Development Economics, Homework 3 - CEMFI

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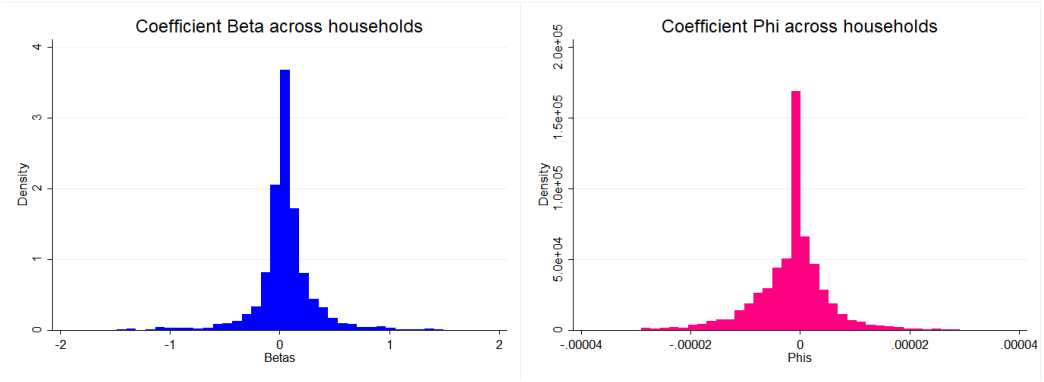
Question 1 - Consumption Insurance Tests

Part 1

Remember that β_i is the coefficient of the variation in income for each household i, while φ_i is the coefficient of the variation of the aggregate consumption of all the country for each household i (random coefficients). The following table shows the mean and median found for each of these parameters:

	Mean	Median
Beta	0.0486	0.0427
Phi	$-1.43e^{-06}$	$-1.10e^{-07}$

The following two figures present a histogram for β_i and φ_i, which allows to see the distribution across household.



According to the parameters found, a change in income helps to explain the change in household consumption, while a change in aggregate consumption does not. There would be full-risk sharing if the parameter β_i is close to zero but φ_i is significant, meaning that what matters in determining household consumption is the aggregate consumption and not the household income.

One possible reason why we do not find full-risk sharing in this exercise, is that we regressed the aggregate consumption at the country level, which is not necessarily related to the individual consumption, as there is not always redistribution within the country. If instead of aggregating the consumption at the country level, we aggregate the consumption at the region level or town level, it might be possible to find full-risk sharing as the aggregate consumption of a specific areas is more likely to be related to the household consumption (being the household of that area). The intuition behind this idea

is that it is more likely to be redistribution within smaller areas that within the whole country.

Part 2: Relationship between insurance and household income/wealth.

The following table presents the mean and median of β_i after dividing the household in five groups according to their income (group 1 lower income – group 5 higher income). As it is possible to see in the table, for household in higher income quintiles, the mean and median coefficient of β_i are higher. This means that changes in income at the household level will generate more variation in the household consumption when the household wealth is higher. Therefore, the higher the income quintile of the household the less likely it is there is risk-sharing as β_i is higher.

Income group	Mean	Median
1	0.044	0.021
2	0.039	0.032
3	0.054	0.050
4	0.130	0.054
5	0.166	0.052

The following table presents the mean and the median of log-income after dividing the households in five groups according to the β (group 1 has the lower beta, group 5 has the higher beta). From the table it is possible to see that the higher is the β quintile, the higher is the mean and median of the log-income. This result is in line with the findings of the previous table.

Beta group	Mean	Median
1	7.142	7.461
2	7.247	7.563
3	7.140	7.449
4	7.358	7.621
5	7.311	7.698

Part 3

In contrary with part 1 and 2, in this part we estimate the parameters using all the households and get one β and one φ. Anyway, results are similar as before, as a change in household income helps to explain the change in household consumption, while a change in aggregate consumption does not. Again, this suggest that there is no risk-sharing.

