Causal relation research

- limitations in social sciences

Social systems – risk of **inadequate control**

- **Social systems** in the social sciences: very complex natural systems, it is not easy to **isolate** examined relationship from the important links with the **environment**.
- Risk: the **key variables** and relationships will be **missing**, others will be incorrectly **included** (the source of the distortion).

Causal relationship

Conditions for establishing cause and effect relationship:

1) There must be **changes in both** variables;
2) Changes must be in logical **time order**;
3) We must rule out the existence **of another** (external) **cause**.

"People read Foreign Affairs and *therefore* understand the Middle East conflict„

- Those who **read** - are able to **explain** - there is a connection - (or the more often / more - the more often / more ..) the first condition is fulfilled;
- We are not able to tell what was before - do they read because **already understand** it? - non-fulfilled second condition (!)
- We can not rule out any other cause - maybe they are able to explain for **another reason** than reading FA (academic/journalist writing, teaching, being there, participating in it ...) - the third condition not fulfilled (!)

Drinking alcohol has shortened life by more than 20 years

Blanka Nechanská from NÚDZ compared data on **people hospitalized** for **alcohol use** between 1994 and 2013 with **data on deaths** during this period. More than 25,000 patients died out of the 90,375 hospitalized for alcohol problems. The **mean age of death** of these people was **50.8 years**, with no significant difference between the sexes.

The average **life expectancy** in the Czech Republic is **82.1** years for women and **76.2** years for men.

Alcohol therefore **decreased** the life expectancy by more than **20 years**.

Types of distortion

(When monitoring variables and establishing a causal relationship)

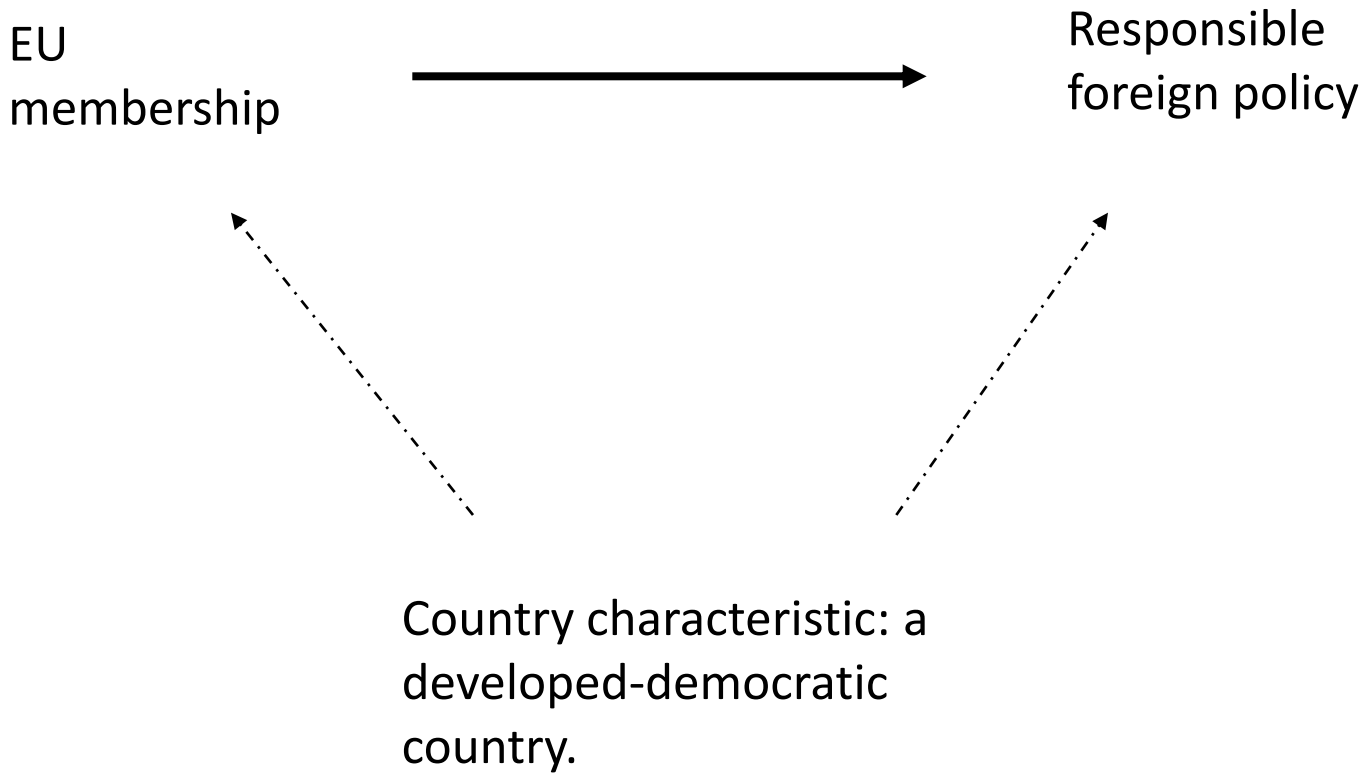
The causal relationship may be **misleading**, **obscured** or **inconclusive**, for example because of (Disman 1999):

