Problem Set 3 - Development

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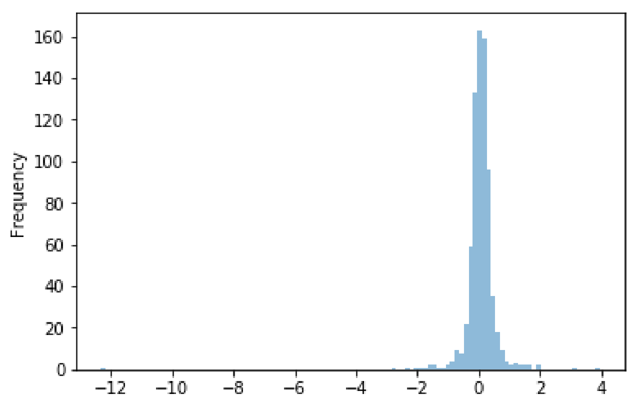
Question 1

We try to find the distribution of the betas for every family with another method than the residuals one. What we did was to identify families that are similar to each other, and use them as if they were realizations of different periods of time. Increasing degrees of freedom. This arbitrary 'identity' is computed by introducing family size and total income of the family into a cobb-douglas function, $N_{i,t}^{\theta} y_{i,t}^{1-\theta}$ with a parameter theta that set the importance that have these two features to the identity. With this grouping structure we will be able to create artificially more. Data is from Albert dataUGA, we delete observations without income, family numbers, or consumption.



In this graphic we can see how the distribution of the parameter associated to income is. We can see easily that the mean is something near 0, thought it looks like it it is slightly positive. This would mean that markets are not entirely complete. Nevertheless, they are relatively near to complete. There are families that have negative parameters and positive, all around -1.6 and 1.6. Notice that degree of freedom in most cases is 0, or not more than 3. So variance of the estimation is high. In overall, we could say that it seems like variance on income does not affect that much to variance on consumption.

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Question 2

In this question we are going to use the total income and wealth instead of their residuals because we want to explore the relationship between the ability of household to insure risk and household's income and wealth not only the transitory component.

A)Quintiles of household incom

For each household, compute the average household income across all waves.

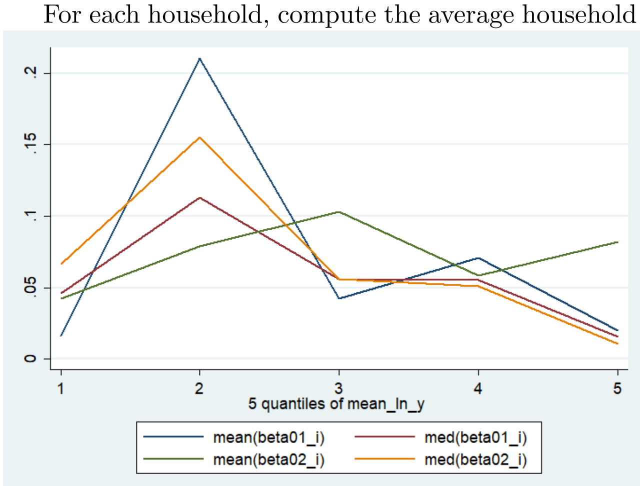


Table 2: Coefficients by Income Quintile

	(1) Q1		(2) Q2		(3) Q3		(4) Q4		(5) Q5	
	mean	p50	mean	p50	mean	p50	mean	p50	mean	p50
beta01_i	0.016	0.046	0.211	0.113	0.042	0.056	0.071	0.055	0.020	0.016
beta02_i	0.042	0.067	0.079	0.155	0.103	0.056	0.058	0.051	0.082	0.011
pi01_i	2.553	3.755	4.948	3.838	0.671	1.117	1.285	0.871	-2.905	-1.293
pi02_i	0.454	0.173	1.429	1.260	2.459	1.518	1.649	1.588	-1.129	-0.164
Observations	246		246		246		246		246	

From the table and the graph above we can see the mean and the median of the coecient of income by ve groups of income from bottom 20 percent to richest 20 percent. It seems like that the poorest and the richest houshold they are the more insured than the middle in terms of income. In general, there is a inverse U-shape relationship between insurance and income.

