



DO REMITTANCES IMPROVE INCOME INEQUALITY? AN INSTRUMENTAL VARIABLE
QUANTILE ANALYSIS OF THE SENEGALESE CASE

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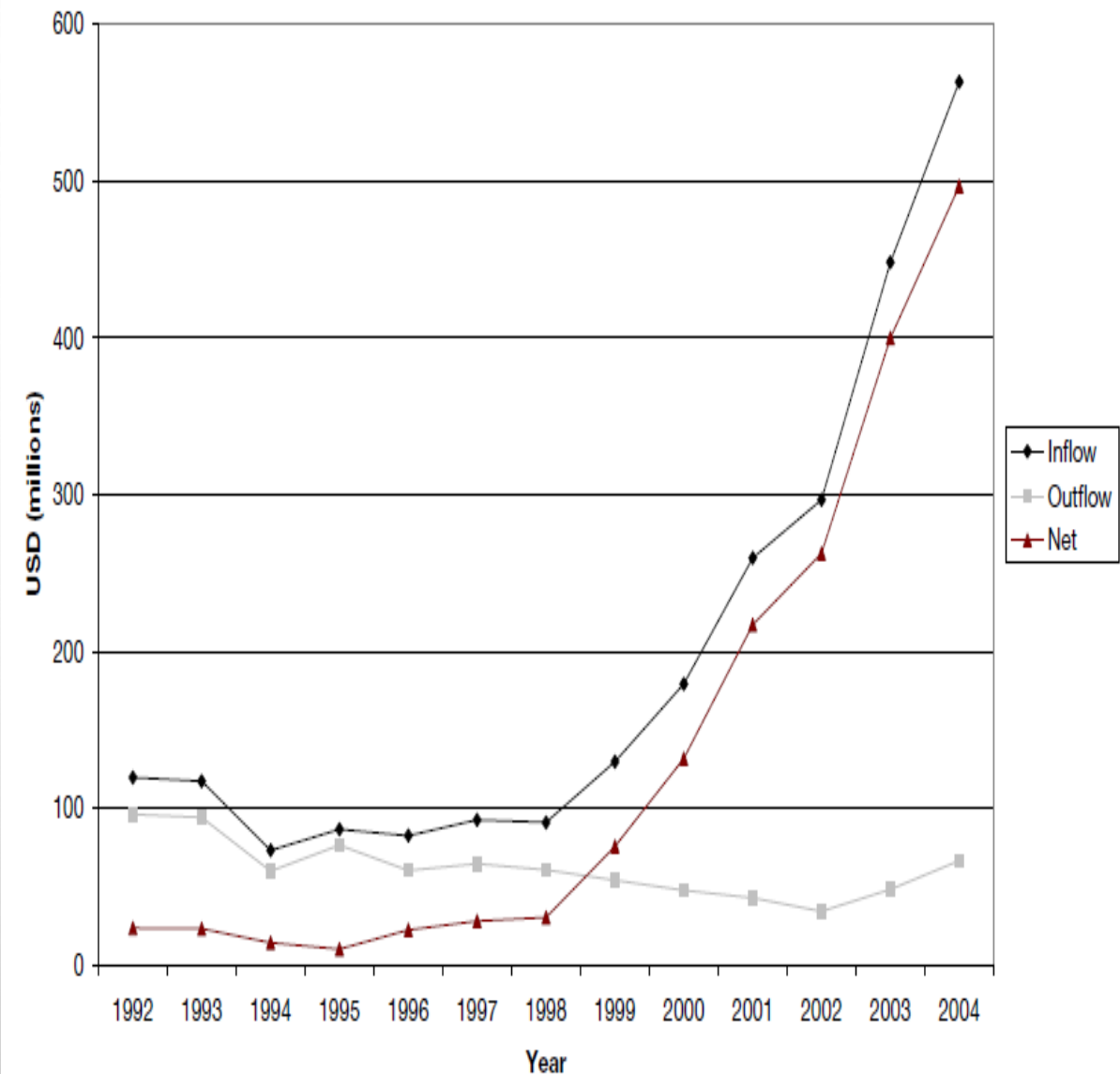
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INTRODUCTION

