

The Openness-Equality Trade-Off in Global Redistribution *

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Abstract

Because most inequality is across rather than within states, the greatest potential welfare gains from social insurance are international. Few of these are realized at present through transfers, suggesting other methods of global redistribution are needed. A natural alternative is migration, which I estimate currently reduces global inequality by about a third as much as internal tax-and-transfer programs within Organization for Economic Cooperation and Development (OECD) countries do. Migration to some countries, particularly the Gulf Cooperation Council (GCC) monarchies, does massively more to reduce global inequality per person in those countries and reasonable scenarios in which the OECD countries imitate GCC policies achieve much more than eliminating all internal inequality. Yet the GCC countries are stunningly unequal internally and massive abusers of human rights. Such examples suggest a philosophically disturbing trade-off between openness to global inequality-reducing migration and internal equality. For example, social prejudices based on national origin or authoritarian regimes that support a caste system could be Pareto-improving. More practically, regularizing past illegal migrants in exchange for sealing the border could be harmful.

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1 Introduction

In this paper I argue that the domestic policy implications of global egalitarianism contradict those of (naïve) domestic egalitarianism both in cases that are empirically plausible and in ones that have radical implications for widely-held normative values. A range of studies (Bourguignon and Morrisson, 2002; Sala-i-Martin, 2006; Milanovic, Forthcoming) find that inequality across nations is (possibly much) greater than that within nations. As Kopczuk et al. (2005) show, this implies that most of the potential value of the redistributive social insurance arises from the transfers across rather than within nations. Such transfers are extremely small in practice, especially compared to those within nations, suggesting we should look elsewhere for policies that could seriously reduce global inequality. I argue that historical data indicates migration has greater promise. However adopting migration policies that would substantially lessen global inequality, such as those implemented by the Gulf Cooperation Council (GCC) monarchies, would likely threaten fundamental values dear to Western liberals, especially intra-national equality.

A simple way of thinking about these issues is to compare the utilitarian marginal value of a dollar given to individuals in various countries. According to my estimates that assume logarithmic utility giving one dollar to an average individual in the world is worth the same as giving \$6.3 to a typical American.¹ Giving one dollar to a truly poor individual is worth the same as giving about \$50 to a typical American. To obtain a similar comparison in the US, one would have to redistribute income to a poor individual in the US from an individual making about \$480,000 close to the threshold for the top half of a percent of the income distribution (\$630,000).

Despite these dramatic figures, nearly all work in the theory of optimal redistribution beginning with Vickrey (1945) ignores international considerations. That is, economists have considered the “veil of ignorance”, behind which Vickrey and many others after him (Harsanyi, 1953; Rawls, 1971; Dworkin, 1981) assume individuals should make their choices about tax rates, to be made from a flag bandana that reveals to its wearer her national allegiance and nothing else. As Barry and Wiens (This Issue) argues, there are many philosophical reactions one might have to the challenges I pose below. However, as Mirrlees (1982) famously argued, simply ignoring international concerns is incoherent and would lead many coherent positions to mistaken conclusions.

The reason is that many domestic policy decisions both impact the welfare of those outside of the relevant country and change those that are considered within the scope of the

¹As discussed below, throughout this paper significant digits are used to encode (primarily subject, model mis-specification and data quality rather than sampling) uncertainty.

“within-country” analysis. Beyond the issues of migration that I focus on below, other examples are intra-national redistribution that impacts the ability and willingness of the wealthy to contribute to foreign aid or of the poor to buy foreign-produced products, allocations of scarce budgetary resources to foreign aid, a variety of trade policies (including informal ones such as “buy America” and “buy local” movements), industrial policies like antitrust and intellectual property with important international implications and (especially) decisions about conquest/annexation and de-colonization/independence.

To the extent this is true, whose welfare should an economist maximize? Notions like focusing on the welfare of those currently in the United States or the average welfare of those in the United States at some future date would sanction obviously unacceptable enslavement and exploitation of those outside the US today or the murder of anyone expected to have low welfare in the future. It therefore seems to me that the only remotely plausible simple utilitarian objective function is globally egalitarian utilitarianism. In this paper I follow this position to its logical, if disturbing, conclusions.² I then briefly discuss whether we might accept these conclusions or reject the underlying normative framework that leads them, but which also underlies most conventional welfare economics.

I begin, in the next section, by briefly reviewing, replicating and extending (to non-linear taxation) the results of Kopczuk et al. (2005) that taxes in a global system of social insurance should be much higher than in a domestic one and that most transfers should be across rather than within countries. Then, in Section 3, I note that nowhere near this scale of transfers occur in practice and consider some reasons why this may be the case. Two explanations are that such transfers would be ineffective at raising welfare in recipient nations due to corruption (which I analyze formally) , or unattractive to wealthy countries, given their cost.

If either of these is true, migration may be a more effective means of redistribution, as it is harder to corrupt and less costly to recipient countries than are transfers. As a result in Section 4 I analyze the impact of current migration on global equality. This is significant,

²Throughout the paper I adopt the relentlessly and simplistically materialist, utilitarian perspective of assuming that all individuals’ well-being is a function only of their material income, that the function mapping income to welfare is homogeneous across individuals and that social welfare simply integrates individual welfare. These extreme assumptions are not made for their literal plausibility, but because I believe the simple perspective they provide puts many of the key issues arising in the context into sharp, quantitative focus and provides a powerful baseline that is easily comparable with the leading work on (intra-national) redistribution in economics. It also greatly enhances the analytic tractability and transparency of the analysis and gives a natural, common denominator in which to account for a wide-range of effects. Perhaps more importantly, and as I discuss in Subsection 3.4, within the bounds of the most commonly-applied egalitarian liberal approaches in economics (for example, using instead Rawls’s Difference Principle or the Sen (1987)-Nussbaum (2000) capabilities approach), I believe the general conclusions of the following analysis are largely unchanged or even strengthened.

equal to about a third of the impact of taxes and transfers within the OECD, but modest from a global perspective, reducing global inequality by less than one percent. One reason is that migration (from middle-income to wealthy countries) often increases global inequality, partly canceling the benefits of migration. However, rearranging migration flows so that they come from the poorest nations, without increasing their magnitude (in income increase or number) could lead to dramatic welfare gains, larger than those created by all internal redistribution in wealthy countries.

However, as I discuss in Section 5, countries whose migration most reduces global inequality per capita tend to be highly unequal internally. The GCC monarchies are roughly an order of magnitude more unequal than other wealthy countries and yet migration to those countries does more to reduce global inequality (per person) than would eliminating all inequality within OECD countries. Because of remittances these countries also come far closer in proportional terms to satisfying their transfer obligations to the world's poorest than do OECD countries. I discuss a variety of other circumstantial evidence suggesting a trade-off may exist between internal equality and openness to the “huddled masses” of the world, especially in extreme regimes like those of the GCC.

In Section 6, I turn to potentially disturbing implications of such a trade-off, if it in fact exists, for liberal egalitarianism and for practical policy. I describe a model where prejudice based on national origin may be Pareto-improving by allowing migration that otherwise would have been politically unpalatable in wealthy receiving nations because of fears that sympathy for the migrants would end up making the migration too costly to the receiving nations' citizens.³ Dynamics like this seem to have been at work in the GCC countries. I then discuss several, all somewhat unsatisfactory, resolutions of the philosophical challenges these implications pose. I also consider the implications of global egalitarianism for a more concrete, short-term policy trade-off: immigration reform in the United States. Finally, I conclude in Section 7 by discussing directions for future research. In this paper I focus almost exclusively on the distribution and redistribution of income, rather than on the level of income, because the distributional impacts of migration are much less-fully understood than their effects on aggregate income.

2 Optimal Taxation from a Global Perspective

In this section I review, replicate and extend existing results on the global-scale Vickrey model. To put things in particularly sharp, quantitative focus, I assume a particular func-

³Other limits on migration, arising from legal regimes or fear of revolution by an underclass, yield similarly disturbing conclusions.

tional form for individuals' utility of income: logarithmic. This form is both the oldest in economics (Bernoulli, 1738) and is (surprisingly) consistent with a wide range of recent economic data (Chetty, 2006; Stevenson and Wolfers, 2008). It is also particularly easy to think about (the marginal value of a percent increase in wealth is the same at any wealth level). This form implies that the appropriate way to measure inequality's total welfare impact is by the mean log deviation (MLD),

$$\log(\mathbb{E}[I]) - \mathbb{E}[\log(I)], \tag{1}$$

as this quantifies the welfare that could be gained by moving from the present state of affairs to perfect equality.

2.1 Inequality within and between countries

The global distribution of income, and the decomposition of inequality into within-country and between-country inequality, has been considered by several recent studies (Bourguignon and Morrisson, 2002; Sala-i-Martin, 2006; Pinkovskiy and Sala-i-Martin, 2009; Milanovic, Forthcoming). According to my metric, all of these studies yield the fraction of global inequality that is across rather than within countries at 60-70%. For internal consistency of what follows, I report my own estimates which are in this range. In particular, I build on several of these papers, extending the parametric approach of Pinkovskiy and Sala-i-Martin (2009) but using the double Pareto lognormal distribution (Reed, 2003; Reed and Jorgensen, 2004) and new data on top incomes (Alvaredo et al., 2014) to more accurately capture the upper tail of the income distribution, which increases within-country inequality and thus somewhat increases its share of total inequality. I describe my methods in detail in Appendix A, given that my results are so consistent with previous findings.

The one exception to this rule was my treatment of the Gulf Cooperation Council (GCC) countries, to which I took a completely different approach described in detail in Appendix E given the dramatic inaccuracy and inconsistency of data on these countries and the important role they play in my analysis below. I used data on migrant wages obtained by Naidu et al. (2014), which are consistent with extensive ethnographic accounts on the region's migrants (Gardner, 2012; Vora, 2013) and data on migrant stocks in these countries from the United Nations Population Division, which are likely accurate as they are cross-referenced against sending country migration databases. I then assumed inequality among natives, who receive the rest of income, is similar to in OECD countries.

Throughout the paper I report only point estimates of relevant quantities rather than measures of statistical uncertainty. Given the very large samples of all the inputs to my

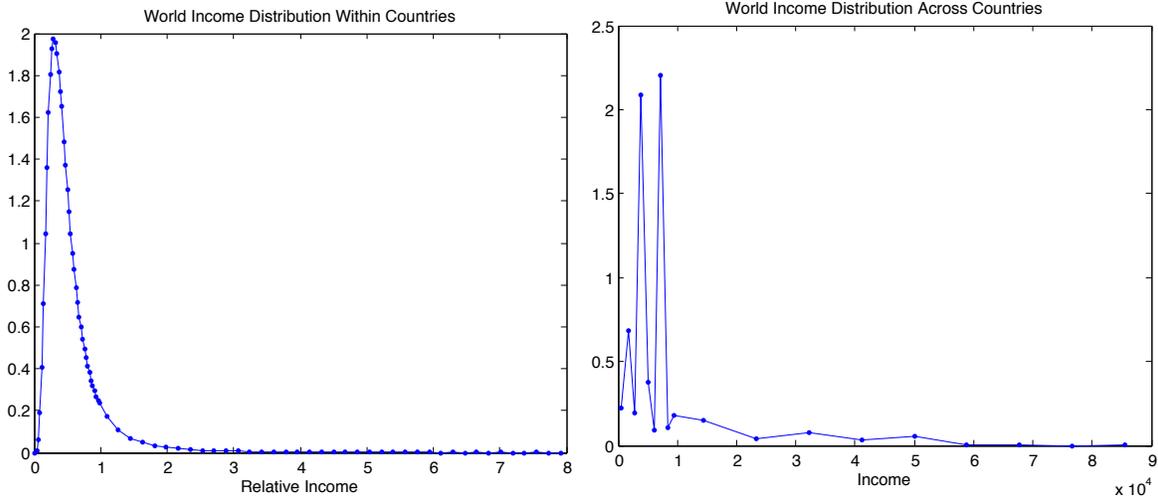


Figure 1: The distribution of income on average within (left) and across (right) countries.

analysis and the far greater concerns I have about model mis-specification compared to sampling error, I believe such confidence intervals would be more falsely reassuring than informative. However, to indicate the great uncertainty around all numbers in the paper I round everything to a number of significant digits representing my sense of uncertainty about the underlying variables.

We find that total global MLD of income is approximately .76, with .29 being within countries and .47 being across countries. That is, approximately 61% of inequality is across and 39% within countries. To put these numbers in perspective, it is useful to convert them in the more familiar units of the absolute level of income, as economists are more familiar with placing magnitudes in these terms. In these terms, eliminating all global inequality would add as much welfare as increasing the size of every individual in the economy's income proportionally by 110%, or approximately 76 years of per capita growth at 1% per year. Eliminating inequality within countries, on the other hand, would translate into only a 34% increase in global incomes or only 30 years of growth at 1% per year.

