Political Representation and the Provision of Public Goods:
Theory and Evidence from Ethiopia

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Abstract

   While the salience of ethnicity as a factor in ruling coalition formation in African politics has been documented in the literature, less is known about its impact on various ethnic groups' economic outcomes. We construct a simple political economy model to illustrate a way in which investments in public goods in ethnic-based polities may depend on the quality of the ethnic groups' political representation with the federal government. We then exploit a natural experiment that took place in Ethiopia, following the institution of an ethnic federalism in the country in 1995. Using a Difference-in-Difference estimation strategy on repeated cross-sectional data constructed from Censuses and Welfare Monitoring Surveys, we confirm that better political representation improves access to public goods. In Ethiopia's ethnic-based federation, the quality of political representation varies across ethnic regions depending on whether their populations belong or not to the ruling ethnic group at the federal level. Along this line, we find that access to public goods has improved faster in the politically dominant Tigray region than in the other regions. Similarly, the hierarchy of public goods access rates' in different ethnic regions is consistent with the proximity of the political elites from different regions to the center of political power in the country. We also find that the regional disparities in terms of access to public goods are more pronounced in rural areas than in urban areas.

   JEL: H41, P16, O10, O55

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1. Introduction

Ethnic segregation is generally associated with economic inequity, as documented by a large literature on the interplay between democratic representation, ethnic diversity, and the provision of public goods (see, e.g., Easterly and Levine (1997), Alesina et al. (1999), Habyarimana et al. (2007)). While Francois et al. (2015) show that political power appears to be proportionally shared across ethnic groups in several African countries, whether such ethnic cooptation arrangements at the top translate into equitable economic outcomes on the ground remains under question. In other words, does the observed governing-elite inclusivity of groups in multi-ethnic settings amount to true political representation and adequate public good provision? Although there are many studies of the impact of political representation on the provision of public goods,[1] little is known as to whether effective representation issues associated with ethnic federalism may contribute to observed disparities in economic outcomes among different ethnic groups.

In this paper we investigate the economic development effects of instituting an ethnic federalism characterized by asymmetric political representation, by studying the dispersion of public goods provision across different regions of Ethiopia, following the natural political experiment implemented in the country in the early 1990s. Ethiopia emerged in 1991 from one of the longest-running civil wars in 'post-colonial' Africa with the establishment of an ethno-linguistic federal state,[2] which propelled elites from the Tigray region of the country to key positions in the political apparatus of the country. The decentralization process gave rise to a governance system based on ethnicity, with some local autonomy for regional governance. In this regard, Ethiopia is nowadays a puzzling state in which characters of democratic representations and authoritarian features are intertwined (Bekele et al. (2016)). At the same time, noticeable regional inequality can be seen in the the country's rapid economic development, as depicted, for instance, in the evolution of access to piped water in Figure 1 below.

We draw on the literature on fiscal federalism and political decentralization as well as on the political economy of non-democratic regimes[3] to construct a simple theoretical model capturing

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[1] See Acemoglu et al. (2014), Anderson et al. (2015), Banerjee et al. (2005), Banerjee and Somanathan (2007), Khemani (2007), among others.

[2] The internal political boundaries of Ethiopia were based on what were known as provinces (shown in Map B1 in the Appendix); they were redrawn along ethno-linguistic lines (see Map B2 in the Appendix) in 1994.

[3] See e.g. Bardhan and Mookherjee (2006a), Acemoglu (MIT) lecture notes in political economy.
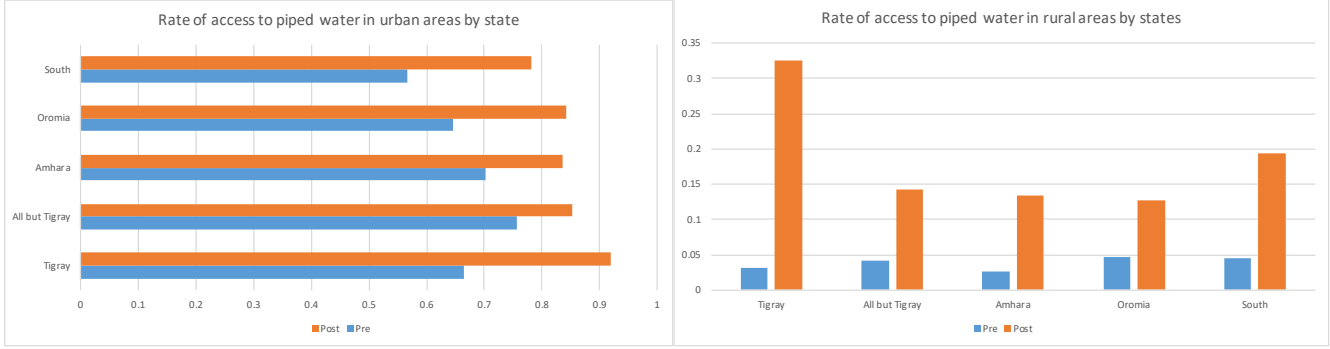
(a) Access to piped water (urban)   (b) Access to piped water (rural)

Figure 1: Public water provision

some of the stylized facts that have characterized the Ethiopian political-economy over the last three decades. Then, we estimate the effect that the ethno-linguistic federalism, which was established in Ethiopia through the Constitution of 1995, had on the provision of public goods in different regions. Our working hypothesis is that the Constitution marks the point in time from which on different regions in Ethiopia experienced different trends in access to public goods and services. This constitution has been seen as largely promoting the interests of the Tigray ethnic group, and one effect was to ensure a more direct access to the center of power and thus a higher quality of political representation for this region compared to the other regions. We assemble a unique dataset using the Ethiopian Censuses of 1994 and 2007, as well as the Welfare Monitoring Surveys of 1995 and 2011, to study the relationship between the quality of political representation and the provision of public goods. As proxies of public goods provision, we use indicators such as households' access to clean water supply and electricity, as well as proximity to primary and secondary schools, health institutions, postal service, public telephone and transportation facilities.

Using a difference-in-difference approach, we establish the following results. First, the average household in the Tigray region has a better access to public goods than those in the other regions of the country. This result can be interpreted as meaning that a higher quality of political representation leads to improved access to public goods, at least in the social setting we explore. The magnitude of the advantage that households in Tigray enjoy varies from one comparison region to another, with the households in the Amhara region faring better than those in Oromia and in the Southern region. These regional hierarchies in terms of public goods' penetration rates reflect the political pecking order in the country, with the political elites from Tigray occupying the key

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positions in government, followed by the historically powerful Amhara elites remaining influential in the corridors of power in Ethiopia. Second, we find that the disparities in terms of access to public goods are more pronounced in rural areas than in urban areas. Our estimates of the impact of the quality of political representation on the provision of public goods are robust to accounting for household characteristics.

Our paper crosses three well-established lines of economic literature. First, it builds on the second generation literature on fiscal federalism, which analyzes the effects of political decentralization on the accountability and performance of local governments in public good provision (see, e.g., Seabright (1996), Mookherjee and Bardhan (2000), Lockwood (2002), Besley and Coate (2003), Bardhan and Mookherjee (2006a), Bardhan and Mookherjee (2006b),Tommasi and Weinschelbaum (2007), Khemani (2010), Joanis (2014)).[4] The results of this theoretical literature are inconclusive. While papers such as Seabright (1996), Lockwood (2002), Besley and Coate (2003) suggest that the performance and accountability of elected representatives with respect to the provision of local public goods that are not subject to economies of scale and interregional spillovers, is higher at local levels, others like Bardhan and Mookherjee (2006a) and Joanis (2014) argue for the reverse.

As a consequence, there have been many empirical studies of the effectiveness of central versus local governments in the provision of public goods.[5] In particular, Fan et al. (2009) and Treisman (2002), using cross-country data that distinguishes between different types of decentralization, report that a larger number of government tiers is associated with higher perceived corruption. Furthermore, Treisman (2002) does not find a robust evidence of whether or not the provision of public goods is more efficient in jurisdictions with elected local representatives than in those with appointed local representatives. In a recent literature review, however, Mookherjee (2015) notes that cross-country studies do not generally provide a robust guidance on the true effects of political decentralization. In essence, this suggests that empirical studies conducted using data at the local community level are more appropriate for this type of investigation.[6] Our paper contributes to the empirical literature focused on specific local communities by using Ethiopian data.

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[4] For a thorough review of the literature on the political economy of decentralization, see Lockwood (2005) and Mookherjee (2015).

[5] For a complete survey of this empirical literature, see Crook and Manor (1998), Treisman (2007), and Khemani (2007).

[6] Mansuri and Rao (2013) provide an excellent overview of most of the empirical studies of the effects of local decentralization using data at the local level.

