



# ECONOMIC CONJUNCTURE ANALYSIS IN DISRUPTIVE TECHNOLOGY SCENARIOS I

Prof. Dr. Fernando S. Coelho

\*The responsibility for trustworthiness, originality, and legality of the didactic content presented is responsibility of the professor.

The total or partial reproduction of this material without authorization **is prohibited**.

Law No. 9610/98

# Professor Presentation

## Fernando de Souza Coelho

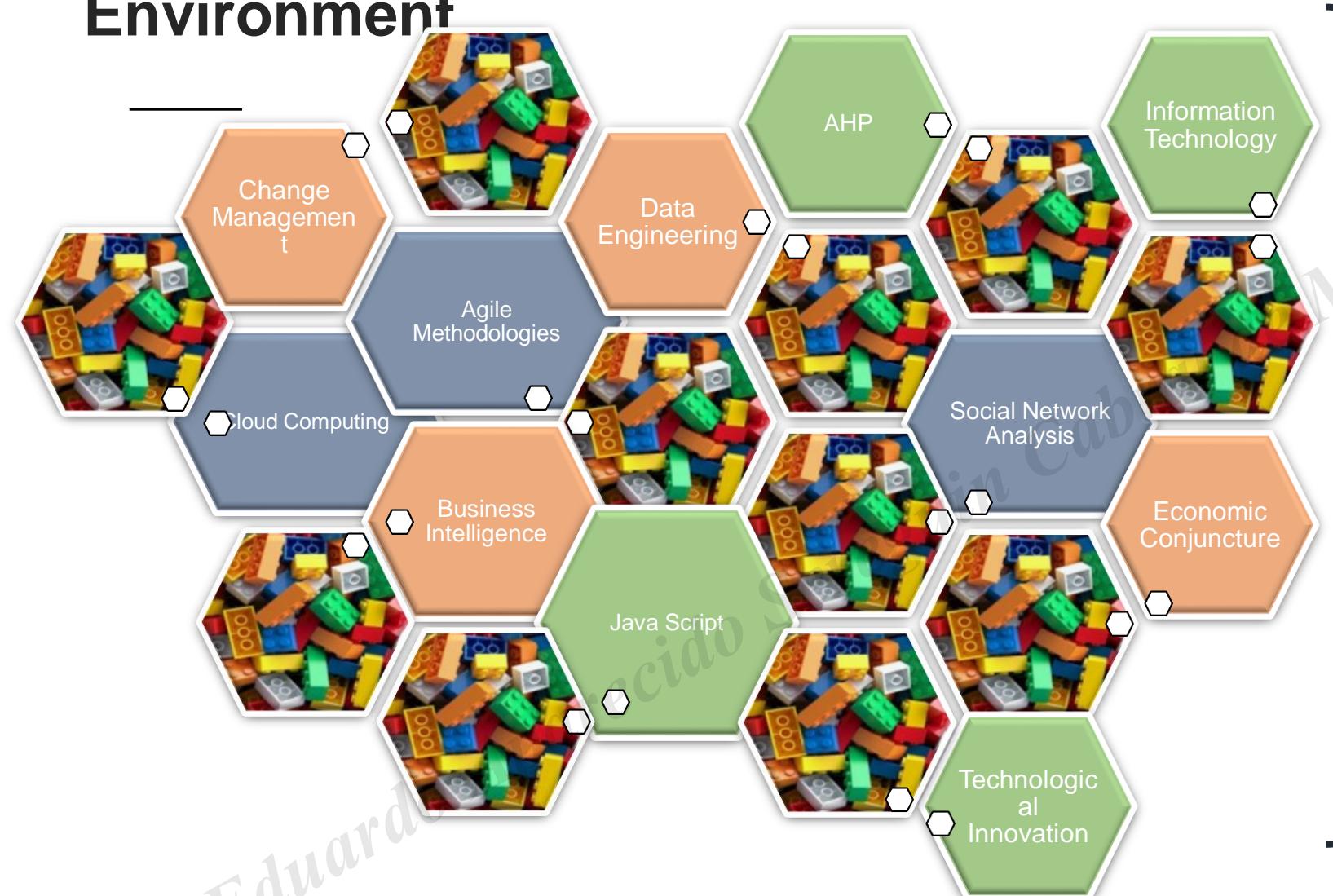
Professor at USP, teaching and researching in undergraduate and master's courses in Public Policy Management of EACH-USP, and in specializations and MBAs of different units – such as ESALQ-USP.

