RLP-ECON · RLP Economics — Principles of Economics

Unit 3: Government, Money and the Macroeconomy

Practice Workbook. The same problems, in the same order, as the Practice sections of the online lessons.

Name _____ Period _____

Lesson 3.1 — What Government Does in a Market Economy — and When It Costs Too Much

FLUENCY

1. Which are public goods (non-rival and non-excludable)? National defense, a pizza, a streetlight, a streaming subscription.

2. Positive or negative externality? (a) A factory's smoke. (b) Your flu vaccination. (c) A neighbor's loud leaf blower. (d) A well-kept front garden.

3. What is the free-rider problem?

4. How does cap-and-trade reduce emissions at the lowest cost?

APPLICATION

5. An illustrative market: Qd = 1,000 − 10P and Qs = −200 + 20P, where each unit also imposes a $10 health cost on neighbors. Find the market equilibrium. A $10 tax per unit on sellers changes supply to Qs = −400 + 20P. Find the new equilibrium and explain the tax's purpose.

6. Two firms must cut 100 tons of emissions in total. Firm A can cut for $20 a ton, firm B for $60 a ton. Compare a rule making each cut 50 tons with cap-and-trade, where A makes all 100 tons of cuts and sells allowances to B.

7. An illustrative clean-air program costs $12 million a year. It prevents 400 asthma emergency visits valued at $3,000 each and 150 lost work-weeks valued at $1,200 each. Compare costs and benefits.

8. An illustrative import quota costs each of 330 million Americans $6 a year in higher prices and raises producers' income by $1.2 billion, shared among 10,000 producers. Find the total cost, the average gain per producer, and explain which side lobbies harder.

CHALLENGE

9. Label each claim about a state motor fuel tax positive or normative (the claims are examples, not findings): (a) "A higher fuel tax reduces the gallons people buy." (b) "The tax falls hardest on households that drive the most." (c) "Road users, not all taxpayers, should pay for the roads."

10. A regulation brings $50 million of benefits. It costs firms $35 million to comply and the agency $8 million to run, and it has unintended effects costing $10 million. Is it worth it, and which item is easiest to overlook?

REVIEW

11. Ceiling of $1,700 in a market with equilibrium $2,000: shortage or surplus?

12. Revenue $150,000, costs $110,000, owner's forgone salary $45,000: economic profit?

Lesson 3.2 — Measurement Lab — GDP, Jobs, Unemployment and Inflation

FLUENCY

1. 6.3 million unemployed and 158.7 million employed. What is the unemployment rate?

2. The CPI rises from 300.0 to 312.0 over a year. What is the inflation rate?

3. Nominal GDP grows 5.2% while prices rise 3.0%. About how fast did real GDP grow?

4. In the labor force or not? (a) A full-time student not looking for work. (b) A laid-off worker applying for jobs. (c) A retiree. (d) A worker who gave up searching.

APPLICATION

5. Missouri, August 2026 (BLS Local Area Unemployment Statistics, not seasonally adjusted, read through FRED): 3,056,223 employed and 122,825 unemployed. Find the labor force and the unemployment rate, to one decimal place.

6. From the lesson's figures (7.2 million unemployed, labor force 170 million), 200,000 unemployed people give up searching. What is the new unemployment rate? Is the economy healthier?

7. A worker's wage rises from $19.00 to $19.95 an hour while the CPI rises from 305.0 to 317.2. Find the nominal raise, inflation and the real change in the wage.

8. Nominal GDP is $27.0 trillion with a price index of 120 (base year = 100). The next year it is $28.5 trillion with an index of 124. Find real GDP each year and real growth.

CHALLENGE

9. $5,000 sits in an account paying 1% while inflation is 4%. What is it worth after a year in nominal terms, and in today's buying power?

10. The first estimate of monthly job creation is +175,000. It is revised to +142,000, then to +128,000. What is the total revision, as a number and a percentage of the first estimate? What does this teach?

REVIEW

11. Bicycle market (Qd = 1,200 − 40P, Qs = −300 + 60P): what is the shortage at a $14 ceiling?

12. Productivity: 1,050 units in 35 hours?

Lesson 3.3 — Deliberation Lab — Fiscal Policy, Deficits and the National Debt

FLUENCY

1. Illustrative federal figures: spending $6.8 trillion, revenue $4.9 trillion. What is the deficit?

2. Debt held by the public is $28 trillion at the start of a year with a $1.9 trillion deficit. About what is it at year's end?

3. Expansionary or contractionary? (a) A tax cut. (b) Spending cuts. (c) A new highway program. (d) A tax increase.

4. In a recession, tax revenue falls and unemployment insurance payments rise without any new law. What is this called?

APPLICATION

5. Illustrative: federal debt held by the public $28.2 trillion; GDP $29.0 trillion. What is the debt-to-GDP ratio, and why do economists use a ratio rather than the dollar figure?