Second, our paper is related to the literature on the impact of ethnic diversity/fragmentation (see e.g., Easterly and Levine (1997), Alesina et al. (1999), Alesina and La Ferrara (2000), Alesina and Ferrara (2005), Miguel and Gugerty (2005), Kimenyi (2006)) and the significance of the legislators' ethnic identity (see, e.g., Pande (2003), Chattopadhyay and Duflo (2004)) on the provision of public goods. Most of the literature on the impact of ethnic diversity/fragmentation on the provision of public goods suggest that increased ethnic heterogeneity decreases the provision of public goods.[7] For example, Easterly and Levine (1997) investigate the relationship between ethnic fragmentation and the provision of public goods across Sub-Saharan Africa. Using linguistic diversity as a proxy for ethnic diversity, they find a negative correlation between ethnic diversity and a wide variety of indicators of the provision of public goods such as the number of telephones, percentage of roads paved, efficiency of the electricity network, and years of schooling, concluding that ethnic diversity is closely associated with low public goods provision. In the same line, Alesina et al. (1999) develop a theoretical model to formalize the relationship between ethnic fragmentation and the provision of public goods. They derive testable implications and, using three related US datasets, conclude that the provision of productive public goods (education, roads, etc.) is negatively correlated with ethnic diversity. However, our paper suggests that in an ethno-federalist context, decentralized ethnic homogeneity may not be better, as it might create an environment that is prone to political manipulation from the center and discrimination in the allocation of public goods.

Third, our paper builds on the local public finance literature, which analyzes the allocation of local public goods across jurisdictions that are represented by legislators (see, e.g., Weingast et al. (1981), Golden and Min (2013)). Of particular interest are papers that investigate the political manipulation of fiscal transfers from a federal government to local governments (see, e.g., Inman (1987), Grossman (1994), Pereira (1996), Worthington and Dollery (1998), Porto and Sanguinetti (2001), Case (2001), Johansson (2003)) as well as the biased allocation of direct public spending from the central government that favor politically important jurisdictions (Wright (1974), Porto and Sanguinetti (2001), Ansolabehere et al. (2002), Schady (2000)) and jurisdictions with greater political representation (see, e.g., Atlas (1995), Porto and Sanguinetti (2001), Boex and Martinez-Vazquez (2005), Maaser and Stratmann (2016)). Our theoretical model contributes to this literature

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[7] Alesina and Ferrara (2005) provide an excellent review of this literature.

by considering the impact of the quality of political representation, and by highlighting the role that the international community may play in the context of a developing country to limit such political discrimination.

The remainder of this paper is organized as follows. Section 2 provides a very brief summary of the natural political experiment used in this study, with additional background information provided in Appendix A. In Section 3, we outline a simple model of a federal political economy that captures some institutional features described in the previous section, and which highlights the role of the quality of political representation in the provision of public goods. The main characteristics of the data and variables used in our empirical analysis, as well as some descriptive evidence, are described in Section 4. We discuss the econometric specification and estimation strategies in Section 5, and we present and interpret the results in Section 6.

2. Ethiopia Background

Ethiopia is a multi-national state which has experimented with different forms of government with limited success. It had a strong unitary government until 1991, when ethnic-based liberation movements toppled the existing communist government, paving the way for the reorganization of the country along ethno-linguistic lines. The strongest of the national liberation movements - the Tigray Peoples Liberation Front (TPLF), assisted heavily by the Eritrean Peoples Liberation Front - proceeded to form the next government by creating a number of ethnic-based satellite organizations, largely from the prisoners of war it captured from the former Ethiopian army (Henze, 2000). The prominent satellite organizations - also known as the People's Democratic Organizations (PDO's) - which, along with the TPLF-core, have formed the incumbent coalition, the Ethiopian Peoples Revolutionary Democratic Front (EPRDF) are: the Oromo People's Democratic Organization (OPDO), the Amhara Nation's Democratic Movement (ANDM), and the Southern Ethiopian Peoples' Democratic Movement (SEPDM).

The cooptation of the elites from different national groups through the PDO's was the key mechanism by which the TPLF - despite representing only 6 percent of the country's population - has been able to run Ethiopia for over 25 years without meaningful political opposition. It is widely believed that the leaders of the OPDO, the ANDM, and the SEPDM served at the pleasure of TPLF politicians and generals that controlled and commanded the heights of Ethiopia's powerful

institutions, including the security establishments and key economic institutions.[8] Officials of the satellite organizations who exhibited some independence and might have taken political positions significantly at odds with TPLF's dictates were dealt with swiftly and at times brutally: some were killed under mysterious circumstances, others were thrown into jail, while many had to flee the country.[9]

The imposed hegemony of the Tigray ruling class in Ethiopia in the last twenty-five years has, arguably, been the main cause of the recent mass rebellion in the country, particularly in the Oromia and Amhara regions. Since the beginning of what is now popularly known as the #Oromo-Protests in 2014, thousands of Oromos and Amharas have been killed by armed personnel loyal to the Ethiopian government, as widely documented by reliable media outlets such as the BBC and the VOA. According to the index compiled by the Fund for Peace and the American magazine Foreign Policy, the country has become one of the most fragile states, and losing its carefully crafted image of a developmental state that has managed to move on from a vicious cycle of civil conflict and abject poverty.[10]

3. Model

In this section, we present a simple political economy framework of an ethno-regional federal state that fits broadly the Ethiopian case as described above. The main actors are the national leadership, or the 'Center', and the Regions. The former is meant to represent broadly the EPRDF, the formal coalition initiated and led by the TPLF and including also the OPDO, the ANDM, and the SEPDM. As argued previously, these regional parties have been viewed as little more than instruments of the federal regime. For our purposes, the EPRDF is considered to be a unitary actor assuming national leadership and managing the interaction between the Center and the Regions. For simplicity, we abstract from modeling regional parliaments as separate actors, since their function in most regions is similar to that of the 'co-governing' parties outside of the

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[8] The following link offers an evidence for this claim – it shows the distribution of high-ranking army officers in the Ethiopian army under the TPLF/EPRDF. http://www.ginbot7.org/the-total-domination-of-the-ethiopian-army-by-ethnic-tigrean-officers/

[9] For instance, the largest state in the Ethiopian federation, Oromia, had six presidents - one of whom was killed under mysterious circumstances, while two others had to flee the country - during the time period when Meles Zenawi was the sole leader of the TPLF and the country until his death in 2012.

[10] See http://fundforpeace.org/fsi/2018/04/24/fragile-states-index-2018-annual-report/, accessed: October 25, 2018.

TPLF. While in reality the regions differ among each other with respect to their geographic and economic size, size of population, ethnicity, religion mix and many other socio-economic and cultural dimensions, we are restricting our attention to two important factors in our analysis: the population size of a region and the quality of its political representation at the Center.

Political representation matters in this context by impacting the accuracy with which local needs and priorities are conveyed and defended at the Center, where regional redistribution decisions are being made. A higher degree of genuine political representation may lead to more (and more adequate) public goods being provided in the area of greater need. It may also drive better socio-economic outcomes for a region in comparison with another with a lower quality of representation, in which the representatives are chosen in sham elections and end up acting as agents of the Center. We operationalize the quality of political representation of a region i using parameter $0 < \rho_i < 1$. Note that this parameter may be construed as a broad measure of the quality of regional governance, including regional level corruption and the fairness of regional elections.

The basic tradeoff of the model is the following: the Center collects income from the regions - in the form of taxes - and from the international donor community - in the form of aid - and it chooses financial transfers back to the regions according to their size and coefficient of political representation, and subject to an implicit political unrest constraint. While more transfers improve economic activity and thus tax revenues from each region, the federal government withholds funds from the general budget that allow it to intervene directly in the regions to contain potential unrest. To keep the model simple, we assume regional tax revenue is increasing in a region's population. Moreover, overall economic activity in the regions is facilitated by an adequate provision of public goods. Hence, collected tax income can be conceived as a function of the level of the federal transfers for spending on infrastructure, education and health, with which it is positively related, and of the level of unrest, which is detrimental to economic output due to lost time and potential destruction of productive infrastructure or capital. We also allow for the country's international donors to be potentially sensitive to the level of political instability, as measured by the repression cost of political unrest.

Let the income collected by the Center via taxes from region i be denoted by $y_i(t_i, \rho_i)p_i$, where t_i is the transfer received from the Center and p_i is the population of region i. The expression $y_i(t_i, \rho_i)$ denotes the per capita tax revenue from region i; all other things constant, it increases

at a decreasing rate with the transfer (so $y_{i_{t_i}} > 0$ and $y_{i_{t_i t_i}} < 0$), and it increases faster with the level of political representation in the region (so $y_{i_{\rho_i}} > 0$ and $y_{i_{t_i \rho_i}} > 0$).[11] The Center also receives foreign aid, which we denote by $A(C)$, where $C = \sum_i C_i(t_i, \rho_i) p_i$ is the total cost of containing political conflicts in the regions in the form of appeasement and/or repression. The per capita cost of political repression (or appeasement) in each region i, $C_i(t_i, \rho_i)$, decreases with the levels of transfers and political representation (so $C_{i_{t_i}} < 0$ and $C_{i_{\rho_i}} < 0$). However, there are decreasing returns to federal transfers (so $C_{i_{t_i t_i}} > 0$) while the marginal effectiveness of transfers to reduce the cost of political unrest increases with the level of political representation (so $C_{i_{t_i \rho_i}} < 0$). Note that rather than modeling political conflict as binary, we use the 'cost of revolt' as a continuous variable measuring the intensity of unrest. The assumption that this cost of revolt in a region decreases when the transfer received from the Center increases is consistent with the literature on fiscal appeasement (see, e.g., Treisman (1996), Ishiyama (2012)). In particular, Ishiyama (2012) argues that, following the 2005 elections, the Ethiopian central government might have increased federal financial disbursements towards districts that supported the opposition, as an appeasement strategy. As mentioned above, we also assume that the country's international donors are sensitive to the level of political instability, as measured by the cost of political unrest and repression. The function $A(C)$, which gives the total amount of foreign aid, is twice continuously differentiable. It (weakly) decreases with the cost of political instability (so $A_C \leq 0$), but the marginal change in foreign aid can remain constant, increase, or decrease with the level of political instability (so $A_{CC} \gtrless 0$).

