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Topic 8. Fiscal policy

Prof. Borja Petit
Economic Environment
CUNEF Universidad
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Introduction

- One of the most recurrent economic policy in public debate is fiscal policy.
- What do we understand by “fiscal policy”?

  The decisions of the government regarding the level and design of taxes and public spending.
- Goals of fiscal policy:
  - Influence the economy: attenuate crisis *(expansionary vs. contractionary fiscal policy)*.
  - Increase equality *(progressive vs. regressive fiscal policy)*.
  - Correct inefficiencies.

Outline

1. The government budget
2. Fiscal policy and short-run economic fluctuations
3. Fiscal policy, equality and efficiency

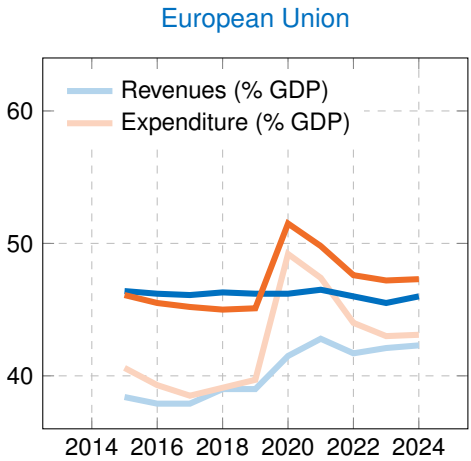
Outline

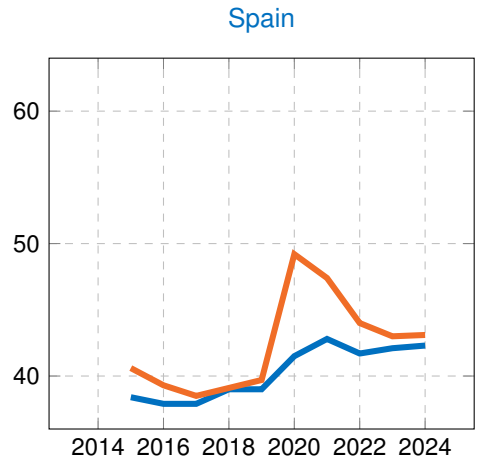
Components of government budget

$$\text{Tax revenues} + \text{Net borrowing} = \text{Public expenditure} + \text{Interests on debt}$$

- Incomes:
  - Tax revenues: resources transferred from households and firms to the government.
  - Net borrowing *(or Net lending if < 0)*, equal to New debt $-$ Old debt.
- Expenditures:
  - Public expenditure (i) public consumption, (2) public wages, (3) transfers to households/firms.
  - Interests on debt, also known as debt services, equal to Interests on debt $= r$ Debt.

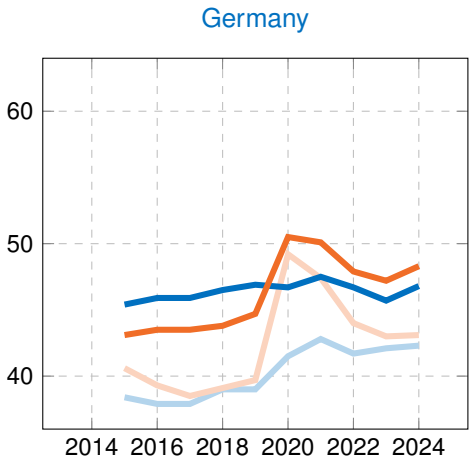
Data. Public revenues and expenditure (in % of GDP)

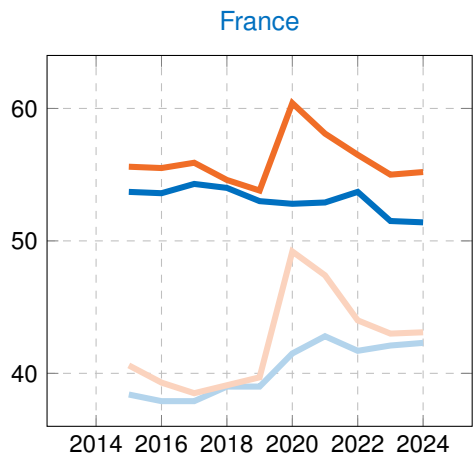




Source: Eurostat. Shadow lines represent Spain's data.