- THE SHEER MAGNITUDE OF GLOBAL REMITTANCE FLOWS HAS GENERATED ENORMOUS INTERESTS IN ASSESSING ITS IMPACT ON THE RECIPIENT SOCIETIES
- NOTABLY, WHAT IS THE IMPACT OF REMITTANCES ON GROWTH, POVERTY, AND THE DISTRIBUTION OF INCOME.?
- WITH SOME EXCEPTIONS THE BALANCE OF THE LITERATURE FINDS THAT REMITTANCES HAVE HAD A POSITIVE IMPACT ON ECONOMIC GROWTH (CATRINESCU ET AL., 2009; ZIESEMER, 2012; FEENY ET AL., 2014)
- IDENTIFIED CHANNELS INCLUDE:
 - ENHANCING FINANCIAL DEVELOPMENT (AGGARWAL ET AL. 2011; CHOWDHURY, 2011)
 - HUMAN CAPITAL FORMATION BY INCREASING EDUCATIONAL EXPENDITURE AT THE HOUSEHOLD LEVEL (ADAMS AND CUECUECHA, 2010)
 - INCREASING THE LEVEL OF INVESTMENT (LARTEY, 2013), BOTH BY ALLEVIATING THE CREDIT CONSTRAINTS THAT RESTRICT FIRMS AND BY REDUCING MACROECONOMIC VOLATILITY.

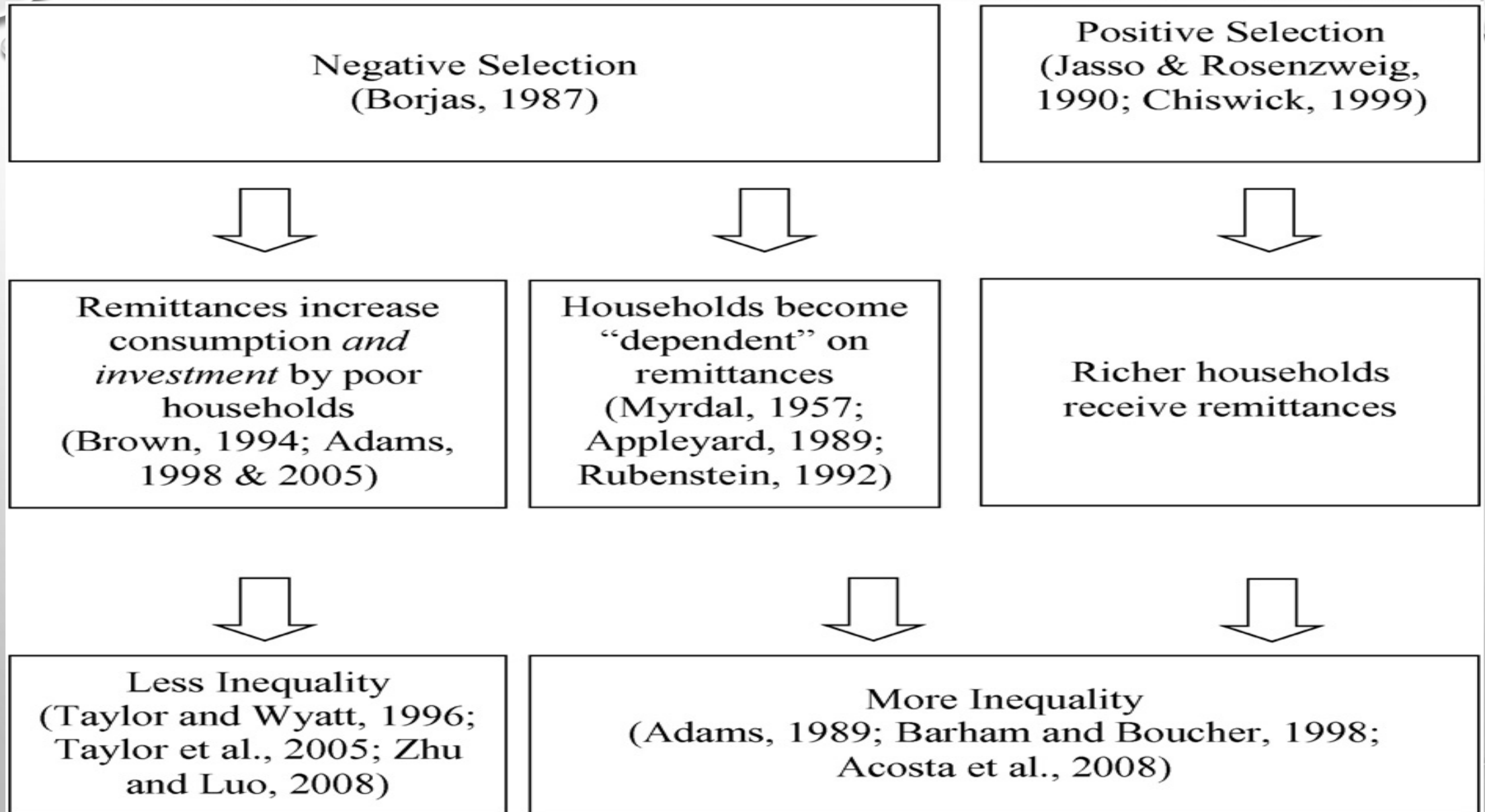
FIGURE 1: TREND OF REMITTANCES IN SENEGAL (SOURCE: WORLD BANK, 2009)