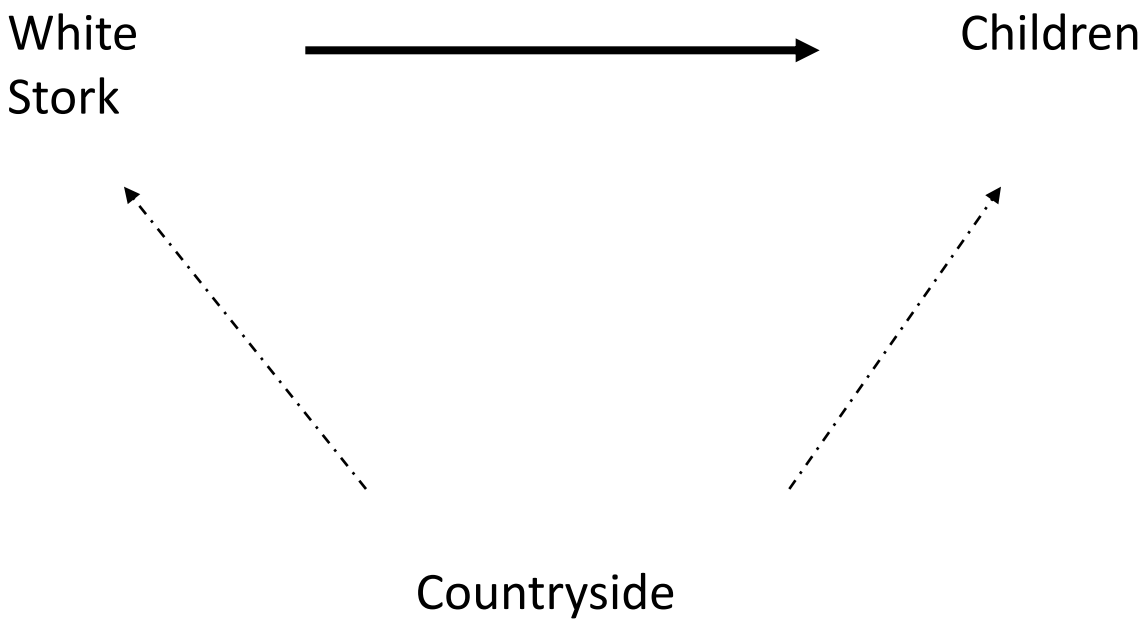
1. False correlations;
2. Developmental sequences;
3. Missing middle cause;
4. Dual cause.

False correlation

The **ommited** variable **affects both** analyzed!

- **Observation**: **EU** Member **States** have a **cooperative** foreign policy.
- **Hypothesis**: The preference of **cooperation** in the FP is the result of **EU membership**.
- Variable **not included**: The common pol-soc-eco. character of the EU countries (**advanced democratic countries**);
- **Valid Correlation** – Explanation – developed democracies:
  - **Developed** countries need a **common** free **market** for the maximum development of their **economy** (therefore they are **in the EU**);
  - **Democratic** countries prefer a **cooperative** and predictable international political and economic environment (therefore they have a responsible **FP**) ...

