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Economic shocks and household compositions

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Economic Shocks and Household Compositions Yalew Mekonnen Marilign

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1. Introduction

Living arrangements are an essential component of an individual's well-being. As human being, we try to choose to live with and how we relate to members of the households. Our living arrangement has its own influence on day to day decisions about consumption, labour supply, household production and household income. There are a lot of factors that determine the arrangement of households. In this paper, I try to make a literature review, which explains how economic shocks affect the household composition.

According to the World Bank (2000) shocks are an event that can trigger a decline in wellbeing, which can affect individuals, communities even a nation. An alternative definition of shocks is a sudden event beyond the control of authorities that has a significant impact on the economy. This definition points to certain essential characteristics of shocks – a deviation from a "normal", expected, trend that is unanticipated and results in significant effects on an economy an individual, requiring adjustment and additional financing.

Business dictionary define household as all persons living under one roof or occupying a separate housing unit having either direct access to the outside or to a public area. Household composition is determined by the people living together and their relationships to one another. The composition of the household determines a person's household size.

Based on the source, a shock can be natural, social, economic, political or environmental. Reducing the wellbeing of group or individual, shock can be a cause of poverty or it can aggravate poverty. Based on scope, shocks can be idiosyncratic or covariant. A shock that affects specific individuals or households is called idiosyncratic shock while a shock that affects groups of households, communities, regions or the country as a whole is called a covariant shock. Idiosyncratic shocks, most of the time, are loss of transfers, death, job loss, illness and others. While covariant shock can be financial crisis, change in food price, drought, and conflict and so on.

When economic shocks occur, it affects most likely developing countries where many people are poor. Low-income countries, especially the poorest, are disproportionately affected by economic shocks. The frequency and severity of shocks are higher and shocks are closely correlated with their economic status. According to World Bank report in 2011, 17 percent of people in the developing world lived at or below \$1.25 a day. Those people are highly vulnerable to economic shocks and have lower resistance to economic shocks.

According to Harper (2009) one percent decrease in per capita gross domestic product linked to infant mortality increase of 17-44 per thousands. Health and education budget decline by 9% and 6% respectively in Thailand in 1998. In the same year, in Indonesia an economic shocks doubled unenrolled rate of 7-12 years children. These empirical evidence reveal that an economic shock, directly or indirectly, affect the household as a whole and their members, especially children more ruthlessly.

The impact of shocks on social welfare depends on a variety of factors, including the nature of the shock, the country's macroeconomic situation, initial household and community conditions, and the extent and types of policy responses by the government.

Households adopt different mechanism to mitigate the immediate effect of the shocks on wellbeing. Some of them are reallocating of the time to work (increase or decrease of labour supply), change in consumption budget, and rearranging household compositions.

To minimize the negative impact of economic shocks, some households rearrange the household compositions, so the main question is how the household compositions change when there is economic shocks. The main objective of the research is to review relevant literatures that analysis how economic shocks affect households, more specifically how it affect the household composition.

There are a lot of literature which talk about economic shocks, at macro or micro level. There are also a lot of literature about households, either on their consumption, labour supply, income, or migration. But there is little literature which integrate economic shocks and household compositions. Some of the researchers try to analysis the effect of economic shocks on household composition as main research topic. As far as my knowledge, I try my best to search all relevant literatures which explain economic shock and household compositions.

The main result of the paper show that household composition is related with the impact of economic shocks. Economic shocks that adversely affect the income of the household force them to split the households and some member of the household (mainly children) leave the family. There are also some economic shocks that improve the income of the household. Those households having additional income due to economic shocks tends to live together. The South African old age pension program and Mexico PROGRESA are good example for this.

The paper is arranged in the following way. The first part gives a general introduction including statement of the problem and objective of the paper. The second part is about theory of

households and is immediately followed by why households live together. The fourth part of the paper explain household size and compositions in developing world. The fifth part of the paper, which is the main agenda, provides empirical evidence about economic shock and household compositions. The last part of the paper is conclusion.

2. Theory of households

Economic theories of the households try to capture the complex structure of households and their behaviour. These can be decision-making process, resource allocation and labour supply. Understanding the behaviour of households are important to make private or public intervention. When there is an economic shocks, to trace the effect on the household, knowing theory of the household is very important. Who and how the decision made in the household during economic shock has an implication on the household compositions. Duflo (2003) investigate that the gender of pension recipient in South Africa matter. She confirm that Pension received by women had a large impact on weight for height and weight for age of girls. This research is a good evidence to show who make a decision matter in the households. So it is reasonable to see the most common known models of households: unitary and collective household models.

