Development: Problem Set 1

Pau Belda i Tortosa*

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1 Constructing the data

Wealth We constructed wealth from HH questionary taking the value of assets, and from agricultural questionary 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 dolars, no data about land has been used.

Income. We find income wages from HH taking pay in cash and kind, and other income, standarizing it by period of time earned, and in dollar units. We find agricultural inputs cost, taking value of fertilizer, value of seed, value of pesticide, with this we get cost of agricultural inputs. Then, we compute the cost of the labour of the farm activity, to do so we compute total hours of the household member and outsiders. Wages are computed from the part is paid for outsiders.

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.

Consumption. We compute total consumption from non-durable consumption goods and food consumption. To do so we 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.

Urban mean double rural mean in consumption, is about three times the rural one in income and about four times the rural one in wealth. In other words, the levels in rural areas are much higher. However, it comes at a cost: standard deviations are also much higher in the cities. More level, but more risk: this is the trade-off. (Table 1 and 2).

2.2 CIW Inequality

A common feature rural-urban is that the distribution is very unequal: the many are placed in the very bottom of the distribution while a tiny minority enjoys high consumption, wealth and income. Note that

*Working group: Joan Alegre, Boyao Zhang, Pau Belda.

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).

Now, let's take a look at the variance of logs. Same results emerge: the variance of the consumption is much lower than the variance of wealth and income (consumption insurance). (Table 3).

2.3 Joint Cross-sectional behavior of CIW

First, let's look at the correlations matrix. Clearly, consumption is more associated with income and wealth in urban than in rural areas, which again points out in the direction of an allocation of consumption goods not-depend on household resources. (Table 4)

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

2.4 Life-cycle profiles

The life-cycle profile is a bit weird: for both rural and urban areas, it seems increasing until about 30 years old and then decreases. Perhaps this is because of the fact that people work more (in the agriculture) when young and then they get more, but when they get older they got less since there are no accumulation vehicles. After 45 it is flat at almost zero level. It might have to do with the low life expectancy. (Figure 3)

2.5 Top and bottom shares

Now we focus on the behaviour at the distribution tails. Specifically, we are interested on the share of consumption and wealth that the bottom and top 10% in terms of income got. Table 6 summarizes the results. These figures change a bit the previous pictures: at the extreme, consumption is more polarized than income. 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 networks. (Table 6)

rural zones respectively.

3 Intensive and Extensive Margins

3.1 Redoing Question 1

Intensive labour is computed summing all the hours that all the members of a household has used during one week. Extensive labour is computed summing all the members of the household who worked at some period in the given year.

See (table 7). Rural areas use more members of the household to generate income than the h.h in urban areas. Nevertheless the intensive margin in urban areas is larger than the intensive margin in rural areals. This could mean that substitution effects are larger than income effects.

	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.

Figure 1: CIW histograms.