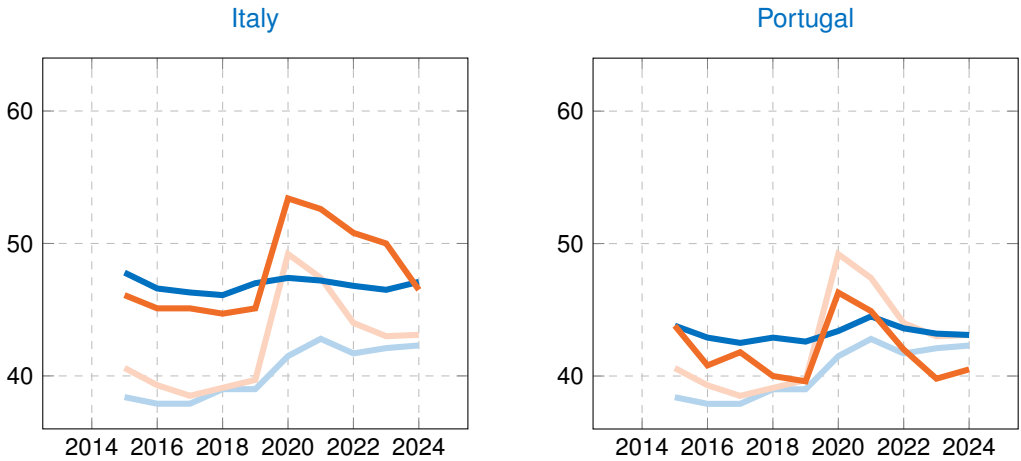
Data. Public revenues and expenditure (in % of GDP)





Source: Eurostat. Shadow lines represent Spain's data.

Data. Public revenues and expenditure (in % of GDP)



Source: Eurostat. Shadow lines represent Spain's data.

Data. Public expenditure (in % of GDP)

Country	2019	2020		2024	
EU	45.1	51.5	*+6.4*	47.3	*-4.2*
GER	44.7	50.5	*+5.8*	48.3	*-2.2*
ESP	39.7	49.2	*+9.5*	43.1	*-6.1*
FRA	53.8	60.4	*+6.6*	55.2	*-5.2*
ITA	45.1	53.4	*+8.3*	46.5	*-6.9*
POR	39.6	46.3	*+6.7*	40.5	*-5.8*

Source: Eurostat.

Primary deficit (or surplus)

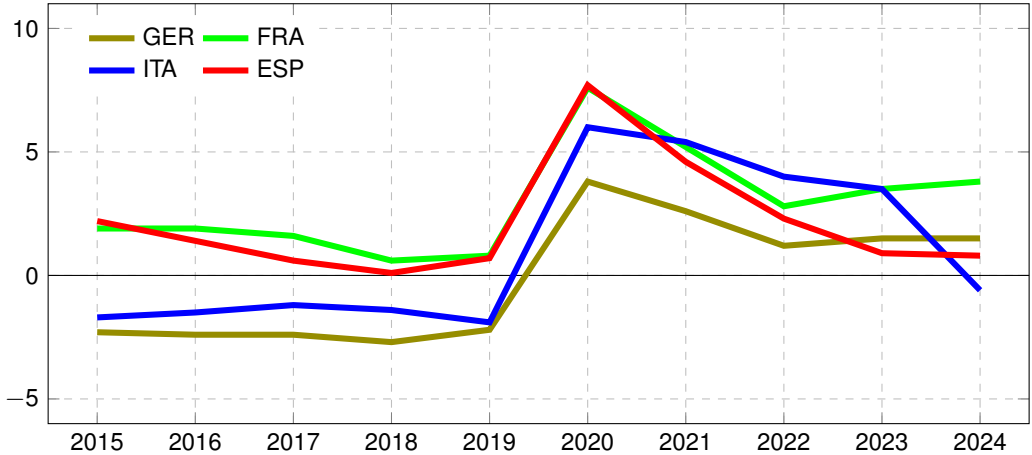
- The primary deficit is the part of public expenditures that is not financed by taxes:

$$\text{Primary deficit} = \text{Public expenditure} - \text{Tax revenues}$$

  If the primary deficit is negative we say the government is running a primary surplus.

- When the government runs a primary deficit, we say that fiscal policy is expansionary.
  - The government is spending more than it collects: public debt grows.
- When the government runs a primary surplus, we say that fiscal policy is contractionary.
  - The government is spending less than it collects: public debt falls.

Data. Primary deficit (in % of GDP)



Source: Eurostat.