From the overall federal resources available, which correspond to $Y = \sum_i y_i(t_i, \rho_i) p_i + A(C)$, the Center makes total transfers equal to $T = \sum_i t_i p_i$ back to the regions, according to their respective levels of representation and their population levels. The Center retains $Y - T$, out of which it pays the cost of political unrest C. Therefore, to choose the level of regional transfers, which form the basis for public goods provision in the regions, the Center maximizes its net surplus $\{Y - T - C\}$

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[11] Intuitively, the fact that $y_{i_{t_i t_i}} < 0$ may be either due to the fact that regions that receive more transfers are more prone to corruption, which reduces the marginal effectiveness of the transfers to generate tax revenues, or they may find it difficult to find enough new 'shovel-ready' infrastructure projects to fund.

and solves the following problem:[12]

$$\max_{t_i}\left\{A\left(\sum_i C_i(t_i,\rho_i)p_i\right)+\sum_i[y_i(\rho_i,t_i)p_i-t_ip_i-C_i(t_i,\rho_i)p_i]\right\}. \tag{1}$$

For each region i, the first order condition consists of the following:

$$A_C C_{it_i}p_i+y_{it_i}p_i-p_i-C_{it_i}p_i=0. \tag{2}$$

Re-arranging (2), we get:

$$y_{it_i}-C_{it_i}+A_C C_{it_i}=1, \tag{3}$$

where the optimality condition is in per capita terms, as regional population levels cancel out. This expression can be interpreted as follows, from the Center's perspective: the marginal benefit of a unit transfer to region i, including the boost in the regional GDP (y_t), the decreased cost of containing unrest (C_t) and the increased foreign aid in response to lower conflict $(A_C C_t)$ equals - in equilibrium - the unit monetary marginal cost of the transfer.

Totally differentiating expression (3) yields:

$$A_{CC}C_{it_i}^2 p_i dt_i+A_{CC}C_{it_i}C_{i\rho_i}p_i d\rho_i+A_C C_{it_it_i}dt_i+A_C C_{it_i\rho_i}d\rho_i+$$
$$+y_{it_it_i}dt_i+y_{it_i\rho_i}d\rho_i-C_{it_it_i}dt_i-C_{it_i\rho_i}d\rho_i=0.$$

Then, across the different regions of the federation, the optimal level of transfers directed to region i depends on the political representation parameter of that region as follows:

$$\frac{dt_i}{d\rho_i}=\frac{C_{it_i\rho_i}-y_{it_i\rho_i}-A_C C_{it_i\rho_i}-A_{CC}C_{it_i}C_{i\rho_i}p_i}{A_{CC}C_{it_i}^2 p_i+A_C C_{it_it_i}+y_{it_it_i}-C_{it_it_i}}. \tag{4}$$

The sign of expression (4) depends crucially on the form of the aid function $A(C)$. This implies that the way the international community reacts to increased political unrest in the country influences the impact of the quality of political representation in region i on the optimal level of transfers from the Center to the region. In some specific cases, this impact also depends on the following variables: (i) c_{it_i}, which measures the effectiveness of transfers to reduce the cost of political unrest in region i; (ii) $c_{i\rho_i}$, which corresponds to the marginal effect of the quality of political

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[12] Notice that transfers are not a direct function of the quality of political representation: in fact $t_i(\rho_i)$ would largely amount to assuming the result. In fact $C(t_i,\rho_i)$ and $y_i(t_i,\rho_i)$ are - without loss of generality - assumed to be additively separable in t and ρ.

representation on the cost of political unrest in region i; and (iii) p_i, which is the population size in region i.

Proposition 1. *When $A_C = 0$ or $A_{CC} = 0$, then $\frac{dt_i}{d\rho_i} > 0$.*

In sum, this result implies that when international donors are insensitive to the level of political unrest, i.e. $A_C = 0$, or when the aid function is linear in the cost of political unrest, i.e. $A_{CC} = 0$, the transfers from the Center to regions should always increase with their respective quality of political representation, i.e. $\frac{dt_i}{d\rho_i} > 0$. It is worthwhile to note that a linear aid function implies that an increase in political unrest in the country does not affect at the margin the total additional amount of foreign aid received by the Center. In these two cases, regions with better political representation (and thus favoured by the Center) always receive more transfers. In contrast, regions with worse political representation receive fewer transfers, independently of the effectiveness of transfers to reduce the cost of political unrest and of the size of the population in the regions. However, when the marginal change in foreign aid varies with the level of political unrest, i.e. $A_{CC} \gtrless 0$, the sign of expression (4) is undetermined.

Proposition 2. *(i) When $A_{CC} < 0$, then $\frac{dt_i}{d\rho_i} > 0$ $\left(\frac{dt_i}{d\rho_i} < 0\right)$ if p_i is small (large) enough and/or if $|c_{i_{t_i}}|$ and $|c_{i_{\rho_i}}|$ are small (large) enough;*
(ii) When $A_{CC} > 0$, then $\frac{dt_i}{d\rho_i} > 0$ $\left(\frac{dt_i}{d\rho_i} < 0\right)$ if p_i is small (large) enough and/or if $|c_{i_{t_i}}|$ is small (large) enough.

Proposition 2 shows that the amount of transfers from the Center to regions can sometimes increase as their quality of political representation decreases, i.e. $\frac{dt_i}{d\rho_i} < 0$, when the marginal change in foreign aid varies with the level of political unrest. Specifically, when the aid function is concave, i.e. $A_{CC} < 0$, the amount of transfers can increase when the quality of political representation worsens in region i, i.e. $\frac{dt_i}{d\rho_i} < 0$, if the population size in the region is significantly large and/or if the effectiveness of the transfers and/or of the quality of political representation to reduce the cost of political unrest is high enough. In some sense, this means that the Center uses transfers as a tool to reduce the level of political discontent in regions with low political representation, when the international community reacts even more strongly to political instability as the unrest amplifies. However, even when an increasing political instability has huge consequences in terms of reducing the amount of foreign aid, the Center can still discriminate against regions with bad political representation if their respective population sizes are small and the effectiveness of transfers and/or

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political representation to reduce political instability are very low. Proposition 2 also suggests that the effectiveness of the quality of political representation does not influence the sign of $\frac{dt_i}{d\rho_i}$ when the aid function is convex, i.e. $A_{CC} > 0$. However, the effects of the size of the population and the effectiveness of the transfers to reduce the cost of political unrest still stand as key factors affecting the impact of the quality of political representation on the level of transfers in the different regions.

Notice that we assume the central government to be impartial in terms of distributing transfers, i.e. no region i enters the objective function with a higher weight. However, regions differ in terms of their political representation, or access to the Center. The main trade-off faced by the Center is the following: On one hand, with a weak political representation coefficient in region i, a one unit transfer creates less tax revenue flowing back to the Center from region i and it also buys less social peace in i, therefore the Center tends to transfer comparatively less to region i in equilibrium. On the other hand, fewer transfers increase absolute levels of discontent in region i, and with it the cost of repression increases and international aid flows decrease as a response to repression. The sign of the impact of the quality of political representation on the optimal level of transfers from the Center to the regions depends on the relative strength of the two effects. However, this balance of effects is in general ambiguous, as it depends on the size of the population in the regions, as well as the functional forms for the cost of political repression, and the International donors' aid function, as each of these variables respond to changes in the level of transfers and the quality of political representation.

Intuitively, this means that deciding whether or not transfers and public good provision are higher or lower in each region - given their particular quality of governance and representation to the Center - is an empirical question. In other words, the relative magnitude of the two effects described above will, in the end, decide whether a higher level of political representation ρ will determine a higher or a lower level of transfers t to each region. Since these transfers are then used to provide public goods in these regions, we can measure the outcomes of such public goods investments like education, electricity, water provision and others, and relate these levels to some assumed level of political representation. While such an exercise is in general difficult, the historical experience of Ethiopia described above provides a relatively clean identification strategy, due to the widely recognized dominance of one ethnic group and its over-representation at the Center over the sample. A main identifying assumption for the empirical exercise that follows is that one region

of the country has enjoyed a much larger quality of political representation both at the level of the regional institutions, and at the Center. However, before turning to the empirical part of the analysis, we acknowledge that our model is rather stylized and has some limitations. In particular, we assume that the quality of political representation in the regions is exogenous, whereas in fact the Center may directly affect this parameter by choosing its regional representatives. In a richer model with this added stage, we nevertheless expect the main results to hold.

