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Understanding the external social benefits of education in Ethiopia: A contextual analysis using Young Lives

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**Abstract:** This paper explores social benefits, or externalities, of education in Ethiopia. Enrolment has expanded rapidly across all phases of formal education, yet there is limited evidence of its potential externalities in this context. This paper draws on the Young Lives study which provides longitudinal data on the lives of children over the past two decades. Using data from Young Lives' older cohort of survey respondents, our results show that young people who participated in education beyond secondary level were more likely to engage in community action and to voluntarily give to community organizations or political groups than young people with lower levels of education. These results show the potential externalities of education. Importantly, the paper situates empirical analyses and results in the socio-cultural realities within and beyond the education sector in Ethiopia. The paper thus provides a deeper and contextually relevant understanding for the existence of social benefits and the potential enhancement of these through formal education.

**Keywords:** Externalities, Citizenship Education; Collective Action, Education, Econometrics, Ethiopia, sub-Saharan Africa

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## 1. Introduction

The economic value of education to individuals, families, communities and nations continues to be one of the key justifications for investments in education globally. In a recent review of the last 60 years, Psacharopoulos and Patrinos (2018) estimate that the private average global return to one year of schooling was 9% per year between 1950 and 2014. Evidence indicates that private returns vary by global region, by countries' level of economic "development", and for different levels of education. In low-income countries, such as the one considered in this paper, the average private return to primary education is estimated to be 3% lower than for high-income countries, however the private return to secondary and higher education are estimated to be 5% and 14% higher, respectively (Psacharopoulos and Patrinos 2018).

The total value of education should capture more than the economic benefit to individuals.

Returns to education include both economic and non-economic aspects, or according to McMahon (2002) both market and non-market benefits. Also, returns to education can be private as well as social, that is, relevant to the wider society and not just the individual accruing education. As noted by McMahon (2002, 2007, 2018), the total value of education should therefore capture the value of both economic and non-economic outcomes that accrue to societies, in addition to all private returns.

For instance, the large *private* return from higher education in low-income countries is usually estimated from a small proportion of graduates who benefit from subsidized higher education (not just in terms of tuition fees, but in many cases living expenses), which raises the public costs-per-student to very high levels relative to the cost-per-student at primary and junior secondary levels. This leads to problems for efficiency, since *social* rates of return in low-income contexts are unknown and unaccounted for in investment decisions. It also raises the issue of equity, as the per-capita expenditure on higher education in many low-income countries is 7 to 10 times higher than for primary and 3 to 4 times higher than for secondary

education, and opportunities for study are often limited to the comparatively affluent students who progress to this phase of education (Ilie and Rose 2018).

The non-economic social benefits are defined here as *externalities*. That is, they are the non-economic, non-market, non-monetary benefits that arise from education in spheres that benefit others in society. Externalities include for instance the contribution of education to the evolution of civic institutions, human rights, political stability, environmental sustainability, health and innovation, among others. Since social rates of return are difficult to estimate for the individual, and externalities accrue at the community or societal levels, they are often overlooked in relation to education and can potentially lead to under-investment, especially at higher levels of education. This therefore justifies at least to some extent state intervention and investment in education, notwithstanding distributional issues related to the direction and later individual benefits from that government expenditure, particularly in some low-income countries (Ilie and Rose 2018).

In estimating the benefits of education beyond income, Psacharopoulos and Patrinos (2018) have shed light on the social return to education globally, by regions and levels of education. However, the estimated social returns in their work exclude an account of the externalities of education as defined here. As they argue, insufficient evidence of the non-monetary social returns to education (i.e. externalities) has led to a focus on social returns being predominantly estimated in terms of societies' spending on education alone. This has also resulted in total returns to education being underestimated. Notwithstanding these limitations, the estimated social economic value of primary education in low income countries between 1950 and 2014 is 22%, for secondary education 18% and for higher education 13% (Psacharopoulos and Patrinos 2018). This latter estimated social economic value of higher education is less than half the estimated private return.

In the context of the USA, McMahon (2018) has estimated that externalities of higher education have an economic value that is about 60% that of the private return. Unfortunately, there has been little progress to date in terms of estimating not just the social economic return from education, but the social non-economic return (i.e. externalities) that accrue from the experience of participating in education, particularly higher education, in a country such as Ethiopia. Some of McMahon's work in the field of the wider benefits of higher education (e.g. McMahon 2017, 2018) draws on cross-country comparisons to determine the value of established externalities which can only be measured at country level, for instance, democratization, improved human rights, or political stability. However, what remains unclear is the extent to which the provision of education in a given national context relates to the formation of such externalities.

This paper aims to address these gaps by exploring whether participation in education yields immediate community benefits in Ethiopia. In particular, it addresses the question: is there evidence that young people who have *recently* participated in formal education are more engaged with community action in Ethiopia? Community action is an important form of education externality, as it could impact on the development of civic institutions over time in this low-income country. To set this in context, this paper considers the aims and outcomes of the Ethiopian education system with respect to the formation of young people's civic participation, the status of civics and ethical education in the curriculum, and how this relates to values and expectations within the community.

Empirically, the paper uses classic econometric techniques applied to data from Young Lives in Ethiopia, a longitudinal study which has followed over 2,000 young people in two cohorts: the younger cohort born around the turn of the Millennium, and the older aged 7-8 years at the same time. By the time of the most recent survey in 2016, the older cohort were at an age to have had meaningful engagement in community action. This paper draws on their

responses to survey questions regarding their community engagement and participation in formal education. The remainder of this paper is organized as follows: we first provide a brief review of the Ethiopian context and the relevant features of its education system with reference to empirical evidence. We then introduce the Young Lives data and analytical method; present the results; and draw implications from our findings for current and future knowledge in this field. In this regard, we locate this study as a baseline for understanding the existence of social benefits of education which are likely to arise some years after.

