ECONOMIC MODELS

Instructor: Ghislain Nono Gueye

Economics as a social science

- Pure science is generally conducted in 5 main steps:
  1- Identification of a problem
  2- Hypothesizing about the problem
  3- Collecting data on the problem
  4- Experimenting with the data in a controlled environment
  5- Developing theories to explain these inferences
- However, in economics, we cannot conduct laboratory experiments (step 4) because our study is on human beings.
- For this reason, economics is called a social/soft science.

Economics as a social science (2)

- Economists seek to explain how the economic world works.
- In pursuit of this goal, like all scientists, economists distinguish between two kinds of statements:

- positive statements

- normative statements

Positive vs normative economics

- Economists distinguish between statements about *“what is”* and statements about *“what ought to be”*
- Economic statements dealing with facts and the objective description of the state of things have to do with positive economics.
- On the other hand, economic statements describing how things should be, what should be done or that include any kind of value judgment have to do with normative economics.

Positive vs normative economics (2)

- *Positive economics (for economists)*
- Objective
- Factual
- Can be tested/verified
- *Normative economics (for policy-makers)*
- Subjective
- Based on value judgment
- Used mainly for recommendations

Positive vs normative economics (3)

- *Positive statements:*
- The firm is running at a loss.
- Life has become more expensive.
- The economic recession started in 2008.
- *Normative statements:*
- More workers should be hired in the company.
- The plant size should be increased.
- The market agents should not increase their spending.

Some required definitions…

- A good is any article of trade that is tangible and that has the ability to satisfy a need.

E.g. water, laptops, pencils, bread…

- A service, on the other hand, is intangible but still has the ability to satisfy a need.
- E.g. a ride, babysitting, a guided tour…

Economic models

- Example 1
- You just saw a nice shirt in the store and you want to know how it looks on you.
- However, the store does not allow customers to try their clothes on.
- ☹
- Well, you can't try the clothes on, but thank goodness the shirt is on a ***mannequin*** so you have a good idea how the shirt will look on you if you buy it.

Economic models (2)

- Example 2
- In order to teach the real world to babies, we usually buy them ***toys***.
- Some of these toys are dolls, cars, swords, …
- Toys, for instance, are a good way to teach children the names of animals.
- After playing enough with their toys, children can even recognize animals if they were to see them in real life.

Economic models (3)

- Mannequins and toys represent things that are actually quite complex.
- A mannequin represents a human being, which to this day has not yet been fully understood by science.
- Toys also represent complex things such as cars, animals…
- However, the features they represent are enough for the purpose at hand.
- For example, a mannequin does not need blood or veins for you to get an idea of how a shirt would look on you.

Economic models (4)

- An economic model is a simplification of the real economy which focuses on the features of the economy necessary for the study at hand.
- For example, if we are trying to study what causes inflation in the USA, we will build an economic model which will focus on inflation and its possible causes.
- We are not likely to include components of the economy which do not have a certain connection with inflation.

Economic models (5)

- Just like mannequins and toys are made with materials like rubber, irons, clay…
- *in economics, we build models with assumptions.*
- Assumptions are useful to simplify the real “complex” economic world.
- For instance, in an economic model called *production possibility frontier* we will analyze how economies decide what to produce and how much to produce.
- In that model, we will assume that our economy produces only 2 goods (say bread and cars)

Economic models (6)

- In reality, thousands of goods and services are produced in the real economy (e.g. laptops, chairs, books, fridges, roller blades, …)
- But we make this assumption in order to simplify our study.

The Circular Flow Model

- The three principal agents in any economy are: households, firms and the Government.
- They have specific roles to play in the economy and their actions are interconnected.
- In the real economy, these interconnections can be extremely complex to understand.
- However, the economic model called ***the circular flow of money*** will simplify them and allow us to understand more easily.

