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Informal Transfers and Informal Taxes in Developing Countries: How do They Affect Household Welfare Distributions and Fiscal Incidence?

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Informal transfers and informal taxes in Developing Countries: how do they affect household welfare distributions and fiscal incidence?[1,2]

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Abstract

This paper profiles and analyses informal taxes and transfer payments made by households and considers their incidence, scale and distributional effects alongside formal state taxes and transfers. Focusing on Uganda and Rwanda, it considers the effect on household welfare levels and their distribution when 'non-consumption expenditures' in the form of informal taxes and payments of informal transfers (such as remittances) to other households are deducted from household welfare measures. The aim of the paper is to illustrate the differences that occur in the distribution of household welfare that arise when a full set of informal payments are considered and to consider how analysis of the impact of state taxes and transfers is changed by including these alongside. The paper first considers the definition of 'informal taxes' and how far to include customary or religious obligations, such as Zaqat for Muslims, in definitions of taxation alongside local and national taxes. Secondly, the paper analyses the difference in inequality and poverty measures that arise from including those payments in deductions made from household consumption aggregates in addition to the deduction of informal transfer payments. Third, the paper considers fiscal incidence and progressivity of formal taxes and transfers in these amended distributions before also considering the 'joint' incidence of formal and informal payments and their combined effect. Finally, the paper concludes by discussing how these amended definitions and estimates of household welfare match the assumptions in national poverty measurement and in the profiling of fiscal incidence and micro-simulation approaches in these and other countries.

Introduction

There is considerable policy pressure on governments of developing countries to raise domestic taxation to help fund the Sustainable Development Goals (SDGs) and to provide social protection transfers and other services to help meet them. This has led to a large and growing investment in the analysis of 'fiscal incidence' and on the modelling of tax and transfer policies on reducing inequality and poverty. Redistribution of cash and 'in-kind' services across the household distribution of countries thus lies at the heart of a large swathe of policies designed to improve human development. However, redistribution does not only come from formal state-based fiscal policy. Informal arrangements to raise funds for provision of public goods at the local level lead to

[1] We acknowledge financial support from the UK Department for International Development, TaxDev programme for this research via the IFS TaxDev Research Fund. We acknowledge microdata from the Ugandan Bureau of Statistics and Rwanda Institute of Statistics via the World Bank LSMS micro data library – accessed September 10th and 17th 2019.

[2] This paper is in draft form and some estimates and computations will be revised for a final draft for presentation at the conference. Please do not cite or share beyond discussants and conference organisers.

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'informal taxes' (Olken and Singhal 2011). But informal redistribution also occurs at the household level. For example, elderly members of the family may co-reside with the eldest son or other of their adult children, while other families may not co-reside but transfer cash and in-kind resources between households. Another example are transfers from those headed by adult children to their elderly parents. Migration, both to other countries and from rural to urban areas, also result in the payment of 'remittances' in many cases: the migrant makes transfers to their household of origin or others in their family or community.

This paper is a preliminary examination of the scale and incidence of informal taxes and transfers in two countries, Uganda and Rwanda. The paper forms part of an examination of the underlying fiscal context of those countries as a preliminary step in a wider project of technical assistance and research in those two countries from the Centre for Tax Analysis in Developing Countries (TAXDEV) provided through the Institute of Fiscal Studies (IFS) and the Overseas Development Institute (ODI) funded by the UK Department for International Development (DFID). The motivation for this paper reflects the need to scope the drivers of redistribution in those countries and to identify what occurs from formal fiscal policies and from informal sources.

We base our approach on the literature on research on fiscal incidence and redistribution in developing countries. In particular, we use the work of CEQ, who produced a detailed analysis of the impact of taxes, transfers and subsidies in Uganda (Jellema et al 2018). Such analysis reflects long-standing history of such analysis in high income and OECD countries that has only recently expanded to developing countries. This expansion can be seen across a number of international institutions. The Luxembourg Income Study, a source of internationally comparable income and tax and policy micro-date expanded to include 'middle income countries' in recent years (refs). The OECD has also expanded work into the region (OECD 2014). Similarly, micro-simulation of taxes and benefit policy has also expanded in a similar manner with EUROMOD approaches and models built for the 27 EU countries being used in Namibia and South Africa before expanding across more low- and middle-income Sub-Sharan African countries by UN-WIDER and national counterparts in the 'SOUTHMOD' initiative (Decoster et al 2019). More closely related to our research is the work of TAXDEV in Ethiopia and Ghana, that were the initial countries of study before expansion to Rwanda and Uganda in 2019.

We see different definitions of the scope of fiscal analysis. The CEQ Institute approach has the most comprehensive approach that includes analysis of subsidies, company taxation and 'in-kind' provision of services for health and education alongside cash and near cash transfers and direct and indirect household taxation (Higgins and Lustig (2018) p 220). At the other extreme a much narrower focus on cash and near cash transfers and taxes informs the micro-simulation approaches of SOUTHMOD. We prefer the more comprehensive approach as a starting point and largely adopt the CEQ methodology as our key reference point. One reason for this lies not only in the much larger impact of in-kind services for education and health when compared to rudimentary social protection systems in Sub-Saharan Africa, but also from the perceived need to assess *non-cash social protection programmes* such as school feeding, which can far outspend the rudimentary (often pilot) cash social assistance schemes in place in many such countries. Given the contexts of rudimentary welfare states in many developing countries and their focus on public services rather than cash transfers, the CEQ approach seems more appropriate to measure 'household welfare' overall and to calculate the impact on redistribution of both cash and non-cash programmes and of 'price subsidies' that are commonly in place, in particular for fuel and food.

However, we also see a great need to understand redistribution in terms of both formal and informal provision of income support. It is now recognised that informal taxation can be a crucial

aspect of taxation policy (Olken and Singhal 2011, van den Boogard & Pritchard 2017). However, consideration of other informal mechanisms for social protection is not usually regarded as part of such analyses, even though households will have expenditure on community run public goods and social protection and more widely, send cash or in-kind transfers to other households. We see these payments as analogous to existing approaches to informal taxation and also as parallel to formal 'social security contributions' or taxes to fund social protection, that are considered a direct tax in fiscal analysis. They also give rise to income to the receiving households. If one on the main purposes of analysis is to understand the *redistributive effects* of taxes and transfers, understanding the scale of these informal mechanisms alongside formal taxes and transfers could be crucial to both understanding what drives redistribution but also to promoting good fiscal policy. Solely relying on what we observe from formal state provision may miss very large and important informal action – especially where the state is in the early stages of forming established social protection systems that cover the informal sector and prevent poverty.

In short, we take the opportunity to stand back from existing research approaches and question the assumptions about what to include in an analysis of household redistribution

Our paper proceeds as follows. First, we consider how the treatment of informal transfers and taxes has been discussed in the literature and in the formation of analytical accounting approaches for fiscal analysis. Second, we consider the evidence for the incidence of these informal transfers and taxes in Uganda and Rwanda and on how redistribution is affected by including those and separately accounting for their influence. Third, we consider how these results affect the ability of fiscal policy to match to the measurement of household monetary welfare and how incidence and micro-simulation approaches would have to adapt to reflect any potential mismatch in the treatment of fiscal analytics on projected impacts on poverty and inequality.