## 2. Literature review

### *2.1. Ethiopia in context*

Ethiopia is the second-most populous country in Africa, home to an estimated 110 million<sup>2</sup> people in 2018 from more than 80 different ethnic groups. The economy is predominantly agrarian and roughly 80% of the population live in rural areas, making Ethiopia amongst the least urbanized countries in the world (Central Statistical Agency [Ethiopia] and ICF International 2012). In the 1990s Ethiopia became a federal democracy, divided into 11 ethnic-based regions. Since then it has been governed by the Ethiopian People's Revolutionary Democratic Front (EPRDF), a national coalition of political parties representing four dominant regions (Oromo, Amhara, Tigray and Southern Nations, Nationalities and Peoples' Region [SNNP]). Over 90% of parliamentary seats are held by the EPRDF, with the remainder held by its allies.

Governed by a party with a socialist, pro-poor agenda (Dom 2009; Meles 2011), the country has made strong progress over the last three decades in terms of health, life expectancy, food security, education (Central Statistical Agency [Ethiopia] and ICF International 2012) and economic growth (World Bank 2019). Alongside this, however, recent years have seen rising

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<sup>2</sup> Data from <https://data.worldbank.org/country/ethiopia>

ethnic tensions, including violence (BBC 2019). In Oromia, the most populous region, there have been protests for greater autonomy over land-use; while SNNP, the most ethnically diverse region, has seen periodic intercommunal violence. The situation is notably different in Tigray which is ethnically homogenous and represented by the historically dominant party within the EPRDF coalition (de Waal 2013).

In line with these different socio-cultural and political contexts there are wide variations in educational conditions and outcomes within and between regions. For example, the average class size at primary level is 38 in Addis Ababa; 44 in Tigray; 57 in Oromia; and 93 in Somali region; and while half of primary schools in Amhara have a library, this is true for only 8% of schools in Gambela (Mitchell 2017a, 20). Similarly, there are wide variations between regions in terms of academic attainment, with SNNP having the lowest literacy outcomes (Ministry of Education 2015, 18). Disparities *within* regions are likely to be even greater, especially between urban and rural areas (Tekeste 2006). Based on this evidence of disparities in the likely quality of education provision, we anticipate that the social benefits of education would not be even across the country, but would reflect these disparities in terms of politics, infrastructure and outcomes.

Having introduced key aspects of the Ethiopian context, the following section considers the formal goals of the education system from the perspective of the national government.

## *2.2. Education for national development: civics and ethical education*

The EPRDF government describes the country as a ‘developmental state’ (Meles 2011) and explains the education system in instrumental terms as a means of achieving national development through shaping citizens’ values, knowledge and capacities in line with the government’s vision. The Education and Training Policy (Transitional Government of Ethiopia 1994) identifies the societal objectives of the education system as:

‘Bring[ing] up citizens who respect human rights, stand for the well-being of people, as well as for equality, justice and peace...with democratic culture and discipline...[who] value...the role and contribution of women in development’ (Transitional Government of Ethiopia 1994, 7–11).

This entails equipping young people with knowledge of legal and governance systems, citizens’ rights and duties, and fostering a worldview which incorporates a sense of Ethiopianness (i.e. national identification), equity between genders and ethnicities, and a ‘democratic mindset’ (Endalcachew 2016; Mitchell 2017a, 206–9). The form of democratic mindset promoted by the state is that of *revolutionary* democracy, which emphasizes ‘mass participation and group consensus [over] individual freedom and choice’ (Mattes and Mulu 2016, 3).

In pursuing these ends, the Government of Ethiopia established a program of Civics and Ethical Education (CEE) which reflects these social, economic and political agendas (Yamada 2014; Micheale 2017). CEE runs throughout formal education, from primary to tertiary level. Alongside instruction on governance, law, and social and environmental justice, CEE highlights social responsibilities through topics such as ‘Citizens’ Obligations in Society’, ‘Civic Participation’ and ‘Voluntarism on a National Basis’ (Getaneh et al. 2009, 3–4). The CEE curriculum is complemented by routine activities which reinforce these messages. For example, the school day starts by students singing the national anthem which refers to national pride, a love of peace, justice and equality, and sense of collective responsibility for national development (Mitchell 2017a, 115). The same sense of collective responsibility is promoted through the ‘one-to-five’ student networks, a peer learning system which originated in Tigray as a means of sharing modern agricultural practices amongst farmers, and was introduced to the education system nationwide from primary to tertiary level in 2010 (Nigusse and Girmay 2015). The student networks are a form of community



service, whereby high-attaining students are charged with supporting the learning of five or six of their peers. Other routine activities which provide students with practical experiences of civic responsibilities and engagement include electing class monitors and representatives to the Parent Student Teacher Association, and participating in *gim gima* (public evaluation) meetings, where they evaluate the conduct of peers and teachers (Mitchell 2017b, 2019). The activities above capture aspects of community service as a potential externality of education, which may increase in line with higher levels of educational attainment.

For higher education, multicultural community life and undertaking community service are two important externalities of education. Regarding *multiculturalism*, higher education institutions are in a distinct position to promote equality and unity between different ethnic groups. Most young people undertake primary and secondary schooling within their own ethnic communities; thus, although multiculturalism is promoted in the curricula, students generally have limited opportunities to engage with peers from other ethnic groups (Tesfaye 2014; Endalcachew 2016). At tertiary level, students often leave their home regions to study. Affirmative action policies have been introduced to encourage the enrolment of young people from the historically marginalized ‘emergent’ regions of Afar, Somali, Gambella and Benishangul-Gumuz (Ministry of Education 2015). Consequently, universities are ethnically diverse, multicultural institutions, and empirical studies demonstrate that students do develop intercultural tolerance, understanding and friendships at these institutions (Tesfaye 2012; Abebaw 2014; Teferi, Tesfaya, and Sintayehu 2017).

As for *community service*, universities across the country are implementing programs of community-based education (CBE) in line with the Government’s vision to enhance cooperation between universities and communities to address its national development priorities (Ministry of Education 2015). CBE is a feature of degree programs across the disciplines, from medical sciences to social studies. CBE provides support for communities

and learning experiences for students, and studies indicate it is valued by both parties. For example, a study of health outreach work by students at Dilla University in SNNPR found that 86.5% of community members regarded CBE favorably, and 80.3% of students reported that it strengthened their capacities (Mohammed and Gedefa 2018, 3). Similarly positive results have been reported with respect to CBE in the agricultural sector in Oromia (Nuraddis and Mihreteab 2014). Externalities from this aspect of higher education are likely to include a range of health, environmental and productivity benefits to society, as well as fostering students' own sense of social responsibility.

