Intermediate Macro HW 1

June 5, 2016

1 Sinescence of GDP Figures

Do your best to reproduce Figures 2.1, 2.2, and 2.3 from the textbook, using data for the Chinese economy instead of the US economy. For paralleling Figure 2.1, use as long a timeframe as you are able to find.

Open-ended

2 Textbook Exercises, Chapter 2

- Jones 2.2

  a) $2 million. (b) $6,000. (c) $0 (transfer payments) (d) -$50 million (imports) (e) $50 million (exports) (f) $25,000 - $100,000 decrease via imports balanced by $125,000 increase in consumption.

- Jones 2.4

Table 1: Completed table for Jones 2.4

	2016	2017	% Change, 2016-17
Quantity of oranges	100	105	5%
Quantity of boomerangs	20	22	10%
Price of oranges ($)	1	1.1	10%
Price of boomerangs	3	3.1	3.33%
Nominal GDP	160	183.7	14.8%
Read GDP in 2016 prices	160	171	6.9%
Read GDP in 2017 prices	172	183.7	6.8%
Read GDP in chained prices, benchmarked to 2017	171.9	183.7	6.8%

- Jones 2.5

  Inflation for each index is given by taking the ratio of the GDP deflators for each year.

  Laspeyres: $\frac{\frac{183.7}{171}}{\frac{160}{160}} \approx 7.4\%$

Paasche: $\frac{\frac{183.7}{183.7}}{\frac{160}{172}} \approx 7.5\%$

Chain-weighted: $\frac{\frac{183.7}{183.7}}{\frac{160}{171.9}} \approx 7.4\%$

- Jones 2.6

  a) $\frac{\frac{78.9}{45.7}}{14.5} \approx .12$ (b) $\frac{rGDP_I}{rGDP_U} = \frac{\frac{nGDP_I}{P_I}}{\frac{nGDP_U}{P_U}} = \frac{\text{nGDP ratio}}{\text{price ratio}} \approx .32$ (c) Prices bias our use of GDP as representing production. If India and USA both produce 1,000 gallons of milk, production is equal. But the importance of price to GDP means this won't show up in their nominal GDPs.

3 Textbook Exercises, Chapter 3

- Jones 3.1

  (a) $700(1.01)^{40} \approx 1042$ (b) $700(1.02)^{40} \approx 1546$ (c) $700(1.04)^{40} \approx 3360$ (d) $700(1.06)^{40} \approx 7200$

- Jones 3.4

  (a); (b)

Age	20	25	30	40	50	65
Principal @ 5%	$25,000	$32,000	$41,000	$66,000	$108,000	$225,000
Principal @ 6%	$25,000	$33,000	$45,000	$80,000	$144,000	$344,000
Principal @ 7%	$25,000	$35,000	$49,000	$97,000	$190,000	$525,000

  (c); (d) Simple plot

- Jones 3.7

  Use $\bar{r} = \left(\frac{Y_{2010}}{Y_{1980}}\right)^{\frac{1}{30}} - 1$

- Jones 3.12

  This approach ignores compounding of interest.