"Roberto Franceschi" Research Grants
for MSc and PhD students

Attachment 1 – Summary of research project – To be attached to candidate's application (facsimile)

Title of proposed research: **Empirical Measures on Social Exclusion:**

1. **A Single censoring Multidimensional Poverty measure for Ethiopia**

2. **Multidimensional Poverty measure with individual preferences for Ethiopia**

3. **Happiness Index measure for Ethiopia**

Author's name, surname and (possible) affiliation:

Mekonnen Andualem Goshu
Supervisor: Prof. Raffaele Miniaci and Prof. *Decancq Koen*

Keywords (up to four): **Single Censored MPI, Happiness index, Preference based MPI**

Research Abstract (maximum length 5,000 characters) detailing:
(a) research objectives;
(b) methodology to be adopted;
(c) timing of data collection;
(d) summary description of the dataset that will be made available.

The Research Objectives

The study will work three papers using an empirical collected data in order to smash the following objectives:

1. To test the applicability of the above three new social exclusion models with a real data that has not been tested before
2. Very relevant to understand some theoretical framework and contribute for the existing literatures.
3. The Stiglitz-Sen-Fitoussi report remarks that "what we measure affects what we do and if our measurements are flawed, decisions may be distorted" (Stiglitz et al. 2009, p.7). It is helpful to have a good measure of poverty in order to understand the real problems and to choose a set of policies to affect different social exclusion variables such as health, gender inequality, child labour, political abandon, education, access to some services including clean water and others.

Methodology

Theoretical Models

The study will use three methodologies to analyze social exclusion: Multidimensional poverty (specifically focus on deprivation in health, education, standard of living, empowerment, asset endowment and income, political freedom, and other capability indicators) and happiness index (to measure the level of happiness).

    a. **A new Multidimensional Poverty Estimation Model**: *Developed By Mekonnen Andualem Goshu, 2014* The study used censoring for the aggregated deprivation score in order to determine who is poor or not. Unlike Bourguignon and Chakravarty family of poverty indices and the Alkire-Foster measure, censoring is used only for the second cutoff. It contributes for the existing literatures by adding richer information setting in the welfare measurement of an individual.

    b. **A Stated Preference based MPI estimation:** *Developed by: Decancq et.al. 2014* The study used aggregation of the different dimensions that are relies on individual preferences. The Pareto principle is, therefore, satisfied among the poor. The indices add up individual measures of poverty that are computed as a convex transform of the fraction of the poverty line vector to which the agent is indifferent.

    c. **Happiness index for Ethiopia** : *Under development by: Mekonnen Andualem Goshu*

Data

The study will use a primary data collected from a structured questionnaire from seven regions in Ethiopia: Addis Ababa, Oromia, Amhara, Harari, Dire Dawa, Tigray and SNNP, which accounts 95.5 percent of the total population of the country.

The need of Primary Data

To undertake the above three methodologies, to the knowledge of the researcher there are no data sets that are compatible to the need of the models, specifically for the first two methodologies. The data sets that are available in different institutions are binary data or count data for the measurement of MPI or social exclusion. The models that are going to be implemented here needs a different data set formats:

    a. Single censoring Multidimensional Poverty measure : this requires that all dimensions to have ordered information or count data set in order to show both the depth and severity of poverty

    b. Multidimensional Poverty Measure with individual preference: it needs stated preference where households are directly asked about their preferences to different MPI dimensions, where it is impossible to find the relevant information from the existing data sets that are needed for this methodology

Why Ethiopia is selected

1. The researcher origin of country is from Ethiopia, hence, I can contribute a lot for the design of the questioner and on the collection of the data set
2. Poverty and social exclusion is much exploded in developing countries. According to the OPHI estimation of global poverty Ethiopia located 103 positions out of 104 countries. So, it is convenient country that shows a variety degree of poverty and social exclusion.
3. For the quality of the study: it is possible to get a variety of social exclusion degree in Ethiopia than elsewhere so as to implement those developed poverty and social welfare methodologies
4. There exists data quality problem in Ethiopia and the area coverages of those data sets are also very narrow.