Informal and Formal Transfers and Taxes

What effects household redistribution in low-income countries? Formal social protection largely reflects the social insurance pensions and other contributory benefits provided to formal employees, especially those in the civil service, military and large enterprises. The majority of the population are thus not included in these schemes as their employment is informal, either waged or self-employed, with a large proportion working in the agricultural sector. Non-contributory social protection is limited in most low-income countries with some universal demogrants for children, people with disabilities and older people under development, some means-tested social assistance and public works safety nets, and a range of near cash programmes such as those for nutrition and school feeding (see Beegle et al 2018 for an overview). Many social assistance programmes are donor funded and/or pilot in nature. Formal taxes on households tend to be small and difficult to implement and collect (Burgess and Stern 1993). Direct taxation through income tax affects the formally waged and formal businesses, property taxes are not used to a great extent (but are under active consideration in Rwanda), and indirect taxes such as sales tax and VAT represent the largest source of revenue collected from the household sector. However, rural populations tend to have large proportions of their consumption from non-monetary self-production and consumption and many cash purchases they make tend to be in informal businesses. Thus, they are often usually not captured by any formal indirect sales tax or VAT. The coverage of formal taxes and transfers thus tends to be low for the poor and near poor. Consideration of informal mechanisms becomes potentially important if redistribution is to be understood.

The role of informal taxation to fund provision of local public goods through payments in cash, or in kind and through labour time, has been recognised in recent research in developing countries (Olken

& Singhal 2011). These taxes are paid to local officials or leaders rather than to central revenue authorities and rarely figure in central government assumptions for fiscal incidence and micro-simulation approaches. One problem in identification of informal taxes is to distinguish them from service or user fees that are charged for attending school or health centres or receiving other services. Indeed, evidence from Kenya, cited in Olken and Singhal, tends to suggest that school fees were part of their appreciation of informal taxes in that country. This differs from the approach laid out by CEQ where such payments of user fees are subtracted from the in-kind value of The problem is in the identification and quantification of these informal taxes. Olken and Singhal also were selective in their choice of 10 countries and were able to choose those where identification and quantification problems were minimised. Their analysis is thus not replicable in many countries with less suitable data. The empirical importance of informal taxes will rely on having reliable data from household surveys. This means there are clear data constraints for any analysis and we describe these for Uganda and Rwanda below.

However, we also question the definition of 'informal tax'. If we consider redistributive effects and the underlying expenditure by households used to fund public goods, then there are other forms of taxation that are not paid to state or local leaders/administrators. Charitable payments may or may not have a redistributive effect for other households- it largely depends on the aims of the charity – rescuing donkeys probably has little redistributive aim for human population, but pro-poor services and transfers to 'needy' populations are clearly more relevant. There are thus payments that reflect religious obligation, of which Islamic Zaqat is perhaps the clearest example. This is one of the five fundamental obligations of a Muslim and is a tax imposed to fund poverty-related charitable provision. As Muslim populations in African countries can be very substantial proportions of the populations, (14 per cent in Uganda, 5 per cent in Rwanda) even in countries where they are not the majority, the influence of 'zaqat' is worth considering if redistribution is the prime focus for analysis. Other religious payments for Christian churches can also be considered but would need some clarification on a redistributive effect beyond the payment of pastors or for church and chapel upkeep.

Informal transfers come in two main forms. The first is from community organised insurance, and other risk-pooling or savings schemes– these tend to exclude the poorest who are unable to contribute (See for instance Dercon 2005 and others). The second form is also very common: direct transfers of cash or in-kind goods between households.

Our approach is based in part on assessing one of the purposes of informal taxes and transfers - redistributive - but also in part on how household welfare measures are created. When measuring household income and consumption the payments of taxes are subtracted from gross expenditure or income. These are 'non-consumption expenditures' (see Deaton & Zaidi 2002, UNECE 2012): payments made to savings or to repay debt, for instance, though these have little direct impact outside of the household unless debts were informally held by other households. Other non-consumption expenditures do have redistributive consequences – either directly as in payments made of informal transfers to other households, or indirectly as contribution to informal social protection schemes and from charitable payments. We are thus guided in our definition of informal taxes and expenditure on informal transfers by these two criteria: is there a redistributive aim/effect and are they 'non-consumption expenditure'. These criteria help us distinguish what is reflected both in formal and informal 'fiscal' incidence, and in the potential effects on the overall household welfare distribution. For instance, many households have considerable expenditure on ceremonies that are social in nature: weddings, births, funerals etc.. These could in theory be considered 'redistributive' – expenditure provides food, drink and social engagement for the community- but

these are considered as direct household consumption and not 'non-consumption expenditure'. Of course, the social obligation to participate in and hold ceremonies can be considerable.

It is important to lay out our limitations. We solely consider the evidence on and effects of 'direct' forms of taxes and transfers across formal and informal sources. Our primary aim is to explore the 'scale' of their relative impact on redistribution. This means that we do not attempt to do a full comprehensive fiscal incidence analysis in this paper – for instance to update the 2017 CEQ analysis for Uganda. We have more modest aims, to firstly assess what the drivers of household redistribution are, and how they divide between informal and formal mechanisms.

Our paper is exploratory and preliminary. This is the first stage of a much longer research project that will later join this analysis into the more comprehensive fiscal incidence models and micro-simulation models that will result from the TAXDEV project in these two countries. In simple terms we are trying to assess the 'first order' impact of formal and informal sources of income on inequality and redistribution and then to assess how far this profile will dictate how policy advice and future analysis proceeds.

Income Concepts and Fiscal Accounting Framework

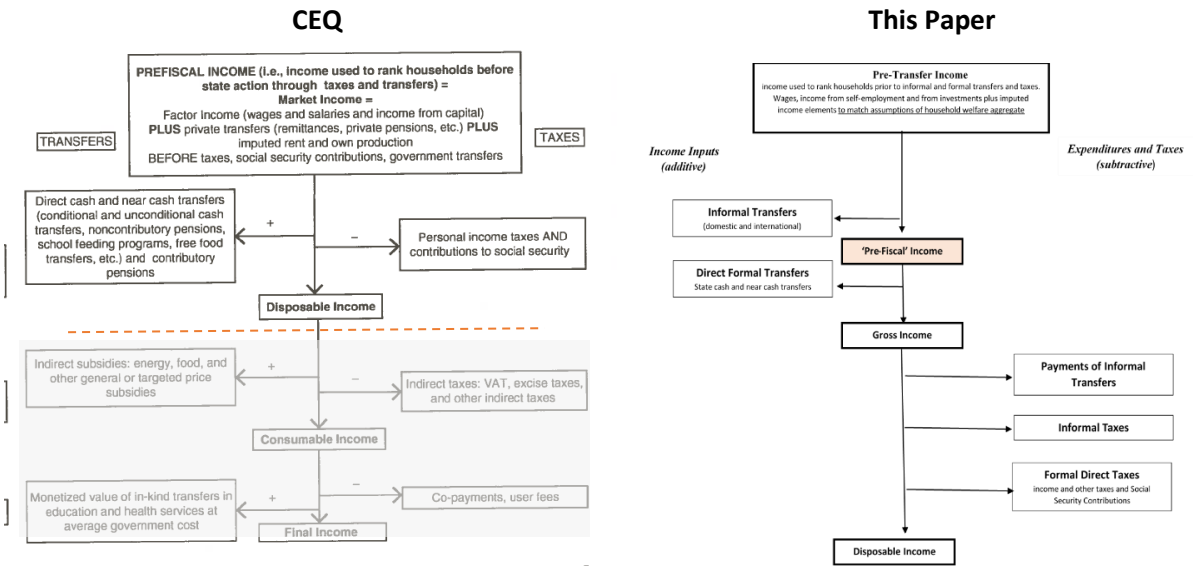
We use a fiscal accounting approach based on the CEQ methodology to define and analyse the redistributive effect of informal direct taxes and transfers. This means that we adopt an approach to definition of household income that corresponds to those used in fiscal incidence and redistribution analysis. It is important to acknowledge at this point that there is a fundamental problem in using 'income' as the welfare measure: Both Rwanda and Uganda measure monetary household welfare, poverty and inequality using consumption at the moment. We return to consider this issue below. When we use income there is a clear logical and sequential accounting framework that identifies the inputs of income sources and outputs from taxes and expenditures at the household level used for fiscal incidence and redistribution analysis.

