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Can Urbanization Improve Household Welfare and Provide Inclusive Opportunities? The Case of Urban Expansion in Ethiopia

RESEARCH PROPOSAL

Presented to

Partnership for Economic Policy (PEP)

By

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&

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ETHIOPIA

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Before you begin

Please make sure to carefully review and understand the following

- [Webpage](#) – especially with regards to the PAGE priority themes and
- [Guidelines](#) – for designing a research project proposal (in scientific terms)
- [PEP requirements and strategy](#) for policy engagement and research communication

Please note that :

- This template is mandatory for proposals of projects submitted under the [PMMA](#) and [MPIA](#) groups, i.e. that do not involve data collection
- Plagiarism is strictly forbidden – see note on “references and plagiarism” at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.
- PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish (and will be accepted given proper justification of language barrier).

There are three main areas/dimensions to all PEP-supported projects: capacity building, research and policy engagement. Each dimension must be considered with due care and attention, as they will be assessed individually and concurrently to determine the overall quality of a proposal.

The PEP proposal template is structured in five sections, as follows:

- Project overview and objectives
- Capacity building – team composition and experience
- Research – literature review, method and data
- Policy relevance and engagement strategy
- Other considerations

SECTION I – PROJECT OVERVIEW & OBJECTIVES

1.1. Abstract (max 100 to 250 words)

The abstract should state the main research question, the context and its relevance in terms of policy issues/needs in relation to PAGE priority issues. Complete with a brief description of the method and data that will be used.

Insert your text here – max 100 to 250 words

Many African countries are experiencing unprecedented levels of urbanization. However, the urbanization processes in many African countries lack integrated planning and structural transformations to support growing urban population. Urban development programs in Ethiopia share

most of these problems and challenges. Despite from a low base, Ethiopia is experiencing rapid urbanization and urban growth (4.5% growth in urban population). The implication of these recent trends in urban expansions remains unexplored. Despite lack of rigorous empirical evidence, recent anecdotal pieces of evidence hint that recent trends in urban expansions in Ethiopia may not be improving household welfare and generating inclusive opportunities for all groups of population. For instance, some hint that the youth and women may not be equally benefiting from recent urbanizations. However, rigorous empirical evaluations of urban development programs in Africa are missing.

This project aims to investigate the implications of urbanization on households' welfare and livelihood in Ethiopia. We are particularly interested in identifying whether recent urbanization trends in Ethiopia are improving household welfare and generating inclusive opportunities, including for women and the youth. We aim to assemble large geo-referenced and nationally representative household-level longitudinal datasets. The main dataset come from the Living Standard Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) for Ethiopia, collected by the Central Statistical Authority of Ethiopia in collaboration with the World Bank. We plan to merge these longitudinal surveys with spatial datasets, including nighttime light and climate related datasets. We aim to employ alternative econometric approaches that exploit the longitudinal variations in our measure of urbanization.

1.2. Main research questions and contributions (max 500 to 700 words)

Explain the focus (or key questions) of your research and its policy relevance. Explain why you think this is an interesting research question and what the potential usefulness and value added of your work might be - in terms of both (general) knowledge gaps and policy needs for evidence base.

The literature review shall be detailed under "Research" (section III), not in this section.

Insert your text here - max 500 to 700 words

Urban poverty, economic inequality and youth unemployment are major challenges facing urban developments in Sub-Saharan Africa countries (African Development Bank, 2011). The pace of urbanization in many African countries is surpassing the required pace for structural and political reforms to accommodate this rapid urban expansion, and hence leading to proliferation of slums and

informal sectors. This is reflected by the fact that 62 percent of urban residents in Africa are living in slums with high and rising rates of youth unemployment (World Bank, 2013).

Urban development programs in Ethiopia share most of the above challenges. Despite from a low base, with current urban population (17%) below the Sub-Saharan African average, urban expansion in Ethiopia is growing unprecedentedly. Urban population in Ethiopia is annually growing by 4.5% for the last two decades and this is above the Sub-Saharan Africa urban growth of 3.5% (World Bank, 2011). Even at its early stage, urban expansion in Ethiopia lacks integrated planning and structural transformations to support growing urban population. Cognizant of this trend, the Ethiopian government is recently giving due policy attention to existing trends in the urbanization process (FDRE, 2016). Indeed, monitoring recent trends in urban expansion has been incorporated in the recent Growth and Transformation Plan (GTP)-II (2015/16 – 2019/20) of the government Ethiopia. The fast-urban growth, but still from low base, in Ethiopia provides a unique opportunity to proactively manage and regulate urban development programs to ensure inclusive growth and opportunities. Despite lack of rigorous empirical evidence, recent anecdotal pieces of evidence hint that recent trends in urban expansions in Ethiopia may not be improving household welfare (Dorosh and Thurlow, 2014; Mezgebo, 2017) and generating inclusive opportunities for all groups of population. For instance, some argue that urbanization in Ethiopia might be exacerbating economic inequality among societies while others hint the youth and women may not be equally benefiting from recent urban expansions (Broussard and Teklesellasi, 2012). In particular, with increasing population trends and scarcity of agricultural land, youth unemployment remains widespread and hence a major challenge to Ethiopian policy makers. Hence, one of the major questions here is whether existing urbanization trends are easing this pressure or not.