Therefore, the data will be collected by well-trained enumerator in the seven regions. The study will use a random selection method to select a total of 3600 sample households.

The data that is going to be collected will include questions related to various fields related to social exclusion so as to broaden the area of coverage and to increase its accessibility for other researchers in the area of: Economics, sociology, psychological, demographic and population

Specific to my study, information related to the following will be collected:

- Demographic characteristics
- Poverty related questions
- Inequality related questions
- Life satisfaction rate
- Questions related with health, education, standard of living,
- Empowerment
- Access to services such as: road, water, electricity, toilet, transportation and others
- Child labour and gender abuse
- Political freedom and attitude
- Human right and democratic right

A Study on Social Exclusion or Multidimensional Poverty Measure

Research Project

By: Mekonnen Andualem Goshu

(PhD candidate at Milan University (LASER): Email: andualem.mekonnen@unimi.it)

Supervisors: Prof. Raffaele Miniaci and Prof. *Decancq Koen*

A traditional approach to a measure of poverty is typically based on the net monetary income of a household unit, or on their consumption. A traditional approach defines a person as poor if his/her income is below a poverty line. The poverty line may be subjective, objective, or hybrid. It is often established at a nationally determined level based on a food or consumption basket or as a percentage of the mean or median overall income distribution (Bigsten, 2007).

The thought that income or consumption couldn't be a decent pointer of an individual wellbeing because of the externality and business sector disillusionment constrained researchers to discover an option method for measuring the wellbeing of an individual (Ravallion, 2011). In the last decade, the predominant role of income-based metric of social welfare and development has progressively been more questioned, generating an extensive debate about the need to consider the multifaceted nature of individual and collective wellbeing (Ferreira, 2011). The spearheading original papers of Sen (1976) and Foster-Greer-Thorbecke (1984), has moved the standardizing methodology of poverty estimation to the multidimensional case. Right on time in the 1980's the work of Townsend (1979), Streeten (1981) and Sen (1976) demonstrated that the wellbeing of an individual is relying on different measurements such as exclusion from health, education, standard of living, empowerment, human right, political right, information technology, , political, transportation and other services; and considering psychology, inequality, insecurity and fear, justice, immigration and other exclusion dimensions.

The instinct behind their defense is that the deprivation in income has a multiplicative impact on others measurements of an individual wellbeing. Hence, understanding the deprivation extent in different dimensions could help policy maker in order to understand the most deprived dimension and make target oriented policy. The multiple deprivation or social exclusion involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole. **The definition of 'multidimensional poverty', adopted by the United Nations talks of 'social discrimination and exclusion' and of 'lack of participation in decision-making civil, social and cultural life'.**

Henceforth, many scholars have started developing a multidimensional poverty measure that takes into considers deprivations in many welfare indicators, though there have been difficulties of measuring it (Tsui, 2002; Chakravarty and Bourguignon, 1999, 2003; Alkire and Foster, 2009; Ravallion, 1996, 2011; Data, 2013; Sen 1987, 1992; Atkinson 2003). However, the problem of destitute information set is one of the great challenges for the measurement of social exclusion indexes. Moreover, most of the methodologies are lacking showing the extent of deprivation of dimensions, and which could have implicit impact on the aggregate measure of MPI. The Stiglitz-Sen-Fitoussi report remarks that "what we measure affects what we do and if our measurements are flawed, decisions may be distorted" (Stiglitz et al. 2009, p.7).

Hence, developing a model that consider both the extent and depth of poverty, and a model that have richer information set is relevant. Therefore, the paper has developed a new social exclusion or multidimensional poverty measure that is based on richer information set and shows both the depth and the extent of deprivations in different social exclusion dimensions. This methodology is called a single censoring MPI measure. Analogous to the single censoring MPI measure, Decancq et.al, 2014 have developed a new MPI measure with individual preference that gives richer information set. However, these two models have not yet tested with empirical data set.

