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Elite incomes around the world

Command over tradables, non-tradables, and people

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Abstract: This paper analyses elite incomes around the world, and how international comparisons of elite incomes vary depending on the exchange rate and income concept used. It is well known that between-country income inequality is higher using market exchange rates than purchasing power parity (PPP) exchange rates, due to a combination of traded sector bias and the Balassa-Samuelson effect, and we confirm that this is the case for comparing elite incomes across countries. In contrast, we argue that using entitlements over labour (ELs) as a measure of real incomes of elites leads to the opposite effect; since the non-traded sector is relatively labour-intensive, incomes in the sense of ELs demonstrate non-traded sector bias relative to PPP incomes. They therefore provide a complement, or opposite bound, to the traded-sector bias of market exchange rates. Consistent with this argument, we find that between-country inequality among global elites is indeed lower using ELs than either PPP or market exchange rates. But elite incomes in ELs do not merely converge—elites in poorer countries leapfrog or overshoot their rich country counterparts, enjoying higher real incomes in terms of their command over domestic labour. The explanation for this is the higher levels of inequality in poorer countries.

Key words: elites, income inequality, Balassa-Samuelson effect, PPP exchange rates, entitlements over labour

JEL classification: D31, D63

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1 Introduction

The widely-documented rise in inequality within countries over the last 40 years has implied rising shares of national income accruing to countries' elites. This paper explores what existing and new approaches to the measurement of real income tell us about elite living standards. We demonstrate the radically different interpretations implied by focusing on command over tradables versus command over non-tradables, and in particular over local labour, and what this tells us about the social and economic positions of elites within their societies.

Comparisons of real incomes across countries are usually based on purchasing power parity (PPP) exchange rates, which estimate command over a mixed basket of consumption goods and services. These are estimated by the World Bank's International Comparisons Project, whose most recent benchmark for PPP exchange rates is 2017. An alternative to PPP exchange rates is to use market (FX) exchange rates. However, these tend to overstate prices in poor countries relative to rich countries owing to a combination of 'traded sector bias' and the Balassa-Samuelson effect (Anand and Segal 2008). Traded sector bias refers to the fact that FX exchange rates better reflect relative prices across countries for tradables, than for non-tradables. The Balassa-Samuelson effect is that technical change tends to be more rapid in tradable goods than non-tradables, meaning that the higher overall productivity of richer countries is driven primarily by their higher productivity in tradable goods. With productivity reflected in prices, this implies that the relative price of tradable goods to non-tradable goods is higher in poorer countries. It follows that FX exchange rates—reflecting the prices of those tradable goods—will understate incomes in poorer countries relative to richer countries. Put another way, when we compare incomes across countries using FX exchange rates, the comparison does not account for the fact that non-tradables are cheaper in poorer countries.

PPP and FX exchange rates, then, are the two standard ways to compare incomes across countries, and they refer to different underlying conceptions of 'real' income—PPPs refer to command over a mixed consumption basket whereas FX tends more towards command over tradable goods. Segal (2021a) proposes a new measure of real income that is specifically targeted at upper income groups, and denoted *entitlements over labour* (EL). The EL of a top income group, such as the top 1 per cent or the top 5 per cent, is defined as that group's disposable income divided by the cost of employing a worker on median wage in their country. ELs measure the affordability to a given rich group of employing a typical worker in their country in their personal service. Where standard measures of real income measure a person's command over a basket of goods and services, EL measures their command over the labour of their compatriots.

ELs also tie in with the tradables/non-tradables distinction. The Balassa-Samuelson effect is based on the fact that non-tradables are less intensive in the use of capital and technology than are tradables. This implies that wages are a more important determinant of the prices of non-tradables than of tradables. So just as international comparisons based on FX exchange rates tend to reflect prices of tradable goods more than non-tradables, we would expect the reverse for ELs: they will reflect the price of non-tradable goods more than tradables. PPP exchange rates, meanwhile, are designed to balance both tradables and non-tradables across a representative basket of consumption goods and services, so they would be expected to lie in between the two.

This suggests the following hypothesis when comparing the real incomes of elites in different countries: incomes at FX exchange rates favour richer countries relative to PPP exchange rates, implying an upper bound on inequality between elites in different countries. And incomes

measured as ELs will favour poorer countries relative to PPP exchange rates, implying a lower bound on inequality between elites in different countries.

The comparison is of more than theoretical interest: Cravino and Levchenko (2017) find that high-income households spend relatively more on non-tradables including personal services than low-income households, suggesting that a focus on the cost of local labour is particularly apt for estimating the real living standards of elites.

We can briefly illustrate the difference between ELs and PPPs using an example from Segal (2021a): the top 1 per cent in high-income Sweden had disposable incomes of PPP$178,000, making them substantially richer in terms of overall consumption goods and services than their counterparts in middle-income Mexico, who had PPP$107,000. But those in Mexico could afford to command the labour of 21 full-time local workers, compared with 3.7 in Sweden. Mexican elites are much richer than their Swedish counterparts in terms of their ability to command those around them.