Figure 1 compares the average within-country income distribution and the between-countries income distribution. The within-country distribution (left) is constructed by proportionally normalizing all countries' mean income to the global mean income and then population-weighted averaging normalized quantiles. The across-country distribution (right) is constructed through a histogram. Note that the cross-country distribution is much more unequal both at the top and the bottom. There is much greater mass near 0 in the right panel, but there is also much more mass beyond \$30,000. The between-country distribution is much choppier, obviously, because of the discreteness of histograms.

It is also worth noting that these figures, based on annual income, likely significantly understate the fraction of lifetime income or consumption inequality that is between countries. Given both short-term fluctuations and lifetime mobility, a significant fraction of within-country inequality in annual income washes out over a lifetime (Krueger and Perri, 2006). This is far less true across countries: year-to-year income variability of nations is much lower than for individuals and mobility across nations income groups is an order of magnitude smaller than mobility even in relatively immobile societies across income groups. I would guess that appropriately accounting for these longer-term effects would increase the fraction of inequality between nations into the 70-80% range.

2.2 Optimal taxes

I adopt Saez (2001)'s formulation of Vickrey (1945)'s model. Individuals have homogeneous, risk-averse utility functions over income and the social planner is utilitarian. This creates a force for redistribution. However, taxation falls on realized rather than underlying ability and thus may discourage labor. This creates an equity-efficiency trade-off with natural comparative statics: the greater is inequality (variously measured) the higher should optimal marginal taxes be, but the greater is labor supply elasticity, the lower they should be.

A unit-mass continuum of individuals indexed by an individual-specific ability $\theta \in \mathbb{R}_{++}$ drawn independently and identically from a smooth distribution f on \mathbb{R}_+ . If an individual works l hours and has type θ she receives $\hat{I} = \theta l$. Individuals' utility is homogeneous across individuals, quasi-linear in consumption and has a constant elasticity of labor supply, following Diamond (1998):

$$u(c, l) = \log \left(c - \frac{l^{1+\frac{1}{\epsilon}}}{1 + \frac{1}{\epsilon}} \right).$$

Individuals consume their after tax-and-transfers income, not their market income. This is determined by a tax function $T : \mathbb{R}_+ \rightarrow \mathbb{R}_+$ indicating the post-tax-and-transfers income an individual earns $\hat{I} = T(I)$ if she earn I before taxes and transfers. $T(0)$ is thus the basic income floor for all individuals. In Subsection 2.4 below I consider two specifications for T :

1. A linear tax, as in Sheshinski (1972) and Dixit and Sandmo (1977), where $T(I) = T(0) + (1 - t)I$ for some constants $T(0)$ and t . This mirrors replicates the analysis of Kopczuk et al.⁴
2. A three-bracket marginal tax rate system, building off Slemrod et al. (1994)'s work on two-bracket systems, which I set up formally in Appendix B.

⁴Those concerned with robustness with respect to the many detailed assumptions (such as the absence of income effects) over which I gloss here should consult their detailed results.

Piketty and Saez (2013) derive the following simple expression for optimal linear taxation in this environment; I only consider the richer tax schedules in 2) computationally.

$$t^* = \frac{\iota(t)}{\iota(t) + \epsilon}, \quad (2)$$

where

$$\iota(t) \equiv -\frac{\overline{Iw} - \bar{I}\bar{w}}{\bar{I}\bar{w}}$$

is (a special case of) the tax-relevant notion of inequality derived by Dixit and Sandmo (1977). This is the negative of the normalized (by $\bar{I}\bar{w}$) covariance between w and I . Note that when there is no variation in income, this always equals 0 as all incomes and welfare weights are identical; this will occur as $t \rightarrow 1$ as this achieves perfect equality. The greater is variation in income, the larger ι will be, as whenever I is large w is small, leading to negative covariation as a result of variance in I . I will use ι as a gauge of (post-tax-and-transfer) income inequality in the Subsection 2.4 as, unlike other measures including the MLD described in the previous section, it is directly relevant to optimal (linear) tax policy.

The expression for optimal taxes in Equation 2 provide a simple intuition for the basic equity-efficiency trade-off in determining optimal taxation. It takes the form $\frac{y}{y+x}$ where $y \equiv \iota(t)$ and $x \equiv \epsilon$ are both positive; this is strictly increasing in y and strictly declining in x . Thus the whole expression is increasing in ι and decreasing in ϵ (which both raises x and reduces y). Thus increasing inequality (raising ι at any t) increases the optimal tax, while raising ϵ (the efficiency cost of taxation) lowers the optimal tax. Because ι is strictly decreasing in t there is a simple, unique solution for the optimal tax. Furthermore as $\epsilon \rightarrow \infty$ the optimal tax goes to 0, while if ι gets large for all but very high tax rates, the optimal tax approaches 0.

2.3 Data and calibration

The central inputs to my analysis are

1. Labor supply elasticities,
2. Country-by-country income distributions for each country in the world,
3. And the current tax structures for each country.

I assume labor supply elasticities take on common, constant-across-countries-and-incomes values that are commonly used in the literature. I consider variations on this assumption about the nature of deadweight loss, including versions of the model that allow for a “leaky

bucket” that makes transfers to certain states less attractive, in Subsection 3.3 below. I constructed income distributions as described in Subsection 2.1 above.

Taxes in many countries provide private goods back to those who pay the taxes and in almost all countries outside the OECD the structure of the tax-and-transfer system across income groups is (very) poorly reported. I therefore adopt a gross, but uniform-across-countries, assumption to approximate the current tax and thus incentive structure. In particular, I assume that all countries impose a linear tax with uniform lump sum redistribution and back out of the changes in the Gini coefficient before and after taxes and transfers what this tax rate must be. For OECD countries this is particularly easy because the OECD reports pre- and post-tax-and-transfer Gini coefficients for all members. For countries outside the OECD this is more challenging because there are generally not reliable post-tax-and-transfer Gini measures. To cover those cases, I use a regression model of the Gini-reduction from taxes and transfers on various country characteristics that are known to predict accurately the redistributive effect of taxes and transfers from the literature: income, the post-tax-and-transfer Gini, ethno-linguistic fractionalization (Alesina and Glaeser, 2004; Desmet et al., 2012), genetic diversity, (Ashraf and Galor, 2013) and regional dummies.⁵ I then use the same procedure on these predicted post-tax-and-transfer Gini coefficients to calculate the tax structure.

To compute optimal linear taxes given these inputs I computed ι by Monte Carlo simulation as discussed in greater detail in Appendix B; I report my computational methods for nonlinear taxes there.

2.4 Quantitative results

I compare optimal taxes in a national and global regime. In the global regime, taxes are linear on all income and are rebated back lump-sum to all world citizens. In the national regime, each nation’s taxes are rebated back lump sum to those within that country.

I present my results in Table 1 for a labor supply elasticities of .1, .3 and .9. Results are fairly consistent, at least in terms of the comparison between the global and national regimes, across the different labor supply elasticities so I focus on my baseline of .3, given that this matches almost perfectly the results of Kopczuk et al..

The optimal global tax rate is 60%, compared to the optimal domestic tax rate of 40%.⁶ This compares with average within-country tax rates (inequality reductions from tax and

⁵I plan to add more covariates in the next draft, including labor-leisure preference heterogeneity metrics (Lockwood and Weinzierl, 2014).

⁶They have a global tax of 62% and an average domestic tax of 41%, which equals my results if you round to the number of digits I consider significant.

	National Regime ($\epsilon = .1$)	Global Regime ($\epsilon = .1$)	National ($\epsilon = .3$)	Global ($\epsilon = .3$)	National ($\epsilon = .9$)	Global ($\epsilon = .9$)
(Average) Tax rate	60%	80%	40%	60%	20%	30%
Reduction in global inequality (absolute)	.3	.7	.2	.6	.2	.6
Reduction in global inequality (relative)	30%	90%	30%	90%	20%	70%
Welfare gains	.2	.7	.3	.6	.6	.8

Table 1: Optimal tax policy in national and global regimes with constant labor supply elasticities of .1, .3 and .9 respectively.

transfers that would have been achieved by tax rates equal to) about 10%; while this is much higher in OECD countries, most other countries are far less redistributive. On the other hand the effective tax rate computed at a global level is only about 5%. Thus global taxes are effectively one-twelfth of their optimal level, while domestic taxes are on average one third of their optimal level.

However the impact of optimal policy in the two regimes on total global inequality (in income net of labor), which is .76 absent any taxes and transfers, and welfare shows, as a result, an even more extreme pattern. Assuming $\epsilon = .3$, while the national regime only eliminates 30% of global inequality at the optimum and only increases welfare by .3 relative to *laissez-faire*, the global regime eliminates 90% of global inequality and raises welfare by .6! That is, about two-thirds of the potential inequality reduction from optimal global redistribution and about half of the welfare gain comes from a move from a national to a global regime rather than from no regime to a national regime. This matches astonishingly closely the basic decomposition of inequality into within and across country components. This is intuitive at a broad level, but the extremely tight quantitative match is probably an artifact of the linear tax framework I use.⁷

The welfare benefits of optimal global redistribution are quite close to those of simply eliminating all present inequality, about 60 years of growth at 1%. While some part of this is already achieved by intra-national redistribution, at least half is impossible even under optimal national taxation and thus is fundamentally international in character.

Allowing a three-bracket tax system yields essentially similar results; optimal tax regimes within countries and globally are progressive, though not massively so (rising about twenty percentage points from the lowest to highest bracket in both cases). Other than this all

⁷Note, however, that even with this simplistic linear framework, the vast majority of global inequality can and should be eliminated, at least with a labor supply elasticity of .3.

results are the same up to the significant digits I round to.

3 The Limits of International Transfers

These results suggest that significant transfers of income across countries are necessary to implement optimal taxation: because some nations are so much wealthier than others, their optimal lump sum receipts are likely to greatly exceed their tax liability, while the reverse will be true for other countries. I now consider the magnitude of the transfers needed to implement the optimum, objections to undertaking such transfers, the effect of such objections on the analysis and some of the potential philosophical responses to these results.

3.1 Current v. optimal transfers

I now compare the optimal structure of global redistribution derived in the previous section to that existing at present. To do so I considered four sources of international transfers: aid through multilateral institutions (such as the World Bank), direct government-to-government aid, private charity and remittances. My methods for measuring each are described in Appendix C in greater detail.

For institutional aid I combined data from AidData (<http://aiddata.org>) on what all the major multilateral institutions (the World Bank, the Islamic Development Bank, etc.) give to each country in the world with information from the website of each institution on how much they receive from each country. For direct government-to-government aid, AidData directly contains aggregated figures on all contributions and receipts. For private charity I used the Hudson Institute's 2013 "Index of Global Philanthropy" . For remittances I used the World Bank Remittance Factbook, which includes a matrix of flows by country dyad.

Figure 2 summarizes my results by displaying the ratio between the net transfers nations make at present and those they should make under a global optimal tax regime with a linear tax and $\epsilon = .3$. Countries in grey either lack data or have net transfers that are, at present, of the wrong sign relative to the optimum. Countries in shades of red and orange would optimally and do give aid; those in shades of green would optimally and do receive aid. The darker the saturation the larger the ratio of optimal to actual transfers. The detail shows the GCC countries.