INTRODUCTION

- GENERALLY, STUDIES SHOW THAT REMITTANCES REDUCE BOTH POVERTY RATE AND ITS SEVERITY BUT FOR OUR CASE STUDY, THERE WAS NO STUDY THAT CONSIDERED THE DISTRIBUTIONAL IMPACT OF REMITTANCES ON HOUSEHOLDS EXPENDITURES
- EVEN IF REMITTANCES REDUCE POVERTY, MUCH OF THIS IMPACT MAY BE BECAUSE REMITTANCES ENHANCE ECONOMIC PERFORMANCE, RATHER THAN BECAUSE THEY IMPROVE THE RELATIVE POSITION OF POOR HOUSEHOLDS WITH RESPECT TO RICH ONES
- THERE IS LESS AGREEMENT ABOUT IMPACT OF REMITTANCES ON INCOME INEQUALITY. THIS IS BECAUSE ENDOGENEITY OF REMITTANCES DOES NOT ALLOW EASY IDENTIFICATION OF CAUSAL IMPACT OF REMITTANCES ON INCOME DISTRIBUTION
- OUR STUDY MEASURES THE IMPACT OF REMITTANCES ON INEQUALITY IN SENEGAL USING THE MIGRATION HOUSEHOLD SURVEY CONDUCTED BY THE WORLD BANK IN 2009.
- THE MAIN MOTIVATION FOR THE RESEARCH IS THE IDEA THAT THE ADVERSE DISTRIBUTIONAL IMPACT OF REMITTANCES DOCUMENTED BY A SECTION OF THE LITERATURE ARISES ESSENTIALLY FROM THE POSITIVE SELECTION OF EMIGRANTS

