Development: Problem Set 1, January 15th

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January 25, 2019

Important note! We write this version of the PS with aggregate data that we were well aware that had several mistakes. We have corrected the way we build that aggregate data. But we have not had enough time to change the whole writing.

1 Inequality in Consumption, Income & Wealth

1.1 Average CIW per household for rural/urban areas.

	urban consumption	urban wealth	urban income
count	490.00	511.00	511.00
mean	3,111.98	4,619,071.07	468,835.10
std	3,044.69	26,137,913.67	1,500,052.30
min	106.11	0	-2,349,091.30
25%	1,442.85	0	0
50%	2,240.77	0	0
75%	3,670.85	0	361,380.67
max	38,365.77	506,520,000.00	18,796,201.70

Table 1: CIW statistics for urban areas.

	rural consumption	rural wealth	rural income
count	516.00	546.00	546.00
mean	1,517.12	2,877,199.09	149,588.75
std	2,122.56	10,375,879.60	884,516.79
min	155.02	0	-6,383.63
25%	713.25	0	0
50%	1,091.62	0	0
75%	1,846.76	418,750.00	43,549.37
max	42,285.33	104,300,000.00	14,783,543.84

Table 2: CIW statistics for urban areas.

Urban sample means double rural CIW; thus, urban levels are about 100% higher. However, standard deviations are also much higher in the cities. More level, but more risk.

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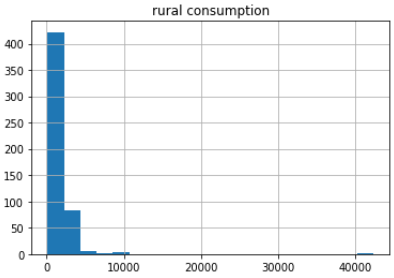
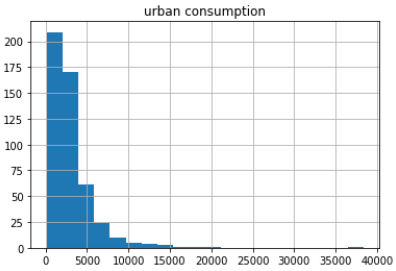
1.2 CIW Inequality

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 in general the levels for rural-urban differ. With a bit of imagination, looking at urban consumption and income a middle class seems being shyly emerging.

