	0.157 (0.284)
Capital account reform * [(1-G(z)) (t-1)	0.364 (1.111)	0.546 (1.011)
Capital account reform * [(1-G(z)) (t-2)	0.003 (0.007)	0.376 (0.618)
Capital account reform * [(1-G(z)) (t-3)	-0.074 (-0.191)	-0.096 (-0.169)
Capital account reform * [(1-G(z)) (t-4)	0.198 (0.513)	0.515 (0.787)
Capital account reform * [(1-G(z)) (t-5)	0.379 (0.842)	0.485 (0.869)
Medium term effect – G(z)	4.432***	0.017
F-test medium term effect – G(z)	11.59	0.00
Medium term effect – [1-G(z)]	1.559	1.984
F-test medium term effect – [1-G(z)]	1.54	0.85
Observations	1,635	1,625
R-squared	0.634	0.427

Note: *t*-statistics based on robust clustered standard errors at the country level are in parentheses . ***, **, and * denote significance at 1%, 5% and 10%, respectively. The medium-term effect denotes the effect of capital account liberalization episodes 5 years after the reform. The estimates are based on equation (2). The set of controls, not reported, include lagged reforms in current account, trade, product and labor market as well as country and time fixed effects.