FIGURE 2: PREDICTING THE IMPACT OF REMITTANCES ON POVERTY AND INEQUALITY



METHODOLOGY

- OUR METHOD NEEDS TO SOLVE TWO MAIN PROBLEMS:
- THE PROBLEMS OF ENDOGENEITY OF REMITTANCES AND NON-LINEARITY OF REMITTANCE PARAMETERS
- SO WE USE INSTRUMENTAL VARIABLE QUANTILE REGRESSION WHICH IS KNOWN TO SOLVE SUCH PROBLEMS (CHERNOZHUKOV AND HANSEN (2005, 2008); HARDING AND LAMARCHE (2009) AND BANG ET AL., 2016).
- INSTRUMENTS ADOPTED ARE OWNERSHIP OF NON-AGRICULTURAL LAND AND NUMBER OF MIGRANTS WITHIN HOUSEHOLD'S ETHNIC NETWORK
- WE PROPOSE THAT FOR BOTH POVERTY AND OF INCOME DISTRIBUTION THE IMPACTS OF REMITTANCES WILL DEPEND MORE ON WHETHER A HOUSEHOLD RECEIVES ANY REMITTANCES AT ALL THAN ON WHETHER A TYPICAL HOUSEHOLD RECEIVES ONE ADDITIONAL DOLLAR FROM REMITTANCES (SEE FIGURE 3).