Public debt

- The public debt is the amount of resources the government borrowed from national and international investors to finance its deficits, and evolves over time according to:

$$\text{New Debt} = \text{Old Debt} + \underbrace{\underbrace{\text{Interests paid}}_{r \times \text{Old Debt}} + \underbrace{\text{Primary deficit}}_{\text{Expend.} - \text{Rev.}}}_{\text{Total deficit} = \text{Net borrowing}}$$

- If we index the year by t and rewrite this expression in terms of GDP, we get:

$$d_t \approx (1 - g_t)\, d_{t-1} + r_t\, d_{t-1} + \text{primary deficit}_t$$

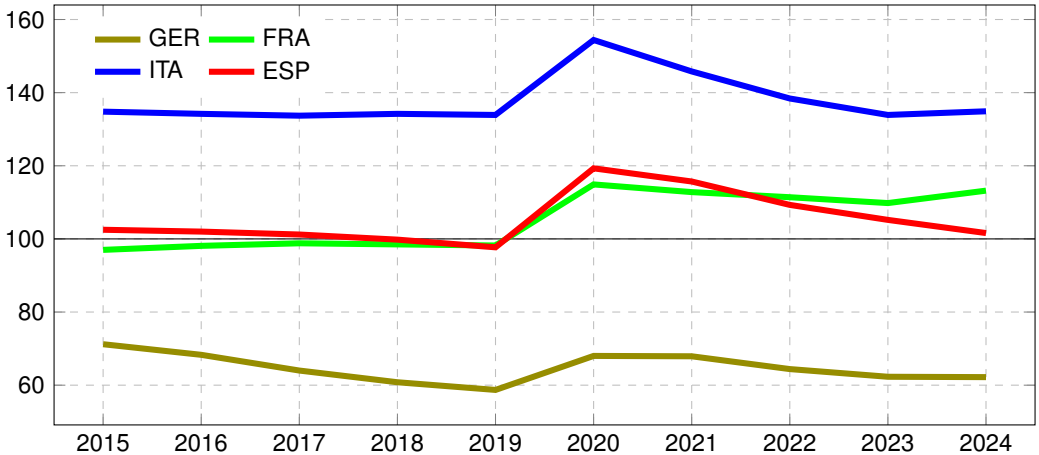
where g_t is the growth rate of GDP in year t.

Public debt

$$d_t \approx (1 + r_t - g_t)\, d_{t-1} + \text{primary deficit}_t$$

- Public debt as a % of GDP (or Debt-to-GDP ratio), typically grows when ...
  - There is a primary deficit: tax revenues are not enough to finance all expenditures.
    - Exception: when the economy is growing fast (g_t is large), the Debt-to-GDP ratio can decrease even with a deficit: the debt grows but GDP grows more... the ratio falls.
  - The interest rate on public debt is higher than the growth rate of GDP: $r_t > g_t$
    - This is true even if total debt decreases! In a crisis, $g_t < 0$.
    - To prevent the increase in the Debt-to-GDP ratio, the government must run a large primary surplus: primary deficit$_t < 0$

Data. Public debt (in % of GDP)



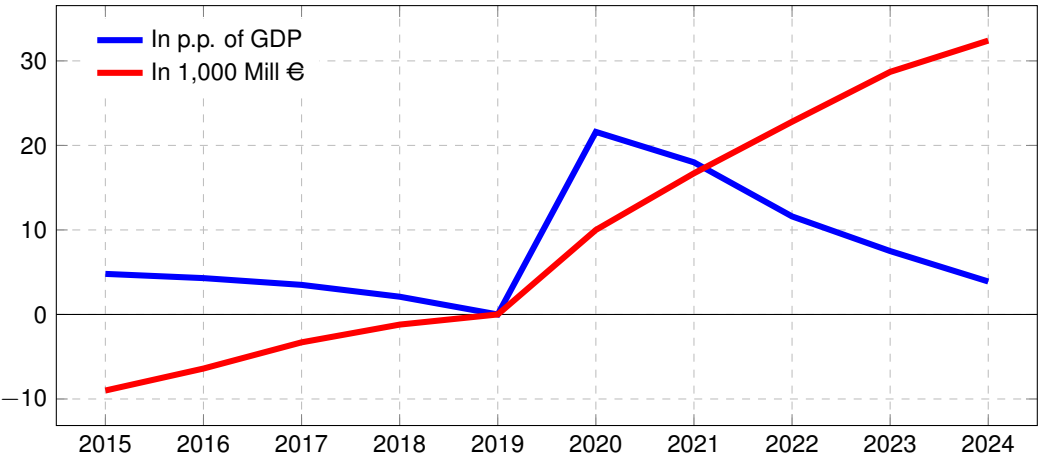
Source: Eurostat.

