**HOMEWORK 3**

Methodological note

In the spirit of previous research (Santaeulalia-Llopis and Restuccia, 2017), we consider that the geographic unit of decision is the country and thus, that the risk-sharing exercise should be conducted in consideration to the whole economy of Uganda. That is, the aggregate consumption that needs to be taken into consideration is the consumption of the whole country of Uganda. However, it is arguable that a different geographic measure (region or district) could allow for different patterns of risk-sharing or, in other words, that the consideration of the aggregate consumption at an inferior level could alter the measure of the phi.

Question 1.

Plot the histogram of β_i and ϕ_i
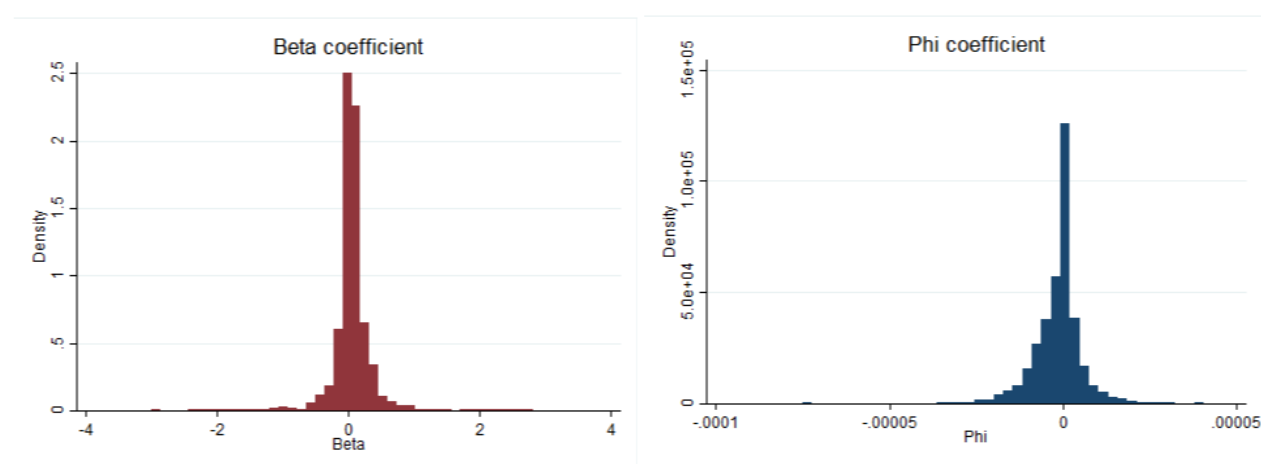
Report the mean and median across households of your estimates

	Beta	Phi
Mean	.0368387	-1.23e-06
Median	.0734957	-3.88e-22

Is full-risk sharing achieved? Discuss your results

Full risk sharing is not achieved. As the regression shows, the betas have values close to zero but not equal to zero. In fact, the β_i present a distribution shifted to the right. That is, variations in consumption at the household level are, although weakly, positively related to variations of the household´s income.

Now, the question is, how does this β_i change for each household? Can we find a variable that determines the incidence of each household´s income in its choice of consumption? Who are the most and the least insure?

On the other hand, probably because of the unit of aggregation chosen, ϕ_i presents a surprising negative sign. In my opinion, it could be because we are analyzing a period of increasing aggregate saving.

Question 2

On the relationship between insurance and household income/wealth:

(a) **For each household, compute the average household income across all waves Y_i. Rank individuals by income and define five groups of income from bottom 20% to richest 20%. Within each income group compute the mean and median β_i and dicuss your results.**

Income ventile	Median beta	Mean beta
0-20%	.0208941	.0440307
20-40%	.0323387	.0392014
40-60%	.0507627	.054303
60-80%	.0536938	.1309663
80-100%	.0520851	.1666759

From the figure we can induce a negative relation between risk-sharing and income levels: as households get richer variations in their consumption will relate more to variations in their income. This result makes sense if we consider that those who could benefit the most from risk sharing are the households with smaller income levels. For the households with high income a negative shock, in marginal utility terms, presents a much smaller effect than for those with low income. Thus, the latter have higher incentives to risk share.