B)Quintiles of household wealth

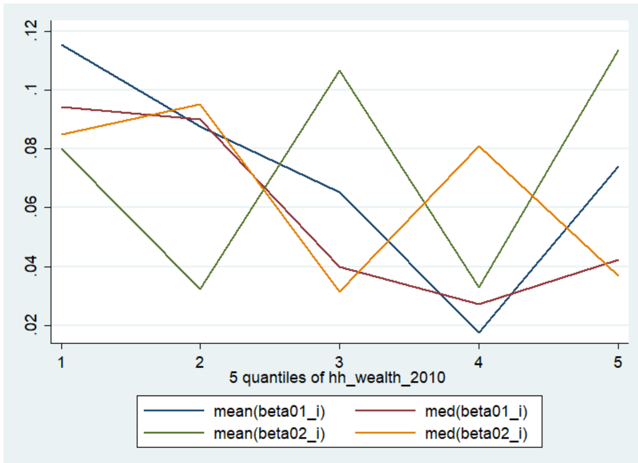


Table 3: Coefficients by Wealth Quintile

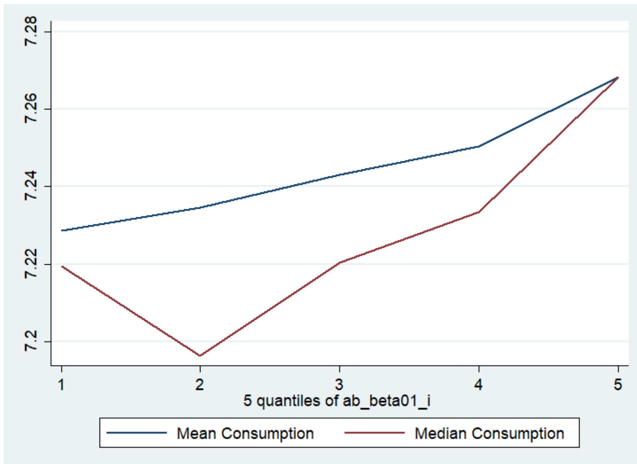
	(1) Q1		(2) Q2		(3) Q3		(4) Q4		(5) Q5	
	mean	p50	mean	p50	mean	p50	mean	p50	mean	p50
beta01_i	0.115	0.094	0.087	0.090	0.065	0.040	0.017	0.027	0.074	0.042
beta02_i	0.080	0.085	0.032	0.095	0.107	0.031	0.033	0.081	0.114	0.037
pi01_i	0.950	1.940	5.779	5.101	1.094	0.048	0.252	1.555	-1.522	-0.897
pi02_i	1.783	1.092	1.978	1.729	2.289	1.233	-0.402	0.319	-0.787	0.181
Observations	246		246		246		246		246	

The relationship between insurance and wealth is not such clearly, but if we just focus on the all country case, that means the mean and the median of 01, we can see that the relationship between insurance and wealth is downward from the bottom 20 percent to the second rich 80 percent then slightly upward relationship from the second rich 80 percent to the richest household. But in general except the richest 20 percent of household, the more wealth the household have the more insurance they are.

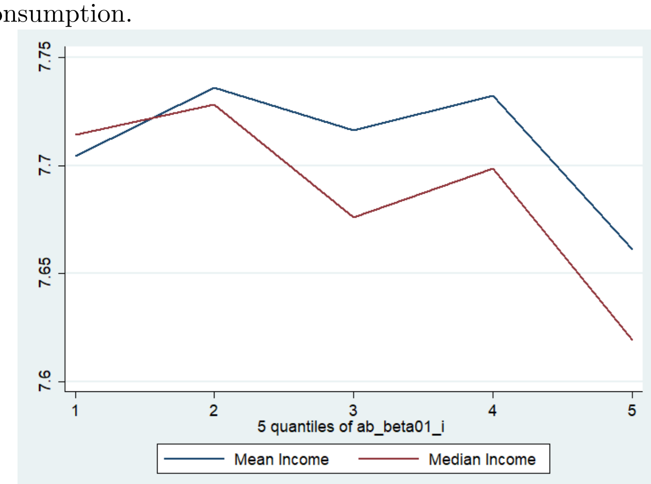
C)Rank individuals by their estimated compute average income and wealth across groups

Table 4: Coefficients by Beta01 Quintile

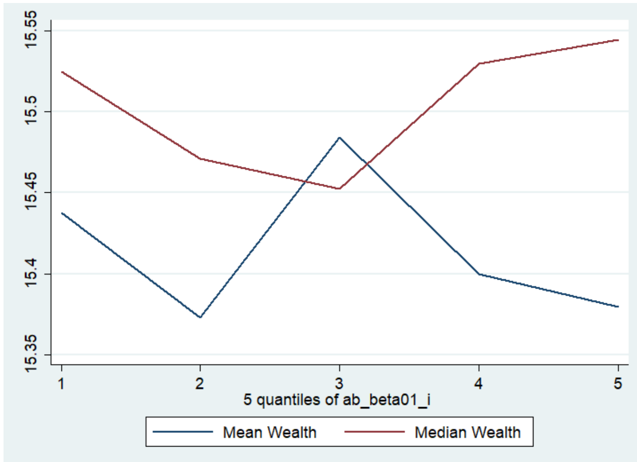
	(1) Q1		(2) Q2		(3) Q3		(4) Q4		(5) Q5	
	mean	p50	mean	p50	mean	p50	mean	p50	mean	p50
lnc	7.196	7.178	7.226	7.188	7.236	7.190	7.203	7.237	7.225	7.240
lny	8.585	8.517	8.607	8.522	8.603	8.528	8.626	8.548	8.616	8.538
lnw	15.437	15.525	15.373	15.471	15.484	15.452	15.400	15.530	15.379	15.544
Observations	246		246		246		246		246	