I provide a detail of the GCC countries because the contrast between them and the OECD countries is so striking. While almost all OECD countries are in dark red, the GCC countries are only a pale orange, because they come much closer (in proportional terms) to satisfying their global redistribution "quota". To see this contrast most sharply, let's

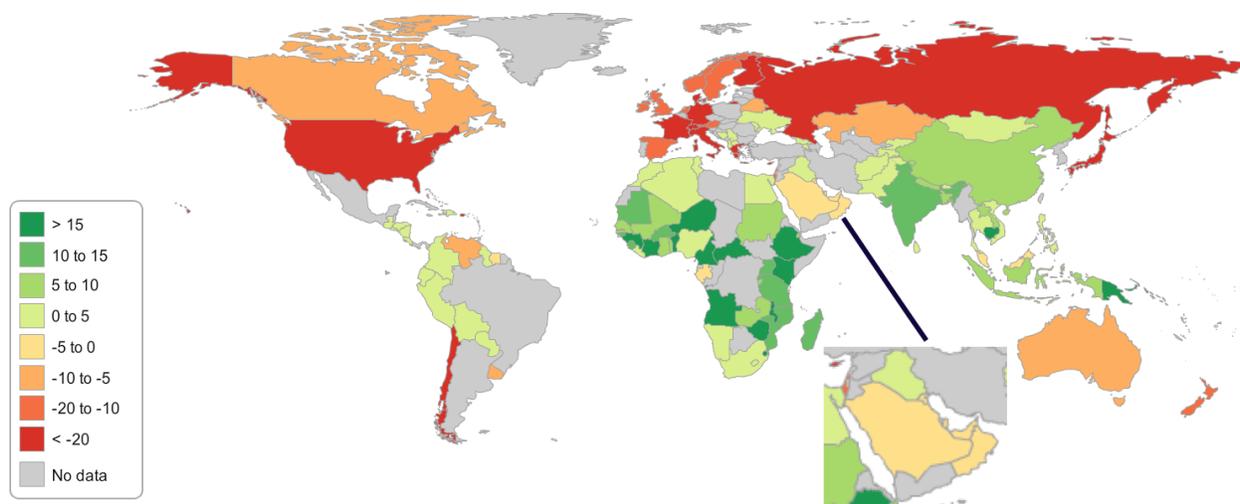


Figure 2: The ratio of transfers between countries under an optimal global linear income tax when $\epsilon = .3$ to transfers that presently exist. Countries in grey either lack data or have net transfers that are, at present, of the wrong sign relative to the optimum. Countries in shades of red and orange would optimally and do give aid; those in shades of green would optimally and do receive aid. The darker the saturation the larger the ratio of optimal to actual transfers. The detail shows the GCC countries.

compare Canada, the OECD country that is proportionally closest to meeting its transfer quota, to Qatar which we will see below is the most extreme of the GCC countries along many dimensions. Canada sends an impressive \$900 2008 USD abroad per citizen, though this is only a bit more than a tenth of the amount that a global optimal tax regime would ask them to send (\$8000). On the other hand, Qatar sends an astonishing \$5,000 abroad per citizen and would optimally send only \$9,000, not even twice as much. Thus Qatar is roughly an order of magnitude closer to satisfying the demands of international income redistribution than is even the most “generous” OECD country, almost exclusively through remittances for reasons that will become clearer in Section 5 below. A more typical OECD country, such as France, sends only \$300 of the \$8,000 it “owes” abroad.

It is useful to compare these paltry cross-country transfers with existing systems within sovereign states. While taxes and transfers have essentially no impact on inequality across countries, they on average eliminate 30% of inequality within countries. This is pictured in Figure 3, which shows how the average within-country income distribution (as shown in Subsection 2.1 above) changes as a result of taxes and transfers. The income of the bulk of the population moves significantly up, while the income of those at the top tail falls significantly.

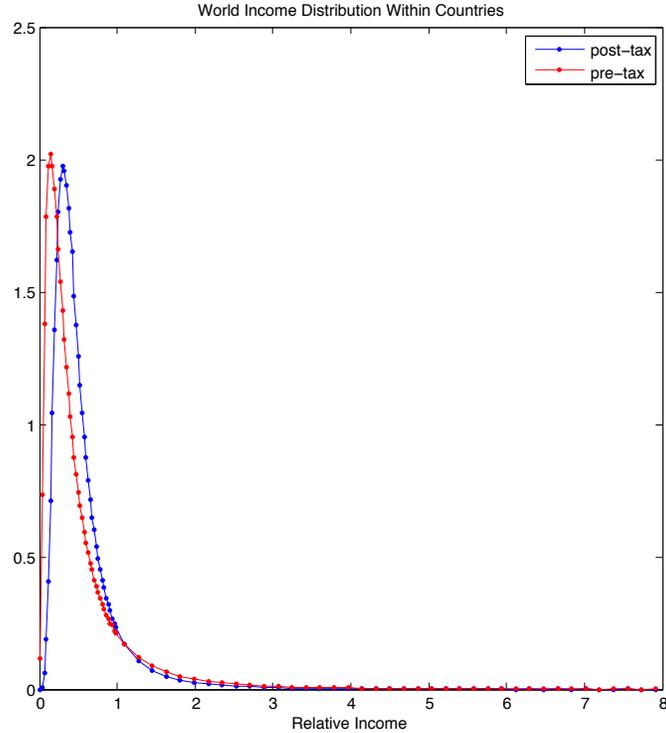


Figure 3: The impact of taxes and transfers on the average inequality within countries.

3.2 Would transfers work?

The dramatic results of the previous section were based on an assumption that transfers across countries can be made without cost, other than the discouragement to labor such transfers imply. There are many reasons discussed in the literature to doubt this is the case. Aid given to poor countries may be captured by relatively wealthy elites rather than going to the truly poor (Angeles and Neanidis, 2009; Niehaus and Sukhtankar, 2013). It may lead to extensive rent-seeking behavior in order to acquire the aid, which may even impede growth (Easterly, 2006). It may become a valued resource, contested in conflicts (Nunn and Qian, 2014; Dube and Naidu, Forthcoming). It may be manipulated by donors in wealthy countries to serve their political interests rather than actually aiding those in poor countries (Berger et al., 2013).

While these mechanisms are very likely to be important, it is also possible that my analysis *underestimates* the value of transfers. The reason is that, in the absence of perfect credit markets, perfect rationality among the poor and efficient public good provision, aid from abroad may create more consumption value than its dollar value for recipients in poor countries (Miguel and Kremer, 2004). Such effects can be particularly dramatic when such aid helps catalyze institutional change or changes in the economic equilibrium (Murphy et al.,

1989), though most evidence suggests aid has had, at best, a limited impact on institutional quality (Knack, 2001; Bräutigam and Knack, 2004; Knack, 2004).

Overall estimates of the effectiveness of aid are quite diverse in the conclusions they reach (Roodman, 2007). Few studies find that aid contributes significantly less on average than I assume (that is, almost no one finds aid is indirectly harmful on average) and some of the best-respected, most recent and best-identified studies find a modest multiplier effect on average (Clemens et al., 2012; Brückner, 2013; Galiani et al., 2014), though with a lot of noise and variation.

Much more research in this area is clearly needed. However, my tentative conclusion is that it is unlikely that, on average, much aid is wasted; in fact, it seems more plausible that it has a small positive spillover, which would imply even more dramatic results above. Furthermore, as I analyze in the next subsection, aid would have to be quite dramatically and systematically wasted to significantly change my results.

3.3 Do ineffective transfers matter?

To examine the quantitative impact of corruption and waste on optimal global transfers, I build a model where some fraction of the money flowing through each government in the world leaks out of the holes in a “leaky bucket” (Okun, 1975). In particular I assumed that in the most corrupt and inefficient countries 50% of money given is wasted and in the most effective countries all reaches its targets. I used data from the World Bank Governance Indicators (the Government Effectiveness variable) to calibrate where governments stood on the spectrum. Modal results are 30-40% loss to waste and corruption, with more developed countries typically having less corruption. I then compute and compare the structure and welfare under the optimal national and global tax regimes, taking into account this waste and assuming a labor supply elasticity of .3.

Results are quite similar to the baseline case with a perfect bucket. In the national regime, about 50% of countries have a positive tax rates, with sufficiently wasteful governments with not too great inequality choosing to have 0 taxes. The average tax rate is 10% across countries. In the global regime the optimal tax rate is 40%, significantly below that in the baseline analysis, but still quite high. The optimal within-country regime reduces global inequality by only .1 and increases welfare by only .05 while the optimal global regime reduces it by .5 and increases welfare by .3. Thus while taking into account the leaky bucket does overall reduce the desirability of taxation, it actually increases the fraction of the total gain that occurs across countries rather than within. Intuitively if the bucket is leaky it is only worth using to address very dramatic inequalities, which exist only across not within

countries. Thus, at least for the parameter values I study (with significant corruption but without aid being a complete waste), the leaky bucket is a very poor account of why there are so many intra-national transfers but so few international ones and also a bad explanation of why there are few international transfers overall.

To illustrate why these results make sense, suppose Forbes 400 wealthiest individual in the world gives 5% of her income to help the poorest individuals in the world and that half of this is wasted in the process. Suppose that a policy (which has no direct impact on charitable giving, unlike a tax change) could be implemented that would redistribute wealth from the Forbes 400 to average Americans. Would this be beneficial from a utilitarian perspective? A simple calculation suffices to compare the social value of a dollar in the hands of a Forbes 400 member to that of an average American, assuming there is no value to the Forbes 400 member's direct consumption:

$$\underbrace{.5}_{\text{fraction not wasted}} \cdot \underbrace{.05}_{\text{fraction going to poor}} \cdot \underbrace{50}_{\text{world poor to average American value ratio}} \approx 1.2 > 1.$$

Thus it would not be desirable to redistribute from the Forbes 400 members to other Americans, under this assumption. Results would be similar if the funds were given to average individuals in the poorest countries in the world.

This calculation illustrates how the vast inequalities between wealthy and poor countries beggar intuitions derived from within-country analyses of inequality and redistribution. One would have to know much more about the causal impact of income on donations and about the charitable giving patterns of the wealthy to take my preceding calculation seriously. However, it does seem plausible that, in the absence of serious, systematic global redistributive policies, even analysis of domestic distributive policies should be significantly adjusted to account for their impact on global transfers. As we will see below, such conclusions are even more extreme when one considers other globally egalitarian policies, such as migration from poor countries.

3.4 Discussion: some defensible positions

Why are transfers so much lower across countries than is suggested by this analysis? One view is that there is no sovereign global authority to whom one can prescribe optimal policy and therefore that the optimal policy is irrelevant. This view strikes me as implausible because this concern does not seem to stop there being an enormous literature in economics on optimal climate policy (Stern, 2007), national governments could do their share of optimal policy (or compensate for laggards) without global government and optimal tax analysis often

generates counter-factual predictions with less welfare relevance than these (Mankiw et al., 2009; Diamond and Saez, 2011; Farhi and Werning, 2012). Some positions that are more coherent and defensible are:

1. Utilitarianism (and egalitarian liberalism more broadly) are inappropriate normative frameworks: From small to large, one might object to the functional form of risk preferences I assume, the equal weighting of all individuals' utilities, utility being a function only of (absolute, rather than relative) material consumption instead of other capabilities or comparisons, welfarism as a whole as opposed to some more procedural or deontological foundation for optimal policy or, most radically, liberalism's entire individualistic and impartial foundation for evaluating social welfare.

Many of these positions are non-sequiturs in this context because they do not change, or may even strengthen, the conclusion that large, counter-factual redistribution across countries is desirable.⁸ The most damaging objections come on the extremes of libertarianism, as advocated by Nozick (1974) and others, and communitarianism, as defended by MacIntyre (1981) and others. Libertarian and meritocratic (Mankiw, 2010; Weinzierl, This Issue) rejection of intra-national redistribution easily helps account for the lack of international redistribution. Communitarian views, which I return to Subsection 6.4, may help justify an extreme priority for national over global egalitarianism (Walzer, 1983).⁹

2. Optimal policy is more-or-less as derived above, and we should try to implement it: This view is self-explanatory, but would obviously require, as highlighted above, a far stronger priority on cross-national redistribution compared to intra-national redistribution compared with the focus placed by most mainstream liberal egalitarians in their

⁸For example, Rawls (1971)'s maximin utility function (Difference Principle) would obviously lead to much more radical conclusions than I derived above and the strong advocacy for global redistribution (Sen, 1987; Nussbaum, 2000) by proponents of broader capabilities approaches to welfare suggests they would not reach radically different conclusions. Others, such as views emphasizing the importance of comparative income relative to some reference group, would clearly yield different conclusions if the relevant reference group is national. However, such views appear broadly inconsistent with the very data on subjective well-being once used to defend them (Stevenson and Wolfers, 2008) and with the revealed preferences of large numbers of migrants, discussed below, who choose to move to relative deprivation in order to achieve absolute well-being gains. Furthermore, even most advocates of this view (Easterlin, 1974; Frank, 1985) accept it is relevant only once the basic needs of the poorest are satisfied. Finally, in the era of global media the plausibility of a national comparison group seems dubious. Thus I do not view this and several similar perspectives as a serious normative response.

⁹However, both of these views would require radical, and potentially quite opposite, revisions in the nature of intra-national analyses of optimal redistribution. Lockwood and Weinzierl (2014) and Weinzierl (This Issue) explore some of the implications of the libertarian view, but to my knowledge no formal, second-best work in economics has taken the evidently more challenging communitarian view, which seems likely to have more radical implications.

political sentiments and organization.

