

Development

Problem Set 1
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1 Constructing the data

Income. We collect income wages from HH taking pay in cash and kind, other income and normalized it by period of time earned and divided by dollar prices to be able to see it easily. Then we compute the cost of agriculture which consists of agricultural inputs cost, value of fertilizer that had been used, value of seed, value of pesticide, and also compute the cost of the labour of the farm activity, to do so we compute total hours of the household member and outsiders, and consider that the wages paid for outsiders are costs for the hh.

To find the income of the farm we used value of the crop sold and the quantity sold. We use the median of the value per quantity to get the prices of every crop, converting all the quantities into Kg. We use these prices to compute the total value of the production. To convert everything Bunch has not been used since we did not know equivalence with Kg. Lts have been used but assuming density of 1 of the products inside the bins.

Finally take the difference between total income and total cost we get the finally income in households' level.

Wealth We constructed wealth from H.H questionnaire taking the value of assets, and from agricultural questionnaire taking the living stock quantities and multiplying it by their prices, the prices were estimated by the median of all the people that bought. We convert this prices to dollars, no data about land has been used in 2013, so we didn't take it into account.

Consumption. We compute total consumption from non-durable consumption goods and food consumption. To do so we compute the Median price for foods 2013 first, which is take the median of market price and median of farm gate price, then compute the value for nondurable consumption using median market price we computed before.

For food consumption part not all item has market prices and farm gate price, for example foods buying outside home, so i replace these empty entries with consumption value when quantity is not available. Then to recheck, we generate total consumption value from the questionnaire. We sum up quantities instead of using total value, because there are 60 observation that both variables are not equal and it seems that the generated one is more consistent. Finally sum up within household consumption.

For nondurable consumption part we used market prices to compute the value of each item, but rent, imputed rent, water, and electricity bill are recorded in value directly.

For durable consumption using the market price to compute the value. All part of consumption sum all the values from purchases, gifts, own_value and home value.

2 Inequality in Consumption, Income & Wealth

2.1 Descriptive statistics CIW per household.

	consumption	wealth	income
count	816.00	816.00	816.00
mean	3,775.57	9,537.70	4,473.38
std	3,599.44	38,065.04	11,538.77
min	167.07	0.00	-27,578.29
25%	1,678.85	221.41	564.34
50%	2,679.32	1,228.31	1,778.68
75%	4,597.27	6,624.68	4,456.12
max	50,611.93	590,767.31	154,749.53

Table 1: CIW statistics for urban areas.

	rural consumption	rural wealth	rural income
count	2,303.00	2,303.00	2,303.00
mean	1,977.27	2,011.70	1,258.76
std	1,985.37	6,425.32	4,163.44
min	206.04	0.00	-23,638.38
25%	1,023.37	159.46	105.66
50%	1,529.56	431.02	458.79
75%	2,398.38	1,456.39	1,342.66
max	50,851.02	133,186.95	136,551.73

Table 2: CIW statistics for rural areas.

Table1 and Table2 show us that the average CIW in urban all are higher than the average CIW in rural. Moreover, the average Consumption in urban almost double the rural consumption, two times larger in urban income than the rural ones and wealth is four times larger in urban. However, the standard deviations are much more higher in cities. So in urban there are more inequalities in CIW. More level, but more volatility.

2.2 CIW Inequality

The distribution is unequal, many people are distributed in the bottom while a tiny minority have the high CIW. Especially, we can see that the distribution of wealth is more unequally distributed and the dispersion is higher than the rural one. Note that in general the levels for rural-urban differ. With a bit of imagination, looking at urban consumption and income a middle class seems shyly emerging. Again, the income dispersion is higher than the consumption one, both in rural and urban areas. This suggests the existence of some insurance technologies.



Figure 1: CIW histograms.

Now, the variance of logs. Same results shows here: the variance of the consumption is much lower than the variance of wealth and income (consumption insurance). Consumption is more smoothly distributed among the hh in both areas. The income and wealth are more unequally distributed in urban.

	Consumption	Wealth	Income
Rural	0.41	3.01	3.58
Urban	0.57	4.64	4.89

Table 3: CIW variances rural/urban

2.3 Joint Cross-sectional behavior of CIW

Here, we presents a correlation matrix between CIW. Clearly, consumption is more associated with income and wealth in urban than in rural areas, which means that the consumption is not-depend on household resources.

	consumption	wealth	income
consumption	1.00		
wealth	0.37	1.00	
income	0.19	0.27	1.00

Table 4: Rural Correlations Matrix.

	consumption	wealth	income
consumption	1.00		
wealth	0.48	1.00	
income	0.39	0.15	1.00

Table 5: Urban Correlations Matrix.