However, careful empirical evaluations of urban development programs in Africa are missing. In particular, the implications of the urban expansion on economic inequality and labor market outcomes of the youth are not well-explored. This is partly because we still lack an objective and disaggregate measure of the level and dynamics of urbanization. Previously used measures and definitions of urbanization rely on census-based aggregate rural-urban indicators. These binary measures cannot adequately capture the enormous heterogeneities among urban areas and the rapid dynamics of urbanization (Champion and Hugo, 2004; Dahly and Adair, 2007; Van de Poel et al., 2012). Rather than a binary phenomenon, urbanization potentially involves continuous rural-urban transformations and hence requires a metrics that can reflect the intensity and pace of these

transformations.¹ For instance, recent studies show that there exists substantial heterogeneity in urban livelihood and associated urban amenities in African countries (World Bank, 2013). Thus, exploring the implication of urbanization on households' livelihood using alternative metrics that can reflect such heterogeneities is important for informing urban development programs. In this regard, the advent of satellite-based nighttime light data offers a unique potential to measure urbanization and urban expansion. As nighttime light represents a fundamental urban amenity, light intensity per unit area is argued to be a valid marker of urbanization and urban growth (Henderson et al., 2003; Sutton, 2010; Storeygard, 2016). For instance, Keiser et al. (2004) employ nighttime light data as markers of urbanization in Sub-Saharan Africa for studying the implication of urban expansion on malarial control.

In this project, we aim to combine satellite-based nighttime light intensity data and standard definitions of urbanization to construct an index for levels of urbanization and study the implications of urbanization on households' welfare and livelihood in Ethiopia. Such an investigation is particularly imperative given that recent studies are arguing that urbanization in Africa has unfolded differently than the rest of the world (e.g., Henderson et al., 2013; Gollin et al., 2016). We are particularly interested in identifying whether recent urbanization trends in Ethiopia are improving household welfare and generating inclusive growth and opportunities. More succinctly, this project aims to address the following two broad research agendas:

- i. Investigate the contribution of urbanization on households' welfare and economic inequality among households in Ethiopia
- ii. Quantify the impact of urban expansion in Ethiopia on labour market outcomes of the youth and women

These are crucial questions relevant to many urban development programs in Africa. Addressing these questions can inform urban policies geared toward alleviating large-scale urban poverty and inequality.

SECTION II – CAPACITY BUILDING

2.1. Team composition and experience

¹ Some recent studies argue that urbanization should be considered as continuous and multidimensional transformations (e.g., ECA, 2017).

For each research team member, please indicate (using the following tables – one per member):

1. **Age, sex, as well as relevant/prior training and experience** in the issues and research techniques involved (start with team/project leader).
 - Note that PEP favors gender-mixed teams, composed of a maximum of four (4) members, at least 50% female researchers, and at least two (2) junior researchers (aged under 30), all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams.
 - Each listed member must post an up-to-date CV in their profile on the PEP website – refer to “How to submit a proposal” on the call's [webpage](#).
2. **Benchmark and expected capacity building:**
 - Describe the research capacities that each team member (and potentially her/his affiliated institutions) is expected to build through their participation in this project. This is an important aspect in the evaluation of proposals and should be presented in detail.
 - What techniques, literature, theories, tools, etc. will each team member and her/his institutions learn (acquire in practice) or deepen her/his knowledge of?
 - How will these skills help each team member in their career development?
 - What are the current state of knowledge of each team member in regard to the project you are proposing?
3. **Task and contributions to project:** Indicate the specific tasks each team member would carry out in executing the project.
 - Note that one of the team members must be clearly identified as responsible for coordinating and reporting on the design/implementation of the projects' policy engagement and communication strategy (see section III below). To achieve a more balanced task distribution, PEP advises to select a member other than the project leader.

Team leader

Name	Age	Sex (M, F)	Highest degree/diploma
Kibrom Araya Abay	33	M	Ph.D. degree
Training and experience	Kibrom, an Ethiopian citizen, recently completed his Postdoctoral Research at the University of Copenhagen and just moved to Ethiopia for pursuing his research career being in Africa. ² He holds M.Sc. and Ph.D. degrees in Economics from the University of Copenhagen. Before doing his graduate studies, Kibrom worked as graduate assistant at Mekelle University (Ethiopia) (2006-2008). Kibrom's research interest		

² It has been few weeks since he moved to Ethiopia (Addis Ababa) and hence he is not yet formally affiliated with any institution.

	<p>lies at the intersection of applied microeconometrics, behavioral economics and development economics. In doing his Ph.D. and Postdoctoral projects, he has conducted research broadly involving applied microeconometrics and policy evaluation methods in various economic problems, including behavioral, urban and development economics. He owns strong quantitative and econometric skills that can be applied to wide spectrum of economic problems. He is an expert on impact evaluation methods and discrete choice modelling approaches. He has taught courses related to policy evaluation methods at the University of Copenhagen. He has published some papers in respected general-interest and field-journals in economics.</p>
<p>Expected capacity building</p>	<p>Kibrom expects to gain substantial experience and capacity building from this project. While working on this project, he expects to collaborate with experienced PEP resource persons and other leading researchers. Kibrom is already collaborating with researchers from Cornell University (including Christopher Barrett and Garrick Blalock) as well as researchers from IFPRI. Thus, this project can instrumentally extend this collaboration and offer substantial research experience and opportunities. Through this project, Kibrom aims to visit relevant PEP resource person(s) and potentially collaborate with them on this project or other relevant future projects. Given his experience, Kibrom hopes that he can quickly establish strong network with senior PEP resource persons, a collaboration that may extend beyond this project. He also aims to present research results at international conferences. While working on this project, Kibrom also aims to interact and engage with local policy makers in Ethiopia. This enables him to further develop his capacity and experience on communicating and designing research agendas that can affect local policy making. Kibrom envisions to be an established researcher who can influence local policy makings in Ethiopia. Thus, this project can instrumentally help him prepare and sharpen his research career.</p>
<p>Contribution to project</p>	<p>Team leader and lead researcher. Kibrom will be responsible for the overall coordination and implementation of the project. He will be responsible for reporting and overseeing overall activities of the project. He will be involved in every stage of the project. He will participate in data processing and analysis as well as write-up of papers.</p>

