Domestic inequality and global imbalances

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Abstract

We document that countries with higher income inequality have larger current account surpluses. A 1 percentage point increase in the share of income earned by the top 1 percent is associated with a 0.4-0.7 percentage point higher current account. We rationalize this finding through a two-country heterogeneous agent model and show that, all else equal, capital flows from unequal to equal countries. Non-homotheticities in preferences generate higher savings rates by rich households which translate into current account surpluses under international capital mobility. We illustrate how developed financial markets can offset the effects of inequality on the current account as evidenced by the persistent deficit of the United States.

Keywords: Inequality, Global imbalances, Capital flows

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1 Introduction

Since the 1990s, the global economy has been characterized by a large increase in within-country income inequality, sustained financial liberalisation and a surge in current account imbalances. Against this background, this paper establishes a tight link between these developments in the data and develops a theoretical framework that jointly rationalizes the nexus between inequality, financial liberalisation and cross-border capital flows.

We begin by documenting a strong, positive empirical link between the level of domestic income inequality and the current account. Using cross-country panel regressions, we show across a large sample of advanced and emerging economies that countries with higher income inequality have higher current account surpluses. In particular, we find that a 1 percentage point increase in the share of income earned by the top 1 percent is associated with a 0.4-0.7 percentage point higher current account surplus.

The link between income inequality and the current account is robust across several dimensions. First, our central result does not depend on the specific choice of inequality measure. While we use the share of disposable income held by the top 1 percent as our baseline measure (Mian et al., 2020, 2021), the result also holds for other measures of inequality. Second, we demonstrate that this relation is present across several subperiods of our sample and not driven by a specific period. Third, we show that the link between inequality and capital flows is even stronger within a sample of advanced economies only. Finally, we illustrate that our results are not specific to a particular estimation method.

We innovate on the IMF's External Balance Assessment (EBA) methodology by adding measures of inequality and introducing country-fixed effects to absorb unobservable time-invariant country characteristics. The EBA methodology is state-of-the-art in the assessment of external imbalances in policy circles and consists of cross-country panel regressions of the current account on a host of control variables that are typically considered to affect the current account. As such, our results are unlikely to be affected by omitted variable bias. We consider this methodological innovation paired with a relatively large sample to be the main reason for documenting a positive relation between inequality and current accounts. The recent literature, in contrast, has found rather mixed results (Behringer and Van Treeck, 2018; De Ferra et al., 2021; Kumhof and Ranciere, 2022).

To shed light on the channels through which inequality affects current accounts, we start from the observation that richer households have higher savings rates (Dynan et al., 2004; Fagereng et al., 2019; Straub, 2019). We document that savings rate heterogeneity at the micro-level translates into savings rate heterogeneity at the macro-level by showing that national savings rates and income inequality are positively correlated across countries. Investment rates, on the other hand, do not show any significant conditional comovement with the concentration of income. These results are indicative of current accounts being higher in unequal countries due to higher savings rates.[1]

[1] Coeurdacier et al. (2015) provides empirical evidence for this channel.

To rationalize our empirical findings, we develop a parsimonious model with two countries, Equal (E) and Unequal (U). Each country is populated by two households, representing the top 1 percent and the bottom 99 percent of the income distribution, respectively, who trade debt contracts amongst each other. Both countries are identical except for the distribution of income. The key feature of the model is that households have a preference for wealth which introduces non-homotheticities.[2] These non-homotheticities generate differences in marginal propensities to save out of permanent income, yielding a role for the distribution of income.

We first illustrate in a closed economy setting that the more unequal country U is characterized by a lower interest rate. Similar to Mian et al. (2021), the top 1 percent of the income distribution act as lender to the bottom 99 percent. With a higher share of income earned by the top 1 percent, i.e. higher inequality, the rich are willing to lend more to the poor which depresses the interest rate.[3] We show how the model can be recast through a simple debt-supply diagram for debt.

Once capital is allowed to flow freely between countries, we show that U runs a current account surplus which is mirrored by a current account deficit in E. Opening up the economy equalizes the interest rate on debt across countries at a level that is above the interest rate under autarky in U and below the interest rate under autarky in E. The higher return on lending incentivises the top 1 percent in U to expand their lending beyond what can be absorbed domestically by the bottom 99 percent. The top 1 percent in E, in contrast, reduce their savings following the decrease in the interest rate. As a result, U runs a current account surplus and E runs a current account deficit.

Our model delivers several testable predictions that we validate in the data. The first set of predictions relates to the relationship between inequality and current accounts. We illustrate that what matters for the configuration of global imbalances is predominantly relative within-country inequality, as captured by the dispersion of within-country inequality across countries, rather than the absolute level of inequality. Empirically, we observe a striking co-movement between the level of global imbalances and the cross-country dispersion of income inequality.

The second set of predictions concerns the role of financial markets, which we incorporate into the model in a reduced-form way with a borrowing constraint (Caballero et al., 2008; Mian et al., 2021). We show that uniformly more developed financial markets amplify the effect of inequality on current accounts. However, we also illustrate that *asymmetric* financial development can dampen this effect. In fact, sufficiently loose borrowing constraints in U relative to E can offset the effect of inequality on current accounts and induce a current account deficit in U. This is reminiscent of the experience of the United States and United Kingdom over the last decades, who ran persistent current account deficits despite high domestic inequality, but have highly developed financial markets.

Literature. This paper contributes to the theoretical literature on the determinants of current

[2] Preferences for wealth are a common assumption in the literature on inequality (Kumhof et al., 2015; Straub, 2019; Mian et al., 2021).

[3] Compared to Mian et al. (2021), our model features a more conventional upward-sloping instead of downward-sloping savings supply curve in the interest rate. In contrast to Kumhof et al. (2015), our model does not rely on preference heterogeneity and features a downwards sloping savings demand curve.

account imbalances by uncovering a novel channel, namely inequality-induced differences in savings rates. Previous studies either analysed the risk-sharing implications of inequality for current accounts (Broer, 2014; De Ferra et al., 2021), studied only one country (Grüning et al., 2015; Rannenberg et al., 2022), focused on preference heterogeneity (Kumhof and Ranciere, 2022) or analysed other origins of differences in saving rates (Caballero et al., 2008; Coeurdacier et al., 2015; Auclert et al., 2021; Smitkova, 2022). A more recent literature also studies the reverse direction, from trade imbalances to inequality (Kehoe et al., 2018; Dix-Carneiro and Traiberman, 2023).

Our paper is also closely related to empirical studies linking current accounts with inequality. Several papers find mixed evidence (Broer, 2014; Behringer and Van Treeck, 2018; De Ferra et al., 2021; Kumhof and Ranciere, 2022). To the best of our knowledge, we are the first to establish a positive link between income inequality and current accounts in the data. Moreover, we also study the role of wealth inequality and provide a potential explanation for the different empirical results associated to the distributions of personal and functional income (Behringer and Van Treeck, 2018; Smitkova, 2022).

Our work builds on a large body of literature studying the effects of inequality on interest rates, debt and more broadly secular stagnation in the context of a closed economy (Kumhof et al., 2015; Cairó and Sim, 2018; Straub, 2019; Mian et al., 2020, 2021; Rannenberg, 2019). We extend these ideas to an open economy setting. Moreover, this strand of the literature largely focuses on the effects on the interest rate (Eggertsson et al., 2016; Rachel and Summers, 2019; Platzer and Peruffo, 2022), while we focus explicitly on the external sector.