Data. Public debt (in % of GDP)

Country	2019	2020		2024	
EU	77.5	89.5	*+12.0*	80.7	*-8.8*
GER	58.7	68.0	*+9.3*	62.2	*-5.8*
ESP	97.7	119.3	*+21.6*	101.6	*-17.7*
FRA	98.2	114.9	*+16.7*	113.2	*-1.7*
ITA	133.9	154.4	*+20.5*	134.9	*-19.5*
POR	116.1	134.1	*+18.9*	93.6	*-40.5*

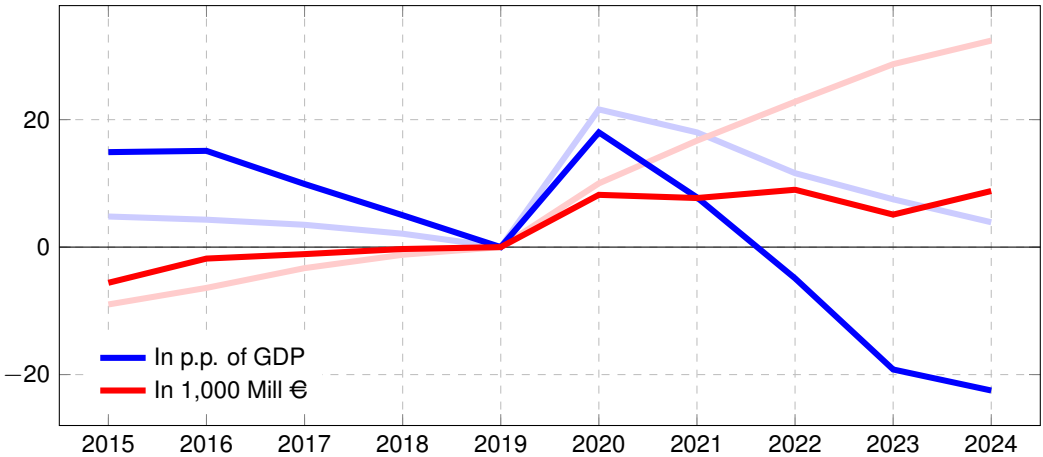
Source: Eurostat.

Data. Public debt, relative to 2019, Spain



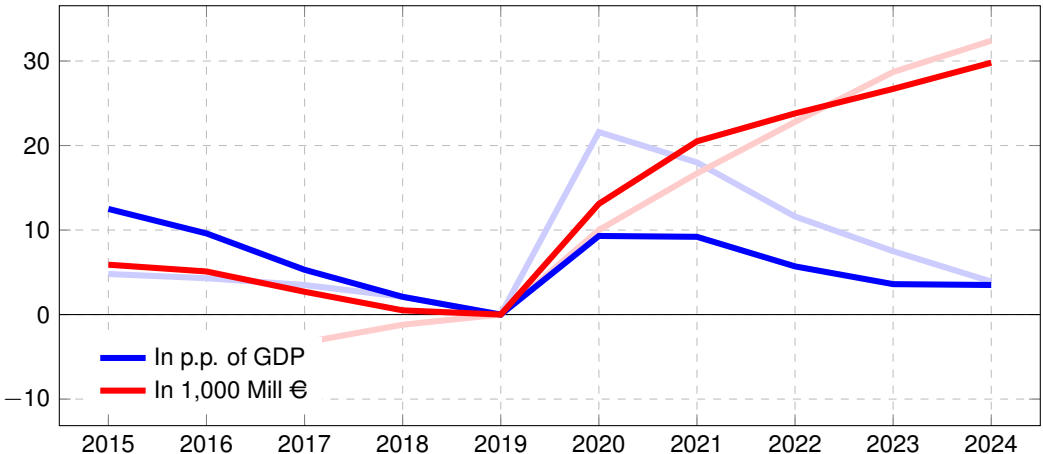
Source: Eurostat.

Data. Public debt, relative to 2019, Portugal



Source: Eurostat. Shadow lines represent Spain's data.

Data. Public debt, relative to 2019, Germany



Source: Eurostat. Shadow lines represent Spain's data.

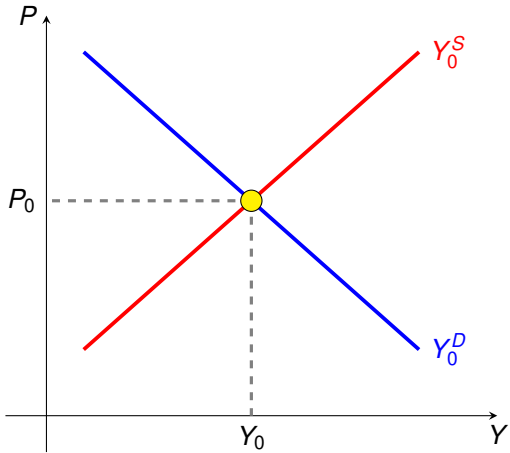
Outline

Introduction

- Why might the government want to run a primary deficit or surplus?

