Hybrids and their status of employment

- how do we handle tax evasion in the name of statistics

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Three types of employed individuals on the labour market:

- Employee (wage earners)
- Self-employed (entrepreneurs)
- Hybrids

A hybrid – a statistical dilemma

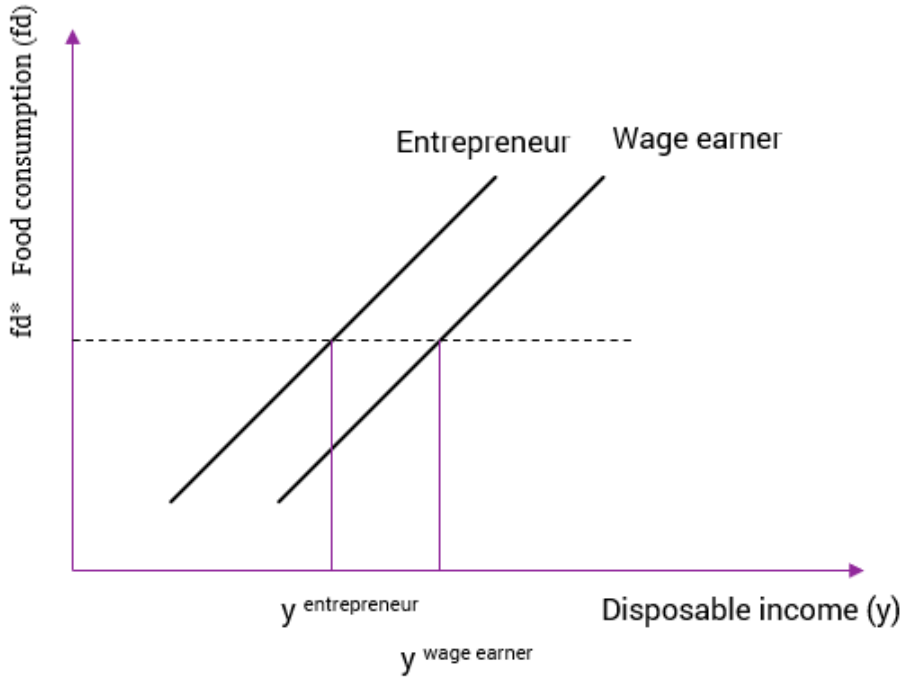
?

- When we counting the number of individuals in e.g. the Construction sector. What do with the following hybrid: wage earner in the Construction sector and running his own business as a photographer?
- We don not have information about how much time is spent in each status of employment.
- We just have information about monthly gross income from the employment (AGI) and how much monthly tax the individual is supposed to pay to the Tax Agency.
- Hence – the position with highest income decides status of employment: employee or self-employed.

Entrepreneurs are under-reporting

- However, it is neither new nor controversial that self-employed under-report their business income.
- One SEK in income from a business entity is most likely worth more than one SEK in income from an employment. Why:
    i. entrepreneurs buying goods and services through his companies but using them privately,
    ii. partly invoicing black or
    iii. barter services/goods with other entrepreneurs in their network.

How to evaluate under-reporting



Seminal work of Pissarides and Weber (1989) and Engel curves.

Engström and Holmlund (2009) use data from Statistics Sweden's survey on Household budget survey.

Usually they measure if food consumption differ between wage earners and entrepreneurs with the same level of disposable income.

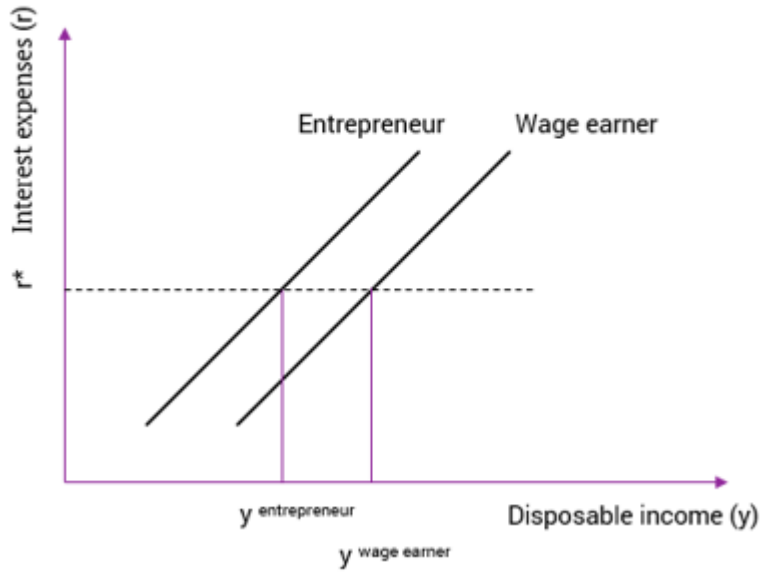
I propose to use administrative data

I use the same theoretical setting,

but I propose to use individual's interest expenses (r)

instead of individual's food consumption.