2.1 Unitary household model

The unitary model assumes that decisions within a household are made jointly and that the household maximize a single set of objectives for all its members (Ellis 1988). Here the basic assumption is that a household acts as a single unit and all its members have exactly the same preference and the same utility functions. When a dictator is considered the all-ruling head of a household, it implies that one individual is assumed to make decisions within the household and keep its operations in line.

In the past, emphasis is not given to the distribution of resource and commodities within the household. It is assumed that inequality in resource distribution is generated by preference shared by all household members that support this inequality. But now a day, evidence has been presented on the unequal distribution of resource and commodity within a household. This distribution is affected by many cultural and traditional norms. Fortin and Lacroix (1997) claim that within the unitary model, it is impossible to see individual preference of household members, or the parameters that characterize the internal process determining the observed

outcomes. Consequently, it is also impossible to analyse intra-household inequality or external transfers to intra-household resource allocation with this model. It is not a matter of single person decision in the determination of household composition and size. At least two personas are involving in the decision process of rearranging the household compositions. Those two persons are the person who leave the house and the person who provide accommodation. Those two parties make decision based on their interest. Therefore, unitary household model is inadequate to analyse household composition during economic shocks.

2.2 Collective Household Model

It is also called pluralistic decision making model with in the family. It encompass certain factors that cannot be observed with the unitary model of household behaviour. Collective model of household behaviours try to capture the difference and inequality involving among household members. This model prescribe to the individuality of household members rather than the joint decision making process. Collective model are sometimes divided into two types: cooperative and non-cooperative. Under cooperative collective model households make a cooperative decision and reach Pareto efficient outcomes, whereas in non-cooperative due to commitment problem the final outcome is not efficient.

3. Why household Members live together?

Households have many benefits when living together. There are different economical reasons why households live together. Different reasons tie the household to continue together for a long period of time. Economic shocks, either postive or negative, affect this tie in different dimension. Sometimes household arrange themselves in such a way that their composition either to mitigate any expected shocks or become flexible for the shock they face. Some of the reasons why households are living together are the following:

3.1 Household as Risk Sharing Institutions

The well known institution that stand first to share risk is household (Dercon and Krishnan 1997). There are some emprical evidences that shows there is partial risk sharing among households in developing countries. Kotlikoff and Spivak (1981) used simulations to discuss how within households insurance could substitute to a large extent for the purchase of insurance in the form of annuities, without providing an empirical test.

In most developing countries household is important to pool resource and sharing risk among the household and with in the community. Large household normally keep a single storeroom, implying the sharing of yield risk among members. Members take care of each other in bad times: the sick, the disabled and the old are looked after, and the unemployed are provided with food and shelter. It is within the household that people find relief when they are hit by disease and where they seek moral support when bad luck strikes (Fafchamps, 1999)

In the developed world households try to cover a certain portion of risk by formal insurance institutions. But in developing countries where formal insurance are not exist or not well organized, households are a best place for risk sharing. It is the member of the household who share the burden of the risk entirely or partially. That is why many researcher argue households are best risk sharing institutions.

Considering the importance of households as risk sharing institution, the size and composition of households partly reflects the risk environment surrounding them. Poor rural societies put a lot of emphasis on household formation and household members have a strong interest in preserving the stability of the household and working as a team to handle shocks.

3.2 Economie of Scale

It is not uncommon, in many developing countries, to find several adults, couples or families living together and sharing their resources (Fafchamps, 1999). Poor households who have limited resources, allocate resource to maximize the wellbeing of the household. To do so, they adopt different strategies such as opting for living in extended families and pooling resources to achieve economies of scale in consumption. With economies of scale, an additional household member requires fewer resources than the comparable existing member because household members share public goods such as shelter and utilities, making larger households better off at lower per capita expenditures. Large households often keep a single kitchen. This enables them to capture returns to scale in food preparation but also ensures that food is shared among all members.

The existence of scale economies in production makes desirable the co-residence. Thus the consumption of public goods and the increasing returns in household production make larger the optimal household size - which is typically the case of households in poor rural economies (Lanjouw and Ravallion, 1995). Kochar (2000) finds, for instance, that sons contribute to

household public goods such as consumer durables and ceremonial expenditures enabling their father to work less. Foster and Rosenzweig (2002) estimate a collective model of household division and find that gains from co-residence arise from cost-sharing a household-specific public good and lower barriers to information-sharing on farming techniques.

