Homework 9 (62 Points)

Part I

Multiple Choices (2 Points Each)

1. One bag of flour is sold for $1.00 to a bakery, which uses the flour to bake bread that is sold for $3.00 to consumers. A second bag of flour is sold for $1 to a grocery store who sells it to a consumer for $2.00. Taking these four transactions into account, what is the effect on GDP?

   (a) GDP increases by $3.00.

   (b) **GDP increases by $5.00.**

   (c) GDP increases by $6.00.

   (d) GDP increases by $7.00.

2. In early 2010 Molly paid $200,000 for a house built in 2000. She spent $30,000 on new materials to remodel the house. Although Molly lived in the house after she remodeled it, its rental value rose. Which of the following contributed to GDP in 2010?

   (a) the price of the house, the cost of remodeling materials, the increase in rental value

   (b) the price of the house and the cost of remodeling materials, but not the increase in rental value

   (c) the costs of the remodeling materials and the increase in rent, but not the price of the house

   (d) **the costs of the remodeling materials and the rent in 2010, but not the price of the house**

3. Quality Motors is a Japanese-owned company that produces automobiles; all of its automobiles are produced in American plants. In 2008, Quality Motors produced $25 million worth of automobiles and sold $12 million in the U.S. and $13 million in Mexico. In addition, it sold $2 million from the previous year's inventory in the U.S[1]. The transactions just described contribute how much to U.S. GDP for 2008?

   (a) $12 million

   (b) $14 million

   (c) **$25 million**

   (d) $27 million

4. The city of Xiamen buys a police car manufactured in Germany. In the GDP accounts this transaction is included in

   (a) government expenditures and exports.

   (b) **government expenditures and imports.**

   (c) exports, but not government expenditures.

   (d) imports, but not government expenditures.

5. A stove is produced by a firm in 2014, added to the firm's inventory in 2014, and sold to a household in 2015. It follows that

   (a) **the value of the good is added to the investment category of 2014 GDP, added to the consumption category of 2015 GDP, and subtracted from the investment category of 2015 GDP.**

   (b) the value of the good is added to the investment category of 2014 GDP, added to the consumption category of 2015 GDP, and not included in the investment category of 2015 GDP.

   (c) the value of the good is added to the investment category of 2014 GDP, subtracted from the consumption category of 2015 GDP, and not included in the investment category of 2015 GDP.

   (d) the value of the good is added to the investment category of 2014 GDP, subtracted from the consumption category of 2015 GDP, and added to the investment category of 2015 GDP.

[1] assuming the inventory was both valued at and sold for $2 million

6. Rocket Energy Drink Company buys sugar to produce energy drinks. At the end of a quarter both its inventory of sugar and its inventory of energy drinks has increased. Investment for the quarter will include

   (a) **both the increased inventory of sugar and the increased inventory of energy drinks.**

   (b) the increased inventory of sugar, but not the increased inventory of energy drinks.

   (c) the increased inventory of energy drinks, but not the increased inventory of sugar.

   (d) neither the increased inventory of sugar nor the increased inventory of energy drinks.

7. AA Appliances sells refrigerators. In 2015 it added $100,000 to its inventory. $10,000 of this addition was from used refrigerators, and the remaining $90,000 was from their purchases of newly manufactured refrigerators. How much of this addition to AA's inventory contributes to 2015 GDP?

   (a) $0

   (b) $10,000

   (c) **$90,000**

   (d) $100,000

8. In 2014, a farmer grows and sells $3 million worth of corn to Big Flakes Cereal Company. Big Flakes Cereal Company produces $8 million worth of cereal in 2014, with sales to households during the year of $7 million. The unsold $1 million worth of cereal remains in Big Flake Cereal Company's inventory at the end of 2014. The transactions just described contribute how much to GDP for 2014?

   (a) $3 million

   (b) $7 million

   (c) **$8 million**

   (d) $11 million

9. Consider two cars manufactured by Chevrolet in 2014. During 2014, Chevrolet sells one of the two cars to Emily for $20,000. Later in the same year, Emily sells the car to Jim for $22,000. The second automobile, valued by Chevrolet at $19,000, is unsold at the end of 2014. The transactions just described contribute how much to GDP for 2014?

   (a) $20,000

   (b) $22,000

   (c) **$39,000**

   (d) $41,000

10. Consider two cars manufactured by Chevrolet in 2014. During 2014, Chevrolet sells one of the two cars to a dealer for $20,000. Later in the same year, the dealer sells the car to Jim for $22,000. The second automobile, valued by Chevrolet at $19,000, is unsold at the end of 2014. The transactions just described contribute how much to GDP for 2014?

   (a) $20,000

   (b) $22,000

   (c) $39,000

   (d) **$41,000**

11. A German citizen buys an automobile produced in the United States by a Japanese company. As a result,

   (a) U.S. net exports increase, U.S. GDP is unaffected, Japanese GNP increases, German net exports decrease, and German GNP and GDP are unaffected.

