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Which factors lead to entry or exit from poverty in developing countries? A meta-analysis of studies on the dynamics of poverty

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CONSORTIUM POUR LA RECHERCHE ECONOMIQUE ET SOCIALE

WORKING PAPER

Which factors lead to entry or exit from poverty in developing countries? A meta-analysis of studies on the dynamics of poverty

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Introduction

Since adoption of the Millenium Development Goals (MDGs) in 1995 by the international community, poverty has declined in many developing countries. However, it remains widepsread. Also, many efforts continued to be deployed for a better understanding of the phenomenon. Studies on poverty in developing countries have made it possible to study important aspects of the phenomenon, notably to target impoverished populations and to define policies and programmes to reduce poverty. Different approaches with regard to poverty have been adopted. Started from a monetary approach, there has been fairly rapid evolution towards an approach based on needs according to which there are certain goods and services which are critical to humans, regardless of the society they live in. We could consider this as poverty of living conditions. Sen (1985) showed the importance of an alternative approach which is concerned with any lack in intrinsic capacitiy (income, education, health, civic rights, human rights, etc.) which enable the individual to live as they would like to.

Many studies have been carried out in developing countries and use one of these three approaches. A commonality is the fact of dealing with cross-sectional data which provide a detailed description, at a given date, of living conditions of an individual or household. We also understand that, over the course of one's life, and individual or household can alternate between states of poverty and non-poverty. Some households remain in poverty throughout all periods (chronic poverty), others are only poor in some periods (transitory poverty), and yet another group of individuals or households have never lived in a state of poverty. In terms of the fight against poverty, this change in perspectives is also important. It allows us to move from the question "Who is most likely to be poor at the moment?" to "Who is most likely to remain poor and who is most at risk of becoming poor?" (Cappellari and Jenkins 2002). Knowing the factors which promote an exit from poverty and those which prevent an entry into poverty can make it possible to design programs which are based on the most effective levers against this phenomenon. But the literature on poverty dynamics primarily addresses the issue in developed countries. It has been late to include developing countries due to the high cost of repeated surveys. It is after the beginnings of the 2000s decade that these surveys began to be adminsiterd more often in some of these countries. Also, to date few of these attempts have been able to draw robust conclusions from the case studies (specific to a country, to rural or urban areas, or to some group of the population).

The literature offers few studies with a statistical summary of the determinants of poverty dynamics. Azreen and Noy (2014) produced a meta-analysis of the literature on the effects of catastrophes on households with an emphasis on poor households and poverty indicators (income, consumption, housing, health, education). Many types of catastrophes have been acocunted for (floods, earthquakes, storms, etc.). The studies included in this analysis use cross-sectional data. Moreover, only the effects of the "catastrophe" determinant of the given poverty indicator is accounted for, since other control variables have been omitted from the statistical summary. Awaworyi (2014) conducted a meta-analysis of 25 empirical studies containing 595 estimations of the impact of microcredit and of micro savings on poverty and micro enterprise. This author investigated whether studies were effective in confirming the two common assumptions with regard to microcredit : it reduces poverty, it has a positive impact on the performance of micro enterprise, access to microcredit and has a positive impact on poverty reduction. With regard to poverty, the study concludes that there is no robust evidence of a strong positive impact of microcredit on poverty. Existing studies do not provide a complete picture of the results which come from research on factors affecting entry into and exit from poverty. The present paper aims to draw main lessons from studies on the factors driving

poverty in developing countries. It amounts to knowing whether the determinants of the poverty dynamics, which are commonly identified in the literature, actually play the role that has been attributed to them in movements in and out of poverty.. Answer to this question provides a lens through which current programs to combat poverty can be viewed in order to know whether they should continue their efforts in areas which have already been established, or whether some reorientations should be made towards more effective levers to exit poverty or prevent households from falling into poverty.
Given the large diversity of studies examining the impact of determinants of poverty dynamics, we adopt the meta-analysis approach (Card and Krueger, 1995; Ashenfelter et al. 1999; Görg and Strobl, 2001; Pereira and Martins, 2004). We seek to understand whether there are systematic relations between the characteristics of each study and its results. Due to the difference in the coverage of countries by estimation method, itself resulting from the sampling characteristics, the type of dependent variable, etc., we are faced with a situation where the sources of heterogenity in the results are numerous. The meta-analysis, the main steps of which were respecified by Stanley et al. (2013), allows "statistical analysis'' of a large number of analytical results from independent studies.

Four questions are answered. First: what is the mean effect of the determinants on the entry into and exit from poverty? The literature offers many contradicting findings about the effective drivers of movement in and out of poverty. Synthesizing the results gives a global view on the sens and the size of their effects. Second: are studies on the dynamics of poverty characterized by a selection bias (publication bias)? It is very likely that a belief that certain factors have a significant influence on the dynamics of poverty can be explained by a preference of researchers and editors to only report results which are statistically significant. It may also be that this is the result of a self-reinforcing behaviour which tends to favour results which agree with expected effect. Third: after having controlled for publication bias, is there a real impact on the dynamics of poverty in each of the most commonly cited determinants of poverty in the literature? In other words, even if publication bias exists, is there nevertheless a real impact of each of the determinants highlighted in the literature to explain exit from or entry into poverty? Fourth: The actual effect of determinants should be isolated from fourth: once factors having real impact are isolated, papers , publication bias in order to capture its magnitude and statistical signifiance.

Fourth: What is the source of heterogeneity of the effect size of the determinants reported by the studies? Once the "real" empirical effects are highlighted, and after having accounted for publication bias, we are can evaluate the sensitivity of these effects to characteristics of studies which make it possible to isolate the importance of the real effect.

Starting with a sample of 36 studies, and having performed a series of robustness tests, we have found that publication bias is relevant for a number of estimators of poverty, but most of them have a real effect on poverty dynamics. Finally, accounting for study characteristics shows that the estimators of poverty such as secondary education, employment, etc., have some actual influence on the rates of poverty exit and entry.

The rest of the paper is organized as follows. Section 1 describes the process of collecting data and presenting the major characteristics of sampling in the works included in the meta-analysis. Section 2 examines the question of the existance of a selection bias in the studies on poverty dynamics and the existence of an authentic effect of the estimators of exit from and entry into poverty. Section 3 procedes with a systematic review of the studies retained in the sample in order to help uncover the actual effect of each determinant of poverty dynamics. Section studies

the sources of heterogeneity of estimation result using meta-regressions. The conslusion draws lessons from the results for future research and policy to combat poverty.

1. Empirical Strategy

1.1 Data and variables

Given that we are principally interested inthe impact at the micro scale of determinants of poverty on poverty entry/exit, we only retain those studies which estimate an equation of the following type:

$$P_{it}^{*} = f(\beta X_{it}, u_t, \varepsilon_{it}) \qquad (1)$$

where $P^{*}_{it}$is the probability that an individual or household *i* will enter intopoverty , exit from poverty or transit from status of poverty to anothetat time *t*. This probability is a latent variable that is only observable over the interval [0 ;1]. Also, it is necessary to construct an observable variable P_{it}which is equal to $P^{*}_{it}$when it is observable;X_{it} includes the set of determinants of the dynamics of poverty, u_t representsthe fixed or random effects of some studies. The primary parameter of interest is the vector β, which represents average vraiations in the probability of entry into or exit from poverty which can be imputed by the predictors of poverty. The data needed to estimate equation 1 is to be found in the literature.

The procedure consists of entering the keywords "poverty dynamics, transient poverty, chronic poverty " into ECONLIT, Google Scholar, Science direct and Academic Premier.. By reading the summaries, a first selection was made to retain studies on developing countries in Africa, Asia and Latin America and which deal with the dynamics of poverty. We eliminated for exampleHeadey, B. & al. (2005), Stevens, A. H. (1999) or Arranz, J.,M.(2012) which concern Australia, USA and Spain respectively. In total 117 articles were selected.. From this subset, we applied the criteria which define the conditions for references to be included in the studies to be retained for the study. The following criteria were adopted:

- The explanatory factors of probability of falling into poverty or the probability of exiting from poverty.
- The coefficients, t-ratio or the standard errors of the explanatory factors are providen.