Even though members of large households often manage certain activities individually, institutional mechanisms are present that ensure the pooling of labour resources for vital household chores such as food production. One such mechanism is the head of household's power to call upon each household member to contribute labour to the common field (von Braun and Webb 1989).

The extended household structure, often considered as the core source of income insurance, affects the incentives to work of household members. Workers in extended families may be encouraged to modify their labour market participation in favour of leisure, taking into consideration the labour market states of the other members of the household.

4 Household Size and Composition in the Developing World

John Bongaarts (2001) using data from household surveys conducted in 43 countries that have participated in the Demographic and Health Surveys program between 1990 and 1998 in Asia, Latin America, East and North Africa and Sub-Saharan Africa to analysis household size and composition in developing world. In Several European countries, the United States and Canada household size decline from around 5 members in the middle of the nineteenth century to between 2 and 3 in 1990 (Bongaarts,2001). The pervasive decline in fertility over the past century in these now-industrialized countries is one of the main driving forces of the secular decline in household size in Europe and North America.

The average household size measured in countries of the four regions (Asia, Latin America, East and North Africa and Sub-Saharan Africa) of the developing world is ranging from a high of 5.6 in the Near East/North Africa to a low of 4.8 in Latin America, and intermediate values for Asia is 5.1 and sub-Saharan Africa 5.3. The household size in the Near East/North Africa exceeds that of sub Saharan Africa is somewhat surprising since fertility in sub-Saharan Africa is significantly higher than in the Near East/North Africa. Although variation in household size

in this set of countries ranges from 6.7 in Pakistan to 3.6 in Ghana. In general, then, countrylevel average household sizes cluster fairly tightly around their regional means near 5 members per household (Bongaarts, 2001).

Decline in household size in Europe and North America reflects a trend away from the traditional more complex household structures of the past toward the simpler nuclear households that dominate in contemporary industrialized societies. This trend is attributable to changes in a number of factors other than fertility that affect household size: the age at marriage, adult mortality, the propensity of adult sons/daughters to remain in the parental household, the risk of marital disruption and remarriage, the tendency and ability of the elderly to live alone, and the presence of other relatives and nonrelated individuals such as servants or lodgers. Roles of these demographic and residential factors play in shaping the size and composition of households vary among societies and they are in turn affected by numerous cultural and economic conditions. In developing countries the above mentioned factors are not went in the expected direction, even some of them are not exist which in turn keep the household size large enough.

Relationship to head	Asia	Latin America	Near East/ North Africa	Sub-Saharan Africa
Adults	and the second			
Head	1.00	1.00	1.00	1.00
Spouse	0.79	0.69	0.82	0.66
Son/daughter	0.58	0.54	0.68	0.34
Son-/daughter-in-law	0.20	0.05	0.14	0.04
Grandchild	0.02	0.02	0.01	0.03
Parent	0.10	0.04	0.11	0.05
Parent-in-law	0.02	0.02	0.01	0.01
Brother/sister	0.06	0.06	0.08	0.08
Co-spouse	0.00	0.00	0.01	0.10
Other relative	0.06	0.09	0.06	0.13
Adopted/fostered	0.00	0.02	0.00	0.01
Nonrelative	0.03	0.06	0.01	0.05
Total	2.86	2.60	2.93	2.50
Children				
Son/daughter	1.78	1.62	2.28	2.02
Grandchild	0.38	0.32	0.31	0.34
Brother/sister	0.03	0.02	0.04	0.04
Other relative	0.07	0.09	0.08	0.25
Adopted/fostered	0.01	0.06	0.01	0.05
Nonrelative	0.01	0.05	0.01	0.04
Total	2.28	2.16	2.71	2.75
Household size	5.14	4.76	5.65	5.25

 Table 1
 Average number of members per household by relationship to head and region

Source, (Bongaarts, 2001)

5 Empirical Evidence on Economic Shocks and Household Compositions

The effect of economic shocks on a country in general and for household in particular is multidimensional. The effect of economic shocks on household compositions has two sides. Some economic shocks make favourable conditions to the household to live together. South African old age pension and conditional public transfer in rural Mexico are example of this conditions. On the other hand some economic shocks forced the household to change or split the household.

An economic shocks in Indonesia in 1997 force the household to change household size and compositions (Frankenberg et.al 2003). Using 1993 as a base year, the researchers make analysis how the 1997 economic shocks affect the household's wealth, consumption and household compositions. The immediate effect of this economic shock on the household was reduced real per capita consumption by 25% in one year. Those households hit more severely send some members to live with other households less severely affected by the crisis or to places where the cost of consumption may be lower. The researcher rank households by their 1993 per capita consumption. In the urban sector, the bottom quarter of households actually lost household members during the crisis while urban households above median 1993 per capita consumption.