4. Data and Suggestive Evidence

Our dataset is derived from repeated cross-sections constructed from the Ethiopian Censuses of 1994 and 2007, as well as the Welfare Monitoring Surveys (WMS) of 1995 and 2011. Since the censuses do not include all of the outcome variables of interest we wish to include in the analysis, we utilize the Welfare Monitoring Surveys, which include a rich set of variables that can be used both as the response and the explanatory variables. Data from a few peripheral regional states, which constitute about ten percent of the country's population and whose political representatives are not part of the EPRDF, are excluded from the analysis, as their inclusion might bias the results.
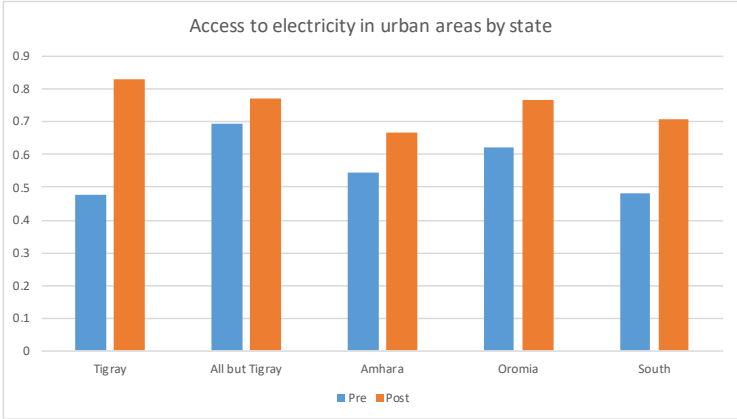
Figure 2: Access to electricity (urban)

The comparison of trends in public goods provision in Tigray vs. the rest of Ethiopia reveals a fact that has been a motivating factor for this study. As the charts in Figures 1 to 6 indicate, the regional state of Tigray has performed better than any of the comparable regional states in the country in terms of public good provision, which includes access to clean water supply, electricity, public education, health institutions, postal services, and public telephone services.
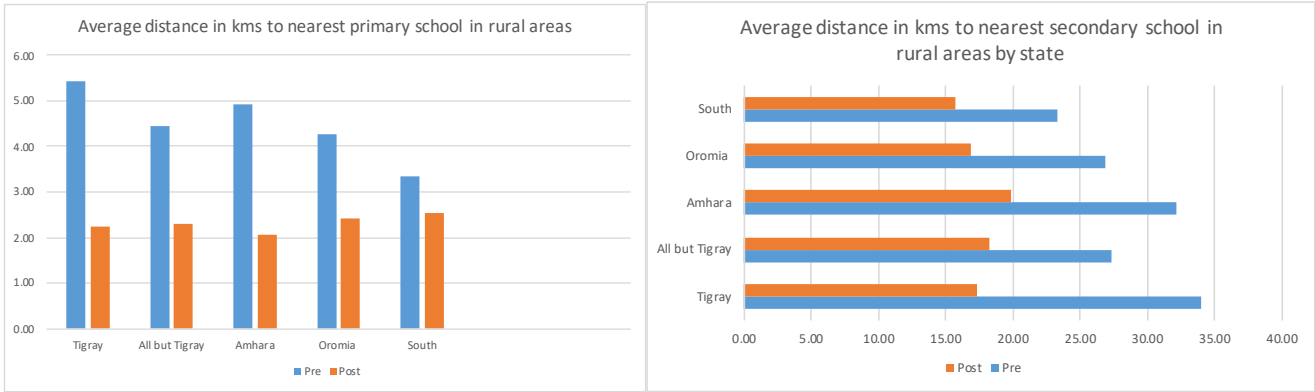
(a) Access to primary school (rural) (b) Access to primary school (urban)

Figure 3: Proximity to school

When the new political experiment started in Ethiopia in 1995 with the introduction of its new constitution and the re-organization of the country's internal political boundary along ethnolinguistic lines, the populations of all the regional states in Ethiopia had a fairly similar rates of access to public goods, whether they lived in the urban areas or rural parts of the country. In a matter of a dozen years, however, the regional state of Tigray had made more significant strides in public goods provision than the other regional states were able to manage. In a few cases, Tigray performed slightly poorly than the rest of the country at baseline, with the trend lines since showing higher gradients for the state with respect to all the variables considered.

While roughly the same percentage of rural households in Tigray and the rest of the country had access to clean water supply in 1994, the proportion of rural residents with access to clean water supply in Tigray had grown to 33 percent in 2007, compared with 14 percent in the other regional states (see Figure 1). Similarly, access to electricity has grown from about 47 percent to about 83 percent in urban Tigray, compared with an improvement of about 10 percentage points (from about 70 percent in 1994 to about 78 percent in 2007) in the comparison regional states (see Figure 2). In 1994, roughly the same percentage (about 64 percent) of the pupils in urban centers had a primary school within two kilometers of their homes both in Tigray and the rest of the country, whereas in 2007, about 97 percent of the urban households in Tigray could access a primary school within the same distance, compared to 85 percent of the pupils in the other regions' cities and towns. The proportion of rural residents with access to primary schools within five kilometers in the treatment and control regions at baseline were 34 percent and 43 percent, respectively, growing by 2007 by nearly 100 percent and 33 percent, respectively. A similar story emerges when we consider access

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to secondary schools in the rural parts of the country. The gradients for access to secondary schools appear to be similar in cities and towns both in Tigray and the other regional states.
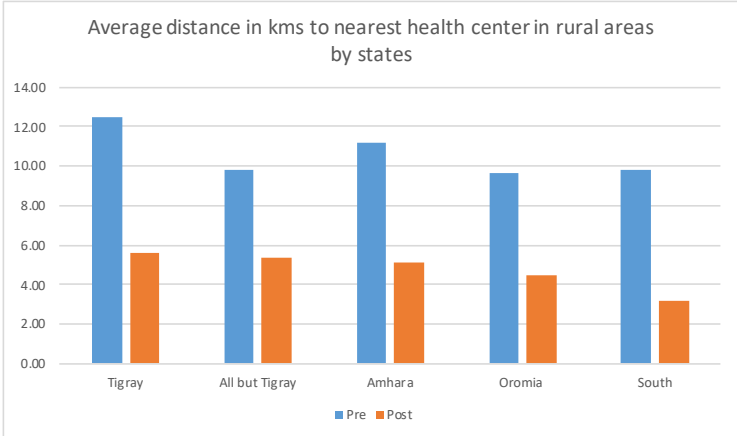

Figure 4: Access to health center (rural)
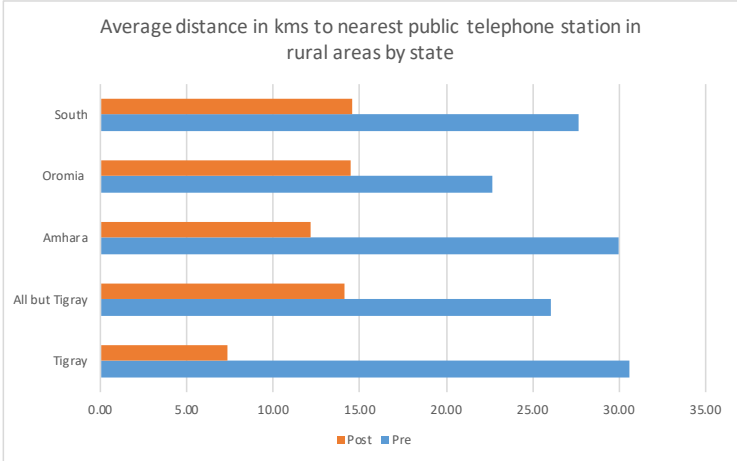
Figure 5: Access to telephone station (rural)

Judged by almost all indicators of access to public goods, it appears that the Tigray regional state has experienced some sort of 'reversal of fortune' in comparison with the other federal states, whose political representatives are picked by the TPLF-dominated Center, based arguably more on their loyalty to the system than their services to the people they purport to represent. These changes took place in a matter of a dozen years, and there are good reasons to believe that the outcomes would look even better for Tigray if we had access to data from the most recent years for our analysis. This suggestive evidence is consistent with the background narrative included in section two, which portrays the evolution of Ethiopia's political landscape since the early 1990s, with elites from Tigray occupying center stage in the affairs of the country.