We include studies which meet the criteria mentioned above (36 out of the 117 references). Among the references selected, there are 25 articles published in academic journals, 8 working papers and 3 theses.Most studies are excluded because they don't analyze poverty mobility (Ali,E.& Tlukder, D. (2010); Andriesse, E. & Phommalath, A. (2012); Sartorius, K. & al. (2013); Akhtar, S. & al. (2015); Khumalo, P. (2013)). Others are limited to provide transition matrices (Garbero, A. (2014); Krishna, A. & al. (2004); Urquiza, J.,P.,G. (2013)).Some go further by associating the matrices of transition to factors (region of residence, employment, education level, gender, etc.) to try to analyze the determinants of poverty dynamics. But they are excluded because the equation (1) is not estimated (Dang, H-A.,H. (2014); Nargis, N. & Hossain, M. (2006), Kristjanson, P. & al. (2010), Beccaria, L. & al. (2013)).Likewise, the papers which focus on chronic poverty are eliminated (McKay, A. & Lawson, D. (2003); Howe, G. & McKay, A. (2007); Dhamija, N. & Bhide, S. (2011)).

The following table shows the 36 papers in more detail.Information about the type of document, the rank of the journal1 and year of publication are provided

[1] We refer to Kiel Institute Internal Journal Ranking based on journal ranking by German Economic Association (2008).

Table 1: List of document in the study sample

Numéro d'ordre	Authors	Title	Type of document	Rank of journal	Year of publication	Dynamic poverty indicator
1	Neilson, C., Contreras, D., Cooper, R., & Hermann, J.	The Dynamics of Poverty in Chile	Article published	Journal unranked	2008	Poverty entry and poverty exit
2	Tsehay, A. S.& Bauer, S.	Poverty and Vulnerability Dynamics: Empirical Evidence from Smallholders in Northern Highlands of Ethiopia	Article published	Journal unranked	2012	Transient poverty
3	Slon, P. & Zúñiga, E.	Poverty dynamics in Costa Rica with panel data from cross-sections	Article published	Journal unranked	2006	Poverty entry and poverty exit
4	Cruces,G. & Wodon, Q. T.	Transient and chronic poverty in turbulent times: Argentina 1995-2002.	Article published	Journal unranked	2003	Transient poverty
5	Jalan, J. & Ravallion, M.	Is transient poverty different? Evidence for rural China.	Article published	B	2000	Transient poverty
6	Imai,K.S. & You,J.	Poverty Dynamics of Households in Rural China	Article published	B+	2014	Poverty entry and poverty exit
7	Edig,X.V. & Schwartz,S.	Short-term poverty dynamics of rural households: Evidence from Central Sulawesi, Indonesia	Article published	Journal unranked	2011	Transient poverty
8	Bayudan-Dacuycuy,C. & Lim, J.A.	Chronic and transient poverty and vulnerablity to poverty in the Philipines: evidence using a spell approach	Article published	Journal unranked	2014	Poverty entry
9	Dartanto,T. & Nurkhosis	The determinants of poverty dynamics in Indonesia: evidence from panel data	Article published	B	2013	Transient poverty
10	Haddad,L. & Ahmed, A.	Chronic and Transitory Poverty:Evidence from Egypt, 1997–99	Article published	B+	2003	Transient poverty
11	Krishna, A., Kristjanson, P.,Kuan, J., Quilca, G., Radeny, M. & Sanchez-Urrelo, A.	Fixing the Hole in the Bucket: Household Poverty Dynamics in the Peruvian Andes	Article published	B	2006	Poverty exit
12	Krishna,A.& Lecy, J.D.	The balance of all things:explaining household dynamics in 50 villages of Gujarat, India	Article published	Journal unranked	2008	Transient poverty
13	Glauben.T,Herzfeld.T,Rozelle .S,Wang,X	Persistent Poverty in Rural China: Where, Why, and How to Escape?	Article published	B	2011	Poverty exit
14	Kijima.Y;Matsumoto.T,Yamano.T	Nonfarm employment, agricultural shocks, and poverty dynamics:evidence from rural Uganda	Article published	B	2006	Poverty entry and poverty exit
15	Kristjanson.P;Krishna.A;Radeny.M; Kuan .J; Quilca .G; Sanchez-Urrelo .A; Leon-Velarde .C	Poverty dynamics and the role of livestock in the Peruvian Andes	Article published	Journal unranked	2006	Poverty entry and poverty exit
16	Cuesta,J. & Pizzolitto, G.	Using pseudo-panels to measure income mobility in latin America	Article published	B	2011	Poverty entry and poverty exit
17	Jakobsen, K.T.	Determinants of welfare dynamics rural Nicaragua	Article published	B	2011	Poverty entry
18	Salehi-Isfahani D. et Majbouri M.	Mobility and the dynamics of poverty in Iran: Evidence from the 1992–1995 panel survey	Article published	Journal unranked	2010	Transient poverty
19	Gondard-Delacroix, C.	Spécificités des dynamiques de pauvretés dans deux régions rurales de Madagascar	Article published	Journal unranked	2009	Transient poverty

20	Oyekale,A.S. & Oyekale,T.O.	An Assessment of Income Shocks and Expected Poverty Dynamics in Rural Nigeria	Article published	Journal unranked	2010	Transient poverty
21	Gustafsson,B.	Temporary and persistent poverty among ethnic minorities and the majority in rural China	Article published	B	2009	Transient poverty
22	Bokoski, F.K.	Household poverty dynamics in Malawi: a bivariate probit analysis	Article published	Journal unranked	2007	Poverty entry
23	You, J.	Evaluating poverty duration and transition: A spell-approch to rural China	Article published	B	2010	Poverty entry and poverty exit
24	Herrera J., & Roubaud, F.	Urban Poverty dynamics in Peru and Madagascar 1997-1999: A Panel Data Analysis	Article published	Journal unranked	2005	Poverty entry and poverty exit
25	Lawson, D., McKay, A. & Okidi,J.	Poverty persistence and transitions in Uganda-a combined qualitative and quantitative analysis	Article published	B	2006	Poverty entry and poverty exit
26	Faye, O., Islam, N. & Zulu, E.	Poverty dynamics in Nairobi's slums: Testing for true state dependence and heterogeneity effects	Working paper	Non published	2011	Poverty entry
27	Zampino, S.	A probit analysis of poverty dynamics in Nicaragua	Working paper	Non published	2010	Poverty entry and poverty exit
28	Alisjahbana A. & Yusuf A., A.	Poverty Dynamics In Indonesia: Panel Data Evidence	Working paper	Non published	2003	Transient poverty
29	Villa,J.M. & Nino-Zarazua,M.	Poverty dynamics and programme graduation from social protection	Working paper	Non published	2014	Transient poverty

30	Imai,k.	The Employment Guarantee Scheme as a Social Safety Net -Poverty Dynamics and Poverty Alleviation	Working paper	Non published	2003	Poverty entry and poverty exit
31	Muller .C	Transient Seasonal and Chronic Poverty of Peasants: Evidence from Rwanda	Working paper	Non published	1997	Transient poverty
32	Muyanga M., Ayieko M., et Bundi M.	Transient and Chronic rural household Poverty: Evidence from Kenya	Working paper	Non published	2007	Transient poverty
33	McCulloch, N., Weisbrod, J. &Timmer, C.P.	Pathways out of poverty during an economic crisis: An empirical assessment of rural Indonesia	Working paper	Non published	2007	Poverty entry and poverty exit
34	Daouda, H.	Dynamiques de la pauvreté au Niger, croissance et inégalités	Thesis	Non published	2010	Transient poverty
35	Alem, Y.	Poverty dynamics and intra-household heteronegeneity in occupations: Evidence from urban Ethiopia	Thesis	Non published	2011	Poverty entry and poverty exit
36	Padayachi, R.	Mesure de la pauvreté à l'Ile Maurice	Thesis	Non published	2008	Poverty entry

Once the sampling of the studies to be included has been defined, another step consists of taking stock of and classifying all factors used to explain the movements of entering into and exiting from poverty. These factors are grouped into 21 categories such as demographic characteristics (age, gender), household size, housing conditions, migration, education, assets (physical assets, financial assets and social capital), basic services, infrastructural services, shocks, employment, etc. The following table shows the distribution of the different categories based on the references which study the movement of entry into and/or exit from poverty.The references which analyse transitory poverty are excluded because we cannot distinguish the movement into and out of poverty.