In Figure 1 we lay out our approach to income definitions for such analysis that allows an additional and distinct consideration of informal transfers and taxes on the right-hand side and compare it to that used by CEQ approach on the left-hand side. Note that we stop the comparison at the definition of 'disposable income' and do not attempt to undertake the later stages of the CEQ approach that employs a full fiscal analysis to include subsidies, indirect taxation, or the receipt of benefits in kind from services net of user-charges.

Our approach to the computation of 'disposable income' is as follows.

- First, we define a new 'original income' level. Under the CEQ approach (and also in other approaches used in SOUTHMOD and other micro-simulations) the starting point of 'original income' is *all* 'pre-fiscal income'. In discussion, this is seen as mostly analogous to 'market income' (as per Higgins and Lustig 2018), against which the effects of state-based formal taxes and transfers are compared). But this income will not just come from market sources; such as wages, self-employment income and income from savings, rents and investments, it will also include informal transfers. If we want to understand the impact of informal transfers on redistribution, we need to separately identify them. We do so by creating a new 'original income' based on income from all sources other than informal transfers – which is

Figure 1
CEQ Income Concepts and Our Analytical Approach



Source: Figure 1.1, Lustig & Higgins 2018

much more likely to align to 'market income'. We call this original income, 'pre-transfer income'.

- Second, we separately identify the sources of informal transfer income (from community run schemes and from inter-household transfers). This will be added to 'pre-transfer income'.
- Third, we then add in income from formal transfers and by doing so arrive at a definition of 'gross income'. From this point we start deducting household expenditures in turn.
- Fourth, we subtract payments of transfers to other households and informal community schemes. This will allow a reconciliation across payments received and made of informal transfers to assess their net effect as well as their sequential effect.
- Fifth, we subtract payments of informal taxes.
- Sixth, we subtract payments of formal taxes and in doing so come to the defined level of 'disposable income'

These six stages allow us to compute a difference between original and disposable income on which to base an analysis of redistribution. The difference between our and CEQ approach and other income-based approaches based on direct taxes and transfers is not fundamentally different overall but allows for more granularity in decomposition that can identify and allow a comparison of formal and informal elements. It is also clear that the underlying computation of disposable income will not differ greatly between our approach and others'. All approaches we have seen include informal transfers as income. But many analysts may not deduct payments out of informal transfers when calculating disposable income. A detailed consideration of CEQ and other methodologies confirms that they do and this is clearly correct to follow the computation of household welfare net of 'non consumption expenditures' according to the seminal guidance on computation of consumption aggregates (Deaton and Zaidi 2002) and net income (UNECE 2012). A failure to subtract these amounts will produce 'double counting' of those income amounts in the overall distribution and will over-estimate the level of disposable income of donor households. It may also lead to inaccurate comparisons of incomes or poverty between households, for instance in the comparison of urban

and rural populations where transfer payments will potentially have large effects (Chai and Evans 2018 and Castaldo, Deshingkar & McKay 2012).

The other main difference is in the identification of 'informal taxes' separately as a deduction to produce disposable income. Olken and Singhal made estimates of the level of informal taxation within overall taxation profiles for 10 countries and found that they represented between 0.4 and 6.8 per cent of total taxation (2011). In general, however, fiscal incidence analysis has not moved to include these local and informal taxes. One problem in extending fiscal analysis to include informal mechanisms for redistribution lies in the identification of informal payments and transfers with household survey data: while household surveys that collect consumption data are often designed to capture 'non-consumption' expenditures in order to inform the computation of a household welfare aggregate to use in poverty and inequality analysis, there is no consistency in such approaches across countries, making comparable analysis difficult and forming a barrier to research in this area.

Incidence of Informal and Formal Transfers and Taxes in Uganda and Rwanda

We use micro-data from two household surveys: the Uganda National Panel Survey 2013/14 (UNPS)[4] and Rwanda Integrated Household Living Conditions Survey 2016 -2017 (RIHCS).

In both countries we use the income variables in the survey to identify components of household income and to compute income aggregates that allow us to track the effect of transfers as income sources and taxes and expenditures that reduce gross income into a 'disposable income' level as shown in Figure 1 above. For this scoping analysis we do not attempt to impute estimates for rent, or for use rents of durable goods.[5] We include all income from trade and business and also income from home/self-production. We return to discuss this issue in the final part of this paper.

Identifying formal transfers relies on their specific inclusion in the household survey data as sources of income. An exact match solely to national social insurance schemes for contributory pensions in both countries is hindered by the variable for these transfers also including 'annuities' and other forms of market provided pensions and also for other social insurance benefits. Identifying formal social assistance programmes is easier in Rwanda as there are specific variables that report Vision 2020 Umurenge Program (VUP) transfers and participation in VUP public employment programmes. Ugandan social assistance programmes have been slower to emerge with an original focus in the North of the country through a range of programmes, such as the Northern Uganda Social Action Fund (NUSAF), financed by the World Bank and the Northern Uganda Agricultural Livelihoods Recovery Programme (ALREP) and Karamoja Livelihoods Programme (KALIP), both financed by the European Union. More recently Social Assistance Grants for Empowerment (SAGE) has piloted a Senior Citizens Grant as a social pension and it has been agreed to incrementally roll out this social pension across districts until full coverage is achieved in 2020. Our reliance on the 2013/14 UNPS data will not allow us to identify recipients. The coverage of these social assistance programmes means that we join them into a single category of 'formal transfers' alongside pensions and other state transfers.

[4] These data are not ideal nor most recent in the case of Uganda. Both the smaller sample and the older data in Uganda means that we may not be able to identify the pilots and programmes of social protection policies put in place in recent years.

[5] We will return to reconsider imputed sources of income when we consider 'poverty' in the next stage of the research as it will be crucial to match the definitions from imputations where they are used to compute welfare aggregates for poverty estimation.

Identifying formal taxes relies on their specific inclusion in variable lists for expenditures which for Uganda separately identifies income tax, property tax and 'social insurance contributions', and additionally identifies payments of 'local service taxes'. The Rwandan tax system also includes Personal Income Tax, social security contributions and VAT, as well as local taxes. However, a major data constraint is that Rwandan survey data has no variables for reporting income tax and social security contribution payments as wages are recorded as net after their deduction at source. We currently do not have data to allow us to impute those amounts for this paper, but imputation of income tax and social security contributions will make a large difference to our analysis of direct taxes in Rwanda, and this is a clear caveat for this early scoping paper. However, property tax and 'other taxes' are directly identified. Rwanda also has mandatory health insurance payments and these are included in our set of formal taxes.

Turning to consider informal transfers, both Uganda and Rwanda identify the receipt of transfers (in cash or in kind,) from other households and differentiate between domestic and international origins for such transfers. Ugandan data gives no clear identification of other informal transfer sources and does not identify payments into or receipts from SACCOs. Similarly, the Rwandan survey data shows records for SACCOs but does identify payments to and from 'tontine', which are informal savings and loans societies set up at the community level. Informal 'taxes' are firstly considered as the payments made by household relating to these transfers: payments to other households and into tontine funds. Rwanda also identifies 'mutual aid' payments that we understand related to community level development projectcontributions, and which probably correspond to the definition of informal taxes in Olken and Singhal's work. Our original intention was to also identify religious taxes such as Zaqat, but these are not specifically identified. In Rwanda, 'offerings and tythes' are identified as an expenditure and future research will explore how far these and 'charitable' payments in Uganda can be attributed to religious taxes, and Zaqat especially. For this paper we continue without capturing these informal religious tax payments.