Second, about the joint densities. we plot the densities of rural/urban consumption and income (figure 2). The result shows us that consumption and income are almost orthogonal in rural areas, but they are more dependent in urban places. This is consistent with previous results.

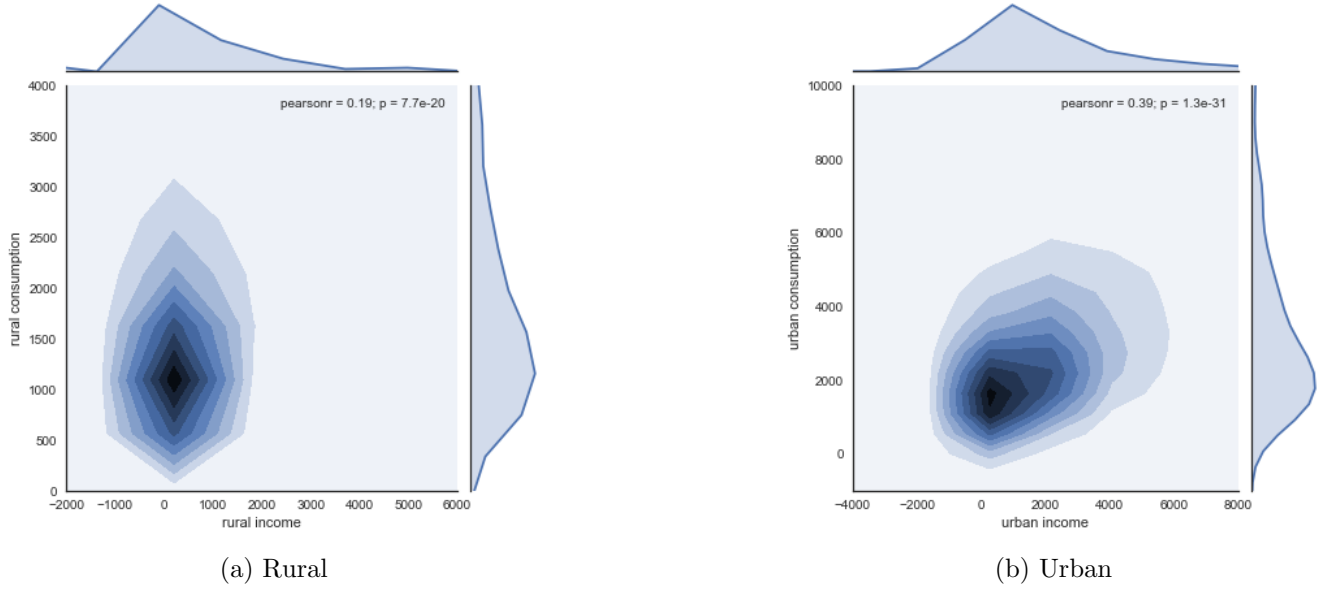


Figure 2: Rural & Urban CIW cross-section.

2.4 Life-cycle profiles

The life-cycle profile shows us that: for both rural and urban areas, it is increasing until around 30 years old and then decreases. And the increase tendency of the CIW in rural is larger than urban, maybe this is because of the fact that people work more in rural (in the agriculture) when young and then they get more, but when they get older CIW decreasing since there are no accumulation. After 45 it is flat at almost zero level, which is little strange.