Table 2: Number of estimations by type of category determinant

Category of determinants	Entry into poverty	Exit from poverty	Total
Education	94	72	166
Location	73	82	155
Dependant within household	67	49	116
Physical asset	41	43	84
Employment	44	45	89
Shock	40	23	63
Age	31	26	57
Gender	27	22	49
household size	25	26	51
Labour force within household	23	15	38
Unemployment	21	21	42
Access to health	13	7	20
Social capital	12	12	24
Migration	11	14	25
Income	11	20	31
Housing condition	10	9	19
Ethinc group	8	2	10
household composition	6	2	8
Decreased household size	6	6	12
marital status	6	4	10
natural shock	3	2	5
Financial asset	1	0	1
Basic services	1	0	1
Total	574	505	1079

It appears that the most commont categories are education, employment, unemployment, location, demographic factors (number of dependant and labour force within the household (for entry into poverty mainly), age, gender, household size), physical asset, shock, income (for exit from poverty mainly). Some categories includes various measures which is different from study to another.We consider as Education factor the years of scooling, the enrollement at school and the level of education (with no education as reference category in the model).The determinant "Household's head with primary education" in Zampino, S. (2010) is not considered because it provides the effect size of this determinant in relation to the effect size of the "household head whith higher education".For the same, reason, we don't take account for the variable related to educationin Padayachi, R. (2008). Likewise, the determinant "Human capital of households" and "Human capital of neighbourhood" in Herrera, J.& Roubeaud, F. (2005) are rejrected beacause they measure the investment in education.

Concerning the employment category, we select the variable which give the direct effect of access to employment on the move in (or on the move out of) poverty. The categorical variable which the coefficient is interpreted in relation to reference category is rejected. For instance in McCulloch & al. (2007), the effect size associated with the variables "stayed non-farm", "moved to no-farm", "moved to farm" do not indicate the direct effect of these variables on the poverty dynamics. They are the effect sizes on the entry (or exit) in poverty in comparison to "stay farm". For this reason, several variables are rejected like "occupation" in Bayudan & Lim (2014), "Employed in formal sector/WAP tot, Employed in Informal sector/WAP tot, Unemployed & inactive/WAP tot" in Herrera and Roubeau (2005), "Stayed Non-farm, Moved to non-farm, Moved to farm" in McCulloch & al. (2007) and "Household's head waged/skilled worker, Household's head casual/temporary worker, Household's head self-employed" in Zampino (2010). Thederminants which indicate that the individual is unemployed or inactive are considered in unemployment category.

The demographic factors are made up the number of dependant, the labour force within the household and the household size on the hand. The determinants which provide the number of persons aged under 15 years and over 65 years are considered in the category number of dependant. The labour force category contains the determinants which give the number of individuals aged between 15 and 64 years or the adult number in the household. The household size is simply the number of member of the households. On the other hand, we have the age category which representes the age of the household head or the age of the spouse. The birth year in Padayachi (2008) is not included in the age category because we have the effect size of a birth year in relation to a birth year of reference.

Physical asset includes all the assets of the household: land, vehicle, bicycle, agricultural machinery,cattle, poultry, pigs, the own paid house, etc.The shock category referes to the determinant which mean a negative shock for instance accidental loss, agricultural shocks, ceremonial expenses, crop losses, death of income earner, etc.

Some categories like gender and locaiton are not considered in the following of this work because we cannot harmonize the effect size. Gender cannot be entered in the analysis as the reference category (male or female) change from one study to another. For example in Slon &Zúñiga (2006) and You (2010) the reference category is female while in Lawson & al. (2006), it is male. While location includes determinants which represents the geographic area which can represented by the name of the region of the country. The effect size related to a region is therefore the effect of this region on the poverty dynamic in comparison to other regions.

A last step consisted of collecting data on meta-variables which are likely to explain the heterogeneity of estimated effects of determinants of the dynamics of poverty. The retained meta-variables are the following.

(1) Document type: dummy variable indicating whether or not the study was published in an academic journal. The documents may be of many types: article, research report, book, workingpaper, PhD thesis, etc. This variable makes it possible to capture selection bias of the editors which have a preference to only statistically significant results which confirm prior expectations.
(2) Indicator of poverty dynamic: variable taking a value of 1 if accounting for poverty exit, 2 if entry and 3 for the overall transition rate.
(3) Level: dummy variable indicating whether the determinant is measured as its level, taking a value of 0 if measuring the change rather than level.
(4) Welfare indicator: variable taking a value of 1 whether the entry/exit poverty is measured using consumption expenditures,2 if using income and 3 if other (the stages of progress in Krishna, A. & al. (2006) for instance)

(5) Nature of data: a variable which indicates whether the study uses panel data (1), pseudo-panels (2) or cross-sectional data (3).
(6) Model: variable which takes a value of 1 if the model uses dichotomous (logit or probit) and 0 if another model type.
(7) Africa: dummy variable indicating whether the study deals with an African country, 0 otherwise. Given that Africa is relatively poorer, we may expect that the factors behind poverty exit/entry will have more of an impact than in Asia or Latin America.
(8) Survey coverage: variable taking a value of 1 of the study is done at national level, 2 if in a rural area, and 3 if it deals with urban area.
(9) Geographic level with the modalities of 1 for "macro", 2 for "micro" and 3 for "meso".
(10) Period: first year of sampling.
(11) Year: year of publication.
(12) Lobs: the log of the number of observations of the model.
(13) Rank of the reference according to the Kiel Institute Internal Journal Ranking based on journal ranking by German Economic Association (2008): with the modalities of A+, A, B+, B, unranked non published.

The estimated coefficients of the determinants or their t-statistics are collected as well as their signs and levels of significance.

1.2 Sampling characteristics

The works retained in the sampling can be disaggregated by the type of document, the year of publication, rural/urban, group of countries as well as the type of data and models used.

Table 3: Distribution of works by study characteristics

Study characteristics	Documents		Estimations		Estimations by document
	Number	Percentage	Number	Percentage	Average
Type of document					
Article	25	69,44%	34	69,39%	1,36
Research document	8	22,22%	11	22,45%	1,38
Theses	3	8,33%	4	8,16%	1,33
Continent					
Africa	14	38,89%	18	36,73%	1,29
Latin America	9	25,00%	14	28,57%	1,56
Asia	13	36,11%	17	34,69%	1,31
Publication year					
1990-2000	2	5,56%	2	4,08%	1
2000-2010	22	61,11%	31	63,27%	1,41
2010-2014	12	33,33%	16	32,65%	1,33
Type of data					
Panel	31	86,11%	43	87,76%	1,39
Pseudo-panel	2	5,56%	3	6,12%	1,50
Cross-sectional	3	8,33%	3	6,12%	1,00
Survey coverage					
National (rural and urban)	12	33,33%	18	36,73%	1,50
Rural national	7	19,44%	10	20,41%	1,43
Urban national	3	8,33%	4	8,16%	1,33
Rural no-national	13	36,11%	15	30,61%	1,15
Urbain no-national	1	2,78%	2	4,08%	2,00
Model estimated					
Hazard model	5	13,89%	9	18,37%	1,80
Logit	4	11,11%	6	12,24%	1,50
Logitmultinomial	9	25,00%	13	26,53%	1,44
Ordered logit	1	2,78%	1	2,04%	1,00
Probit	7	19,44%	10	20,41%	1,43
Bivariate Probit	3	8,33%	3	6,12%	1,00
Quantile regression	6	16,67%	6	12,24%	1,00
Tobit	1	2,78%	1	2,04%	1,00

Type of document and publication dates

The references selected are relatively recent as more than 90% are produced after the year 2000, with 30% between 2011 and 2014.Most of them are articles published in academic journals (69%).We also note that the numberof estimation is higher in articles than other type of document and the most appear in the recent works.

Group of countries and rural/urban

The studies dealtwith 21 countries: 10African countries (Egypt, Ethipia, Mauritius, Kenya, Madagascar, Malawi, Niger, Nigeria, Uganda and Rwanda), 6Latin American (Peru, Chile, Mexico, Nicaragua, Argentina and Costa Rica)and5Asian (China, Indonesia, Iran, India and Philipines).Thirteenworks are on African countries, ten concern Latin America and twelve carry on Asia. These studies are national representative or

covered either national rural area, national urban area or some rural or urban area. Most of them concern some rural areas (36 %) or National area (33%)

Types of data and estimated models

The studies used panel data, pseudo-panels or cross-sectional data. 86% of publications and 91% of estimations used panel data. Some authors, for a lack of data, used pseudo-panels (2out of the 36 publications) or cross-sectional data (3 documents with 3 estimations). The choice of an estimation model depends on many econometric factors. The nature of the data, the type of variable studied, the number of observations, etc., often dictate the use or rejection of one model or another. In collecting our information, it turns out that both logit multinomial and probit/logit models are used quite often. Logit multinomial models appear in 9 documents and account for 29%% of estimations. Probit and logi models are used in 11 studieswhile quantile regression and hazard model are estimated in 6 and 5 references respectivevly.