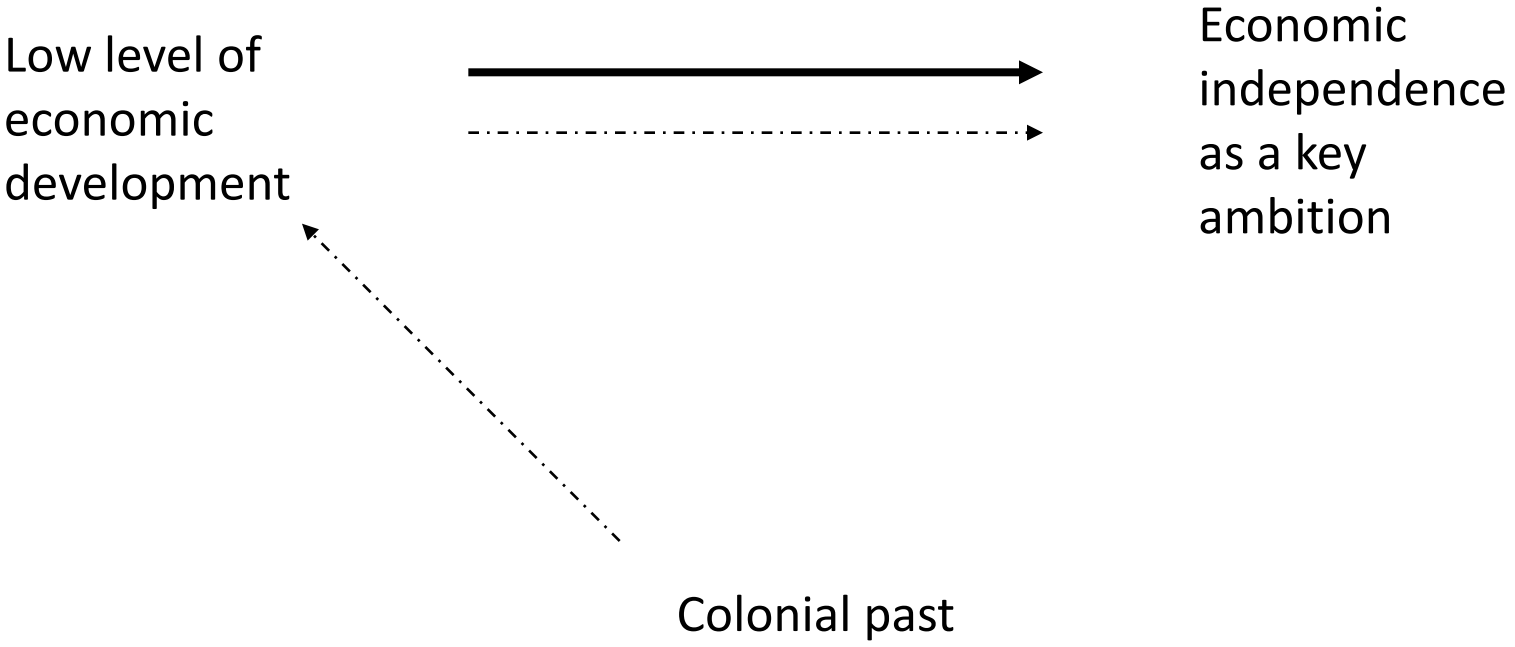

EU
membership
Responsible
foreign policy
Country characteristic: a
developed-democratic
country.