3. The politico-institutional structures of developing countries make transfers there infeasible/wasteful: This view was extensively discussed in the previous two subsections. To seriously change the message about optimal policy, it would require what I believe are quite extreme views, but it does seem plausible that it could account for some reasonable fraction (about a quarter) of the divergence between the optimal policy from Subsection 2.4 and the *status quo*.
4. The politico-institutional structure of developed countries make transfer from there infeasible: If the economic interests or politics of wealthy countries stand in the way of transfers, one must ask what the most practical “second-best” reforms are to these institutions that would help move towards optimal policy. One natural approach is to look for historical “paths not taken” that led to greater global redistribution than seen from most OECD countries.¹⁰

My, extremely tentative, personal views split roughly evenly along these four categories, except that I put somewhat greater-than-even weight on the last constraint and somewhat less-than-even weight on the penultimate one. I return to normative themes in Subsection 6.4 and the second view is self-explanatory. I therefore turn in the next two sections to a natural class of policies that seem to address the last two views as it demands nothing of developing country governments and likely overall benefits (or could be set up to benefit) recipient nations: migration. Trade policy (and other policies I discussed in the introduction) likely has made significant inroads in this way as well, though it is already sufficiently liberalized that I do not focus on it in what follows.

4 Migration and Global Equality

Thus, I now consider the impact of migration on global average income and inequality. Throughout my analysis, I ignore all effects other than the direct change in the income of the immigrants, including “brain drain” effects on sending countries, wage competition effects in receiving (and sending) countries and any impacts on the political and social dynamics of either, though I return to this last point in the next section. While a large literature has been devoted to these important secondary effects, the weight of the evidence suggests they are small compared to the direct effects (Clemens, 2011). Similarly, but less innocuously, I

¹⁰Another possibility would be advocacy for world government that seems more likely to institute such transfers or a military campaign against wealthy countries. Those alternatives seem unrealistic in the near-term, however.

assume the full incidence of income-increasing migration is to benefit migrants, rather than the receiving countries.

While these limitations doubtless make my analysis less accurate with respect to the aggregate income gains and broad incidence of gains relative to previous studies surveyed by Clemens, none of this work to my knowledge has considered the distributional incidence (at a micro-level) of migration and thus its impact on global inequality, which is the focus of my analysis and which I believe is less sensitive to these limitations.

4.1 Is migration globally egalitarian?

While it may seem obvious that migration is egalitarian (poor people move to rich countries), some migrant flows challenge this. Consider an Indian financial whiz kid earning US median income (at the very top of India’s income distribution) who receives an offer to move to New York to work for Goldman Sachs for \$1,000,000 a year. Such a move is clearly globally inegalitarian; it is precisely this sort of extreme upward mobility that is seen by many as responsible for the growth of extreme top income inequality in Anglo-Saxon countries (Piketty, 2013). On the other hand, an Indian living at the global poverty line of a dollar a day moving to the US and earning the minimum wage dramatically increases global equality. Different sender-receiver country dyads also vary (even more) greatly in their average impacts on global inequality. Migration from an upper middle-income country like Greece to wealthy country like Germany is likely to increase inequality typically, while migration from desperately poor countries like Afghanistan to a lower middle-income country like Iran should typically significantly increase global equality.

To see how to analyze this quantitatively, consider again the welfare-relevant inequality metric of the MLD. Recall that this is, by Equation 1,

$$\log (\mathbb{E}[I]) - \mathbb{E}[\log (I)],$$

where \mathbb{E} represents the average over all world citizens. Note that the change in the income of any individual will impact both of these terms. Assuming each individual is an infinitesimal part of the global population, as seems a reasonable approximation in a population of several billions, the impact on global inequality of an individual moving from income I_0 to income $I_1 > I_0$ is, by differentiation,

$$\frac{I_1 - I_0}{\mathbb{E}[I]} - [\log (I_1) - \log (I_0)] = (I_1 - I_0) \left(\frac{1}{\mathbb{E}[I]} - \frac{1}{\tilde{I}} \right) \quad (3)$$

for some $\tilde{I} \in (I_0, I_1)$, by the mean value theorem. Thus if both I_0 and I_1 are below global

mean income (approximately \$11000 at 2008 PPP), improvements in income are egalitarian; if both are above global mean income, improvements in income are inegalitarian. If the incomes straddle global mean income, which effect dominates will be a quantitative matter in general.

In the remainder of this section I present data on the impact of migration on global equality, as well as on global income, based on Equation 3. Note that a migration flow being globally inegalitarian definitely *does not* mean it is harmful, as the example of the Indian financial whiz indicates. However, it does indicate that that migration flow does not help close global income disparities, contributing to welfare positively through income growth but not through income growth for the neediest.

4.2 Data and methods

Here I provide a brief outline of the data I used and the methods I applied. I supply more details in Appendix D. The main inputs to my analysis are:

1. Stocks of migrants for every migration dyad (two for each pair of countries in the world, by reversing the sending and receiving roles),
2. Post-migration income of migrants (I_1) and
3. Estimates of the causal impact of migration on each migrants' wages ($I_1 - I_0$ and thus I_0 , given 2).

For the first input, I used data from the United Nations Population Division (UNPD), which contains migrant stocks in 2013 by country of origin for every country in the United Nations.

For the second input, I followed the methodology of Abramitzky et al. (2014), using occupations as a proxy for income by assuming homogeneous within-occupation incomes. In particular, occupational data for migrants by dyad and income by occupation are both available for many countries, while income by migrant dyad is not widely available. I used the Database on Immigrants in OECD Countries (DIOC) for all countries for which it was available, including all OECD countries and 68 other countries. The data is based on 2008 migrant stocks and I assumed the dyad-specific occupation distributions are the same in the 2013 UNPD data as in the DIOC data. Occupations have both a high-level one-digit code and a lower-level two-digit code which breaks each high-level code into approximately four sub-occupations; I retained only the high-level code for computational efficiency, though in the next draft I plan to disaggregate. For occupational average income by country I used

the World Bank’s World Development Report’s “Occupational Wages around the World” (OWW) database (Oostendorp, 2013). All money is measured at USD 2008 PPP.

For countries not covered by DIOC or only partially covered, I imputed the occupation distribution for dyads to be the same as is the case on average for dyads between countries in the same development classification according to the International Monetary Fund (Nielsen, 2011). For countries not covered by OWW, I used a regression of occupation-specific income in countries on country GDP, with separate regression for each development classification, to impute income in uncovered countries.

For the final input, I assumed that individuals maintained the same profession when migrating, but experienced a percentage appreciation or depreciation of their income level relative to what would be expected from maintaining the same profession during the move based on the relative income of the sending and receiving countries. In particular I assumed income appreciation, relative to occupation-based expectations, has constant elasticity with respect to the mean income ratio of the sending and receiving countries. I then calibrated the elasticity to be consistent with causal estimates of the impact of Mexico-to-US and India-to-US migration by Clemens et al. (2009). This gave an estimate .43 for the elasticity, assuming migration between countries with the same income leads to no depreciation. I then applied this model to every dyad to calculate the causal impact of migration on income. I also factored in probability of employment using national employment rates and assuming migrants were employed at the same rates as the general population in both sending and receiving countries.¹¹

As with income distributions, I followed a somewhat different approach for the GCC countries for reasons highlighted above; for my migration analysis I also used somewhat different methods for Singapore, which I defer discussing entirely until Appendix E. Kuwait, Saudi Arabia and Qatar participated in the DIOC and Bahrain and Kuwait participate in OWW; Naidu et al. (2014) has detailed and fairly representative wage data for migrants in the United Arab Emirates. I applied my methods as was feasible and extrapolated by assuming consistency across GCC countries using averages based on the data that was available for countries where imputation for missing data was necessary. I describe these methods in greater detail in Appendix E. I then calculated income in sending countries prior to migration as above with other countries, except that rather than applying skill depreciation, given the dual nature of the labor market in GCC countries, I assumed that average wages of migrants relative to the sending country’s per-capita GDP were the same as the average wages of

¹¹This probably somewhat underestimates the gains from migration as migrants likely are more likely to find jobs where they migrate to than where they migrate from, at least relative to the background employment rates.

Mexican migrants to the United States relative to México's per-capita GDP, all at PPP. This produced a country-specific skill appreciation inflator and matched the ethnographic accounts of Gardner (2012) and Vora (2013), as well as data on average wages in sending countries for low-skilled workers.

4.3 Aggregate impact and some case studies

Overall migration reduces the global MLD in income by $7 \cdot 10^{-3}$. To put this in perspective it is about a third as much as taxes and transfers in OECD countries reduce the MLD of global income by. Despite this somewhat small aggregate impact of migration on inequality, the total figure masks large national variation in this effect. Considering two case studies, as well as some broader qualitative patterns, is useful both in highlighting mechanisms underlying the aggregates and in illustrating the range of cross-country variation.

The largest total contributor to global equality through migration is the US, while the largest contributor to global inequality through migration is Germany. The US's contribution to global equality as a receiving country for migrants is approximately $1 \cdot 10^{-3}$ or .02 per person in the United States. This is approximately one tenth of the reduction in global inequality created by the US system of taxes and transfers and almost the same as the reduction in global inequality that would be created if the US had the same reduction in inequality from taxes and transfers as an average OECD country. That is, the total US contribution to global inequality, if one factors in the impact of migration, is similar to other OECD countries.

Even within the US, though, these aggregate figures mask substantial variation. Essentially all of the global inequality reducing migration to the US is from México and Central America. While México is not desperately poor, the typical Mexican migrant to the US makes substantially below world mean income prior to migration (\approx \$4000) while they make just above world mean income (\approx \$14,000) in the US. Most other migration to the US actually increases global inequality; for example migration from the UK to the US increases global *inequality* by more than any single receiving country does in aggregate, but is more than offset by the inequality-reduction from México and Central America. In fact the México to US migration pattern is the dyad that does the most to decrease, and the UK to US migration pattern the dyad that does the fourth most the most to increase, inequality *of all dyads in the world*.

Germany is the extreme opposite case. Migration there increases the global MLD of income by $1 \cdot 10^{-4}$, an order of magnitude smaller contribution in the opposite direction as the United States, though in per capita terms they are closer to parity. Germany increases

global inequality primarily because of migration from less wealthy, but still above-world-mean income, European countries. An average migrant to Germany makes \$10,000 before migrating and \$20,000 after. The largest single migrant population, the Polish, almost exactly match these numbers, starting with \$10,000 and ending with \$21,000, and account for roughly a third of the aggregate impact of Germany on global inequality. Most other migration relationships to Germany are similar, but Germany also has some migrants from Africa and the Middle East who typically reduce global inequality, though even the Middle Eastern migrants start off richer than the Mexican migrants to the United States.

All other countries that make significant contributions by immigration to global equality fall into one (or more) of the following categories:

1. GCC countries, discussed extensively in Subsection 5.3 below.
2. Former colonial powers with significant immigration from poor former colonies, especially the United Kingdom, but also France, Italy and Spain.
3. Large middle or upper income countries bordered by poor or lower-middle income countries, such as the US with México, Iran and Pakistan with Afghanistan (one of the poorest countries in the world) and Italy with North Africa.

Contributions to global inequality are overall smaller and arise from three circumstances: those similar to Germany (e.g. Ireland and Switzerland), forced migrations (Uzbekistan and some African countries) and refugee crises (many African countries).

4.4 The missing potential of migration

Migration thus appears, at present, to have a modest, but non-negligible, impact on global inequality, despite the obvious hopes that it might have a large impact. Is this because these hopes were misled or because current migration patterns fall short of their potential?

It seems clear that if Pritchett (2006)'s vision of truly open borders could be realized, migration could have dramatic income-increasing effects, though the impact these would have on global equality is more subtle, as we have seen. However this scenario strikes me as so radical, politico-economically fraught and potentially disruptive that it seems an unrealistic benchmark. Instead, I considered two different scenarios that seem closer to the realm of imagining:

1. First, I considered a scenario in which a country's current quota of income-increasing immigrants is reassigned to the income-increasing migration flow to that country that does the most per person to reduce global inequality.

2. Second for a more radical scenario I considered the impact of wealthy countries adopting strategies similar to the GCC countries (discussed more below), which do by far the most per capita of population to reduce global inequality. In particular I calculated the reduction in global inequality that would occur if every OECD country did as much, per capita of population in the OECD country, to reduce global inequality through migration as do the GCC countries.

In the first scenario, migration would move from reducing inequality by $7 \cdot 10^{-3}$ to .04; that is, the reduction in equality would increase by an order of magnitude to more twice the amount that all OECD taxes and transfers reduce global inequality. This would imply radically changing the migration patterns of many countries; for example Germany would now become an even greater contributor to global equality than in the US. But the US's contribution would only double, given that it is already significantly increasing global equality.

On the second, if all OECD countries made as large of a contribution per person as does Qatar to the reduction in global inequality, it would reduce MLD of income by .1, or about one tenth of total global inequality and about five times the contribution of all taxes and transfers within OECD countries presently to the reduction of global inequality. Numbers of about a half this size would result if the OECD imitated other GCC countries. Furthermore this figure keeps the population of OECD countries constant. Given that most GCC countries have at least 50% and in many cases 80%-90% migrant labor, one would expect such policies to lead to dramatic population growth that would multiply this figure dramatically. If populations were multiplied by five times (80% migrants), nearly all inequality across countries (60% of global inequality) could be eliminated, assuming such a massive migrant labor policy were possible.