Team member #2

Name	Age	Sex (M, F)	Highest degree/diploma
Meron Endale Hailu	26	F	M.Sc degree
Training and experience	<p>Meron is a young and enthusiastic economist with extensive experience on household survey data management and related statistical and econometric skills. She did her Master's study at the Erasmus University Rotterdam - International Institute of Social Studies. She owns strong statistical and econometric skills that can be applied in various settings and datasets. Meron has taken several specialized trainings that has equipped her with important skills that are relevant to projects of this type. Currently, she is working as research consultant at the Ethiopian Strategy Support Program of the International Food Policy Research Institute, based in Addis Ababa.</p>		
Expected capacity building	<p>Meron is young and hence expects to gain substantial capacity building and experience. Through this project, she expects to work with experienced and senior researchers that can help her build her career. Through this project, Meron expects to present research results at international and national conferences. She also aims to attend more specialized trainings on statistical and econometric methods.</p>		
Contribution to project	<p>Meron will be involved in every stage of this project. She will be handling the data processing and cleaning process. She will also participate in the empirical analyses as well as write-up of papers. This enables her to gain every experience from all stages of the research process. She will be co-authoring joint papers from this project.</p>		

Team member #3

Name	Age	Sex (M, F)	Highest degree/diploma
Helina Tilahun Worku	36	F	M.Sc.
Training and experience	<p>Helina is a GIS analyst with extensive experience on spatial data analysis and management. She holds a Master of Science in Geo-Information System from Wageningen University. She is currently working as GIS analyst at the Ethiopia Strategy Support Program (ESSP) of the International Food Policy Research Institute (IFPRI), based in Addis Ababa. She has conducted and participated in several empirical analyses involving spatial data. As GIS expert, she has worked for several international agencies. She has provided several trainings (related to GIS) for researchers and university staff at many universities in Ethiopia.</p>		
Expected capacity building	<p>Despite her extensive experience on GIS and spatial data analysis, she expects to deepen this capacity through this project. Through this project, she expects to collaborate with senior researchers to gain more research experience and widen her research scope. Through this project, Helina expects to present research results at international and national conferences. She also aims to attend more specialized trainings on spatial data analysis.</p>		
Contribution to project	<p>As this project combines longitudinal household surveys with geo-spatial datasets, Helina will be contributing substantially to this task of data management and spatial analysis. We aim to merge household surveys and spatial datasets using GPS coordinates of households' residence. We aim to merge the longitudinal LSMS-ISA data for Ethiopia with the satellite-based nighttime light intensity data from the US Defense</p>		

	<p>Meteorological Satellite Program (DMSP), rainfall data from World Clim and population density data from LandScan.</p> <p>Helina will be undertaking these spatial data management and spatial data analysis. However, Helina also aims to participate in other tasks of the project, particularly those that can give her relevant experience.</p> <p>Helina has organized several workshops and remains connected with local policy makers in Ethiopia. Thus, she will also be contributing to communicating and dissemination of research output to local stakeholders. We aim to organize one-day workshop to disseminate our results and Helina will be responsible for organizing this workshop.</p>
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Team member #4

Name	Age	Sex (M, F)	Highest degree/diploma
Name	Age	M/F	Highest degree
Training and experience	Insert your text here		
Expected capacity building	Insert your text here		
Contribution to project	Insert your text here		

2.2. List of past, current or pending (non-PEP) projects in related areas involving team members, including resulting publications (if any)

Name funding institution, title of project and related publications, list of team members involved.

Name of funding institutions	Title of projects and related publications (link)	Team member(s) involved
International Growth Center	<p>Title: Agricultural Cooperatives in Ethiopia: Do they Matter?</p> <p>Publication (reference):</p> <ol style="list-style-type: none"> 1. Abay, K.A., Berhane, G., Taffesse A.S., Koru, B., and Abay, K. (2017). Estimating Input Complementarities with Unobserved Heterogeneity: Evidence from Ethiopia. Accepted, <i>Journal of Agricultural Economics</i>. http://onlinelibrary.wiley.com/doi/10.1111/1477-9552.12244/full 2. Abay, K.A., Kahsay, G.A., and Berhane, G. (2017). “Social Networks and Factor Markets: Panel Data Evidence From Ethiopia”. <i>Journal of Development Studies</i>. http://www.tandfonline.com/doi/full/10.1080/00220388.2017.1288224 3. Abay, K.A., Koru, B., Abate, G., and Berhane, G., 2016. “How Should Rural Financial Cooperatives Be Best Organized? Evidence from Ethiopia”. IFPRI-ESSP Working paper 100. http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/131056 	Kibrom Araya Abay
Danish Council for Independent Research	<p>Title: Joint Modeling of Risk Taking Behavior</p> <p>Publication (reference):</p> <ol style="list-style-type: none"> 1. Abay, K.A. (2017). “How Effective are Non-monetary Instruments for Safe Driving: Panel Data Evidence on the Effect of Demerit-Point-System in Denmark”. In press, <i>Scandinavian Journal of Economics</i>. http://onlinelibrary.wiley.com/doi/10.1111/sjoe.12235/abstract 2. Abay, K.A. (2015). “Evaluating Simulation-based Approaches and Multivariate Quadrature on Sparse Grids in Estimating Multivariate Binary Probit 	Kibrom Araya Abay