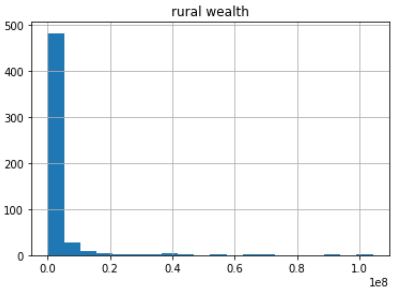


(a) Rural

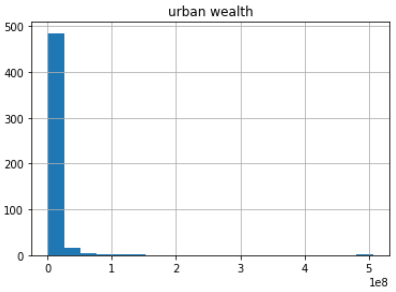


(b) Urban

Figure 1: Rural & Urban consumption

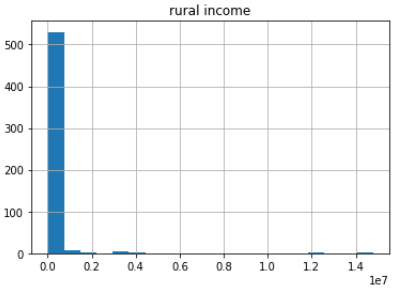


(a) Rural

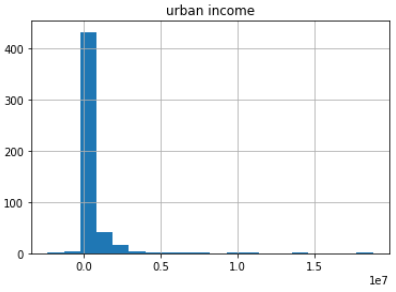


(b) Urban

Figure 2: Rural & Urban wealth



(a) Rural



(b) Urban

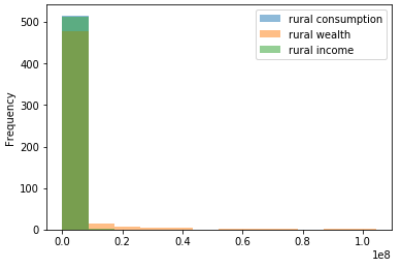
Figure 3: Rural & Urban income

	Consumption	Wealth	Income
Rural	0.5026	46.97	29.33
Urban	0.5502	39.35	41.61

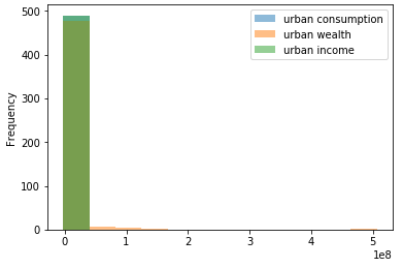
Table 3: CIW variances rural/urban

1.3 Joint Cross-sectional behavior of CIW

The joint cross-sectional behavior confirms what we pointed out before: there is huge inequality. The inequality is a bit lower when it comes to consumption.



(a) Rural

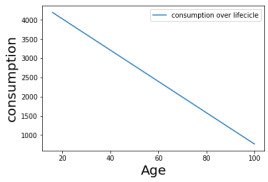


(b) Urban

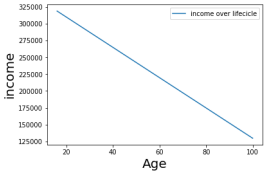
Figure 4: Rural & Urban CIW cross-section.

1.4 Life-cycle profiles

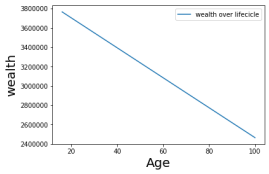
We have a problem with our data. In developed economies, the life-cycle profile of CIW should have positive decreasing slope (when you are young you own less wealth than when old, etc.). However, we get the opposite pattern for the aggregates we build (notice that the linearity comes from a polynomial interpolation). It would make sense to have almost flat profiles, but not negative profiles. We have to solve this bad feature.



(a) Consumption



(b) Income

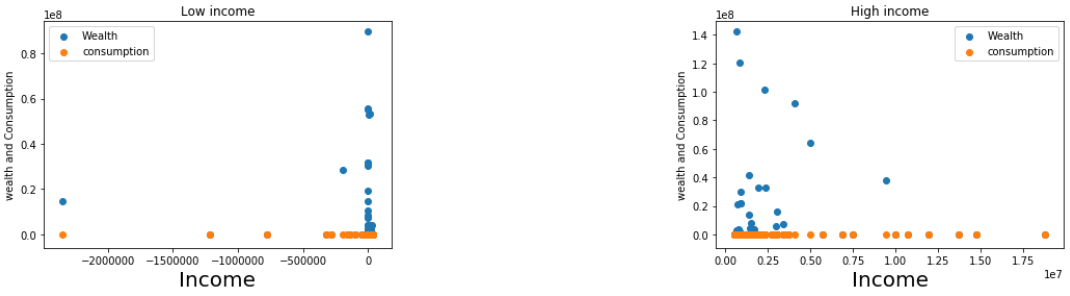


(c) Wealth

Figure 5: Life-cycle profiles

1.5 Heterogeneous behavior

The interpretation of these results is not clear (because of the problem with the data). It looks like the consumption is totally orthogonal w.r.t. income. We know that there is partial insurance and even the poorest agents can consume more than their relative income would set out. However, the total insurance seems unrealistic.