Objective of the study

The study will work three papers using an empirical collected data in order to smash the following objectives:

1. To demonstrate the applicability the new theoretical models with empirical data
2. To measure the social exclusion index for Ethiopia

Methodology

The study will try to estimate empirically the following three models.

1. A single censoring multidimensional Poverty Index measure

A single censoring multidimensional Poverty Index measure by Mekonnen (2014) has two parts: a double cutoff -single censoring multidimensional model and a single cutoff- single censoring multidimensional model. The study used censoring for the aggregated deprivation score in order to determine who is poor or not. Unlike Bourguignon and Chakravarty family of poverty indices and the Alkire-Foster measure, censoring is used only for the second cutoff. It contributes for the existing literatures by adding richer information setting in the welfare measurement of an individual. The model fulfilled all multidimensional poverty axioms, including transferability and monotonicity axioms. Moreover, the study suggested a weighting scheme across individuals. The study recommends the use of count and categorical data formats rather than dichotomous data set for the measurement of multidimensional poverty become more appropriate in order to show the depth and severity of poverty. [1]The measure can be given as follows:

$$m_{ij}^s = \mathbb{W}_{ij}(V_{ij})^{\alpha_j}$$

Where, $\mathbb{W}_{ij} = \begin{cases} \dfrac{\left[1 - \dfrac{Y_{ij}}{\sum_{i=1}^n Y_{ij}}\right]}{\text{is for endowments}} \\ \dfrac{y_{ij}}{\sum_{i=1}^n y_{ij}} \\ \text{is for deprivation} \end{cases}$ And;

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[1] Detail description of the methodological paper can be provided up on request. The paper is under review

$$V_{ij} = \begin{cases} \dfrac{T_j - Y_{ij}}{T_j} & \text{is for endowments; and} \\[2ex] \dfrac{y_{ij} - \underline{T}_j}{y_{ij}} & \\ & \text{Is for deprivation} \end{cases}$$

Where,

- Y_{ij} is the endowment of i individual for j dimension;

- y_{ij} is the dispossession of i individual for J dimension;

- T_j is the maximum endowment achieved in j dimension for a given society;

- $\underline{T}_j$ is the minimum dispossession value of j dimension.

- S_{ij} is the share of individual i endowment/ dispossession from the total J dimension

- V_{ij} is the deprivation gap of i individual for j dimension

There are two means to choose the value of T. The first one is to use the maximum value achieved in the society. The second way to choose the value of T is to choose the maximum possible value for a particular dimension. The maximum possible schooling in one developing country may be 15 whereas in a developed country may be 24. Similarly, it is also possible to choose the minimum possible dispossession value. The minimum possible dispossession value for a household mortality can be zero.

The contribution to the individual score is:

For the endowments,

$$m_{ij}^s = \left(1 - \frac{Y_{ij}}{n\overline{Y}_j} \right)\left(1 - \frac{Y_{ij}}{T_j} \right)^{\alpha}$$

The higher is Y_{ij} (the endowment or attainment), the lower the index:

$$\frac{\partial m_{ij}^s}{\partial Y_{ij}} = -\frac{1}{n\overline{Y}_j}\left(1 - \frac{Y_{ij}}{T_j} \right)^{\alpha} - \frac{\alpha}{T_j}\left(1 - \frac{Y_{ij}}{n\overline{Y}_j} \right) < 0 \qquad \forall \alpha > 0$$

Similarly, for deprivations $\quad m_{ij}^s = \frac{y_{ij}}{\sum_{i=1}^n y_{ij}} \left(\frac{y_{ij} - T_j}{y_{ij}}\right)^\alpha$