	Models'', <i>Economics Letters</i> 126, 5-56. http://www.sciencedirect.com/science/article/pii/S0165176514004406	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	

2.3. List of past or current PEP-supported projects involving team members, including resulting publications

Project code (e.g. PMMA-12345)	Title of project and related external (non-PEP) publications, if any	Team member(s) involved
STAARS-05	Title: Locus of Control and Technology Adoption in Africa: Evidence from Ethiopia	Kibrom Araya Abay
	Publication (reference): 1. Abay, K.A., Blalock, G., and Berhane, G. (2017). "Locus of Control and Technology Adoption in Africa: Evidence from Ethiopia". <i>Journal of Economic Behavior and Organization</i> 143, 98-115. http://www.sciencedirect.com/science/article/pii/S0167268117302536	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	

SECTION III – RESEARCH

3.1. Literature review (max 1000 to 1500 words)

Explain specific gaps in existing literature that your research aims to fill. You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what you wish to achieve (in addition) by examining the question again?

Insert your text here – max 1000 to 1500 words

In the last few decades, many developing countries have experienced unprecedented levels of urbanization. Africa has experienced the world's highest urban growth during the last two decades. This urban growth has been relatively higher in Sub-Saharan Africa, with the share of urban population reaching about 40 percent in 2014. This rapid urbanization is presenting new opportunities and challenges for ensuring sustainable and inclusive growth. As many African countries continue to register extensive levels of urbanization, there have been other unwelcomed global and regional trends in poverty, inequality and unemployment. For instance, poverty has been urbanizing and hence becoming urban phenomenon (Ravallion et al., 2007; Dorosh and Thurlow, 2014); economic inequality has been growing in cities (World Bank, 2013); and (youth) unemployment is becoming a major developmental challenge in African urban centers (ILO, 2013). When the world's urban population surpassed rural population for the first time in 2007/2008, poor African urban dwellers were disproportionately hit by the concurrent food price rise. This particularly highlighted that poor urban residents are vulnerable to potential food price rises and related shocks caused by climate change (Cohen and Garrett, 2010). Indeed, urban poverty and inequality as well as youth unemployment are the major challenges facing urban developments in Sub-Saharan Africa countries (African Development Bank, 2011). Some attribute these problems to the imbalance between the unjustifiably "high" levels of urbanization that exceeds the level of economic development to support urban livelihood (Sommers, 2003; Henderson et al., 2013). Because of this, many argue that Africa is urbanizing without growth (Fay and Opal, 2000; Gollin et al., 2016). The pace of urbanization in many African countries is surpassing the required pace for structural and political reforms to accommodate this rapid urban expansion, and hence leading to proliferation of slums and informal sectors. This is reflected by the fact that 62 percent of urban residents in Africa are living in slums with high and rising rates of youth unemployment (World Bank, 2013).

Urban development programs in Ethiopia share most of the aforementioned challenges.

Despite from a low base, with current urban population (17%) below the Sub-Saharan African average, annual urban growth in Ethiopia has been higher than the Sub-Saharan African average. Urban population in Ethiopia has been growing by 4.5% for the last two decades while the overall population growth in Ethiopia as well as overall urban growth in Africa are lower than this figure (World Bank, 2011). However, urban expansion in Ethiopia lacks integrated planning and structural transformations to support growing urban population. Cognizant of this trend, the Ethiopian government is recently giving due policy attention to existing trends in the urbanization process (FDRE, 2016). Indeed, monitoring recent trends in urban expansion has been incorporated in the recent Growth and Transformation Plan (GTP)-II (2015/16 – 2019/20) of the government Ethiopia. The fast-urban growth, but still from low base, in Ethiopia provides a unique opportunity to proactively manage and regulate urban development programs to ensure inclusive growth and opportunities. Despite lack of rigorous empirical evidence, recent anecdotal pieces of evidence hint that recent trends in urban expansions in Ethiopia may not be improving household welfare (Dorosh and Thurlow, 2014; Mezgebo, 2017) and generating inclusive opportunities for all groups of population. For instance, some argue that urbanization in Ethiopia might be exacerbating economic inequality among societies while others hint the youth and women may not be equally benefiting from recent urban expansions (Broussard and Teklesellasi, 2012). In particular, with increasing population trends and scarcity of agricultural land, youth unemployment remains widespread and hence a major challenge to Ethiopian policy makers. Hence, one of the major questions here is whether existing urbanization trends are easing this pressure or not.

The theoretical links between urbanization, aggregate welfare and inequality date back to Kuznets (1955). At macro-level, Kuznets's model shows that urbanization can affect aggregate welfare and economic inequality through its dynamic implication on the contribution of various sectors of the economy. For instance, urbanization is commonly associated with industrialization and hence affects the share of the manufacturing and other sectors of the economy. At micro-level, the implication of urbanization on household welfare and labor market outcomes potentially involves several causal chains among various inputs. Urbanization improves access to markets and hence may generate higher income to support livelihoods. Urbanization involves movement of people from remote and rural areas to urban areas, a trend that may affect labor market outcomes of urban dwellers (see e.g., Henderson et al., 2017). However, it is worth noting that urbanization involves some other structural and nutritional transitions that complicates identification of potential channels through

which urbanization can affect household welfare and labor market outcomes.