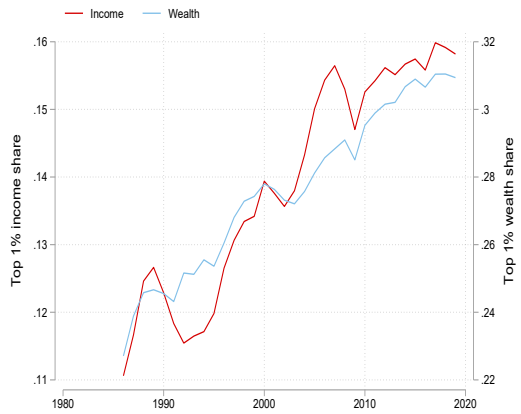
Finally, the crucial role of financial markets in our model connects to the literature on the exorbitant privilege, for example in Maggiori (2017) and Kekre and Lenel (2021). We integrate some of these insights into our theoretical framework and show how financial forces shape the configuration of global imbalances. In particular, we illustrate how the exorbitant privilege can offset the effects of inequality. This indicates that with a more balanced distribution of income, the United States might run even larger current account deficits.

2 Empirical analysis

The rise in within-country inequality in recent decades has been extensively documented (Piketty, 2014). Figure 1 illustrates that (i) inequality has increased at a global scale and (ii) that this increase has occurred across the distribution of both income and wealth. Measured in terms of the share of income or wealth held by the top 1 percent, inequality has increased by almost 50 percent.

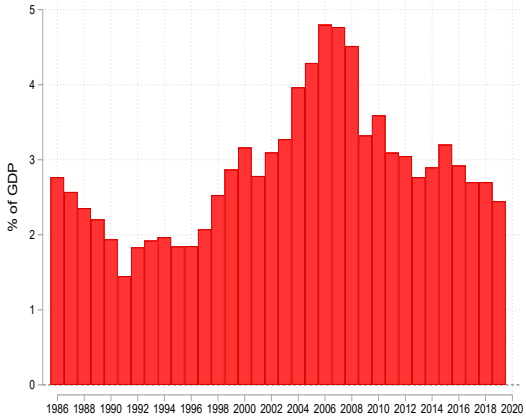
In the same period, the fall of the Soviet regime, the progressive inclusion of emerging Asian economies within the international economic order and the generalized tendency towards laxer financial regulation, led to a steady increase in cross-border trade and financial flows, both in gross and net terms. This growth was eventually halted by the Global Financial Crisis that shed light on persistent current account imbalances whose chronological build-up is shown in

Figure 1: Evolution of inequality



Notes: Inequality is measured by the fraction of income or wealth held by the top 1% provided by the WID. Income refers to pre-tax income. Data refer to GDP-weighted aggregates. The sample includes 52 countries.

Figure 2: Evolution of global imbalances



Notes: Bars denote the GDP-weighted aggregate absolute current account, i.e. $\sum_i \frac{CA_{i,t}}{GDP_{i,t}}$.The sample includes 52 countries.

Figure 2.

The existence and sign of the relation between inequality and imbalances has been far from settled by the empirical literature. In Appendix C, we discuss at length existing articles studying the relation between inequality and current accounts. Theoretically, the relationship is ambiguous, as an increase in inequality can influence domestic savings and investment rates in opposite directions. A larger share of income accruing to the top of the distribution might spur investment by relaxing borrowing constraints for entrepreneurs or by improving expected returns to investment, or reduce it, if expectations around future profitability suffer from downward pressures to aggregate demand. Similarly, savings can increase due to a larger marginal propensity to save of the rich, or decrease due to consumption habits and relative income effects. Establishing which forces dominate thus requires a full-scale econometric analysis of both channels affecting current account balances.

2.1 Data

The empirical analysis in this article draws on several data sources. The World Inequality Database (WID) provides a comprehensive range of indicators on income and wealth inequality across countries, including Gini indices, top shares, and other measures. Given its breadth in terms of time and space, we rely on WID measures for most of the following section. To assess the robustness of our estimates, we draw on OECD indicators on wealth inequality which differently to the WID are based on survey data. We also use OECD data on sectoral financial accounts. With regards to other macroeconomic variables, we primarily rely on the International Monetary Funds's (IMF) External Balance Assessment (EBA) dataset. The World Bank (WB) provides data on stock market capitalization of domestic firms and national saving and investment rates. We use the External Wealth of Nations (EWN) database to extract data on countries' foreign

asset positions. Overall, our resulting panel dataset is comprised of 1,768 observations for 52 countries spanning the years 1986-2019.

2.2 Empirical strategy

We base our empirical analysis on the External Balance Assessment (EBA) model developed by the IMF and described in Phillips et al. (2013). The baseline regression estimated by the IMF EBA employs the current account as a share of GDP as the dependent variable, with a rich vector of controls divided into three categories: (i) cyclical factors, (ii) fundamentals, and (iii) policy variables.[4] Additionally, the EBA model corrects for panel-wide AR(1) autocorrelation and assumes heteroskedastic disturbances when calculating standard errors.

To analyse the relation between the current account and inequality, we extend the EBA model with a measure of inequality. Moreover, we introduce country- and year-fixed effects to capture time-invariant country characteristics and time effects that are common across countries. In particular, we estimate the following regression:

$$ca_{it} = \alpha + \boldsymbol{\beta}\mathbf{X_{it}} + \gamma ineq_{it} + \delta_i + \psi_t + \epsilon_{it} \tag{1}$$

where ca_{it} denotes the current account balance over GDP for country i in year t, $\mathbf{X_{it}}$ refers to the vector of year-country-specific controls and δ_i and ψ_t denote country- and year-fixed effects, respectively. $ineq_{it}$ denotes our measure of inequality, with γ being the coefficient of interest.

The current account balance is by nature measured relative to other countries and is therefore not only determined by a country's own characteristics, but also by foreign ones. To ensure consistency between the left- and right-hand-side of our regression, we therefore also measure our independent variables relative to other countries, unless the variable is already measured in relative terms, such as the net foreign asset position. In particular, for each variable we compute a GDP-weighted world average and include the variable as the deviation from the world average into our regression.[5]

Given the nature of our data and empirical strategy, we do not claim that we are identifying the causal effect of inequality on current accounts. Our aim is to capture as accurately as possible the relation between these variables by controlling for observable economic forces that are theoretically expected to affect the current account and eliminating unobservable time-invariant determinants by focussing on within-country variation. We explore the causal effects

[4] Cyclical regressors include the estimated output gap and commodity terms-of-trade gap. Fundamentals are lagged net foreign assets, lagged output per worker, 5-year-ahead forecasted real GDP growth, reserve currency status, population growth, the old-age dependency ratio, the share of prime-aged savers over total working age population, life expectancy of current prime-aged savers and its interaction with 20-year-aged old-age dependency ratio, institutional quality as proxied by the International Country Risk Guide, a combination of oil and natural gas balance over GDP and the ratio of current extraction to estimated reserves. Policy variables include instrumented fiscal policy balance, lagged health spending, instrumented foreign exchange intervention interacted with the Quinn index of capital controls, private credit to GDP.

[5] Year-fixed effects are in principle not necessary given that all variables are expressed relative to a world average. We include them anyways to account for the fact that our sample does not cover all countries and that the global current account does not necessarily balance due to statistical discrepancies. Results are very similar without year-fixed effects.

Table 1: Current accounts and income inequality

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
Income inequality	0.423***	0.741***	0.378***	0.575***	0.358***	0.418***
	(0.116)	(0.152)	(0.089)	(0.121)	(0.085)	(0.110)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.60	0.68	0.61	0.69	0.61	0.68
Observations	666	476	666	476	666	476

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

of inequality on current accounts through the lens of a structural model in Section 3.