2. Mean effect of the explicative factors on the dynamic of poverty

Two methods are generally used to synthesize the individual effect sizes provided by different studies. The first is the fixed-effect model which is used when the researcher believe that all the studies included in the analysis are functionally identical (Boreinhsten & al. (2013)). However when data are collected from a set of studies that had been done independently, the underlying assumption of fixed-effect model does not hold. In this case the random-effects model is more appropriate. As Soon (2013) and McEwan (2014), we use this second model to estimate the mean (summary) effect of the effect sizes. Following Boreinhsten & al. (2013), the mean effect is computed as:

$$M^{*}=\frac{\sum_{i=1}^{i=k} W_i^{*} Y_i}{\sum_{i=1}^{i=k} W_i^{*}} \qquad (1)$$

Where k is the number of studies, W_i^{*} is the weight related to the study i and Y_i is the effect size collected from the study i.

The weight $W_i^{*}$is calculated as: $W_i^{*} = \frac{1}{V_{Y_i}^{*}}$ where $V_{Y_i}^{*}$ is the within-study variance for study i plus the between-study variance that is: $V_{Y_i}^{*} = V_{Y_\square} + T^2$

We use the method of Dersimonian and Laird suggested by Boreinhsten & al. (2013)) to estimate T^2as follows:

$$T^2 = \frac{Q - df}{C}$$

Where

$Q=\sum_{i=1}^{k} W_i Y_i^2 - \frac{\left(\sum_{i=1}^{k} W_i Y_i\right)^2}{\sum_{i=1}^{k} W_i}$, df=k-1 and $C=\sum_{i=1}^{\square} W_i - \frac{\sum_{i=1}^{k} w_i^2}{\sum_{i}^{k} W_i}$

The previous formulas are used when each study is associated to one effect size. However, in some case we have study which reports more than one effect sizes related to the same outcome. For instance, Neilson (2008) uses different outcomes which related to employment namely: business owner, independent worker, public sector, armed forces, house maid. Other study like Imai & al. (2014) estimate four models to investigate the determinants of the exit from poverty and use the variable "% local non-agricultural employment within household" related to employment in each model. Hence, this study provides four effect sizes associated to employment. The issue is how to calculate the mean effect when we face on such data structure. To deal with issue, two solutions are suggested by Boreinhsten & al. (2013). We can treat the different effect size from independently by assuming that the correlation between outcomes from the same study is nul. The fundamental problem of this approach is that it treats the separate outcomes as providing independent information while the estimations come from the same dataset of households or individuals and therefore are not independent of each other (Boreinhsten & al., 2013). Hence, we assume that the different effect sizes of the same study are correlated and following (Boreinhsten & al., 2013), the effect size is calculated as:

$$\overline{Y}_i = \frac{1}{m}\sum_{j=1}^{m} Y_{ij}$$

Where Y_{ij} is the effect size j of the study i. Tthe variance of the effect size $V(\overline{Y}_i)$ is the mean of the variance of the effect size reported in the study i:

$V(\overline{Y}_i) = \frac{1}{m}\sum_{j=1}^{m} V(Y_{ij})$.

After calculating the summary effect M*, we can calculate its standard error $SE_{M^{*}}$ and its Z-value which tests the null hypothesis that the mean effect (or summary effect) is zero.

$SE_{M^{*}} = \sqrt{\frac{1}{V_{M^{*}}}}$ and $Z^{*}=\frac{M^{*}}{SE_{M^{*}}}$ where $V_{M^{*}} = \frac{1}{\sum_i^k W_i^{*}}$.

The following table gives the mean effect of the explanatory factors retained. Concerning, education, when all levels are considered, it has a significant negative impact (-0,12) on the probability to fall into poverty and increase the probability to exit from poverty (0,18). Education has more capacity to exit from poverty than to prevent households or indivuals to fall in. An interesting result from the studies is the null effect of primary education on entrying in poverty. This level of education primary education even reduces the chances of escaping from poverty. It has any significant effecton exit from poverty. This means that it is insufficient to acquire the skills necessairy to fight against deprivation. Howecer, having secondary education reduces the probability to entry in poverty and increases the chances to exit from it. Physical assets and income prevent from falling in poverty and these factors are effective to exit from poverty. exit The table shows also three divers in poverty: a high number of the dependants and the household size, the labor force in the household and the unemployment. They prevent also exit from deprivation. The two first factors are demographic in nature, showing the importance to allow to long population policies in a poverty reduction strategy. With age, another demographic factor, the chances of falling into poverty decreased

while augment the chances of escaping from poverty. Finally, the studies do not show an significant impact of shocks on the states of poverty even each mean effect has the anticiped sign., This result is different from those in studies using cross-section data, showing rather than shocks increase the incidence of poverty (Azreen and Noy 2014).

The factors having capacity to prevent from falling into poverty are secondary education, physical assets, income and age. Except the later, all are levers for policy making. The factors that increase the chances to fall in poverty are dependants within household. Surprisingly, employment has no significant effect on entry in poverty. The factors that increase chances to exit from poverty are education all levels combined, secondary education, and in general, secondary education and income. A high household size reduces the chances to escape from poverty. Employment doesn't increase the probability to exit deprivation.

Table 4: Mean effect of factors explaining poverty dynamics in developing countries, using a random-effects model

	Entry into poverty				Exit from poverty			
Category	Number of studies	Nomber of observations	Summary effect	Z value	Number of studies	Nomber of observations	Summary effect	Z value
Emploi	9	49	-0,014	-0,23	8	49	-0,016	-0,16
Education	14	94	-0,12	-2,06**	11	72	0,18	2,84***
Education primaire	10	31	0,00	-0,02	7	22	0,03	0,96
Education secondaire	10	32	-0,07	-1,94*	8	24	0,12	2,32**
Age	14	31	-0,01	-2,39**	11	26	-0,001	-0,03
Dependant within household	11	67	0,10	3,10***	9	49	-0,10	-1,51
Labour force within household	10	23	0,002	0,06	9	15	0,07	0,94
Physical assets	10	41	-0,010	-0,809	9	43	0,01	0,41
Household size	8	25	0,02	2,44**	8	26	-0,11	-2,08**
Shocks	6	40	0,010	0,30	5	23	-0,03	-0,71
Unemployment	4	21	0,19	3,25**	4	21	-0,14	-1,43
Income	6	11	-0,11	-1,46	7	20	0,29	1,70*

Significant at 10% (*), 5% (**) and 1% (***) levels.

3. Selection bias and actual effect in works in determinants of dynamics of poverty

The precedent section identified factors that have a significant effect on the poverty dynamics presents diverse variables as being the drivers of the movements in and out of poverty. We have to verify whether, among these predictors, there exists a real effect which is not due to either bias induced by a preference for statistically significant results, nor to the process of obtaining these results.