However, despite evolving pieces of evidence showing that Africa is urbanizing differently, empirical evaluation of urban development programs in Africa is missing. In particular, the implications of the urbanization trends in Sub-Saharan Africa on economic inequality and labor market outcomes are not well-explored. Of course, there exist recent attempts to explore the implication of urbanization in Asian countries (e.g., Kanbur and Zhuang, 2013). Kanbur and Zhuang (2013) document substantial and country-specific contribution of urbanization in Asian countries. The scarcity of empirical studies on the implication of urbanization can be partly attributed to lack of an objective measure of the level and dynamics of urbanization. Previous attempts employ coarse aggregate measures and definitions of urbanization, measures which cannot adequately capture the enormous heterogeneities among urban areas and the rapid dynamics of urbanization (Champion and Hugo, 2004; Dahly and Adair, 2007). These census-based rural-urban indicators are unable to uncover potentially complex and nonlinear relationships between urbanization and households' livelihood outcomes. Rather than a binary phenomenon, urbanization involves a continuum of rural-to-urban transformation at various stages and pace. Thus, exploring the implication of urbanization on households' livelihood using alternative reliable metrics of urbanization is important for informing urban development programs. The advent of satellite-based nighttime light data offers interesting potential to measure urbanization and urban expansion. Given that nighttime light remains one of the fundamental urban amenities in Africa and other developing countries, nighttime light intensity is argued to be a valid marker of urbanization and urban growth (Elvidge et al., 1997; Imhoff et al., 1997; Sutton, 1997; Henderson et al., 2003; Zhang and Seto, 2011; Storeygard, 2016). The nighttime light data are measured with consistent quality across at high spatial resolution.

In this project, we aim to combine satellite-based nighttime light intensity data and standard census-based definitions of urbanization to construct an index for levels of urbanization and study the implications of urbanization on households' welfare and livelihood in Ethiopia. We are particularly interested in identifying whether recent urbanization trends in Ethiopia are improving household welfare and generating inclusive growth and opportunities. We particularly aim to address the following four research questions:

- i. Does urbanization improve households' welfare?
- ii. Does urbanization really trigger economic inequality?
- iii. Do urbanization programs increase youth unemployment?

iv. Do recent trends in urban expansion in Ethiopia empower women and the youth?

These are crucial questions relevant to many urban development programs in Africa. Addressing these questions can inform urban policies geared toward alleviating large-scale urban poverty and inequality. For instance, by addressing these research questions we can identify potential regulating and monitoring mechanisms to ensure urban development programs in Africa provide inclusive and sustainable growth.

3.2. Methodology (max 1200 to 1600 words)

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so.

- Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so.
- Explain if these methods have already been used in the context you are interested in (including key references).
- **For PMMA (microeconomic analysis) proposals only:** In case the proposed methodology aims to empirically estimate a causal relationship, explain potential sources of endogeneity in the context of your research, and how the proposed technique(s) would allow the identification of the relevant parameters.

Insert your text here – max 1200 to 1600 words

Quantifying the impact of urbanization involves several challenges, including endogeneity problems arising from omitted attributes and measurement problems. This is plausible given that most urbanization programs are accompanied by economic growth that can influence the overall livelihood of societies. In view of these empirical challenges and features, we aim to employ alternative econometric approaches that exploit the cross-sectional and longitudinal variations in our measure of urbanization. As we aim to employ three waves of the LSMS-ISA data, we will be following the same households across waves and hence we expect reasonable variations in our measure of urbanization across time. We particularly aim to combine and exploit two types of variations to estimate the effect of urbanization on our outcomes of interest. First, as we conduct our analysis at the household-level, potential dynamics in urbanization can be exogenous to short-term livelihood outcomes. Hence, our first approach aims to exploit the longitudinal variations in our measure of urbanization and hence estimate fixed effects models. These panel data models are immune to time-invariant differences

across villages and households. Interestingly, the LSMS-ISA data trace households' migration and related dynamic decisions, enabling us to control for additional time-varying characteristics of households. Following the two broad research agendas and four research questions discussed above, our outcome variables consist of measures of household welfare and their distribution as well as indicators of labour market outcomes for the youth and women. For presentational focus, let us consider those consumption based welfare measures and hence one of our outcome is consumption per capita (or adult equivalent). Considering this measure of household welfare, we aim to estimate the following fixed effects equation for consumption per capita:

$$\ln C_{hvt} = \delta_h + \beta_1 U_{vt} + \beta_2 H_{hvt} + \beta_3 V_{vt} + \dots + \varepsilon_{it} \quad (1)$$

Where $\ln C_{hvt}$ stands for consumption per capita for household h residing in an enumeration area (EA) v for period t . δ_h represents household fixed effects, U_{vt} stands for the level of urbanization for each enumeration area (village) and time, while H_{hvt} and V_{vt} capture additional household and village characteristics, respectively. The specification in equation (1) is immune to time-invariant household and village-level heterogeneities. Hence, in the absence of time-varying unobservable factors which affect both consumption and urbanization, β_1 identifies the effect of urban growth on household welfare. We aim to estimate slightly similar regressions for quantifying the impact of urbanization on welfare distribution (economic inequality) among households living in the same enumeration area (village).³ Similar equations can be estimated for exploring the implication of urbanization on labor market outcomes of the youth and women.