To summarize the evidence, the social benefits from the education system as a whole relate to the Government's distinct vision of national development and its use of schooling as a means of shifting attitudes relating to gender, ethnicity and political participation. A contextually-appropriate assessment of externalities in Ethiopia would account for these salient points, as well as the likely variations across the country with respect to socio-cultural, material and political circumstances in different ethnic regions.

### *2.3. Beyond the formal education system: the place of community expectations*

In considering the externalities of education in Ethiopia it is necessary to account for prevalent socio-cultural and material realities, which differ markedly from the Anglo-American contexts considered in previous studies. One key difference is the prevalence of collective over individualistic values, in line with the African worldview of *ubuntu* (Assié-Lumumba 2017), discussed below. The implication of this is that, although participation in education is associated with pro-social values in Anglo-American contexts (McMahon 2018), in Ethiopia a communal orientation is also fostered by traditional practices and expectations within the community – which provides a compelling reason for context-specific empirical evidence and interpretations of findings.

The discussion so far has focused on the aims and outcomes of the education system in relation to fostering civic responsibility and engagement. However, alongside these formal government structures are traditional practices within the community which also socialize young people into adopting a collective, community orientation. In Ethiopia these values are consistent with *ubuntu*, an African worldview which highlights human interdependence and the “interconnectedness in the needs, rights, obligations, and well-being” of all members of the community (Assié-Lumumba 2017, 12), and which is at odds with Anglo-American individualism and the Cartesian assumptions which underlie mainstream economic thought (Santos 2015).

Traditional Ethiopian livelihoods rely on people from an early age taking on collective responsibilities within their communities – for example, in agricultural production, which requires sharing labor and equipment amongst neighbors at key points in the year (Hendrie 1999, 54–55). As such, it would be wrong to imagine that the formal education system is solely responsible for fostering social responsibilities and community engagement. An illustrative case is that of the Women’s Development Army, which comprises an estimated 38,000 volunteers engaged in community health work across the country (World Health Organisation 2016). A recent survey found that volunteers tended to come from poorer households with low levels of formal education (Maes et al. 2018). As such, the spirit of volunteerism and community service of these health workers does not arise from receiving higher education (although their training relies on others with medical training). The implication of these embedded cultural factors for calculating externalities of education is that we may be overestimating the extent of these externalities if we were unable to partial out the impact of cultural factors in the empirical model. As we explain below, we are able to partly control for contextual factors which are relevant to the indicators of community participation used here.

### 3. Methodology

#### 3.1. Data

The empirical modelling of this paper is based on data from the older cohort of the Young Lives longitudinal study in Ethiopia.<sup>3</sup> The first round of data was collected in 2002 (Round 1) when a sample of 1,000 children aged 7.5 to 8.5 years was included in the study.<sup>4</sup> Subsequent waves took place in 2006 (Round 2), 2009 (Round 3), 2013 (Round 4), and 2016 (Round 5). By 2016, the older cohort was aged between 21.5 to 22.5 years, some of whom had the opportunity to participate in higher education and very few to complete. For this reason, our empirical analysis focuses on externalities from participation in education beyond secondary level.

The sampling strategy for Young Lives Ethiopia is based on 20 sentinel sites, selected based on a mixed approach of purposive and random sampling (Wilson, Huttly, and Fenn 2006), located in five regions, Addis Ababa, Oromia, Amhara, SNNP, and Tigray, where 96 percent of the population lives. For Ethiopia, the sampling approach was as follows: First, 20 sentinel sites were purposefully selected to reflect a range in terms of food insecurity, ethnic diversity, and rurality (Outes-Leon and Sanchez 2008). Then, within selected sites, about 100 households with a child aged 7 to 8 years of age (the ‘Older Cohort’) were randomly selected. Even though Young Lives study captures diversity, it is not a nationally representative or sub-geographically (e.g., region, zone, or sentinel) representative sample, and therefore results from this paper are not generalizable to the population.<sup>5</sup>

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3. Young Lives is a UK-funded international study which followed 12,000 young people for 15 years in four low- and middle-income countries: Ethiopia, India (Andhra Pradesh and Telangana), Peru, and Vietnam.

4. 2,000 children aged 6 to 18 months in 2002 were the younger cohort of Young Lives.

5. Our empirical models do not include sampling weights as there are biases of the Young Lives sample with respect to national representativeness (Outes-Leon & Sanchez, 2008).

The Young Lives Ethiopia longitudinal survey suffers from sample attrition, as well as item non-response. From the original sample of 1000 children, the attrition rate for the Older Cohort was 8.1 percent across the five rounds, which is very low compared with other longitudinal studies. Sample attrition occurred when the children were not found because households moved and were impossible to track (14%), refused to take part in later rounds (10%), or migrated internationally (6%) (Pankhurst and Agazi 2012; Young Lives 2018). The sample who took part in the 2016 round was 814 young people.

In terms of missing values, the item non-response for the key variables in this paper is relatively low. For the non-market social benefits, the item non-response is less than 2%, as we have information for more than 800 young people from potential activities related to community engagement during the 2016 survey. Highest educational achievement is recorded in the data, and captured through several rounds in Young Lives. Item non-response for other control variables in the data is also low, in particular when we include information recorded in the initial rounds of data, when most children participated in the surveys.

Undertaking analysis using only full information will lead to a data loss between 3.8% and 4.9%. In other words, the estimation sample for the models ranges between 774 and 783 observations out of 814, depending on the outcome.

### *3.2. Key Variables*

#### **Outcome: Non-market Social Benefits in the Young Lives Data**

The outcomes of interest in this paper follow the definition of McMahon (2018) on non-market social benefits or externalities, and are informed by the information provided above on the Ethiopian context. Non-market social benefits are usually, therefore, the result of time spent in the community, and can include giving to social and charitable organization. Social benefits can also include public goods, which are more difficult to measure. Based on this

definition, and using the data from Young Lives Round 5, we identify four potential non-market social outcomes (see Table 1). These outcomes were captured in the survey instrument by the following questions: “Within the last 3 years, have you:

1. Talked with other people in your area about a serious problem affecting the community?
2. Taken action with others about a serious problem affecting the community?
3. Actively participated in an awareness raising campaign?
4. Given gifts or cash to any community organizations or political groups?