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Figure 6: Access to postal service (rural)

5. Empirical Framework

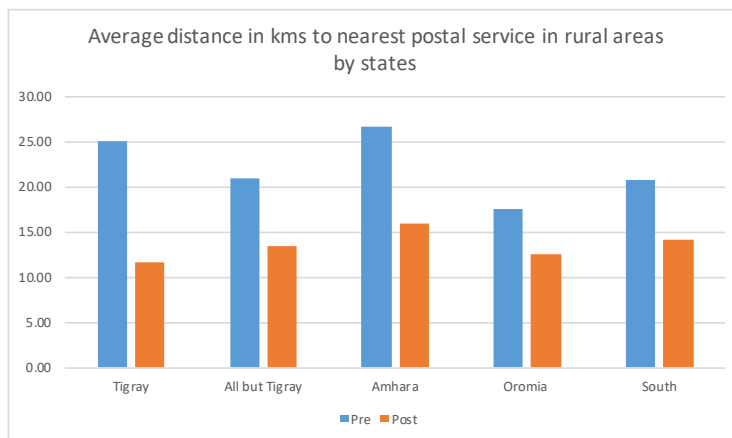The theoretical model presented in the previous section, and the graphic evidence shown in section 4 suggest that more representative governments might be better at delivering public goods than their less representative counterparts. The specific mechanisms through which the quality of political representation affects the provision of public services are likely to be numerous and intricate, however, there are - without loss of generality - two broad channels through which representativeness is propagated to impact the outcome variables of interest in political economy contexts such as the one we study. First, a more representative regional government in a multi-national state like Ethiopia is more likely to bargain more diligently on behalf of its constituency than 'representatives' of states with more disenfranchised voters. In other words, the more politicians identify with their constituency, the larger would be the proportion of the national budget they take home for their constituency than would be possible if all regions had more equal political representation at the federal level. The second channel is that national funds that are allocated to regional states with inferior representation are more likely to be misappropriated for personal gains than in states with better political delegates (see, for example, Reinikka and Svensson (2004)).

Either way, in Ethiopia where the political landscape has been dominated by the elites from one of the several ethnic groups in the country since the early 1990s (as described in the Background section), the reduced form impact of higher quality political representation on the provision of public goods can formally be measured using a difference-in-difference (DD) framework, with an

empirical model of the form:

$$Y_{irt} = \alpha + \beta * Treat_r + \lambda * Post_t + \delta * (Treat_r * Post_t) + \gamma * X_{irt} + \epsilon_{irt}, \tag{5}$$

where the subscript i identifies households in region r in year t.

The public goods/services outcome variables Y are, among others, households' access to clean water supply, electricity, public education, health facilities, telephone and transportation services, which are almost always exclusively provided by the Federal government in collaboration with the regional governments. There are two years for which we have the relevant data, the pre-intervention year 1994/95, and the post-intervention years 2007 or 2011, representing the years for which the most recent censuses and WMS are available. As described above, the 1995 Constitution officially transformed the country from a state with a unitary form of government to a federation of different ethno-linguistic groups. For the purpose of this study, therefore, the year 1995 divides the contemporary political history of Ethiopia into the pre/post TPLF era, because that is when Ethiopia officially abandoned a unitary form of government and became a federation of different ethno-national states. Before 1995, the internal political boundaries of Ethiopia were based on what were known as administrative regions, with no regard for variations along ethnic lines, and a strong central government ruled the country. Consequently, we operationalize our DD model as follows: $Treat_r$ is a dummy variable for Tigray, switched off for all other regions; $Post_t$ is an indicator variable that is turned on for observations after 1995. The interaction term, $Treat_r * Post_t$, equals one for Tigray post 1995; otherwise, it is zero. The coefficient δ thus captures the causal effect of having a more representative government in place. The household level economic covariates X_{irt} include: size of agricultural plots, radio ownership, roof quality, number of homes owned, TV ownership, floor quality, and household size. The error terms are assumed to be independent and identically distributed (i.i.d.).

Identification of the DD parameter of interest, δ, hinges on one key assumption: if the Ethiopian state had not been captured in the early 1990s by the Tigray elites, the evolution of public goods provision in different Ethiopian regions would have followed, more or less, the same trend over the ensuing time period. Relaxing the parallel trend assumption - where all regions of the country are supposed to have similar rates of access to public goods in the absence of the treatment - could offer a 'check on the causal interpretation of the DD parameters' (Angrist and Pischke (2014)). One way of conducting this check is to compare the treatment effects that would be obtained when

using the comparison regional states driving causal comparisons, separately. The regional states of Amhara, Oromia and the Southern Nations and Nationalities - where about 80 percent of Ethiopia's population live - are considered individually to study the presence of diverse regions driving causal comparisons.

Because of differences in region-specific factors (e.g. their political histories) driving causal comparisons, the region-specific regressions are expected to yield different estimates of the DD parameter of interest. Under these circumstances, the validity of our identification assumption hinges upon whether the regional regressions of (5) - conducted separately for the comparison regional states - yield estimates of δ, in the expected direction. A potential source of inconsistency of the estimated parameters in the difference-in-difference framework is the likely serial correlation of the dependent variable, which is acute particularly in fairly long time series (Bertrand et al. (2004)). Since the current study is based on analysis of data with very limited time series dimension (before and after intervention), such inconsistency in the estimated parameters due to the length of the time series is not a concern here.

6. Results and Discussions

The key results are summarized in Tables 1 through 9. The first four tables display regression results for outcome variables that are continuous. The variables include proximity (distance in kilometers) to a primary school, to a secondary school, to a health facility, to a public telephone facility, and to a public transportation facility. These variables - used as indicators of access to public goods - are obtained from the 1995 and 2011 Welfare Monitoring Surveys, which also include data on control variables. The controls are proxies for household's ownership of private goods and access to information. They include the number of homes owned by a household and an indicator for TV ownership for urban households; the number of agricultural plots owned by a family and an indicator for radio ownership for a rural households.

The estimated impacts of political representation on access to clean water-supply and electric power supply (categorical outcome variables that equal one if a household has access to these public goods, and zero otherwise) are captured in Tables 8 and 6. The estimates in these tables are obtained from simple OLS regressions with heteroskedasticity-robust standard errors (the covariates included in the regression are binary), but probit estimates are also reported for comparison.

VARIABLES	Primary School		Secondary School		Health Facility	
Region	0.980***	0.982***	6.601***	6.634***	2.733***	2.749***
	(0.317)	(0.317)	(1.111)	(1.115)	(0.521)	(0.520)
Year	-2.158***	-2.011***	-9.072***	-7.888***	-4.435***	-4.062***
	(0.0855)	(0.0864)	(0.343)	(0.370)	(0.192)	(0.237)
RegionYear	-1.039***	-1.035***	-7.532***	-8.094***	-2.463***	-2.472***
	(0.328)	(0.329)	(1.177)	(1.185)	(0.565)	(0.570)
Plots		-0.0348**		-0.585***		-0.278***
		(0.0154)		(0.0747)		(0.0413)
Radio		-0.353***		-2.533***		-0.478**
		(0.0868)		(0.354)		(0.218)
Constant	4.455***	4.554***	27.32***	28.70***	9.777***	10.37***
	(0.0766)	(0.0824)	(0.289)	(0.325)	(0.116)	(0.145)
Observations	16,206	15,671	16,363	15,812	16,223	15,663

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1: Proximity to Public Schools and a Public Health Facility

VARIABLES	Transportation		Public Telephone	
Region	4.068***	4.078***	4.546***	4.584***
	(1.139)	(1.145)	(1.142)	(1.147)
Year	-7.544***	-6.657***	-11.91***	-10.31***
	(0.361)	(0.380)	(0.370)	(0.397)
RegionYear	-5.907***	-6.072***	-11.31***	-11.71***
	(1.198)	(1.207)	(1.192)	(1.199)
Plots		-0.165**		-0.651***
		(0.0720)		(0.0809)
Radio		-3.507***		-4.223***
		(0.345)		(0.372)
Constant	21.00***	21.63***	26.06***	27.72***
	(0.314)	(0.346)	(0.306)	(0.344)
Observations	16,360	15,802	16,435	15,867

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Proximity to Public Transportation and Communication Facilities in Rural Areas

The impact of political representation on the quality of public goods provision is captured by the estimated coefficients of the interaction terms in the various regressions. In nearly all cases, having a more representative government improves access to public goods. The average family in Tigray has a better access to public goods than the typical household in other parts of the country, because the political elites from Tigray have been playing the dominant role in the political economy of the country, offering the residents of their state a higher quality political representation, in comparison to the other states' politicians, whose main source of legitimacy comes from their loyalty to the TPLF. The conclusion that relatively accountable governments deliver public goods better than their less-representative counterparts stands with or without the inclusion of the control variables.

A higher quality of political representation has made the following tangible benefits possible for the residents of Tigray. Elementary and high school students in the state travel shorter distances to attend school, with even more impressive gains made in rural areas than in urban centers. Urban students in both the treatment and control regions enjoy similar rates of access to elementary schools despite the treatment (compare Tables 1 and 3). Similarly, the residents of Tigray travel much shorter distances to access health facilities (see Table 1 for rural households and Table 3 for urban households). The story is the same when we consider access to public telephone and transportation facilities (Tables 2 and 4). The remarkable improvements made in Tigray in less than two decades with respect to the measured access to transportation facilities is a good indicator of the commitment that the politicians of Tigray have made to build the road infrastructure in their regional state.