The higher is y_{ij} (deprivation or dispossession), the higher the deprivation index

$$\frac{\partial m_{ij}}{\partial y_{ij}} = \frac{1}{ny} \left(\frac{y_{ij} - T_j}{y_{ij}}\right)^\alpha + \alpha \underline{T}_j \left(\frac{1}{y_{ij}^2}\right) \frac{y_{ij}}{\sum_{i=1}^n y_{ij}} > 0$$

2. Multidimensional Poverty with individual preferences

The multidimensional poverty model with individual preferences has been developed by Decancq et.al, 2014. There are two motives to use individual preference based MPI estimation. First, individuals attitude to different dimensions are not the same. What is important for one individual may not be the same for others. Second, it enriches the model since individuals have possibly different preferences over the different poverty dimensions.

Considering preference can give answer for weighting scheme and complementarity or substitutability issues. It does not make sense anymore to think of poverty as deprivation in a number of distinctive dimensions, each with a threshold. Now, the relevant threshold becomes a wellbeing threshold.

An agent is identified as poor if she consumes a bundle of goods that lies in the lower contour set of a preference-specific poverty line vector. Furthermore, the idea of respecting preferences is captured by the requirement that the poverty measure should satisfy a Pareto property among the poor: an increase in the preference satisfaction of a poor agent decreases overall poverty. For the purpose of estimation the model will use stated preference whereby respondents will be asked their preference to different dimensions. [2]

3. Happiness Index

The poverty measures are always take into account the lower contour of the social exclusion and ignore those individuals who have located in the upper contour sets. However, even if an individual is below the poverty threshold the person might be deprived in some dimensions.

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[2] The full paper can be found http://www.gla.ac.uk/media/media_307628_en.pdf

Hence, the motive of the happiness index is to consider all the social exclusion dimensions including economic, social and psychological and determining an aggregated index for a country.

Background of the study area

Ethiopia has diverse demographic, socio-cultural and natural features, with more than 70 ethnic groups, and over 84 million populations and an average annual population growth rate of 2.6% over the period 1994-2009 (CSA, 2010). Ethiopia is the second most populous country in Africa after Nigeria. The population structure is dominated by young people, with those under 15 years of age, representing 45% of the population, which results in a high dependency ratio (CSA, 2010). The country possesses enormous cultural and genetic diversity. Ethiopia is a country with enormous geographic diversity, as it has a wide range of agroecological zones reflecting the wide variation in rainfall, temperature, altitude, topography, and soils. Ethiopia's socioeconomic feature is predominantly rural and agricultural. About 85% of the population are rural; agriculture employs more than 80% of the labor force (Ethiopian Economic Association, 2011).

By all available indicators, Ethiopia is one of the poorest countries in the world. The income poverty, measured by the percentage of the population living below PPP US$1. 25 per day is 39% (Dercon et al. 2009).

Ethiopia's HDI value of 2012 is also the lowest in the world that is 0.396, positioning the country at 173 out of 187 countries and territories. Between 2000 and 2012, Ethiopia's HDI value increased from 0.275 to 0.396, an increase of 44 percent or average annual increase of about 3.1 percent. Ethiopia's 2012 HDI of 0.396 is below the average of 0.466 for countries in the low human development group and below the average of 0.475 for countries in Sub-Saharan Africa (Ibid).

Hence, poverty in Ethiopia has multi-dimensional character. Poverty is a multi-dimensional concept refers to the households' inability to provide sufficient means of subsistence and to lead a decent economic and social life. There has been little effort made by previous studies to estimate the multidimensional poverty except the international comparable Multidimensional Poverty Indices (MPI) estimation made for 104 countries using a set of ten indicators

encompassing different dimensions of welfare and deprivation, whereby Ethiopia also included (UNDP, 2010). However, MPI estimation should have to be need based; a country specific estimation of MPI that consider the country's cultural, and demographic distribution is very necessary. It is because; MPI indicators have not similar relevance or are not robust, equally for developed and developing countries.