	Consumption	Wealth	Income
Rural	0.41	3.01	3.58
Urban	0.57	4.64	4.89

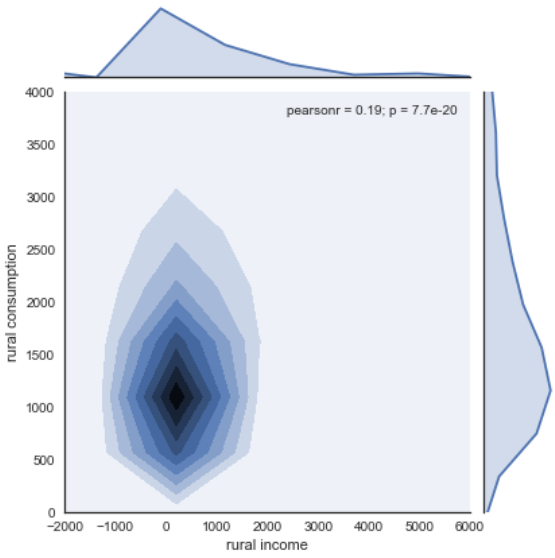
Table 3: CIW variances rural/urban

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

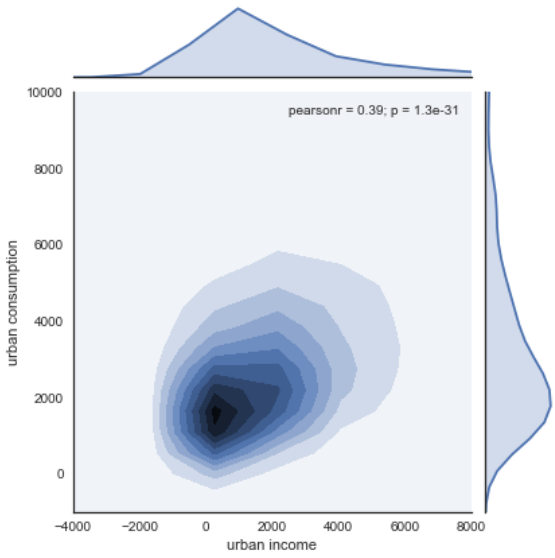
Table 4: Rural Correlations Matrix.

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

Table 5: Urban Correlations Matrix.

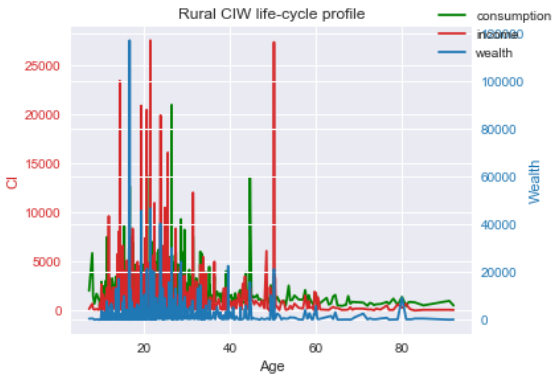


(a) Rural

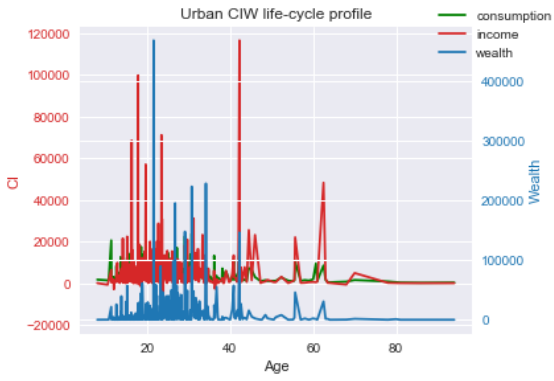


(b) Urban

Figure 2: Rural & Urban CIW cross-section.