Each of these variables needs to be contextualized in order to provide a deeper understanding of what these variables capture for the case of Ethiopia. Questions on community participation have to be understood within Ethiopia’s rich traditions of collective action through grassroots organizations and institutions, such as the “*iddir*” an informal community-based insurance arrangement (Aredo 2010, 53). Previous research in Young Lives sites in Ethiopia has shown that the *iddir* and other forms of collective action (e.g. women’s associations, religious groups and *iqqub* credit associations) are near universal (Pankhurst and Agazi 2012, 38).

Traditionally there are strong expectations around collective action to address issues in the community in line with accounts of the African worldview of *Ubuntu* (this is particularly relevant for question 2 above). *Ubuntu* reflects a view of human interdependence which values the collective above the individual and highlights the “interconnectedness in the needs, rights, obligations, and well-being” of all members of a community (Assié-Lumumba 2017, 12). As such, responses to the statement of question 2 might refer any of the numerous community-oriented activities across all areas of life.

Question 4 refers to contributions to community or political organizations, which may be understood as externalities of education if these lead to more effective or democratic

institutions. In the Ethiopian context, however, it is not entirely clear what meaning should be attributed to political donations, since the country has been, effectively, a one-party state throughout the Young Lives survey period. National elections from this era have been described as “an exercise in controlled political participation” (Mosley 2015), although recent political events outlined in our review above are likely to change this. Additionally, the distinction between community and political organizations may also be problematic. For example, government workers in Tigray are expected to make monthly contributions towards the Tigray Development Association (TDA), which is a community development organization administered by the ruling party, the Tigrayan People’s Liberation Front (TPLF) (Bahru, Gebre, and Kassahun 2010). Civil service managers, including head teachers, strongly encourage colleagues to pay TDA subscriptions and invest in government bonds to fund the construction of the Renaissance Dam; indeed, line managers are judged by their ability to generate this revenue (Mitchell 2017a). This is an important point to bear in mind with respect to the question on donations to community organizations or political groups, as responses to this question may be taken as evidence of civic mindedness or of coercion – either or both.

#### Highest Educational Level Attended by 2016

The main educational variable of interest is constructed using information from two questions (see Table 1 for descriptive statistics). The first is the highest educational *qualification* achieved at the time of the survey and the second is the highest *grade* completed at the time of the survey. For the lowest level of education, we consider those who had some primary schooling only (248 individuals, 27% of the sample). These were identified by young people who had completed less than 8 grades of primary school (69 individuals), as well as those without any certificate (176 individuals) and those who had other types of certificates not

explicit in the data (3 individuals).<sup>6</sup> The second category is for individuals who completed primary education (129 individuals) and those who in addition experienced some secondary school, which meant they attended school grades 9 to 11 (209 individuals). For this group we have 338 individuals, 36% of the sample.

We further identified 114 young people (12.2% of the sample) as having experienced vocational education, which comprised of those who had achieved a TVET certificate by 2016 (61 individuals) and those who have achieved the Ethiopian General Secondary Certificate and had experienced education beyond this grade, for example doing teacher training or enrolled in TVET but not completed by the time of the 2016 survey (53 individuals). Finally, those with secondary education and above (234 individuals, 25% of the sample) were identified by those who achieved the Ethiopian General Secondary Certificate (126 individuals) and those who have achieved the Ethiopian Higher Education Entrance Certificate by 2016, making them eligible for starting higher education (108 individuals).<sup>7</sup>

#### Socio-demographic background controls

The Young Lives dataset provides a wealth of information on young people's backgrounds, including cognitive development, socioeconomic status, demographics, and access to basic services. This information has been captured at different times over their life-course and in different survey rounds. Three key aspects of bias are important to be captured in order to provide evidence on whether participation in education is associated with our indicators of non-market social outcomes. The first is ability and prior attitudinal bias, followed by

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<sup>6</sup> For this cohort, we can only identify less than 1% who have never attended school, so we are unable to make "no education" a comparison group.

<sup>7</sup> The sample size for Round 5 is 814 individuals. The number of individuals with information on educational achievement is 934 as it was derived from information collected in previous rounds.



background socioeconomic influences and crucially contextual factors which are relevant to the indicators of community participation used here.

*Dealing with ability bias & prior attitudes towards collective action*

When modelling the externalities of education, it is important to account for ability bias and more importantly the formation of attitudes towards collective action, which in this context could have been developed during this period outside formal education. Young people who participate in education at higher levels may appear to be more community oriented; although it is unclear whether this is because of their education or due to the fact that higher-ability young people would direct their skills towards community improvements anyway. Although we do not have measures to capture ability, we use a mathematics achievement test, administered to Older-Cohort participants in the second round of the survey as a measure of ability.<sup>8</sup> The mathematics test used in Young Lives had acceptable internal validity and showed no ceiling effects (Cueto et al. 2009). Any remaining measurement error may actually mitigate against ability bias, as any achievement test may not perfectly identify higher-ability individuals. Since we control for early achievement, we are therefore left with a ‘net’ ability bias, which could in principle suggest that the estimates we obtain around the association of education and attitudes towards collective action may be conservative. We included 2 variables to control for prior attitudes towards collective action. Firstly, in Round 2, children were asked whether people in their community can affect local government decisions that matter for people’s lives. Answers to this question were sought on a 5-point Likert scale, with the addition of the option for uncertainty, as 10% of children did not know whether this was the case. 20% of children strongly disagree with this statement, 21%

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<sup>8</sup> We acknowledge that this is an imperfect measure of ability bias. Still, it is important to condition out for ability bias prior to the experience of education particularly at higher levels, and this is possible given the richness of information collected in Young Lives over the life-course.

disagree, 28% agree and further 22% strongly agree with the fact that people in their communities can affect decisions. This variable is used as categorical in subsequent empirical models. Information for the other attitudinal variable was collected in Round 3, when children were asked if they believed that it is important to serve their communities. This was also a Likert scale with 5 response points, with very few missing values, and will also be included in the empirical models. Most responses (92%) were clustered into agree and strongly agree with the statement

### *Dealing with socioeconomic background factors*

We identify potential socioeconomic background factors which are relevant to community engagement, as well as for children's own likelihood to attend education. First, we differentiate between children living in households headed by females and by the age of the household head. Female headed households tend to be poorer, their children less likely to stay in education, and more likely to qualify for social support (Alemi and Dereje 2014). Of our sample, 24.2% of children live in households headed by the main female caregiver of the child and the average age of the household head is 42 years (range 19 to 85 years).