White
Stork
Children
Countryside

Sequence

The **preceding unobserved** variable affects the "independent" variable

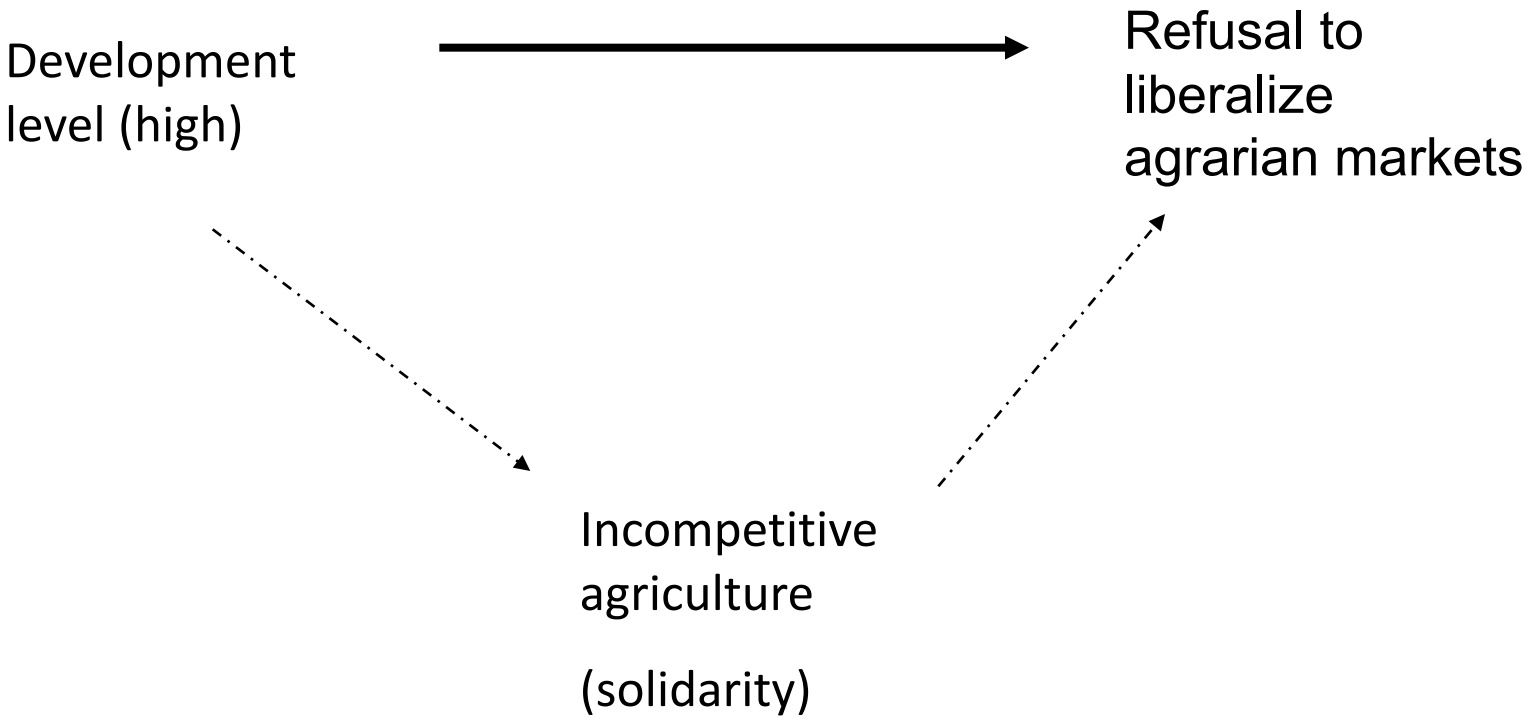
- **Observation**: Poor **developing** countries strive for **economic independence**.
- **Hypothesis**: The low economic level of the state leads to the pursuit of economic **self-sufficiency**.
- Previous **unobserved variable** that affects independent transformation: the **colonial past** of (undeveloped) countries.
- **Explanation**: Poor developing countries, after gaining **independence**, do not want to be economically tied to former **colonizers** ...


Low level of economic development
Economic independence as a key ambition
Colonial past

Missing (middle) cause

In the relationship there is an **intermediate step** - a significant variable, without which context it makes **no sense**.

