27/06/2014

SUBMISSION

ISSUES AND RECOMMENDATIONS RELATED TO THE SECOND FORMULA FOR REVENUE SHARING AMONG COUNTIES IN KENYA

The International Budget Partnership was asked to make a submission to the CRA concerning the revisions to the first formula for revenue sharing approved by Parliament in 2012. This memorandum constitutes our submission.

*It is divided into two parts. In **Part A**, we summarize some of our key recommendations. In **Part B**, we provide extensive analysis, supported by data, for those recommendations and go deeper into several issues. We also include an **Annex 1** with all data and tables discussed in the text. **Annex 2** contains a final simulation of our proposed formula (using two approaches, Option C and Option D). In this submission, we refer to Option A as the current formula, Option B as a slightly modified version of the current formula, and Options C and D as our proposals. These four alternatives are explained in Annex 1, Table A8.*

We are available to discuss this submission at any time and welcome feedback. For further information, please contact Dr. Jason Lakin at jason.lakin@gmail.com or 0729937158.

Part A: Key Recommendations

1. **We recommend that the CRA begin to think of several different transfers to counties, and move beyond a single formula.** The current formula tries to do too much, and it would be more transparent, legitimate and instructive if the formula were separated into different components. Our recommendation is informed by a review of transfers around the world, and particularly in Ethiopia, Canada, South Africa, and India.
2. **The two main things that the formula currently tries to do are (1) to provide counties with funds to ensure that they can provide a reasonable level of services according to objective criteria, and (2) at the same time, to achieve substantial redistribution to address historical marginalization.** The formula has managed to achieve both of these to a certain degree, but they are fundamentally divergent purposes and might be better handled through different instruments. Doing so would potentially also legitimize the formula further by ensuring that Kenyans understand its purposes and the rationale for the factors included.

3. **We recommend that the Equitable Share be distributed through a Service Delivery Transfer (the core transfer) and that this be complemented by a smaller Infrastructure Transfer, as well as some additional smaller transfers.** The first transfer will primarily cater for the ongoing costs of delivering services. The second transfer will be more redistributive, to address historical marginalization. This transfer will be a more robust version of the Equalization Fund in the constitution. Additional transfers will be used to deal with specific issues, discussed below.

4. **A formula should both achieve its goals and do so in a legitimate manner.** The formula must not only be fair, it must be *seen* to be fair. A formula that is seen to be fair should not be too complex, but it should have variables that appear to relate to the cost of delivering services as directly as possible.

5. **To this end, we propose partially replacing the "population," "basic equal share" and "poverty" variables in the Service Delivery Transfer with other measures that are correlated with population but directly relate to county services, particularly health, which is the single most expensive county function.** This will help to link the formula structure more clearly to the goals of the formula. Because population is a key driver of cost, we propose maintaining it as a separate measure. Similarly, we believe that an equal share and a poverty measure should be retained, but at lower weights. An equal share is a measure of the fixed costs of running basic government services across counties, regardless of area or population. Poverty is retained not primarily because it is redistributive, but because it proxies the objective cost of services, assuming that the need for public services is higher (and less can be collected in service charges) when people are poorer.

6. **The total weight assigned to variables including population and population-correlated measures should be at least 60% of the formula**. We propose reducing the basic equal share to somewhere between 10-15% from 25%, and the poverty share from 20 to somewhere between 10 and 15% in order to achieve this.

7. **Using the current parameters and increasing population while reducing the basic share weights would by itself bring the Kenyan formula more in line with the tight relationship between population and formula outputs in other countries**. We show that without changing anything else in the formula, increasing population back to 60% and reducing the basic equal share by 15% would bring the relationship between the formula outputs and population closer to international standards (see Option B, Table A8, and Table B18).

8. **However, we are proposing additional modifications to the formula and to the measurement of variables like population.** Our proposal is compared to the current formula as Options C and D in Table A8. We simulate results using Options C and D in Annex B as well.

9. **While we have suggested parameter weights in Options C and D in Table A8, the final parameter weights should be driven by simulations and would depend on all of the other parameters.** Our recommendations are suggestive rather than final when it comes to the precise weights.

10. **Given limited data sources, we propose the use of variables like "number of health visits (facility attendance)" to partially replace the population variable**. Attendance at clinics is highly correlated with population but more properly measures what counties are supposed to do with public money (deliver health services). See Table B38 for data on health visits by county. We use column L, county share of total visits, as our measure.

11. **Because health attendance is partially affected by the availability of medical infrastructure and personnel, it is good to also look at more objective measures of the need for health care, such as the risk of disease.** Data for this purpose is scarce, but we have some information on key drivers of morbidity in Kenya, such as TB, malaria and HIV. We look at the county-level incidence of these diseases as a measure of the risk of illness, and propose combining this with health attendance data to model the costs of health service provision for purposes of the formula. See Table A11 for data on disease risk.

12. **We recommend including other measures related to county functions in the Service Delivery Transfer formula, such as measures of the "fiscal need" for agriculture extension services, ECD, and so on.** Such variables are not easy to find, however. For agriculture, we were able to find data on crop farming households as a proxy for need for agriculture services. We include a measure of population of under one-year olds as a proxy for education needs (primarily ECD). Education represents a much smaller share of what counties need to spend money on (most education services are not devolved), but ECD in particular is an important county function. If better information could be made available on the objective need for other county functions by county, this should be considered for the next iteration of the formula. See Table B44 for our ECD proxy, and Table B43 for crop farming households.