(a) Rural



(b) Urban

Figure 3: Life-cycle profiles

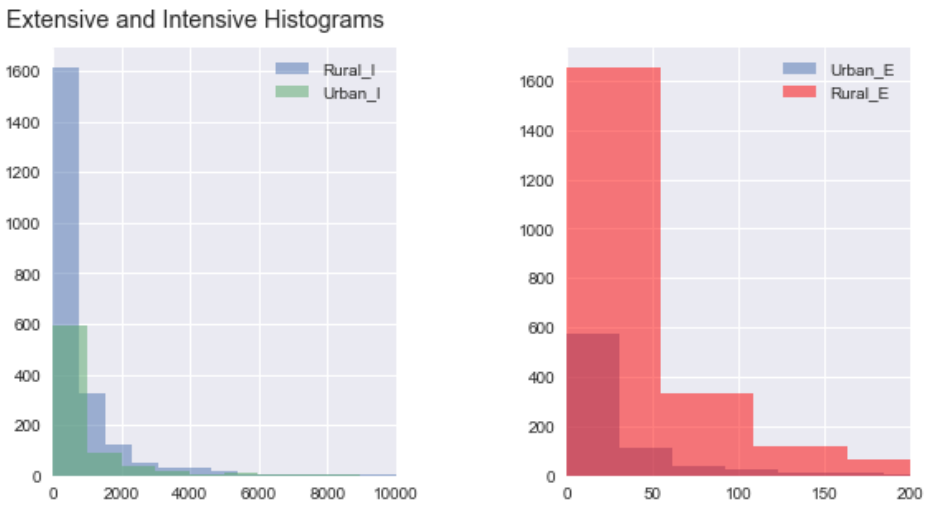


Figure 4: Extensive vs Intensive 2.1.2

Intensive vs Extensive

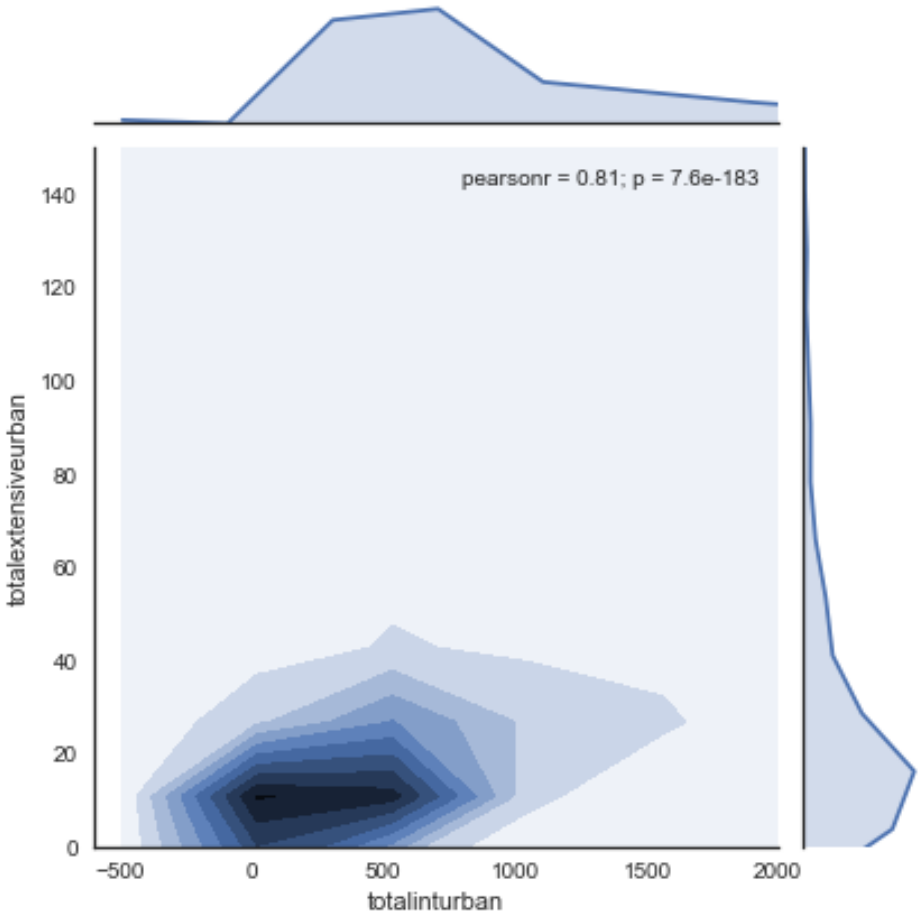


Figure 5: Extensiveurban vs Intensiveurban 2.1.3 for urban

These bins show the number of household that have an specific value of intensive and extensive work. We can see in the intensive plot that urban is comparative more intensive than rural since the difference of both plots is getting smaller. In the case of extensive we can see that there are a fairly large amount of rural households that use relatively higher quantities of extensive margin than urban Households.

	intensive rural	extensive rural
intensive rural	1.00	0.84
extensive rural	0.84	1.00
	intensive urban	extensive urban
intensive urban	1.00	0.81
extensive urban	0.81	1.00

With this correlations we can see the correlations between intensive and extensive. Rural zones have a slightly larger correlation than urban zones.

These two plots are teh cross sectional behaviour of the Intensive-extensive margins in urban zones and

	consumption	wealth	income
bottom10	6.69	4.28	10
top10	23.40	40.49	10

Table 6: Social shares

	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.