5 Is There an Openness-Equality Trade-Off?

Thus migration has tremendous potential, even in its currently-limited scope of volume and income increases, to reduce global inequality; if policies like in the GCC were adopted the potential is truly transformative. Yet, at present, it has a very small impact on inequality. Why is migration from very poor to rich countries so limited and what plausible policy interventions might increase its size?

5.1 Reasons for a trade-off

The limits on migration appear to be overwhelmingly on the side of wealthy nations unwilling to accept immigration rather than on the part of poor nations unwilling to allow or engage

participate in emigration (Pritchett, 2006), despite the relative openness of most countries today to trade in goods and services. Perhaps this is because migration would harm current citizens of developed countries. At least along narrow economic dimensions and in the aggregate, both theory and evidence are strongly inconsistent with that possibility. Even the argument that some groups in the receiving wealthy countries are harmed by migration is hotly contested; see, for example, Card (1990) and Borjas (2003).

Empirical evidence from political science (Hainmueller et al., Forthcoming) instead indicates that opposition to migration is largely driven by fears about cultural dilution and the net taxes-and-transfers to migrants. Ruhs and Martin (2008) argue that these concerns can be largely overcome if and to the extent that countries invite workers on a time-limited basis with limited (especially economic, but also civil and political) rights.

Such programs, however, would mechanically create large inequalities within the receiving countries and thus likely lead to greater inequality in those countries. This suggests that allowing greater internal inequality may open space to allow greater migration, thus creating a trade-off between internal *equality* and *openness* to migration that reduces global inequality.¹² In the remainder of this section I consider empirical evidence for such a trade-off and its interpretation.

5.2 Correlational evidence

Cummins and Rodríguez (2010) and Ruhs (2013) investigated empirically the relationship between formal rights given to migrants and the volume of migration. Cummins and Rodríguez found no significant relationship either in correlations or using instrumental variables, though Ruhs (2010) argued that Cummins and Rodríguez used inappropriate metrics. Ruhs (2013), in a more detailed study, found some limited evidence for a trade-off between rights and openness to migration.

Here I build off of this work, but modify it in two important ways:

1. Rather than trying to measure formal rights, which proved a major impediment in previous work, I simply use inequality of economic status as a summary statistic for status. Furthermore, rather than only focusing on the status of migrants, I consider inequality more broadly, potentially partly caused by low migrant status, as the broader outcome against which openness is traded-off.

¹²Conversely, in recent years a large literature has blossomed on the negative impact of ethno-linguistic diversity on both pre- and post-tax-and-transfer equality within nations (Alesina and Glaeser, 2004; Desmet et al., 2012), much of it arguably driven through the political process. Openness to migration, especially from poor countries that are distant from most OECD countries both physically and culturally, seems obviously to increase such diversity. As such, it may well limit support for redistribution within countries and thus increase internal inequality. This suggests an openness-equality trade-off running in the reverse causal direction.

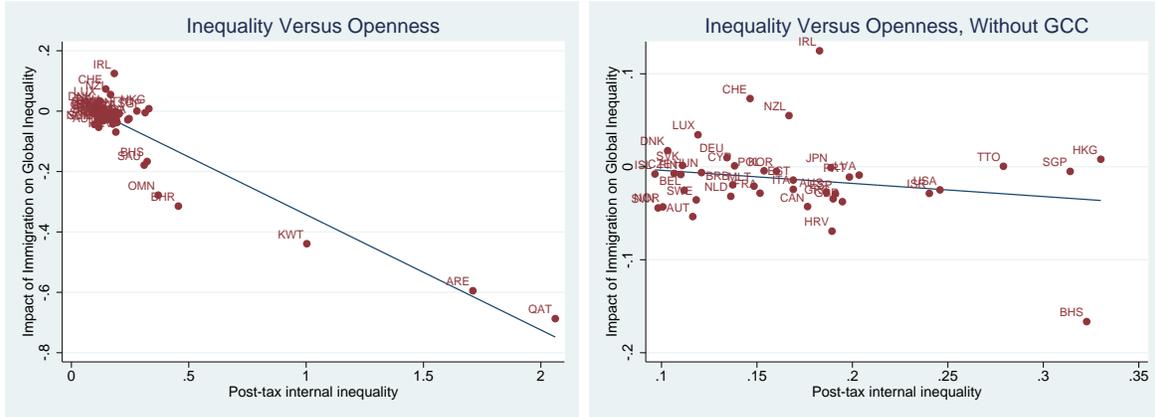


Figure 4: The cross-sectional relationship between internal equality (MLD of income within the country after taxes and transfers, x-axis) and openness to inequality-reducing immigration (reduction in global MLD of income through immigration to that country per person in the country, y-axis). The left panel includes all UN-labeled “developed countries” and the right panel only those outside the Gulf Cooperation Council.

2. Rather than focusing on the volume of migration *per se*, I focus on the welfare-relevant statistic of inequality reduction from migration. This helps overcome a series of category issues in previous work (should the focus only be on low-skilled workers?).

Figure 4 shows every receiving country classified by the UN as developed with above mean world income and plot the relationship between present changes in inequality due to immigration (y-axis) per capita against internal inequality (x-axis), both measured by (levels of or changes in) MLD of income. The left panel shows all countries, while the right panel removes the outliers of the GCC countries to allow closer observation of the pattern among other countries.

The basic pattern in the left panel is that all OECD countries, including the US, are clustered at the top left of the graph, with relatively low internal inequality and contribution to the reduction in global inequality, at least when compared to the “outlier” countries. These outliers are all GCC countries, with the exception of the Bahamas (BHS), which is close to Saudi Arabia: Oman is OMN, Bahrain is BHR, Kuwait is KWT, the United Arab Emirates is ARE and Qatar is QAT. The inclusion of these countries creates a strong negative relationship between internal equality and openness to inequality-reducing migration. The relationship is significant at any standard statistical level and the R^2 is .9, with the point estimate of the regression coefficient at .4.¹³ That is, the relationship is almost all between the OECD model and the GCC model, and within the GCC model, rather than within the

¹³A population-weighted regression yields the same results.

OECD.

To see this consider the right panel, which excludes the GCC countries. The Bahamas (BHS) are a negative outlier that functions somewhat like the GCC countries because it has a similar labor system with a large contingent of extremely poor Haitian immigrants with limited rights.¹⁴ Among the remaining countries, most of them in the OECD, there is a mild downward-sloping relationship; overall excluding the GCC countries there is a marginally significant relationship with an R^2 of about 6% in the population-weighted version and 4% without population weighting. The most unequal OECD countries in the figure are the US and Israel and both make significant per capita contributions to the reduction in global inequality. Most of the large cluster of more equal OECD countries make little contribution to the reduction of global inequality by immigration, but some do make contributions of similar per-capita magnitudes, such as Canada, Austria, Slovenia, Norway and Croatia.

Thus my basic conclusion is that making a very large contribution to the reduction in global inequality through immigration, as the GCC and the Bahamas do, is quite likely to require dramatic inequality. However, within the narrow range spanned by most OECD countries, there is at most weak evidence for an openness-equality trade-off.

5.3 Case studies

The correlations of the last subsection are mostly driven by extreme cases. I now consider these case studies, and other “cherry-picked” examples that persuaded me of the existence of an openness-equality trade-off, which I hope will be more rigorously tested in future research.

The main cases driving my results are the GCC countries. Between 20 and 90% of those living in GCC states are migrants (Kapiszewski, 2006), with the upper end of this range being achieved in Qatar and the United Arab Emirates (UAE); the Bahamas is the other country with a similar migrant labor structure.

According to my estimates, in those countries migrants earn on the order of thousands of dollars while citizens earn on the order of millions (Qatar) or at least hundreds of thousands (UAE) dollars per year. This leads to vast inequality, with a Gini in the 80’s for all countries; these are, without a doubt, the most internally unequal societies in the world. It is hard to understand how much greater inequality this represents than in an OECD country, because the Gini coefficient is very far from linear in the welfare losses from inequality. The mean log-deviation makes matters much clearer: these countries have a mean log-deviation in the range of .4 – 2, while even a very unequal OECD country like the US has a MLD of .4.

¹⁴The other two inequality outliers, Singapore (SGP) and Hong Kong (HKG), also are notorious for hosting large numbers of oppressed migrants from poorer countries. I could not obtain sufficient data to draw out these patterns, but I believe that, along with the Bahamas, these belong roughly in the GCC camp.

The welfare losses from inequality in countries like Qatar and the UAE are thus an order of magnitude larger than in even the most unequal OECD country.

On the other hand, migration to these countries *dramatically* reduces global inequality. My analysis indicates that a typical migrant to these countries moves from an income of roughly \$3000 to one of roughly \$7000. This reduces the MLD of world income by about .7 per migrant. For countries like Qatar and the UAE, this implies that, per head of population in those countries, migration is reducing global inequality by approximately .6 per person and .4 per citizen. Thus, per head of population, migration to these countries does almost an order of magnitude more to reduce global inequality than would eliminating *all inequality* in OECD countries! Furthermore, as I discussed above in Subsection 3.1, these migrants send much if not most of the income they earn home as remittances. Spreading these earning increases evenly over a family of four and accounting for the PPP gains achieved by sending the income to a poorer country can easily triple or quadruple the reduction in global equality associated with each of these migrants.

Other cases suggest significant causation in the other direction: opening up a society dramatically, especially to internal minorities previously excluded from dominant socio-political life, can reduce solidarity and significantly increase inequality. I consider three cases: the US in the early 19th century, the US since the Civil Rights Era and Israeli *kibbutzim*:

1. The Jacksonian Era: Howe (2007) argues for a tight connection between the in-group egalitarianism of Jacksonian Democrats and their support for slavery and external chauvinism. Whigs, he argues, were less egalitarian among whites but, partly as a result, willing to allow blacks into a more equal status with the white working class. Establishing causation in this case seems nearly impossible, but it was Howe's persuasive narrative that initially brought me to some of the concerns I express here.
2. Civil Rights and their fallout: in the 1950's, the US had a similar level of inequality to continental Europe (Piketty and Saez, 2003), despite dramatic inequality between blacks and whites. A dramatic upheaval during the 1960's aimed at improving black-white inequality in both incomes, as well as civil and political rights, is widely believed to have made significant progress in achieving this goal (Couch and Daly, 2002). However, during this period there has been a dramatic increase in inequality, especially top income shares, in the US and a dramatic reduction in the redistributive role of the state (Hacker and Pierson, 2010). Gilens (1999) provides some evidence that civil rights and the extension of the social safety net to include African Americans may have played an important role in undermining political support for redistributive policies.¹⁵

¹⁵Recent microeconomic evidence of opposition to transfers to Mexican-headed households (Drenik and

Yet much of the inequality growth in this period was at the top, rather than at the bottom, of the income distribution. One mechanism that could have been at play was a change in feelings of social solidarity among elites. For example, (Lockwood et al., 2014) argue that the change in occupations pursued by the highly educated (away from socially-minded but low paying careers like research and teaching and towards lucrative careers in business and finance) can account for most of the increase in top incomes during this period. It is possible that, along with large shifts in wages across sectors, the same sorts of changes in attitude that Gilens argues undermined support for welfare also reduced the interest of such talented students in pursuing socially-minded careers. Lieberman (2003) tells a similar story for South Africa and the end of apartheid. More broadly, I found that ethnolinguistic fractionalization was one of the strongest predictors of high top income shares in the admittedly limited sample I took from Alvaredo et al. (2014).

3. The Israeli Kibbutzim: Abramitzky (2008) studies the conditions that Israeli micro-societies, known as *kibbutzim*, implemented (and had to implement) in order to successfully maintain their powerful internal egalitarianism. First, he found that stably egalitarian kibbutzim excluded migration into their communities of low-skilled, and thus poor, outsiders. Second, he found that high internal wealth played an important role in discouraging out-migration of their talented members. This also suggests an openness-equality trade-off, as giving away wealth to the poor outside the community is likely to undermine the stability of internal equality. Third, he found that strong internal ideologies, which were typically exclusionary to outsiders, were crucial to maintaining the solidarity that supported internal redistribution. Many have argued similar dynamics are at play in contemporary Europe (Soroka et al., 2006; Finseraas, 2012; Dolmas and Huffman, 2004)

Evidence for an openness-equality trade-off is patchy, especially among OECD countries in the current period. However, if one focuses on dramatic shifts in openness or the conditions that accompany dramatically inequality-reducing migration, case studies and basic logic suggest that there can be quite dramatic trade-offs. Much more study is needed in this area, but my tentative conclusion is that there is little to be gained for openness or equality by small shifts in the other within OECD countries, but that the dramatic and rapid social shifts necessary to substantially increase equality or openness are likely to significantly disrupt the other.