Economist from USP, with extension studies in Administration in ITAM/Mexico. Specialist in Economic Development by Weitz Center/Israel

Master and Doctor in Public Administration by EAESP-FGV, with a post-doctorate in Public Management by LSE/London.



# Module: Data Science and Big Data in the Business Environment



A Lego of subjects to understand organizations, the business environment and the management models.

# Agenda and Objective of the Subject

---

- **Discipline Description:** Principles of economic analysis; main macroeconomic aggregate/variables and their relations (GDP, inflation, unemployment, interest rate, public deficit, exchange rate, and payment balance). Role of the Economic Policy (monetary, fiscal, and exchange) and its instruments. Financial System and its markets; and Economic conjuncture and domestic and international scenario analysis.
- **Objective:** Offer you, (the future) manager and expert in data science, an apparatus to understand the economic data/information and interpretation of the business environment according to the conjuncture and the macroeconomic scenarios.

# Expected Benefits of the Discipline

---



Acquire an overview of the Economics functioning;

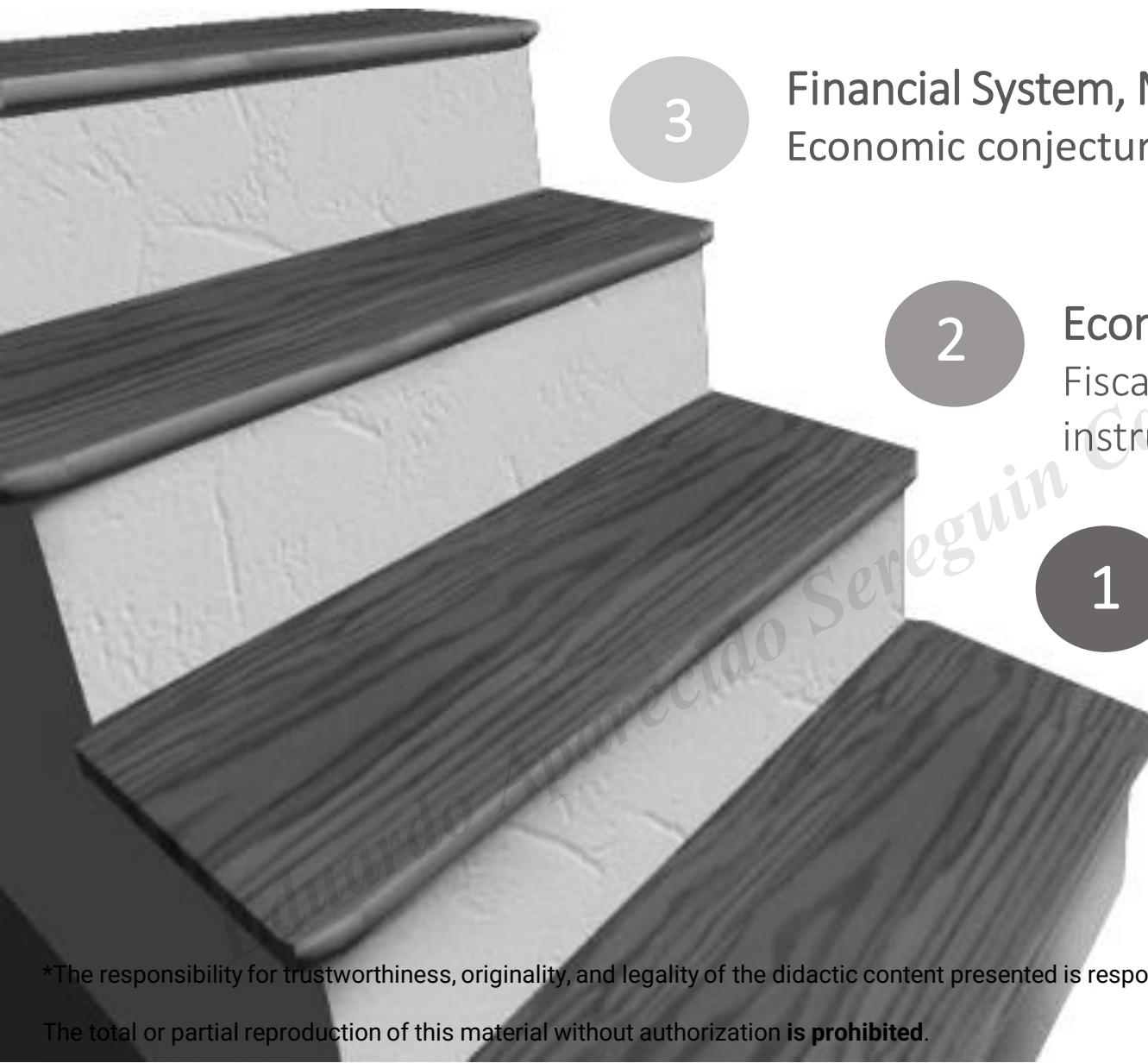


Clearly understanding some cause and effect relations in economic situation and economic policies; and



Think on the relationship between economic environment and the context of business management in different markets and organizations subject to disruptive technologies.

# Organization of the Subject in 3 Class



3

Financial System, Markets and Economic Environment (09/27)  
Economic conjecture analysis and projection of scenarios

2

Economic Policy Principles (09/27)  
Fiscal, Monetary, Exchange, and their instruments

1

Fundamentals on Activity Level (09/20)  
GDP, Inflation, Unemployment, and their indexes

Introduction to Economic Analysis  