Figure 1: Engel curves for wage earners and entrepreneurs



Data

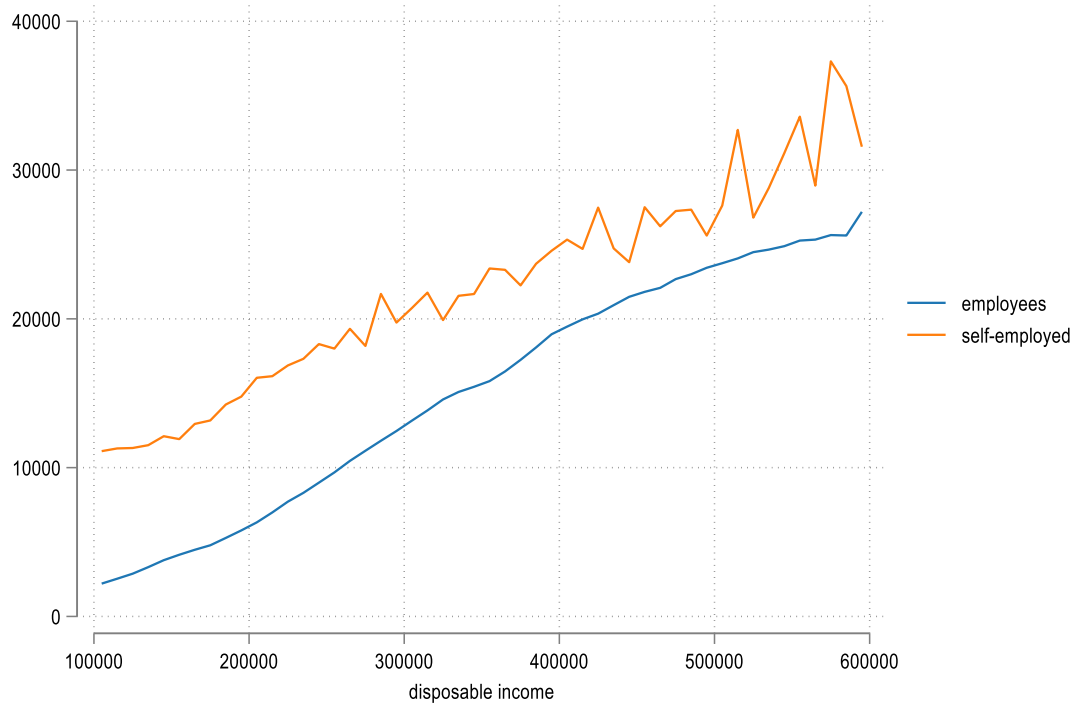
We use both the Register-based labour market statistics for individual characteristics and the register of Income and taxation for disposable income and interest expenses.

Individuals in the data set are all gainfully employed in 2018 and either only employed or self-employed. No hybrids are allowed in the individual population (110 thousand individuals are hybrids). Around 4 millions employee and 160 thousand self-employed.

Source: Statistics Sweden, own calculations.

Descriptive result

Figure 2: Interest expenses and disposable income for employees and self-employed, in SEK.



Source: Statistics Sweden, own calculations.

Econometric result

Use an econometric approach (OLS) to modelling interest expenditure on disposable income and control for difference in individuals' characteristics such as: *age*, *sex*, *educational level*, *housing type* and *industry*.

Table 1: The degree of under-reporting in 2018, as a percentage.

Group	All
Self employed	52.9

Source: Statistics Sweden and own calculations.

Thus, on average is 1,0 SEK from a self-employed individual equal to 1,53 SEK in wage income.

Level of under-reporting follows economic incentives?

Self-employed people who have a high probability of being on sick leave have incentive to under-report at a less degree? Hence, the opposite is true for self-employed people with a low probability of being on sick leave.

Table 2: The degree of under-reporting by high and low probability of being on sick leave, percent.

Probability of being on sick leave	Self employed
Low	75.1
High	49.6

Source: Statistics Sweden and own calculations.

Thus, on average is 1,0 SEK from a self-employed individual equal to 1,53 SEK in wage income.

Adjusting for under-reporting

Table 4: Calculating the input coefficient of the algorithm

	Ratio		Product	Input coefficient	
Year	Under-reporting	F-tax	of (2) & (3)	algoritm (Ω)	mars year t
2015	1.53	2.08	3.18		2015
2016	1.56	2.02	3.15		2016
2017	1.54	2.00	3.08		2017
2018	1.53	1.96	3.00		2018
2019	1.51	1.89	2.85	3.14	2019
2020	1.45	2.01	2.91	3.08	2020
2021				2.98	2021
2022				2.92	2022

Source: Statistics Sweden and own calculations.

$I_{self\text{-}employed} * \Omega \geq I_{employment} \rightarrow$ status of employment: *self-employed*

$I_{self\text{-}employed} * \Omega < I_{employment} \rightarrow$ status of employment: *employmees*

where *I* is the income either from the self-employment or employmees and Ω is equal to 3.14 for 2019

Around 15 percent of the hybrids are then considered to be self-employed.

Thanks -

for your attention!