2.3 Results

We find a strong positive and statistically significant relation between income inequality and the current account balance. Column 1 of Table 1 shows that a one percentage point higher share of disposable income held by the Top 1 percent is associated with a 0.42 percentage point higher current account surplus. This relation almost doubles in magnitude once we look at advanced economies only. To understand the quantitative implications of this association, it is useful to reason in terms of standard deviations. Our results indicate that a one standard deviation increase in income inequality is associated with a current account that is 2.1-3.7 percentage points higher, depending on the sample.

This relation is present irrespective of how income inequality is measured. Columns 3-6 in Table 1 show that the magnitude of the effect is comparable when we measure income inequality by the fraction of income held by the Top 10 percent or, alternatively, by the Gini index. Appendix B furthermore shows that our results also hold for gross income, i.e. income before taxes and transfers and to a lesser extent for wealth inequality. They also remain unaffected if we include the wage share of the economy among the controls, pointing to complementary roles for inequalities in personal and functional income.

Income inequality also explains a fairly large share of the variation in current accounts. Compared to a regression without inequality variables, the R-squared increases by 6 percent. Considering the large set of control variables and the inclusion of both country- and time-fixed effects, this points to a significant role of inequality that goes beyond the effects of other, more typical variables that are generally considered in the analysis of current accounts.

To detect the presence of structural breaks in the relationship between international capital flows and domestic inequality, we split our sample in two periods: before and after the Global Financial Crisis. Table 2 reports the results of this exercise. The coefficients are positive across both sub-periods, but substantially stronger for the period after the Global Financial Crisis. We conjecture that this is partly due to higher cross-border capital mobility during that period. Appendix B conducts several further robustness checks.

Table 2: Current accounts and income inequality across subperiods

	1986-2007	1986-2007	2008-2019	2008-2019
Income inequality	0.316	0.523**	0.435***	1.162***
	(0.198)	(0.226)	(0.132)	(0.279)
Sample	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R-squared	0.67	0.73	0.64	0.68
Observations	384	312	282	164

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Channels. This section explores potential channels that underlie the relation between inequality and current accounts. In a first step, we decompose the current account into domestic savings and investment, and analyse them separately. In particular, we re-estimate Equation 1, but replace the current account by either the savings or investment rate.

Table 3 reports the results of this exercise for the national savings rate. It shows a strong positive relation between income inequality and savings. A one percentage point increase in the share of income held by the Top 1 percent increases the saving rate by 0.36-0.55 percentage points, depending on the sample. Quantitatively, this is slightly smaller than for the current account, but still large.

This finding provides suggestive evidence for the existence of non-homotheticities in preferences, according to which richer households save a higher share of their income compared to poorer households. The empirical literature has documented such behaviour at the micro-level. Our results seem to suggest that this micro-evidence might also translate into macroeconomic aggregates.

Next, we repeat the analysis for investment rates. For current account balances to be positively related to income inequality, we expect domestic investment to increase less with inequality than savings. Table 4 provides evidence for this hypothesis. If anything, investment and inequality move in opposite directions. However, the coefficients are small and statistically insignificant. Taken together, the empirical evidence suggests that the link between inequality and current accounts is driven by savings.

Discussion. Our econometric approach differs from previous exercises along a few dimensions. First, our estimation is based on yearly data, allowing for a more granular observation of the different variables at play and their relative short and long-term contribution to current accounts imbalances. This is closer in spirit to Kumhof and Ranciere (2022), whose nuanced findings on the relationship between inequality and current accounts represent a *prima facie* validation of the need for further systematic investigation. In addition, yearly data can increase our ability to capture the contribution of volatile confounding factors – such as commodity prices, crucial drivers of external balances.[6] These are notably important for emerging economies, which we include to a much larger extent in our sample – our second difference with the existing

[6] In Appendix C we show that our results are robust to averaging over longer time periods.

Table 3: National savings rates and income inequality

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
National savings rate	0.361**	0.552***	0.295***	0.403***	0.267***	0.248**
	(0.133)	(0.158)	(0.101)	(0.113)	(0.088)	(0.097)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	1	1	1	1	1	1
Observations	626	436	626	436	626	436

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: National investment rates and income inequality

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
National investment rate	-0.049	-0.239	-0.072	-0.170	-0.055	-0.103
	(0.087)	(0.183)	(0.072)	(0.123)	(0.074)	(0.101)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.65	0.72	0.66	0.71	0.66	0.71
Observations	666	476	666	476	666	476

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

literature. While running separate regressions on advanced and emerging economies to test for heterogeneous effects, we consider the large main sample size consistent with our global focus. Third, the Gini index is not our benchmark indicator of income inequality. Given our emphasis on non-homothetic preferences and the saving glut of the rich, disposable income of the top 1% of the distribution arguably represents the closest empirical counterpart and is therefore our baseline variable of interest in the empirical analysis. This choice, crucially, is also supported by its relatively larger explanatory power for variation in household saving rates.[7] Fourth, our preferred econometric specification includes fixed effects. The official IMF rationale for not including country fixed effects is the risk of picking up persistent policy distortions. Such concern pertains to the realm of policy prescriptions, whereas the goal of our analysis is to understand, from a positive perspective, the marginal contribution of inequality to current account imbalances. As such, it requires any confounding factor, including protracted policy distortions, to be controlled for – as routinely done by related studies (see Spasova and Avdjiev (2021) and, in part of the analysis, Behringer and Van Treeck (2018)). Other persistent factors, such as exchange rate systems and institutional arrangements, risk biasing estimates that do not include country fixed effects, especially in the relatively short time horizon that available data allow to study.[8] Including fixed effects, incidentally, helps refine estimates of other variables

[7] Nevertheless, we have shown the robustness of our results across several measures of inequality.

[8] Behringer and Van Treeck (2018) explicitly recognize this when discussing differences between the distributions of personal and functional income: 'In fact, it may depend largely on country-specific corporate governance and wage bargaining institutions whether distributional shocks will be reflected primarily in factor shares or

too, most of which are *a priori* at least as sensitive to countries' idiosyncracies.

Summary of results. We find a strong and positive link between countries' income inequality and current account balances. This link is particularly pronounced in advanced economies and stronger the more concentrated income is at the very top of the income distribution. We show that our results are robust to various definitions of income inequality, sample splits across both countries and time, different estimation methods and controlling for the distribution of functional income (i.e., the wage share). The association with wealth inequality is weaker, but also positive. Analysing the underlying channels, we show that inequality in disposable income is positively linked with national savings, but not with investment. This suggests that the link between inequality and imbalances operates through the association between the income distribution and the aggregate savings rate. The next section formalizes this channel.

3 Model

This section develops a parsimonious framework of inequality and current accounts. We first describe how higher income inequality induces lower interest rates in a closed economy. We then study an open-economy setting and illustrate how cross-country differences in interest rates lead to capital flows from unequal to equal countries.

Environment. There are two countries, Equal (E) and Unequal (U). Each country is a deterministic, infinite-horizon endowment economy, populated by two types of households who represent the top 1 percent and the bottom 99 percent of the income distribution, respectively. Each household receives an endowment y per period, with a total endowment of $Y = 1$ in each economy. Households make a consumption-savings decision each period. Saving and borrowing is possible via debt contracts which can be traded between households within and across countries. The countries are identical except for the distribution of the endowment across households.