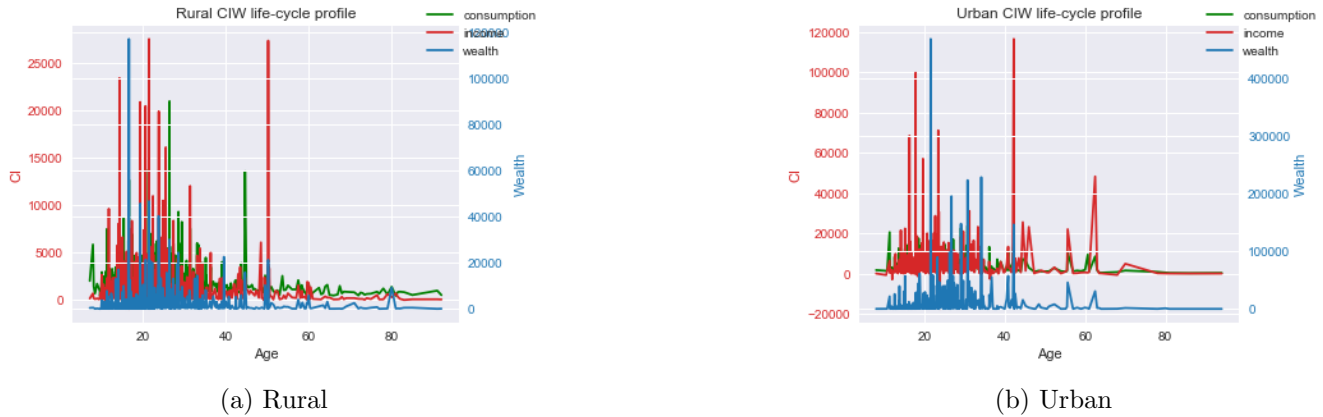


Figure 3: Life-cycle profiles

2.5 Top and bottom shares

Table 6 summarizes behaviour at the distribution tails. We are interested on the share of consumption and wealth that the bottom and top 10% in terms of income got. At the pick, consumption is more polarized than income but less polarized than wealth. This is at odds with the previous isolation of consumption inequality from income inequality.

To reconcile the two facts, one might hypothesize that consumption insurance would take place among members in the middle of the distribution, and very poor and very rich guys would be excluded of those insurance.

	consumption	wealth	income
bottom10	6.69	4.28	10
top10	23.40	40.49	10

Table 6: Social shares

3 Intensive and Extensive Margins

Intensive and Extensive Margins Redoing Question 1

Intensive labour is computed by summing all the hours worked for each member in households. Extensive labour is computed summing all the adults of the household who worked at some period in the given year.

See (table 7). Extensive labor supply in rural areas is larger than urban means that. However, the intensive margin in urban areas is larger than rural areas. The substitution effects dominates income effects in urban.

	extensive urban	extensive rural	intensive urban	intensive rural
count	814	2300	784	2237
mean	44.81	63.41	915	745.50
std	108	151	3523.7	2047
min	0	0.00	0	0.00
25%	6	12	188.75	152
50%	16	25	444	384
75%	40	60	980	870
max	1536	4080	49764	38304

Table 7: Extensive and Intensive labour 2.1.1.

The following graph shows the distribution of Intensive and Extensive labor supply for household. We can see that in urban the labor supply is more concentrated than rural in both extensive and intensive labor supply. In the case of extensive shows that there is a large amount of rural households that use relatively higher quantities of extensive margin than urban Households.

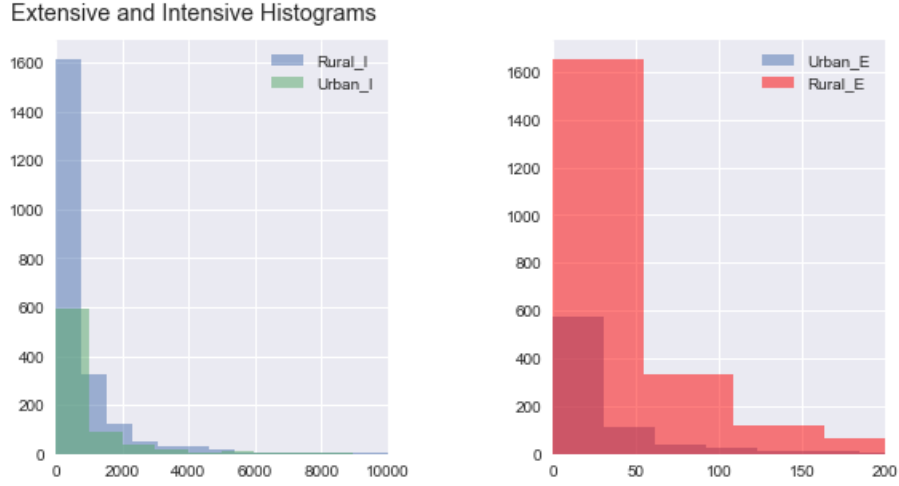


Figure 4: Extensive vs Intensive 2.1.2

	intensive rural	extensive rural
intensive rural	1.00	0.84
extensive rural	0.84	1.00

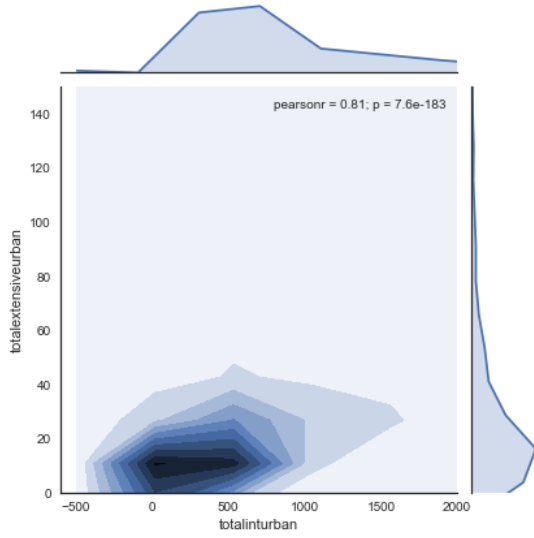
Table 8: Extensive and Intensive labour Rural.