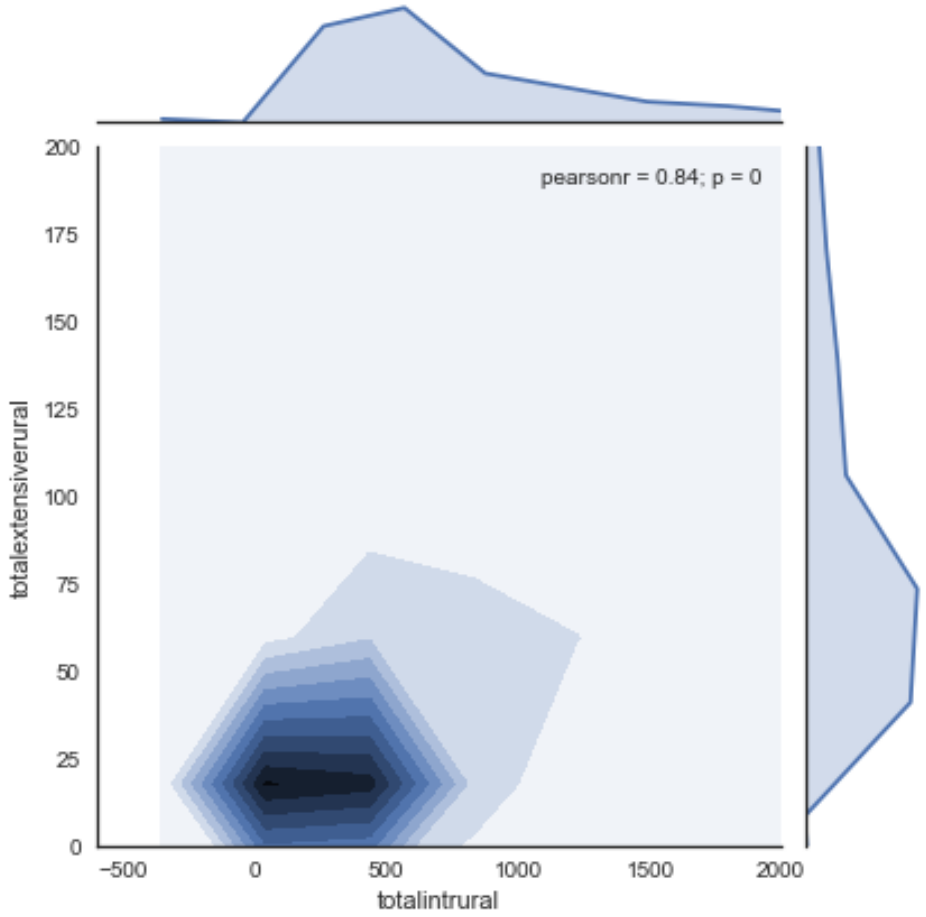


Figure 6: Extensiveurban vs Intensiveurban 2.1.3 for rural

3.2 Separately for women and men by education

3.2.1 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. Tables 7-14 show CIW and intensive and extensive margin of labor supply by gender and education.

CIW, Intensive and Extensive for Female by Education

CIW, Intensive and Extensive for male by Education

From 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.

3.2.2 Inequality

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.

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 Central and Eastern regions consumption, wealth and to less extent hours are increasing income. Contrarily, in Northern and Western regions they are orthogonal to income. It shows similarities with the urban-rural comparison we did: in places with more developed markets, income is an important determinant of economic decisions (saving, working); but it is not the case in places where markets are almost absent and other institutions do the allocation of resources. Figures 4-7.

4.2 Inequality per region

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

4.3 Joint Cross-Sectional Behavior

Some ideas: i) hours and wealth are almost uncorrelated except in the Eastern region; ii) hours and income are more strongly correlated in the Eastern and the Northern region; iii) income is strongly correlated with wealth only for the Eastern region. In other words, the Eastern region shows patterns that looks more like a developed market economy.

	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 8: CIW intensive and extensive for Women .

	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 9: CIW intensive and extensive for Men.