Household problem. We describe the household problem from the perspective of the unequal country to simplify the notation. The first index $i = b, t$ denotes the household type, so either the top 1 percent or the bottom 99 percent, and the second index $j = E, U$ denotes the issuer of the debt. This yields the following maximization problem for household i in U:

$$\max_{c^i, d^{i,U}_{t+1}, d^{i,E}_{t+1}} \sum_{t=0}^{\infty} \beta^t \left(u(c^i_t) + v(D^i_{t+1}) \right) \tag{2}$$

$$\text{s.t.} \quad c^i_t + d^{i,U}_{t+1} + d^{i,E}_{t+1} = y^i_t + (1 + r^U_t) d^{i,U}_t + (1 + r^E_t) d^{i,E}_t \tag{3}$$

where $D^i_t = d^{i,U}_t + d^{i,E}_t$. Each household i splits his endowment share y^i_t and savings or debt from the previous period between consuming and saving or borrowing at interest rate r^U_{t+1} for debt issued in U or r^E_{t+1} for debt issued in E. Borrowing is allowed up to a borrowing limit:

$$r^U_{t+1} d^{i,U}_{t+1} + r^E_{t+1} d^{i,E}_{t+1} \geq -\phi y^i \tag{4}$$

personal income inequality.'

ϕ denotes the share of income that can be borrowed against. This parameter is meant to capture the role of financial markets in a reduced-form way.[9]

Preferences. Households in this economy have preferences for wealth, captured by $v(D)$. Agents might care about their financial wealth for various reasons, e.g. bequests, out-of-pocket medical expenses in old age, utility over status or inter vivos transfers. We remain agnostic on the specific interpretation. The choice of $v(D)$ relative to $u(c)$ determines the homotheticity of preferences. If $\frac{v'(D)}{u'(c)}$ is constant, preferences are homothetic. Any other choice implies non-homotheticity. Note that with non-homothetic preferences, allocations are not scale-invariant. For this reason, we define preferences for wealth relative to the total endowment of the economy, which is 1, hence $v(\frac{D}{Y}) = v(D)$.

Market clearing: Asset markets clear across both debt markets and debt is in zero net supply.

$$\sum_i (D_t^{i,U} + D_t^{i,E}) = 0 \tag{5}$$

where the second index now denotes the holder of debt, e.g. $D_t^{i,U}$ denotes all debt held by agent i in U. This is equivalent to stating that the global net foreign asset position (NFA) is zero. U's net foreign asset position and current account are then given by:

$$NFA_t = D_t^t + D_t^b; \quad CA_t = NFA_t - NFA_{t-1} \tag{6}$$

Good markets also clear:

$$\sum_i (c_t^{i,U} + c_t^{i,E}) = Y^U + Y^E \tag{7}$$

3.1 Autarky

Under autarky, households can only trade debt domestically. This is equivalent to solving the closed-economy version of the model for each country separately. We focus on equilibria in which debt is traded.[10] Hence, one household will be the lender while the other household will be the borrower. Household's Euler equation is given by:

$$u'(c_t^i) = (1 + r_t)\beta u'(c_{t+1}^i) + v'(d_t^i)$$

In steady state, combined with the budget constraint, this yields the following expression for the interest rate:

$$1 = (1 + r)\beta + \frac{v'(d^i)}{u'(c^i)} \tag{8}$$

Note that the interest rate will be lower than in an economy in which households do not have preferences for wealth. Because households hold different endowments, the Euler equation

[9] For other studies with a similar approach, see for example Caballero et al. (2008) and Mian et al. (2021).
[10] We can rule out zero debt equilibria under certain assumptions on v(D).

cannot hold with equality for both agents simultaneously. This implies that the other household will be at the borrowing constraint, i.e. borrow up to the limit:

$$rd^i = -\phi y^i \tag{9}$$

Who is the saver and who is the borrower in this economy? In what follows, we interpret the rich household as the saver and the poor households as the borrower.[11] Therefore, the debt supply curve will be given by the Euler equation of the top 1 percent while the debt demand curve will be given by the borrowing constraint of the bottom 99 percent. Combining debt supply and debt demand then yields the equilibrium interest rate in this economy. Before we study equilibrium outcomes, however, we need to establish properties of supply and demand curves. Due to the simplicity of the borrowing constraint, debt demand is strictly decreasing in the interest rate. Debt supply is characterized in the following proposition:

Proposition 1. *With CRRA utility for consumption and wealth and mild restrictions on their relative curvature, debt supply is increasing in the interest rate.*

Proof. See Appendix A. □

Our economy can be represented by the debt supply-demand diagram in Figure 3. The equilibrium price and quantity of debt is given by the intersection of supply and demand. The figure also provides a visual proof of our next result.

Proposition 2. *With CRRA utility for consumption and wealth, the interest rate is lower in the more unequal country ($r^{U,aut} < r^{E,aut}$ if $y^{U,t} > y^{E,t}$).*

Proof. See Appendix A. □

The key result under autarky is that the interest rate is decreasing in the level of inequality (or equivalently, the price of debt is increasing). From Figure 3, we can see that higher inequality shifts the debt supply curve outwards because households are willing to hold more debt for a given level price level as a result of the non-homotheticity of preferences. At the same time, higher inequality also lowers debt demand due to a tighter borrowing constraint for the bottom 99 percent. However, this decrease in demand is generally not sufficient to offset the impact of higher debt supply.

The relation between inequality and interest rates is not a novel result and has been established before, especially in the context of secular stagnation. We use this result as a building block for our open economy analysis in the next section.

[11] For a discussion and empirical backing, see Mian et al. (2020, 2021)

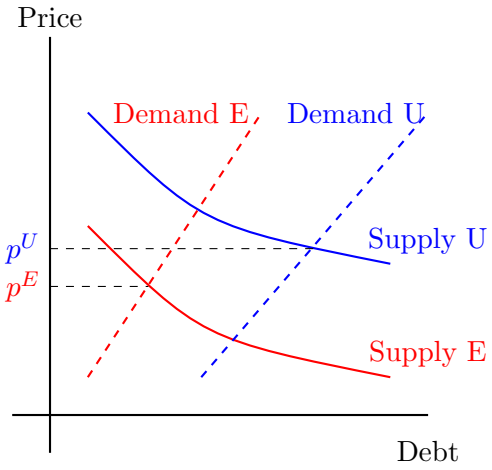


Figure 3: Debt supply-demand diagram

3.2 Open economy

We now allow households in E and U to trade both goods and debt between each other. With trade, capital flows freely and asset prices are equalized across countries, i.e. $r^U = r^E = r$. [12] In the open-economy setting, the supply of debt is given by the top 1 percent in both E and U.[13] The Euler equation needs to hold for both households with equality:

$$1 = \beta(1+r) + \frac{v'(D^{t,U})}{u'(c^{t,U})} = \beta(1+r) + \frac{v'(D^{t,E})}{u'(c^{t,E})} \tag{10}$$

The Euler equation therefore provides an additional condition that relates the consumption-wealth ratio of the rich in U to that of the rich in E. Debt demand is given by the bottom 99 percent in each country:

$$d = d^{b,U} + d^{b,E} = -\frac{\phi y^{b,U}}{r} - \frac{\phi y^{b,E}}{r}$$

We again combine debt supply with debt demand to find the equilibrium interest rate and debt level. This yields the main result of this paper, as described in the next proposition.

Proposition 3. *With CRRA utility for consumption and wealth, other things equal, the unequal country runs a current account surplus and the equal country runs a current account deficit.*

Proof. See Appendix A. □

In an open-economy setting, U runs a current account surplus, mirrored by a current account

[12] Given that domestic and foreign debt constitute identical assets, the exact portfolio allocation of each household across domestic and foreign debt is not pinned down. For simplicity, we will assume that households hold (or borrow) equal shares of domestic and foreign debt. The portfolio split across domestic and foreign assets does not matter in the two-country setting. One could equivalently assume that domestic households first hold domestic debt and only after domestic debt is exhausted acquire foreign debt. The implications for the external position are identical.