So far, we have interpreted entitlements over labour as a measure of real income. But they also have a distinctive normative interpretation as a measure of socioeconomic inequality. Atkinson (2007: 21–22) suggested that studying the rich was important because income provides 'command over people', so that 'income is important as a source of power'. This is clearest in the case of domestic work where elites in a high-EL country like Mexico expect to employ domestic workers to do their personal bidding to a much greater extent than their counterparts in Sweden, for whom domestic work is prohibitively expensive—and also seen by many as morally questionable (Bowman and Cole 2009).

Modern political theorists in the republican tradition describe this ability to command others as 'domination', where the dominating agent gets to choose how the dominated individual acts 'at the [dominating] agent's pleasure' (Pettit 1999: 55). To be subject to command by another is to be *unfree* in republican terms. In this way, EL measures the extent to which elites can dominate their compatriots, reducing their (republican) freedom and autonomy. This implies that EL can also be taken as a measure of inequality in social hierarchies: domination implies 'social subordination to others' (Pettit 1999: 274), and 'a profound asymmetry in whose interests count' (Anderson 2017: 5). Anderson (2010: 1) describes this as 'relational inequality', implying that there are 'superior and inferior persons' (Anderson 1999: 312).

For these reasons, using EL as a measure also illuminates the political salience of inequality, for two reasons. First, it shows that real wages are a locus of conflict not just between workers and capitalists, as is usually assumed, but also between workers and the high-income households that enjoy the ability to employ them for their own consumption purposes. Most obviously this includes domestic workers like maids and nannies, which are ubiquitous in upper-income households in high-inequality countries. But it also includes services such as taxi rides, haircuts and other beautification services, which are important to the lifestyles of the upper-middle classes. This indicates the salience of entitlements over labour for the rich, because a decline in ELs implies a decline in their ability to command others for their personal purposes. But second, they are equally salient for those who are commanded. The cheaper their labour is to the rich, the easier it is for them to be dominated, and the more 'inferior' is their social status. This may also help explain the association between rising inequality that we find in all regions except Latin America, and the rise of right wing 'populist' political parties and politicians that appeal to this sense of inferiority.

Estimating real incomes of top income groups using all three measures—PPPs, FX, and ELs—therefore allows us to do two things. First, we can test the hypothesis that inequality across countries between national elites will be highest using FX, intermediate using PPP, and lowest

using EL. Second, we obtain a more complete picture of the rising real incomes of elites, and of their social and economic positions within their countries.

2 Data

In order to study the economic position of elites globally we need estimates of their incomes. It is well documented that the household surveys used to measure incomes and expenditure around the world are unreliable for measuring incomes at the top of the distribution in each country, and that better estimates of these top incomes can be produced from administrative and tax records (Atkinson et al. 2011). For this reason, some recent estimates of global inequality have attempted to combine data from surveys and tax records to produce a global distribution (Alvaredo et al. 2018; Anand and Segal 2015, 2017). Here we update the approach used in Anand and Segal (2015, 2017). We combine three sets of data: income shares based on household surveys from UNU-WIDER's World Income Inequality Database (WIID) (UNU-WIDER 2021); the World Bank's Poverty and Inequality Platform (PIP), which provides estimates of mean incomes based on surveys,[1] and the World Inequality Database (WID) [https://wid.world/] which has estimates of top 1 per cent income shares (of fiscal income) based on administrative or tax data for 42 countries. Our assumption is that household surveys are accurate for most of the distribution, but that the WID data are more accurate for the very top.

Our first task is to provide improved estimates of top 1 per cent income shares for those countries and years for which WID does not have administrative or tax data. Following Anand and Segal (2015, 2017), for countries without this data we do this by estimating a regression-based relationship between WID's top 1 per cent fiscal income shares and WIID's estimates of top 10 per cent shares, along with a set of control variables. For missing years among the 42 countries that have top 1 per cent shares in WID, we (a) interpolate following the growth trend of the top 10 per cent shares[2] and (b) extrapolate using top 10 per cent shares from WIID and the latest available Pareto coefficient calculated from top 1 per cent and top 10 per cent shares.[3]

Having estimated top 1 per cent income shares, we still need to convert them into absolute values using a control income. For this we multiply the income share by mean per capita household income in 2017 PPP$ from PIP.[4] But since we are assuming that surveys are underestimating top incomes, it follows that mean survey income is also underestimated. So, where the survey top 1 per cent share is below our estimated share, we then scale up mean income by this difference.

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[1] In most cases these are based on the same surveys as those used by WIID. However, for years in which there are no household surveys available, WIID assumes that mean incomes are equal to per capita GDP, whereas the World Bank estimates them based on the available means from years with household survey, which is more suited to our purposes. See Anand and Segal (2008) for reasons to prefer using survey-based means rather than national accounts means.

[2] When the growth rate of top 10% and top 1% over a gap in the top 1% data are of opposite signs we revert to linear interpolation.

[3] For each country we calculate the Pareto coefficient of the latest year for which both top 1% and top 10% shares are available, using the formula in Atkinson (2007: 24). Since top 10% shares are typically available for more recent years than top 1% shares, we then use that coefficient and formula to extrapolate the top 1% shares.