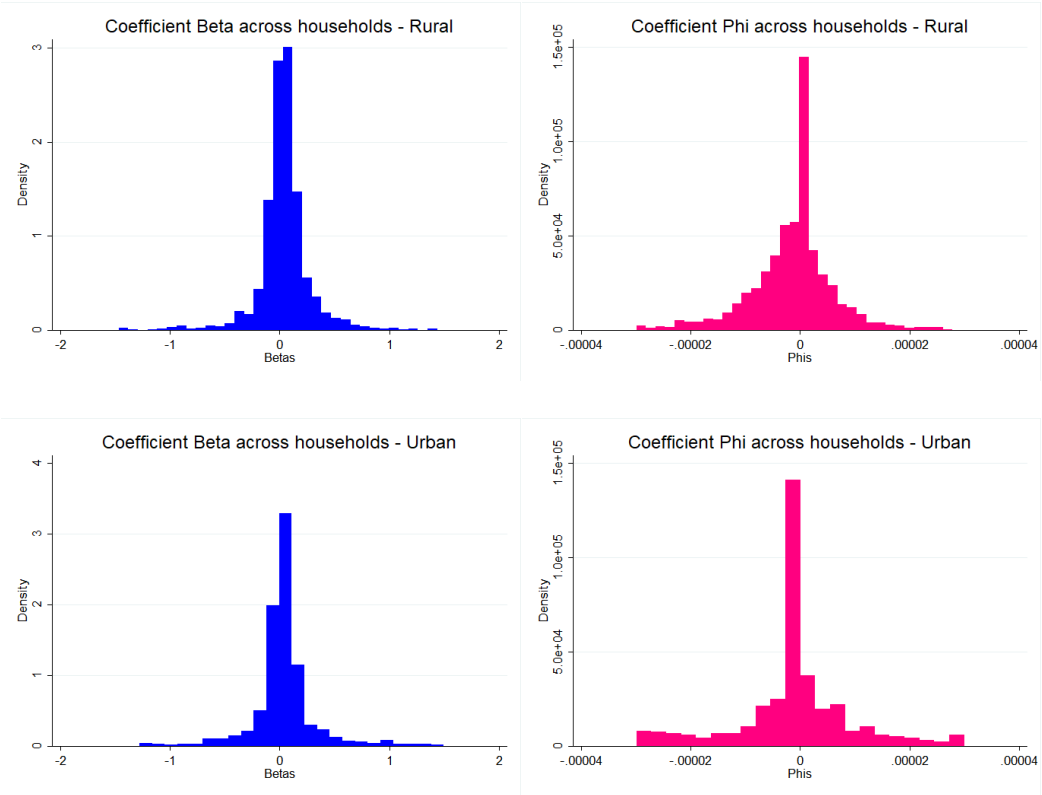
	Parameters
Beta	0.0554
Phi	$-1.932e^{-06}$

Part 4

The following table shows the mean and median found for the parameters β_i and φ_i, differentiating between urban and rural areas.

	Urban		Rural	
	Mean	**Median**	**Mean**	**Median**
Beta	0.038	0.025	0.044	0.041
Phi	$-7.76e^{-07}$	0	$-1.46e^{-06}$	$-2.20e^{-08}$

Each of the following four figures show a histogram of β_i and φ_i for rural and urban areas.



From the table and the histograms, β_i seem to be larger in rural than urban areas, suggesting that the variation in household income has stronger effects in the variation in household consumption in the rural than in the urban areas. However, φ_i is close to zero in both rural and urban areas. Therefore, again there is no evidence of full-risk sharing. It makes sense to think that if we aggregate consumption at the region level (instead of country level), it is more likely to find full-risk sharing in rural areas than in urban areas.

The following table presents the parameters we obtain for rural and urban areas when we do the regression considering all households. Coefficients are very similar to part 3.

	Parameters – All households	
	Urban	**Rural**
Beta	0.030	0.047
Phi	$-8.058e^{-06}$	$-2.241e^{-06}$

The following table presents the mean and median of β_i after dividing the household in five groups according to their income, for both rural and urban areas. Even though from the table it is not possible to see a clear pattern, it seems that for households in the highest income quantile, the mean and median coefficient of β_i (except for the last group) are higher. Also, it seems that this effect is higher in rural areas, suggesting a higher risk-sharing in urban areas. If we aggregate consumption at region level results might be different, and it makes more sense to believe the risk-sharing would be higher in rural areas.

	Urban		Rural	
Income group	**Mean**	**Median**	**Mean**	**Median**
1	0.041	0.024	0.053	0.019
2	0.012	0.025	0.029	0.027
3	0.148	0.032	0.105	0.044
4	0.050	0.024	0.159	0.053
5	0.019	0.025	0.062	0.053

Finally, the following table presents the mean and the median of log-income after dividing the households in five groups according to the β, separately for urban and rural areas. Again, there is not a very clear pattern, but from the table it is seems as the higher is the β_i the higher is the mean and median of the log-income in the rural areas. However, in the urban areas this is not very clear as the highest values of income correspond to the lowest and highest groups of β.

	Urban		Rural	
Beta group	**Mean**	**Median**	**Mean**	**Median**
1	7.738	7.837	7.134	7.511
2	7.212	7.581	7.042	7.370
3	6.937	7.281	7.156	7.477
4	7.559	7.624	7.322	7.595
5	7.520	7.822	7.262	7.683