13. **We propose that the formula, or a related smaller transfer, be used to assess issues of both capacity and effort (including fiscal responsibility), and not only expenditure need as the current formula does.** These are the three key principles determining a fair distribution.[1] Effort can be partly measured through a **Fiscal Responsibility Index** as proposed by CRA, and we offer some suggestions for this Index. Whether capacity and effort are incorporated into the Service Delivery formula or not is a matter of taste. We have a slight preference for separating these from the core formula, which is focused on need. It is more transparent to keep expenditure need, capacity and effort separate so that people can see exactly how the different formulas work together to produce a result, rather than losing track of the impact of each variable in a single formula that pulls in different directions.

14. **Turning to the Infrastructure Transfer, we propose the use of a set of indicators related to access to roads, piped water and electricity in calculating an infrastructure need index that could play a role in the allocation of the infrastructure transfer.** This transfer is designed to be deliberately redistributive in order to ensure that counties with infrastructure deficits can catch up to other counties. It is also inherently designed to be a temporary transfer because once deficits have been reduced, counties should receive a more standardized transfer for infrastructure that is related to their ongoing service needs. This is consistent with the objective and structure of the time-bound Equalization Fund in the constitution. Although we do not simulate it here, a measure of the infrastructure deficit in the health sector could also potentially be included as a parameter in this transfer. This could be based on a measure of the population per facility, or square kilometers per facility, and the gap between the counties with the fewest people per facility/area per facility and the rest.

15. **We also propose the use of some smaller targeted conditional transfers to ensure that inherited burdens of staff and debt are partially mitigated.** Some counties inherited

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[1] For more on this point, please see Jason Lakin and John Kinuthia, "What is Fair? Sharing resources in Kenya," and "Fair Play: Inequality across Kenya's counties and what it means for revenue sharing," Budget Briefs 18A and 18B, International Budget Partnership, 2013. http://internationalbudget.org/revenue-sharing-and-functional-assignment/

very high staff costs and others have inherited considerable debt from local authorities. We believe these counties should be supported collectively to manage these costs through temporary, targeted transfers that avoid service delivery disruptions while these issues are sorted out through national interventions, such as a national policy for rationalization of staff.

16. **We believe that the CRA should propose mechanisms for dealing with resources shared by multiple counties that cannot be dealt with through a single, formula-based transfer.** Shared resources tend to be located in a single county but have benefits for multiple counties. It is only fair that counties that benefit from shared resources also contribute to these in some way. One way of dealing with these resources is through targeted conditional grants that require counties to use funds in particular ways. These could be coupled with requirements for consultation with other counties, either through formal inter-county boards or other mechanisms. This approach could be used to manage regional hospitals, water resources, energy, and so on.

17. **Finally, we believe that CRA should consider using conditional transfers to address within-county inequalities.** Within-county inequality in Kenya is severe and devolution runs the risk of exacerbating marginalization within counties (for data, see http://inequalities.sidint.net/kenya/). Conditional transfers can be used to ensure that funds are used in ways that benefit the most marginalized wards within counties, and not only the most marginalized counties. For example, infrastructure grants to counties could carry a requirement that a certain percentage is set aside for use in those wards that are below the median in access to basic infrastructure (such as roads, electricity or water). The distribution of such funds should also be based not only on county level indicators of access, but also on ward level measures that can capture marginalization in counties that may be less marginalized.

Part II: Analysis, full recommendations and justifications

1. **The first formula approved by Parliament in 2012 was simplistic, but made a reasonable attempt to estimate expenditure (or "fiscal") needs given limited time and data.** The key variables in the first formula (population, poverty and land area) are all proxies for the cost of delivering services, and are similar to variables used around the world to estimate expenditure needs. The "basic equal share" is also a measure of expenditure need, assuming that all counties have a basic level of expenditure regardless of other factors that vary, such as population. Thus 98% of the original formula measured expenditure need (and the last 2% was a constant).

2. **While these attempts to measure need were laudable, they were also crude.** The use of population, poverty and land area do represent drivers of need, but they are not directly linked to the specific government services provided by counties. The degree to which this matters depends on two issues: the degree to which the formula is meant to produce an outcome that ensures that counties have adequate funds to cover their costs, and the degree to which the formula is viewed as legitimate by the wider society.

3. **We believe that a good formula is both perceived to be legitimate (or "fair) and that it must also ensure that counties have sufficient funds to provide basic services.** The first issue requires that the formula have variables that are easy to understand, widely agreed to affect service costs and appear linked to what people believe is the role of government. The second concern—adequate funding—may be achieved even if the first is not.

4. **For example, while a measure of population and a measure of demand for health services may be highly correlated, the second may be more "legitimate" because it measures the actual cost of services, rather than appearing to simply reward areas with more people.** A population measure may be easier to get and may ensure adequate funding, but be less legitimate than measures of need or demand.

5. **We encourage the CRA to consider the most legitimate measures that also ensure adequate resources for counties**. In this regard, we believe that variables used in formulas such as the South African formula offer better measures of need/demand, while they are still highly correlated with population.

6. **One of the challenges in designing the Kenyan formula is that the Equitable Share is being used to achieve two different objectives at the same time: ensuring that all counties have funding for ongoing cost of basic services, and trying to redress historical imbalances that led to some marginalized areas receiving less than other parts of the country.** Normally, these two objectives are accomplished through different funding streams. In many countries, the first objective is accomplished through what is known internationally as "equalization," though in Kenya, "equalization," and the Equalization Fund in the Constitution, actually refer to the second objective (addressing marginalization).

7. **Indeed, a more rational and transparent way to think about revenue sharing would be to look comprehensively at all transfers and to separate the objectives of the basic equitable share and the objectives of the "Equalization Fund," which could be substantially expanded.** The equitable share as the main transfer to counties should ensure that all counties have adequate resources to maintain services. This is a key objective of such funding mechanisms around the world, and it is separate from the issue of "vertical equity," which is designed rather to deal with inequalities between richer and poorer parts of the country, or even individuals.