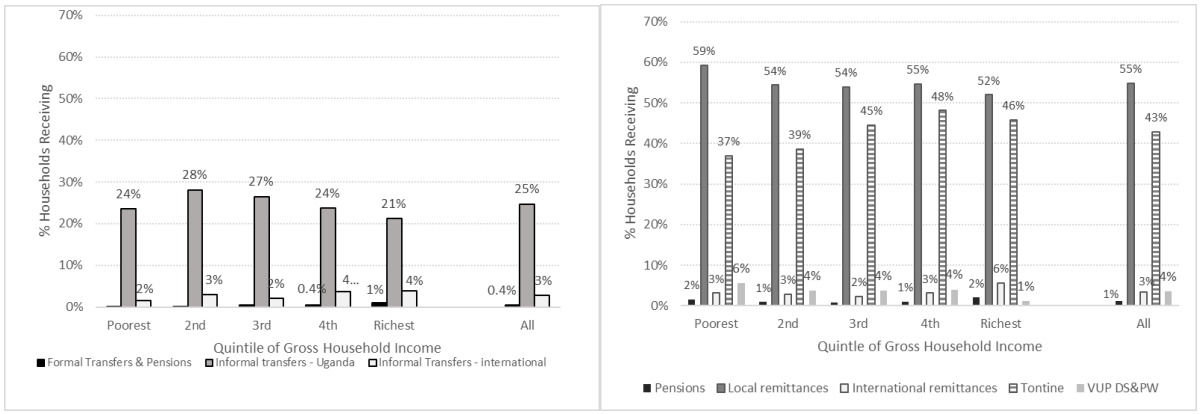
What is the scale of incidence for informal verses formal taxes and transfers? Figure 2 shows the percentage of households who receive transfers from both formal (state) and from informal sources remittances and payments from other households in both Uganda and Rwanda, and additionally 'tontine' – community-based savings schemes. Having both formal and informal transfers considered together clearly demonstrates the very large differences in scale. In Uganda, just 0.4 percent, and in Rwanda 1.2 percent of households receive formal transfers in the forms of pensions. But the receipt of informal transfers far eclipses these levels: 25 percent of households in Uganda and 55 percent of households in Rwanda report receiving informal transfers from others in the same country. A further 3 percent in each country report receiving international remittances. In Rwanda 43 percent of households also receive payments from a tontine.

Incidence of transfers differs across both national income distributions. We see that formal transfers, while small in coverage, are over-represented in the richest quintile. This can result from these transfers being the result of formally waged employment in the main, often public officials and civil servants. In Uganda, the receipt of inter-household transfers from within the country is highest in the 2nd and 3rd quintiles, 27to 28 percent, and lower in the poorest and richest quintiles, 21-24 percent. Rwanda on the other hand has much flatter incidence, with a pro-poor gradient. There are slightly higher levels of incidence in the poorest quintile, 59 percent, 54-55 percent across the middle quintiles falling to 52 percent in the richest quintile. International remittance incidence is highest for the richest quintile in both countries. The incidence of tontine receipt in Rwanda appears highest in the top three quintiles, 45-48 percent, compared to the bottom two quintiles at 37 to 39 percent.

Figure 2

Formal and Informal Transfers: percentage of households receiving by Gross Income Quintile

Uganda Rwanda

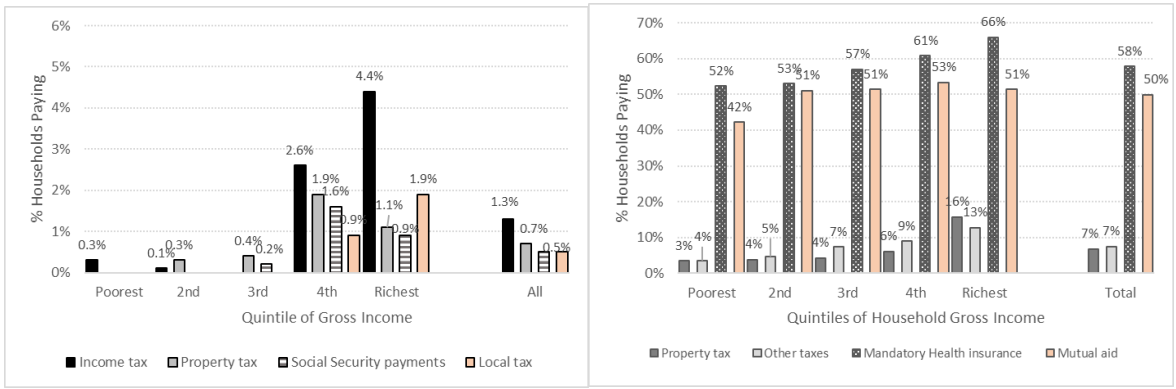


Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

Figure 3

Formal and Informal Direct Taxes: percentage of households paying by Gross Income Quintile

Uganda Rwanda



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

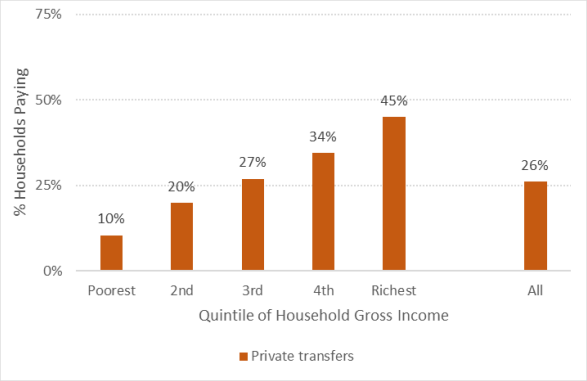
Figure 4 shows similar profiles for households who report tax expenditure for Uganda and Rwanda, but the two national profiles are so different that we are unable to use common y-axis scales to compare visually across countries. Incidence of most tax expenditures in Uganda is at low levels- on average between 1.3 and 0.5 percent across all identified taxes, and quintile-breakdowns should be treated with caution due to low sample sizes. Improved estimates are likely to be available from larger samples in 2016-17 UNHS in future research. Ugandan income tax as the largest tax incidence overall at 1.3 percent of all households but is largely only seen in the two highest quintiles. Similarly, property tax and social security payments are seen mostly to be paid by the richest two quintiles. Local service tax, the closest tax we can identify to an informal tax imposed by communities, is similarly most affecting the two highest quintiles and is only seen on average in 0.5 percent of all households. Direct formal tax incidence in Rwanda is dominated by mandatory health insurance payments, paid on average by 58 percent of households, with a growing incidence as income rises: from 53-54 percent of households in the lowest two quintiles, rising to 60 to 66 percent in the two richest quintiles. The other formal taxes, property tax and 'other taxes', have much lower incidence overall, both at 7 percent of all households on average. Both these tax expenditures seem to be paid in higher proportion of higher quintile households – ranging from 3 percent of households in the poorest quintile to 13-15 percent of those in the richest. But the incidence of these taxes is dwarfed by what is reported on informal payments of 'mutual aid' by, on average, 50 percent of all households, with incidence rising as income rises, from 43 percent of the poorest to 53 to 51 percent for the richest two quintiles.