[13] We restrict the analysis to equilibria in which the top 1 percent are savers and the bottom 99 percent are borrowers. We discuss other equilibria in the appendix.

Table 5: Calibration

Parameter	Description	Value
β	Discount factor	0.95
γ	Curvature u(c)	2
σ	Curvature v(D)	1.2
ψ	Weight on v(D)	0.3
ϕ	Borrowing constraint	0.8
$y^{U,t}$	$\approx$ Top 1% share in U	0.2
$y^{E,t}$	$\approx$ Top 1% share in E	0.1

Notes: This table reports the calibrated parameters for our numerical exercise.

deficit in E. These capital flows are mediated by differences in interest rates under autarky across countries. Initially, the interest rate in U is lower than the interest rate in E. Once capital is allowed to flow freely, the international interest rate stabilizes between the autarkic interest rates in U and E. Because the interest rate is now higher for the top 1 percent in U than under autarky, they supply more debt which is absorbed primarily by borrowers in E. The savers in E, in contrast, save less because interest rates are now relatively lower. This induces a positive net foreign asset position in U in equilibrium, which is the result of current account surpluses during the transition from one steady-state to the other.

We provide a simple numerical illustration of this mechanism in Table 6, with the calibration given in Table 5. We compare two identically sized economies with different degrees of inequality where we calibrate the income share of the top 1 percent to equal 20 percent in U and 10 percent in E. We choose standard values for the discount factor and the elasticity of intertemporal substitution. Note that the curvature in the preference for wealth is lower than that in the preference for consumption. This captures the idea that preferences for wealth are stronger for higher-income individuals, while the preference for consumption dominates for lower-income individuals.

Under autarky, we see that the steady-state interest rate is initially lower in U due to the higher level of inequality. In the open economy, the interest rate is between the autarkic interest rates in U and E. Savers in U save more now while savers in E save less. This induces a positive net foreign asset position in U and a negative net foreign asset position in E.

4 Inequality, financial development and current accounts

In this section, we revisit through the lens of our model two major global developments that characterized the last decades: Rising inequality and financial liberalisation. Within this simple conceptual framework, we can trace out the effects that changes in inequality and financial liberalisation have on the configuration of current accounts. Moreover, the model also provides several testable predictions that we can use for validation purposes.

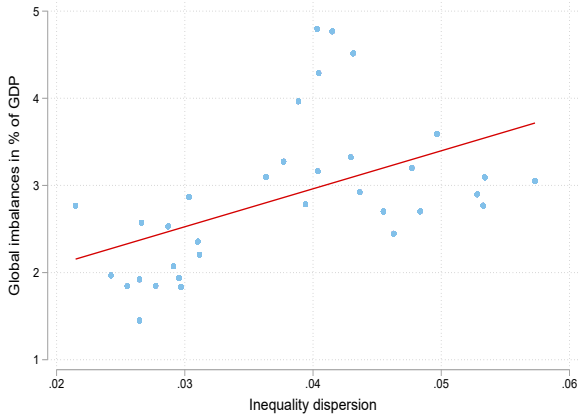
Global rise in within-country income inequality ($y^{U,t}, y^{E,t} \uparrow$). Income inequality has been rising steadily since the 1990s. What does this uniform rise in inequality imply for current

Table 6: Steady-state comparison

	Autarky	Open economy
r	-	0.035
r^U	0.026	-
r^E	0.044	-
$D^{t,U}$	0.61	1.03
$D^{t,E}$	0.69	0.29
NFA^U	-	0.41
NFA^E	-	-0.41

Notes: This table reports steady-state prices and quantities under autarky and with trade.

Figure 4: Cross-country dispersion of inequality and global imbalances



Notes: Inequality dispersion is computed as weighted standard deviation of disposable income inequality across countries for each year.

Table 7: Inequality, financial development and current accounts

	Interest rate (%)	Global imbalances (% of GDP)
0. Baseline	3.5	40.7
1. Global rise in inequality	1.8	38.4
2. Relative rise in inequality	2.2	54.1
3. Global rise in financial liberalisation	3.7	49.0
4. Relative rise in financial liberalisation	2.8	-4.7

Notes: This table reports steady-state interest rates and global imbalances, measured by the net foreign asset position in U, across different scenarios. In scenario 1, the income share of the top 1 percent is increased by 50 percent in both countries. In scenario 2, only the income share of the top 1 percent in U is increased by 50 percent. In scenario 3, the borrowing constraint is relaxed across both countries. In scenario 4, only the borrowing constraint in U is relaxed.

accounts? We explore this question by increasing the share of income earned by the top 1 percent in both countries by 50 percent, in line with the empirically observed rise in inequality. Row 2 in Table 7 reports the results of this exercise. A global increase in inequality depresses the interest rate due to the strong desire of the rich to accumulate assets. This is in line with the empirically observed negative co-movement of interest rates and inequality and the quantitative exploration in Platzer and Peruffo (2022). However, external positions are barely affected. The net foreign asset position in U, and therefore also in E, barely moves in response to the increase in inequality.

Asymmetric rise in within-country income inequality ($y^{U,t} \uparrow$). Next, we study how an asymmetric increase in inequality, i.e. higher inequality in U but unchanged inequality in E, affects current accounts. For this purpose, we increase the share of income earned by the top 1 percent to 30 percent in U. Row 3 in Table 7 shows that the more unequal U is, the higher is the current account surplus. While the decrease in the interest rate is similar to the previous scenario in which inequality rises uniformly, the NFA is substantially higher now. The rich in U are much more willing to accumulate assets, expanding their lending to the poor in E and thus inflating the NFA. This illustrates the fact that what matters is not so much the absolute level of inequality, but differences in inequality across countries.

We provide empirical support for this prediction by plotting the relationship between the dispersion of income inequality across countries and current accounts. Figure 4 shows that periods with large differences in inequality across countries are associated with large imbalances.

Financial liberalisation ($\phi \uparrow$). We explore next how rapid financial liberalisation over the last decade contributed to the build-up of global imbalances. To do so, we relax the borrowing constraint in both countries. Within our framework, this can be interpreted as capturing both financial liberalisation by facilitating international borrowing and more developed financial markets by improving domestic borrowing opportunities. Row 4 in Table 7 shows that the easier it is to borrow, the higher are global imbalances. While the interest rate remains largely unaffected, the NFA in U increases substantially. This sheds light on an interesting interaction between inequality and financial markets. Given that capital flows in our framework are purely driven by inequality, financial liberalisation amplifies the effects that inequality has on current accounts. Interestingly, we also find empirically that the effect of inequality on current accounts is larger in the period after the Great Recession, which is arguably characterized by more international capital mobility.

Asymmetric financial liberalisation ($\phi^U > \phi^E$). Finally, we analyse the role of asymmetric financial development. The role of financial factors in shaping the configuration of current accounts has received vast attention in the literature (Caballero et al., 2008; Coeurdacier et al., 2015). This has largely been motivated by the dominant role of the United States in the global financial system. Most interestingly for our application, the United States have run persistent current account deficits despite being a highly unequal country, standing seemingly at odds with the predictions of our model. However, it turns out that our model can also account for the exceptional position of the US through the role of financial markets.