Given that households have little influence on urban expansion, we can argue that the empirical specification in equation (1) can reasonably identify the impact of urban growth on household welfare. To circumvent endogenous dynamic migration decisions, we aim to restrict our estimation sample to those households remaining in the village for the whole period. The endogenous movement of households and our sample restriction for those staying in the same village is expected to be more consequential for some our outcomes than others. However, one may still imagine that some dynamic shocks and government interventions can affect both urban development programs and welfare of households. To minimize such contemporaneous shocks to our outcomes and the explanatory variables, we also aim to implement the estimation in equation (1) by lagging our key urbanization metrics. Such estimation can be done within panel setting and hence still by controlling

³ Thus, we aim to conduct village-level analysis of economic inequality and estimate equation (1) at enumeration area (village) level.

household (or village-level) fixed effects. By doing so, we rule out the effect of unobservable common contemporaneous factors and potential reverse causality effects.

Finally, to generate additional exogenous variations in urbanization, we also consider instrumental variable estimation, at least for some of our outcomes and research questions. Recently, Henderson et al (2017) show that climate variability is pushing Sub-Saharan African urban expansion by shaping rural households' migration patterns.⁴ The central argument for this is positive rainfall shock pushes urban dwellers to engage in rural agricultural activities while negative rainfall shocks induce rural farmers migrate to urban areas. This implies that climate (e.g., rainfall) variability can generate exogenous variation in urbanization or urban population. Thus, for some of our outcomes we aim to conduct instrumental variable estimation. We particularly aim to predict the dynamics of urbanization at village (district) using climate (rainfall and moisture) variables and exploit this variation to estimate the effect of urban expansion on some of our outcomes. It is well-recognized that these rainfall shocks are exogenous and hence should be valid instruments for some of our outcomes (e.g., economic inequality). But these climate variables may have other direct implications on some of our outcomes and hence are not well-suited for addressing some of the research questions in this project. Considering some of these relevant outcomes (e.g., measure of economic inequality constructed from consumption per capita), we can estimate the following first-stage and second-stage equations:

$$U_{vt} = \delta_v + \beta_1 R_{vt-1} + \beta_2 V_{vt} + \dots + \omega_{it} \quad (2)$$

$$I_{vt} = \delta_v + \beta_1 \hat{U}_{vt} + \beta_3 V_{vt} + \dots + \varepsilon_{it} \quad (3)$$

Where δ_v stands for village-specific fixed effects while R_{vt-1} represents lagged rainfall in each village and for each period. The other terms in equation (3) are similar to those in equation (1), except for I_{vt} now standing for village-level measure of economic inequality.

We note that the estimable specifications in equation (1-3) may not apply for every outcome we consider in this project. Thus, we will be appropriately applying the above alternative approaches depending on the nature of our outcome variable of interest. However, in every estimation, we will be exploiting longitudinal variations in the level of urbanization and hence we are able cancel-out time-invariant differences across villages and households. Thus, we believe that these alternative methods can provide robust evidence on the causal effect of urbanization on household livelihood.

⁴ Similar pattern and evidence is also documented for Central American and the Caribbean (Baez et al., 2017).

Finally, the empirical analyses in this project can provide useful insights even when one of the identification strategies above fails to provide sufficient empirical variation. For instance, if we are unable to generate sufficient longitudinal variation in our measure of urbanization, we are still able to characterize the patterns and growth of our outcomes both for rural and urban dwellers. For instance, even though we may not attribute causality, we can compare the growth rates of household welfare and inequality across time for both urban and rural households. This can inform the dynamics of household welfare and economic inequality, which in turn can guide urban development programs and related social protection programs in urban or rural areas. Thus, the empirical analyses in this project, should at least inform the relative trends of our welfare and labor market outcomes in urban and rural areas.

3.3. Data requirements and sources (max 400 to 700 words)

This is a critical part of the proposal. The key issue is to explain the reason for the choice of your particular databases. You must establish that they are ideal for the question you wish to address and that you have or will have access to these data before your project begins. Please consult the ["Guide for designing a research project proposals"](#) for more detail.

Insert your text here – max 1000 to 1300 words

We aim to assemble large geo-referenced and nationally representative household-level longitudinal datasets. We, thus, plan to compile and merge three types of datasets. The first and main dataset comes from the Living Standard Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) for Ethiopia (also known as the Ethiopia Socioeconomic Survey (ESS)). We aim to employ three waves of these nationally representative datasets. The first survey was conducted in 2011/12 with the second and third waves coming in 2013/14 and 2015/16, respectively. These household-level longitudinal datasets are collected by the Central Statistical Authority of Ethiopia in collaboration with the World Bank. These datasets are nationally representative and cover large sample of households in urban and rural areas of Ethiopia. The LSMS-ISA datasets provide detail information on households' agricultural activities, labor market participation and consumption expenditure of rural and urban households. More importantly, the LSMS-ISA datasets provide GPS coordinates of households' residence, which allows us to merge them with our second source of data which includes a number of geo-spatial datasets. We aim to merge the longitudinal LSMS-ISA data for Ethiopia with the satellite-

based nighttime light intensity data from the US Defense Meteorological Satellite Program (DMSP), rainfall data from World Clim and population density data from LandScan.