	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 10: CIW, InEx 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 11: CIW, InEx 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 12: CIW, InEx for female Completed Secondary.

	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

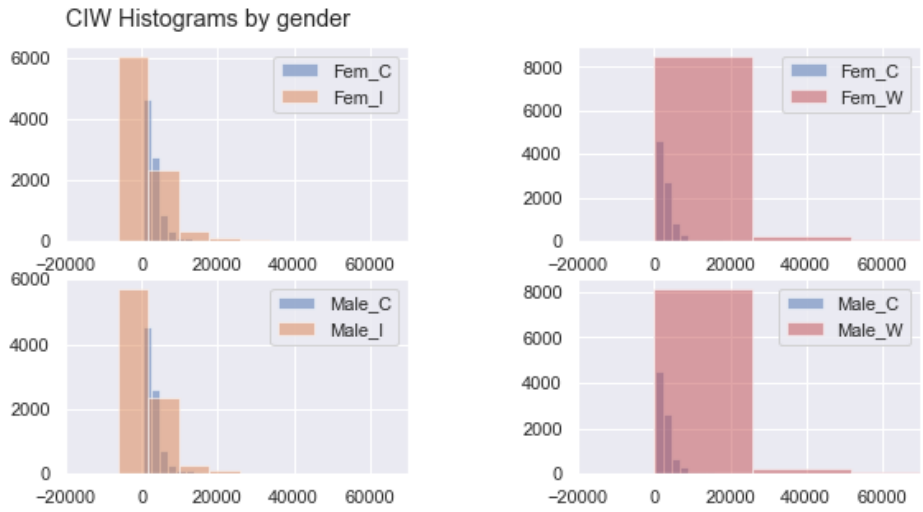
Table 13: CIW, InEx for male Less than primary school.

	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 14: CIW, InEx for male Completed Primary.

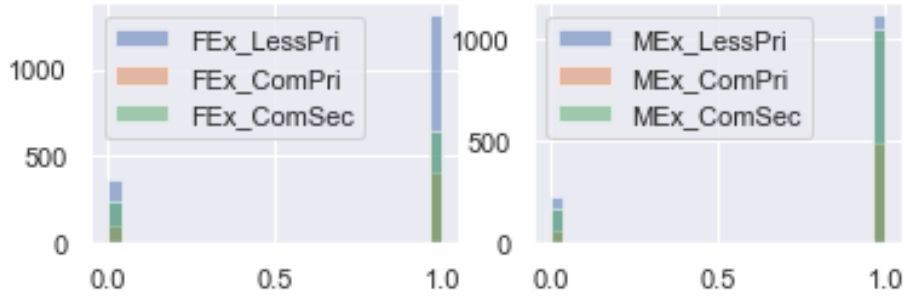
	m consumption	m wealth	m income	intensive	extensive
count	1,222.00	1,222.00	1,222.00	1,222.00	1,222.00
mean	4,094.33	8,825.33	4,669.46	745.50	0.86
std	3,948.24	28,174.62	12,053.59	1,075.29	0.35
min	475.81	0.00	-25,901.77	0.00	0.00
25%	1,755.78	360.18	584.52	0.00	1.00
50%	2,893.43	1,595.83	2,024.56	0.00	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 15: CIW, InEx for female Completed Secondary.



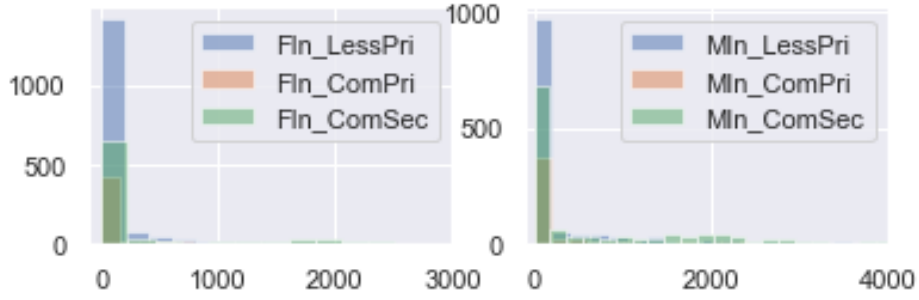
Histograms by gender.png

Figure 7: CIW by gender



by education.png

Figure 8: Extensive labor supply by education



by education.png

Figure 9: Intensive labor supply by education

	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 16: Central Region Correlations Matrix.