Suppose borrowing in U is relaxed, but not in E, i.e. $\phi^U > \phi^E$. This captures the idea that

financial markets are more developed in the US than elsewhere. It turns out that a borrowing constraint in U that is loose enough can in fact induce current account deficits in the unequal country. Row 5 in Table 7 reports the results of this exercise. The net foreign asset position in U turns negative. Hence, our framework provides one potential explanation for why a highly unequal country like the US runs current account deficits.

5 Quantitative model

TO BE COMPLETED

6 Conclusion

This article showed that there is a tight link between inequality and current accounts. Using cross-country panel regressions, we documented that countries with higher income inequality have higher current account surpluses. We developed a stylized two-country framework with non-homothetic preferences to rationalize the link between inequality and global imbalances, with financial market development as a crucial mediating factor.

Our analysis suggests that the distribution of income constitutes an important variable in the assessment of global imbalances. It raises the question to what extent current account surpluses caused by income inequality can be considered justified or should instead be labelled as excessive. In our framework, inequality arises exogenously but in a world in which inequality is partly policy-induced, the answer to this question is not clear-cut.

The assumption of an exogenous distribution of income is an important limitation to our analysis. We cannot exclude that trade imbalances also affect income inequality or that both trade patterns and income inequality are driven by a third factor, such as skill-biased technological change. Dix-Carneiro and Traiberman (2023), for example, provides one potential mechanism through which these forces interact, but the direction of the effect is less clear. This provides an interesting avenue for further research.

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A Proofs

Proof of Proposition 1. Debt supply is increasing in the interest rate.

We assume CRRA preferences with $u(c) = \frac{c^{1-\sigma}}{1-\sigma}$ and $v(d) = \frac{d^{1-\eta}}{1-\eta}$. In steady state, $c = y + rd$ and the Euler equation for the top earners holds with equality (we drop the superscripts for readability):

$$1 = \beta(1+r) + \frac{d^{-\eta}}{c^{-\sigma}} = \beta(1+r) + \frac{d^{-\eta}}{(y+rd)^{-\sigma}}$$

We derive the relationship between debt supply and income inequality by total differentiation:

$$[\beta + d^{1-\eta}\sigma(y+rd)^{1-\sigma}]\mathrm{d}r + [-\eta d^{-\eta-1}(y+rd)^{\sigma} + \sigma r d^{-\eta}(y+rd)^{\sigma-1}]\mathrm{d}d = 0$$

Rearranging:

$$\frac{\mathrm{d}d}{\mathrm{d}r} = \frac{\beta + d^{1-\eta}\sigma(y+rd)^{1-\sigma}}{\eta d^{-\eta-1}(y+rd)^{\sigma} - \sigma r d^{-\eta}(y+rd)^{\sigma-1}}$$

The overall sign depends on the denominator, since the numerator is always positive. Specifically, debt supply is increasing in inequality if:

$$\frac{\eta}{\sigma} > \frac{rd}{y+rd} \quad \text{where} \frac{rd}{y+rd} < 1 \tag{11}$$

This condition is laxer the higher the degree of income inequality - i.e., the higher $y \equiv y^t$. Assuming the borrowing constraint holds for bottom earners:

$$\frac{\eta}{\sigma} > \frac{\phi y^b}{1-(1-\phi)y^b} \quad \text{where} \quad \frac{\phi y^b}{1-(1-\phi)y^b} \leq \frac{1}{2}$$

The stringency of this requirement is decreasing in income inequality. In the extreme case of full financial liberalization ($\phi = 1$), the curvature of utility from wealth has to be larger than y^b. As $y^b < 1/2$, $\eta \geq \frac{\sigma}{2}$ represents the upper bound of our condition.

Proof of Proposition 2. The interest rate is decreasing in inequality.

Starting from top earners' Euler equation and substituting for bottom earners' borrowing constraint:

$$1 = \beta(1+r) + \frac{\left(\frac{\phi y^b}{r}\right)^{-\eta}}{(y^t + \phi y^b)^{-\sigma}}$$

By total differentiation:

$$[\beta + \eta r^{\eta-1}(\phi y^b)^{-\eta}(1-y^b+\phi y^b)^{\sigma}]\mathrm{d}r - r^{\eta}(\phi y^b)^{-\eta}(1-y^b+\phi y^b)^{\sigma}\left[\frac{\eta}{y^b} + \frac{(1-\phi)\sigma}{1-y^b+\phi y^b}\right]\mathrm{d}y^b = 0$$

Therefore:

$$\frac{\mathrm{d}r}{\mathrm{d}y^b} = \frac{r^\eta(\phi y^b)^{-\eta}(1-y^b+\phi y^b)^\sigma\left[\frac{\eta}{y^b}+\frac{(1-\phi)\sigma}{1-y^b+\phi y^b}\right]}{[\beta+\eta r^{\eta-1}(\phi y^b)^{-\eta}(1-y^b+\phi y^b)^\sigma]}$$

Given $\eta > 0$, $\sigma > 0$ and $\phi \in [0,1]$, this expression is always positive, meaning that the prevailing interest rate is increasing in bottom earners' income, therefore decreasing in income inequality.

Proof of Proposition 3. The unequal country runs a current account surplus.

With international mobility of capital, the Euler equations of top earners in both countries have to hold:

$$\beta(1+r)+\frac{(d^E)^{-\eta}}{(c^E)^{-\sigma}} = \beta(1+r)+\frac{(d^U)^{-\eta}}{(c^U)^{-\sigma}} \Rightarrow \frac{(d^E)^{-\eta}}{(y^E+rd^E)^{-\sigma}} = \frac{(d^U)^{-\eta}}{(y^U+rd^E)^{-\sigma}}$$

where variables refer to top earners within each country and r is equalized across countries because of the no arbitrage condition. Rearranging:

$$\left(\frac{d^U}{d^E}\right)^\eta = \left(\frac{y^U+rd^U}{y^E+rd^E}\right)^\sigma \Rightarrow \frac{d^U}{d^E} = \left(\frac{y^U+rd^U}{y^E+rd^E}\right)^{\frac{\sigma}{\eta}}$$

A necessary condition for the equilibrium debt supply in the equal country to be higher than in the unequal one is $y^E + rd^E > y^U + rd^U$. Assuming the international interest rate will be in between the closed economy ones (where $r^U < r^E$), and given the result that debt supply is increasing in inequality, we know that $d^{t,U} \geq \frac{\phi y^{b,U}}{r^U}$ and $d^{t,E} \leq \frac{\phi y^{b,E}}{r^E}$. Combining these two conditions:

$$y^E + rd^E > y^U + rd^U \Rightarrow y^{t,E} + \phi\frac{r}{r^E}y^{b,E} > y^{t,U} + \phi\frac{r}{r^U}y^{b,U} \Rightarrow$$

$$y^{t,U} - y^{t,E} < r\phi\left(\frac{1-y^{t,E}}{r^E} - \frac{1-y^{t,U}}{r^U}\right) \Rightarrow y^{t,U} - y^{t,E} < \frac{r\phi}{r^E r^U}(r^U - r^E) - \frac{r\phi}{r^E r^U}(r^E y^{t,U} - r^U y^{t,E})$$

Therefore:

$$y^{t,U}\left(1-\frac{r\phi}{r^U}\right) - y^{t,E}\left(1-\frac{r\phi}{r^E}\right) < \frac{r\phi}{r^E r^U}(r^U - r^E)$$

Given $y^{t,U} > y^{t,E}$ and $r^U < r^E$, this condition cannot hold. As a consequence, $d^U > d^E$.