The third type of longitudinal datasets come from more specialized survey collected by the International Food Policy Research Institute (IFPRI) and the Central Statistical Authority of Ethiopia (CSA). This geo-referenced longitudinal dataset is collected to evaluate Ethiopia's Agricultural Growth Program (AGP) and cover around 7,500 farm households visited in two rounds (2011 and 2013). The AGP is a unique program that focuses on Ethiopia's high-agricultural-potential zones (in 83-targeted districts) with a primary objective of increasing agricultural productivity and market access for key crops and livestock products. The survey sampling design involved two-step random sampling of Enumeration Areas (EAs) and households from each EA. The AGP data cover the most important agricultural areas in the country, with the key agro-ecological zones represented. They contain detailed household-level information on characteristics, agricultural land labor endowments and allocations. The AGP data provide additional outcomes, those unavailable in the LSMS-ISA.⁵ Combining the LSMS-ISA and the AGP datasets enables to probe the robustness of our results and exploit some attractive features of each dataset for addressing the specific research questions. For instance, the LSMS-ISA dataset is more suitable for addressing our first two research questions while the AGP dataset is more suitable for addressing the remaining research questions.

We aim to measure urbanization and urban growth by combining nighttime light intensity data and community-level characteristics and definitions of urbanization. These satellite-based remote sensors collect daily nighttime light intensity data from every location on the planet at about one square-kilometer resolution. Besides being freely available, the nighttime light data have some features, which are attractive for measuring urbanization and related human activities. First, the availability of the data at a high spatial resolution allows constructing spatially detailed measures of urbanization. This makes it an attractive proxy compared to the aggregate census and survey-based measures commonly used. Second, the nighttime light data provide a continuous index for detecting the dynamics of urbanization across time, a process which otherwise requires frequently repeated censuses and surveys. Due to these novel features these data are commonly used to delineate urban areas and urban growth (e.g., Elvidge et al., 1997; Imhoff et al., 1997; Sutton, 1997; Henderson et al., 2003; Zhang and Seto, 2011; Storeygard, 2016). However, nighttime light intensity may also capture local trends in economic activities (e.g., Chen and Nordhaus 2011; Henderson et al. 2012). Thus, we

⁵ These datasets can also help us explore some country-specific and unique features of urban expansion in Ethiopia and its implications.

aim to combine these measures with census-based definitions and community level characteristics (e.g., population density and distance to major towns).⁶

The LSMS-ISA datasets provide detailed household-level information on consumption, income and labor market participation of rural and urban households. We aim to employ the trends and distribution of these metrics to measure households' welfare and inequality.⁷ Using these consumption and income measures, we will compute common indexes measuring inequality across villages, including the Gini coefficient and other recent indexes (e.g., the Theil and Atkinson index). The AGP dataset from IFPRI also provide information on labor market participation of each household member as well as additional well-being measures, including information on subjective well-being and related self-reported outcomes that can corroborate the analysis. These outcomes can help reconcile evolving conflicting arguments on the effect of urban livelihood on subjective well-being and happiness (e.g., Easterlin, 2003; Glaeser, 2011). The rainfall data (from World Clim) will be employed to generate rainfall and related climate shocks. Information on labor market participation of household members (both on farm and non-farm activities) is available in the LSMS-ISA and Ethiopian household surveys from IFPRI.

SECTION IV – POLICY ENGAGEMENT

4.1. Policy relevance

4.1.1. Describe policy context and needs

Describe the specific policy issues or needs that your research aims to address; how your potential outcomes and findings may be used in policy making? Please be as precise as possible, indicating specific current or prospective policies and the specific contributions your research would make.

Also, justify timing of your research in terms of policy and socioeconomic needs and context – e.g. reference to existing, planned or potential policies at the national, regional or local level; specific political context; international examples of similar policy problems or solutions, etc.

Insert your text here – max 800 to 1000 words

The findings from this project will add new empirical evidence to the ongoing scientific research on

⁶ See, Van de Poel et al. (2012) for similar continuous indexes and measures of urbanization constructed from detail community-based characteristics.

⁷ The LSMS-ISA dataset also provide other indicators of household well-being, including information on human health.

the implications of urban expansion in improving household welfare and empowering various groups of societies. Expected results from this project will help understand the multifaceted attributes and implications of urban expansion on household livelihood and related outcomes in Ethiopia and beyond. The project will help identify potential regulating and monitoring mechanisms to ensure urban development programs in Ethiopia can provide inclusive and sustainable growth. We expect that our results would have crucial implications and hence can support to evidence-based urban development policy making in Ethiopia. With the current rapid level of urbanization in Ethiopia, monitoring urban expansion trends remains a top priority of the current government of Ethiopia. Thus, as the government of Ethiopia is currently weighing on employing various instruments to regulate urban development programs, our results can garner substantial local appeal and hence contribute to evidence-based urban policy makings in Ethiopia. The project is expected to produce 2 journal-quality research papers and related policy briefs. These papers will be presented at national and international conferences, and submitted to reputed journals in Economics and neighboring fields. We also plan to present and disseminate our results to local stakeholders, particularly Ethiopian policy makers.

4.1.2. Consultations to date

List the consultations that you have had with potential research users (e.g. policy makers or stakeholders) and that have helped define your research question, and/or informed you of the specific policy context described above.

For each institution consulted, please:

- List key (individual) representatives who participated in the consultation
- Describe the main outcome(s) of the consultation (feedback, inputs, etc.)

Name of institution/organization #1	Ministry of Urban Development and Housing (MUDH) in Ethiopia.
List the key representative involved in consultations (names and titles/positions)	
Describe main outcomes of consultation – feedback or inputs received	
<p><i>Insert your text here – max 100 words</i></p> <p>We have had some informal discussions on the potential of this research agenda with some representatives from the MUDH in Ethiopia. Our understanding is that the ministry would really appreciate every piece of new insight that may help understand and monitor urban expansion</p>	

programs in Ethiopia. We agreed that the ministry would be happy to cooperate and organize a seminar or workshop for disseminating potential research outputs from this project.