The Circular Flow Model (2)

- Markets
- The interactions between households, firms and the Government happen in markets.
- Remember:

- *A market is an organizational setting that brings buyers and sellers of a particular good/service together.*

The Circular Flow Model (3)

- Households

- A household consists of one or more people living in the same dwelling and also sharing meals and living accommodation.
- It may consist of a family or any other grouping of people
- In economics, the household is the basic unit of analysis.
- Households need goods and services to live (e.g. bread, milk, cars, haircuts, …)
- So they supply their *factors of production* to firms in order to make money

The Circular Flow Model (4)

- Factors of production are any essential inputs used in the production process of goods and services.
- Generally, the four factors of production are: capital, entrepreneurship, land and labor (CELL).
- *Factors of production are owned by households, but are needed by firms.*

The Circular Flow Model (5)

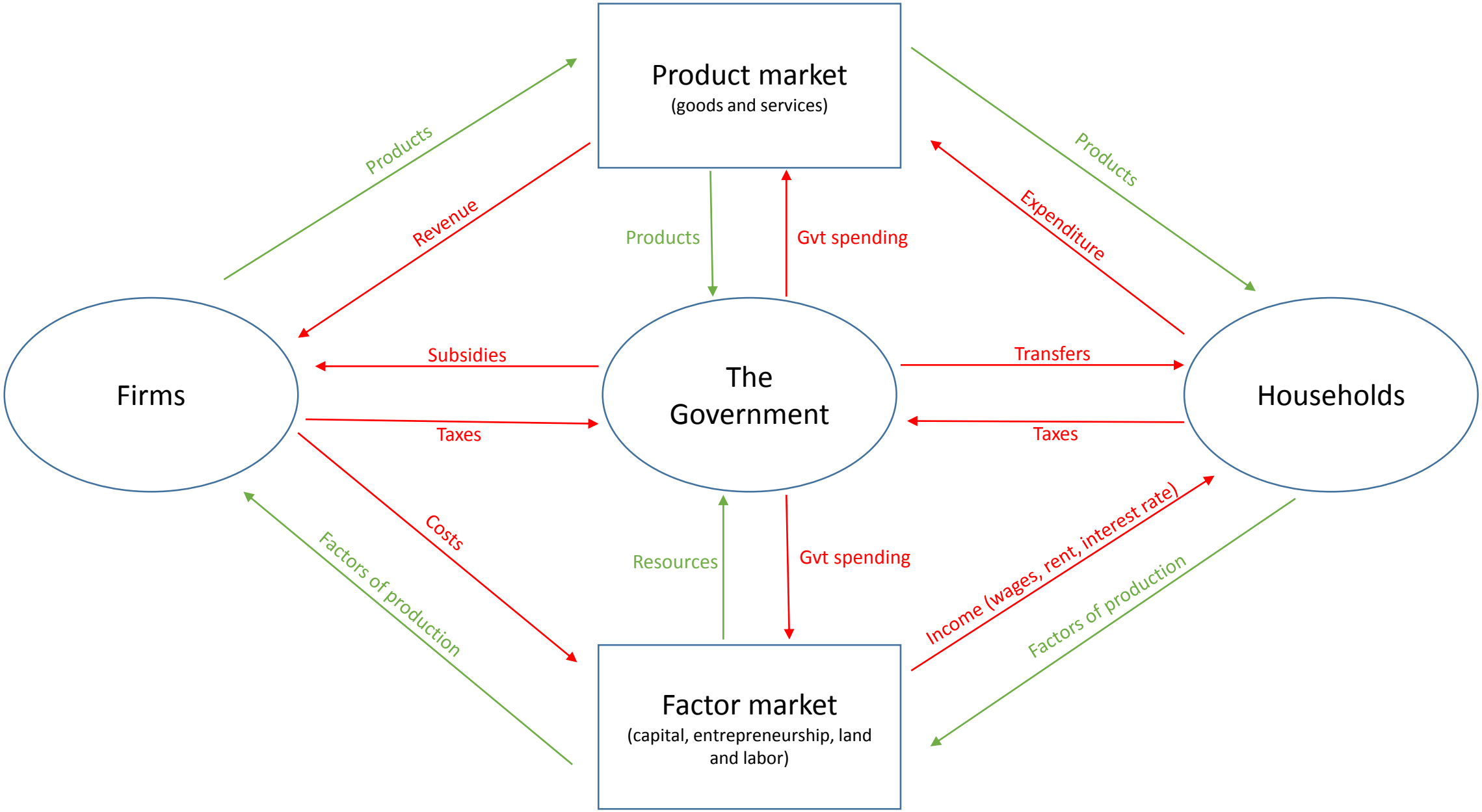
- Firms

- Firms are business organizations with the sole purpose of making profit.
- In the attempt to reach their goal, firms produce goods and services and sell them to households.