Having a relatively higher-quality political representation in the federal government has also allowed the families in Tigray to enjoy enhanced access to clean water and electricity. Clean water and electricity are private goods to the extent families have to pay for them. However, in Ethiopia, these utilities are government delivered and substantially subsidized. For instance, the average cost of clean water to a family of six in Addis Ababa is about two dollars a month, which is a fraction of what it would cost if the service was delivered by a private entity. Access to clean water and electricity are thus largely dependent on the federal and regional governments' commitments to provide these services to the public, by committing the resources to build the required infrastructure. Tables 8 and 6 show the positive impacts of having a more representative government in the provision of cleaner water and electricity in urban and rural Ethiopia respectively.

VARIABLES	Primary School		Secondary School		Health Center	
Region	-0.244***	-0.242***	-0.223	-0.334	-0.475***	-0.495***
	(0.0423)	(0.0424)	(0.245)	(0.251)	(0.0606)	(0.0636)
Year	0.176***	0.402***	-0.687***	0.176	4.511***	4.176***
	(0.0301)	(0.0403)	(0.119)	(0.154)	(0.0864)	(0.145)
RegionYear	0.0797	-0.00632	2.039***	2.670***	-0.191	-0.191
	(0.0504)	(0.0613)	(0.377)	(0.536)	(0.162)	(0.224)
Dwellings		-0.0355***		0.151**		0.0692
		(0.0108)		(0.0657)		(0.0644)
TV		-0.245***		-1.559***		0.0686
		(0.0333)		(0.112)		(0.181)
Constant	0.585***	0.636***	2.710***	2.786***	1.172***	1.119***
	(0.0279)	(0.0319)	(0.114)	(0.111)	(0.0342)	(0.0559)
Observations	20,660	12,048	20,541	11,972	20,191	11,798

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Proximity to Schools and a Health Center in Urban Areas

The tables indicate that having a higher quality of political representation has desirable impacts on people's access to clean water and electricity regardless of their 'zip codes'.

The rural-bias of the positive impacts of political representation on public goods provision in the current Ethiopian context can be explained by TPLF's ideological orientation and its evolution. Whether it was due to practical necessity or as a matter of deeply held ideological beliefs - likely both - the TPLF relied heavily on the rural inhabitants of Tigray in order to launch a successful guerrilla movement that toppled the previous Ethiopian regime. A quick review of the organization's founding documents reveals that the TPLF is a Maoist-inspired organization that harboured significant disdain for urban dwellers, particularly the elites, whom it had always viewed with considerable suspicion. It is thus very likely that the TPLF - by focusing on rural development - is paying back the constituency that nurtured, fed and protected the organization since its inception.

The results summarized in Tables 7, 8 and 9 confirm again that the higher the quality of political representation, the better will be the peoples' access to public goods, regardless of the state in which they reside. None of the comparison states have fared better than Tigray in terms of improvements in access to public goods since the TPLF became the dominant political force in Ethiopia.

VARIABLES	Public Transportation		Public Telephone	
Region	-0.844***	-1.068***	-1.572***	-1.774***
	(0.141)	(0.160)	(0.132)	(0.147)
Year	0.979***	3.353***	-1.004***	0.969***
	(0.167)	(0.299)	(0.143)	(0.271)
RegionYear	-0.806***	-1.489***	0.865***	0.373
	(0.187)	(0.283)	(0.161)	(0.235)
Dwellings		0.204*		0.181**
		(0.105)		(0.0836)
TV		-3.525***		-3.158***
		(0.273)		(0.235)
Constant	1.357***	1.618***	2.286***	2.522***
	(0.135)	(0.140)	(0.121)	(0.126)
Observations	20,706	12,057	21,103	12,252

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Proximity to Public Transportation and Communication Facilities in Urban Areas

VARIABLES	Models							
	Linear Probability				Probit			
	Water		Electricity		Water		Electricity	
Region	-0.0910***	-0.0838***	-0.216***	-0.195***	-0.267***	-0.244***	-0.562***	-0.523***
	(0.00998)	(0.00995)	(0.0106)	(0.0104)	(0.0277)	(0.0285)	(0.0268)	(0.0280)
Year	0.0952***	0.0474***	0.0789***	0.0113***	0.349***	0.177***	0.241***	0.0424***
	(0.00304)	(0.00325)	(0.00335)	(0.00352)	(0.0107)	(0.0117)	(0.0100)	(0.0112)
RegionYear	0.158***	0.150***	0.272***	0.253***	0.620***	0.609***	0.762***	0.750***
	(0.0109)	(0.0108)	(0.0121)	(0.0119)	(0.0392)	(0.0413)	(0.0352)	(0.0378)
TV		0.111***		0.189***		0.774***		1.251***
		(0.00250)		(0.00260)		(0.0212)		(0.0245)
Floorq		0.134***		0.209***		0.705***		0.939***
		(0.00239)		(0.00259)		(0.0154)		(0.0151)
HHsize		-0.00804***		-0.00338***		-0.0338***		-0.0116***
		(0.000561)		(0.000604)		(0.00217)		(0.00213)
Constant	0.756***	0.758***	0.694***	0.652***	0.695***	0.701***	0.507***	0.363***
	(0.00261)	(0.00381)	(0.00280)	(0.00413)	(0.00832)	(0.0137)	(0.00797)	(0.0132)
	86,063	85,795	86,099	85,835	86,063	85,795	86,099	85,835
Observations	-0.0910***	-0.0838***	-0.216***	-0.195***	-0.267***	-0.244***	-0.562***	-0.523***

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Access to Clean Water Supply and Electricity in Urban Areas

VARIABLES	Water		Electricity	
Region	-0.0101***	-0.00450***	-0.128***	-0.0886***
	(0.00166)	(0.00167)	(0.0233)	(0.0234)
Year	0.101***	0.0850***	0.666***	0.594***
	(0.000891)	(0.000927)	(0.00642)	(0.00668)
RegionYear	0.193***	0.190***	0.745***	0.729***
	(0.00437)	(0.00435)	(0.0260)	(0.0261)
Roof		0.0644***		0.319***
		(0.00142)		(0.00634)
Radio		0.0355***		0.170***
		(0.00137)		(0.00639)
Constant	0.0413***	0.0293***	-1.736***	-1.815***
	(0.000486)	(0.000496)	(0.00550)	(0.00560)
	412,212	411,754	412,212	411,754
Observations	-0.0101***	-0.00450***	-0.128***	-0.0886***
R-squared	0.710	0.712	0.951	0.952

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Access to Clean Water Supply and Electricity in Rural Areas

Variables	Oromia		Amhara		South	
	No Covariates	Covariates	No Covariates	Covariates	No Covariates	Covariates
Primary School	-1.360***	-1.325***	-0.326	-0.311	-2.390***	-2.365***
	(0.348)	(0.348)	(0.360)	(0.361)	(0.335)	(0.336)
Secondary School	-6.580***	-7.438***	-4.280***	-4.459***	-9.053***	-9.424***
	(1.267)	(1.279)	(1.325)	(1.337)	(1.289)	(1.292)
Public Health Facility	-1.735***	-1.879***	-0.868	-1.005	-0.298	-0.295
	(0.571)	(0.575)	(0.615)	(0.625)	(0.595)	(0.598)
Public Transportation Facility	-8.476***	-9.027***	-2.814**	-2.599*	-6.883***	-6.879***
	(1.271)	(1.278)	(1.375)	(1.390)	(1.368)	(1.373)
Public Telephone Facilty	-15.04***	-15.91***	-5.451***	-5.695***	-10.08***	-10.30***
	(1.279)	(1.291)	(1.338)	(1.350)	(1.409)	(1.416)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Proximity to Schooling, Health, Transportation and Communication Facilities in rural areas by regions

VARIABLES	Amhara				Oromia				South			
	Water		Electricity		Water		Electricity		Water		Electricity	
Region	-0.0373***	-0.0472***	-0.0690***	-0.0796***	0.0196*	0.0182*	-0.143***	-0.137***	0.0997***	0.115***	-0.00411	0.0302**
	(0.0113)	(0.0113)	(0.0121)	(0.0118)	(0.0109)	(0.0109)	(0.0115)	(0.0113)	(0.0132)	(0.0131)	(0.0137)	(0.0132)
Year	0.133***	0.113***	0.121***	0.0931***	0.195***	0.158***	0.145***	0.0914***	0.215***	0.180***	0.227***	0.173***
	(0.00681)	(0.00711)	(0.00773)	(0.00790)	(0.00591)	(0.00616)	(0.00619)	(0.00640)	(0.0104)	(0.0105)	(0.0107)	(0.0103)
RegionYear	0.120***	0.0929***	0.229***	0.173***	0.0581***	0.0454***	0.206***	0.179***	0.0384***	0.0182	0.123***	0.0866***
	(0.0125)	(0.0124)	(0.0140)	(0.0137)	(0.0120)	(0.0119)	(0.0132)	(0.0129)	(0.0147)	(0.0145)	(0.0158)	(0.0151)
TVown		0.0837***		0.201***		0.0784***		0.170***		0.0755***		0.144***
		(0.00518)		(0.00634)		(0.00485)		(0.00469)		(0.00695)		(0.00680)
Floorq		0.130***		0.206***		0.132***		0.199***		0.162***		0.281***
		(0.00475)		(0.00644)		(0.00440)		(0.00468)		(0.00634)		(0.00672)
HHsize		-0.00443***		0.00364***		-0.00970***		-0.00292***		-0.00970***		-0.00207
		(0.00118)		(0.00134)		(0.00103)		(0.00109)		(0.00142)		(0.00147)
Constant	0.703***	0.709***	0.547***	0.509***	0.646***	0.664***	0.622***	0.594***	0.566***	0.563***	0.482***	0.412***
	(0.00591)	(0.00791)	(0.00643)	(0.00862)	(0.00517)	(0.00698)	(0.00524)	(0.00729)	(0.00909)	(0.0113)	(0.00915)	(0.0112)
Observations	24,965	24,875	24,968	24,882	31,928	31,800	31,938	31,810	16,634	16,561	16,635	16,563