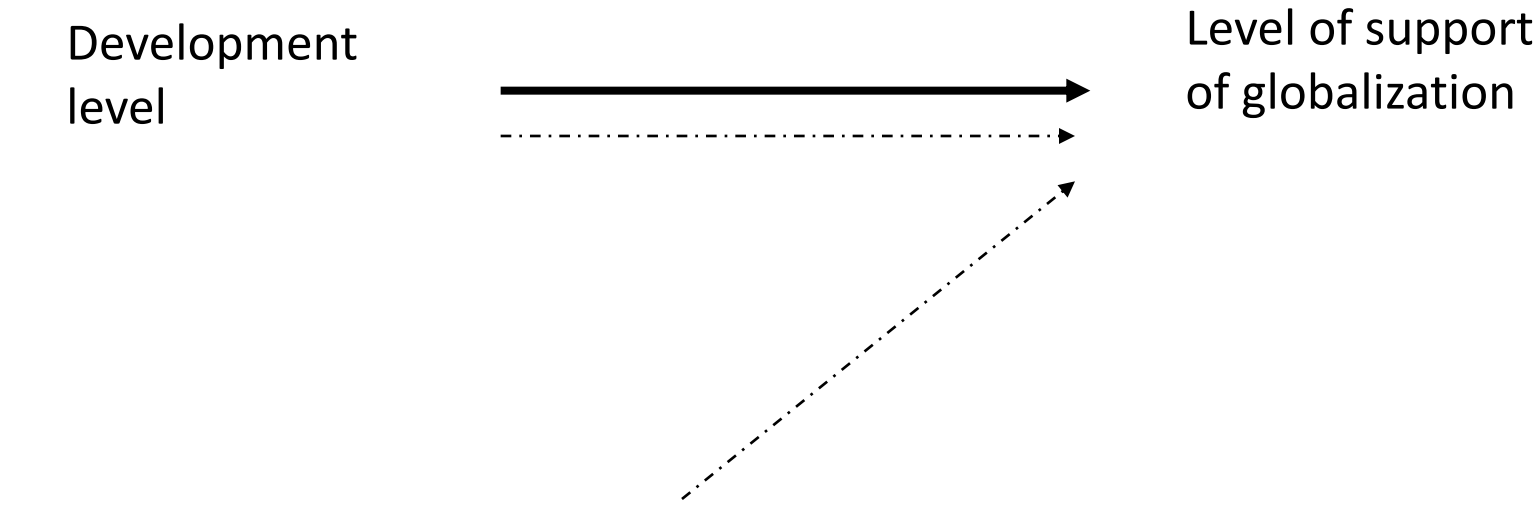
- **Observation**: **Developed** countries are **against** the **liberalization** of the **agricultural** commodity market.
- **Hypothesis**: High level of development is the reason for resistance to the liberalization of agricultural markets.
- **Missing** middle **cause**, which we have not included in the analysis: relatively inefficient and **uncompetitive agriculture** - the consequence of **solidarity** between sectors.
- **Explanation**: Economic development is often linked to the **lagging behind** of the **primary** sector (in both efficiency and revenue). Subsequent **protection** and redistribution lead to sector uncompetitiveness. Interest groups defends this policies – do not to support liberalization.

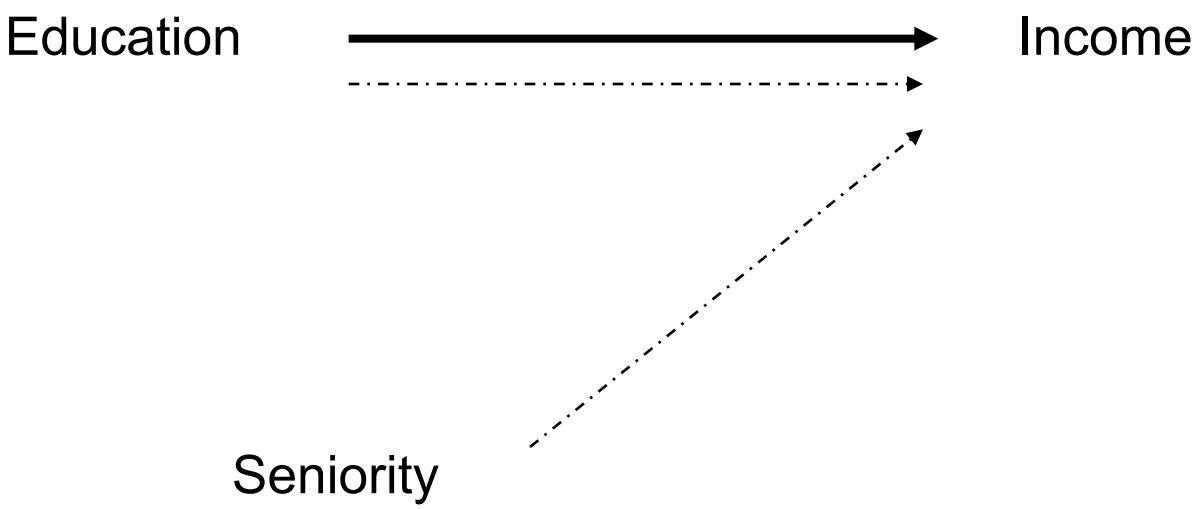

Development level (high)
Refusal to liberalize agrarian markets
Incompetitive agriculture
(solidarity)

Double cause

The result has a **dual cause**, omission is **inconclusive** when one of these is omitted.