Alongside these taxes, both informal and formal, households also pay out into informal social protection mechanisms: interhousehold transfers, and in Rwanda, tontine. Figure 4 shows the proportion of households with expenditure on these transfer payments, or Tontine contributions. Looking across Uganda and Rwanda solely at expenditures on inter-household transfers, we see different overall incidence levels- Rwanda has 47 percent of households paying, while Uganda just 26 percent – but the gradient of expenditure across quintiles is similar. Poorer households are less likely to have expenditure – 12 percent in Uganda and 35 percent in Rwanda in the poorest quintile; and richer households are more likely – 44 percent in Uganda and 68 percent in Rwanda. It is notable that these levels of expenditure are far above what we observed for formal direct taxes in Figure 3, apart from mandatory health insurance payments in Rwanda. Figure 4 also shows that payments into tontine in Rwanda have higher incidence – 58 percent overall and are highest in the 3rd and 4th quintiles but have an overall gradient that has poorer households less likely to contribute.

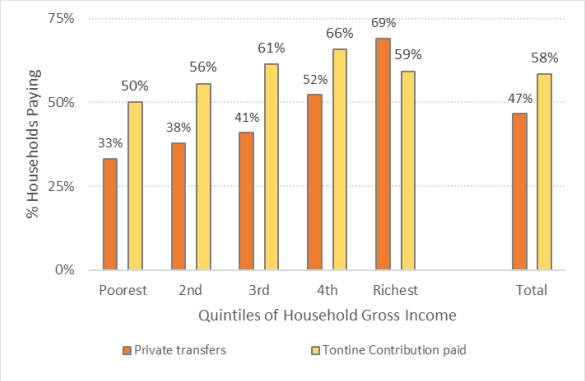
Figure 4

Informal Cash Transfer Expenditure: percentage of donor households by Gross Income Quintile

Uganda



Rwanda



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

Table 1

Donor and Recipient Households for Inter-Household Informal Transfers

Uganda

Paid informal transfer	Received informal transfer		
	No	Yes	Total
	%	%	%
No	55.6%	18.4%	74.0%
Yes	17.9%	8.1%	26.0%
Total	73.5%	26.5%	100%

Rwanda

Paid informal transfer	Received informal transfer		
	No	Yes	Total
	%	%	%
No	14.7%	38.7%	53.4%
Yes	9.1%	37.5%	46.6%
Total	23.8%	76.2%	100%

Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

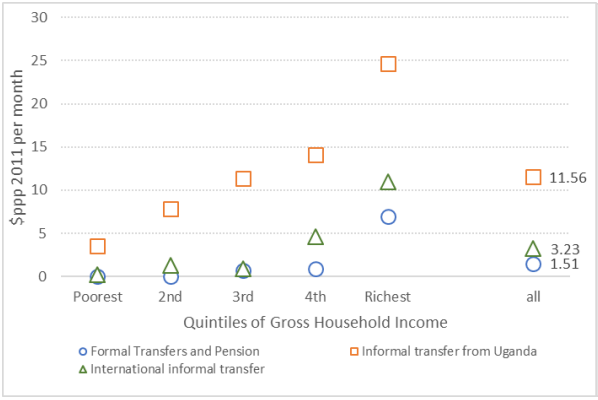
One finding from recent evaluations of social protection transfers in Sub-Sharan Africa is that even poor households receiving social protection remit to other households (Andrews et al 2018). This raises the question of how much of the spending and receipt of inter-household transfers reflects households that both receive and pay out over an annual period. Table 1 shows substantial differences in the relative levels of 'churn' between the countries: 8 percent of Ugandan households (31 percent of those that receive) both receive and also pay out transfers, while the same is true for 38 percent of Rwandan households (49percent of those receiving).

Figure 5 shows the monthly value of these taxes and transfers in purchasing power parity (2011 $). We use the whole population mean value rather than the mean of recipients only. Thus, as the majority of the population do not receive the respective transfers, the overall mean values are low. Transfers are shown in Figure 5A and suggest that in both countries the value of formal transfers is low on average as only small minority of households receive them, just $1.5 in Uganda and $2.6 in

Rwanda, but have the highest average value in the richest quintile – explained by the differential incidence shown earlier in Figure 3. Informal domestic inter-household transfers have much higher average value: $11.6 in Uganda and $5.0 in Rwanda, but the average quintile value has a much steeper pro-rich gradient in Uganda than in in Rwanda where values are largely flat until doubling in value for the richest quintile. International remittance values also tend to be flatter across the lower quintiles and then rise for the richer quintiles in both countries where they have an average value of $3.2 and $2.4 for Uganda and Rwanda respectively.

Figure 5
Value of Transfers and Taxes/Expenditures
A: Transfers

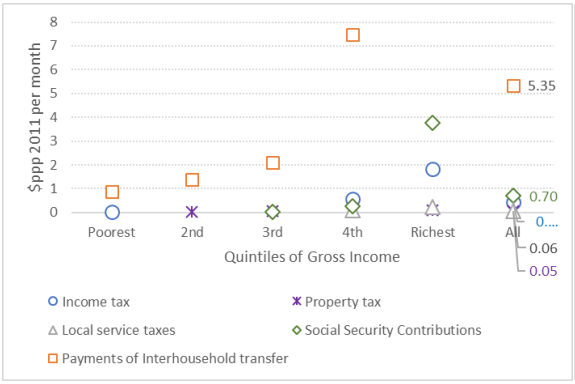
Uganda



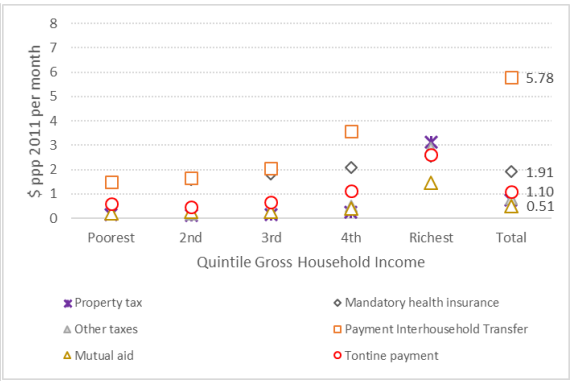
Rwanda

B: Taxes and Expenditures

Uganda



Rwanda



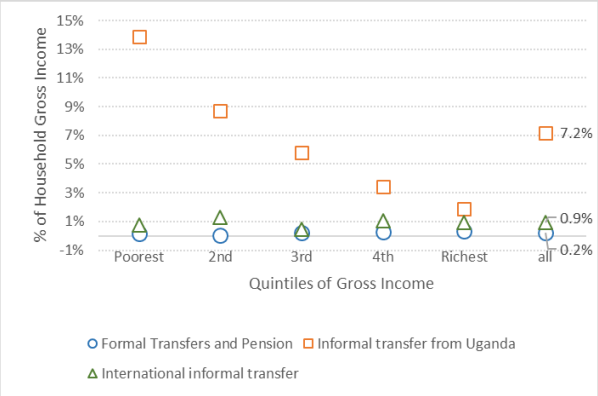
Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

Figure 5B shows the similar values for taxes and expenditures. Property tax, and local service tax have very low values – less than $0.1 on average in Uganda respectively, with little difference seen (and small samples making accurate estimates problematic) across quintiles. Income tax and social security contributions, which we have seen to be largely only seen for higher income quintiles, are just $0.4 and $0.7 respectively on average for all households. The greatest values for expenditure across both countries are seen in the payments of inter-household transfers – which appear to rise across the distribution and are highest in the richest quintile across both countries. Average expenditure is $5.4 and $5.8 for Uganda and Rwanda respectively. Rwanda's difference lies in the payments of formal mandatory health insurance, $1.9 on average but with a fairly flat distributional profile rising for the richest quintile; and in tontine payments, that have a similar distribution but are less value: $1.1.

