

## Quantitative Macroeconomics

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Homework 1, due Monday Sep 23 at 8.30am

### Question 1. Secular behavior of the labor share

1. Compute (and plot) the time series of the ratio of taxes less subsidies on production and imports ( $T - S$ ) over gross domestic product ( $GDP$ ), net mixed income ( $NMI$ ) over  $GDP$  and intellectual property products ( $IPP$ ) investment over  $GDP$  in the U.S. Discuss your results. Notice that these data are available (annually) since 1929 for the U.S. under the 2008 SNA.
2. Compute the economy-wide LS for the U.S. using these four definitions of the LS that we saw in class and discuss your results:

(a) Naive:

$$LS_0 = \frac{CE}{GDP} \quad (1)$$

(b) Adjusted for taxes/subsidies:

$$LS_1 = \frac{CE}{GDP - (T - S)} \quad (2)$$

(c) Adjusted for taxes/subsidies and mixed income

$$LS_3 = \frac{CE}{GDP - (T - S) - NMI} \quad (3)$$

### Question 2. The effects of IPP capitalization

1. Use a proxy for the pre-SNA93 construction of the labor share. That is, subtract  $IPP$  investment from  $GDP$  in all your previous measures. Discuss your results.

### Question 3. The corporate labor share

1. Redo the previous items using the corporate sector only. Compare and discuss the economy-wide results with the corporate sector results.

### Question 4. The rate of return to capital

1. Compute the time series of the rate of return with the 2008 SNA and your pre-1993 SNA proxy. Discuss your results.