The following table shows the correlations between intensive and extensive. Rural zones have a slightly larger correlation than urban zones.

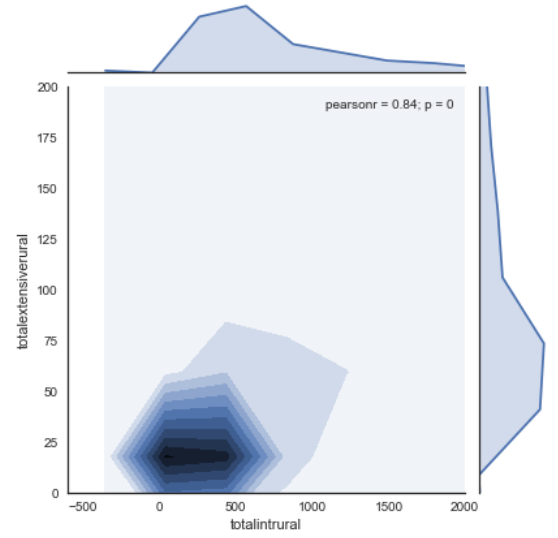
	intensive urban	extensive urban
intensive urban	1.00	0.81
extensive urban	0.81	1.00

Table 9: Extensive and Intensive labour urban.

These two plots are the cross sectional behaviour of the Intensive-extensive margins in urban and rural areas. And the result is consistent as we saw before in the correlation matrix.



(a) Extensive vs Intensive for urban



(b) Extensive vs Intensive for rural

Figure 5: Extensive vs Intensive

3.1 Separately for women and men by education

CIW Inequality

We first compute the CIW and intensive and extensive margin of labor supply for different gender then in the second part we will see it by different level of education. This table shows the females CIW and intensive and extensive margin of labor supply.

	f consumption	f wealth	f income	intensive	extensive
count	8,895.00	8,895.00	8,895.00	8,895.00	8,895.00
mean	3,152.68	5,278.93	2,550.27	104.56	0.37
std	3,014.90	23,280.29	7,735.76	432.60	0.48
min	183.07	0.00	-30,218.94	0.00	0.00
25%	1,484.38	251.33	186.90	0.00	0.00
50%	2,299.31	857.77	816.16	0.00	0.00
75%	3,771.67	2,973.54	2,372.49	0.00	1.00
max	55,458.07	647,333.88	169,566.95	5,712.00	1.00

Table 10: CIW intensive and extensive for Women .

This table shows the males CIW and intensive and extensive margin of labor supply.

	m consumption	m wealth	m income	intensive	extensive
count	8,501.00	8,501.00	8,501.00	8,501.00	8,501.00
mean	3,196.24	5,419.38	2,603.73	222.17	0.38
std	3,182.10	25,066.74	7,798.48	668.63	0.49
min	258.74	0.00	-30,218.94	0.00	0.00
25%	1,497.56	247.81	203.61	0.00	0.00
50%	2,330.27	855.63	851.93	0.00	0.00
75%	3,733.21	3,023.93	2,453.42	0.00	1.00
max	55,720.06	647,333.88	169,566.95	5,280.00	1.00

Table 11: CIW intensive and extensive for Men.

From two tables above we can see that both intensive and extensive of labor supply are higher for men than women.

CIW, Intensive and Extensive for Female by Education

	f consumption	f wealth	f income	intensive	extensive
count	1,678.00	1,678.00	1,678.00	1,678.00	1,678.00
mean	2,560.77	3,953.62	1,831.55	172.30	0.78
std	2,314.76	24,673.71	6,677.40	526.53	0.41
min	283.67	0.00	-30,218.94	0.00	0.00
25%	1,325.37	207.59	137.24	0.00	1.00
50%	1,900.60	569.73	568.81	0.00	1.00
75%	2,972.59	1,992.42	1,567.36	0.00	1.00
max	24,728.52	640,980.19	149,626.70	5,040.00	1.00

Table 12: CIW, Intensive and Ex for female Less than primary school.