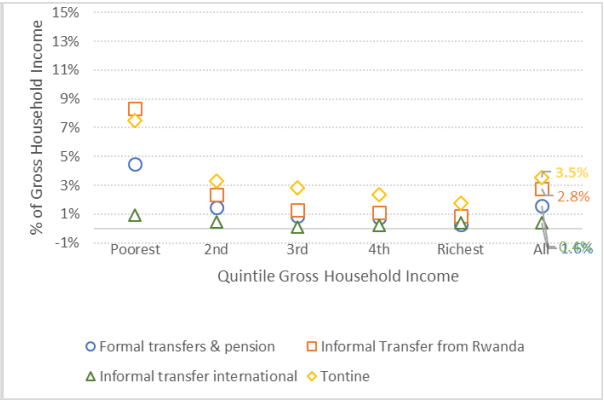
Figure 6 shows the value of transfers and taxes expressed as percentage of overall per-capita gross income. Figure 6A shows these relative values for transfers and clearly shows that informal inter-household transfers have much larger impact on the incomes of the poorest quintile across both countries. However, caution should be taken in interpreting the overall mean values as income measurement for the poorest quintile has large measurement error and high values may also result from large one-off transfers that respond to economic hardship, rather than regular remittance or transfer. This caveat also applies to the large value we see for Tontine in Rwanda in the incomes of the poorest quintile – mean values for drawings/ income from tontine funds may be the result of a few large values - or may indicate that poorer households make larger one-off claims on tontine funds to ensure basic needs when compared to higher income households. Overall, we see that informal inter-household transfers within Uganda represent a much larger proportion of average income than any other form of transfer.

Figure 6
Relative value of Transfers and Taxes/Expenditures to Gross Income
A: Transfers

Uganda

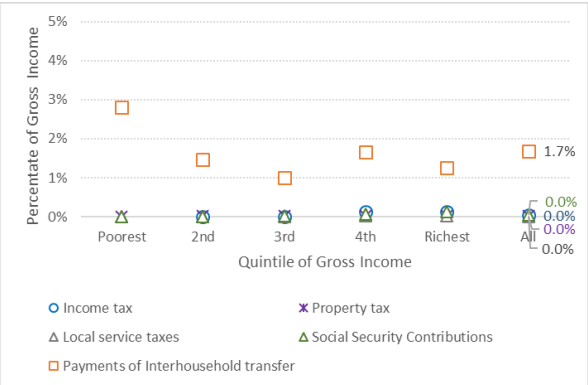


Rwanda

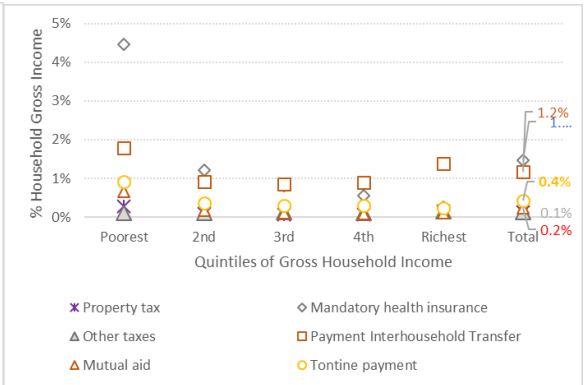


B: Taxes and Expenditure

Uganda



Rwanda



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

Figure 6B shows results for taxes and analogous expenditure, and also shows that the poorest quintile report much higher expenditures as a proportion of their gross income for payment of informal transfers, and in Rwanda for tontine, compared to other taxes. Each type of formal direct taxation represents on average under half of one percent of gross per capita income across both countries, but average expenditure on informal transfers is higher – just over 2percent in Rwanda and about 2 percent in Uganda.

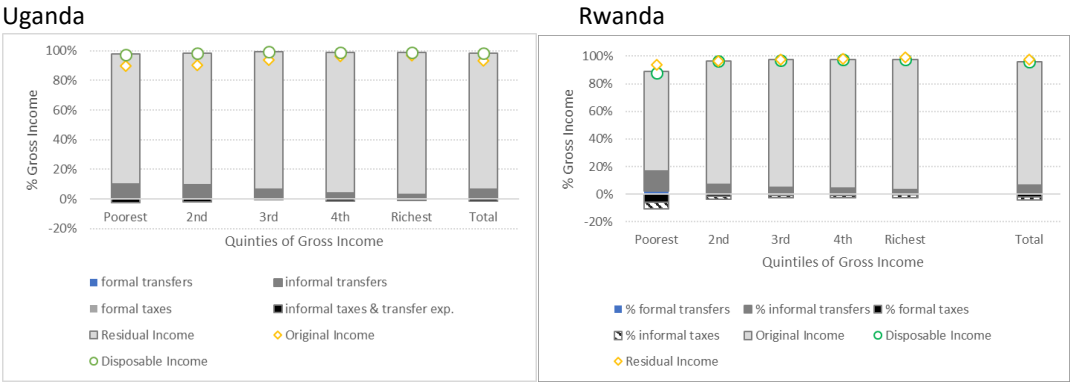
These findings on levels of taxes and transfers suggest that amounts overall are not large, but that informal mechanisms tend to be larger than formal ones – particularly for poorer households. But the overall picture is of 'small value' taxes and higher value transfers, mostly funded through informal inter-household transfers, but with high value 'formal transfers' mostly benefitting higher income households. We now turn to consider the redistributive effects of this mix of formal and informal taxes and transfers, but anticipate from the evidence seen in Figure 6, that the overall differences between incomes pre and post taxes and transfers are likely to be small on average.

Redistribution from Informal and Formal Taxes and Transfers

The key question for redistribution is how these payments and transfers cumulate and effect the overall welfare distribution. To capture these cumulative effects and their redistributive consequences we move from household to individual level. The overall redistributive impact will arise through a comparison of the income baseline from 'pre-transfer' to income defined as 'disposable income' as outlined in Figure 1. When we return to our underlying motivation for the paper and policy analysis we also need to group the effects on redistribution of different kinds of taxes and transfers: How does the inclusion of informal transfers and taxes change our appreciation from a more exclusive approach based solely on formal fiscal redistribution: which has the largest impact on inequality?

Figure 7 shows the income distributions for each step-wise cumulative definition of income, following the steps outlined in Figure 1.

Figure 7
Formal and Informal Taxes and Transfers Cumulative Impact by Quintile



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

Figure 7 shows that the overall change in incomes is small on average as a result of taxes and transfers, even when they are cumulative and expressed at the individual rather than household level. The largest element that affects difference between original and disposable income arises from informal transfers, and the combined effect of their receipt and payment. These transfers affect the poorest quintile more than the rest of the distribution. They make up 16 percent of the Rwandan poorest quintiles income, but payments represent 7 percent of income, while the similar figures for Uganda are 11 percent and 3 percent respectively. This shows that informal transfers are 'progressive' in their relative net effect, but that the expenditure on such transfers is also regressive in relative terms. With such small overall impacts on income, it is not at this stage worth considering the effect of individual elements on overall redistribution. Instead, we can consider the overall role that informal and formal elements of taxes and transfers play in the small level of redistribution that is seen across both countries.

We calculate the overall 'redistribution' as the difference between original and disposable income – expressed as a percentage. We then arithmetically attribute the difference to formal (formal state transfers and taxes) and informal (informal taxes and transfers). Table 2 shows the results. Overall we see a larger 'redistribution' in Uganda, but this will reflect our inability to capture Rwandan Income Tax and Social Insurance Contributions. With that caveat in mind, we see that informal mechanisms dominate across both countries and that redistribution levels are highest in the poorest quintiles and appear to monotonically decline. Formal taxation appears to be more apparent in redistribution in Rwanda, but we see that a large negative value for formal tax offsets a large informal redistribution to the poorest quintile.