   (b) U.S. net exports and GDP increase, Japanese GNP increases, German net exports decrease, German GNP is unaffected, and German GDP decreases.

   (c) **U.S. net exports and GDP increase, Japanese GNP increases, German net exports decrease, and German GNP and GDP are unaffected.**

   (d) U.S. net exports and GDP are unaffected, Japanese GNP increases, and German net exports, GNP, and GDP decrease.

12. When an Egyptian construction firm purchases a cement mixer from Slovakia,

    (a) Egyptian investment does not change, Egyptian net exports decrease, Egyptian GDP decreases, Slovakian net exports increase, and Slovakian GDP increases.

    (b) **Egyptian investment increases, Egyptian net exports decrease, Egyptian GDP is unaffected, Slovakian net exports increase, and Slovakian GDP increases.**

    (c) Egyptian investment decreases, Egyptian net exports increase, Egyptian GDP is unaffected, Slovakian net exports decrease, and Slovakian GDP decreases.

    (d) Egyptian investment increases, Egyptian net exports do not change, Egyptian GDP increases, Slovakian net exports do not change, and Slovakian GDP is unaffected.

13. In the economy of Talikastan in 2015, consumption was two-thirds of GDP, government purchases were $1000 more than investment, investment was one-ninth of GDP, and the value of exports exceeded the value of imports by $500. What was Talikastan's GDP in 2015?

    (a) $1688

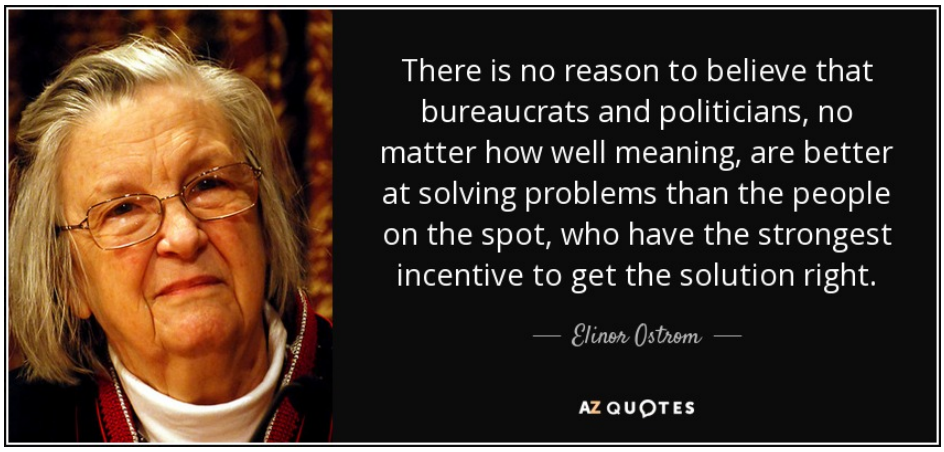
    (b) $9000

    (c) **$13,500**

    (d) $15,000

Part II

Problem 1 (6 Points)



Elinor Ostrom won the 2009 Sveriges Riksbank Prize for Economic Sciences (along with Oliver Williamson) for "her analysis of economic governance, especially the commons":

> "*Elinor Ostrom has challenged the conventional wisdom that common property is poorly managed and should be either regulated by central authorities or privatized. Based on numerous studies of user-managed fish stocks, pastures, woods, lakes, and groundwater basins, Ostrom concludes that the outcomes are, more often than not, better than predicted by standard theories. She observes that resource users frequently develop sophisticated mechanisms for decision-making and rule enforcement to handle conflicts of interest, and she characterizes the rules that promote successful outcomes.*" – *The Royal Swedish Academy of Sciences*

Read the articles "Economic governance: the organization of cooperation"[2], "Economic Governance"[3], and "Tragedy revisited"[4]. Summarize and discuss the main contributions and findings of Dr. Ostrom[5].

[2] You only need to read the section on "Governing the commons" (page 1 - 3).
[3] You only need to read the section on Elinor Ostrom (starting at page 10).
[4] You only need to read the article "Collective actions, cultural norms" by Boyd and Richerson.
[5] Recall that in our class, we discussed government action (taxation, cap & trade) and privatization as solutions to the commons problem. What does Elinor Ostrom think of these solutions and what are her findings?

Problem 2 (2 Points)

An American retailer purchased 100 pairs of shoes from a company in Mexico in 2016 but did not sell them to a consumer until 2017. Describe what happens to U.S. GDP in 2016 and 2017.

Let c be the cost the retailer spends to buy the 100 pairs of shoes in 2016. Let v be how much the retailer sells the shoes for in 2017. Then in 2016, inventory increases by c and NX decreases by c => No change to 2016 GDP. In 2017, consumption increases by v, while inventory decreases by c. 2017 GDP increases by $v - c$.

Problem 3 (6 Points)

Go to the National Bureau of Statistics of China.