	f consumption	f wealth	f income	intensive	extensive
count	515.00	515.00	515.00	515.00	515.00
mean	3,114.73	4,904.31	2,125.65	171.50	0.80
std	2,515.01	16,776.23	3,667.99	487.12	0.40
min	486.90	12.71	-19,315.18	0.00	0.00
25%	1,496.23	334.85	261.77	0.00	1.00
50%	2,368.91	1,137.32	1,025.06	0.00	1.00
75%	3,773.71	3,346.30	2,633.46	0.00	1.00
max	17,050.26	313,727.66	31,378.70	3,984.00	1.00

Table 13: CIW, In Ex for female Completed Primary.

	f consumption	f wealth	f income	intensive	extensive
count	898.00	898.00	898.00	898.00	898.00
mean	4,667.50	10,971.67	5,475.83	468.99	0.73
std	4,109.71	37,062.82	12,674.94	894.01	0.45
min	604.53	0.00	-25,901.77	0.00	0.00
25%	2,220.48	533.71	879.81	0.00	0.00
50%	3,541.36	2,221.25	2,365.82	0.00	1.00
75%	5,642.98	9,936.63	5,124.39	446.00	1.00
max	55,458.07	647,333.88	169,566.95	5,712.00	1.00

Table 14: CIW, In Ex for female Completed Secondary.

These three table show us that average of Intensive labor supply for female is increasing with the level of education, but the extensive labor supply is almost the same for theree differents levels of education.

CIW, Intensive and Extensive for male by Education

	m consumption	m wealth	m income	intensive	extensive
count	1,348.00	1,348.00	1,348.00	1,348.00	1,348.00
mean	2,530.51	3,316.69	1,774.36	403.74	0.83
std	2,311.72	16,977.14	5,824.57	828.27	0.38
min	258.74	0.00	-4,261.53	0.00	0.00
25%	1,303.27	196.45	159.60	0.00	1.00
50%	1,915.00	579.24	624.69	0.00	1.00
75%	2,943.10	1,884.93	1,694.78	360.00	1.00
max	22,905.73	512,479.19	149,626.70	5,280.00	1.00

Table 15: CIW, In Ex for male Less than primary school.

	m consumption	m wealth	m income	intensive	extensive
count	552.00	552.00	552.00	552.00	552.00
mean	2,955.98	4,442.02	2,102.93	544.49	0.89
std	3,750.08	15,670.95	6,603.98	1,009.62	0.32
min	267.36	0.01	-30,218.94	0.00	0.00
25%	1,423.10	254.18	235.34	0.00	1.00
50%	2,134.67	849.50	903.05	0.00	1.00
75%	3,272.83	2,278.23	2,186.44	564.00	1.00
max	55,720.06	249,983.33	127,835.99	5,040.00	1.00

Table 16: CIW, In Ex for male Completed Primary.

	m consumption	m wealth	m income	intensive	extensive
count	1,222.00	1,222.00	1,222.00	1,222.00	1,222.00
mean	4,094.33	8,825.33	4,669.46	745.50	0.86
std	3,948.24	28,174.62	12,053.59	1,075.29	0.35
min	475.81	0.00	-25,901.77	0.00	0.00
25%	1,755.78	360.18	584.52	0.00	1.00
50%	2,893.43	1,595.83	2,024.56	0.00	1.00
75%	4,854.66	6,611.32	4,569.73	1,449.00	1.00
max	55,458.07	647,333.88	169,566.95	4,608.00	1.00

Table 17: CIW, In Ex for female Completed Secondary.

From the three tables we can concluded that the average of CIW and the average of intensive labor supply are increasing with the education level, however, there is no noticeable trend for the average extensive labor supply and the highest level of it is showed when males have a complete Primary level of education.