8. **If the equitable share is designed primarily to ensure that all counties can meet their service delivery needs, then conditional grants like the Equalization Fund and the proposed Infrastructure Transfer can be used to address historical inequities, particularly in terms of infrastructure.** While the current Equalization Fund is too small to achieve this, it could either be expanded or complemented by additional funding that could be taken from the current resources flowing through the equitable share formula. For example, the current transfer to counties includes both recurrent and development estimates based on historical allocations. But while recurrent spending is critical to maintain services (including recurrent spending on maintenance of existing infrastructure), development spending could be allocated in a way that is more redistributive. This is the core of our proposal for an Infrastructure Transfer.

9. **We therefore think that CRA should consider using multiple mechanisms to share funds, with a core "formula" for a Service Delivery Transfer that is similar to the current one (but revised according to recommendations below) and a set of additional grants or transfers that may follow different rules, starting with the Infrastructure Transfer.** We look first at the core formula and then make some preliminary suggestions for the additional transfers/grants.

The Service Delivery Transfer: The Core of the Equitable Share

One of our main proposals for the Service Delivery Transfer is to shift away from the use of general measures like population and toward variables that are correlated with population but more clearly measure need/demand for services. We look at this issue over the next couple of pages.

10. **Given the importance of ensuring that all counties have adequate resources to maintain services, we believe that the decision by CRA in 2012 to reduce the weight of population in the original formula from 60 to 45% may have been ill-advised.** It may have led to a number of counties receiving less than they need to maintain current services. A formula must be fair, but cannot be the only mechanism for redistributing income in a society. The weight of the basic equal share may be too high and could be reduced to make space for a variable with greater correlation with service needs.

11. **The basis for this claim is the high correlation between service delivery costs and population.** In an extreme case, it is assumed that the cost of delivering all ongoing government services is entirely driven by population, and each county would receive an equal per capita transfer. While this is clearly not the case (counties differ in size and infrastructure in ways that make it more expensive to deliver the same set of services in different parts of the country), the delivery of devolved services in the period just before devolution occurred was highly correlated with population. Our analysis (using Treasury data on historical costs of devolved functions available here: http://internationalbudget.org/wp-content/uploads/Indicative-County-Allocations-2013-14.xls) in Table B11, shows that the correlation between county service delivery allocations and population in 2012/13 was nearly 0.9. In other words, almost 90% of cross-county variation in allocations was related to differences in population.

12. **Though this correlation is high, it is not particularly surprising, especially in light of the functions that have been devolved.** As we discuss below, the largest devolved function in expenditure terms is health, and health is, around the world, a function where spending should be highly correlated with population. One thing that the formula should do is recognize the true drivers of cost, of which population has clearly been a major one in Kenya.

13. **In both South Africa and Ethiopia, the relationship between formula outcomes and population is stronger than in it is in Kenya.** This is in spite of the fact that the actual weight assigned to a parameter that directly measures population is quite low. Instead, these countries use population-related measures of expenditure need.

14. **While the correlation between Kenya's formula and population is fairly high (.86), it is still lower than in either South Africa or Ethiopia**. The correlation between population and formula outcomes in South Africa (.92) and Ethiopia (.999) are both higher than Kenya's (see Tables B14 and B18).[2]

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[2] National Treasury (South Africa, "Explanatory Memorandum to the Division of Revenue," WI Website annexure to the 2012 Budget Review; House of Federation (Ethiopia), "The Federal Budget Grant Distribution Formula," January 2012.

15. **Moreover, the use of correlations is misleading because Kenya has a large equal share (25%, plus the 2% for fiscal responsibility, which has been distributed as equal share up to now)**. The correlation between population and formula outcomes is high because adding a large constant (27%) to the population transfer through the equal share does not affect the correlation. Put another way, a formula with a population weight of 5% and an equal transfer of 95% has the same high correlation with population as one with a population weight of 95% and an equal transfer of 5%. Yet the latter would give results that are far more closely linked to population.

16. **To understand the relationship between Kenya's current formula and population, it is useful to look at two other measures besides correlation**. We call the first of these a *dispersion ratio*: what is the ratio of the per capita transfer between the county receiving the most and the county receiving the least? A formula that is highly population driven will have lower dispersion because the highest and lowest allocations will be closer to an equal per capita allocation.

17. **The second measure we call a *deviation share*, and it is a measure of the share of the total allocation that deviates from a perfectly equal per capita allocation**. Essentially, we sum up the absolute difference between what each unit would receive if it were to get an equal per capita allocation, and what it receives from the formula. The larger these differences are, the less population-driven the formula is. We look at the sum of these differences as a share of the total allocation.

18. **Table B18 compares Ethiopia, South Africa and Kenya using these two measures**. The Ethiopian formula has a dispersion ratio (between the highest and lowest per capita allocations) of about 3.6. For South Africa, the dispersion ratio for per capita allocations is about 1.7. For Kenya, the dispersion ratio is 5.3. Kenya's relatively higher dispersion ratio suggests a weaker relationship with population.

19. **Looking at the deviation share, we can see that, again, Kenya's formula yields results that are more weakly associated with population**. Kenya's current formula has a deviation share of about 25%, meaning that the difference between the formula outcomes and a perfect per capita allocation is 25% of the total allocation. For South Africa, the deviation share is 17% and for Ethiopia, it is 11%.

20. **Taken together, this suggests that Kenya's formula underweights population compared to other countries with expenditure needs formulas, and compared to the data we have from Kenya on the relationship between population and expenditure need**. We propose to correct this by increasing the population weight, but also by reducing the basic equal share weight. It is not entirely clear how large the equal share should be. In South Africa, the equal share (institutional share) has a weight of 5%. A more objective basis for the equal share could be constructed using actual data on fixed costs across counties (such as the administrative costs of running county government), but we lack sufficient data for this purpose at the moment. It can be seen in Table B18 that simply increasing population to 60% and reducing the basic equal share to 10% increases the correlation with population, and reduces the dispersion and deviation share to be closer to the other two countries. We also include figures from our simulation of Option D, which are derived from Annex B, Option D tab. These are also more highly correlated with population, have lower dispersion and lower deviation.