1. Read the 2017 Statistical Yearbook and fill out the following table[6]: (4 Points)

2016		Value (in 100 million Yuan)
GDP		744127.2
Value added by tier	Primary	63670.7
	Secondary	296236
	Tertiary	384220
Value added by sector	Agriculture	65964.4
	Industry	247860.1
	Construction	49522.2
	Wholesale and Retail	71113.4
	Transportation	33355.3
	Hotels and Catering	13280.8
	Finance	62132.4
	Real Estate	48132.8
	Others	152765.8
Household Final Consumption		292661
Government Final Consumption		107514
Investment (Gross Capital Formation)		329727
Net Exports		16412

[6]Chinese version: see here.

2. What are the definitions of primary, secondary, and tertiary industries? What sectors are in them?[7] (2 Points)

   In China, according to Industrial classification for National Economic Activities (GB/T 4754-2011), economic activities are categorized into the following three strata of industry:

   (a) Primary industry refers to agriculture, forestry, animal husbandry and fishery industries (not including services in support of agriculture, forestry, animal husbandry and fishery industries).

   (b) Secondary industry refers to mining and quarrying(not including support activities for mining), manufacturing(not including repair service of metal products, machinery and equipment), production and supply of electricity, heat, gas and water, and construction.

   (c) Tertiary industry refers to all other economic activities not included in the primary or secondary industries.

Problem 4 (5 Points)

What expenditure components of Chinese GDP (if any) would each of the following transactions affect? Explain.

1. A family buys a new refrigerator. Consumption↑
2. Your uncle buys a new house. Investment (residential investment)↑
3. Honda China sells a car from its inventory. Consumption↑ Investment (inventory)↓
4. The Beijing government repairs a highway. Government purchases↑
5. You buy a bottle of French wine. Consumption↑ Net export↓ (import ↑)

[7] You can read "Explanatory Notes on Main Statistical Indicators" under "National Accounts" in the statistical yearbook to find out the information.

Problem 5 (4 Points)

Below are the 2009 U.S. national income and expenditure data (in billions of dollars)[8].

Household Consumption	10,001.30
Corporate Profits	1,066.60
Investment Expenditures	1,589.20
Indirect Business Taxes	1,001.10
Depreciation	1,861.10
Government Expenditures	2,914.90
Net Foreign Factor Income	146.20
Net Exports	-386.40
Wages	7,954.70
Proprietor's Income	1,030.70
Rents	292.70
Interest Income	765.90

1. Calculate GDP using the expenditure approach. (2 Points)

   `Household consumption + Investment expenditures + Government expenditures + Net exports = $14,119`

2. Calculate GDP using the income approach. (2 Points)

   `Wages + Rents + Interest income + Corporate profits + Proprietor's income + Indirect business taxes + Depreciation + Net foreign factor income = $14,119`

[8] Net foreign factor income = −Net factor payment.

Problem 6 (5 Points)

The table below contains data for a country in 2015.

Household purchases of durable goods	$1293
Household purchases of nondurable goods	$1717
Household purchases of services	$301
Household purchases of new housing	$704
Purchases of capital equipment	$310
Inventory changes	$374
Purchases of new structures	$611
Depreciation	$117
Salaries of government workers	$1422
Government expenditures on public works	$553
Transfer payments	$777
Foreign purchases of domestically produced goods	$88
Domestic purchases of foreign goods	$120

Calculate this country's 2015 GDP and its components:

1. GDP `$7253`
2. Consumption `Household puchases of durable goods + nondurable goods + services = $3311`
3. Investment `Household puchases of new housing + Purchases of capital equipment + Inventory changes + Purchases of new structures = $1999`
4. Government purchases `Government expenditures on public works + Salaries of government workers = $1975`
5. Net exports `Foreign purchase of domestically produced goods - Domestic purchase of foreign goods = -$32`

Problem 7 (4 Points)

One day, Barry the Barber, Inc., collects $400 for haircuts. Over this day, his equipment depreciates in value by $50. Of the remaining $350, Barry sends $30 to the government in sales taxes, takes home $220 in wages[9], and retains $100 in his business to add new equipment in the future[10]. From the $220 that Barry takes home, he pays $70 in income taxes. Based on this information, compute Barry's contribution to the following measures of income.

1. GDP `$400`
2. National income `NI = GDP - Depreciation - Sales taxes = $320`
3. Personal income `PI = NI - Corporate retained earnings = $220.`
4. Disposable personal income `DPI = PI - Personal income tax = $150`

Problem 8 (4 Points)

Read "The Trouble with GDP" and briefly summarized the article. According to this article, what are some of the main limitations of GDP accounting today?

`quality adjustment, bias toward manufacturing, home production, financial service, inflation adjustment, new products, free digital services (Google, Facebook, Youtube, etc.)`

[9] i.e. Barry pays himself $220 in wages.
[10] i.e. this $100 is the retained earnings of the "Barry the Barber, Inc." corporation.