Table 2
Informal and Formal Sources of Redistribution from Tax and Transfers in Uganda and Rwanda

	Redistribution	formal	informal
Uganda			
Poorest	7.9%	0.0%	7.9%
2nd	7.8%	0.0%	7.8%
3rd	5.7%	0.2%	5.5%
4th	2.5%	0.0%	2.5%
Richest	2.1%	0.0%	2.1%
All	5.3%	0.1%	5.2%
Rwanda			
Poorest	6.4%	-4.1%	10.5%
2nd	3.5%	-0.9%	4.4%
3rd	2.2%	-0.5%	2.7%
4th	2.1%	-0.1%	2.2%
Richest	0.8%	-0.4%	1.2%
All	2.6%	-1.1%	3.7%

Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

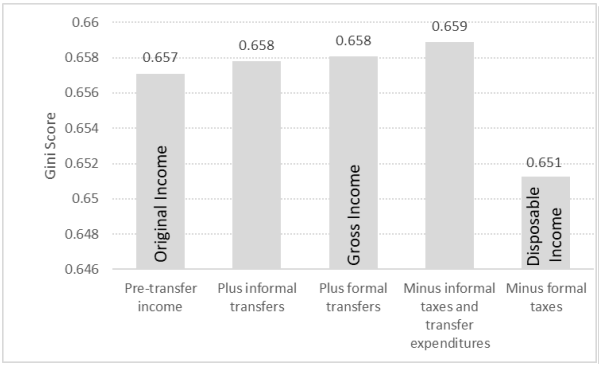
Notes: Redistribution is the arithmetic difference between original and disposable income.
Rwandan estimates currently do not include income tax and social security contributions.

How does inequality change from the incidence of taxes and transfers? Figure 8 shows the changes to Gini Index across the 6 sequential income definitions from original pre-transfer income to disposable income after taxes and transfers. The reported levels of Gini do not match those used by official government statistics in either country as inequality is officially measured using consumption. We do not suggest that inequality levels are accurately captured and rely on the change in inequality scores rather than the underlying levels of inequality to interpret the role of informal and formal taxes and transfers.

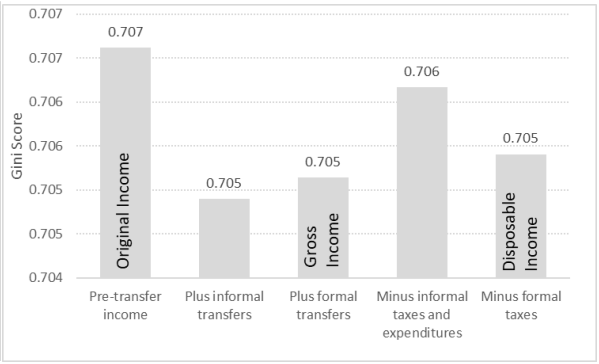
Figure 8 shows that inequality using our data and definitions is high in both countries – 0.657 for Uganda and 0.707 for Rwanda based on original pre transfer income. The subsequent iteration of incomes to analyse the impact of taxes and transfers does not move much from those very high levels. We are considering small marginal changes to inequality across both countries. It is crucial to remember that overall inequality may change more when indirect taxes, subsidies and services in king are considered – as shown in Uganda by the CEQ analysis (Jellema et al 2018). Even with these caveats, we see potentially different impacts of formal and informal mechanisms on inequality between the countries. In Uganda, the addition of informal and formal transfers seem to both sequentially increase the Gini coefficient by small levels, making gross income slightly more unequal

Figure 8
Inequality and Informal and Formal Taxes and Transfers

Uganda



Rwanda



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17
Note: Gini computation drops zero values and these are xx and yy for Uganda and Rwandan surveys respectively

than original pre-transfer income. Deducting informal taxes and transfer expenditures seems to raise inequality again by a small amount, and it is only when formal taxes are deducted that we see a substantial fall inequality, falling to 0.651 for disposable income compared to 0.657 for original pre-transfer income. The small rises in Ugandan inequality from considering informal transfers and informal expenditures and taxes, suggests that the net effect of informal taxes and transfers is to increase inequality. The other clear indicator of inequality effect in Uganda is the impact of formal taxes, largely from income tax and social security contributions on the higher income quintiles – this is a crucial caveat when we come to compare to Rwanda, where we cannot, at this stage, identify those taxes in Rwanda. Turning to consider Rwanda, we see an apparent fall in inequality when informal transfers are added to original income, suggestive of a pro-poor allocation, but that inequality rises slightly on subsequent addition of formal transfers. We then see an apparent rise in inequality when considering informal taxes and expenditure on informal transfers – suggesting that the pro-poor effect of paying transfers is weakened through by expenditure by poorer parts of the distribution. Finally, we see that formal taxes appear to reduce Rwandan income inequality, but at present these calculations do to capture income tax and social security contributions that are likely to make that reduction far larger.

One problem in interpreting the results from Gini comparisons is that the Gini emphasises inequality at the mid part of the income distributions, and our earlier profiles in Figures 2 to 6 suggested that much of the different in incidence and levels of taxes and transfers were at the top and bottom of the distribution. Indeed, the Gini also cannot calculate inequality to include zero income values, of which there are a small but considerable number in our survey data. To test the effect of relying solely on the Gini, we repeat the inequality comparison by income definition using a generalised entropy measure that can compute inequality with zero values – based on the coefficient of variation (GE(2), which is more sensitive to top values (Jenkins 2009). These indices produce very different ordinal values compared to the Gini and in Figure 10 we present the values as an index based on the value of inequality represented by 'original pre-transfer income', and alongside the Gini results set to a similar index.

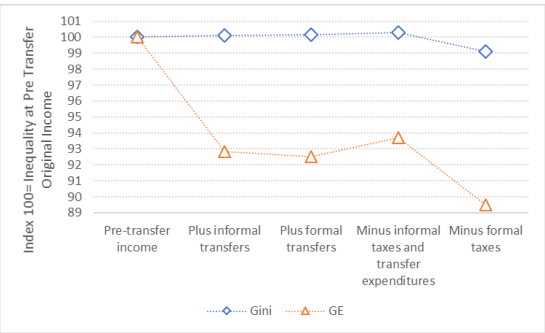
Figure 9 suggests that inequality may change more as a result of taxes and transfers if measured using the generalised entropy index. We see that inequality falls more clearly when informal transfers are added to original income and that further falls of a smaller nature occur before

inequality rises again once the expenditure on informal transfers and informal taxes is subtracted from gross income. These changes are common across Uganda and Rwanda but differ in scale. We see difference in Uganda for larger reduction in inequality from formal taxes using the GE index compared to the Gini. Little difference is seen for similar points in Rwanda between Gini and GE indices.

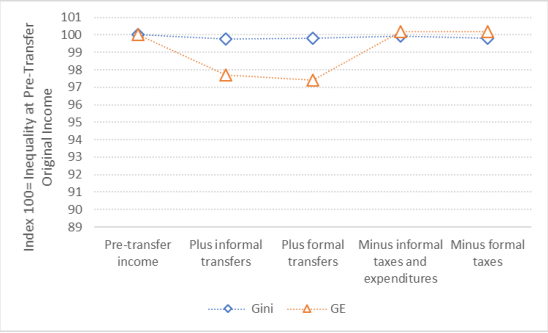
Figure 9

Sequential Change in Inequality from Incidence of Taxes and Transfers: Gini and GE(2) Indices

Uganda



Rwanda



Source: authors' calculations UNPS 2013/14 & RIHCS 2016/17

These differences are considerable and make the case for any fiscal incidence analysis to include other inequality indices as an alternative measure to the Gini. The results suggest that more inequality reduction might arise from informal mechanisms (informal transfers and expenditure on informal transfers especially) compared to formal counterparts, but this result is far clearer when using the GE inequality index compared to the Gini.