21. **Historical expenditure patterns provide a general understanding of the devolved services and their relative costs, though this information is imperfect due to the failure of the Transition Authority and other agencies to fully unbundle services and cost them**. This data is important, however, because we believe that the estimated expenditure

needs of counties in the formula should be related to the cost of functions of county government as laid out in the Fourth Schedule of the Constitution. If these are the best cost estimates we currently have of the relative cost of different functions, then we should utilize them as one basis for determining the expenditure needs of counties.

22. **Table B22 looks at the distribution of spending by ministries for devolved functions using data from FY 2012/13**. We have looked at the distribution of recurrent costs and the distribution of total costs. The reason for looking at both is that recurrent costs give a better estimate of ongoing running costs. Development costs in a given year may be a less reliable indicator of costs, as they will tend to be less consistent over time. However, because costs in some sectors like energy and roads are mostly capital rather than recurrent, it is also important to look at them. As pointed out earlier, however, it may make sense to fund some development expenditure through a somewhat different, and more redistributive formula than recurrent expenditure (such as our proposed Infrastructure Transfer).

23. **When we look at recurrent costs, we can see that 43% is for health spending (combining the two former health ministries)**. There is also a large share for Local Government, which represents the monies formerly distributed through the Local Authority Transfer Fund (LATF). While a substantial share of these funds were meant to go for capital projects, they in fact went primarily to running costs. (According to the LATF report from 2010/11, in 2009/10, local authorities received Ksh 10.4 billion in LATF allocations, but spent only Ksh 4.3 billion on capital projects. This was roughly 15% of all local authority expenditure.[3]) The next largest allocations went to roads, followed by agriculture (taking agriculture with livestock and fisheries, we have a little over 7%). Taking all of these together accounts for over 85% of recurrent spending.

24. **When we look at total costs (also Table B22), the picture is somewhat different**. Health is still the leading sector, with almost 32% of allocations. Local government and roads both take about 16%. Planning now appears as a larger sector because of CDF funds. However, in fact, CDF has not been devolved. Energy now appears at nearly 6 percent, followed by agriculture sector with just under 5%.

25. **Taken together, it appears that when we look at cost drivers at county level, we should try to understand drivers of expenditure need in health, roads, agriculture (and possibly energy).** Of course, counties will also have differential costs of overall administration as well. It is also plausible to consider removing most non-recurrent (recurrent roads funding = operations and maintenance) road funding from the core formula and treating it as part of a separate transfer for infrastructure (like the proposed Infrastructure Transfer), while also considering the link between national road programmes and local roads.

26. **In thinking about the drivers of expenditure need, it is useful to look at what other countries with similar concerns have done.** We draw particularly on South Africa, but also look at Ethiopia and Canada below.

27. **South Africa's formula tries to estimate service costs for the core functions of provincial government (see Table B14), primarily health and education.** While South Africa uses measures that are correlated with population, population is given only a small direct role in the formula through the so-called "basic share." This has a weight of 16 percent. Yet if we consider the basic share along with health, education and even poverty (which is highly correlated with population as measured in the South African formula), over 90% of the formula is population-driven.

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[3] Local Authority Transfer Fund Annual Report 2009-10. Looking at the distribution of capital spending under LATF, more than a third went to roads, followed by education and vehicles.

28. **Ethiopia also tries to measure needs and demands directly as they relate to the core functions of regional government, weighted by subnational spending on these functions.** Ethiopia looks at 9 functions of subnational government, and then weights these by their share in subnational budgets over the last five years. This information is not available or credible in Kenya, so it is reasonable to look at the share of different sectors in the budget in the immediate pre-devolution period for now, as we did above.

29. **Ethiopia goes further to estimate expenditure need within each sector based on a review of key drivers of cost in each sector.** These drivers invariably reflect population to a large extent. In the first place, population is measured by dividing the regions into five categories, from "very big" to "very small." In calculating expenditure need, a fixed cost is assigned to a region based on its size, and then other factors are taken into consideration. For example, in health, the "very big" regions receive 100% of the fixed cost maximum, while the very small regions receive only 35% of the fixed cost maximum. This is applied in a similar manner across sectors.

30. **Population is also taken into account indirectly through some of the other factors driving expenditure need.** For example, in health, the estimate of need is based on a differentiated per capita figure that provides twice as much per person for poor residents as for non-poor. This is because the poor receive free services while others contribute, thus making poor residents more "expensive" from an expenditure need perspective. While poverty therefore is a key driver of cost, so is population. The calculation of health expenditure needs considers poverty, treatment costs, and even a spillover compensation for two regions that provide services to others. But when total allocations for health are considered, the correlation with population is almost perfect (.9997).

31. **More generally, the Ethiopian formula, while incorporating complex measures of expenditure need, still yields results that are heavily population driven.** From Table B18, it is clear that Ethiopia's formula has a very small deviation share from an equal per capita transfer compared to South Africa or Kenya.

32. **What the Ethiopian formula does well, however, is to avoid the heavy use of population directly and to focus on measures of expenditure need that are more legitimate, while still highly correlated with population**. This is our recommendation for the Kenyan formula as well.

33. **In Canada, while the core formula for revenue sharing is actually driven by fiscal capacity, there are social transfers that are meant to provide provinces with financing for expenditure needs.** Traditionally, the so-called Canada Health Transfer and Social Transfer have been allocated as an equal per capita amount to each region. In other words, they are explicitly and uniquely population driven.