Perez-Truglia, 2014) suggests this may be true of other minority ethnic groups as well.

6 Implications of an Openness-Equality Trade-Off

Such a trade-off challenges some of the most sacred orthodoxies of liberal egalitarianism. In this section I explore some of these hypothetical, but conditionally disturbing, consequences of an openness-equality trade-off.

6.1 Pareto-improving prejudice?

I begin with a simple and stylized story, illustrating a particular disturbing mechanism. Suppose there are two countries, one rich, call it North, and one poor, call it South. North is so much richer than South that even wealthy people in South are poorer than relatively poor people in North, consistent with my discussion of cross- and within-country inequality in Subsection 2.1 above. The crucial feature of this story, motivated by extensive work in moral psychology (Singer, 1983), is that individuals feel selective altruism towards those who are physically or emotionally/ideologically (Anderson, 1983) proximate to them. This is partly responsible for the fact that North has very few globally poor citizens: those in North do not wish to live among such poor people and thus choose to aid the poor in their country, but not outside, to raise their living standard.

Furthermore, the differences in income across the countries is due to some immobile form of capital (social, institutional, etc.), so that if a Southerner were to move to North, she would earn far higher wages than in South. However, these wages would still be significantly lower than those earned by anyone in North and would mean that this migrant would be indigent by the standards of North upon arrival. Additionally, individuals in North benefit economically from the immigration of Southerners. There is a shortage of unskilled labor in North and the human (and/or physical) capital of a Northerner is so high relative to Southerners that no Northerner would be harmed, on net, by the wage competition.

Despite migration being apparently Pareto-improving, Northerners are reluctant to allow it. Presently they feel little altruism towards Southerners, as they are physically and emotionally distant. But their sophisticated self-knowledge (Dana et al., 2006) tells them that if they allow Southerners to immigrate, this unsympathetic attitude will dissipate. Once Southern immigrants live among them they will feel responsibility for their futures.¹⁶

¹⁶An alternative to this sophisticated ethical self-knowledge is the existence of moral diversity in North. Suppose that some vocal segment of the Northern public believes, like Carens (2003), that it is immoral to allow anyone in North to live much below the standard of civil and economic rights of other Northerners. Another vocal segment is unwilling to allow immigration that significantly reduces the standards of living in North. Even if these segments do not overlap, or at least are mostly disjoint, the politics of the first group will, together with the presence of the second group and their power to prevent costly migration, prevent Pareto-improving migration. Thus the first group's moral views indirectly prevent migration. Together these groups function like a homogeneous group of sophisticatedly self-knowlegable but morally narrow Northern

Given that Southerners will earn very low (by the standards of North, though high by their own standards) wages upon migration, Northerners anticipate wanting to bring the Southern immigrants up to their standards of living, if they migrate. Doing so would require some combination of social welfare policies that would effectively amount to raising the wages paid to the Southern immigrants high enough so that Northerners no longer benefit from their migration. Because Northerners do not currently care about the potential future migrants, who are still distant, they evaluate the prospect of their migrating to the North, gaining sympathy and thus benefiting at the material expense of Northerners with trepidation. This means that migration is not a good deal for those in the rich country and thus, despite the apparent potential Pareto improvement, immigration to the rich country is not permitted.

Until, that is, a demagogue enters the social scene preaching the inferiority of those with physical features indicative of Southern genetic origin. This demagogue argues that Southerners are poor because of their genetic inferiority and therefore any altruism towards them is both useless and unjustified. Furthermore he points out physical characteristics correlated with genetic descent from South that were not widely apparent prior to his campaign.

This campaign changes attitudes in North. The psychological distance created by the campaign between Northerners and genetic Southerners substitutes for physical distance: Northerners no longer feel altruism for genetic Southerners living in North and thus Southern immigrants and their descendants are left working at much lower wages than native Northerners. Consequently, Northerners are now able to profit from Southern immigration, just as they would have been absent their fear of their own altruism. Sentiment towards Southern immigration therefore shifts in North and the country opens its borders to Southern immigration.

As a result, everyone, except for the *ex hypothesi* very few Southerners who made it in before this change, benefits. The Northerners obtain cheap labor and the Southern immigrants improve not only their own standard of living, but also send some remittances back to their families in South, remittances so large (despite being a modest part of the migrants' wages) that they dramatically improve the families' living standards.

However, as a consequence, North becomes a profoundly unequal society. Genetic Southerners live in segregated communities of endemic poverty by Northern standards, receiving little education, health care and even minimal sanitation and public services. While their

citizens.

Another possibility is that second-class citizenship is not viewed as morally objectionable, but would threaten social stability and the possibility of revolt by the underclass. These alternative stories raise nearly as or equally disturbing philosophical challenges as the first suggests that movements for the rights of migrants may be Pareto-harming or that a powerful, oppressive authoritarian apparatus to ensure second-class citizenship for the genetic Southerners may be crucial to allowing Pareto-improving migration. I thank Eric Posner and Lucian Bebciuk for these two alternative stories respectively.

standard of living is still well above that of those who stayed in South, it is beyond destitution by the standards of North.

As generations pass and enlightened Northerners increasingly come into contact with their impoverished, genetically Southern neighbors, they begin to question the dogmas passed down to them. They realize that despite superficial physical traits, genetic Southerners are in most respects, other than their upbringing, identically to genetic Northerners. They start to imagine that, had the circumstances of their birth been different, they might have ended up a genetic Southerner. As their views spread, a “Southerner rights” movement grows and a campaign to bring genetic Southerners up to the standard of living of genetic Northerners gains credence.

As this campaign begins, other Northerners begin to fear the success of the campaign and realize that Southern immigration is no longer a good deal. The borders close again, but Southerner rights wins a lasting victory, not only in the politics but also in the moral psychology of North. Northern children of all backgrounds are taught not only to love their genetically Southern classmates but also to be ashamed of their forbears’ maltreatment of genetic Southerners. The period of genetic Southern oppression is viewed as the darkest chapter of North’s history.

One day a Northern economist, named Eric Levy, writes an article arguing that this textbook account misses something important as well. Absent the superstition spread by the demagogue, the genetic Southerners now living in North would “still be” in South, at least to the extent that they would exist at all or could be counted as the same people in such a drastic counterfactual. Despite significant global economic growth over time, in relative terms those still living in South are just as poor as at the start of my story, with even their richest individuals living worse than the poorest genetically Southern Northerners. And, despite their increased open-mindedness about genetic Southerners living in North, Northerners of all genetics feel little need to do anything to aid true Southerners. While they occasionally give pittances to charities to aid South, they would never seriously consider incorporating South into the extensive social safety net and public services system of North.

Levy’s article meets with derision and disgust from his countrymen, who consider him a sympathizer of the unjust ways of North’s sordid past. When Levy insists that instead he is a proponent of extending the social safety net available in North to South or allowing broad migration of Southerners to North, he is mocked for being a dreamer and a fool. Dejected about the moral incoherence of his time, Levy returns to more socially-acceptable mainline research on the high technology industries that fuel the ever-increasing prosperity of North.

6.2 Case studies

Does the preceding narrative bear any relationship to historical events? Superficial similarities appear in two epochs of US history, as well as recent events in the GCC monarchies that I discuss in the next subsection. Many detailed factual and causal claims would have to be interrogated to draw and close connections, however. I now briefly consider a few of these.

Were African dynasties brought originally as slaves better off in a long-term discounted sense having migrated to the US than they would have been in Africa? The famous quantitative analysis of Fogel and Engerman (1974) suggests that while they were harsh, the lives of slaves were better in some respects than the lives led by those who stayed in Africa, at least based on historical data on living standards in West Africa at the time (Acemoglu et al., 2002). Welfare of African Americans since the civil rights movement and quite likely since emancipation seems almost certainly to have been higher than of Africans. Here revealed preference is informative, given how few accepted offered opportunities to return to Africa through the “colonization” movement (McPherson, 1988). Moreover, the life awaiting these former slaves is a plausible upper bound on the quality of life of those who stayed behind, given the power structure of post-colonization Liberia, and West Africa more broadly (Akpan, 1973).

However, Fogel and Engerman’s conclusions are highly controversial (Gutman, 1975). Moreover, slavery obviously involved a series of traumatic forms of coercion, including forced transportation, family separation and social humiliation that are hard to commensurate with simple biometric measures. Given that slavery was not voluntary, and transport to the US for Africans was only ever offered on this basis to my knowledge, revealed preferences are not informative in either direction. However, it seems likely that some form of indentured servitude short of slavery, but probably less generous than the terms on which British migrants moved to the US, would have attracted voluntary migration and would have been Pareto-improving.

On the other hand in this case it seems self-evident that the servile status of African migrants was responsible for their migration, in the sense that this migration seems unlikely to have occurred except on highly unequal terms. The only significant migration to the US of Africans, or in fact of any large group from a country whose living standard was dramatically below that of the US, prior to the twentieth century was through the slave trade (Abramitzky and Boustan, Forthcoming). As far as I know, no one has ever suggested significant African migration to the US was politically feasible outside of the slave trade. The abolition of the slave trade, therefore, ended significant African-US migration. The remaining elements my story seem to fit the US experience closely enough to have a ring of plausibility. Thus whether the story is relevant to the US slave trade seems to turn mostly

on whether one believes slaves to have (in a long-term, dynastic sense) benefited from the trade relative to staying in Africa.

The benefits of migration to the migrants are much clearer in the cases where the migration was voluntary, such as the *bracero* program and other Mexican and Central American migration to the US. But the causal interaction between the rise of immigrant rights, and resulting improvements in the treatment of immigrants, on the one hand and the quantity of migration on the other hand is far less clear. The most comprehensive study of these questions, which have not been the subject of much research to my knowledge, is by DeLaet (2000). She argues that while the “rights revolution” did play an important role in reducing political support for the *bracero* program and for migration overall, migration rose, rather than declined, despite this decline in political support for various institutional reasons, many related to the rights revolution. Thus the causal impact of this move to inter-ethnic but intra-national equality on openness to inter-national migration is unclear in this case.

My reading of these cases is that there is a lot of uncertainty and much more research is needed. But, if I had to guess, I would say that in expectation about one of these cases represents an example where the existence of “second-class citizenship” played a causal role in facilitating Pareto-improving migration, at least on average among migrants and among natives.

Perhaps a more powerful and plausible case is the GCC countries. As discussed in Subsection 5.3 above, the GCC monarchies and the countries that send them immigrants perfectly fit the pattern of the North-South divide in my story. Furthermore, given that these highly ethnically stratified societies (Mednicoff, 2012) are unwilling to allow the immigration of Arab workers at even slightly higher wages, it seems very likely that, as in the case of American slavery, significant improvement in domestic protection for migrants would bring this large and dramatically global equality-enhancing migration flow to an end. In fact, Naidu et al. (2014) find that even a relatively minor improvement in the working conditions of existing migrants mandated by law significantly reduced their flow into the country and thus the opportunities of future immigrants.

More broadly, it is commonly (Weiner, 1982) argued that the countries have systematically avoided Arab worker migration in recent years because of the political unrest caused by the sympathy felt by Emiratis for previous waves of temporary (Arab) migrant workers. Emirati rulers perceived that no such sympathy and thus potential unrest could result from varied ethnically and nationally fragmented migrants, with whom locals would feel little sympathy (Mednicoff, 2012). Thus it also seems clear that systematic prejudice plays a crucial role in sustaining the second-class citizenship (that is, non-citizenship) of the migrant workers.

6.3 Ideals and constraints

Unlike many of the examples Barry and Wiens (This Issue) consider, these cases illustrate how actions that make everyone better off may exacerbate domestic inequality while simultaneously reducing global inequality. Such moves do not come at the expense of the disadvantaged within wealthy countries: they benefit everyone. Only a view in which domestic inequality *per se* is strongly undesirable, even if it arises from improvements to the well-being of all individuals, could reject such arrangements as an improvement. None of the views Barry and Wiens outlines therefore seem capable of offering much opposition, or even withholding support, for institutions like those in the GCC, at least when compared to an arrangement in which the GCC countries retained their wealth but did not allow such migration.

Perhaps, some would argue, that is an inappropriate counterfactual. Why shouldn't the GCC countries be asked to relinquish their wealth in the form of transfers to the global poor instead? This "Ideal" arrangement would elude the difficult philosophical quandaries that the case of the GCC monarchies appears to pose and which I discuss extensively in the next section. Thus these difficult challenges are primarily the domain of "Non-Ideal" theory.