[4] Note that this implies a different distribution from those used in Segal (2021a, b), which are based on per adult incomes rather than per capita incomes. For this reason, the top 1% incomes and ELs here are not directly comparable with those estimates.

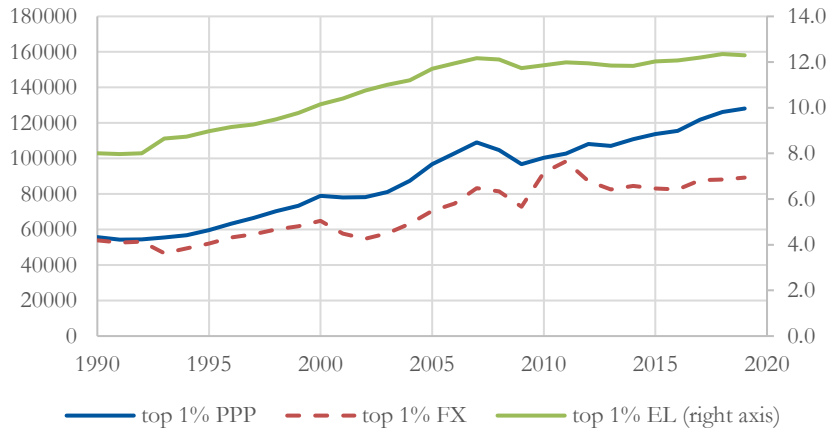
Note that we do not use the absolute values given for fiscal income in WID because these represent pre-tax income, whereas we need to estimate disposable income. If we were to simply use this pre-tax income, it would be equivalent to assuming both that (a) total pre-tax income is equal to total post-tax income, and (b) the top 1 per cent share of post-tax income is the same as the top 1 per cent share of pre-tax income. Given that fiscal income is higher than post-tax income, (a) would imply an upward bias in estimating post-tax income. Regarding (b), it is equivalent to assuming that the top 1 per cent pay the average rate of income tax, and while this adds noise, it is not obvious whether it is an under-estimate or over-estimate. Therefore, we apply the top 1 per cent fiscal income shares to the survey-based estimates of mean per capita household income from PIP in PPPs and FX. This means dropping assumption (a) which implies an unambiguous bias, and retaining assumption (b) which adds error but no obvious bias.

We next measure the entitlements over labour of these top income groups, for which we require additional data on gross median wages.[5] For this we use data based on labour market surveys from the Luxembourg Income Study and Segal (2021a). We estimate median wages for missing country-years in a parallel manner to how we estimate top 1 per cent shares, regressing median wages on estimates of median incomes from surveys (see appendix for details). This allows us to produce the first estimates of ELs of the top 1 per cent for 140 countries.

3 Real incomes of the global elite

We start by considering the levels and the growth rates of real income for elites globally, using the three measures (PPP$, FX$, ELs). They are given in Figure 1 and Table 1, where we can see that elite real incomes have unambiguously risen since 1990.

Figure 1: Elite real incomes over time



Note: PPP and FX values are in constant 2017 prices.

Source: authors' calculations.

[5] As Segal (2021a) discusses, median rather than mean wages are used to measure entitlements over labour because the median is more representative of the 'typical' worker, and captures the idea of command over labour as opposed to over human capital. Average wages often differ substantially from median wages because of the very high salaries of a small share of highly-skilled workers (also see Bleynat et al. 2021: section III).

First consider elite incomes in PPP$ and FX$. These depend on both aggregate economic growth and the level of inequality within countries. Table 1 shows that global per capita GDP in constant PPP$ grew at an average yearly rate of 1.9 per cent over 1990–2019, and that global elite incomes grew faster at 2.9 per cent. The fact that elite incomes grew faster corresponds to the well-documented rise in inequality over the period. We also observe this when we look at elite ELs. Over 1990–2019 top 1 percenters worldwide saw their ELs grow at an average rate of 1.5 per cent, due to the fact that median wages grew substantially more slowly than elite incomes at a rate of just 1.3 per cent per year. Elites grew richer not just in terms of their command over goods and services, but also in terms of their ability to command the labour of their compatriots.

Table 1: Average annual growth rates of real global elite incomes, median wages, and per capita GDP

	Global elite incomes, PPP$, %	Global elite incomes, FX$, %	Global elite ELs, %	Median wages, %	Global per capita GDP, PPP$, %
1990-2000	3.5	1.9	2.4	0.4	1.2
2000-2010	2.4	3.6	1.6	1.8	2.3
2010-2019	2.7	-0.4	0.4	1.8	2.2
1990-2019	2.9	1.8	1.5	1.3	1.9

Note: Elite incomes are incomes of the top 1% in all countries for which EL data are available. Incomes are population-weighted averages.

Source: authors' calculations and World Bank data.