(a) Consumption

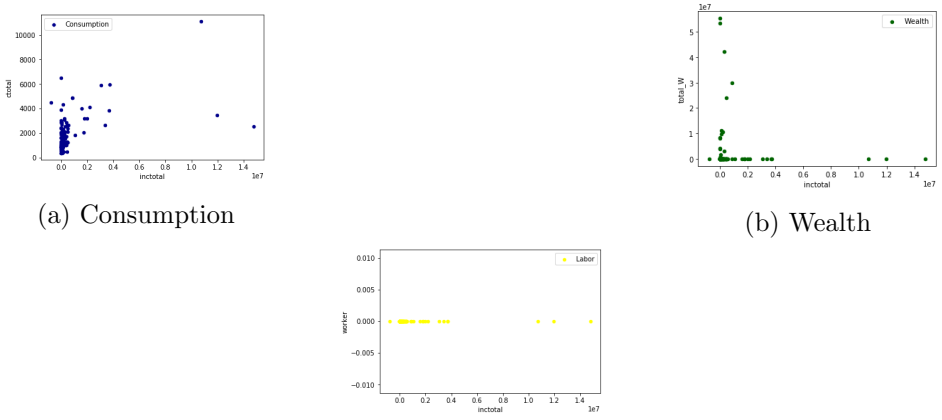
(b) Wealth

Figure 6: Heterogeneous behavior

2 Inequality across space

2.1 Level of CIW against household income

As a general pattern, consumption and wealth are increasing in income. However, we can observe that wealth increase only for a very few guys, which reveals a problem for savings (lack of assets, etc.) and even in region 2 we saw very different levels of wealth regardless the level of income. The income-wealth transmission channel seems broken. Consumption increases with income specially in the region 4. As pointed out before, we have a problem with the labor supply data, that appears as orthogonal w.r.t. income.

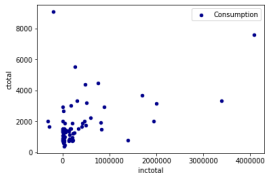


(a) Consumption

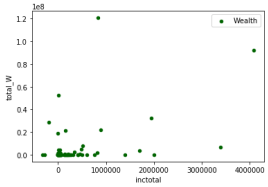
(b) Wealth

(c) Labor

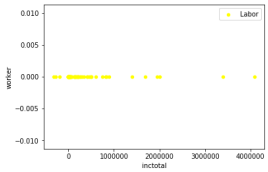
Figure 7: Region 2



(a) Consumption

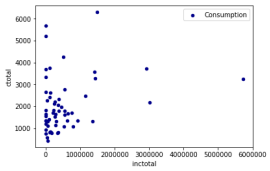


(b) Wealth

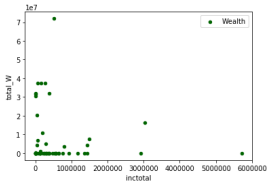


(c) Labor

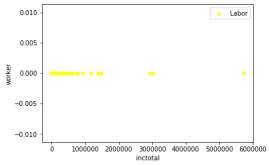
Figure 8: Region 3



(a) Consumption



(b) Wealth



(c) Labor

Figure 9: Region 4

2.2 Inequality per region

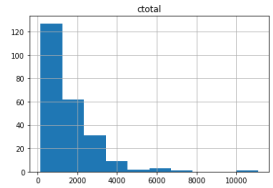
There are some relevant differences across regions. First, consumption is less unequally distributed in region 4. The income distribution is more egalitarian in region 3. The wealth distribution is the most unequal one, showing almost the same degree of inequality across regions.

2.3 Covariances by regions

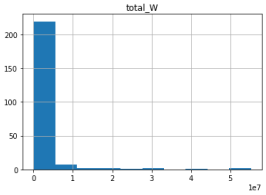
There are some weird numbers. For instance, the covariance between wealth and income is negative. Again, the problem should be the way we build the aggregate data. When looking across regions, the covariance consumption-income is much higher in region 2 than in 3 and 4 but the opposite happens with the consumption-wealth covariance. It seems that in region 3 and 4 wealth is used as precautionary buffer to insure agains income contingencies.