Robust standard errors in parentheses

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

Table 8: Improved access to clean water supply and electricity vs. comparison regions (Urban)

The tables show that the Amhara regional state is less disadvantaged than the other two comparison states (Oromia and the Southern Regional State) in terms of access to public goods. This particular finding is consistent with Ethiopia's political history, and the hierarchy of power within the ruling Ethiopian People's Revolutionary Democratic Front. Even though the TPLF played the dominant role within the EPRDF until it lost its power recently to the popular protests known as the #Oromo Protests, the elites from the Amhara Nation Democratic Movement (ANDM) were always viewed as second among the four unequal parties that made up the EPRDF. Whereas the OPDO and the SEPDM were late comers to the EPRDF, the ANDM joined the EPRDF much earlier and had enjoyed some proximity to the former power brokers within the EPRDF.

VARIABLES	Water					
	Amhara		Oromia		South	
Region	0.00374**	0.00707***	-0.0156***	-0.00666***	-0.0149***	-0.0122***
	(0.00174)	(0.00174)	(0.00179)	(0.00179)	(0.00190)	(0.00190)
Year	0.107***	0.0886***	0.0814***	0.0645***	0.147***	0.131***
	(0.00151)	(0.00161)	(0.00140)	(0.00145)	(0.00203)	(0.00207)
RegionYear	0.188***	0.190***	0.213***	0.210***	0.148***	0.135***
	(0.00454)	(0.00452)	(0.00450)	(0.00448)	(0.00473)	(0.00474)
Roof		0.0463***		0.0746***		0.108***
		(0.00215)		(0.00211)		(0.00393)
Radio		0.0401***		0.0310***		0.0407***
		(0.00273)		(0.00193)		(0.00288)
Constant	0.0274***	0.0183***	0.0468***	0.0313***	0.0461***	0.0342***
	(0.000696)	(0.000718)	(0.000812)	(0.000832)	(0.00104)	(0.00106)
Observations	145,267	145,047	179,390	179,176	117,758	117,655
R-squared	0.084	0.091	0.060	0.073	0.079	0.092

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 9: Improved access to clean water supply vs. comparison regions (Rural)

In some ways, the Southern region appears to have fared the worst in terms of advancement, and that could be due to two interrelated factors. First, the populations currently residing in the Southern regional state have always been subjected to some of the worst forms of discriminatory practices in Ethiopia's political history, making it more likely for the few elites from the region to be easily co-opted to do the bidding of the center rather than serving the interests of their respective

local communities.[13] To complicate this picture, the Southern Nations, Nationalities and People's Region (SNNPR) is made up of about 50 small ethnic groups, inducing the politicians from each group to compete with each other rather than collaborating to have a unified voice that would have enhanced their bargaining position within the federal arrangement. A current development within this region could demonstrate the level of of disharmony that pervades the SNNPR government: the political representatives of the Sidama nation (constituting about 6 percent of Ethiopia's population) have recently voted to establish their own independent regional state, as their long running dispute with the elites from the Wolaita group came to a head because of conflicts over the distribution of political power and financial resources accruing to the region.
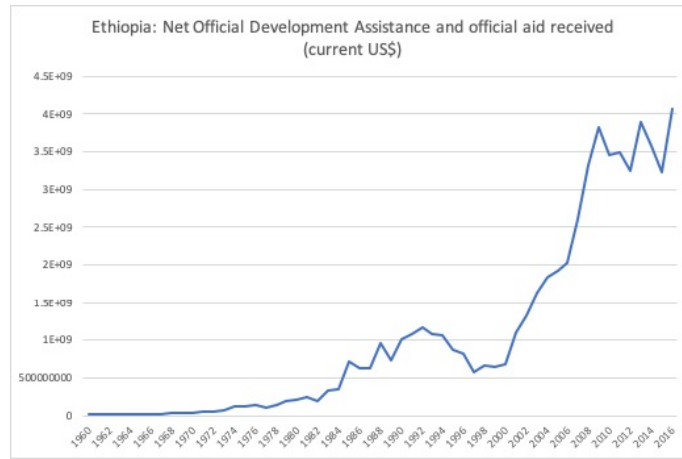

Figure 7: Official Development Assistance to Ethiopia received, total amount (World Bank, 2018)

Although some Oromo elites have managed to occupy key positions within the Ethiopian state, the Oromo as a group are widely considered to have been historically disenfranchised politically. In summary, the results in Tables 7, 8 and 9 - which show the hierarchy of outcomes in terms of the distribution of access to public goods by regions - reflect the relative power-order of the different ethno-national groups' interests in contemporary Ethiopia.

While we are unable to test the aid implications directly in our empirical section (due to a lack of sufficiently detailed aid data) available aid data appears to support the key propositions of the theoretical model. As Figure 7 shows, while there is some fluctuation in the total inflow of foreign

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[13] In a recent candid interview, the former prime minister of Ethiopia from one of the minority groups in the southern region (the Wolaita group) essentially admitted that he was promoted as a place-holder when the former strongman from TPLF, Mr. Zenawi, passed away rather unexpectedly in August 2012, after effectively being in power since the early 1990s.

aid to Ethiopia in the last several years, the country under the TPLF has been very popular with foreign donors, receiving, every year since the early 2000's, upwards of three billion dollars, an amount that constitutes roughly about a third of its budget. Overall, total international aid to Ethiopia had been increasing significantly over the last few decades, even as popular discontent with the tightly controlled central leadership of the country was manifested throughout and continued to grow. More insidiously, Ethiopia's TPLF-led government has on several occasions been accused of using foreign aid as a tool to consolidate its power.[14]

The observed insensitivity of international donors to the level of political unrest in Ethiopia lends some credence (as predicted in proposition 1 of the theoretical model) to the key empirical findings of this paper. That the regional state of Tigray - which has enjoyed a better political representation, and was thus favored by the Center under the TPLF dominated government - has made more significant inroads in comparison to the other states in having improved access to public goods, is thus not inconsistent with the general flow of foreign aid to Ethiopia in the last few decades.

7. Conclusions

The salience of ethnic-based analyses of African politics is well documented in several distinct yet related academic literatures. For instance, close to our focus, Francois et al. (2015) model theoretically and show empirically the existence of large and ethnically inclusive top ruling coalitions in 15 Sub-Saharan African countries.[15] In this paper, we set out to investigate whether the ethnic cooptation of elites at the top - which also applies to the Ethiopian regime - had equitable outcomes on the ground in ethnically-based Ethiopian regions. We study the effects of instituting an ethnic federalism characterized by asymmetric political representation on economic development as represented by the provision of public goods. We exploit a regime change that took place in Ethiopia in the early 1990s that transformed the Ethiopian state from one with a strong unitary form of government to a multi-national federation dominated by one of the minority groups, the Tigray ethno-linguistic group.

Through a theoretical model that captures some of the essential features of Ethiopia's current

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[14] See, for instance, the report by the Human Rights Watch: https://www.hrw.org/report/2010/10/19/development-without-freedom/how-aid-underwrites-repression-ethiopia

[15] Notably, Ethiopia is not in their sample.

political economy, we establish a potential link between the quality of political representation and the magnitude of public goods provision. Generally speaking and under certain regular conditions, regional states with a higher quality of political representation enjoy improved access to public goods, mainly because regions with better political representation receive more transfers from the center. In the equilibrium, the federal government trades off the benefit of receiving international aid and regional tax income with the direct cost of outflows aimed at providing public goods and the indirect cost of conflict spurred by eventual local economic dissatisfaction. In short, regions with worse political representation receive fewer transfers, despite the effectiveness of transfers to reduce the cost of political unrest.

Using a repeated cross-section data and a difference-in-difference estimation strategy, we test the validity of the model's key implication, finding that the treatment region - the Tigray regional state - has enjoyed better access to public goods than other federal states of the country, which suggests that improving the quality of political representation is an essential ingredient for economic development. The magnitude of the advantage that households in Tigray have enjoyed with respect to their access to public goods varies from one comparison region to another, with the households in the Amhara region faring generally better than those in Oromia and in the Southern region. These regional hierarchies in terms of public goods' penetration rates reflect the political pecking order in the country, with the political elites from Tigray occupying the key positions in government, followed by the historically powerful Amhara elites, which still remain somewhat influential in the corridors of power in Ethiopia. We also find that the disparities in terms of access to public goods are more pronounced in rural areas than in urban areas. Our estimates of the impact of the quality of political representation on the provision of public goods are robust to accounting for household characteristics.