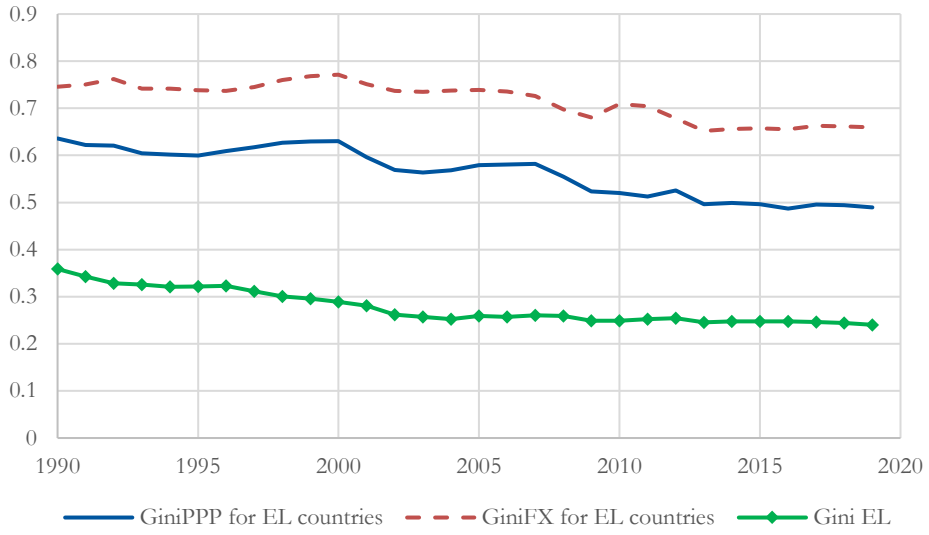
4 Global elite inequality

We have seen that at the global level, the real incomes of national elites have risen faster than average incomes, and faster than median wages. How do these elite incomes compare across countries? We will use the term *global elite inequality* to refer to between-country inequality among the top 1 per cent in all countries. As we discussed above, we would expect different outcomes depending on whether we use PPP, FX, or EL-based measures of real incomes. We have seen that relative incomes using FX exchange rates are biased towards tradable goods, and that that relative incomes using ELs are biased towards non-tradable goods, with PPPs lying in between. Combined with the Balassa-Samuelson effect, this would suggest that when we measure inequality between countries for elite incomes, FX provides an upper bound on inequality because it corresponds to incomes in terms of tradables; EL provides a lower bound on inequality because it corresponds to incomes in terms of labour costs and non-tradables; and PPPs would be in between because they correspond to a weighted average of tradables and non-tradables.

Figure 2 plots the Gini coefficient for inequality between global elites using the three measures, and it is consistent with this hypothesis over the entire period: inequality is highest in FX, lowest in ELs, and in between the two for PPPs.

However, we find that the lower level of inequality estimated using ELs does not arise out of elites in poorer countries 'closing the gap' with elites in rich countries. Instead, we find that elites in poorer countries on average *leapfrog*, or *overshoot*, their counterparts in richer countries. We already saw a case of this overshooting in the comparison between Mexico and Sweden from Segal (2021), where the Swedish top 1 per cent is richer in PPP terms but poorer in ELs.

Figure 2: Global inequality between national elites in PPP$, FX$ and entitlements over labour



Note: Inequality is population weighted, and assumes that everyone within the top 1 per cent within each country has the same income. In this sense it measures between-country inequality for the top 1 per cent of national income distributions. All three series are estimated using only those countries for which we have data on median gross wages and entitlements over labour (EL), to ensure comparability. These comprise 89 to 92 per cent of the global population.

Source: authors' calculations.