34. **In a 2009-10 budget annex challenging the distribution of the Canada Social Transfer on an equal per capita basis, the Quebec budget office called for the transfer to be based on the number of residents requiring certain services, rather than simply the total population.**[4] This request was in line with our recommendation that the Kenyan formula move away from population per se, and toward population-correlated measures with a clearer link to service costs.

35. **This review of international examples suggests the importance of population and population-driven variables in formulas focused on expenditure need.** We believe that,

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[4] Finances Quebec, "Update on Federal Transfers," 2009-2010. Section G.
http://www.budget.finances.gouv.qc.ca/Budget/2010-2011/en/documents/SectionG_BudgetPlan0910EN.pdf

if anything, the Kenyan formula underplays the importance of population as a driver of the cost of service delivery.

Drawing on the South African example

In this section, we consider an approach modeled on South Africa that would allow CRA to reduce the size of the "population" weight while maintaining the importance of population in the formula through measures more directly related to county service delivery.

36. **South Africa considers direct measures of need in the health sector, such as the size of the uninsured population and their "risk" of illness.** The number of visits to clinics are also considered. South Africa therefore combines "objective" measures of need (lack of insurance, estimates of "healthiness") with measures of demand. This is important because need may be higher than demand where there is no supply. In other words, the number of visits to health clinics may be low because there are no clinics, not because people do not get sick. Yet demand does give us important information about costs as well. So we want a combination of need and demand measures.

37. **South Africa's health needs/demand component is weighted 25% toward assessment of the risk of illness (need) and 75% toward case load (demand).** The key innovation in the formula is the use of a risk adjusted capitation model, which is frequently used to determine how much private insurers should receive to take care of a given population. Risk is related to standard factors like age, gender, pregnancy and prevalence of certain types of diseases (e.g., HIV) in the population.

38. **To do something similar in Kenya would require an assessment of the key drivers of hospital visits and data on the number of visits by county.** We have data on "attendance" from 2013. This data is contained in Table B38. The key variable is the county's share of total health facility visits. The correlation between attendance and population is nearly 0.9.

39. **A key question is whether attendance measures the true demand for health, or whether it is mostly a function of the supply of available facilities and medical workers?** Again, people may attend clinics less because they are healthier or because there are no clinics to attend.

40. **The data suggest that attendance captures both true demand and available supply.** Attendance is highly correlated with number of facilities (nearly .9). But per capita attendance has a lower correlation with population per facility. The correlation between these is -0.41, meaning that as the population per facility increases, the visits per person decrease, but the relationship is not as strong. There are some counties, like Mandera and Turkana, where the relationship between per capita attendance and per capita facilities is quite tight. However, there are other counties where the relationship is weaker. Tana River ranks very low on attendance, but just above average for facilities. Marsabit is in the top five counties for facilities, but ranks very low on attendance. On the other hand, Busia County has relatively few facilities, but ranks third in attendance.

41. **Risk of illness is harder to calculate from available data.** We used some data on major illnesses (HIV, TB and malaria) to calculate a risk of disease index. Each county was assessed on the three diseases using an available measure of prevalence. We then calculated 5 classes

for each disease (lowest to highest) and assigned a point score based on the class. We then summed this up over the diseases to calculate a disease index score. A county's share of total points is equal to its share of funding allocated for disease. This is captured in Tables B41i and ii. We proposed combining risk of illness and facility attendance 50-50 in an index of health needs, though this could be adjusted to weight attendance more heavily (75-25) or vice versa. We show all three options in tab B41 (ii).

42. **In order to avoid emphasizing only curative care, we might also look at including some preventive measures.** There are not a lot of good measures, but one that we have is immunization rate. One option would be to provide funding for every county to meet an average immunization coverage of 75%, which corresponds roughly to Makueni County in 2012. To calculate what each county should get, one would need a unit cost to multiply by 75% of the county's relevant population (say, those under 2 years old). In the absence of detailed information on unit costs, one could simply estimate the share of the budget that should go to immunization and put that share (say 1%) in the formula. We were not able to get satisfactory data for these calculations, but it would be useful to consider such an approach if such data can be found. This could be extended to a small package of preventive measures.

43. **Agriculture is another important service provided by counties, but we lack information on need or demand for agriculture services.** We used share of crop farming households as a proxy (see Table B43). One option would be to allocate about 10 percent of the Service Delivery Transfer based on the size of the rural population to cater for agriculture services.

44. **Kenyan counties have a very small responsibility for education compared to South African provinces, but ECD is still an important function.** We considered it prudent to follow the South African example and estimate the need for ECD based on the number of infants from the 2009 census (see Table B44). This is a proxy for the children that would have entered ECD in recent years. ECD is a relatively minor function, having absorbed only about 1 percent of pre-devolution allocations. We believe this underestimates the cost counties should be picking up, however, because ECD has not been fully supported by national government in the past. We therefore suggest allocating about 2-3 percent of the Service Delivery funds based on ECD need, as proxied by population of under 1-year olds.

   Our proposal for the core formula is captured in Annex B, Option D, where we also simulate results using Ksh 200 billion.

   Beyond expenditure need

45. **We also believe that the second and third generation formulas should begin to take more seriously issues around capacity and effort, and not only expenditure need.** Given data limitations, it may be prudent to keep the focus of the formula on expenditure needs, while devoting no more than around 10% of it to measures of capacity and effort. This view is also informed by the relatively limited taxing powers of counties in Kenya compared to subnational units in other countries. These measures could become more important with time.

46. **Measuring capacity without information on county-level economic variables like county GDP is a challenge.** While we strongly believe that KNBS should lead immediate

efforts to collect such data, it cannot be used to inform the formula at this time. This means we need to consider whether there are other measures of fiscal capacity that could be used.