2.4 Individual deviations from the mean

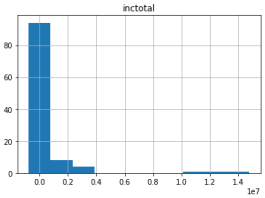
We compute the deviations of individual CIW from the average CIW per region. Figure 13 pictures shows some of these deviations against the level of income. No matter the region, there is no a clear pattern (no



(a) Consumption

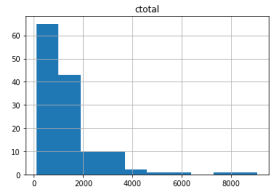


(b) Wealth

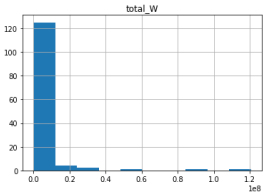


(c) Income

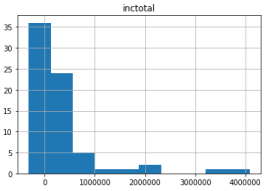
Figure 10: Region 2



(a) Consumption



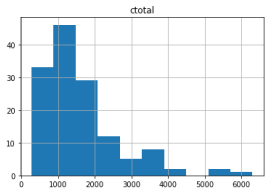
(b) Wealth



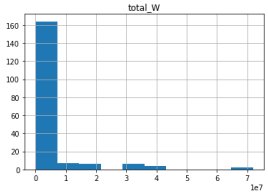
(c) Income

Figure 11: Region 3

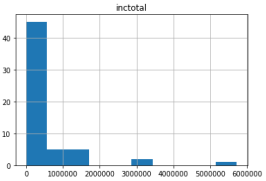
more deviations when you are richer).



(a) Consumption



(b) Wealth



(c) Income

Figure 12: Region 4

	ctotal	inctotal	total_W	worker
ctotal	1,752,318.99	1,586,186,300.97	857,819,758.08	0.00
inctotal	1,586,186,300.97	4,605,449,080,916.98	-1,182,311,415,380.06	0.00
total_W	857,819,758.08	-1,182,311,415,380.06	48,090,787,366,390.06	0.00
worker	0.00	0.00	0.00	0.00

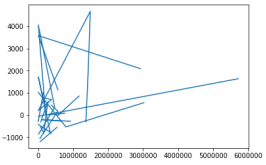
Table 4: Cov reg 2

	ctotal	inctotal	total_W	worker
ctotal	1,698,338.44	514,118,015.80	6,241,003,199.65	0.00
inctotal	514,118,015.80	536,571,322,330.06	6,367,916,185,300.74	0.00
total_W	6,241,003,199.65	6,367,916,185,300.74	209,594,809,536,317.44	0.00
worker	0.00	0.00	0.00	0.00

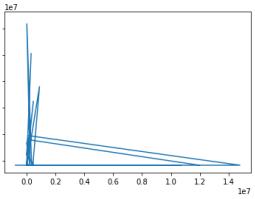
Table 5: Cov region 3

	ctotal	inctotal	total_W	worker
ctotal	1,154,702.58	316,605,417.23	2,411,113,031.13	0.00
inctotal	316,605,417.23	868,930,539,462.54	-1,157,025,170,381.52	0.00
total_W	2,411,113,031.13	-1,157,025,170,381.52	116,308,779,476,537.34	0.00
worker	0.00	0.00	0.00	0.00

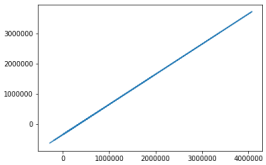
Table 6: Cov region 4



(a) Consumption



(b) Wealth



(c) Income

Figure 13: Income