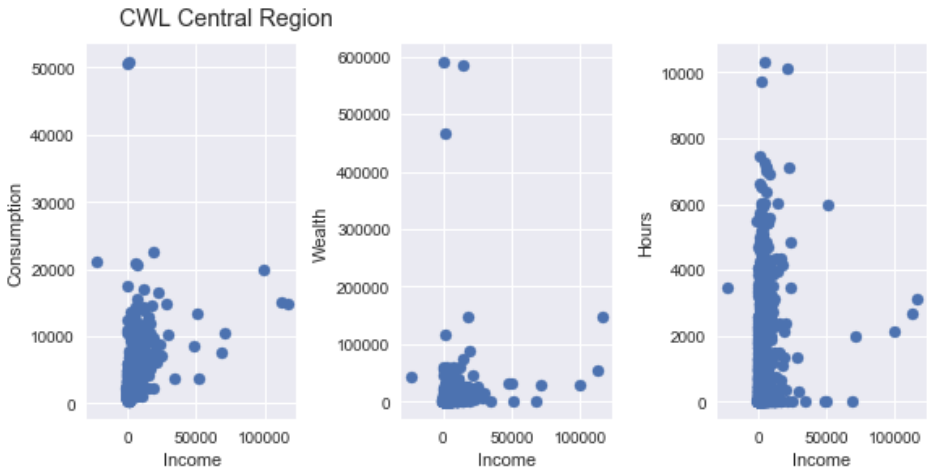


Figure 10: CWL in Central Region

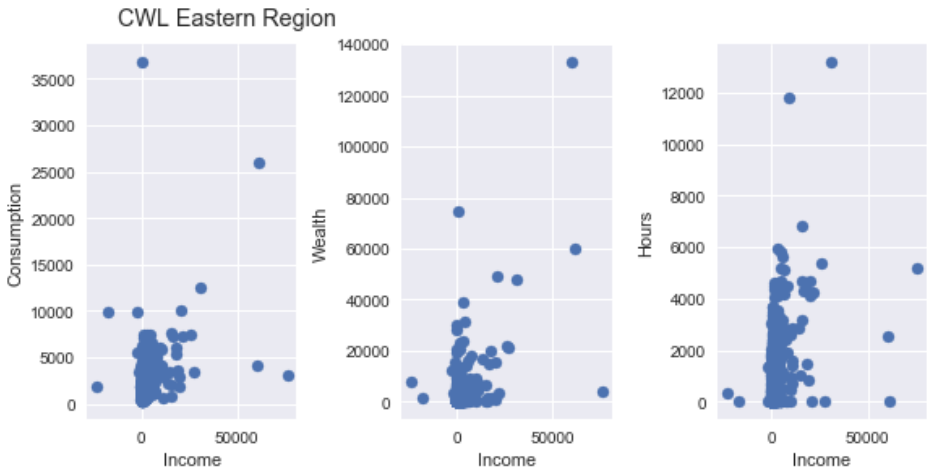


Figure 11: CWL in Eastern Region

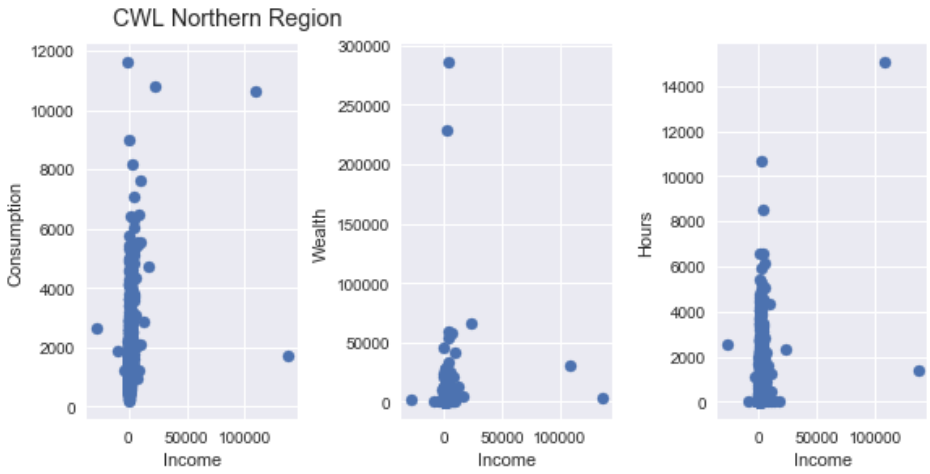


Figure 12: CWL in Northern Region

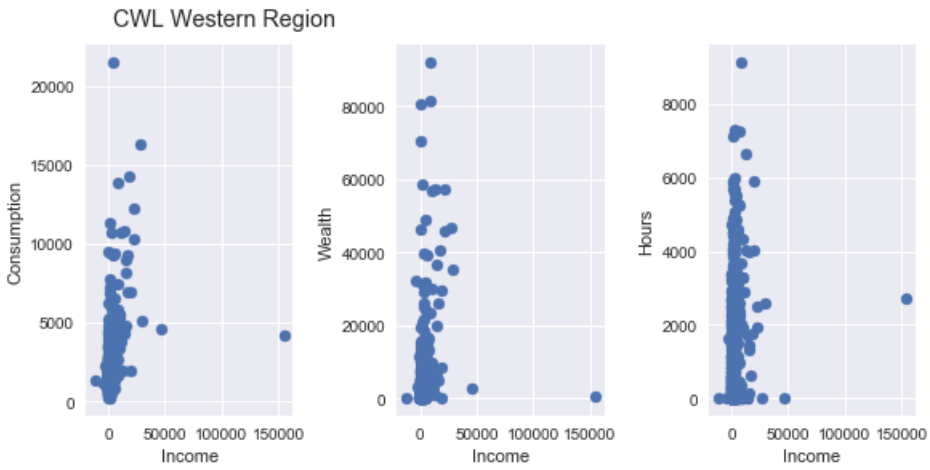


Figure 13: CWL in Western Region