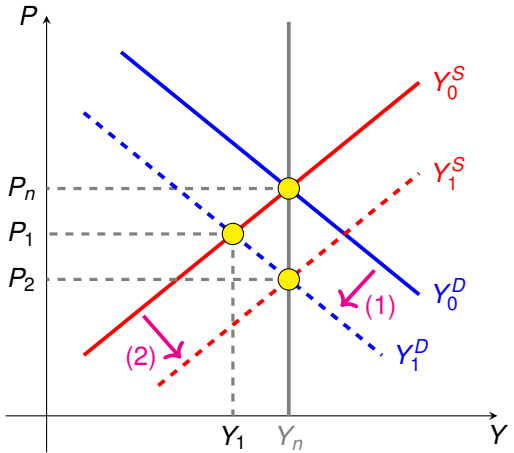
  By changing taxes and expenditures, the government can affect the economy.

  - During a crisis, the government may want to run a deficit in order to support the economy so that GDP and employment does not fall much.
    - Expansionary fiscal policy: Primary deficit $\rightarrow$ More public debt
  - During an expansion, the government may want to run a surplus to pay the debt issued during the last crisis, and get room to issue new debt for the next crisis.
    - Contractionary fiscal policy: Primary surplus $\rightarrow$ Less public debt.



- Recall our aggregate demand and aggregate supply analysis.
- Fiscal policy is part of aggregate demand:
  - $\uparrow$ Public consumption $=\uparrow$ Demand
  - $\uparrow$ Taxes $=\downarrow$ Disposable income
  - $\uparrow$ Transfers $=\uparrow$ Disposable income
  - $\uparrow$ Public wages $=\uparrow$ Disposable income

Fiscal policy during a crisis

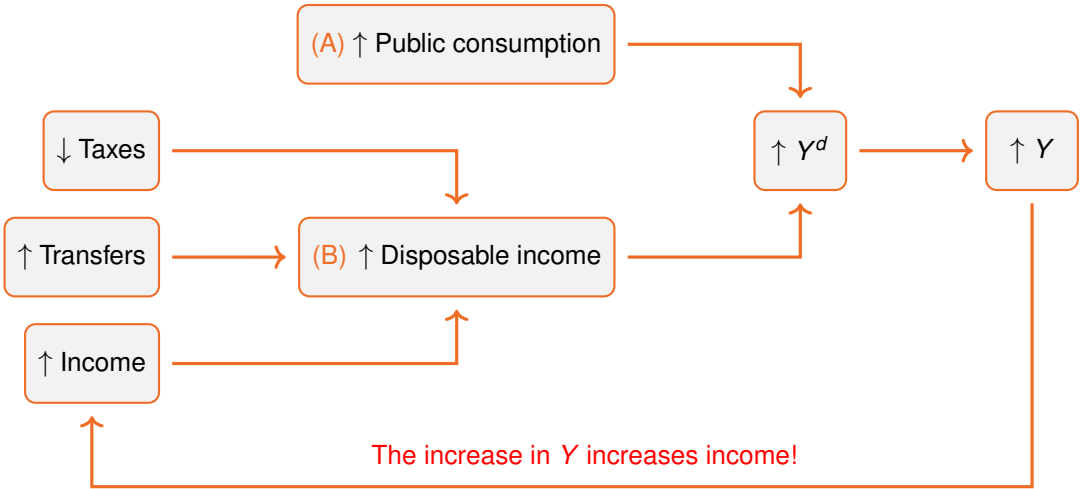


- An economic crisis is characterize by a fall in output and a rise in unemployment: the economy is below its potential output Y_n.
- For example, the economy is hit by a negative demand shock, like in the graph. (1)
- This situation is adjusted through wages: agg. supply falls and output goes to back to Y_n (at a lower P). (2)
- But this process may take "too long"...

Fiscal policy during a crisis

- To speed up the recovery, the government can implement expansionary fiscal policy: an increase in primary deficit. Two alternatives:
  - (A) Increase public consumption: the government buys (more) goods and services to increase aggregate demand.
  - (B) Increase disposable income by lowering taxes or increasing transfers: households have more resources to consume, increasing aggregate demand.
- What is the effect of these policies on the economy? It depends on the multiplier!
  - Per €1 spent by the government (either through (A) or (B)), equilibrium output (Y) increases, and does so by more than €1. Why?
  - ↑ Demand → ↑ Output → ↑ Income → ↑ Demand . . . AGAIN!