The second socioeconomic variable is parental education. There are aspects of parental education which may influence both the children's education (such as the intergenerational transmission of educational success via motivations and expectations and learning support at home), but also parents with higher levels of education may be more likely to engage in community programs themselves, hence affecting the likelihood that their own children may learn from their parents' social behaviors. For example, in Ethiopia, Favara (2017) found that parental aspirations have a strong predictive power for children's later educational attainment, particularly for boys. We identified parental education using the highest

educational grade or level that the head of the household participated as recorded in Round 1 (see Table 1).

Finally, measuring wealth in the context of Ethiopia is a sound indicator of permanent income (Filmer and Pritchett 2001). The Young Lives-derived household wealth index is composed of three sub-indexes: (1) the housing quality index (e.g., main materials of walls, roof, and floor); (2) the access to service index (e.g., access to electricity, drinking water, and sanitation); and (3) the consumer durables index (e.g., possession of radio, television, and bicycle), all of which have equal weights in the estimation of wealth index. Prior studies using the Young Lives data have found that household wealth is a strong predictor of school enrolment and attainment in Ethiopia (Tassew, Jones, and Tefera 2005; Tassew 2016; Vandemoortele 2018). For the analysis we use Round 1 wealth index quintiles.

**Table 1: Variable description and descriptive statistics**

<b>Variable</b>	<b>Description (Round/Unit)</b>	<b>Descriptive statistics</b>
<i>Outcomes</i>		
Discussion of community issues	In the last three years, one has talked with other people in the area about a serious problem affecting the community (Round 5/ Yes=1)	0.32
Actions to tackle community issues	In the last three years, one has taken actions with others about a serious problem affecting the community (Round 5/ Yes=1)	0.22
Participation in campaign	In the last three years, one has actively participated in an awareness raising campaign (Round 5/ Yes=1)	0.22
Donation of gifts and cash	In the last three years, one has given gifts or cash to community organisations or political groups (Round 5/ Yes=1)	0.25
<i>Participant education level (proportion of highest educational qualification achieved at Round 5)</i>		
- Some primary		26.55%
- Completed primary and some secondary		36.19%
- Vocational		12.21%
- Completed secondary and above		25.05%

<i>Control variables</i>		
Female participant	Proportion of female participant (Round 1)	49.00%
Math score	Raw math score participants achieved (Round 3 / mean and SD with min 0 and max 24)	5.18 (4.80)
Affect local government	The likelihood that people in this community can affect local government ( <i>Kebele</i> Administration) decisions that matter for people's lives (Round 2)	10.42% 19.71% 21.14%
	- Don't know	27.68%
	- Strongly disagree	21.04%
	- Disagree	
	- Agree	
	- Strongly Agree	
Importance to serve community	The extent to which one agrees that it is important to serve the community (Round 3/ mean and SD with min 1 and max 5)	4.22 (0.72)
Female HH	Proportion of female head of household where the participant is from (Round 1)	24.90%
HH age	Age of the head of household (Round 1/ mean and SD with min 18 and max 85)	41.74 (10.38)
HH education	Highest educational qualification achieved by head of household (Round 1)	35.96% 51.43%
	- None	12.60%
	- Primary	
	- Secondary or above	
Wealth	Wealth quintile the participant's household situates in (Round 1)	21.40%
	- 1 <sup>st</sup>	20.17%
	- 2 <sup>nd</sup>	20.91%
	- 3 <sup>rd</sup>	19.56%
	- 4 <sup>th</sup>	17.96%
	- 5 <sup>th</sup>	
Ethnic minority	Proportion of participants from ethnic minority group in that region (Round 1)	13.40%
Rural area	Proportion of participant from rural area (Round 1)	64.90%
Region	Proportion of participant from particular region (Round 1)	15.00%
	- Addis Ababa	20.00%
	- Amhara	19.90%
	- Oromia	25.00%
	- SNNP	20.10%
	- Tigray	

Source: Young Lives Ethiopia. Notes: Sample size: 934 individuals who reported highest educational achievement by Round 5

### *Dealing with contextual factors relevant to Ethiopia*

The Young Lives Ethiopia sampled four regions: Oromia, Amhara, SNNP, and Tigray, and the capital city, Addis Ababa. These locations reflect significant linguistic and cultural diversity. The sample in Tigray, Amhara, and Oromia are reflective of the ethnic make-up of each region, whereas those in SNNP are considered ethnically diverse. For instance, in SNNP, there are 32 mother tongues officially adopted as a medium of instruction. Additionally, children in the Young Lives data from SNNP come from Gurage, Hadiva, Sidama, and Wolayta ethnic groups. Therefore, we use regional controls (one indicator for each of the five main regions), as well as a variable to differentiate rurality (which covers Oromia, Amhara, SNNP and Tigray) in the empirical analyses. We also generate an indicator for whether the child comes from a group which is ethnic minority within the region. In Addis Ababa, Amhara and Oromo are considered main groups within the capital city. In Amhara, all groups except Amhara are considered minorities; in Oromia all groups except Oromo, in Tigray all groups except Tigrayan; and finally in SNNP all groups except Gurage, Hadiva, Sidama, and Wolayta are considered minorities. This treatment of the different regions in the survey is important, as we also show that there is considerable variation in social outcomes and participation in higher education across regions (see Table 2), an issue which we discuss further in our empirical analyses.