47. **One option is to look at county consumption.** Unfortunately, this data is also somewhat old given the lack of a follow-up household survey to the 2005/2006 KIHBS. Nevertheless, KNBS has used KIHBS data and 2009 census data to estimate household consumption by county. The problem with this measure is that it does not measure government or private sector consumption. In any case, it is already captured by the poverty measure in the formula, which is intended to serve a different purpose.

48. **Another approach to measuring the size of the economy is to look at energy consumption as a proxy for economic activity.** Still another is to look at money demand. We do not have publicly available data on either of these proxies at county level. However, it is possible that data would be available from Kenya Power on county-level energy use, and from a service provider like Safaricom on county by county agent and till activities that would provide some information about the size of the local economy.

49. **In the absence of credible data on the size and tax base of the county economy, we could look at measures related to actual collections.** Clearly, there is a relationship between the quantum of resources a county raises through tax collection and the size of the economy.

50. **It should therefore be possible to examine data on key revenue sources, such as Single Business Permits and land rates, as a measure of economic activity in counties.** Using data from the Parliamentary Budget Office, we looked at the revenue generated from these sources. This data is contained in Table B50. In general, the data isn't too surprising: it shows major urban centres at the top in business permit collections, and counties like Wajir and Mandera at the bottom. This probably reflects something about the size of the economies in these counties.

51. **Nevertheless, one challenge in using collections data is that it is difficult to know whether it is a measure of capacity or effort, since low collections can reflect either.** This is important because fairness dictates that we *reduce* allocations based on capacity but we *increase* them based on effort. Collections data are also challenging to use because they may fluctuate from year to year for reasons that are hard to predict or for which it is hard to assign responsibility.

52. **In many countries, capacity is measured using a representative tax system (RTS) to avoid this problem.** An RTS makes assumptions about what it is possible to collect, using standardized rates and information about the size of the taxable base. This approach avoids creating perverse incentives: situations where a county might want to collect less in order to receive more in transfers. An alternative approach to focusing on tax bases is to focus on the size of the economy (so-called "macro" factors, rather than representative tax systems). This may be simpler, but is not necessarily as accurate where taxing powers are limited, as they are in Kenya. In this case, the macro approach may be less correlated with the taxable base than in a case where the government has many different ways of taxing economic activity.

53. **In the absence of good data on either the taxable base or the size of the economy, however, the question arises as to what would constitute a fair approach to measuring capacity.** While data on actual collections could be used, these might introduce disincentives to collection. One way of counter-balancing this is to use collections at the beginning of the period and commit to reassessment and introduction of a representative tax system by the end of the period (when the third formula is introduced). Since actual county collections going forward will not affect their share of revenue, they have no incentive to

game the system. However, the commitment to shift to an RTS must be credible. Given that the decision about the formula is political, it is not possible to give a credible commitment.

54. **One way of mitigating this problem is to introduce an effort measure that would reduce the incentives to game the system.** For example, if counties were "punished" for having high collections, but rewarded for increments in collection, they might have an incentive to increase collections. The effort measure would be modeled on what is used in India for fiscal discipline, where counties are rewarded for the relative increment in their collections over time, regardless of the base. In India, states are assessed on the share of their total budgets that are funded from own sources and their efforts to increase that share over time. Given county's limited taxing powers in Kenya, this may not be the best approach.

55. **Counties could be rewarded for the increment in their collections per capita relative to each other.** Counties could be ranked by their increases in collections each year. The increases could then be divided into quintiles, and each county assigned a score based on its quintile. Those in the highest quintile would receive a larger share of the funds set aside for effort.

56. **A key consideration in this system is to define allowable taxes and fees, as we have seen that counties are introducing all manner of charges, some of which may be unconstitutional.** The proposed system encourages further innovation in charges, and it may be necessary to restrict the revenue sources that will be included in the calculations. If these are too narrowly constrained, this may also reduce innovation, however.

57. **In keeping with this approach, we estimate capacity and propose estimating effort as well.** Our capacity measure is an index of revenue collection from prior years based on business permits and property rates only.

58. **The capacity measure operates in the spirit of partially equalizing per capita revenue collections.** The approach is to measure each county's distance from Nairobi, which is the county with the highest per capita collections. The farther the county is from Nairobi, the higher its share of revenue from the capacity pool. Because Nairobi is the reference point, its distance is naturally zero, but we feel it is appropriate to award Nairobi some funds. We therefore give it a "distance" that is arbitrarily set about 5 percentage points below Mombasa, the second highest county by per capita collections. This ensures Nairobi has the smallest share, but it is still positive.

59. **Effort requires a full year of data in order to assess changes in collection over time.** This could be done by comparing comparable quarters or full year collections. One approach is what we estimate in Table B59. We compare the per capita collections across two years. Since we do not have two years of county data, we use instead estimates from Parliamentary Budget Office for 2010/11 as the prior year baseline, and projected estimates based on the first half of FY 2013/14 as the increment. This is for illustrative purposes only. We then calculate the sum of all increases in per capita collections and the share of each county in that increase. Any county with a decline in collections would receive a zero score (so no negative balances would be included). A county's share of the total increase would constitute its share of the effort pool.

60. **This measure of effort should probably be used only temporarily, because it may incentivize counties to raise their tax collections unnecessarily.** While it is important, especially in the early years, to encourage counties to implement solid revenue collection systems and to increase collections, it is unwise to incentivize higher and higher collections in and of themselves, regardless of whether the funds are needed to deliver services. We would propose using this measure of effort only for one cycle of the formula, and then reviewing it.

However, recall that it is balanced with capacity specifically to avoid creating incentives to reduce collections. Both measures need to be considered in any review.