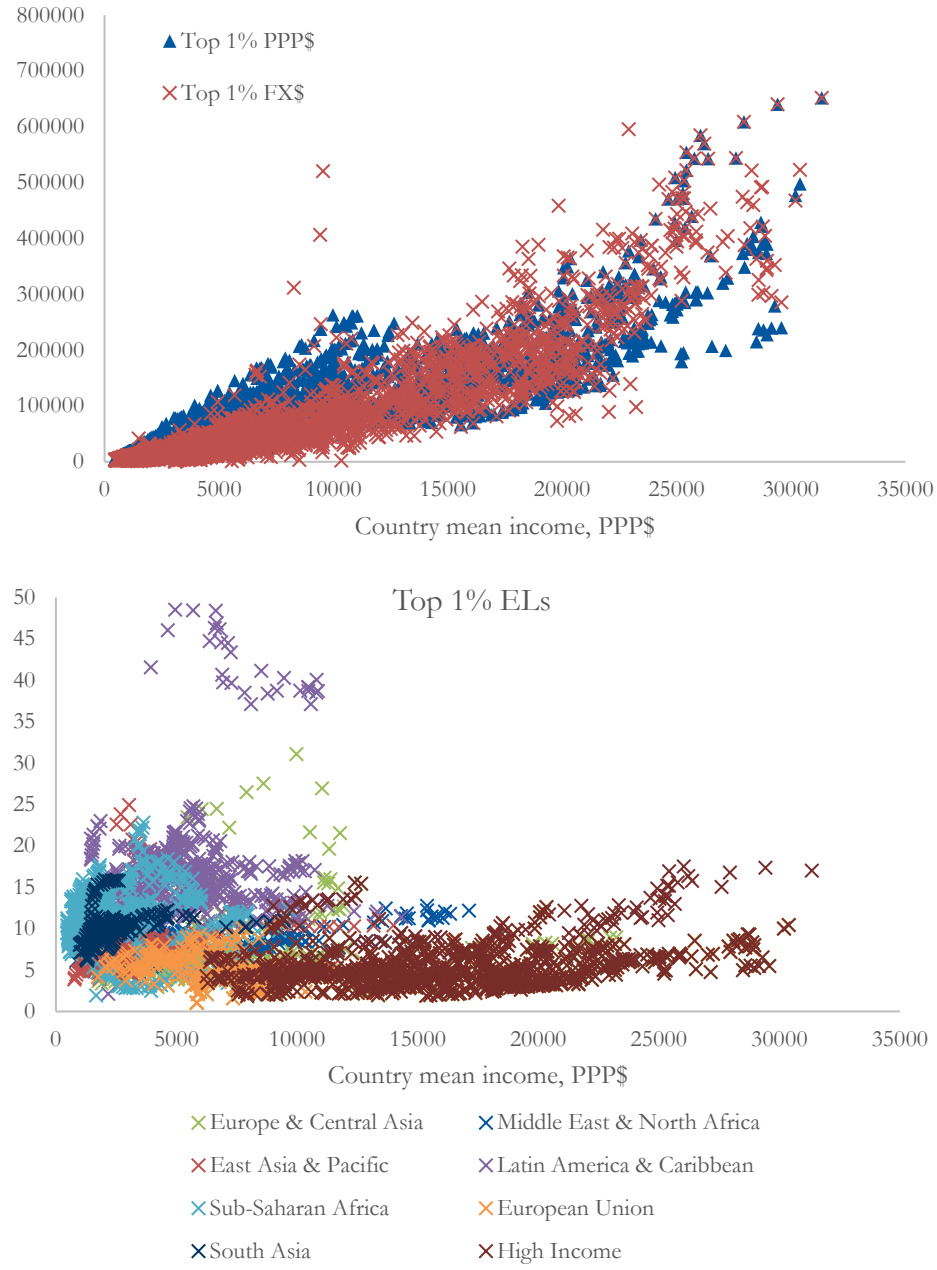
We can examine this relationship using Figure 3, which shows how elite incomes compare with national mean incomes. The horizontal axis is country mean income in PPP$ from surveys. We plot elite incomes in PPP$ and in FX$ in the top panel, and in EL in the bottom panel, where datapoints are colour-coded by region, to be discussed below. While we find the expected strong positive correlation between elite incomes and survey mean incomes in PPP$ and FX$—in countries with higher survey mean incomes (in PPP$), the top 1 per cent are also richer in both PPP and FX terms—in contrast we find a weaker, but overall negative, correlation, between survey mean income and elite ELs. In the entire pooled sample the simple correlation between top 1 per cent ELs and national mean incomes is -0.29, indicating the 'overshooting' by poorer-country elites in terms of ELs.

Consider the latest available year, 2019. We compare the 81 poorest countries with national survey mean incomes below PPP$20/day with the 27 richest countries with national survey mean incomes above PPP$40/day. In terms of PPP incomes the top 1 per cent in these rich countries have an (unweighted) average income of PPP$266,000 compared with PPP$62,700 in the poorer countries. In terms of ELs, the poor countries' top 1 percenters have a higher average at 11.9 compared with the average in the richer countries of just 6.9. Thus, in ELs, elites in poorer countries are richer than their counterparts in poorer countries—which is, of course, a function of the fact that inequality tends to be higher in poorer countries than in richer countries. But still, inequality across countries between elites in ELs is lower than in PPP$ because the overshooting is relatively modest: whereas elites in richer countries were 4.2 times richer than poor country elites in terms of PPPs, poorer country elites are just 1.7 times richer in terms of ELs than rich country elites.

The regional pattern of ELs over time is given in Figure 4. As also implied in Figure 3, Latin American elites enjoy the highest ELs by some margin, although it has declined slightly over the period from a high of 28 to 26 since 2005. The high level is driven particularly by Brazil, which has both the largest population in Latin America and has exceptionally high ELs, falling since 1990 but remaining above 38 in all years (represented by the set of vertical outliers in the bottom panel

of Figure 3). All other regions have seen an increase, with South Asia growing most rapidly to become the region with the second-highest elite ELs. High income countries are near the middle of the pack, but that is driven largely the highly-unequal USA, as shown by the much lower average elite EL in the European Union. While it has grown in the EU as well, in 2019 it was only 6.3, the lowest of all regions. European elites are rich in terms of PPP$ but the poorest in terms of their ability to command their compatriots.