Yet such conclusions do not arise only or primarily as a result of such constraints. If we had unlimited flexibility to set global tax and transfer policy, a significant trade-off still would arise between equality within countries and that globally. Once taxes are sufficiently high they begin reducing total revenue raised by excessively discouraging work or encourage evasion. Even if taxes are set to maximize revenue, intra-national inequality will still exist and one must choose between using the revenue raise to lessen it or to lessen global inequality. This is why Kopczuk et al. find that moving to a globally redistributive regime actually worsens within-country inequality. Only if one is willing to ignore basic economic incentives, really to ignore human nature entirely, can one elide a trade-off between domestic and global equality through the consideration of "Ideal Theory".

6.4 Whither liberalism?

The dilemma raised by the comparison of the OECD and GCC models is a broad-scale analog of one I faced personally. During an academic visit in a developing country, my wife and I stayed in an accommodation with a very poor full-time domestic worker. We felt uncomfortable asking her to do our quotidian tasks because this arrangement struck us as inequalitarian. We quickly realized that not only did this insult her, but it frightened her for the security of her job, the stability of her family's health given the sick children she had left behind in her home town and sent remittances to and even threatened her own health given

that she lived on the leftovers of the meals she had made for the couple we were renting from. By the end of the experience, I felt like we simply needed to grow up, swallow our pride and act in the common self-interest of all parties to this mutually beneficial trade.

Similarly, I find it impossible to consider this case without simultaneously being torn by the demands of powerful and incompatible moral intuitions. There is something abhorrent, even sickening, about the nature of GCC societies, even if, perhaps especially because, they are able to sustain such vast inequality in an atmosphere of apparent political stability, contrary to the predictions of inequality Jeremiahs like Piketty (2013). While there may be good reasons to privilege their freely-made choices (Nozick, 1974), the differences between the lives led by a typical Emirati and a typically migrant worker make the American South look like an egalitarian paradise on purely material terms, at least. And given how uncomfortable most liberals and Western legal systems are with the prospect of individuals voluntarily selling themselves into slavery, it seems hard to believe the Gulf system dramatically less objectionable than American slavery.

Suppose that by establishing such a system we could achieve the promise of international migration for global inequality reduction discussed in Subsection 4.4 and, plausibly, that without it something like the *status quo* will persist. Would it be worth it to transform OECD societies into GCC societies, embracing the discrimination and vast internal inequalities OECD countries have struggled so long to defeat, if that would mean ending the worst of global poverty? If we accept a system like this, how many near-sacred intuitions must we give up?

Yet would it really be better for these societies to have remained closed to foreign workers, even if this had made everyone worse off? Even if this would have meant the only chance that millions of starving South Asians have to escape short and disease-ridden lives of penury for a chance of upward mobility and a future for their families? Are we really so cruel and callous as to let our concerns about inequality within societies condemn the weakest, most vulnerable and most voiceless people in the world to their misery?

While these dilemmas appear insoluble, it would be foolish to ignore them. The example of the GCC countries shows us a road not taken...but not taken *because* of our moral intuitions, not despite them. If this is really a trade-off we face, philosophers and political theorists cannot adopt their usual position of detached superiority, prescribing ideal situations and poo-pooing fallible humans for not living up to these ideas. They are, or hope to be, responsible for the very moral ideals that limit they ability of OECD countries to follow a path like the GCC.

Perhaps, though, the trade-off is not as stark as it seems. Perhaps the global poor will do better in the long-run left to their own devices than as migrant laborers or the effect of

such a two-tier system would be to so degrade the productivity, moral character and vitality of OECD countries that they would no longer be able to supply the wealth that allows these benefits in the first place. It might be that to sustain a society with such irrational prejudice would require an authoritarian apparatus that would suppress free thought in such extreme ways that it would undermine economic growth sufficiently to off-set the benefits to the global poor of migration. However none of these views seem particularly consistent with the historical record or economic evidence; for example, despite the extremely repressive states in Israel and South Africa towards subjugated groups, the countries were highly innovative economic dynamos.

More importantly, given the lack of clear evidence, I think it would be a terrible mistake to rely on such just-so stories to avoid the dilemmas posed by the openness-equality trade-off. If there is even any significant chance that such a choice faces our society, the exact answer both to the philosophical questions above and the economic concerns with the impact of policies like those of the GCC countries should be the subject of large and active research agendas. The stakes of the answers are so high, given both the impact and apparent feasibility of such policy changes, that they seem to dwarf much of what typically concerns economists and philosophers.

I have no clear or persuasive answer to these ethical dilemmas and Barry and Wiens cover these issues much better than I can. I will therefore conclude with my own tentative response to these challenges. I have personally come to far greater sympathy for a communitarian nationalist perspective (Miller, 1995, 2007) than I had prior to these investigations because I do not believe that any of the liberal egalitarian responses Barry and Wiens articulate can persuasively rationalize the focus on internal equality necessary to reject models like the GCC. I do believe the coherence of an imagined egalitarian community is crucial to human flourishing in many ways and that it is not worth giving up for small gains, even if these accrue to the very worst off, are consented to by all and apparently make all better off, at least in a narrow material sense. On the other hand, I do not believe that the relevant gains are likely to be small empirically. If further research confirms my view that they are likely to be as large as my analysis above suggests, I would have substantial sympathy for moving towards a model like that adopted by the GCC countries, even though I realize this would come at significant cost to the cohesion and decency of wealthy countries.

Whatever conclusion one reaches on these difficult issues, about which I continue to be deeply divided, I believe the imperative of prioritizing transfers to the world's poorest and migration from the poorest countries over other social goals within developed countries is hard to deny. These are not choices outside the purview of the political systems of wealthy countries or the charitable decisions of those in the wealthiest countries. They are very real

choices we, as citizens and philanthropists, make all the time.

6.5 Policy implications?

While the radical trade-offs I focused on in this section pose important moral dilemmas, they might strike many readers as of little practical relevance to contemporary policy debates. I now argue that, if anything, the framework developed here is more relevant to leading public policy issues than is the standard intra-national Vickrey framework.

Perhaps the “hottest” distributive issue in American politics today is immigration reform, and has been so for several years. Despite this and an enormous positive literature on the impacts of migration (Borjas, 2014), the traditional public finance framework that only considers intra-national distribution is silent on optimal migration policy. The reform of intra-national taxes and transfers, on which this literature primarily focuses, is further down the political agenda recently.

The implications of global egalitarianism for recent immigration reform proposals are subtler than they may appear at first. Most recent political debate focuses on the feasibility of a comprehensive reform package which would regularize migrants currently in the US in exchange for reducing the flow of migrants into the US. Would such a package be globally egalitarian?

On the one hand, such a package would very likely increase internal equality. Kossoudji and Cobb-Clark (2002) estimate that the mass regularization of illegal migrants in the 1980’s increased typical migrant wages by 5%; this figure likely understates the total benefits to migrants of regularization, including greater civil and political rights and reduced legal hassles. Suppose that, in aggregate, these are worth a 25% increase in wages for the estimated 12 million illegal immigrants (3.8% of the population) living in the United States. Suppose that the average such migrant earns the income I calculate for Mexicans living in the US of \$14k. Such a regularization would then reduce the MLD of income in the US by approximately $6 \cdot 10^{-3}$.

On the other hand, given that a typical Mexican in the US earns above world mean income, this would actually increase global inequality by $3 \cdot 10^{-3}$ per person living in the US. At the same time, if it was at all successful in reducing the number of illegal immigrants to the US, this could significantly reduce global welfare and increase global inequality. For example, suppose that the immigration I measure from México were reduced by one person for each five that were regularized. Then net welfare per migrant would actually fall from this policy by $6 \cdot 10^{-2}$ and global inequality would increase by $6 \cdot 10^{-3}$ per person living in the US. Thus even relatively weak measures to “seal the border” could make an immigration

reform package a global utilitarian net loser. This is an interesting contrast to existing US immigration debate, even among leftist, pro-immigrant groups, where the emphasis is overwhelmingly on the regularization of existing immigrants rather than ensuring openness to future illegal migrants. While all these calculations are extremely speculative, they do suggest that serious public economic analysis of migration policies might yield quite different results than comes out of the American political discourse.

The same framework may be used to analyze various migration reform proposals. For example, Becker (2011) proposed that migrants slots be auctioned off. Such a wealth-maximizing solution would be appropriate in the presence of an optimal system of global social insurance (Atkinson and Stiglitz, 1976; Hylland and Zeckhauser, 1979; Kaplow, 2004) but would be terrible from a utilitarian perspective absent such a system: a British investment banker increasing her income from \$1 million a year to \$1.1 million a year would easily outbid a Somali refugee increasing her income from \$500 a year to \$10k a year, despite the fact that the later increases welfare far more. As far as I am aware there is no other comprehensive and consistent normative framework in welfare economics capable of quantitatively evaluating such migration reform proposals.

7 Conclusion

This paper makes three contributions. First, it builds a simple public finance framework for analyzing issues of international distribution. Second, it uses this framework to analyze the impact, both actual and potential, of immigration on global equality. Third, it identifies as plausible and traces the disturbing philosophical implications of a trade-off between internal inequality within countries and their openness to inequality-reducing immigration from abroad.

Despite this, it should be obvious that my analysis raises far more questions than it answers, both on the economic and philosophical side. I devoted much of the last subsection to dwelling on the philosophical questions, which I hope will be addressed both by Barry and Wiens's paper and by future work much more competently than I can hope to. I now briefly discuss some of the directions for work on the economic side that would be useful in clarifying my results.

Given the broad scope of the issues covered in this piece, all estimated quantities are highly imprecise (as indicated by my very spare use of significant digits) and mix substantial guess work with some available facts. The extent and nature of intra-, and especially inter-, national transfers and their impact on inequality is equally poorly measured above, especially for developing and authoritarian nations. Elasticities of labor supply, while extensively

studied in developed countries, are largely unmeasured in developing countries; similarly, other factors (viz. capture, corruption and waste) that make transfers within and to these countries potentially less-than-perfectly efficient have not been quantified systematically or sufficiently precisely to be very useful in the analysis I conducted.

Patterns of before-and-after wages of migrants, especially to countries other than the US and a few other OECD countries, remain extremely hazy and the causal impact of migration on their wages is even harder to gauge. All of my conclusions about the openness-equality trade-off were based on weak correlational evidence and anecdotes. Serious causal analysis of the two-directional feedback between equality and openness, both within the range of current OECD policy and when one considers a more extreme option like the policies of the GCC countries or slavery, is crucial to determining how relevant the philosophical paradoxes I presented in the previous section are.

Finally, a key element of my story was the widely-accepted idea that individuals have greater altruism towards those physically and emotionally proximate to them than towards those physically and emotionally distant from them. While this idea has been extensively confirmed in laboratory experiments, as far as I know it has never been studied on a broad or global scale, considering how individuals from different parts of the world are altruistic in both attitudes and actions towards individuals from other parts of the world including but not limited their own nation-state. I am investigating this issue empirically in on-going work with James Evans, Adam Kalai and Neale Mahoney.

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Appendix

A Income Distributions

All data income estimates are in 2005 USD PPP. My parametric estimation approach used four data sources to estimate a double Pareto lognormal (dPln) income distribution in each country from which I constructed the global income distribution as in Pinkovskiy and Sala-i-Martin (2009), but using more accurate and recent data and the dPln distribution instead of the lognormal distribution, given the latter's poor fit to the upper tail of the income distribution. The dPln has four parameters: a log-mean-like parameter μ , a log-variance-like parameter σ , an upper tail index α and a lower tail index β . I used a different data source to speak to each of these parameters because of the well-known inaccuracy of all data sources I am aware of in some range of the income distribution.

For μ I used GDP per capita, for σ the Gini coefficient, for α top income shares and for β relative poverty figures. I now elaborate on each of these.

1. I took GDP from the World Bank Database using 2012 as the base year.
2. I took Gini coefficients from three different data sources. I took OECD countries' Ginis from the OECD website. For developing countries I used the latest available World Bank estimate. For countries not covered by this database I used the most recent and reputable survey available from the WIDER database, which is a meta-analysis of all papers estimating Gini coefficients in specific countries. I dropped the 56 (of 232) countries for which I am missing a Gini estimate and an additional 3 for which PPP data are unavailable from all of the analysis; this constitutes 200 million individuals in total, mostly in quite poor countries, biasing my results somewhat away from finding high global inequality.
3. I took data on top incomes from the most recent year reported for each country in the World Top Incomes Database (Alvaredo et al., 2014). This gives income cut-offs for seven quantiles beginning at the 90th percentile of the income distribution. For each country where these data were available, I use the standard log-quantile v. log-value regression estimator of the Pareto tail coefficient to fit an α value.

Unfortunately this database is just maturing and thus estimates were only available for 20 countries. I thus used this sample to estimate a regression to predict the α value in other countries. I experimented with several specifications but in the end used only the

Gini coefficient, ethnolinguistic fractionalization and a dummy for OECD countries.¹⁷ All other countries were interpolated using this regression.