61. **This measure of effort could be used in tandem with other measures that look at other elements of effort beyond tax collection effort.** We discuss this below in relation to the Fiscal Responsibility Index (FRI). After a single cycle of using tax collection effort in tandem with the FRI, effort could be measured exclusively by the FRI, or in tandem with other variables. In any case, using FRI would eliminate some of the disincentives in tax collection by focusing on different types of effort.

    Option C in Annex B includes the data on Capacity measures, allowing for simulation of all parameters except Effort, for which we lack data (as explained below).

The Fiscal Responsibility Index

In this section, we look at possible ways of constructing a Fiscal Responsibility Index as part of, or an alternative to, the discussion of effort above.

62. **Moving beyond these measures of effort, the concept of effort may also be partly covered under the proposed Fiscal Responsibility Index.** Effort can be defined in a number of ways. It may primarily relate to tax effort, but it can also relate to practices that promote fiscal sustainability, transparency or other desirable elements of a county's public finance management system.

63. **In light of the lack of clarity around allowable taxes and charges, effort in Kenya may need to relate more to overall financial management and compliance with the PFM Act and stated "fiscal responsibility principles".** This also presents challenges. For example, one of the most important fiscal responsibility principles relates to the share of development spending over the medium term. While the requirement is fairly clear (30% over the medium term, defined as 3-5 years), the classification of development spending remains murky. It is also the case that any county could argue that it is meeting the principle over a 5-year period, even though it is only presenting a 3-year budget.

64. **There are other aspects of the PFMA that counties have not been meeting that could be incentivized through the formula.** For example, all quarterly budget implementation reports should be made public within 21 days, but few have done so. Publication of these reports online could be incentivized by the formula.

65. **In other parts of the PFMA, the time requirement is unclear, which leaves room to use the formula to push for better behavior.** For example, there is no specific timeline for release of the budget estimates to the public ("as soon as practicable"), and the formula could tighten this by rewarding counties that table their budgets on time and post them online within 3 days of tabling.

66. **Likewise, counties must set up County Budget and Economic Forums "as soon as practicable," but few have.** The formula could incentivize the setting up of the forum, and additional measures, such as actual, minuted meetings prior to the tabling of the County Fiscal Strategy Paper.

67. **Budget presentation/transparency could also be considered.** For example, a county should follow a programme approach and use a standard chart of accounts to classify allocations.

68. **Another area of concern is whether counties are setting up "funds," such as ward development funds, youth funds, and so on that are not properly following the PFMA guidance on how to run a county fund.** The PFMA is clear that every county fund must have an administrator who prepares an annual report on the fund's usage and who makes information about the funds and their use available to the public.

69. **The proposed Fiscal Responsibility Index could award points for a series of actions related to these matters, as detailed in the table below**. Then counties would receive up to 5% of their allocation based on their score as a share of the total.

Indicator	Possible response	Score
Budget Estimates Available Online w/in 3 days of tabling	Yes	1
	No	0
Budget: Programme-Based?	Yes	.5
	No	0
Budget: Standard Chart of Accounts?	Yes	.5
	No	0
Quarterly Reports Available within 30 days to public	Last 4 Quarters	1
	Last 3 Quarters	.75
	Last 2 Quarters	.5
	Otherwise	0
Formation and Meetings of CBEF	Formed and meeting regularly to discuss CFSP, etc.	1
	Formed but irregular meetings	.5
	Not formed	0
County Funds Follow PFMA 116 rules for management of funds?	Yes (or no funds)	1
	No	0
Total Possible Points		**5**

Additional transfers

70. **There are several additional considerations in revenue sharing that require discussion.** A number of these are transitional issues related to the fact that counties have inherited staff and debt from the previous Local Authorities. These "legacy costs" must be covered by someone, but may not belong in any general revenue fund. It is important to consider temporary conditional grants or other arrangements for relieving pressure on counties to find resources to cover these legacy costs.

71. **We do not have complete information about the size of inherited county debts, but LATF data suggests that there may be counties with billions of shillings in debt.** Total debt in 2009/10 was about Ksh 7.3 billion across all local authorities, though more than half of this belonged to Nairobi. A thorough analysis of county debts is needed to know where these debts stood in 2012/13, just before they were handed over to counties.

72. **It is also important to consider regional and spillover issues related to services that are shared across counties.** We have previously raised issues around the Level 5 hospitals. There are regional coordination and financing issues related to health care, water, electricity

and other areas as well. The CRA should proposes a set of options for dealing with these challenges.

73. **While we strongly support the use of Level 5 hospital grants as a short-term measure to address regional spillover issues, we also believe it is important to consider other mechanisms for managing shared resources**. For example, existing state corporations such as water board or regional development authorities, but also non-state corporations, such as regional hospitals, could be restructured to give the counties that are served by these bodies a seat on their governing boards. This could come with a requirement that counties make financial contributions in exchange for managerial power. Counties that agree to these such arrangements would receive financing through some type of grant to cover these costs.

74. **We have proposed that the CRA should consider coupling a core formula that is designed to ensure adequate funds for operating costs with additional transfers designed to compensate marginalized areas**. These additional transfers can be done as a single transfer based on a formula incorporating multiple factors, or as multiple transfers with sector foci (such as a separate fund for roads, for water infrastructure, etc.). It is not clear which of these is preferable. A single transfer is simpler and incorporates tradeoffs internally, but multiple transfers may be more transparent and legitimate.

75. **In looking at the candidate sectors for these additional transfers, we believe that roads, water/sanitation, and electricity are obvious candidates for consideration**. These are county functions where there is fairly wide dispersion in county access levels. However, one could also look at health infrastructure, or ECD infrastructure, as candidates for conditional transfers.