FIGURE 3: DISTRIBUTION OF HOUSEHOLDS BY REMITTANCE STATUS

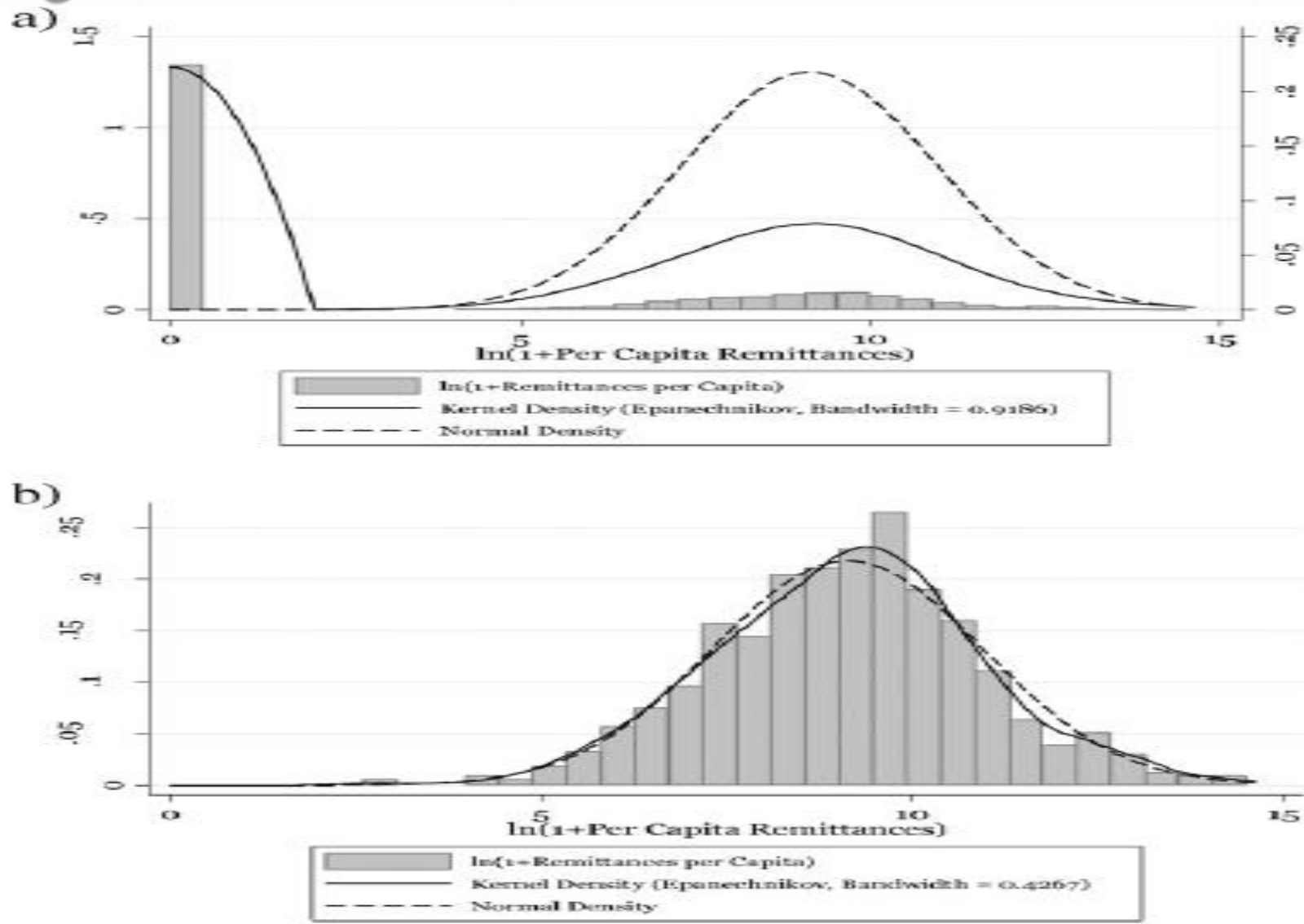


Fig. 2. a. Empirical distribution of $\ln(1 + \text{remittances per cap.})$ — all values. b. Empirical distribution of $\ln(1 + \text{remittances per cap.})$ — positive values only.

THE MODEL

$$\begin{aligned} \ln(\text{Expenditures_per_Capita}_i) = & \beta_0 + \beta_1 \text{Remittances}_i + \beta_2 \text{Age}_i \\ & + \beta_3 \text{Age}_i^2 + \beta_4 \text{Education}_i + \beta_5 \text{Size}_i \\ & + \beta_6 \text{Gender}_i + \beta_7 \text{Rural}_i \\ & + \sum_j \delta_j \text{Occupation}_{ij} + e_i, \end{aligned}$$