3.1 Existence of selection bias

One of the essential questions in a meta-analysis is to know whether studies dealing with a particular research question are subject to publication bias. A publication bias may appear when the publication of a study depends on the significance and/or direction of the results obtained (Sutton et al., 2000a). It may result from self censorship on the part of the researcher or alternatively may result from the selection by the editorial board of the journal (Hedges, 1992). He demonstrated that studies with results which are positive and significant are more likely to be submitted and published than studies with results which are negative or nul (Begg and Berlin, 1988; Begg, 1994). Publication bias is therefore a major threat to the ability to dissociate the effects due to independent variables and those of other variables which are not accounted for in the research (Laroche, 2007).To detect the potential existence of such a bias, the most used method is the "funnel graph" or "funnel

plot" (Laroche, 2007). This is a graphical representation which shows the relationship between the size of effects drawn from each study and the size of samples. If the graphs uncover a publication bias, statistical tests can provide more rigorous results (Laroche, 2007). This is why we used the funnelasymmetry test, which is based on a regression model which accounts for both the effect size and the standard deviation, the two types of data drawn from the studies (Card and Krueger, 1995; Ashenfelter et al., 1999; Gorg and Stroble, 2001). According to this test, in the absence of a selection bias, the estimated effect of study i(EF_i) should not depend on the standard error (SE_i) but instead varies around$\beta_1$which is the actual effect (equation (2)).

$$EF_i = \beta_1 + \beta_0 SE_i + \varepsilon_i \qquad (2)$$

In the relationship in (2), $\varepsilon_i$representsthe error term. The value of the effect estimated by the study should be independent of its precision. Bias in the selection of publications is detected first by testing for the following hypothesis: H_0: $\beta_0 = 0$. If the hypothesis cannot be rejected, there is a presence of bias in the selection of publications. In the presence of heteroscedasticity(tested by Breuch-Pagan/Cook-Weisberg test in our work), the estimators obtained using OLS are inefficient (Egger et al., 1997). We take into account the heteroscedasticity by estimating the equation (2) by weighted least squares. Hence, we devide equation (2) by the standard-error and estimate this new relation (equation (3)) by OLS.:.

$$t_i = \beta_0 + \frac{\beta_1}{SE_i} + \mu \qquad (3)$$

Equation (3) or ((2) in absence of heteroscedasticity) tests the bias publication of type 1. This bias means that there is a publication degree which privileges a direction of the relation between the two variables of interest.In the case where the publication favours the signifiance of the results, the selection bias is referred to as type II (Laroche, 2007). To test this type of publication bias, we replace the dependent variable in equation (3) with the absolute value of the t-statistics, which gives the following equation:

$$|t_i| = \beta_0 + \frac{\beta_1}{SE_i} + \mu \qquad (4)$$

After estimating equation (4) by ordinary least squares, we test the hypothesis H_0 : $\beta_0 = 0$. If it cannot be rejected, there is a presence of publication bias. The test of the presence of these two types of selection bias is performed on each group of determinants poverty dynamics. All the estimations are estimated with the option cluster in stata in order to take into account the fact that the estimations provided by a same study might be dependant. Cluster option allow to obtain robust standard-error in this situation.

Table 5: Existence of publication bias

	Entry		Exit	
Déterminant	Publication bias of type I	Publication bias of type II	Publication bias of type I	Publication bias of
Education				
Education	-0,79	1,94	1,38	2,10
	(1,04)	(0,79)**	(0,86)	(0,91)**
Primary education	-0,64	1,15	1,49	1,99
	(0,30)*	(0,12)***	(0,40)***	(0,47)***
Secondary education	-1,25	1,47	0,84	1,90
	(0,60)*	(0,44)***	(0,77)	(0,58)**
Demographics				
Age	0,03	1,21	0,22	0,30
	(0,87)	(0,72)	(0,01)***	(0,52)
Household size	1,44	1,52	1,48	0,04
	(0,43)**	(0,44)***	(1,62)	(1,70)
Number of dependant	0,58	0,68	0,54	-2,21
	(1,28)	(1,26)	(0,04)***	(1,44)
Labor force	1,28	2,31		
	(1,02)	(1,00)**		
Physical asset and income				
Physical assets	0,10	1,69	0,97	1,97
	(0,01)***	(0,10)***	(0,27)***	(0,29)***
Income			0,10	2,09
			(0,15)	(0,48)***
Emloyment				
Employment	0,49	1,2	0,59	1,37
	(0,44)	(0,099)***	(0,34)	(0,2)***
Unemployment	0,91	0,94	0,03	0,70
	(0,30)*	(0,29)**	(0,01)**	(0,11)***
Shock	0,73	1,17	0,40	1,22
	(0,36)*	(0,15)***	(0,50)	(0,24)***

Legend: standard errors are in parentheses; significantat 10% (*), 5% (**) and 1%(***) levels; p-values are adjusted for cluster

Table 5 presents the results of the tests of publication bias on the category which have at least 20 observations (se table 2).Concerning the test of publication bias of type 1, we report the constant terme ($\boldsymbol{\beta_0}$in equation (3)) if th test of Breusch-Breuch-Pagan/Cook-Weisbergprovide evidence of heteroscedasticity or the coefficient associate to standard-error ($\boldsymbol{\beta_0}$ in equation (2)) in the absence of heteroscedasticity.The category education presents publication bias of type 2 concerning its effect on entry into or exit from proverty. This mean that the reference which found a significant effect of education on dynamics of poverty are likely to be published. The disctinctio between primary and secondary education highlights the presence of the two type of bias between primar education and the dynamics of poverty. While there is evidence of both publication of type 1 and publication o type 2 between secondary education and the entry rate, the results highlight only publication of type 2 betwee secondary education and exit from poverty.

Among the studies which retain demographic factors as determinants of the dynamics of poverty, those which us age and the number of dependant within householdshow a publication bias of type 1 between this factors and th exit rate.. This mean that there is a preference to publish studies which present a certain direction in the linl between this determinants and the probability to move out from poverty.. Concerning the household size, there i evidence of both publication of type 1 and publication of type 2 concerningt the entry rate. The more people i the household, the greater the probability that it will fall into poverty if it had not entered it, and the lower are it chance of exiting poverty once it is in it. This idea is so widespread in works on poverty that a result in the opposit direction would be considered as unpublishable.

Ifstudies on entry into poverty and exit from povertypresent both type I and and type II publication bia concerningphysical assets, and unemployment, they show only publication bias of type II about the income an employment.Finally, we found evidenceof both type I and and type II publication bias between entry rate an income on the hand. On the other hand, the studies on exit rate show a publication of type II about income..

Overall, published works on the determinants of the dynamics of poverty are primarily those which repo statistical signifiance and an effect which has the expected sign. Even in the presence of selection bias, there i room to ask whether the impact of the factors retained to explain the poverty dynamic in fact exists. Tests can b performed to detect whether this effect of the determinants which are retained in fact exists. Three tests can b used to verify whether or not this effect actually exists: the PrecisionEffect Test, the Publication BiasFiltered Effec and the Meta-Significance Test.

2.2 Existence of an actual effect of the determinants of the dynamics of poverty

In equations (2) and (3), β_1 can be considered as a "corrected" effect (Sutton et al., 2000; Macaskill et al., 2001) According to these models, when the size of the sample tends towards infinity (or when the standard deviatio tends towards zero), the observed effect tends towards β_1. The regression coefficientβ_1 is an estimation of the rea effect as correcting for publication bias. Starting from this observation, Stanley (2005) proposesa null hypothesi test for H_0: β_1=0, also known as the PrecisionEffect Test (PET).

The results of the PET can be confirmed or rejected by the Publication BiasFiltered Effect (PBFE). To start of with, this consists of subtracting the estimated effect (EF_i) of the impact of the bias, with$\boldsymbol{\beta_0}$ *SE_i,$\boldsymbol{\beta_0}$ bein considered as the constant in equation (3). Then, the value obtained by the subtraction operation is divided by SE_i thecorrected t-t_i−corrected is obtained by taking the absolute value of the result:

$$\boldsymbol{t_{corrected} = |t_i| - \beta_0} \quad \textbf{(5)}$$

The presence of an actual effect if the nul hypothesis test H_0: $\delta_1 = 0$ of equation (6) is rejected:

$$= \frac{\beta_1}{SE_i} + \mu \qquad (6)$$

If the hypothesis is rejected, we can conclude that the presence of the effect is real. The last test to be performe is the Meta-Significance Test (MST). The goal of the test is to examine the relationship between the values of th student t-test and the degrees of freedom. In the case where the degrees of freedom are not available, we tak number of observations on which the estimates of the study are base(Stanley (2002, 2005 and 2008). The idea i based on a well-known property known as statistical power (Cohen, 1969): the size of the standardized effec varies positively with the size of the sample only in cases where there exists a real effect in the relationship bein studied.

The following equation establishes this relation:

$$\ln(|t|) = \alpha_0 + \alpha_1 \ln(Obs_i) \qquad (7)$$

Obs,representsthe number of observations of study i. The rejectof the hypothesis H_0: $\alpha_1 \leq 0$ indicate the presenc of real effect.For all three of the tests mentioned above, the estimation method used cluster option in stata..