Inequality

CIW BY GENDER

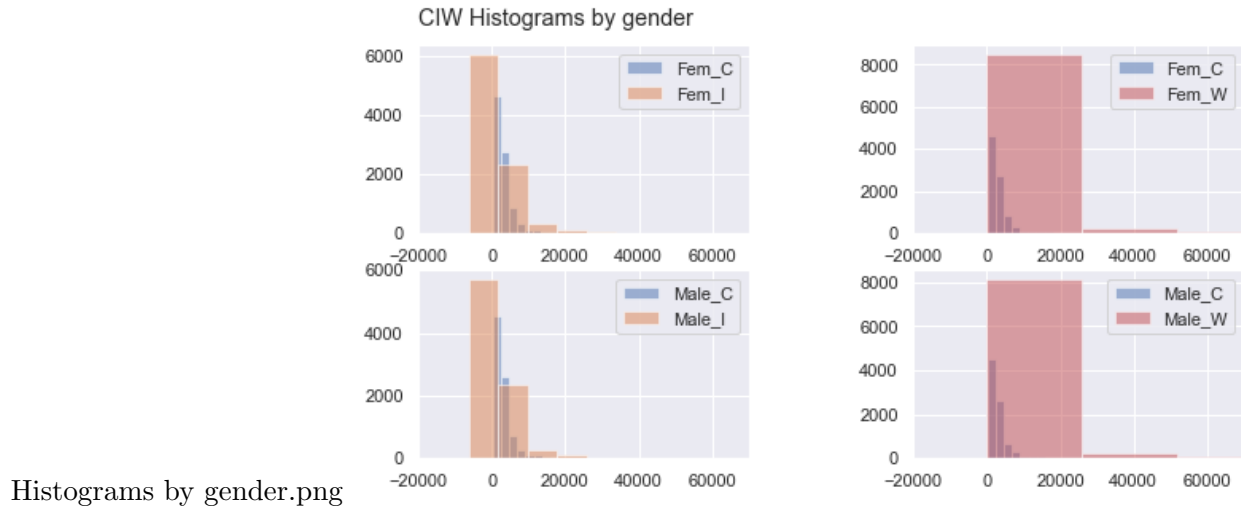


Figure 6: CIW by gender

Compare with female and male, the distribution of the CIW for man and women are the same just because when we computed the final dataset, CIW for each individual is presented in the household level.

The following table shows us the extensive labor supply by education for women, and we can see that the results is consistent as before that both extensive and intensive labor supply is increasing with the education level.

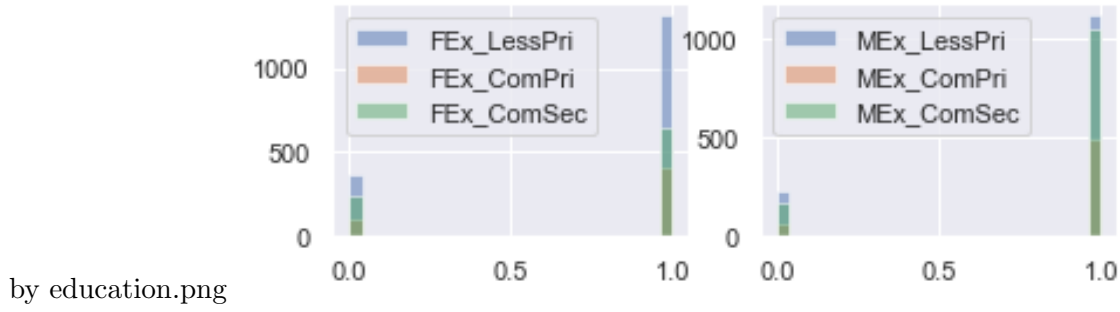


Figure 7: Extensive labor supply by education

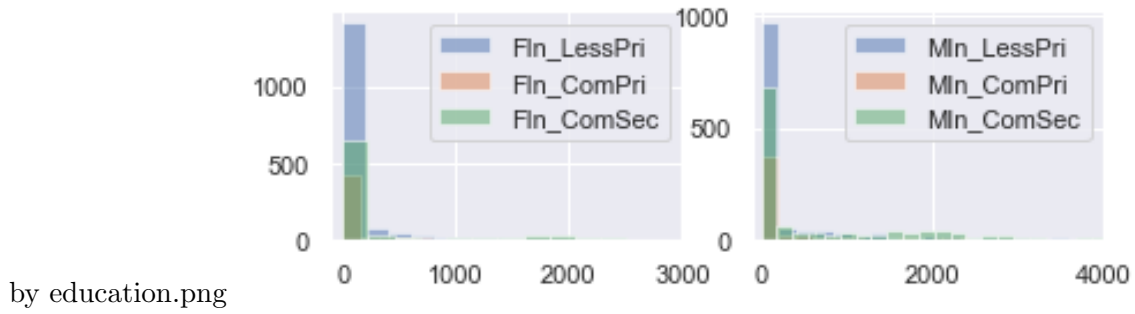


Figure 8: Intensive labor supply by education

Now to compare the intensive and extensive labor supply by education, we can see that the extensive labor supply is decreasing with the education level for both genders, that means that the people with low education tend to work more, and the same conclusion showing in the intensive labor supply. Notice that the dispersion of intensive labor supply for men is larger than women.