- **Hypothesis**: A **skilled labor force**, technologically advanced, with high GDP per capita has competitive advantages and will therefore see **globalization positively**.
- **Observation**: At present, the policies of developed countries are often **slowing down globalization** tendencies ...
- Missing **second cause**: preference for **stability**/predictability before **income** when reaching a **high standard of living**, problematic position of sensitive sectors ...
- **Explanation**: In developed countries, **sensitive sectors** are also vulnerable to severe foreign competition - in the face of **solidarity**; marginal utility of income is lower; there is a **costly social system**; **interest groups** are strong and active.


Development level
Level of support of globalization
Labor costs, welfare state costs, vested interests presure


Education
Income
Seniority

Distortion in research process

EU / Eurozone Support Campaign

History - an **external factor coincides** in time and is interpreted as a campaign's impact.

Ageing – Changes caused by the flow of **time transform** the **population** and are confused with the effect of the campaign.

Environment: its effect itself **changes** the values of the **variable**.

Instrumentation - a **change** in the **research tool**, the tool does not produce reliable results.

Testing - **Measurement itself** results in a **change** in the values of the variables.

EUR will strengthen against the USD; The US will publish concerns about the competition of the EU´s single market; UK will revise exit; GER accepts transfer union; Economic recession ends (**HISTORY**).

People gain practical experience with EUR; work and study abroad (**AEGING**).

Citizens tired with the permanent campaign; ... (**ENVIRONMENT**).

The interviewers are burned out and fix the questionaries ... (**INSTRUMENTATION**).

As a direct result of questioning, the person "gains" an opinion (**TESTING**).

"Experiment" in the social sciences

Example:

Czech Republic joining the EU/Eurozone – an Effect of **Campaign** (?) ...

- Tool: **opinion poll**:
  - Before start of the campaign: **40%** for entry, after the the campaign **60%** for entry.

Interpreting the **increase** in responses for, as a **result** of a **campaign** is unfounded and possibly incorrect.

Standard approaches…

- **Comparison of statistical groups:**
  - Was he/she **following** a **campaign**? What does he/she thinks about **joining** the EU/Eurozone?;
  - Who **followed** more often **supported** the joining EU (sampling ...);
  - We do not know what was **first** (attitude or interest in campaign?);
  - Only the condition of correlation is fulfilled, we are absolutely not able to exclude **another cause**, we don't even know what was before.

- **Preliminary and follow-up observations:**
  - We measure **before** and **after** the campaign;
  - Before the campaign: what does he/she thinks of joining the EU?
  - After the campaign: what does he/she thinks about joining the EU?
  - **Before** the campaign, the **support** was **lower** than after ... Only the condition of the **time sequence** was **met**, what if it is consequence of some other cause (!)

Experiment: characteristics

Works with the **Experimental** and **Control Group**:

- only the **experimental** group is subject to change due to **manipulation** with independent variable;
- then the values of the dependent **variable** in the experimental group are **measured**;
- are **compared** with the values of the dependent variable in the **control group**.