Table 6: Existence of authentic effect in publication on the dynamics of poverty

	Entry			Exit	
eterminant	Precision effect test	Publication bias filtered effect test	Meta-significance test	Precision effect test	Publication bias filtered effect test
lucation					
lucation	-0,08	0,08	0,36	0,05	0,05
	(0,08)	(0,07)	(0,11)***	(0,06)	(0,06)
imary education	0,003	-0,002	0,02	0,01	-0,002
	(0,001)***	(0,001)**	(0,09)	(0,06)	(0,001)*
condary education	0,01	0,004	0,26	0,12	-0,001
	(0,01)**	(0,002)	(0,08)**	(0,13)	(0,002)
mographics					
ge	-0,004	0,004	0,36	0,05	0,02
	(0,001)***	(0,001)***	(0,18)*	(0,05)	(0,0004)***
ouschold size	0,01	0,01	-0,06	-0,11	0,10
	(0,003)*	(0,002)**	(0,19)	(0,08)	(0,07)
umber of dependant	0,08	0,08	0,48	-0,07	0,18
	(0,04)*	(0,04)**	(0,21)**	(0,03)**	(0,06)**
bor force	-0,04	0,02	0,51		
	(0,03)	(0,03)	(0,11)***		
ysical assets et Income					
ysical assets	-0,06	-0,002	-0,03	0,001	-0,003
	(0,08)	(0,000)***	(0,08)	(0,002)	(0,002)
come				0,93	0,005
				(0,23)***	(0,003)
loyment					
ployment	-0,001	0,01	0,03	0,30	-0,003
	(0,00)***	(0,02)	(0,09)	(0,26)	(0,004)
employment	-0,01	-0,004	-0,11	0,15	0,001
	(0,002)*	(0,001)**	(0,33)	(0,22)	(0,0002)***
ock	-0,004	-0,002	0,03	0,005	0,002
	(0,004)	(0,002)	(0,07)	(0,001)	(0,002)

Legend: standard errors are in parentheses; significant at 10% (*), 5% (**) and 1%(***) levels

The PrecisionEffect Test highlight that primary education, secondary education, age, household size, the numbe of dependant within the household, the employment and the unemployment have an actual effect on the probabilit to fall into poverty.o.The publication bias filtered effect which control for publication bias of type I show that th categories which have a real effect on the entry into poverty are primary education, age, household size, the numbe of dependant within the household, physical asset and unemployment.But when applying the Meta-Significanc test, we find an authentic effect of education, secondary education, age, number of dependant and labor force o the entry rate.

Regarding exit rate, the precision effect test provide evidence that only two factors (the number of dependant an income) have a real effect. When we take into account the publication bias of type I by applying the publicatio bias filtered effect, we found that primary education, age, labor force and unemployment have an authentic effec on the exit rate. While the meta-signifance test indicates that education, secondary education, household size

number of dependant within the household and physical asset, have a real effect on the probability to exit from poverty.

3. .Systematic review of works on the determinants of the dynamics of poverty

The 20 selected documents deal with the determinants of entry/exit of poverty. However, the methods used, th analytical approaches, etc. are not similar in a manner that the results obtained differ from one author to another The systematic review makes it possible to contrast the results of these works and to highlight the similarities an differences in the results.

3.1 Impact of education on dynamics of poverty

Education has long been considered as an important factor in poverty reduction. However, the relationship is ver complex: poverty is analyzed as one of the first obstacles to education; but also the absence of (or poor quality of education contributes to the development of poverty. Of all the MDGs, education of children, and particularly tha of girls, increasingly has an impact in the fight against poverty. Education is a powerful tool in improving healt and productivity; it also contributes to creating conditions for peace and social cohesion in a society. We therefor expect that education will prevent entry into poverty and promote exit from it. This hypothesis will be verified b examining studies which deal with the links between education and the dynamics of poverty.

Education is one of the factors that are used to analyze the movement in and out of poverty. 17 out of 20 reference which analyze the move in and out of poverty enter the education among the explanatory factors. Most of work are conform to the hypothesis that is to say they found the expected sign concerning the effect of education o poverty. 5 studies (Alem, Y. (2011); Bayudan-Dacucuy, C. & Lim,A. (2014);Imai,K.(2003); You,J. (2011); Faye O. & al. (2011)) found that the probability to fall into poverty is significantly lower for individual or household with a primary education than those who have no education. The results of some studies show also that the effec of primary, secondary and higher education have a non-significant negative effect on the probability to entry int poverty (Lawson & al. (2006); Jakobsen, K., T. (2011)) On the other hand, many study conclude that education i key factor to exit from poverty (Glauben, T. & al. (2011); Slon, P. & Zuniga, E. (2006); Cuesta, J. & al. (2011) Neilson, C. (2008); McCulloch, N. & al. (2007)). If most of studies found expected results concerning th education, some present non expected results. For example Cuesta & al. (2011), Imai, K.,S. & You,J. (2014) Imai,K.(2003); Lawson,D. & al. (2006); Glauben, T. & al.(2011) found a positive effect of primary education o the entry rate.

3.2 Impact of physical assetson poverty dynamics

Poverty is often analyzed as a primarily rural phenomenon due to the fact that the majority of persons who suffe from it are found in rural areas. Rural households derive a greater share of their income from agriculture, while a increase in the physical capital (land, equipment, livestock, non-agricultural goods, etc.) increase their productio and income but also reinforce the resilience against shock and therefore help to remove them from poverty.

Of the 20 works, 7 estimated the impact of physical agricultural or livestock assets and 4 estimated the impact o non-agricultural physical assets. The sign and the significance of this effect change from one study to another bu most of the results indicate a negative effect of asset on the probability to fall into poverty and a positive effect o the probability to exit. The results of Imai, K.,S. & You,J. (2014), Imai, K. (2003), Kristjanson, P. & al. (2006) Lawson, D. & al. (2006), C. Neilson (2008), You, J. (2011) indicate a significant negative effect of physical asse on the entry rate into poverty and a positive effect on the exit from poverty. In contrast, the results of Bokoski, F. K. (2007) and Herrera, J. and Roubaud, F. (2005) don't conform to the intuition as they found that the value o livestock owned for Bokoski, F., K. (2007) and the number of asset owned by household have positive increas the probability to fall into poverty.

3.3 Impact of demographics on poverty dynamics

Demographic characteristics of households have long been considered as major determinants of poverty dynamics We generally assume that poverty has the greatest impact on the youngest, on women, and large households whic often have difficulties satisfying their basic need. Also, the MDGs target children under the age of five, girls an

women in education, health and women. The concept of feminization of poverty appeared as early as the fourt World Conference on Women (1995): 70% of the poor are women. Inequalities between men and women, whil on the decline, are heavily tilted toward poverty of women. In the sample of works retained, demographic factor figure systematically among the determinants of the dynamics of poverty. Pratically, all the workshave entere demographics factors like age, gender, the size of household, the number of dependant or labour force in th househols to explain the move in and out of poverty. The results generally confirm the commonly acknowledge assumption.

Zampino (2010), You (2011), Neilson, C. (2008), Imai, K.,S. & You, J. (2014) and Herrera and Roubaud (2003 find a positive and significant impact of age on poverty exit. Bayudan-Dacuycuy, C. & Lim, J., A. (2014), Lawson D. et al. (2006), McCulloch, N. et al. (2007), Slon, P. & Zuniga, E. (2006) and Alem, Y. (2011) find a significan and negative impact of age on both entry into poverty. They highlight that the experience of older person regarding the risk of falling into poverty.

The gender factor does not appear to have a significant impact on poverty dynamics. In effect, for example a found in Imai, K. (2003), Alem (2011), Lawson, D. et al. (2006), most author find that the probability to fall int poverty is higher for male than female and the exit rate is higher for female.

Household size is found to be an important determinant of poverty dynamics. It prevents exit from poverty an leads households into a state of deprivation. Lawson, D. et al. (2006), Bokoski, F., K, (2007), McCulloch, N (2007), Herrera, J. & Roubaud, F. (2005), You, J. (2011) and Zampino, S. (2010) highlight that the size o household increase significantly the probability to move in poverty while Imai, K.,S. & You, J. (2014), Glauber T. & al. (2011),), Lawson, D. et al. (2006), Slon, P. & Zuniga, E. (2006) found a significant negative effect on th move out poverty. These studies highlight that large household size reduces the capacity to provide sufficien quantity and quality of food to all its members, to care for them when they fall ill, and to ensure a good educatio for the children. Other studies explore the decomposition of the household by analyzing the effect of the numbe of dependant or the labour force on the dynamics of poverty. Most of studies highlight that the number o dependant decrease the chance to exit from poverty (Imai, K. (2003); Glauben, T. et al. (2011), Neilson, C. (2008) Slon, P. & Zuniga, E. (2006)) and increase the probability to entry into poverty (McCulloch, N. (2007); Zampino S. (2010)). In contrast labor force have a positive effect on the exit rate (Imai, K.,S. & You, J. (2014),Slon, P. & Zuniga, E. (2006) and the inverse effect on the entry rate (Bayudan-Dacuycuy, C. & Lim, J., A. (2014),Slon, P. & Zuniga, E. (2006)).