4. For the poverty measure I used the income share of the bottom 10% of the income distribution from the most recent World Bank year, as this had the fewest missing entries; the few that were missing were imputed in the same manner as α .

I fixed the α value in each country to be the one estimated above. I then solved numerically for the unique value of (μ, σ, β) which, given this α value, fit the other three data for each country. This done, the world income distribution was constructed through a mixture of numerical integration and monte carlo simulation weighted for population based on these fit parametric distributions.

B Optimal Taxation

I discuss each of the major distinct models I run in a separate subappendix.

B.1 Linear optimal taxation

I conduct the linear tax analysis quasi-analytically, using the Piketty and Saez formula from the text. For each country I create a Monte Carlo sample of 10,000 individuals and for the world of 100,000 individuals sampled from the income distributions I estimated. Then for each country (and for the world as a whole) and for each elasticity value I

1. Make a space of test tax rates on a uniform grid between 0 and 1.
2. Compute, using the sample of individuals, the value of $\iota(t)$ for each value of t and from this $\left| \frac{\iota(t)}{\epsilon + \iota(t)} - t \right|$.
3. Identify the two values of t with the smallest value of this gap, create a new grid between these values and repeat the previous step.
4. Repeat this process until the absolute difference is less than $1 \cdot 10^{-5}$.

Given the monotonicity of $\frac{\iota(t)}{\epsilon + \iota(t)} - t$ in t , this approach always identifies (approximately) the optimal tax rate. After reaching this approximately optimal tax rate, I used this optimal rate and the sample population to calculate all other inequality and welfare metrics directly using the relevant formulae and averaging.

¹⁷Interestingly, the most important explanatory variable among these was ethnolinguistic fractionalization, a very strong positive predictor of top income inequality (a low α).

B.2 Linear current taxation

To determine my linear approximation to the current tax structure of countries that I use in the text to determine the welfare effects of existing tax systems I followed the approach of the previous subappendix except that, rather than trying to match t to $\frac{\iota(t)}{\epsilon+\iota(t)}$, I tried (for all countries where it was available, to match the resulting pre-tax Gini coefficient to that output by the model. Again I compute all welfare quantities by averaging over the Monte Carlo population.

B.3 Three-bracket taxation

I considered a three-bracket tax system. I optimized numerically over both the placement of the bracket breaks and the rates in each bracket, though I was much more flexible in the second than I was in the first. First I constructed a Monte Carlo sample (3000 in each country, 25000 for the world). Second I constructed a set of potential tax bracket breaks defined in terms of (pre-tax-and-transfer) income quantiles that would result if a linear tax rate of .4 prevailed (given the assumed elasticity of labor supply); these potential breaks are .1, .3, .5, .7 and .9. For each country and for the world, for each of the ten unique break combinations and for each elasticity value I then computed using Lagarias et al. (1998)'s implementation of the Nelder-Mead Simplex Method the optimal tax rates in each bracket to jointly maximize average utility. A sub-routine of this algorithm computes the optimal tax rate for each ability level quasi-analytically by computing the analytic solution for individuals landing in each tax bracket and then determines, again analytically, the ability break between the brackets desired (thereby accounting for bunching). I then compare the maximized utility value across the combinations and adopt the solution yielding the maximum value.

B.4 Imperfect transfers

Let x_i the World Bank Government Effectiveness score for country i . Let x_{\min} represent the lowest value of x for any country and x_{\max} represent its highest value for any country. I assumed that for each dollar given as a lump sum transfer to the inhabitants of country i

$$\frac{\left(1 + \frac{x_i - x_{\min}}{x_{\max} - x_{\min}}\right)}{2}$$

dollars were received by the individuals living in country i ; the rest “leaks out of the bucket”. Other than this the method was exactly as in the previous subappendix.

C International Transfers

The aid-filtering institutions I included were the World Bank, the UN, the North American Development Bank, the Islamic Development Bank, the International Monetary Fund, the European Union, the Asian Development Bank and the Asian Development Fund. All calculations were in 2008 nominal USD (given that the cross-country nature of flows defeated the use of PPP). Institutional, governmental and private charity were measured in 2008, remittances were measured in 2012 and deflated back to 2008 USD. Optimal aid was based on 2005 USD at PPP and was inflated directly to 2008 USD without removing PPP deflations. Graphs were made using StatPlanet software. Figure 5 shows current (top) and optimal (bottom) aid independently in units of logarithm base 10 for all countries I have available; in the latter obviously many countries are top-coded given the large transfers (relative to the present) demanded of these countries by optimal global redistribution.

D Migration

The DIOC data contains 10 general occupations (armed forces, legislators/senior officials/managers, professionals, technician/associate professionals, clerks, service workers/shop and market sales, skilled agriculture/fishery, crafts and related trade workers, plant and machine operators/assemblers, elementary occupations). I removed the armed forces occupation because too many countries lack data on income of the armed forces. These individuals, never more than a few percent of migrants, were dropped from the analysis. I used the International Labor Organization (ILO)'s dictionary to translate World Bank Occupations to the ILO's coding.

I used the OWW “mw3wlus” data for occupational wages. There are multiple years in this database for each occupational category and I selected the highest. In almost all cases the highest year was 2008 and I thus converted all data throughout the immigration section of the paper to 2008 US dollars at PPP using 2008 World Bank conversions. Note that this conflicts with the 2005 dollars I used for income distributions and optimal taxation. At all interfaces between the two appropriate adjustments were made using the World Bank conversions.

For the few countries with missing data migrants by occupational category I used imputation. In particular I separated all countries into three income levels using UN classifications. For each ordered pair of income groups I found the average, across all observed dyads with that ordered migration pair, of the occupational distribution of migrants. When a country had partial data I used exact numbers for the categories I had and then used Bayes's Rule

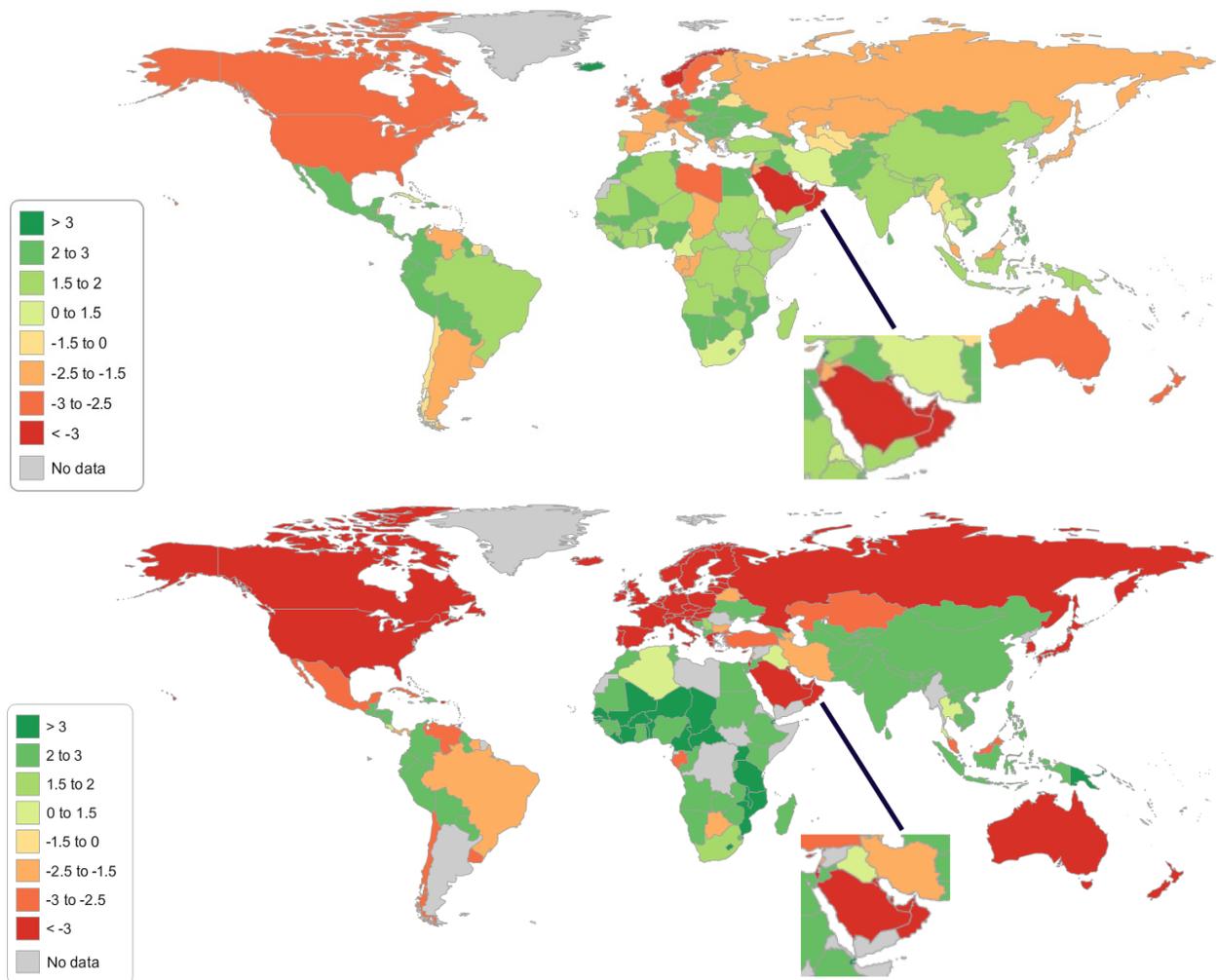


Figure 5: Transfers between countries under an optimal global linear income tax when $\epsilon = .3$ (bottom) and transfers that presently exist (top) on a logarithmic scale (in units of logarithm base-10). Countries in grey either lack data in each case.

in conjunction with the average imputation to fill in the missing data.

E Gulf Cooperation Council Countries

To construct even the basic income distribution for the GCC countries I needed to estimate migrant worker income as these migrant workers are such a large fraction of the population in the GCC countries and their incomes are not reported in national income accounts (probably because it would so greatly increase inequality within the countries). I thus first discuss these calculations, then turn to the estimation of broader income distributions in these countries.

E.1 Migrant worker income

I tried to follow my methodology as closely as possible for migrant worker income, but data was much patchier for the GCC countries. As a result, I was forced to recalibrate many numbers to ensure consistency with more reliable available data sets.

For distributions of migrants across occupations I used DIOC data for Saudi Arabia, Qatar and Kuwait. For Bahrain, the United Arab Emirates and Oman I used the Gulf Labor Markets and Migration project (<http://gulfmigration.eu/>) data, which only contains occupational distributions for migrants and natives so I assumed the proportions for all migrants held for all sending countries.

Occupational wage data from OWW was only available in Bahrain and Kuwait. Furthermore I was concerned about biases in this data (even after applying skill-depreciation) given the extreme discrimination against migrants. I therefore

1. Took relative wages across occupations from this data and population-weighted average them across the two countries,
2. Assumed relative migrant wages were the same in the UAE as these average relative wage,
3. Scaled the absolute level of wages to match average wages in the Naidu et al. (2014) data,
4. Used this to extrapolate back to the occupational wages for Bahrain and Kuwait by making PPP adjustments, assuming the same dollar wages were paid to migrants in the highest paying occupation in these countries and that they had the observed relative wages,

5. And used similar PPP adjustments and an extrapolation of relative wages averaged between Bahrain and Kuwait as in the UAE case to extrapolate to the other GCC countries.

I describe my method for obtaining, from this, income before arriving in the GCC in the text.

E.2 Broader income distribution

Using UN migrant numbers, I obtained the aggregate income of migrants from the results of the previous subappendix. Subtracting this from GDP yielded the aggregate income of non-migrants. Native income is then fit according to a dPIn by the same method as in Appendix A, given that reported Gini coefficients for these countries are based only on native income distribution. Then when sampling from these countries for my analyses the full distribution has a probability of being drawn from the migrant income distribution based on occupations equal to the migrant population share and a complementary probability of being drawn from the dPIn distribution of native income.

E.3 Singapore

Given that Singapore similarly hosts a large migrant worker underclass, I also did not use my skill-depreciation method for the three largest migrant sending countries to Singapore (Indonesia, Malaysia and the Philippines). Instead I used Orozco and Fedewa (2005)'s estimates of average migrant income on average for these countries to scale down the (average) earnings of migrants, though I kept their occupational distribution the same. For wages prior to migration from these countries I used population-weighted average Indonesian minimum wages obtained at <http://www.indonesia-investments.com/news/todays-headlines/24-indonesian-provinces-have-set-new-regional-minimum-wage-for-2014/item1314>. These are approximately \$2300 at PPP.