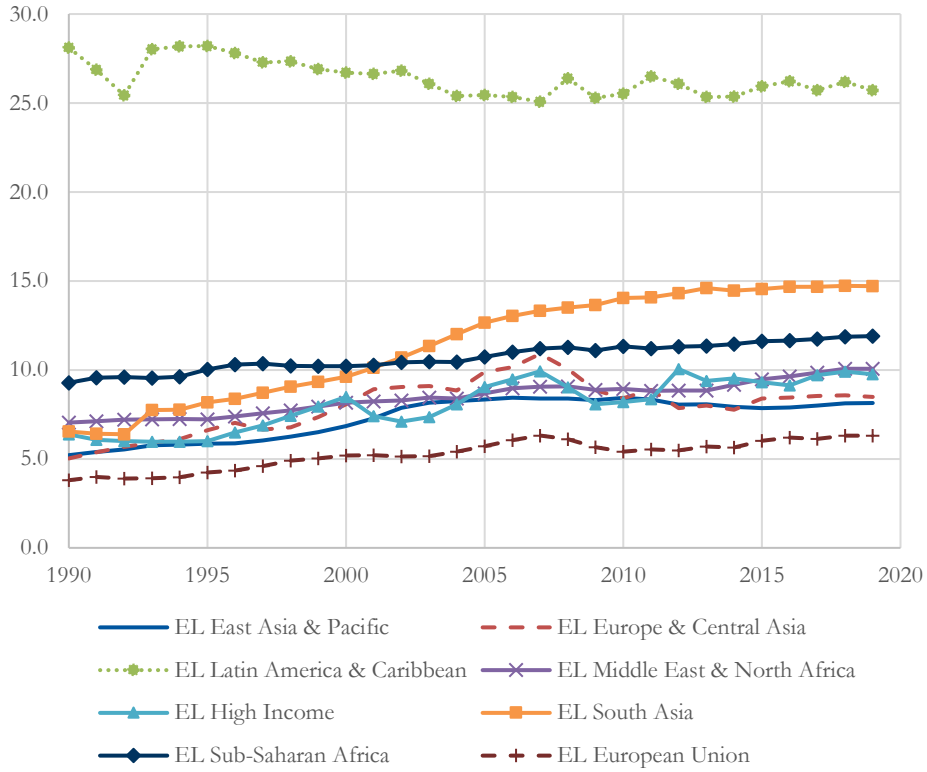
Figure 3: Incomes of global elites in PPP$, FX$ and EL, pooled results 1990-2019



Note: pooled data over 1990–2019. Both panels are constrained to countries for which we have estimates of gross median wages and entitlements over labour (EL).

Source: authors' calculations.

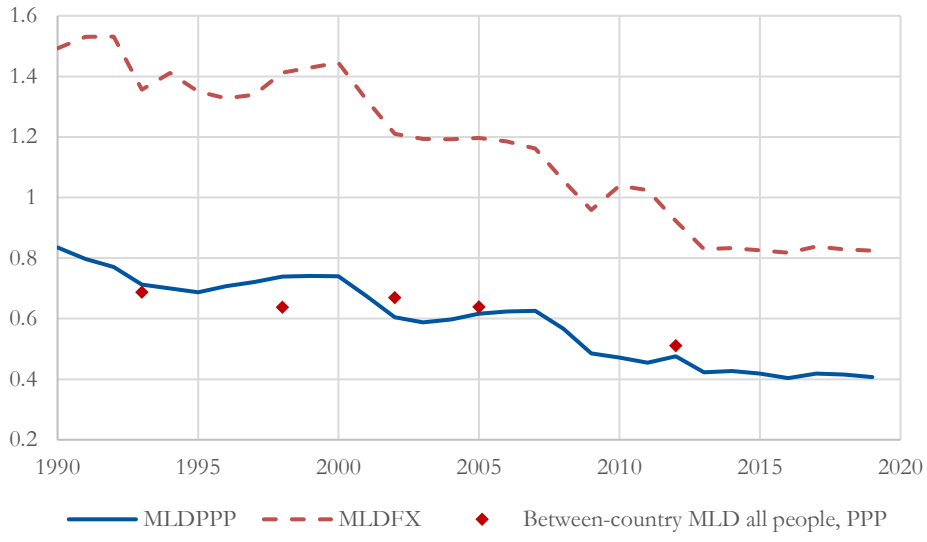
Figure 4: Regional ELs



Note: EL is the population-weighted average of entitlements over labour of the top 1% in the region.

Source: authors' calculations.

Figure 5: Global elite inequality and global interpersonal inequality in PPP$: the between-country component of the MLD



Note: global elites are defined as the top 1% in every country. Estimates cover between 90–92% of this total population in every year.

Source: global elite inequality—authors' calculations. Between-country MLD for all people—Anand and Segal (2017b), which they estimate for the benchmark years 1993, 1998, 2002, 2005, 2012.

Finally, we can compare the level of inequality among elites with the level of inequality among all people, as estimated in Anand and Segal (2017) for a set of benchmark years. Our estimates of

global elite inequality assume uniform incomes *within* each country's top 1 per cent, so they correspond to the between-country component of global interpersonal inequality restricted to the top 1 per cent of each country. Therefore, the appropriate comparison is with the between-country component of global interpersonal inequality for all people. We do this using the decomposable mean log deviation (MLD) measure in Figure 5. This shows that between-country global elite inequality was about the same as that of global interpersonal inequality in 1993 and slightly higher in 1998. But after 2000 (in the benchmark years 2002, 2005 and 2012), global elite inequality has been around 10 per cent lower than global interpersonal inequality. Using the MLD, inequality among global elites has halved since 1990. Thus, the modest convergence in people's incomes globally is outpaced by the rapid convergence in elite incomes.

This is consistent with the recent literature on national elites that has found that they are increasingly internationalized, and often have more in common with one another across national boundaries than they do with their domestic compatriots (Anand and Segal 2017; Hecht 2017; Krozer 2018; Sassen 2002; Segal 2021a).