3.4 Employment, community factors and poverty dynamics

The link between poverty and employment has been widely debated in recent years. While some authors defen the idea that employment is the best antidote against poverty, others estimate that it can considerably reduce th risk of falling into poverty, but is not sufficient to eliminate it. For large size families whose wages are low, a full time job for the household head is not sufficient for them to exit poverty. The existence of working poor is a realit that is well understood in developing countries (OECD, 2009).

Among the 20 studies, 15 evaluated the impact of employment on poverty dynamics (see Table 4). Many authors for example Imai,K. (2003), Glauben, T. et al. (2011) , Kristjanson, P. et al. (2006), Neilson, C. (2008), and als Herrera, J. & Roubaud, F. (2013) arrive at the conclusion that wage employment is a key factor in exiting poverty, If Neilson et al. (2008) and Faye, O. et al. (2011) highlight thatemployment have a statistically significance impac on poverty, Bokoski, F.,K. (2007), Imai, K.,S. & You, J. (2014) and Lawson, D. et al. (2006) found tha employment remains an important determinant which prevents households from entering into a state of deprivatio even if it is not statistically significant. In contrast, the situation of unemployment push the individuals into povert (Alem, Y. (2011); Herrera, J. & Roubaud, F. (2005) and decrease the chances to exit from poverty (Alem, Y (2011); Imai, K. (2003)).

In the context of developing countries, it is under-employment, or very reduced activity levels often in a contex of very short periods of employment, which is explained better by the correlation between poverty exit/entry an employment. But works on poverty dynamics have not yet accounted for this predictor. Poverty is often considere as a community phenomenon. It is often difficult to live in a very poor community and have a decent capacity t face the risk of poverty. If certain collective goods are absent from a locality, the cost of paying to access them

become prohibitive for most persons who live there. The absence or insufficience of infrastrucutre in the form o health, education, roads in good condition and nearby markets affect all persons living in the locality. Conversely, the existence of a high quality road linking the village to an urban centre reduces transaction costs, notably fo prices of agricultural inputs, and allows producers to sell their harvest at a much higher price. These effects lea to an increase in household income, which reduces the risk of falling into poverty and increases the chances o exiting from poverty if the household « was previously in poverty.

Similarly in the presence of cooperatives, strong social organizations favour the availability of and access t collective goods and information which positively changes behaviour. Different indicators are used in studies t capture the effect of community on the episodes of entry into and exit from poverty: the distance from a marke participation in collective works and mutual support, the annual growth rate of income in the village, agricultura potential of the locality, etc. For instance, some studies highlight urbanization (Imai, K.,S. & You, J. (2014)) o living in urban area (Padayachi, R. (2008); Neilson, C. (2008)) decreases the chances to enter into a deprivatio situation while Krishna, A. & al. (2006) arrive to the conclusion that belonging to a community organization i key determinant to exit from poverty.

4. Sources of heterogeneity ofthe size effect reportedby the studies

Studies on determinant factors of the dynamics of poverty differ by the population studied, the sampling, th estimation method, etc. We should therefore be questioning about the effect of this heterogeneity on the effect size o the works report.

4.1 Choice of estimation model

The estimation model consists of relating the observed effect and the meta-variables. In all that follows, the indice *i* and *j* respectively designate a determinant of poverty and an estimation. The base model used is the following:

$$\mathbf{Y_{ij}= a+ bX_{ij}+ e_{ij}} \quad \mathbf{(8)}$$

where:

- $Y_{ij}$is the value of thecoefficient i rapported by the study j; ;
- $X_j$is a vector corresponding to retained meta-variables assumed to be independent from each other;
- ,is a constant term.*i*
- b is a parameter to estimate;
- e_{ij} is an error term assumed to be independent and independently distributed with an average of zero an constant variance.

is the observed effect of determinant *i* on the poverty dynamic. The equation(8) is estimated by using the orindar least squares with cluster option in order to obtain robust standard-error.The meta-variables which represent th sources of heterogeneity are: the logarithm of the number of observations, themodel used, the survey coverag (national, rural, urban), the type of the document (published article, working paper, no-published document), th continent (Africa or other continent), the year of publication.The estimation concern the categories which have a least 20 observations.

4.2 Sourcesof heterogeneity of determinants of poverty dynamics

In this section we present the results of the meta-regressions. The meta-regression allows us to examine whic measure of statistical heterogeneity of the estimation results of the various studies might be linked to certai characteristics of these studies (Thompson etal., 2002).It can therefore help to answer questions such as why th value of estimated coefficients of determinants is high in some studies and not in others. In our work, the stud characteristics included are type of document, the model used, the welfareindicator used (income, consumptio expenditure or other), the type of data, etc.

All the meta-variables retained to study the source of heterogeneity are not included in all the model because som meta-variables are source of multicolinearity. For example, publication year and survey coverage are not includ in the both primary education model and employment model because they are source of multicolinearity (thei Vector Inflation Factor exceed 20). The vector inflation factor indicate that there is no sign of multicolinearity i the final models (see table A.1 and table A.2).

The table 7 shows the results of the meta-regressions of the entry into poverty. The main factor which explains th heterogeneity of the categories is the model used in the study because this meta-variable is significant in 8 out o 11 models. This factor is followed by the number of observations of the model (7 out of 11 models), the surve coverage (6 out of 11 models), the type of document (5 out of 11 models), the publication year of the reference (4 out of 11 models), the welfare indicator (income, expenditure or other) used to measure poverty (3 out of 1 models) and the continent (3 out of 11 models). Furthermore, the results highlight that the effects of most o categories are not statistically different between Africa continent and the other continent except that of househol size, employment and shock. The effect of household size in the entry into poverty is significantly higher in Afric than in the other continents. In contrast, the effects of both employment and shock in the entry into poverty ar higher in the other continents than in Africa.

The table 8 indicates the results of the meta-regressions of the exit from poverty. The heterogeneity of the effec size are mainly explained by the survey coverage (7 out of 11 models) followed by the type of the document, th publication year (4 out of 11 models), the welfare indicator (4 out of 11 models), the continent (4 out of 11 models) the model used (3 out of 11 models) and the sample size (2 out of 11 models). The results show that the effect o both education, secondary education, household size and physical asset on the probability to exit from poverty i significantly lower in Africa in comparison to the other continents.

Table 7: Entry into poverty

	(1) Education	(2) Primary education	(3) Secondarye ducation	(4) Age	(5) Household size	(6) Nbr dependant	(7) Labour force
Log sample size	0.018	0.002	-0.062*	-0.079***	0.370***	-3.346*	-0.065**
	(0.14)	(0.03)	(0.03)	(0.02)	(0.02)	(1.63)	(0.03)
Model(ref= autre)							
Model=Logit/probit	-1.102***	-0.545**	-1.672***	0.320	0.468***	30.669	0.280***
	(0.34)	(0.23)	(0.15)	(0.22)	(0.01)	(19.25)	(0.06)
Publication Year(ref=before 2009)							
Publication Year=after 2009	0.009		0.207***	-0.259**	0.276***	-5.251	-0.157*
	(0.44)		(0.05)	(0.10)	(0.02)	(7.45)	(0.07)
The survey coverage (ref=rural)							
Coverage=national	-0.750*			-0.166	-0.509***	-0.871	-0.094
	(0.39)			(0.13)	(0.03)	(4.07)	(0.06)
Coverage=urban	-0.309			1.005***	1.243***	5.343	-1.057***
	(1.11)			(0.17)	(0.03)	(7.12)	(0.08)
Type of document (ref=article)							
Type=Working paper	-0.350	-0.087***	0.116***	-0.187		-8.443*	
	(0.44)	(0.02)	(0.04)	(0.12)		(4.14)	
Type=Other	-0.691	-0.624***	-0.676***	-0.801***		-4.552	
	(0.78)	(0.02)	(0.11)	(0.08)		(11.32)	
Continent (Ref=Other)							
Continent=Afrique	0.106	0.024	-0.009	-0.316	0.802***	19.253	0.030
	(0.58)	(0.16)	(0.12)	(0.19)	(0.01)	(14.25)	(0.09)
Welfare Indicator (Ref=Expenditure)							
Indicator=Income		0.021	-0.162	-0.159		22.706	
		(0.16)	(0.11)	(0.20)		(15.71)	
Indicator=Other		0.043***	0.628***	-0.067		-0.376	
		(0.00)	(0.00)	(0.09)		(0.77)	
Constant	0.258	-0.029	0.372**	0.825***	-2.875***	5.090	0.564**
	(0.90)	(0.06)	(0.14)	(0.09)	(0.14)	(11.25)	(0.24)
Observations	94	31	32	31	25	67	23
R^2	0.314	0.363	0.568	0.916	0.561	0.301	0.824
Nbr cluster	14	10	10	14	8	11	10