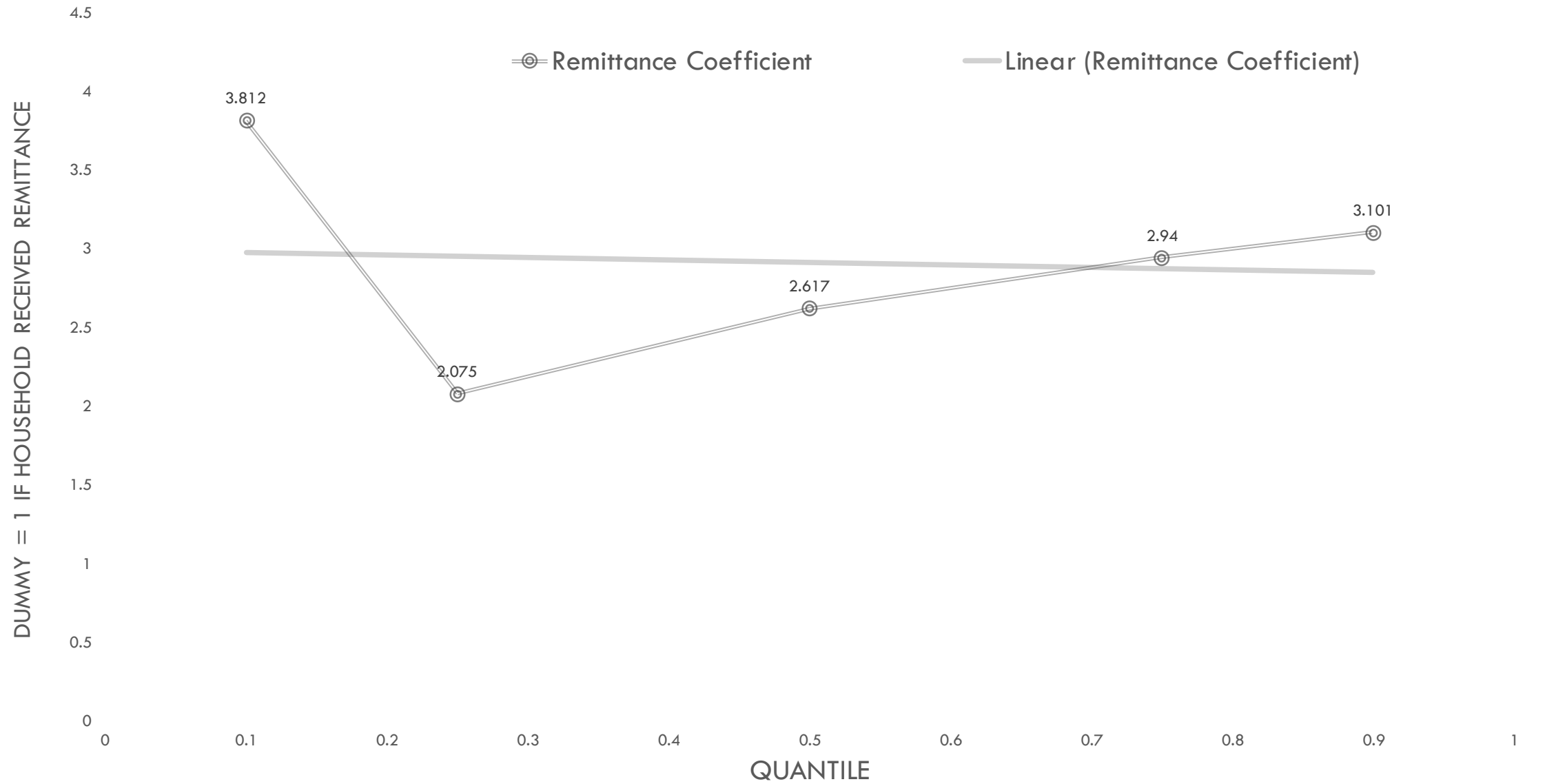
DATA

- ALL OF THE DATA FOR THE SPECIFICATIONS THAT WE ESTIMATE COME FROM THE 2009 SENEGAL MIGRATION HOUSEHOLD SURVEY CONDUCTED BY THE WORLD BANK.
- THIS DATASET IS AVAILABLE IN THE WORLD BANK MICRODATA LIBRARY AND CONSISTS OF 1953 OF WHICH 902 HOUSEHOLDS RECEIVED REMITTANCES
- INFORMATION OBTAINED INCLUDE; THE HOUSEHOLD CHARACTERISTICS, INCLUDING ASSETS OWNERSHIP, NUMBER OF FAMILY AND NON-FAMILY MEMBER RESIDENTS, TOTAL EXPENDITURES, HOW MUCH THE HOUSEHOLD RECEIVED IN TOTAL REMITTANCES, AND HOW REMITTANCES THE HOUSEHOLD RECEIVED WERE SPENT.
- IN ADDITION, THE DATASET DOCUMENTS INDIVIDUAL CHARACTERISTICS OF THE RESIDENTS OF THE HOUSEHOLD, INCLUDING LABOR FORCE STATUS, OCCUPATION, EDUCATION, AGE, RELATIONSHIP TO THE HOUSEHOLD'S HEAD, RELIGION, ETHNICITY, AND INFORMATION ABOUT EACH MEMBER OF THE HOUSEHOLD'S MIGRATION EXPERIENCE