B Empirical evidence

B.1 Robustness checks

Here we collect a wealth of complementary analyses, meant to assess the robustness of our results. Table 8 collects the same results contained in our main table, now abstracting from country fixed effects. The measure of inequality in disposable income relative to the rest of

Table 8: Current accounts and income inequality using EBA estimation

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
Income inequality	0.164***	0.268***	0.107***	0.158***	0.053*	0.063
	(0.044)	(0.082)	(0.033)	(0.055)	(0.029)	(0.040)
Sample	Full	AE	Full	AE	Full	AE
Country FE	No	No	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.47	0.50	0.47	0.50	0.46	0.49
Observations	666	476	666	476	666	476

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Current accounts and pre-tax income inequality

	Top 1%	Top 1%	Gini	Gini
Pre-tax income inequality	0.097	0.552***	0.074	0.313**
	(0.080)	(0.166)	(0.084)	(0.117)
Sample	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R-squared	0.52	0.58	0.52	0.57
Observations	1073	601	1073	601

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

the world is positively associated with the current account balance. This association is stronger when we consider the share of disposable income accruing to the last percentile but is significant at 1% level also when we include the last ten percentiles instead. The coefficient estimated on disposable income Gini is positive but imprecisely estimated. Importantly, these results apply both to the full sample and to the subsample consisting of advanced economies alone, where the estimated relationship is sustantially stronger in magnitude. To give a sense of the latter, a 10 percentage point increase in the share of disposable income held by the top1, relative to the global average, is associated with a 1.6 percentage points higher current account balance in the full sample. In the advanced economies subsample, this figure increases up to 2.7 percentage points.

We try different inequality measures. First, we consider pre-tax income. This incidentally allows us to expand our sample. Table 9 reports the results. The relationship remains positive but is strongly significant only when considering advanced economies in isolation. The magnitude of the association is somewhere in between the EBA and the FE specifications (5.5 percentage points higher current account balance for 10 percentage points increase in top1 share of pre-tax income). Second, we focus on the "super rich" (i.e., those in the top 0.1% or the top 0.01% of the income distribution). Table 10 shows that the magnitude of the coefficient attached to inequality becomes larger and larger climbing up the income distribution ladder. A 1 percentage point increase in the share of disposable income accruing to the top 0.01% is associated with as much as a 1.7 percentage point increase in the current account balance.

Table 10: Current accounts and income inequality - super rich

	Top 1%	Top 1%	Top 0.1%	Top 0.1%	Top 0.01%	Top 0.01%
Income inequality	0.423***	0.741***	0.600**	1.108***	1.536***	1.674***
	(0.116)	(0.152)	(0.219)	(0.284)	(0.459)	(0.511)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.60	0.68	0.59	0.67	0.59	0.67
Observations	666	476	666	476	666	476

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Current accounts and wealth inequality

	Top 1%	Top 1%	Gini	Gini
Wealth inequality	0.045	0.146	0.076**	0.067
	(0.050)	(0.118)	(0.036)	(0.045)
Sample	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R-squared	0.49	0.52	0.50	0.52
Observations	964	522	955	513

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11 lists estimated coefficients on wealth inequality. As before, the relationship remains positive, but this time is significant (at 5% level) only when the Gini index is the chosen inequality measure within the full sample estimation.

Finally, Tables 12 and 13 show the results for the baseline regression including the wage share, with inequality in disposable and pre-tax income respectively. Interestingly, the coefficients on the wage share are not always significant, while those associated to income inequality remain strongly positive. This suggests that the effects of functional income on imbalances are of second order importance vis-a-vis those in personal income distribution.

B.2 Wealth inequality

Occasionally in our analysis we also consider wealth inequality. We motivate this on both empirical and theoretical grounds. Empirically, wealth inequality has significantly outpaced income inequality in the last decades (Straub, 2019). If, on the one hand, wealth is inherently harder to measure, especially for those at the top of the ladder, its long-term concentration should allow us to smooth out its noisy component and gain further insights on the link between differences in the permanent component of income and national savings-investment imbalances. Theoretically, beside its immediate connection with non-homothetic preferences for wealth, the addition of wealth inequality is instrumental to integrating the heterogenous effects of personal and functional income distributions (Behringer and Van Treeck, 2018), while holding our focus

Table 12: Current accounts and income inequality - functional vs disposable income

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
Income inequality	0.559***	0.725***	0.537***	0.549***	0.405***	0.387***
	(0.147)	(0.171)	(0.120)	(0.137)	(0.120)	(0.124)
Wage share	-0.136	-0.285**	-0.095	-0.257**	-0.135	-0.265**
	(0.088)	(0.105)	(0.095)	(0.102)	(0.091)	(0.109)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.66	0.70	0.67	0.71	0.66	0.69
Observations	551	472	551	472	551	472

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

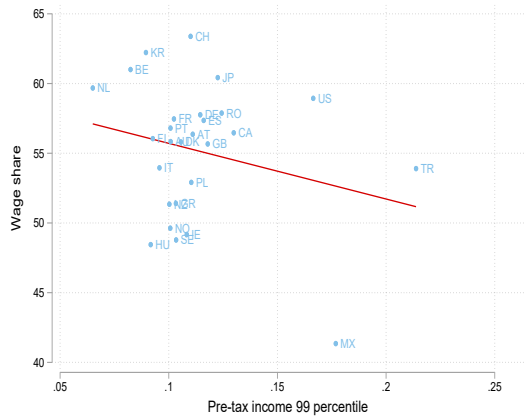
Table 13: Current accounts and income inequality - functional vs pre-tax income

	Top 1%	Top 1%	Top 10%	Top 10%	Gini	Gini
Income inequality	0.307**	0.508**	0.268**	0.310*	0.242*	0.269*
	(0.121)	(0.179)	(0.129)	(0.158)	(0.137)	(0.144)
Wage share	-0.151	-0.282**	-0.139	-0.284*	-0.141	-0.289*
	(0.100)	(0.135)	(0.111)	(0.148)	(0.111)	(0.141)
Sample	Full	AE	Full	AE	Full	AE
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.57	0.60	0.57	0.59	0.57	0.59
Observations	659	573	659	573	659	573

Standard errors in parentheses

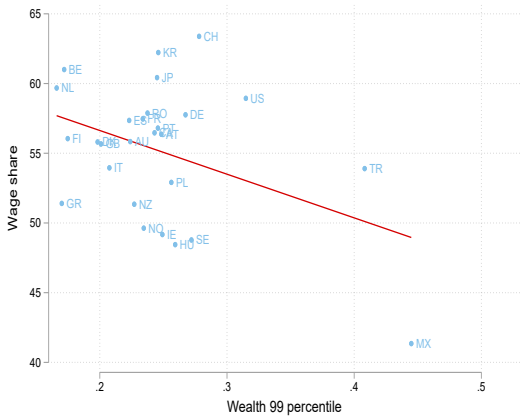
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure 5: Income inequality and the wage share



Notes: Inequality is measured by the fraction of income held by the top 1% provided by the WID. Income refers to pre-tax income. The wage share is provided by AMECO and, for China, Bai and Qian (2019). The sample includes 52 countries for income and XX for wealth (check which countries are missing.)

Figure 6: Wealth inequality and the wage share



Notes: Inequality is measured by the fraction of wealth held by the top 1% provided by the WID. The wage share is provided by AMECO and, for China, Bai and Qian (2019). The sample includes 52 countries for income and XX for wealth (check which countries are missing.)

on inequality. The main reason to distinguish between the two types of income distributions is that an increase in the capital share of GDP might not directly translate into personal income inequality, due to retained profits. However, non-distributed dividends and/or improved profitability expectations should be reflected in capital gains, ultimately contributing to personal wealth data.