Standard errors adjusted for clusters in parentheses
*$p<0.10$, **$p<0.05$, ***$p<0.01$

Table 8: Exit from poverty

	(1) Education	(2) Primary education	(3) Secondarye ducation	(4) Age	(5) Household size	(6) Nbr dependant	(7) Income
Log sample size	0.024	0.039	-0.008	-0.024*	0.001		-0.167
	(0.02)	(0.04)	(0.02)	(0.01)	(0.01)		(0.11)
Model(ref= autre)							
Model=Logit/probit	-0.426			-0.073	-1.556***	-0.184*	
	(0.27)			(0.17)	(0.07)	(0.10)	
Publication Year(ref=before 2009)							
Publication	-0.649**	0.172	-0.173***	-0.008	-1.318***	0.023	
Year=after 2009	(0.25)	(0.15)	(0.01)	(0.09)	(0.04)	(0.05)	
The survey coverage (ref=rural)							
Coverage=national	-0.138	-0.355**		0.079	1.475***	0.089*	-1.352***
	(0.15)	(0.13)		(0.09)	(0.04)	(0.05)	(0.23)
Coverage=urban	0.592**	-0.412		1.246***	2.174***	0.489***	-0.945**
	(0.22)	(0.32)		(0.14)	(0.04)	(0.06)	(0.37)
Type of document (ref=article)							
Type=Working	-0.837***		-0.116***	-0.010	1.610***	0.190***	
paper	(0.26)		(0.02)	(0.10)	(0.11)	(0.05)	
Type=Other			0.235***	-1.127***		-0.768***	
			(0.01)	(0.07)		(0.05)	
Continent (Ref=Other)							
Continent=Africa	-0.850***	0.178	-0.779***	-0.168	-1.254***	0.007	0.324
	(0.21)	(0.17)	(0.06)	(0.13)	(0.00)	(0.05)	(0.41)
Welfare Indicator (Ref=Expenditure)							
Indicator=Income			-0.560***	-0.042	-1.475***	-0.103	0.897**
			(0.06)	(0.16)	(0.04)	(0.07)	(0.30)
Indicator=Other							0.466
							(0.48)
Constant	0.801**	-0.104	0.797***	0.207	-0.238	-0.104*	1.944
	(0.30)	(0.22)	(0.17)	(0.14)	(0.14)	(0.05)	(1.10)
Observations	72	22	24	26	26	49	20
R^2	0.411	0.552	0.835	0.988	0.450	0.393	0.573
Nbr cluster	11	7	8	11	8	9	7

Standard errors adjusted for clusters in parentheses
*$p<0.10$, **$p<0.05$, ***$p<0.01$

Conclusion

The literature on the dynamics of poverty identifies numerous factors which impact the probability of an individual or housheold entering into or exiting from a state of major deprivation. Education, demographics (household size, dependency ratio, etc.), agricultural and non-agricultural assets, the community they live in, etc., are the most cited. But are they the most powerful levers for an individual or household to get out of poverty or avoid falling into it? Can we then can conclude that anti-poverty programs are in fact based on rigorous knowledge of factors which have a proven capacity to pull the largest number of individuals or household out of poverty or prevent them from falling into it? The goal of this paper was to respond to this question using results from quantitative empirical works on poverty dynamics. The results of these works are not easily compared due to the variety of data used, the methodologies, the size of thesamples, etc. A meta-analysis was used to produce a statistical summary of poverty dynamics. The analysis of the sample of studies retained in this paper show that the number of empirical works on poverty dynamics is relatively low compared to those which use cross-sectional data on poverty. The high costs of producing panel data doutbtlessly explain this low number. However, the first half of the 2010 decade is marked by an increase in works on poverty exit/entry. We can anticipate an increase in the number of works on poverty exit/entry, particularly in Africa. When we procede with a disaggregation of empirical works according to whether the dynamic of poverty is the entry rate, the exit rate, or the transition rate, the fact that we are working with limited number of works becomes more apparent. This distinction should be held in order to effectively contrast the factors which have more of an impact on exiting poverty than its prevention. We first of all sought to verify whether there is any selection bias in the works on poverty dynamics. The results of tests performed on studies in the sample which cover the link between poverty dynamics and middle/secondary education in addition to other indicator variables of education level donot reveal any selection bias. The test results are less clear when looking at studies which deal with primary education. There may be a tendency to publish studies which report significant results for the influence of primary education on poverty dynamics. Similarly, there is a preference to publish studies presenting statistically significant result for the link between household size and poverty dynamics. The more persons living in a household, the greater the probability that they will fall into poverty if they were not in it, and the lower the chance of exiting it once falling into poverty. Studies on physical agricultural assets find apublication bias with very strong significance. Selection bias is present in studies which retain non-agricultural physical assets as predictors of poverty exit/entry. However, no publication bias is found for the category of variables representing employment, contrary to factors which aim to capture the impact that the community that the individual or household lives in may have on the poverty dyanmic. The tests that we applied do in fact detect a publication bias. In sum, works published on determinants of poverty dynamics are primarily those which report a significant effect with the expected sign.

Another question that we ask is whether, after controlling for selection bias, the most commonly cited determinants in the literature indeed have verifiable impact on poverty dynamics. The existence of an actual effect is isolated using the meta-signifiance test. It tends to confirm a real impact on the probabilities of entry into or exit from poverty. Finally, we aim to evaluate the influence of study characteristics on the results themselves. The results show the importance of the availability of panel data to more rigorously capture the determinants of poverty dynamics. Similarly, works with relatively large samples covering both urban and rural areas tend to have more reliable results.

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Annex

Table A.1: Vector Inflation Factor (multicolinearity test) for entry into poverty

Category	Education	Primary education	Secondary education	Age	Household size	Nbr dependant	Labour force	Physical asset
Log nbr observations	3.88	2.09	5.54	1.76	2.99	3.24	2.30	2.40
Model=Logit/probit	2.21	3.23	4.01	10.31	3.13	11.57	2.15	1.90
Publication Year=after 2009	3.49		4.67	3.65	3.71	6.06	2.68	
Milieu=national	2.64			6.25	5.17	6.13	2.18	2.22
Milieu=urban	10.10			6.06	5.15	6.36	1.92	3.91
Type=Working paper	3.88	1.37	3.54	3.62		4.59		
Type=Other	3.83	4.14	3.06	1.73		1.53		
Continent=Africa	3.93	1.82	3.55	3.45	3.22	4.58	4.07	2.41
Welfare indicator=Income		4.59	4.00	8.68		12.01		2.32
Welfare indicator=Other		1.74	1.75	1.53		1.72		

Table A.2: Vector Inflation Factor (multicolinearity test) for entry into poverty

Category	Education	Primary education	Secondary education	Age	Household size	Nbr dependant	Labour force	Physical asset
Log nbr observations	1.53	2.37	2.44	3.51	2.85		6.65	2.07
Model=Logit/probit	1.97			18.08	11.88	7.94		
Publication Year=after 2009	5.94	2.90	9.02	9.12	9.53	5.19		4.79
Milieu=national	1.55	2.55		8.91	11.68	6.16	1.77	2.77
Milieu=urban	3.37	3.89		5.82	11.77	7.23	2.67	2.90
Type=Working paper	5.46		6.34	8.92	10.15	7.06		
Type=Other				2.03				
Continent=Africa	3.79	4.36	7.59	4.33	2.07	3.18	4.06	3.17
Welfare indicator=Income			4.65	13.61		10.10	4.78	3.03
Welfare indicator=Other			4.62			1.61	12.91	6.36