76. **In considering transfers of this type, it is also important to consider intra-county inequality, because, in some cases, these inequalities are more severe than cross-county inequalities**. Since counties are the lowest level of devolved unit receiving transfers, it may be important to ensure that conditions are attached to at least some infrastructure-related grants to ensure that equity within counties is taken into consideration by the county in the use of these funds.

77. **We propose an infrastructure-related, formula-based grant (Infrastructure Transfer) that is based in part on infrastructure backlogs (deficits) across counties, awarding more to those counties with bigger deficits**. In order to calculate the deficit, we would ideally want a measure of capital stock per county.

78. **We are not aware of any measure of capital stock per county in Kenya, and therefore have no easy way to calculate capital deficits**. However, one could approximate the historical imbalance in capital stock in several ways. One is to look at measures of infrastructure per capita in specific sectors. For example, one could look at paved roads per capita across counties. This is not a perfect measure, because road needs also reflect other considerations (population densities and land area), but it is a reasonable starting point. In looking at paved roads per capita, we could take the mean or median and then consider those counties with less paved road per capita to have a backlog.

79. **Alternatively, we could simply group counties into classes and then assign them points based on their paved road per capita, with those counties having less paved road per capita receiving more points.** This is Shown in Table B80. We divide the variables into 5 equal classes, rather than using equal quintiles. The reason we do this is because we are interested in the absolute level of infrastructure as well as the relative share, given very low levels of access in a majority of counties. Equal quintiles would tend to give less to counties with very low infrastructure levels that were only slightly better off than the

worst off counties. However, it would be possible to use an equal quintiles approach as well using the same data.

80. **Looking at roads is useful, as it is a county function, but it doesn't capture all of the relevant infrastructure**. We have similar data on access to piped water and access to electricity that could be used to create an access index (together with roads). This would cover the three infrastructure-heavy sectors specifically mentioned in the constitution as targets for the Equalization Fund (the fourth area mentioned is health). The table below basically groups counties into 5 categories (following Ethiopia's approach) from very low to very high access, and awards points. (We think this is better than using the exact figures, because we are mindful of data quality issues). Counties in the top class of the distribution receive 1 point, counties in the bottom class receive 5 points. We then sum these points and calculate a percentage of the total points that is equal to the share of the pot allocated for this transfer. Although we do not simulate it here, one could also look at health infrastructure per capita/per kilometer squared and add that into the index to reflect backlogs in access to health facilities.

81. **Because the cost of increasing the capital stock may be affected by land area, we think it is important to consider not only infrastructure per capita, but also infrastructure per square kilometer**. We therefore create a similar index based on 5 categories but constructed using infrastructure access per km2, rather than per capita.

82. **We combine these two measures into a single index, weighting them each 50%, so that we provide funds to areas with lower per capita and lower per kilometer squared infrastructure access**. This approach addresses common concerns about infrastructure access and costs.

83. **Another approach to looking at the deficit would be to consider development spending more broadly over the past in each county**. We do not have great data on this, but Treasury data released in 2013 does provide estimates of per county development spending for all devolved functions. The advantage of this data is that it includes additional forms of infrastructure beyond the narrow measures of roads, piped water and electricity. For example, it includes health infrastructure, which is a critical type of capital spending that counties need to do. We only have data for three years and it is not necessarily entirely reliable, but it can give us a sense of what has been happening to capital stocks across counties. Data on capital spending by local authorities from LATF reports might allow for this time series to be extended, but it would not cover national expenditure, which is likely the bulk of spending.

84. **To use this data, we would assume that counties that have been receiving higher allocations per capita and per km2 have higher capital stocks**. We provide more funding to those with lower stocks. Thus, we calculate the per capita and per km2 allocations. For each, we calculate quintiles, award points, sum over the two indicators, and create an index. The more per capita or per km2 allocation a county has received in the past, the lower its score on the index.

85. **If an indicator like this is used, we suggest that it be transitioned to equal per capita or equal per km2 shares after 3-5 years, or replaced entirely with better data on capital stocks**. This is a shallow measure of the deficit in capital stocks, based on shaky data for a very short period. It should only be used in a transitional manner in the absence of better alternatives.

86. **We consider it prudent to adopt a standard that as much as 20% of the total funding shared through the investment transfer be allocated for maintenance and rehabilitation**. This is based on a rough assessment of maintenance allocations for roads at

national level (see Table B86), but may be too low. This can be given as a condition for receiving the funds, or it can be provided as "soft" guidance to recipient counties. It could also be considered part of the Fiscal Responsibility Index as we described earlier (which guides recurrent spending), or it could be done as a match. There are a number of ways of doing it, but the key is that counties should be made to understand that capital spending comes with maintenance costs.

87. **Because all counties have either a need for new infrastructure or a need for maintenance (or both), we propose to give up to 20% of the Infrastructure Transfer as an equal share, while the rest is used to clear backlogs**. The results of doing this, using an estimated Ksh 57 billion, is in Table B87.

Conclusions

88. **The remaining question is how much funding should go through the core Service Delivery Transfer, and how much should go to other transfers, such as the Infrastructure Transfer.** There is no easy way to answer this question. If we use the PFMA as a guide, we could perhaps put 70% of the equitable share through the Service Delivery Transfer and 30% through the Infrastructure Transfer.

89. **This approach may, however, put too much emphasis on clearing capital backlogs and not enough on ongoing operating costs.** In fact, of course, counties can choose to spend money in any way they see fit. But the formula is essentially a kind of guidance to what we think government should be doing and it should reflect our basic views on the proper allocation of funds.

90. **In considering the final allocations through the different approaches, one must look comprehensively at all the funds that are being given to counties to understand the balance between different objectives.** The logics of the different formulas are also different, with the Service Delivery transfer emphasizing ongoing services and the Infrastructure Transfer representing an attempt to close deficits. How much money should go for these different objectives is ultimately a political question.