(b) **Rank individuals by their estimated β_i and create five groups of individuals from the most insured bottom 20% (i.e, β_i closest to zero) to the least insured top 20% (i.e., β_i farthest way from zeror). Within each group of β's compute average income and wealth across groups. Discuss your results.**

Beta ventile	Median income	Mean income
0-20%	7.562748	7.247264
20-40%	7.461186	7.142468
40-60%	7.449161	7.140375
60-80%	7.621355	7.357734
80-100%	7.697758	7.310751

The results of the table are consistent with all the previously said and present similar evidence to the one shown in part a. In this case, we can see that those households that present smaller risk sharing (higher beta) are those who have higher income. That is, those households that present smaller risk sharing tend to be (the whole distribution is shifted to the right) the ones that have larger income levels. Once again, the reasons behind this behavior is that their income is sufficiently high to insure them individually from negative shocks.

Question 3.

Report the mean and median across households of your estimates

	Beta	Phi
Mean	.0510034	-1.81e-06
(CI)	(.0476914, .0543154)	(-2.22e-06, -1.40e-06)

**Is full-risk sharing achieved? Discuss your results**

As we already hinted in question 1 controlling for household fixed effects, it is clear that full risk sharing is not achieved. As the Beta shows, although small, its sign is positive and significantly different from 0. As a result, variations in individual income (at a household level) affect each individual consumption. Therefore, we can conclude full risk sharing is not achieved.
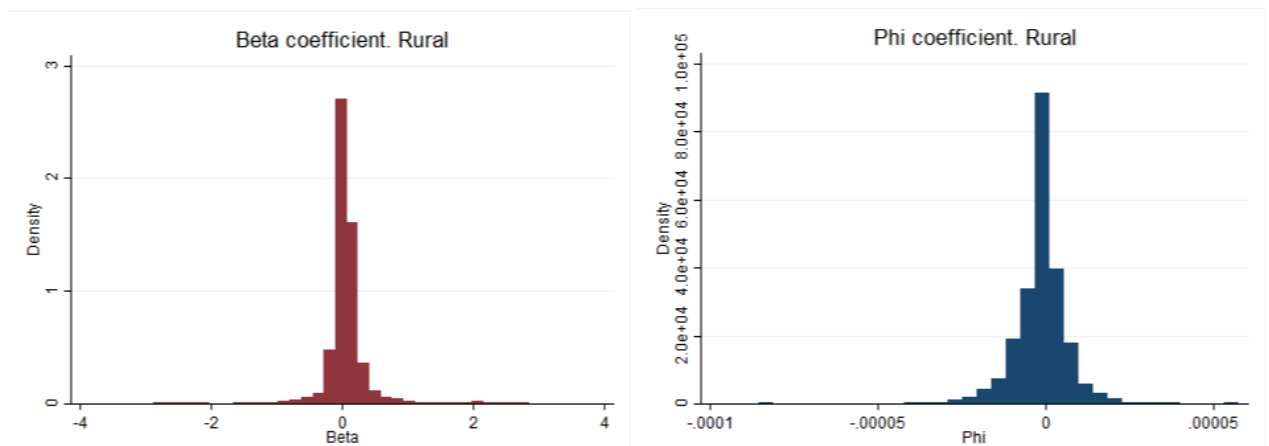
Question 4