Data

The study will use a primary data collected from a structured questionnaire from seven regions in Ethiopia: Addis Ababa, Oromia, Amhara, Harari, Dire Dawa, Tigray and SNNP, which accounts 95.5 percent of the total population of the country.

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- Empowerment
- Access to services such as: road, water, electricity, toilet, transportation and others
- Child labour and gender abuse
- Political freedom and attitude
- Human right and democratic right
- Housing
- civic engagement
- democratic participation, and due process (rating level of participation and freedom with a set of indicators)
- exclusion due to disability

- exclusion due to religion (exceptionally dummy variable)
- exclusion due to professions, thinking (exceptionally dummy variable)
- exclusion due to belonging to some communities (exceptionally dummy variable)
- exclusion due to economy, social, religion, psychology stand
- information technology
- Globalization
- insecurity and fear
- immigration,

Significance of the paper

Generally the papers have both theoretical and empirical contributions:

1. The first two models: " single censoring Multidimensional Poverty measure" and " Happiness Index" are the new models developed by the researcher
2. The third model, " Multidimensional Poverty Measure with individual preference" is the model developed by Decancq et.al, 2014 and the model has not been yet empirically tested with a preference based on stated preferences
3. It will contribute by giving important policy implications about social exclusion and poverty

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Cost Budget and Time schedule

The money to undertake this research is going to be financed by Roberto Franceschi" Research Grants. The total sum of money will be allocated for the collection of the data. The following table shows the amount of money and allocation of cost budget requirements.

Cost Budget

Items		Unit	Quantity	Duration (Per day)	Unit cost (In Euro)	Total cost (In Euro)
Data collection costs	Travel cost from Italy to Ethiopia for the researcher	Covered by the researcher				
	Travel cost within Ethiopia					
	Costs for questioner duplication in Ethiopia	240 Euro	(200) will be covered by the researcher			40
	Training on MPI and the data for data collectors[1]	per diem for trainees	12	4 days	20	960
	Professional Data collector [2]					
	Area of the study		Number of Data collectors			
	Addis Ababa	Trip + per diem	3	35effective days	20	2100
	SNNP	Trip + per diem	3	35effective days	20	2100
	Tigray	Trip + per diem	3	35effective days	20	2100
	Amhara	Trip + per diem	3	35effective days	20	2100

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[1] Cost for trainer will be financed by the researcher. The training will be given by the researcher and by Ethiopian development research institute researchers.

[2] Data collector institutions are too expensive, which are asking 50 – 70 USA Dollar per household, hence, the researcher will employ professional data collector by traveling to Ethiopia.

The researcher has supposed to go to Ethiopia to organize the training for data collectors and to coordinate the data collection process. Twelve data collectors will be employed to collect the data in four regions. Before the beginning of the data collection training will be given to data collectors about social exclusion, Multidimensional poverty, data collection rules and techniques and detail explanation about the questioners.

Data inserting and cleaning	Covered by the researcher						
Sundry Cost	Food		Days	-			
	Housing		Days	-			
Contingency Cost				10%	-	-	
Total							9400

Time schedule: The study is planned to be completed by the end of Sept, 2015. The time will be allocated for different phases of the research project.

No	Activity	Jan 1	Jan 2	Jan 3	Jan 4	Feb 1	Feb 2	Feb 3	Feb 4	Mar 1	Mar 2	Mar 3	Mar 4	Apr 1	Apr 2	Apr 3	Apr 4	May 1	May 2	May 3	May 4	June	July	Sep	Oct	Nov	Dec
1	Literatures Search	Completed																									
2	Research Methodology	Completed																									
3	Questionnaire design		√	√	√	√	√																				
	Preparation for Data Collection and training about MPI							√	√	√	√	√															
4	Data Collection										√	√	√	√	√	√	√	√	√								
	Data inserting and cleaning													√	√	√	√	√	√	√	√						
4	Data Analysis																					√	√	√			
6	Presentation and submission																							√			