- However, as we previously said, for the firms to engage in the production process, they need the factors of production from the households.
- Factors of production are costs that firms incur.

The Circular Flow Model (6)

- The Government

- The Government is the body that regulates the economy.
- They collect taxes from both firms (i.e. corporate taxes) and households (i.e. income taxes). These are Gvt revenues.
- Then, they redistribute their revenue in the form of transfers to households and subsidies to firms.
- Moreover, they buy factors of production from households as well as goods and services from firms, which they buy with their revenue.
- They do this in order to provide public goods.


Product market
(goods and services)
Products
Revenue
Products
Gvt spending
Products
Expenditure
Products
Firms
Subsidies
Taxes
The Government
Transfers
Taxes
Households
Costs
Factors of production
Resources
Gvt spending
Income (wages, rent, interest rate)
Factors of production
Factor market
(capital, entrepreneurship, land and labor)

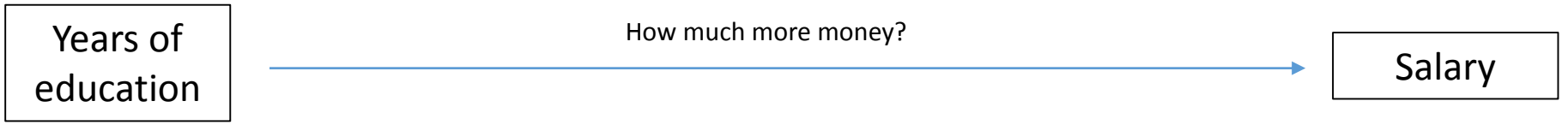
More on economic models

- We just represented the circular flow model with a flowchart (which is called *the circular flow diagram*)
- Flowcharts are a way to represent economic models; however, they are not the only way.
- Economic models are often constructed with the use of:

- *Equations*
- *Curves*

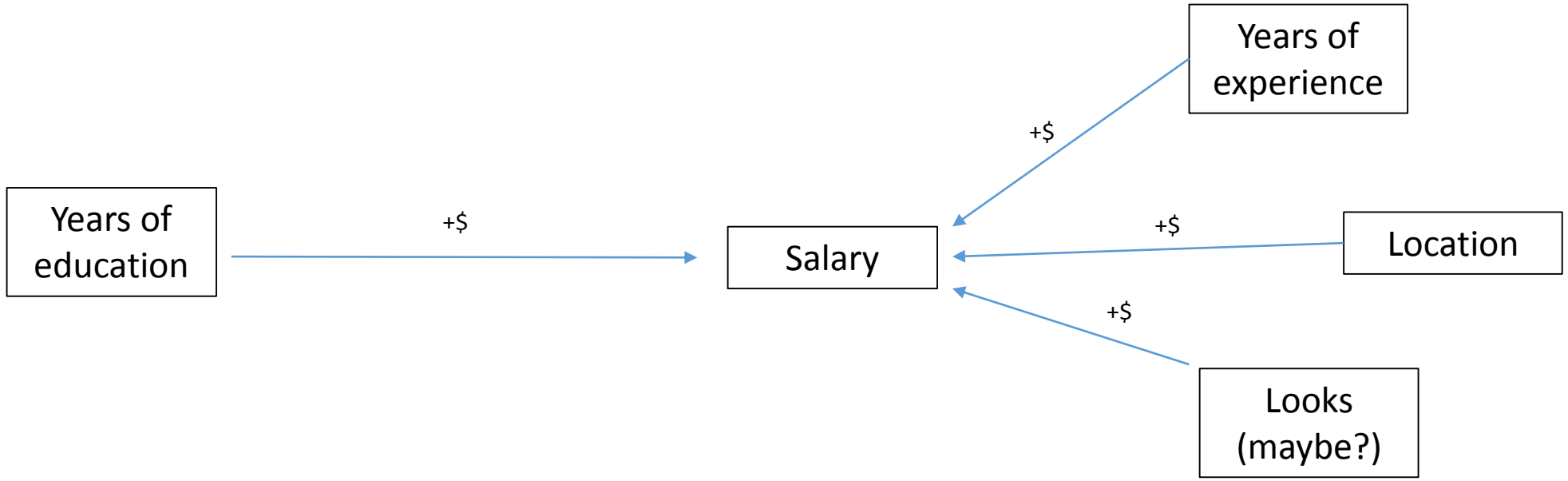
Ceteris paribus

- Ceteris paribus: means *"all things held constant"*.
- Let's use an example to understand the concept.
- We want to identify the effect of a variable A (e.g. years of education) on another variable B (e.g. salary).
- In other words, we ask the question: "How much more money will I earn if I decide to go to school one more year?"



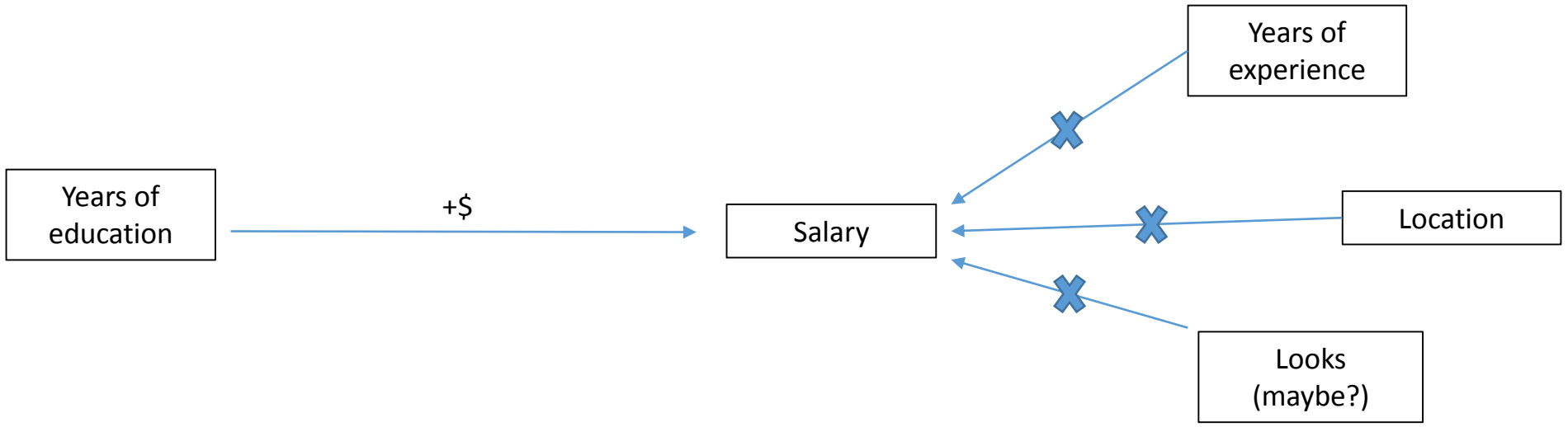
Ceteris paribus (2)

- However, it is known that salary is determined by many other factors besides “years of education”.



Ceteris paribus (3)

- We are interested in the effect on “years of education” ONLY.
- So we assume that all the other factors, which affect salary remain constant.
- And we only allow “years of education” to change so as to measure its effect on salary.



You should now be able to…

- Understand and explain why economics is a social/soft science and not a pure science
- Distinguish between positive and normative statements
- Understand what an economic model is
- Understand and explain the circular flow model
- Draw and comment on the circular flow diagram
- Identify tools economists use to build economic models
- Explain the rationale behind “ceteris paribus”

THANK YOU ☺