The paper also conducted the same analysis for rural area of Indonesia. Across the entire distribution of 1993 per capita consumption, household size was expanding in the rural sector. This expansion was small for the poorest rural households, but reached about half an additional member for the best-off rural households. From this research, the main reason household arrange the family is to smooth their consumption. In addition to the exit or entry of additional people into the household, a household may attempt to adjust to the crisis by altering the labour supply decisions of its members.

The criticism what I have on the interpretation of the result is that all households losing family member may not be necessarily due to economic shock. In their methodology they explain the way they collect a data how the family make a change in household member, simply they ask whether there is change in household size between 1997 and 1998. In addition to the economic shocks, there may be another reasons to leave households, most of the time migration motive. So research did not net out change in households are due to economic shocks or migration. Migration may be due to economic shocks, but there are also another economic and

social reason to make migration and change household compositions. Akresh (2009) stat that households may accept or send some family members for educational investment motivations. More over the paper did not clearly explain the expansion of rich family in rural household is whether due to acceptance of another family or not.

Another research that confirm economic shock can make a change in household composition is done by Akresh (2009). This research paper examines a household's decision to adjust its size through child fostering in Burkina Faso based on household survey data. The aim of the research is to identify which factors are correlated with a household's decision to send or receive a child of fostering. Households having good network try to equalize the marginal utility of consumption across states of nature by fostering children, in other words, if a household experiences an adverse shock and subsequent low consumption, they send a child to a household in the network experiencing high consumption, thereby reducing its own expenses for the child's food, clothing, and healthcare.

The researcher calculate two distinct shock measures i.e. agricultural and the income shocks. Because the survey respondents are rural, subsistence farmers, their economic environment and relevant crises are well captured by measures of agricultural shocks. Agricultural shock calculated as the household's 2000 year's yield (mean of all that year's crop specific yield) minus the three-year household average, with a larger value indicating a more negative shock. The measure explicitly takes into account a household's shock history and varies across households in a village. Households face more shock when the deviation from the mean is more. The mean household agricultural shock is 0.446, those households experience a worse average shock greater than the mean send children for fostering. Those households who had relatively smaller shock received children. The researcher also calculate the household income shock as the three-year average household income minus 2000's household income, with a larger value indicating a more negative shock. Using income shocks is advantageous because it allow for the possibility of positive shocks, are easy to interpret, and examine the relationship between a percentage change in household income and child fostering. A one-unit increase in a household's income shock (equal to a 100,000 FCFA or \$140 USD decline in income) is correlated with a 2.6 percent increase in the household probability of sending a child. Alternatively, a ten percent drop from the mean in household income yields a 3.6 percent increase in the likelihood of sending.

This research give another interesting intimations about the household gender balance and probability of sending children for fostering. With agricultural and income shocks, those households having equal number of boys and girls have less tendency to send children for fostering compared to households having more boys than girls or more girls than boys. Having more biological girls than boys is correlated with a 5 percent increase in the sending probability. Households with more biological boys than girls are 4.3 percent more likely to send a child for fostering.

Here, we can see that both agricultural and income shocks forced girls to leave the households than boys. This research has one unique feature, as far as my knowledge allow me, this is the only research that try to track both households who are senders and receivers of children.

There are also economic conditions that favour households to live together. Old age pension for black people in South Africa and conditional cash transfer in rural Mexico are good example of this. In the early 1990s the benefits and coverage of the South Africa social pension program were expanded for the black population. South Africa first introduced social pensions in the 1920s for whites, mainly as a social safety net for the minority of white workers not covered by occupational pensions. The pensions were gradually extended, but with very dissimilar benefit levels, to other racial groups. During the apartheid era the system was racially discriminatory in several respects. First, different means tests were applied to each racial group, second the benefit levels were different, and third the delivery systems were different. Finally, officials often intentionally underestimated people's ages, removed people from the computer lists, or otherwise limited the access of legally eligible Africans to reduce the cost of pensions (Lund 1993, cited in, Duflo (2003)). Extending the social pension to the entire population took several years, and the program was fully operating in all areas only at the beginning of 1993.

The 1993 pension program in South Africa, beyond direct effect of the beneficiary, came up with another extended effect, it caused changes in the household compositions. This catch the attention of many researchers to investigate different impact of the program on households.