**Table 2: Descriptive statistics of key variables by regions**

	Overall population		Addis Ababa		Amhara		Oromia		SNNP		Tigray	
Variables	N	Mean /	N	Mean /	N	Mean /	N	Mean /	N	Mean /	N	Mean /

	%		%		%		%		%		%	
Discussion of community issues	81	0.32	10	0.27	17	0.26	16	0.30	20	0.43	16	0.31
Actions to tackle community issues	80	0.22	10	0.08	17	0.15	16	0.20	20	0.39	16	0.21
Participation in campaign	80	0.22	10	0.17	17	0.13	16	0.23	20	0.38	15	0.13
Donation of gifts and cash	80	0.25	10	0.19	17	0.13	16	0.05	20	0.33	16	0.50
<b>Participant education level</b>												
- Some primary	24	26.5	16	11.6	43	23.24	69	36.7	83	36.4	37	18.8
	8	5%		8%		%		0%		0%		8%
- Completed primary and/or some secondary	33	36.1	33	24.0	76	41.08	61	32.4	82	35.9	86	43.8
	8	9%		9%		%		5%		6%		8%
- Vocational	11	12.2	33	24.0	22	11.89	25	13.3	16	7.02	18	9.18
	4	1%		9%		%		0%		%		%
- Completed secondary and above	23	25.0	55	40.1	44	23.78	33	17.5	47	20.6	55	28.0
	4	5%		5%		%		5%		1%		6%

Source: Young Lives Ethiopia.

### 3.3. Estimation Method

Since all our social outcomes take only two possible values, whether young people reported community engagement or not, we used *multivariate* logistic regression models for the analyses. Basically, we are predicting the association of the experience of education to the social outcomes controlling for prior academic ability and attitudinal factors, socioeconomic variables and contextual and regional controls. We summarize results by transforming the estimated parameters into odds ratio to indicate relationship, statistical significance and relative magnitude (see Long and Freese 2014).

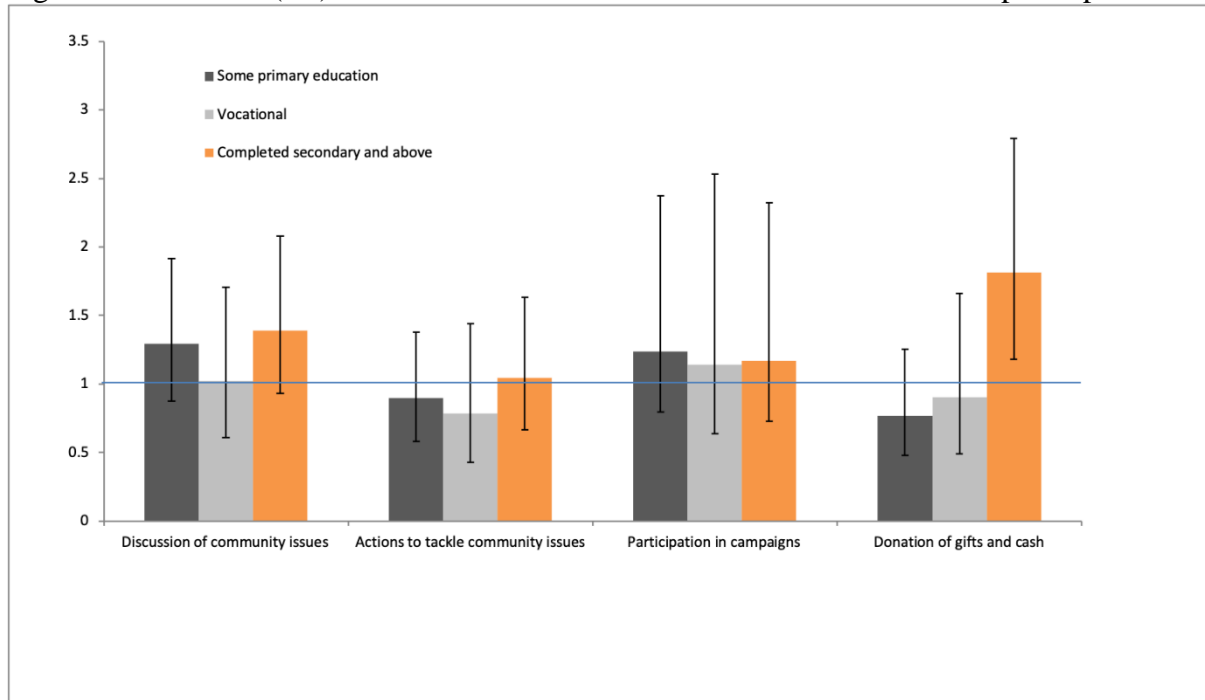
## 4. Results

Results from the logistic regression to model the association between the level of education (as defined above), controlling for region-fixed effects but not including any other controls are illustrated in Figure 1. Odds ratios greater than one indicate higher odds of the outcome occurring, relative to the reference group. In our case, we are interested in whether young people who participated in education above primary level have greater odds of exhibiting the community engagement behaviors indicative of positive externalities. The reference group is therefore composed of young people who completed primary education and participated in secondary education but did not complete it.

Estimation results indicate that young people with education above secondary level have nearly twice higher odds of contributing gifts or cash to a community organization or political group relative to those who achieved primary education and some secondary schooling only. We further find marginal evidence that young people with secondary education and above have higher odds of talking to people about serious problems affecting the community relative to young people who have primary education and some secondary schooling (p-

value=0.10). For the other two community outcomes, namely taking action about these problems or participating in awareness raising campaigns, we do not find statistically significant variation between young people who participated in education at levels higher than secondary education and the rest.

Figure 1: Odd Ratio (SE) of social benefits for different levels of educational participation



Source: Young Lives Ethiopia. Notes: Bars represent odds ratio between the odds for each of the three educational levels and the reference category which is completed primary education and/or some secondary education. 95% confidence intervals estimated from the standard errors.

Although it is important to establish the potential significant associations of participation in education with community outcomes in Figure 1, we are uncertain whether this is driven by ability, prior attitudes, socioeconomic influences or contextual factors. Therefore, results from the model including all socio-demographic controls listed previously are shown in Table 3. Focusing first on the relationship between participation in education above secondary level and the community engagement outcomes, and net of socio-demographic characteristics, results show young people who participated in education above secondary



level have higher odds of discussing serious problems affecting the community (OR=1.76; p-value $\leq$ 0.05) and of donating cash or gifts to community organizations or political parties (OR=1.81; p-value $\leq$ 0.05), relative to those who had completed primary and had some secondary education only.<sup>9</sup> For the other two community outcomes, we do not find evidence of any educational differentials or gradients which may reflect potential externalities of education.