Redo for urban and rural separately

Histograms

Urban
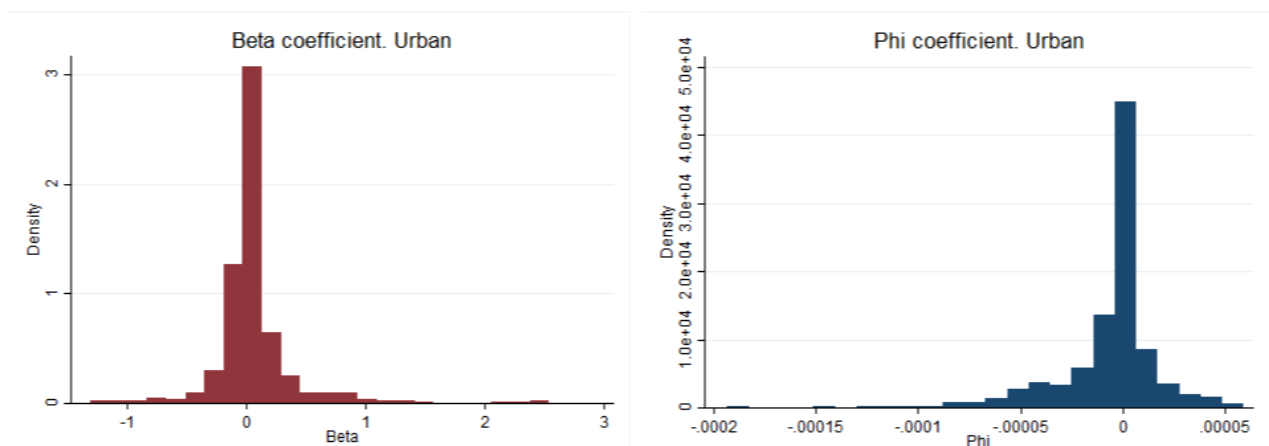
Rural

Mean and median

	Urban		Rural	
	Beta	Phi	Beta	Phi
Mean	.0659203	-6.33e-06	.0693121	-1.25e-06
Median	.0261534	-1.28e-23	.0371555	-5.01e-22

Beta by income ventile

Income ventile	Urban		Rural	
	Median beta	Mean beta	Median beta	Mean beta
0-20%	.0239025	.0407079	.0193986	.0531637
20-40%	.0247667	.0123238	.0274978	.02992
40-60%	.0320223	.148154	.0435801	.104582
60-80%	.0237673	.0500605	.0532649	.1593742
80-100%	.0248096	.0196935	.0524019	.0615419

Income by Beta ventile

Beta ventile	Urban		Rural	
	Median income	Mean income	Median income	Mean income
0-20%	7.562748	7.247264	7.510934	7.134032
20-40%	7.461186	7.142468	7.510934	7.134032
40-60%	7.449161	7.140375	7.369972	7.041716
60-80%	7.621355	7.357734	7.472895	7.15442
80-100%	7.697758	7.310751	7.595161	7.324614

Mean and median across households

	Urban		Rural	
	Beta	Phi	Beta	Phi
Mean	.0290928 (.02278, .0354056)	-7.23e-06 (-.0000108, -3.64e-06)	.0433818 (.0399741, .0467896)	-2.02e-06 (-2.57e-06, -1.48e-06)

Remarks

In regard to the tables and results shown, there are 3 features we would like to address:

1) The most surprising feature of the model is that there exist smaller levels of insurance between the rural households. Precisely because of the previous reasons we could expect that the poorer rural households would take advantage of a higher degree of insurance. That is, because they are poorer and perhaps because the risk they face is higher (shocks present a higher dispersion), rural households would prefer to be part of some insuring mechanism, at least more than urban households, whose income, we could expect, is less volatile. However, this is not the case. The reasons could be that, while the risk in the urban areas is easily diversified, the risk in the rural areas is highly correlated among households and thus, they do not have incentives to insure themselves because the mechanism of insurance presents a smaller effectiveness.

2) In any case, both in urban and rural Uganda, there is no full risk insurance

3) Additionally, although in a less clear pattern than that of the aggregate case, both in rural and urban Uganda, higher income households tend to be less insured, which makes sense if we consider that those households with higher income, with independence to the area they belong, face a smaller risk in marginal utility terms and thus, they are less willing to be part of the insurance mechanism.