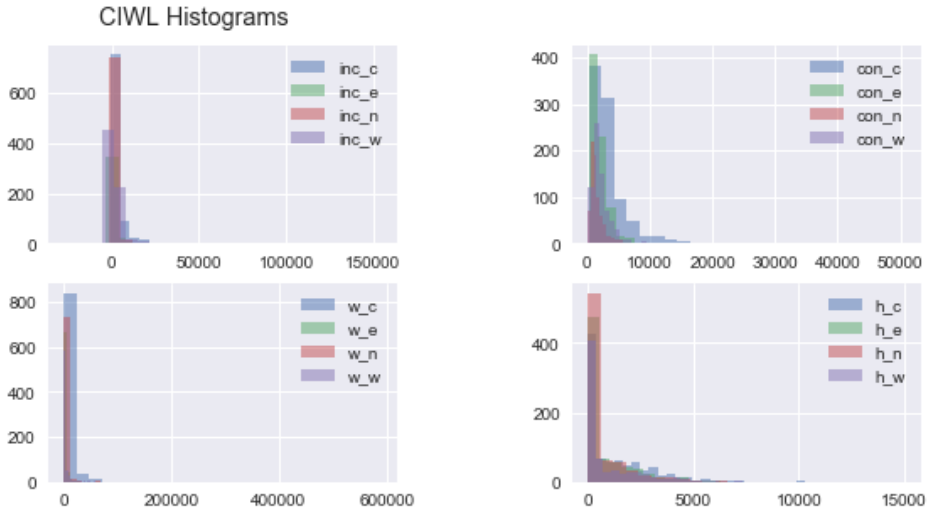


Figure 14: Regional CWIL.

	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 17: 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 18: 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 19: Western Region Correlations Matrix.