Turning to the socio-demographic control variables included in the model, we find that at the same level of education, girls have lower odds than boys of talking to neighbours about serious problems affecting the community, taking action about these problems, or participating in awareness raising campaigns. We do not find differences according to prior academic ability. However, we do find important prior attitudinal differences, whereby young people who agreed and strongly agreed that people can affect government decisions had greater odds of talking to others about problems in the community and taking action, as well as donating to community organizations and/or political groups. Interestingly, we do not find any evidence that household-level factors were associated with differential social outcomes. However, large contextual differences are obtained in the models, which are worth discussing. Individuals from majority ethnic groups have higher odds of participating in awareness-raising campaigns than minority ethnic groups, in each respective region. In addition, there are marked differences in outcomes by region. Young people in SNNP have higher odds of talking to people about community problems, taking action, participating in awareness raising campaigns and giving than young people in Addis Ababa. Similarly, young people in Tigray have higher odds of taking action for community problems and giving to community organizations, but also lower odds of participating in awareness-raising

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<sup>9</sup> These results remain also unchanged if we compare young people who participated in education above secondary level versus young people with education below secondary schooling. That is, results are unchanged if we use a dichotomous variable for participation in secondary education and above or not.

campaigns, relative to young people in Addis Ababa. Young people in Oromia have higher odds of taking action for community problems relative to young people in Addis Ababa, but lower odds of giving relative to young people in Addis Ababa. And young people in Amhara have higher odds of taking action for community problems and lower odds of participating in awareness raising campaigns (both marginally at 10% statistically significant level) relative to young people in Addis Ababa. Most of these results are in line with descriptive results presented in Table 2.

The models presented in Table 3 therefore show that context matters with respect to young people’s engagement in community action, perhaps more so that their participation in education. Or indeed, there may be important differences in terms of the social benefits of education in each of these regions. However, given the sample size and the relatively low number of young people who have participated in education beyond secondary level by region, it is impossible to undertake further disaggregated analysis. In a simple bivariate analysis, young people in Amhara who participated in education beyond secondary school are more likely to discuss issues of importance to the community, take action when there are serious problems in their communities, and participate in awareness campaigns than young people who have completed primary education. Young people with education at secondary level of above in Tigray were more likely to discuss issues relevant to the community and give to organizations relative to young people with lower educational attainment. However, we remain cautious about taking these inferences further due to the data limitations noted above.

**Table 3: Estimated odds ratio [SE] of likelihood of different community engagement and civic participation outcomes**

	<b>Discussion of community issues</b>	<b>Actions to tackle community issues</b>	<b>Participation in campaign</b>	<b>Donation of gifts and cash</b>
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<b>Participant education level (ref: completed primary and/or some secondary education)</b>				
Some primary	1.186 [0.260]	0.872 [0.213]	1.090 [0.279]	0.739 [0.199]
Vocational Education	1.141 [0.327]	0.743 [0.254]	1.284 [0.423]	0.789 [0.278]
Completed secondary and above	1.757** [0.407]	1.025 [0.272]	1.235 [0.346]	1.812** [0.462]
<b>Female participant</b>	0.636*** [0.106]	0.624** [0.120]	0.634** [0.124]	0.875 [0.173]
<b>Math score</b>	0.994 [0.020]	1.005 [0.024]	1.028 [0.025]	1.018 [0.023]
<b>Affect local government decisions (ref: don't know)</b>				
Strongly disagree	1.955* [0.677]	2.053* [0.833]	0.798 [0.319]	1.235 [0.466]
Disagree	1.770* [0.612]	2.442** [0.975]	1.370 [0.520]	1.624 [0.610]
Agree	2.138** [0.713]	2.588** [1.023]	1.422 [0.539]	2.106** [0.761]
Strongly agree	1.786* [0.609]	2.752*** [1.074]	1.613 [0.603]	2.175** [0.796]
<b>Importance of serving community</b>	1.024 [0.119]	1.118 [0.163]	1.055 [0.150]	1.097 [0.155]
<b>Female HH</b>	0.935 [0.202]	1.197 [0.305]	1.215 [0.307]	1.499 [0.392]
<b>HH age</b>	1.011 [0.009]	1.008 [0.010]	0.993 [0.010]	1.015 [0.010]
<b>HH education (ref: no education)</b>				
Primary education	1.072 [0.203]	1.117 [0.254]	1.127 [0.252]	1.005 [0.223]
Secondary education and above	0.917 [0.283]	1.091 [0.390]	1.171 [0.421]	0.690 [0.272]
<b>Wealth (ref: lowest quintile)</b>				
2 <sup>nd</sup> quintile	1.459 [0.367]	1.561 [0.452]	1.429 [0.417]	0.821 [0.268]
3 <sup>rd</sup> quintile	1.166 [0.308]	1.528 [0.457]	1.745* [0.519]	0.905 [0.296]

4 <sup>th</sup> quintile	0.864 [0.272]	1.259 [0.428]	0.823 [0.288]	0.893 [0.320]
5 <sup>th</sup> quintile	0.641 [0.227]	0.728 [0.284]	0.641 [0.259]	0.596 [0.251]
<b>Ethnic minority</b>	1.424 [0.374]	1.046 [0.322]	1.607* [0.452]	1.342 [0.475]
<b>Rural area</b>	0.855 [0.243]	0.626 [0.196]	1.447 [0.482]	0.929 [0.307]
<b>Region (ref: Addis Ababa)</b>				
Amhara	1.066 [0.379]	2.141* [0.989]	0.485* [0.212]	0.750 [0.320]
Oromia	1.135 [0.399]	3.310*** [1.455]	0.759 [0.313]	0.288*** [0.137]
SNNP	2.736*** [0.939]	10.261*** [4.481]	2.300** [0.907]	3.327*** [1.274]
Tigray	1.262 [0.453]	2.971** [1.371]	0.383** [0.174]	5.069*** [1.984]
Constant	0.108** [0.089]	0.020*** [0.020]	0.139** [0.133]	0.039*** [0.040]
Observations	783	776	774	779

Source: Young Lives Ethiopia. Notes: Robust standard errors in brackets. Asterisks \*, \*\*, \*\*\* indicate statistical significance at 10, 5 and 1% level, respectively.