5 Discussion

We have seen that globally, using PPP and FX exchange rates, the incomes of national elites have risen faster than average economic growth, and faster than median wages. Moreover, their real incomes measured using entitlements over labour, or their capacity to command workers in their own economies for their personal ends, have increased. The fact that inequality among elites is highest using FX exchange rates, lowest using ELs, and intermediate using PPP exchange rates, is consistent with the view that ELs reflect a non-traded sector bias that complements the traded sector bias of FX exchange rates, relative to the balanced consumption basket represented by PPP exchange rates.

These findings also illuminate the position of global elites both with respect to each other and with respect to their positions within their own countries. Inequality among these elites across countries has declined, implying international convergence. At the same time, rising levels of entitlements over labour implied increasing divergence between these elites and their own compatriots, as elites increased their ability to command and dominate local labour in their own countries. This supports Anand and Segal's (2017: 112) conjecture that 'citizens of developing countries who reach the global elite may simply find themselves further removed from their own compatriots'.

What do rising entitlements over labour look like within a country? Standard measures of inequality are strictly impersonal, and are based on measuring relative command over a representative basket of goods and services. High inequality in this sense implies that one group of people can enjoy higher levels of consumption than others. But these measures do not refer to what political theorists and sociologists describe as 'relational inequality', or the degree of inequality in the relationships between people. Following a tradition developed by Jean Jacques Rousseau, relational egalitarians are concerned not with simple comparisons of relative consumption, but instead conceive of equality as 'a kind of social relation between persons—an equality of authority, status, or standing' (Anderson 2010: 1). Anderson (1999, 2017) further argues that historical egalitarian movements were concerned not with inequality in the distribution of incomes, but instead that they opposed social orders based on 'a hierarchy of human beings', where 'inequality referred not so much to distributions of goods as to relations between superior and inferior persons.' (Anderson 1999: 312, and 2017: chapter 1). Segal (2021a) argues that, unlike standard measures of inequality, entitlements over labour provide a measure of relational inequality because they measure the extent to which elites can command or dominate others. Domination implies 'social

subordination to others' (Pettit 1999: 274), and 'a profound asymmetry in whose interests *count*' (Anderson 2017: 5). When entitlements over labour rise for elites, they are both richer in terms of the labour they can command, and for that reason they also increase their social distance from and the degree of relational inequality with their compatriots.

Segal (2021b) illustrates this double movement in the case of China, where all incomes have risen dramatically over the last 40 years, but rising inequality has meant that elite incomes have risen faster, and elite entitlements over labour have risen substantially. Focusing on changing attitudes to domestic service, China underwent a remarkable change in social relations consistent with these philosophical arguments. During the Mao era, paid domestic service was seen as an unacceptable symbol of inequality and the old class system, and largely disappeared. But after Deng Xiaoping's reforms, and China's transition to rapid economic growth, social norms also changed. The employment of domestic workers came to be seen as not just acceptable but necessary in order to free the professional classes from the burdens of domestic work, and to enable them to focus their energies on China's modernization. The All-China Women's Federation set up an organization to bring rural women to urban areas to provide domestic service, and rising inequality in the sense of entitlements over labour meant that these workers became increasingly affordable for those professionals. By the early 2000s the social norms opposing this kind of inequality had become so eroded that Yan (2008) found Chinese diplomats expressing the wish that Chinese maids could be as docile and servile as South African maids.

There are also reasons to believe that entitlements over labour are politically salient. Segal (2021a) argues that Brazil's President Dilma Rousseff lost the support of the upper-middle classes in part because their *declining* entitlements over labour meant that the domestic service they depended on was becoming more expensive. We conjecture that *rising* entitlements over labour in other countries may also have had political ramifications. The rise of right wing 'populist' political parties in Europe and the US in recent years is frequently linked to changing 'economic status' for many voters in the middle and lower end of the income distribution (Sandbu 2020). In the US, this has come after more than 40 years of real wage stagnation for large groups of workers. In most European countries real wages have risen, making the argument for an economic basis to this populism more complicated. So the rise in ELs may help explain this phenomenon: even if real incomes have risen, the rise in ELs may imply a decline in social status and a rise in feelings of subordination for many wage earners, leading to a rising sense of inferiority. It is these feeling of inferiority, and the resentment they cause, that are exploited by right wing populist politicians. This is effective because, as Ridgeway (2014: 2) puts it, 'people care about status quite as intensely as they do money and power.'

6 Conclusion

In this paper we have analysed global elites defined as the top 1 per cent in each country, and considered how different definitions of their real incomes compare across countries and how they have evolved over time. In addition to the standard measures of incomes in terms of PPP$ and FX$ we considered entitlements over labour, defined as the pecuniary capacity to command a median worker for personal purposes. We argued that whereas FX$ comparisons exhibit traded sector bias, we would expect ELs to exhibit non-traded sector bias, as the cost of labour would be more associated with non-tradable goods than with tradables. Consistent with this, inequality among national elites was highest in FX$ and lowest in ELs, with inequality in PPP$ lying in between the two.