Experiment Process

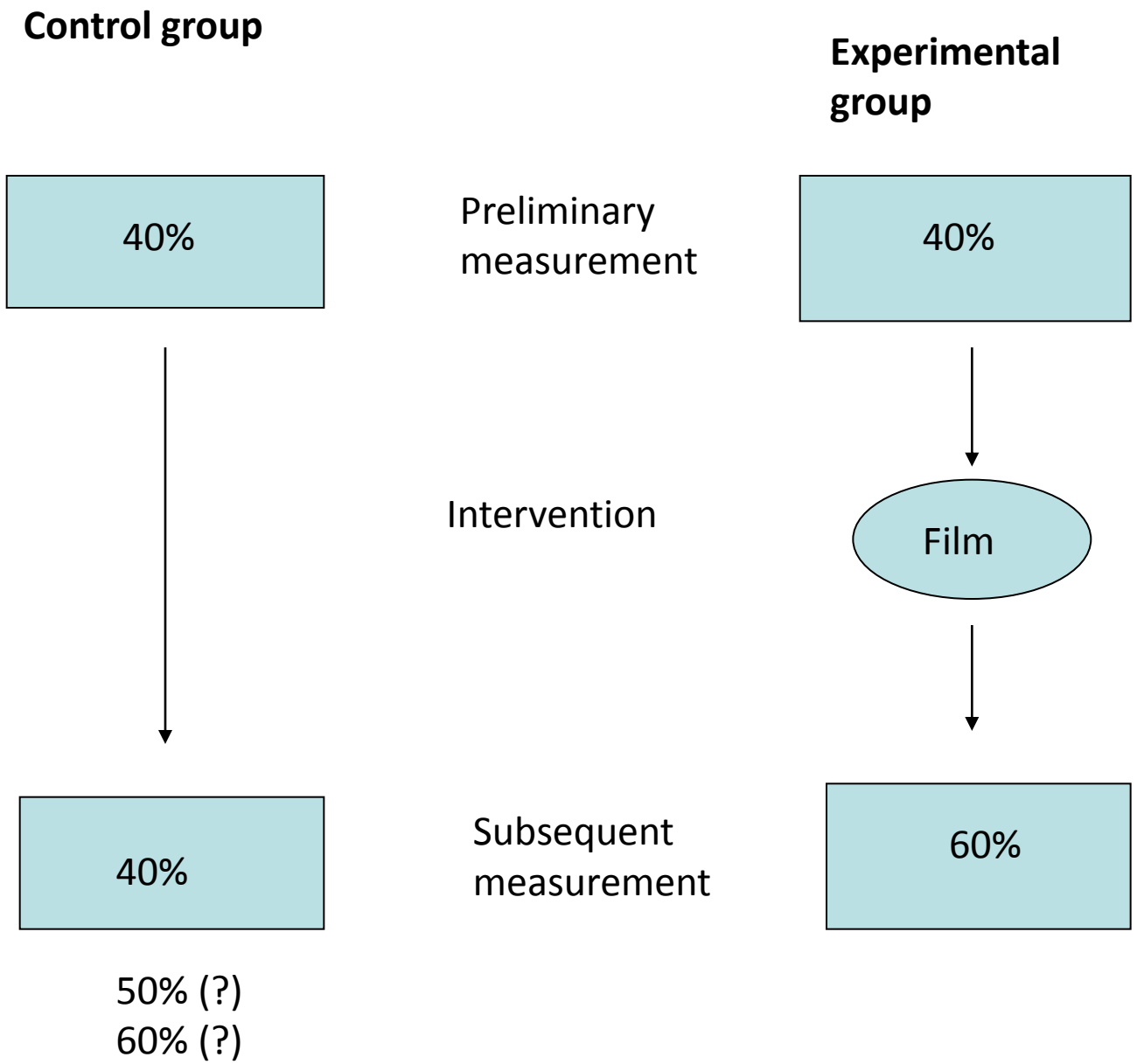
Example: **Campaign "Entry of the Czech Republic to the Eurozone**" (impact of a specific segment of the campaign - film, lecture, advertisment ...)

- We will create **two** representative **samples** of the population;
- One group we **expose** to the campaign (movie, lecture ...);
- We **compare** their **attitudes** towards Eurozone accession;
- The **difference** between them is the **impact** (segment) of the **campaign**;

Conditions;

- we need to ensure that the experimental group is and the **non-experimental** group is **not exposed**;
- both **groups** are statistically "**identical**"; are not influenced by other influences.

Costly and very difficult (!)


Control group
Experimental group
40%
Preliminary measurement
40%
Intervention
Film
40%
Subsequent measurement
60%
50% (?)
60% (?)

Quantitative research	Qualitative research
Aim: hypothesis testing	Aim: to generate hypothesis
Limited information about great number of units	**Much information about very limited number of units,**
Strongly reductionistic: in terms of variables included and relations between units.	Strong in generating deep knowledge about units; varibales and causes of events.
It is possible to generalize findings on whole population	Generalization risky and dificult

- **Quanti:**
  - Test hypothesis → strong in explanation – reliable (*repeated measurement – same results).*
- **Quali:**
  - Generates hypothesis → produce theories – attempts to generate understanding – valid (*measures what we are reaserching).*

	Inductive	Deductive
Starts with	data collecting	applied or developed theories
through	generalising	producing hypothesis
to	use in subsequent research	hypothesis testing confronting with data
aim	**Developing theory**	**Testing theory – selecting the theories (consistency with data)**