4 Inequality across space

4.1 CWL against household income

There are important differences across regions. In places where have more developed markets, income is an important for economic decisions like saving and labor supply, however, in rural areas where developed markets are absent then income is not only the resources, there might be others agency do the allocation of resources. Moreover, in Central and Eastern regions consumption, wealth and to less extent hours are increasing income. Figures 7-10 following shows the results:

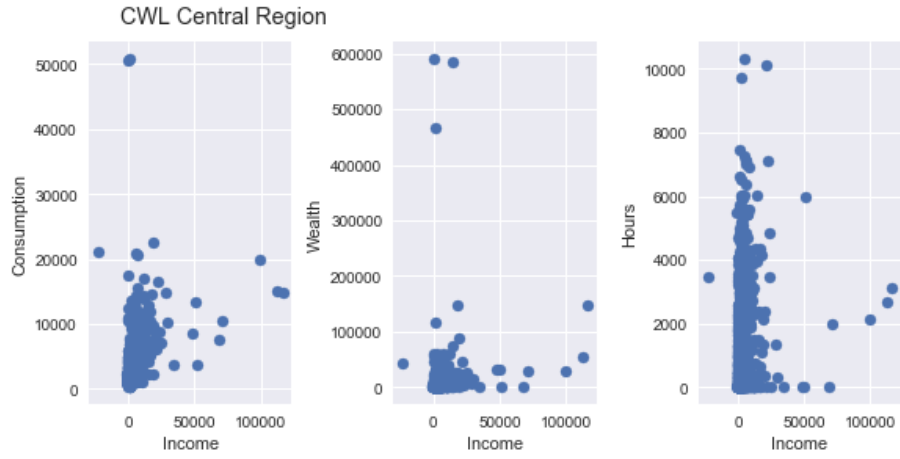


Figure 9: CWL in Central Region

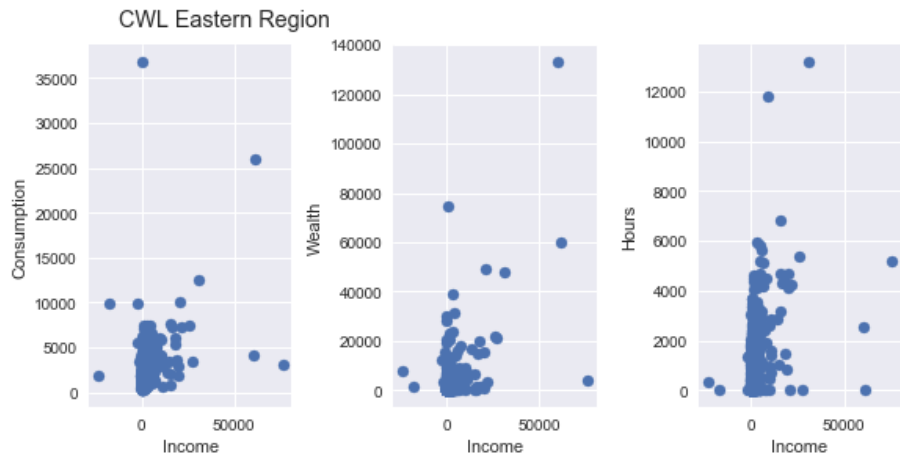


Figure 10: CWL in Eastern Region

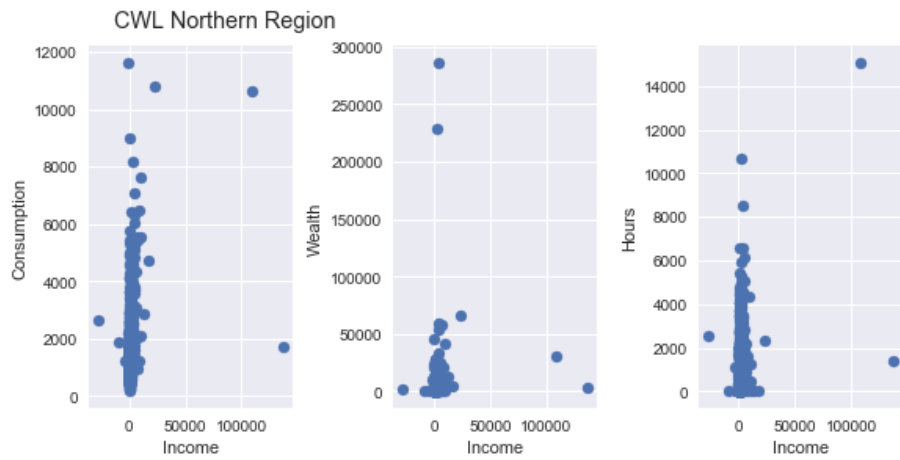


Figure 11: CWL in Northern Region

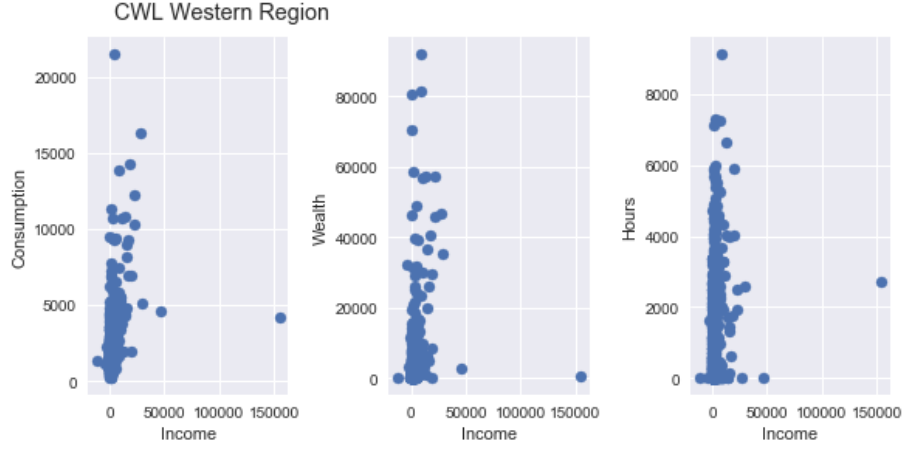


Figure 12: CWL in Western Region

4.2 Inequality per region

The CIWL distributions look almost the same across regions. Some differences: consumption in the Central region is less dispersed (less unequally distributed); hours are more concentrated in the North; income is a bit less polarized in the West.