But while the gap between national elites was smaller in ELs than in PPP$ or FX$, we also found an 'overshooting', or a reversal of positions for elites in rich and in poor countries: while rich country elites are consistently richer than poor country elites in PPP$ and FX$, they tend to be poorer in ELs, owing to the lower levels of inequality in richer countries. This is also observable at the regional level, where elites in Europe have much lower ELs than their counterparts in poorer regions, despite having much higher incomes in PPP$ and FX$.

National elite incomes have also risen faster over time than global average incomes due to rising within-country inequality, meaning that these elites have diverged from their own compatriots, and ELs globally have risen. This implies that these elites have increased their ability to dominate their compatriots, and we expect this to imply increasing relational inequality in the sense of social hierarchies and 'asymmetry in whose interests count' (Anderson 2017: 5). We also find that when we use standard PPP exchange rates then inequality among these elites is lower than inequality among people more generally, and has been declining more rapidly over time. There has therefore been a convergence among global elites.

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Appendix

Data sources:

- Top 1% shares: source World Inequality Database (WID), fiscal income. We use the data that refer to publications using administrative or tax data, we are not using the imputed top 1% share values estimated by WID. We estimate our own imputations as described in the main text. Last accessed via the Stata API on 21/02/2022.
- Top 10% shares: downloaded from the World Income Inequality Database (WIID) (UNU-WIDER 2021) website on 02/02/2022 (version timestamped 31/05/2021). The dataset includes original and imputed values by WIID.
- Mean survey income: PIP/World Bank, the dataset including imputed values for years without surveys (in 2017 PPP$). We accessed the PIP data using the World Bank API on 25/05/2022.
- Government share of GDP, Household Final Consumption Expenditure: World Bank WDI, last accessed on 20/01/2022 via the World Bank API.
- Median wages: LIS median gross wages (in 2017 PPP$). Downloaded 22/02/2022 from https://dart.lisdatacenter.org/dart), and Segal (2021a)
- Social Spending: KPMG employer social security constributions from https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/social-security-employer-tax-rates-table.html. Downloaded 26/10/2017 for 2009-2010; downloaded 02/06/2022 for 2011–2021.

Estimation notes:

Our method for estimating median wages is the following:

1. Start with LIS median wages and Segal (2021) median wages.
2. Regress these on median income from surveys, top 10% share from WIID, and government expenditure share of GDP, all in logs (see table A1).
3. For countries with any years of LIS/Segal wages, interpolate/extrapolate using median income from surveys per capita growth rates (for interpolations, averaging backwards and forwards extrapolations).
4. For countries without any LIS/Segal wages, impute using the aforementioned regression.

Our method for estimating top 1% shares and incomes is the following:

1. Start with WID fiscal income top 1% shares.
2. Regress these shares on top 10% from WIID, mean income from PIP household surveys, government consumption share and time trend, and impute for all countries with no top 1% data (see table A2).
3. For countries with some WID top 1% data, we (a) interpolate top 1% data following the growth trend of the top 10% shares[6] and (b) extrapolate using top 10 per cent shares

[6] When the growth rate of top 10% and top 1% over a gap in the top 1% data are of opposite signs we revert to linear interpolation.

from WIID and the latest available Pareto coefficient calculated from top 1% and top 10% shares.[7]

4. We then multiply these income shares by mean household income from World Bank surveys, respectively in PPP$ and FX$.

Calculating ELs:

1. For high income countries, EL is top 1% income in PPP$ divided by median wages in PPP$ plus social security contributions.
2. For non-high-income countries, it is top 1% income in PPP$ divided by median wages in PPP$.
3. Note: the estimates can differ from Segal (2021) because that study used country-specific data which uses different population definitions from the global data used in this study. For instance, Segal (2021) used 'adult equal split' income for the top 1%, whereas our use of World Bank mean survey income in this study implies that we use per capita, not per adult, incomes.

Regression tables:

Table A1: Estimating median wages (all in logs)

	Pooled OLS
Log MeanInc	0.94***
	(0.02)
Log Top10%	-0.024
	(0.077)
Log GovCons	0.127*
	(0.053)
constant	6.4***
	(0.14)
Country dummies	No
N	340
R^2	0.90

Note: significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.

[7] For each country we calculate the Pareto coefficient of the latest year for which both top 1% and top 10% shares are available, using the formula in Atkinson (2007: 24). Since top 10% shares are typically available for more recent years than top 1% shares, we then use that coefficient and formula to extrapolate the top 1% shares.

Table A2: Estimating top 1% shares

	Pooled OLS
Top10%	0.77***
	(0.10)
Top10%^{2}	-0.69***
	(0.12)
MeanInc	1.82E-04
	(2.54E-04)
MeanInc^2	6.9E-06*
	(3.26E-06)
GovCons	4.94E-03**
	(1.74E-03)
GovCons^2	-1.68E-04***
	(4.8E-05)
Trend	1.54E-03
	(1.12E-04)
constant	-3.17***
	(0.22)
Country dummies	No
Latin America Dummy	Yes
N	986
R^2	0.580

Note: fixed effects includes country dummies. Squared terms were kept only when they were significant.
Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1