Fiscal policy during a crisis



Fiscal policy during a crisis

- Which policy option should the government use?
  - (A) If public consumption increases by €1, aggregate demand (initially) increases by €1.
    - Then, output increases, and then income, and so on and so forth. . . .
  - (B) If transfers increase in €1 (or taxes fall by €1), disposable income rises by €1. . .
    - Households save part of that €1 and use the rest for consumption.
    - The % of the extra disposable income that households decide to consumed is called the Marginal Propensity to Consume (MPC).

      If MPC=0.8, then households consume €0.8 of the transfer and save €0.2.
    - Initial jump in output is smaller than in (A) $\rightarrow$ Smaller total effect

Fiscal policy during a crisis

Demand	Output	Income	Demand
+1.00	+1.00	+1.00	+0.80
+0.80	+0.80	+0.80	+0.64
+0.64	+0.64	+0.64	+0.51
+0.51	+0.51	+0.51	+0.41
⋮	⋮	⋮	⋮
5	**5**	**5**	**5**

(A) Increase in public consumption

- Assume that MPC $= 0.8$.
- The government decides to increase public consumption in €1.
- Aggregate demand increases by €1.
- What happens then?

  Output grows by €5 in total!

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}} = 5$$

Fiscal policy during a crisis

Demand	Output	Income	Demand
+0.80	+0.80	+0.80	+0.64
+0.64	+0.64	+0.64	+0.51
+0.51	+0.51	+0.51	+0.41
+0.41	+0.41	+0.41	+0.33
⋮	⋮	⋮	⋮
4	**4**	**4**	**4**

(B) Increase in disposable income

- If, alternatively, the government decides to increase transfers (or decrease taxes) by €1, aggregate demand increases by €0.8.

  → The remaining €0.2 are saved.

- What happens then?

  Output grows by €4 in total!

$$\text{Multiplier} = \text{MPC} \times \frac{1}{1 - \text{MPC}} = 4$$

Fiscal policy during a crisis

- In the example...
  - The public consumption multiplier is 5.

    If public consumption increases by 1, output/income increases by 5
  - The transfer/taxes multiplier is 4.

    If transfers increase by 1, output/income increases by 4

- Which policy option should the government use?

  The government should use public consumption to support the economy during a crisis.
  - For €1 extra of primary deficit, output/income increases more through public consumption than through transfers/taxes.

Fiscal policy during an expansion

- What about fiscal policy during an expansion?

  During an expansion, the government may prefer to conduct a contractionary fiscal policy (lower primary deficit) in order to:

  - Repay the debt issued during the last crisis.
  - Create room to issue new debt for the next crisis.

- A contractionary fiscal policy has the opposite effects to those of an expansionary policy.
  - Negative effects on income and output.

    $\rightarrow$ The goal of a contractionary fiscal policy is to damage the economy as little as possible.

Fiscal policy during an expansion

- Again, there are two alternatives:

  (A) Decrease public consumption: the government buys (less) goods and services to decrease aggregate demand.

  - Previous example: lowering public consumption by €1, decreases output by €5.

  (B) Decrease disposable income by increasing taxes or decreasing transfers: households have less resources to consume, decreasing aggregate demand.

  - When disposable income lowers by €1, households use part of their savings to avoid lowering their consume by €1.
  - Previous example: lowering transfers (rising taxes) by €1, decreases output by €4.

- Which policy option should the government use?

  The government should use taxes/transfers to implement contractionary fiscal policy.

Outline

Introduction

- The goals of fiscal policy go beyond attenuating economic crisis and it is also used to:
  - Reduce inequality by redistribute income from the rich to the poor.
    - Redistribute income from the rich to the poor.

      Example: progressive income tax.
  - Correct for externalities and market failures.
    - Externality: cost/benefit that affects those who didn't choose to incur that cost/benefit.