6. On $28 trillion of debt, the average interest rate rises from 2.5% to 3.3% (illustrative). How much do annual interest costs rise? Name the cost of this for other spending.

7. Missouri's General Revenue Fund took in $13.431 billion in fiscal 2025 and received $0.219 billion in transfers; it spent $14.132 billion (Missouri State Auditor, Report 2025-101). Find the fiscal 2025 spending deficit. Then suppose revenue falls 2.10% in fiscal 2026 (the consensus estimate), transfers stay at $0.219 billion, and spending is $15.430 billion (the Auditor's estimate): how large is that year's deficit, and what is left of the $4.320 billion year-end balance? Why must Missouri keep a balance at all?

8. In a recession, 100,000 more Missourians receive unemployment insurance of up to $320 a week (the maximum weekly benefit amount in section 288.038 of the Revised Statutes of Missouri) for 20 weeks (illustrative). If all receive the maximum, how much is paid out, and how does this act as a stabilizer?

CHALLENGE

9. Evaluate the argument: "The federal government must balance its budget every year, just like a family." Name what is valid and what is fallacious.

10. Illustrative federal budget: outlays $6.75 trillion, of which net interest is $0.88 trillion. What share is interest? If interest grows 8% a year and outlays 4% a year, what is the share after 5 years?

REVIEW

11. Positive or normative: "Cutting the deficit should come before new spending."

12. CPI rises from 280.0 to 294.0. Inflation?

Lesson 3.4 — Workshop — The Federal Reserve, Interest Rates and Financial Markets

FLUENCY

1. What are the two goals of the Fed's dual mandate?

2. How many members vote on the FOMC, and who are they?

3. When the Fed raises rates, what happens to borrowing, spending, the dollar and inflation?

4. The 2-year Treasury yields 4.8% and the 10-year 4.2%. What is this, and what has it often signaled?

APPLICATION

5. A $25,000 car loan for 60 months: find the monthly payment at 5% and at 7%. How does the rate change affect buyers?

6. A St. Louis County buyer takes a $300,000, 30-year mortgage (illustrative price). Compare monthly payments at 6% and 7%. Which kind of rate is this, and who sets it?

7. Yields: 3-month 5.3%, 2-year 4.7%, 10-year 4.3%, 30-year 4.5%. Is the curve inverted? What is the 10-year minus 3-month spread?

8. Recommend a Fed direction for each case: (a) inflation 1.2%, unemployment 6.5%; (b) inflation 4.5%, unemployment 3.6%.

CHALLENGE

9. The real interest rate is roughly the nominal rate minus inflation. Compute it for (a) a 5.25% federal funds rate with 3.0% inflation, and (b) a 0.1% rate with 7.0% inflation. Which is tighter policy?

10. Put the transmission chain in order and explain why the Fed acts on forecasts: households and firms borrow less; inflation eases; the FOMC raises its target range; spending on homes, cars and investment slows; banks raise loan rates.

REVIEW

11. Mortgage rates rise. What happens to demand for houses, and to price and quantity sold?

12. A firm's revenue is $250,000, explicit costs $190,000, and the owner could earn $70,000 elsewhere. Economic profit?

Unit 3 checkpoint

1. National defense is usually provided by government because it is:
   A. A public good with a free-rider problem
   B. Always profitable
   C. Rival and excludable
   D. Forbidden to firms
2. True or false: If a market failure exists, government action will always improve the outcome.
3. Pollution is a _____ externality; vaccination is a _____ externality.
4. Employed 150 million, unemployed 6 million. The unemployment rate is about:
   A. 3.8%
   B. 4.0%
   C. 6.0%
   D. 96%
5. CPI rising from 250.0 to 260.0 is _____% inflation.

6. A 3% raise in a year of 5% inflation means your real wage:
   A. Rose about 3%
   B. Rose about 8%
   C. Fell about 2%
   D. Was unchanged
7. True or false: People who stop looking for work are counted as unemployed.
8. Rising unemployment insurance payments in a recession, without a new law, are:
   A. Monetary policy
   B. Automatic stabilizers
   C. Crowding out
   D. Deflation
9. Spending of $6.5 trillion and revenue of $5.0 trillion give a deficit of $_____ trillion.
10. True or false: Missouri may borrow to cover ongoing operating deficits without a statewide vote.
11. Inflation is well above 2% and unemployment is low. The Fed would usually:
    A. Cut rates
    B. Raise rates
    C. Cut taxes
    D. Buy consumer goods
12. True or false: The Fed directly sets the rate on 30-year mortgages.

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