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APPENDIX

Appendix A. Brief Political Background of Modern Ethiopia

Ethiopia's modern political history overlaps with the 'Scramble for Africa' by the European colonial powers in the late 19th century. Emperor Menelik the II (1889 to 1913) expanded his kingdom into what is today the southern half of the country, conquering the Oromo (the demographic majority of the country), the Somali and dozens of other ethnic groups currently making up Ethiopia (Zewde (2002)). Menelik identified himself as an Amhara, a historically powerful group whose kings ruled over Abyssinia (Northern Ethiopia) for centuries, outmaneuvering the other key Abyssinian group, the Tegaru (Young (1998)). With the exceptions of the Zagwe dynasty between about 900 and 1285, the Yeju Oromo effectively governing Abyssinia for about seventy years until 1853 and King Yohannes of Tigray wresting power from the Amhara kings for a little over a dozen years before Menelik assumed power, political life in Abyssinia and Ethiopia was dominated by the Amhara for centuries until the early 1990's (Bekele et al. (2016))).

Menelik II - who is largely credited with (and blamed for) giving Ethiopia its current shape (and multidimensional problems) - collaborated with the British, the French and the Italians to wrest power from the then Tegaru king, King Yohannes IV. This had been the source of a long-lasting resentment by the Tegaru for the next nearly 100 years, until the so-called Tigray People's Liberation Front (TPLF) - assisted heavily by the Eritrean People's Liberation Front (EPLF) - defeated the Ethiopian army in 1991 and installed itself - for all intents and purposes - as the government in Ethiopia, controlling key institutions including the defense and security establishments (Hammond (1998)).

To extend their political longevity in Addis Ababa, the leaders of TPLF came up with mechanisms that would enable them to neutralize potentially significant rivalry from the Oromo and the Amhara, with both groups posing different but serious challenges that could prevent the TPLF from capturing the Ethiopian state for an extended period of time. The Amhara elites, in particular, who saw themselves as the creators and guardians of the Ethiopian state, would not tolerate playing second fiddle to the Tegaru when it comes to deciding the affairs of the country. The historically disenfranchised Oromo posed a different challenge in the form of the Oromo Liberation Front (OLF), which pushed for the rights to self-determination for the Oromo, including and up to secession of Oromia, the economic lifeline of the country. To outplay these forces, the TPLF established the so-called Oromo People's Democratic Organization (OPDO) and the Amhara Nation Democratic Movement (ANDM), largely from the prisoners of war it captured from the now decommissioned Ethiopian army of Colonel Mengistu Hailemariam (Henze (2000)). Similarly, the so-called Southern People's Democratic Movement (SPDM) was created by the TPLF to purportedly serve as a political vehicle representing the various interests of the close to 50 ethnic groups in southern Ethiopia.

As described in the background section, the OPDO, the ANDM and the SPDM are thus essentially satellite organizations whose core leaderships' access to power is determined by their subservience to the rules laid down by the dominant party, the TPLF. For all practical purposes, they served TPLF politicians and generals that controlled and commanded the heights of Ethiopia's powerful institutions like the military, the security establishment, and key economic institutions.

In order to dominate the Ethiopian political landscape, the TPLF deployed a number of other tactics - some more subtle than others. Having engineered the re-organization of the country along ethno-linguistic lines in the early 1990's, which took effect through the constitution of 1995, the ruling party drove out its junior partner, the OLF, from the transitional government using its military might, putting in concentration camps tens of thousands of Oromos suspected of having nationalist/independent tendencies, sending

an unmistakable signal to anyone that opposing the TPLF entails harsh consequences.[16] While continuing to crack down on any potentially serious political opposition, the TPLF had also been organizing sham parliamentary elections, 'winning' nearly one hundred percent of the seats.[17] When the regime made some gesture towards opening the political space for the opposition in 2005, the experiment ended badly, with its armed personnel killing about two hundred people in the capital alone, while forcefully dispersing a crowd gathered to demonstrate against what was widely panned as flagrant vote-rigging by the regime.[18]

Other indicators of the disenfranchisement of non-Tegarus in Ethiopia's political life under the TPLF included the near-total decimation of independent media and civic organizations that are critical of the incumbent party. These facts have been well-documented by various credible foreign and international organizations, including the Human Rights Watch, PEN International, the US State Department, Amnesty International, etc. In particular, the TPLF pursued independent Oromo voices with such ferocity that a former Ethiopian Defense Minister from TPLF (who had fallen out with his former comrades) once described the situation as, "Ethiopia's prisons speak the Oromo language." By some estimates, upwards of ninety percent of the close to 90,000 political prisoners in Ethiopia were believed to be of Oromo origin.[19]

The imposed hegemony of the Tegaru ruling class on the rest of Ethiopia in the last twenty five years has, arguably, been the main cause of the recent mass rebellion in the country, particularly in the Oromia and Amhara regions. Since the beginning of what is now popularly known as the Oromo-Protests in 2014, thousands of Oromos and Amharas have been killed by armed personnel loyal to the Ethiopian government, almost pushing the country to a state of being ungovernable. According to the index compiled by the Fund for Peace and the American magazine Foreign Policy, the country has been one of the most fragile states, and losing its carefully crafted image of a developmental state that has managed to move on from a vicious cycle of civil conflict and abject poverty.

Before 1991, the Amhara ruling class pursued a policy of assimilation, inducing the occupied subjects to abandon their identities (language, culture, and religion) through an array of formal and informal institutions and mechanisms, with the goal of creating an Ethiopian identity with the Amhara language and culture as its core elements. Intermarriages - particularly between the Oromo and the Amhara - were encouraged at all socio-economic levels, and it appears that these policies had been partially successful, creating millions of multi-ethnic Ethiopians tracing their lineage to two or more national groups. In order to achieve this and other objectives required for the building of the Ethiopian empire, millions of Amharas were resettled throughout the country, particularly in Oromia, creating a situation where the Amhara are the demographic majority in some cities in Oromia, including the capital Addis Ababa, which is also the capital of Oromia. According to the Housing and Population Census of 2007, for instance, the Amhara constitute close to half of Addis Ababa's residents, with the Oromo making up less than 20 percent of the population in the capital.

The dominance of Ethiopia's political economy by the TPLF in the last twenty five years can be distinguished from that of the Amharas before 1991 in one key respect. In a break from the previous centralized polity, the Tigrayan elites pursued a strategy of 'indirect rule' to achieve their dominance. Using collaborators from each ethnic group as described above, they set up various extractive institutions whose key objectives appear to be the socio-economic advancement of Tigray. This is the focal point we concentrate the rest of the paper on, as we try to understand the mechanisms through which unequal political representation may translate into unequal access to public goods in the country.

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[16] This is well-documented in the US State Department's annual reports in the early 1990s.

[17] In the most recent national election held in 2015, the EPRDF won 100 % of the seats in Parliament, beating its own record of 99 percent in the 2010 elections.
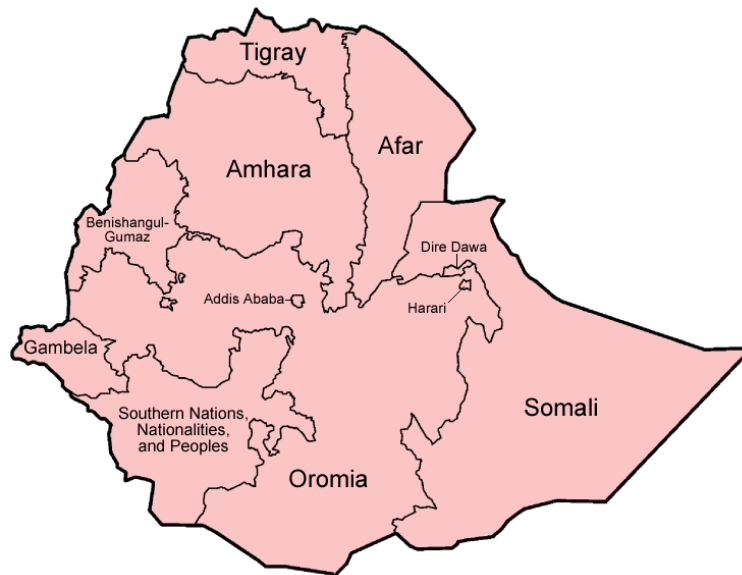
[18] Here is BBC's documentation of this violent episode: http://news.bbc.co.uk/2/hi/africa/6064638.stm.

[19] See: https://www.amnesty.org/download/Documents/4000/afr250062014en.pdf.

Appendix B. Regional Maps of Ethiopia

Map B.1: Former provinces of Ethiopia before 1995 (Source: $https : //www.mapsopensource.com/ethiopia - provinces - map.html.$)

Map B.2: Current ethno-linguistic regions after 1995 (Source: $https : //commons.wikimedia.org/wiki/File : Ethiopia\_regions\_english.png\#/media/File : Ethiopia\_regions\_english.png.$)