## 5. Discussion and Conclusions

The purpose of this study was to investigate whether participation in education is associated with non-monetary social benefits, also known as externalities, with a focus on community action in Ethiopia. This study was motivated by the seminal work of McMahon (2002) on measuring not just the monetary benefits of individuals and societies, but also the non-monetary benefits of education which are likely to influence others in society as well as future generations. Research in this area has focused primarily on evidence from high-income countries, where there is availability of measures for outcomes which can be considered externalities of education for example human rights and democratization indices, innovation indices, crime rates, air pollution indices, environmental sustainability and social cohesion among others. Cross-country research has shown that countries with greater participation in

*higher* education are also more likely to show positive externalities of education, and this research has inspired a theory of endogenous development proposed by McMahon (2018). However, there is limited evidence for the externalities of education in a low-income and culturally diverse country such as Ethiopia.

We used the Young Lives longitudinal study (the Ethiopia sample) to compare whether young people who had participated in education beyond secondary school were more likely than others to engage in community action to solve problems, talk to neighbors, participate in campaigns, or give to community or political organizations . Our empirical work is further enhanced by the provision of contextual understandings about the formation of externalities in the Ethiopian education system, the role of civics and ethics education, and traditional forms of community and civic engagement in Ethiopia beyond those advanced by the Government through formal education. As such, the paper draws on local notions that enable us to move beyond Eurocentric models and situate this analysis within a Southern context. There are two important findings regarding empirical evidence for the externalities of education that are worth noting. First, our results reveal that two of the community engagement outcomes are associated with young people’s participation in education beyond secondary level. Specifically, young people who participated in education beyond secondary level were almost twice as likely to talk to others about serious problems affecting their communities, and to give gifts or cash to community organizations or political groups, relative to young people with lower levels of education. We find no evidence of education gradients for the other two externalities, taking action with others about a serious problem affecting the community, and actively participating in awareness-raising campaigns. The latter of these results is consistent with local notions of community and civic participation in Ethiopia. The lack of statistical evidence linkin education to participation in awareness raising campaigns and action to solve community problems may be expected in

light of traditions of collective action dating back thousands of years, such as in the area of agriculture (Hendrie 1999). As discussed earlier, forms of collective action in agriculture where for instance model farmers demonstrate modern farming methods to their neighbors, have been adapted for use in schools through the ‘one-to-five’ peer learning system (Mitchell 2019). As such, collective action is culturally embedded within both formal and informal education systems, and within different sectors of the economy; consequently, the formation of benefits in terms of community action are likely to occur outside as well as within the formal education system.

Equally important from a contextual perspective is the additional finding that there are large regional variations in the community engagement outcomes aligned to positive externalities between regions. These variations reflect the particular histories and political circumstances of the different ethnic and geographic regions. Young people from Tigray, whose ruling party has dominated the national coalition, were more likely to have contributed to political or politically-affiliated community organizations (Bahru, Gebre, and Kassahun 2010; Mitchell 2017a, 126). Young people with education in SNNP, which has experienced ongoing intercommunal tensions and periodic conflict throughout the Young Lives survey period, show a relatively greater tendency to be involved in addressing community issues – although from the available data we cannot say whether respondents understood ‘community’ along ethnic or other lines. These findings highlight the value of developing nuanced, contextually-grounded measures of educational externalities.

These findings notwithstanding, there are several limitations we would like to acknowledge. First, there is an issue of timing, as by the time of the 2016 survey round, young people had just reached an age where they could have completed education (and some still were enrolled in higher education, for instance) and therefore any association with externalities can only measure the short term and potentially contemporaneous benefits of the experience of

education. This is important, given that it has been established in other contexts that externalities of education take longer to be realized (McMahon, 2018). Our analysis can therefore be seen as a baseline study for the formation of externalities of education in Ethiopia. Secondly, the operationalization of externalities of education is limited to the measures available in the Young Lives study. There may be other constructs, such as crime reduction, social cohesion, which could shed light on the potential externalities of education, and for which, as we have demonstrated here, it will be important to be contextually investigated. These constructs, however, are not available in the Young Lives data and therefore not explored here. Thirdly, we are using micro-level models to examine non-monetary social outcomes. However, as discussed by McMahon (2018) some of the evidence particularly regarding externalities of higher education requires changes at country level over a period of time, for example improvements in human (and civic) rights, environmental sustainability, and new innovations.

Notwithstanding these limitations, our review of literature regarding civic and ethics education and the broader understanding of Ethiopia, enables us to suggest areas of future research with respect to the externalities of education in Ethiopia. First, there is strong emphasis on gender equity throughout education. In addition, many university students for the first time encounter students from a different cultural background to the one from the respective regions. Therefore, future research could focus on whether greater inter-cultural and ethnic understandings as well as gender equity in higher education could promote tolerance and social cohesion as potential externalities. Although not investigated here, greater taxation, as suggested by McMahon, is also expected from higher education in Ethiopia as graduates are more likely to find employment in the formal sector, which is currently taxed. Finally, further research could look into the role of higher education in the formation of better-informed citizens with respect to the law, entitlements, knowledge of

public services, which are benefits of education which require more than basic literacy skills.

Education in Ethiopia, particularly at the level of higher education, has the potential to generate not just private and social benefits, but the associated externalities which are beyond the individual.

To conclude, our study demonstrates that the strong and widespread expectations of collective action in Ethiopia, cut across educational (and wealth) divides; and although collective action is an explicit element of formal education from primary through to tertiary education, there is not a straightforward relationship between an individual's level of education and their responses related to collective action for all outcomes. However, the finding that there is greater likelihood to discuss community issues as well as donate to community or political groups by those with education beyond secondary school provides indicative evidence that education beyond this level in Ethiopia could enhance community benefits already important for this context.



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