The overall role of informal taxes and transfers is however obscured by them appearing as both additive and subtractive elements across the income definitions. Their overall effect can be assessed by summing across these elements into a single 'net' income effect, and this can be done for both formal and informal sets of taxes and transfers. Considering net disposable income, we can express this as the sum of i) the net effects of informal taxes and transfers, ii) the net effect of forma taxes and transfers and ii) the residual income after i) and ii). These three income components can then be assessed more clearly to assess the contributions they make to inequality in disposable income. Using these three components of disposable income we are able to decompose inequality using the Shorrocks decomposition by income components (Jenkins 2007). Results are sensitive to small differences and results are presented with that caveat in Table 3. Once again, the results from the decomposition show that redistribution is very small in scale and thus the attribution to their contribution to inequality by those components is very small. Just 1.4 percent of inequality in disposable income in Uganda and just 0.2 percent in Rwanda. Attribution between formal and informal mechanisms of taxes and transfers is thus subject to large concerns about small numbers and small values we report the difference with that in mind. However, we also know that the distribution of taxes and transfers will affect results, for instance that informal transfers are fairly flat across the distribution from our earlier tables, and thus that the inequality that results could be small. Overall, what we observe in these preliminary results is that informal mechanisms appear to play a larger role, confirming what was seen in Figure 9. Further research will have to explore this in other contexts and with larger survey samples and, hopefully, better data coverage and identification of informal and formal taxes and transfers.

Table 3
Decomposition of Inequality in Disposable Income: Informal and Formal Taxes and Transfers

%	Uganda	Rwanda
Base income	98.61%	99.80%
Informal taxes and transfers	0.90%	0.14%
Formal taxes and transfers	0.49%	0.06%

Integrating Informal Taxes and Transfers into Consideration of Fiscal Incidence and Redistribution

Our preliminary analysis suggests that much redistribution occurs through informal transfers and, to a lesser extent from informal taxes in Uganda and Rwanda. Our estimates are preliminary and we will revise them in several ways. First, we will impute values for income tax and social security contributions in Rwanda and include those elements of direct formal taxation in revised estimates of incidence and redistributive effects. They will certainly alter the balance between informal and formal roles in redistribution towards the former, but this will not alter the fundamental finding that informal mechanisms play a large and important role. But the absence of data on these key formal direct taxes raises a larger issue of data coverage and the identification of informal and formal taxes and transfers in underlying household survey data. Our second area for focus is thus to establish a more coherent and comprehensive approach to informal taxes and transfers and match those to survey data sources. This will clarify both the definition of informal taxes and transfers and provide a basis for improved empirical identification. For example, our knowledge of national contexts suggests that even across Uganda and Rwanda there are elements of informal redistribution that remain unidentified. Religious taxes certainly, but also payments into and out from 'SACCO' savings and credit co-operatives that are often run by occupational groups such as farmers, teachers, civil servants (see Ntahombereye 2013 for analysis of such a scheme in Rwanda).. We also recognise that survey data does not capture the in-kind informal taxes imposed through labour, in which local residents contribute to local infrastructure. We know these occur from 'community survey' instruments that accompany our household survey data, but there is no corresponding data at the household level to identify such work.

However, improved understanding has to move beyond a purely academic description of these informal mechanisms into applied policy relevance. Policy makers at the central level are under pressure to raise domestic revenues, and to implement new taxation policies and improve levels of revenue collection. Informal obligations for tax or to make payments to other households are clearly important for designing taxes and for understanding and improving revenue collection. What does the underlying 'tax burden' look like for individuals who have a mix of formal and informal tax and spending obligations? How can tax design consider those obligations? Many national income tax policies will deduct certain expenditures when calculating taxable income – payments to elderly parents or children living elsewhere, alimony, child support, and payments of church tax or Zaqat similarly. Apart from affecting design of taxation, how do these expenditures and obligations affect tax compliance?

One key area of policy relevance is also the effect of formal and informal taxes and transfers on poverty, and thus of how policies to achieve poverty reduction can be optimally designed to take account the range of formal and informal liabilities we have identified. We know from a meta-analysis of evaluation evidence of social assistance pilots in Sub-Sharan Africa that the 'elasticity' of transfer income to consumption is around 0.74 (Andrews et al 2018). This elasticity reflects a range of behaviours for those receiving transfers – to save, to pay back debt, to pay taxes as well as to

transfer to other households. In other words, transfers as income have to match the underlying measurement approach of the household consumption aggregate to reflect these areas of 'non-consumption expenditure' that may result from receiving a transfer. This is where current practice in fiscal incidence and microsimulation of taxes and transfers in developing countries is less clear. If the data on consumption and the elements of fiscal analysis align, we can be confident that what we observe as a change in consumption is matched to the mix of transfer, liabilities and expenditures that underlie it. However, this is not always the case – for example, there are countries where identification of household expenditure on transfers to other households is not made in the household survey – clearly altering the assumptions for calculating the consumption aggregate and for aligning what is observed in households for poverty reduction impacts. This problem is a key consideration when it comes to ex-ante modelling of poverty reduction effects of changing tax and benefit programmes – and the growing use of static, arithmetic microsimulation approaches across Sub-Saharan Africa. How far can you avoid recognising the probability of transfer payment, debt or savings if you want to measure the poverty reduction effect of cash transfers? Using a 1:1 assumption for elasticity, which is the simplest assumption and easiest to put in place using arithmetic and static approaches, will be inaccurate; probably overestimating increased consumption by around 25-30 percent. This would be a considerable margin of error that has to be recognised and acknowledged and improved modelling practice put in place to respond.

Conclusion

Our paper is an exploratory and scoping in nature. We argue that taking account of informal transfers and taxes to understand redistribution in poor developing countries is a necessary and informative approach. We suggest how to put in place a sequential set of steps to include informal transfers and taxes into existing best practice of fiscal incidence. However, we only take these steps to the point of identifying and quantifying 'disposable income', thus solely the first stage prior to including indirect taxes, subsidies and services in kind in any full analysis. Our other motivation is to take forward the ground laid in part by Olken and Singhal (2011) in their identification of informal taxes, but to widen that approach into a more considered and comprehensive consideration of all informal redistributional mechanisms that are analogous to direct formal taxes and transfers.

Our results are for Uganda and Rwanda demonstrate some of the evidential difficulties with data and of identifying informal taxes and transfers. Household survey data, while designed to inform the calculation of household economic welfare is not always detailed enough to show some of the informal taxes and similar expenditure on and receipt of informal transfers. This evidential problem also applies to formal direct taxes, where in Rwanda, no data on income tax and social security contributions is given and these taxes will need to be imputed, an important lesson for those who wish to replicate Olken and Singhal's computation of the role of informal taxes in overall taxation.

Our results suggest very small effects from direct taxes and transfers overall across both countries. Bigger effects will be seen when indirect taxation, subsidies and in-kind services are added to the overall analysis of fiscal incidence. But, importantly, our motivation to explore a wider set of informal transfers and taxes seems vindicated by the evidence we see. Informal transfers play a large role relative to formal direct taxes and transfers. This effect comes from both the receipt of transfers, but also their payment by households. These effects of informal transfers are largest in the poorest parts of the distribution and appear to have mixed effects in terms of overall progressivity: transfer receipt seems to be pro-poor in relative terms but transfer expenditures make the net effect of progressive transfers less, and are, in themselves regressive in relative terms: the poorest households are also paying transfers out and these tend to go to equally poor or richer households.

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