Name of institution/organization #2	Ministry of Agriculture and Natural Resources (MoANR)
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List the key representative involved in consultations (names and titles/positions)

Describe main outcomes of consultation – feedback or inputs received

Insert your text here – max 100 words

We understood that the ministry of agriculture is weighing on various policy instruments to influence rural-urban migration in Ethiopia. Our discussion with these representatives indicate that the consequences and implications of urbanization are less understood. Indeed, we have got some inputs from these discussions which helped us slightly shape our focus in the proposal. We are confident that the ministry would be one of the direct users of our research output.

Name of institution/organization #3	International Growth Center (IGC)
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List the key representative involved in consultations (names and titles/positions)

– Alemayehu Seyoum Taffesse, Senior Research Fellow and Country Director

Describe main outcomes of consultation – feedback or inputs received

Insert your text here – max 100 words

Following our previous successful collaboration, we agreed to continue this collaboration for this project. IGC has interest in urban policy making in Ethiopia and they are happy to see more research in this area. We will be collaborating with them in disseminating our results and they are happy to pursue this already established partnership.

Name of institution/organization #4	Ethiopia Strategy Support Program (International Food Policy Research Institute)
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List the key representative involved in consultations (names and titles/positions)

– Guush Berhane, Research Fellow

Describe main outcomes of consultation – feedback or inputs received

Insert your text here – max 100 words

The Ethiopia Strategy Support Program (ESSP) of the International Food Policy Research Institute (IFPRI) has substantial interest to influence policy making in Ethiopia and have visible presence in Ethiopia. We will be collaborating and accessing their research facilities, including data and related

resources. They have developed several outlets to reach policy makers in Ethiopia and we aim to disseminate our results from this project through their outlets (e.g., by publishing our research in their working papers series). These outlets can also help us disseminate our results to broader audience.

4.2. Engagement strategy

4.2.1. Identify target audiences

Identify potential users of your research findings – institutions/organizations that may use your findings to inform, advise or influence policy or other relevant decision-making processes. Please explain why you believe these institutions/organizations are the most important potential users of your research, to inform relevant development/policy decisions.

Name of institution/organization #1	Ministry of Urban Development and Housing in Ethiopia (MUDH)
Explain relevance of this user to inform key decisions	
<p>Insert your text here – max 100 words</p> <p>Our discussions with representatives from the Ministry of Urban Development and Housing in Ethiopia indicate that this ministry faces several challenges associated with unregulated urban expansion. The excessive flow of individuals from rural areas to major towns and capital cities in Ethiopia is creating substantial demographic pressure on public services, including housing. Thus, the ministry would benefit from rigorous evaluations and welfare implications of existing trends in urban expansion in Ethiopia.</p>	

Name of institution/organization #2	Ministry of Agriculture and Natural Resources
Explain relevance of this user to inform key decisions	
<p>Insert your text here – max 100 words</p> <p>With increasing population trends and scarcity of agricultural land, the Ministry of Agriculture and Natural Resources aims to proactively understand and monitor the implication of recent trends in urbanization in Ethiopia. The ministry is keen to get as much research as possible on this issue. Thus, it is obvious that the Ministry would benefit of research projects of this type to design effective and optimal regulatory instruments to influence rural-urban migration.</p>	

4.2.2. Define outreach and engagement strategy

How, from proposal design to the dissemination of your research results, will you consult and communicate with these users to both gather their inputs and keep them informed of your project, in order to increase chances of research uptake?

Insert your text here – max 150 words

Throughout the whole research process, we plan to engage relevant stakeholders and agencies for whom we believe our empirical has some relevance. We will be discussing our progress as well as early results with key representatives of the above organizations. We will be meeting these representatives in seminars and bilateral meetings to communicate our results. We also aim to organize one-day workshop where we invite other researchers and local stakeholders discuss research results relevant to urban policy making in Ethiopia. We aim to invite representatives from the MUDH, MoANR and international think-thanks such as the IGC and IFPRI. We will also invite other local stakeholders that we aim to identify them in the process of doing the research.

4.2.3. Outline your preliminary dissemination strategy

Outline your preliminary dissemination strategy (channels, tools, events, audiences, etc.). Note that PEP expects grantees to disseminate information about their research work and (expected) outcomes throughout the project cycle, and not only after publication.

Insert your text here – max 150 words

Locally, we aim to organize one-day workshop where we invite other researchers and local stakeholders discuss research results relevant to urban policy making in Ethiopia. We aim to invite representatives from the Ministry of Urban Development, Ministry of Agriculture and International think-thanks such as the IGC and IFPRI. We will also invite other local stakeholders that we aim to identify them while doing the research.

Furthermore, our results will appear as working papers in leading outlets in Ethiopia and abroad. Synthesis of our research results will be disseminated through policy briefs and possibly in local languages. The team leader also plans to appear in relevant local medias and discuss some of the results.

Internationally, we aim to present our results at respected international conferences (including the CSAE conference in Oxford and World Bank conferences in Washington DC). We also aim to publish our results in respected and decent economics journals. Given the publishing experience of the team members, we believe that this should be feasible and rewarding for the team members' research career.

SECTION V – OTHER CONSIDERATIONS

5.1. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

Insert your text here

Not applicable

5.2. References and plagiarism:

Applicants should be very careful to avoid any appearance of plagiarism. Any text of five or more consecutive words that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- <http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism>

PEP will be using a software program to detect cases of plagiarism.

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