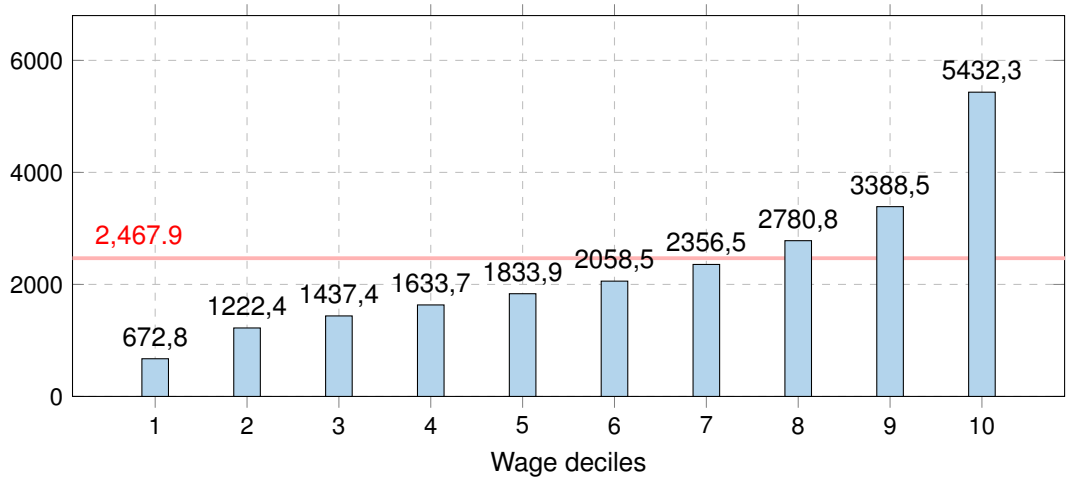
      Example: pollution, vaccination, fertility.
    - Market failure: situation in which the allocation of goods and services is not efficient.

      Example: public goods, monopolies.

Reduce inequality

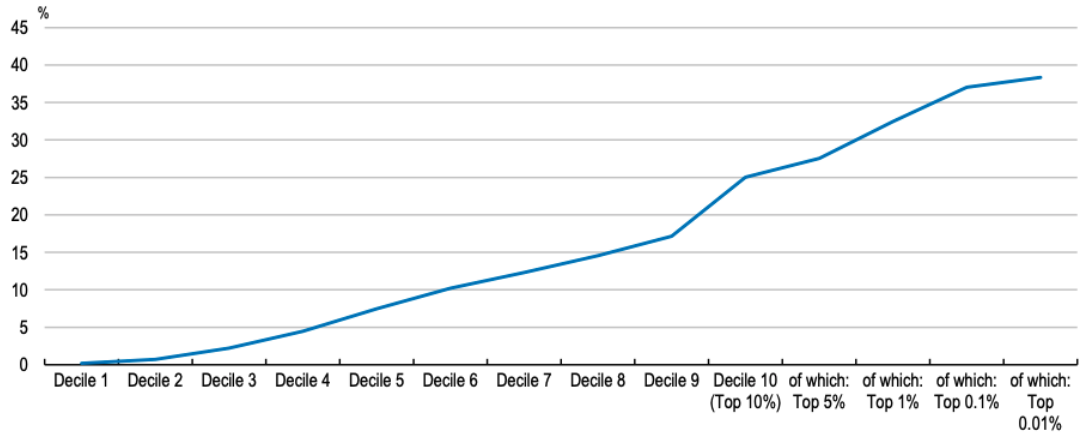
- Governments use fiscal policy to reduce income differences between poor and rich. Why?
  - Reduce poverty and increase social cohesion (or political stability).
  - Inequality can limit economic growth and development because poor households have less access to education, their children are typically poor as well, etc.
- Two main instruments:
  - Progressive income taxes: the rich pay a higher percentage of their income in taxes.
    → Reduces differences in disposable income.
  - Transfers: the government pays higher transfers to the poor.
    → Increases disposable income of the poor.

Data. The wage distribution in Spain, 2023



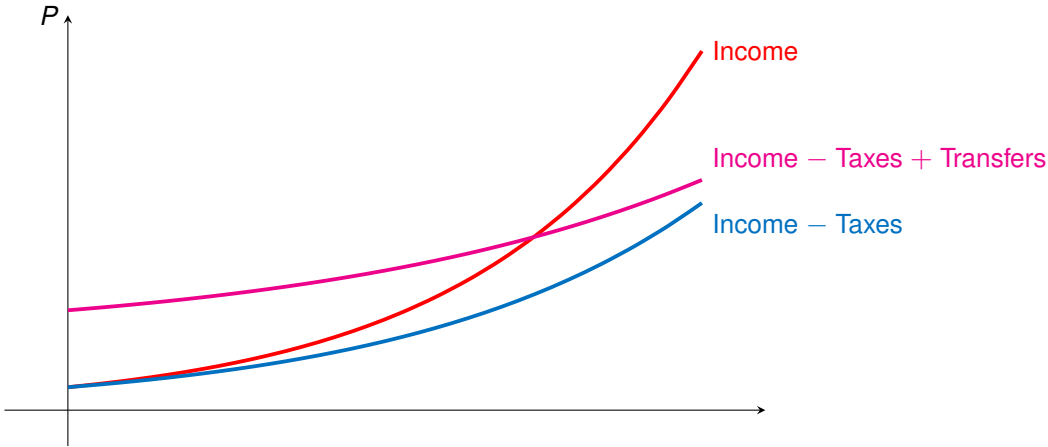
Source: INE.