RESULTS

- THE RECEIPT OF REMITTANCES IS SHOWN TO ENHANCE HOUSEHOLD EXPENDITURE AT ALL QUANTILES OF EXPENDITURE DISTRIBUTION BUT THE IMPACT IS NOT UNIFORMLY DISTRIBUTED ALONG INCOME LEVELS.
- THE STANDARD QUANTILE REGRESSION SUGGESTS THAT A REPRESENTATIVE HOUSEHOLD AT THE 10TH QUANTILE OF INCOME DISTRIBUTION WHO RECEIVED REMITTANCES SPENDS 8.5 PERCENT MORE THAN SIMILAR HOUSEHOLD WHO DO NOT RECEIVE REMITTANCES. COMPARATIVELY, THIS DIFFERENCE WAS ABOUT 28 PERCENT AT THE 90TH PERCENTILE.
- LIKE SOME PREVIOUS STUDIES, THIS SUGGESTS THAT REMITTANCES WIDEN INCOME GAP IN THE POPULATION. **HOWEVER, REGARDLESS OF MIGRATION OPPORTUNITIES, REMITTANCES HAVE SIGNIFICANT IMPACTS ON HOUSEHOLD EXPENDITURE.**
- BASED ON IVQR, IN THE 10TH PERCENTILE, EXPENDITURE DIFFERENTIAL BETWEEN REMITTANCE AND NON-REMITTANCE HOUSEHOLDS IS 381 PERCENT COMPARED TO 207, 261, 294 AND 310 PERCENT IN THE 25TH, 50TH, 75TH AND 90TH PERCENTILES, RESPECTIVELY.

FIGURE 3: IMPACT OF REMITTANCES BASED ON IVQR BY EXPENDITURE QUANTILES



CONCLUSION

- REMITTANCES ARE MORE IMPORTANT FOR POOR HOUSEHOLDS BUT THESE HOUSEHOLDS ARE DISADVANTAGED IN TERMS OF ACCESS TO MIGRATION
- AFTER ACCOUNTING FOR ENDOGENEITY, A STRONG EQUALIZING IMPACT OF REMITTANCES ON THE DISTRIBUTION OF EXPENDITURES IS FOUND.
- THE EQUALISATION EFFECTS IS PARTICULARLY PRONOUNCED BETWEEN THE VERY POOR AND THE MIDDLE CLASS IN SENEGAL
- ORDINARY LEAST SQUARE ESTIMATION OF REMITTANCES IMPACT ON POVERTY REDUCTION IS BIASED DOWNWARDS.
- EVEN QUANTILE MODELS THAT CONSIDER REMITTANCES TO BE FULLY EXOGENOUS WITHOUT ACCOUNTING FOR ENDOGENEITY DOES NOT RESULT TO IDENTIFICATION OF THE REMITTANCE CAUSAL IMPACT
- POLICIES TARGETED AT OPENING UP MIGRATION OPPORTUNITIES FOR THE VERY POOR IN AFRICA MIGHT BE A GOOD STEP TOWARDS ALLEVIATING WORSE CASE OF POVERTY IN THE REGION

The image features a light gray gradient background with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance. In the top-left corner, there are several droplets of different sizes, including a large one. In the top-right corner, there are a few smaller droplets. In the bottom-right corner, there is a cluster of droplets, including a large one and several smaller ones. In the bottom-center area, there are a few more droplets of varying sizes.

•THANK YOU

TABLE 1: INSTRUMENTS VALIDITY

Variable	First Stage LPM Regression	Second Stage OLS Regression	Second Stage Instrumental Variable Regression
= 1 if Household received Remittance	-	0.190***	1.431***
		(0.022)	(0.155)
Ethnic migration Network	0.012***	0.003	Instrument
	(0.003)	(0.005)	
Non-agricultural land ownership	0.072***	0.035	Instrument
	(0.017)	(0.026)	
Other explanatory variables included	Yes	Yes	Yes
F-test of Instrument Relevance (instrumenting for Remittance Dummy)			F(2, 262) = 7.60
			Prob > F = 0.0041
Hansen Statistic (Overidentification test of all instruments)			Chi-sg(2)= 0.49
			p-value = 0.823
Stock-Yogo weak ID test critical values:	10% maximal IV size		22.30
	15% maximal IV size		12.83
	20% maximal IV size		9.54
	25% maximal IV size		7.80
Sargan Statistic (Overidentification test of all instruments)			Chi-sg(1)= 0.092
			p-value = 0.674

Notes: ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 level respectively using two tailed tests. Standard errors are reported in parentheses. The regression models also include other explanatory variables that are not shown here in order to conserve space. LPM stands for linear probability model