This figure shows that the average level of consumption is increasing with the level of coecient quintile, that means more insured households have lower consumption.



This figure shows that the average level of income has a downward relationship with the level of coecient quintile that means more insured households tend to have more income. The poorest household in terms of income are less insured



Since we use the wealth dataset we computed in the Problem Set 1 and maybe it is not correctly computed. Here for Figure 7 we don't have a clearly relationship between wealth and insurance. Seems like that the most insured household are the people who belong to the top middle level of wealth group, which is consistent with our result got from the previous part.

Question 3

Modify the previous test in (1) assuming that the coefficients are the same across households. Do it for rural and urban areas.

We run a panel data estimation of the following equation:

$$\Delta lnc_{it} = \beta \Delta lny_{it} + \phi ln\bar{C}_t + \epsilon_{it} \tag{1}$$

Results of the panel regression (with fixed effects) are in the following table:

	(1)	(2)	(3)
	Total	Urban	Rural
d_y	0.0623***	0.0283	0.0691***
	(5.63)	(1.04)	(4.98)
d_C	-2.282***	-2.075***	-2.317***
	(-45.12)	(-20.27)	(-35.38)
N	4324	935	3389

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

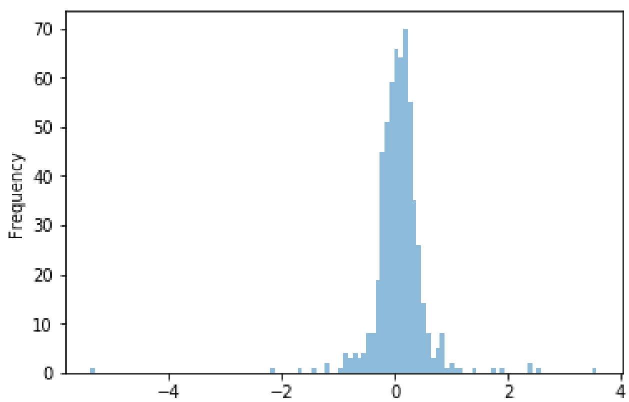
Results are very much in line with what we got in (1). In general, there is a positive and significant effect of income variation on consumption variation.

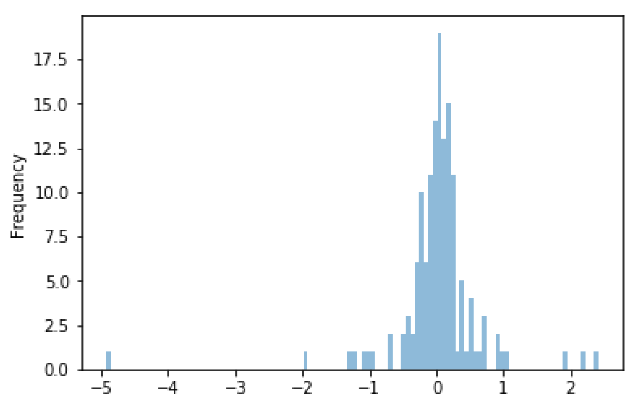
So, there is no full-insurance. The more your income growth, the more your consumption growth. However, the size is relatively small: a 10% increase in income leads to just 0.6% increase in consumption. In other words, there is partial risk-sharing.

When we decompose it by areas, the results change a bit. In urban areas, beta is statistically equal to zero. Thus, there is full-insurance. On the contrary, rural areas are very much in line with general results (partial-insurance).

Question 4

: We replicate the procedure of question 1 separating data between rural and urban areas. The first histogram is for rural areas, and the second histogram is for urban areas.





There is more data on rural areas, that is why distribution in the first one looks more continuous than distribution in the urban hist. Rural areas looks like there is an slightly positive mean of the income parameter, and urban looks like it is more near 0. So this would mean, against the logic of what we had in mind, that urban areas have more complete markets than rural areas. This could be a problem of not enough accuracy due to lower quantity of observations on rural areas(though 170 observations should give an accurate approximation of the mean). Or could be the case that it is just true that urban areas have more complete markets.