Data. Income tax rate by level of income in Spain, 2011



Source: Haugh and Martínez Toledano (2017).

Example. How do taxes and transfer work?



Reduce inequality

- Progressive taxation can create efficiency losses:
  - If the tax rate is higher for high-income earners, they will have less incentives to work.
  - High-income earners are typically those who have higher productivity, so this policy can reduce overall economic output.

    $\rightarrow$ Trade-off between equity and efficiency.
- Because of this, many think that transfers are a more efficient tool to reduce inequality.
  - Transfers do not affect to how much you make by working more.
  - Thus, they do not distort your incentives to work.

Correct externalities

- We make our choices by comparing benefits and costs but, sometimes, our choices affect other people in ways that we do not take into account.
- These effects are called externalities and can be:
  - Negative externalities: when our actions impose costs on others.
    - We make this choice more often than what is socially optimal.

      Example: pollution, sugar consumption.
  - Positive externalities: when our actions generate benefits for others.
    - We make this choice less often than what is socially optimal.

      Example: vaccination, fertility.
- The government can use taxes and transfers to align private incentives to social optima.

Correct externalities

- An example of a negative externality is the consumption of sugar.
  - We decide on how much sugar to consume by comparing how costly it is for us (euros, health) and the benefits we get from it (taste, joy).
  - But if we consume too much sugar, we may increase public health costs (e.g., diabetes treatment) that others have to pay through taxes.

    $\rightarrow$ We consume more sugar than what is socially optimal.
- To correct for this externality, the government can impose a tax on sugar so that the cost of sugar you perceive includes the cost imposed on others.
- Other examples include: pollution, alcohol, tobacco, etc.

Correct externalities

- An example of a positive externality is fertility.
  - We decide how many children to have by comparing how costly it is for us to have kids (euros, time) and benefits we derive from having them (joy).
  - But if we have too few children, population shrinks and ages.
    - $\rightarrow$ We have fewer children than what is socially optimal.
- To correct for this, the government can give a transfer to families so that the benefits of having children incorporates the benefits others enjoy.
- Other examples include: vaccination, education, public transport, etc.

Address market failures

- Finally, governments use fiscal policy to correct market failures: a situation in which the allocation of goods and services is not efficient.
- Two common examples of market failures are:
  - Public goods: goods that are non-excludable and non-rivalrous.
    - Those are goods that a free market would not provide, even if they are desirable.
  - Monopolies: when a single firm controls the market.
    - Those are goods that a, in a free market, would have an inefficiently high price.
- Solution: the government provides these goods/services.

Address market failures

- Public goods and goods/services that are non-excludable and non-rivalrous.
  - A non-excludable good/service is one for which you cannot prevent those who don't pay for it from consuming/using it.
  - A non-rivalrous good/service is one for which one's consumption/use of the good doesn't lowers the amount available for others.
- Problem: why should I pay for it? Nobody is damaged if I don't pay!

  $\rightarrow$ Nobody would pay for these goods/services even if they are socially desirable!!
- Example: national defense, public parks, street lighting.

Address market failures

- Natural monopolies are markets in which a single firm that can produce the entire output of the market at a lower cost than if there were multiple firms.
  - These are markets that typically have high fixed costs and low marginal costs: entering is very costly but, once you enter, production is cheap.
- Problem: a single seller can charge a high price because there are no competitors.

  $\rightarrow$ The equilibrium price would be too high and the quantity would be inefficiency low.
- Example: utilities (water, electricity), railway infrastructure, telecommunications networks

Wrapping up

- Fiscal policy refers to the decisions of the government regarding level and design of taxes and public spending (public consumption and transfers) in order to:
  - (A) Influence the economy: attenuate crisis.
  - (B) Increase equality.
  - (C) Correct externalities and market failures.
- While (A) is a short-run goal, (B) and (C) are long-run.
- Fiscal policy is constrained by the evolution of public debt:
  - (A) must be countercyclical: deficit in recessions, surplus in expansions.
  - (B) and (C) must be sustainable: can not be systematically financed though public debt.

Questions?