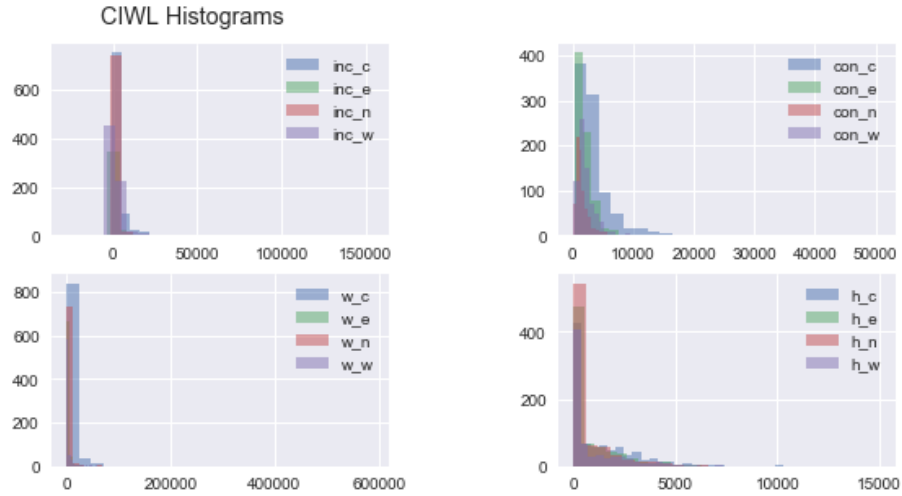


Figure 13: Regional CWIL.

4.3 Joint Cross-Sectional Behavior

- i) labor supply and income are more strongly correlated in the Eastern and the Northern region;
- ii) labor supply in hours and wealth are almost uncorrelated except in the Eastern region;
- iii) income is strongly correlated with wealth only for the Eastern region. Maybe that the Eastern region have more developed market economy.

	consumption	wealth	income	hours
consumption	1.00			
wealth	0.45	1.00		
income	0.37	0.18	1.00	
hours	0.16	0.01	0.15	1.00

Table 18: Central Region Correlations Matrix.

	consumption	wealth	income	hours
consumption	1.00			
wealth	0.38	1.00		
income	0.37	0.55	1.00	
hours	0.21	0.22	0.38	1.00

Table 19: Eastern Region Correlations Matrix.

	consumption	wealth	income	hours
consumption	1.00			
wealth	0.33	1.00		
income	0.27	0.11	1.00	
hours	0.27	0.09	0.31	1.00

Table 20: Northern Region Correlations Matrix.

	consumption	wealth	income	hours
consumption	1.00			
wealth	0.57	1.00		
income	0.31	0.22	1.00	
hours	0.16	0.09	0.17	1.00

Table 21: Western Region Correlations Matrix.