More than a quarter of black South African children under age five live with a pension recipient (Duflo, 2003). The researcher appreciate this program because it was one of the few successful cash transfer in the developing world. Pensions received by women are associated with an increase of 1.16 standard deviations in the height for age of girls but had no significant effect on that of boys. This result may be due to improvement of short-run nutrition and illness. But

the research did not clearly explain why this effect is only for girls. Pension received by men did not improvement in the height for age of either boys or girls.

Another research in South African show how living arrangement respond to old age pension, and finally, come up with almost the same conclusion as of Duflo (2003). Hamoudi and Thomas (2014) examine how living arrangements adjust in response to the old age pension. The old age pension does not only affect total household income; it also changes the distribution of income within a family. In response to a rise and redistribution of income in the family, living arrangements change in a manner that is selective on human capital. 6-14 year old boys who live with a pensioner are 0.36 years behind in their schooling compared with boys of the same age who live in households of similar demographic composition. There is no difference in the schooling of girls who do and do not live with a pensioner. Living with a pensioner is better for 6-12 year old girls than for 6-12 year old boys, by almost a half-year. One interpretation of this evidence is that pension income benefits girls more than boys.

The research of Duflo (2003) and Hamoudi and Thomas (2014) confirm that old age pension has made some change on the living arrangement of the households. Old age pension receivers want to live with granddaughter and grandson. The benefit of the pension to those children is different. Some improve their human capital formation others benefit from nutrition. Living with pensioner is more important for girls than boys.

Another economic shock that made it possible for households to live together is conditional cash transfer of rural Mexico. Luis and Graciela (2006) analyses the medium term impact of the PROGRESA¹ Program over the demographic dynamics of beneficiary households in rural Mexico. PROGRESA grants significant monetary transfers to eligible poor households conditional on keeping their children in school, and on periodical attendance to local health facilities. The researcher use information from households before (1997) and almost six years after (2003) the implementation of the program derived from an quasi-experiment in which eligible households in treatment communities are compared to eligible households in communities not incorporated into the program as of 2003.

Using a non-parametric method of propensity score matching in double differences, the research paper compare the change in demographic composition of the household before and

¹ PROGRESA is poverty-combat Program in Mexico. The public intervention began in 1997 in rural communities, but it was after a while expanded to urban areas.

after the Program's implementation. The double-difference matching estimators analyse the effect of the subsidy over the demographic dynamics of beneficiary households.

The analysis suggests there is a differential change in household structure between treatments and comparisons over the period of analysis that points towards a moderate effect of the conditional transfer. Children in age to attend school and benefit from the program are more prone to join beneficiary households. The addition of boys whose age in 1997 qualified them to enrol to primary and high school and girls suited to begin their formal education caused household size of beneficiary households to increase by an additional 0.30 and 0.17 percent, respectively. Changes in household demographics may be explained by the decision of extended family members to join their relative's household in order to benefit from the subsidy. As consequence of the conditional transfers, beneficiary households increase their size by 0.22 percent more than the new-comparison group, by providing home and shelter to parents and grandparents. Here willingness to accept additional new member of the family is attached with the benefit he/she came up with. The research clearly show that rearranging the household size is an economic phenomena.

6 Conclusion

Household are best institutions that people share their psychological issues, social affairs and economic resources. In many developing country where formal insurance are not well organized or do not exist households are essential risk sharing institution. Different reasons may make a change on the arrangement of the household's composition at a time of a shock or gradual changes.

Among different factors, economic shock is one determinant that affects the household compositions. Here, when I say economic shocks, change that can make a positive or negative deviation from the normal income trends. Based on the direction of the shock, the household arrangement also change. When the household face an economic shock that improve their income, they gather to live together. Those people who get unexpected gain/income attract another member to their household to live with. In South Africa old age pension receivers want to live with their grandson and/or granddaughter. In the same way, in Mexico those children who are eligible for PROGRESA program are accepted to live with another member. Here, having additional income attract new members in the household.

Another economic shock that alter the household composition is a shock that adversely affect the household income. Based on the severity of the shocks, households who affect more send some members to another households who are not affected or relatively less affected. This situation is truly revelled in Indonesian economic crisis and in Burkina Faso. The main reason household do this one is to reduce expenditure for consumption meanwhile the consumption of the remaining family become smooth.

The main channel that economic shock affect the household composition is via their income. If the shock worse the income of household, they reduced their family size. The reverse is also true. Household composition and economic shock, via income, move in the same direction. When economic shock reduced the income of the households, the household also reduced their members and when the economic shock increase their income, they increase their household size. Sustaining the income of the household or reducing the volatility of its income may help them to live together.

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