The importance of taking wealth into account is also corroborated by the relative international position, inequality-wise, of the five countries (De Ferra et al., 2021) pick as basis for the calibration of supposedly equal ones. The Netherlands, Germany, Denmark and Sweden, in fact, exhibit above-average wealth concentration, especially according to OECD data.[14]

C Related literature

Broer (2014). Figure 1 of the paper shows a strong co-movement between a measure of income inequality (disposable income Gini) and net foreign asset liabilities for the US between 1980 and 2007. We confirm in our own analysis that this relationship holds. However, there has been a decoupling of the current account and inequality since the global financial crises. Current account deficits started decreasing while inequality kept rising. Abstracting from these details, the behaviour of the US external position is not representative of the average economy due to its unique role in the international financial system.

[14] In terms of mean-to-median wealth, for instance, the Netherlands, Denmark and Germany are respectively the 2nd, 3rd and 4th most unequal countries in the OECD sample. They are 2nd, 4th and 6th when it comes to top 1% wealth share.

Figure 5 shows a negative relationship between the average current account and the average change in the disposable income Gini for the period 1980-2005 across ten advanced economies. First, we find that this relationship breaks down, and even turns positive, once we analyse a longer time period (until 2020). Second, it is not clear to what extent this figure provides plausible evidence on a relationship between inequality and the current account. The mapping between the current account and changes in NFA might be straightforward in theory, but valuation effects play a large role in practice, especially for the US. Moreover, the figure depicts an unconditional correlation between two variables that are known to be affected by numerous factors. Regression analysis seems more appropriate in that context to study conditional correlations. Finally, plotting the change in inequality against the *change* in current accounts might be more appropriate to control for unobserved permanent heterogeneity, as we do via our fixed effects specification.

More generally, the mapping between inequality and income risk is not straightforward. The author provides supportive evidence for a simultaneous rise in income variance. However, that variance likely captures both transitory and permanent income shocks. The former is insurable while the latter is not. A large body of literature argues that the rise in income variance is primarily explained by a rise in the variance of the permanent income component. Therefore, the argument that endogenous borrowing constraints can reduce savings in response to a rise in income risk does not necessarily apply.

De Ferra et al. (2021). The main motivating chart illustrates a rather steep, negative relationship between the average current account balances over GDP and the after-tax income Gini of advanced economies between 1997 and 2007. This result hinges upon a different strategy. First, they consider a narrower set of controls composed of GDP per capita, size of the government sector, a continent fixed effect, a dummy for reliance on oil and fossil fuels exports and the old-age dependency ratio – on top of the Gini index for disposable income. Second, they average each of them across the 10-year window spanning from 1997 and 2007. Given the fact that they allow coefficients to vary depending on whether a country belongs to advanced economies, this results in up to 24 coefficients for a sample of 38 countries.[15] The simultaneous presence of several correlated time-invariant binary variables can produce noisy estimates that are heavily dependent on the specific sample of choice. We suggest that this is the case in Table 14. The first two columns report estimates when the dummy for advanced economies is interacted with all variables. The last two have the same dummy included amongst the controls. The only significant (and negative) coefficient associated with the Gini index on income is obtained in the specification with unweighted observations and coefficients interacted with the dummy for advanced economies. The estimated association even changes sign when such dummy is included amongst the controls, and countries are weighted by their GDP (last column).[16]

With the same sample and the same control variables, keeping yearly variation and including country fixed effects inverts the direction of the relationship, at least when coefficients are interacted with the advanced economy dummy. No estimate is statistically significant. Note

[15] Fewer coefficients are actually estimated because of lack of observations and/or collinearity.

[16] The same sensitivity of estimates is observed when gross savings, private savings and investment are taken as dependent variable.

Table 14: Average Current Account/GDP (1997-2007)

	(1) NW_I	(2) W_I	(3) NW_NI	(4) W_NI
Advanced economy=0 × Gini disposable income	-0.129	-0.053		
	(0.34)	(0.60)		
Advanced economy=1 × Gini disposable income	-0.682***	-0.223		
	(0.00)	(0.31)		
Gini disposable income			-0.048	0.012
			(0.69)	(0.88)
R-squared	0.86	0.85	0.50	0.50
Observations	38	38	38	38

p-values in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

that this requires to drop other time-invariant explanatory variables (namely, the oil, continent and advanced economy dummies), due to multicollinearity.

Table 15: Yearly Current Account/GDP (1997-2007)

	(1) NW_I	(2) NW_NI
ae=0 × Disposable income Gini	-0.119	
	(0.31)	
ae=1 × Disposable income Gini	0.286	
	(0.16)	
Disposable income Gini		-0.015
		(0.90)
R-squared	0.79	0.75
Observations	399	380

p-values in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Beside the richer set of controls we employ in our empirical strategy and the ensuing robustness of our results, the main advantage of considering yearly data across a longer time period is the possibility of observing trends in our variables of interest. This, in turn, allows us to draw a clearer link between data and theory. Two countries can display coinciding average saving rates and inequality in disposable income over the same period of time, for instance, but opposing current accounts because of their relative trajectories. According to our theory, one could be experiencing a relative increase in savings (hence possibly the current account) due to a parallel growth in inequality, while the other might be going through the opposite process. Yearly movements preserve this valuable heterogeneity.

At the same time, we prefer country fixed effects over continental fixed effects on both theoretical and empirical grounds. We consider national idiosyncracies to be more relevant in

explaining relative account imbalances than regional factors. In fact, not only countries within the same region do not necessarily share any common determinant of gross and net capital flows, but some of the clearest increases in structural imbalances have taken place *within* continents (think of the euro area). Ignoring such regional dynamics would lead us to mistake opposing trajectories for no trajectory. From an empirical point of view, introducing national fixed effects represent a flexible way to remain agnostic, *a priori*, about the existence or not of such regional dynamics.

As a simple check on these considerations, we calculate the standard deviation of the average current account balance in the sample (38 countries over the period 1997-2007). In fact, within-continent variance in three continents (Africa, Asia and Europe) is *higher* than the variance in the overall sample, consistently with the presence of regional compensation mechanisms rather than common trends – see Table 16.

Table 16: Average Current Account/GDP (1997-2007)

Continent	Standard deviation
Africa	0.061
Asia	0.053
Europe	0.059
North America	0.022
Oceania	0.002
South America	0.032
Full sample	0.051

Behringer and Van Treeck (2018). The authors find a negative relationship between income inequality and current accounts. This difference is arguably due to a variety of reasons. First, they focus on a different time period (1972-2007), the first half of which saw higher prevalence of state intervention – in the form of exchange rate management, capital controls, financial repression. Second, their sample is limited to 20 countries. Third, they average available annual observations over non-overlapping four-year windows. In Table 17 we apply the four-year window methodology to our sample. Despite the information loss due to the decrease in available observations, the estimated coefficient on relative income inequality is positive across specifications, and significant at 10% level in both the fixed effects and the EBA case. Fourth, their data source for current account imbalances, the World Bank Indicators, has substantial gaps, with some countries' dependent variable becoming available quite late within the period of interest (Australia in 1989, Japan in 1996, New Zealand in 2000, and Ireland in 2005). Given (i) the limited number of countries in the original sample and (ii) the relative salience of Japan in global imbalances, such feature can have significant impact.

Table 17: Regressions with 4-year windows

	(1) IMF	(2) OLS	(3) FE
Top 1 disposable income	0.125*	0.056	0.483*
	(0.08)	(0.40)	(0.05)
R-squared	0.55	0.64	0.83
Observations	191	191	191

p-values in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$