Preamble and some usual definitions

\*The responsibility for trustworthiness, originality, and legality of the didactic content presented is responsibility of the professor.

The total or partial reproduction of this material without authorization is prohibited.



# Before the 1st step, our floor!

## Introduction to Economic Analysis: Preamble and some usual definitions

# Macroenvironment and Economics

Political Environment

Economic Environment

Social Environment

Technological Environment

Eco-environment

Legal Environment



# Macroenvironment Analysis (Pestel)

<b>P</b> Fatores político	Instabilidade política	Falta de liderança	Falta de legitimidade do governo
<b>E</b> Fatores econômicos	Tributação	Aumento da taxa de juros	Volatilidade da taxa de câmbio
<b>S</b> Fatores sociais	Aumento da população de idosos	Maior migração para o interior do país	Aumento da população com nível superior
<b>T</b> Fatores tecnológicos	Novas tecnologias de comunicação	Novos modelos de negócio	Aumento da velocidade da internet
<b>E</b> Fatores ecológicos	Grandes períodos de estiagem	Perda da cobertura vegetal	Leis ambientais mais rígidas
<b>L</b> Fatores legais	Extrateritorialidade de leis	Novas leis anticorrupção	Novas leis relacionadas com comércio exterior

# Elements of Economic Analysis

---

1. Economic Environment

Microeconomic Analysis: agents and market

**Macroeconomic Analysis: aggregates and policies**

2. Approach Type

**Conjunctural:** short/medium term, oscillations in the panorama

**Structural:** long-term, changes in the economy base

3. Toolbox

**Concepts:** usual definitions in economics

**Models:** operationalization of economic concepts for analysis.

**Indexes:** numeric expressions (rates, indicators etc.) that express the economy.

# Initial Difficulties of Economic Analysis

---

Not knowing the  
Economic  
Gobbledygook



+

Complexity of cause and  
effect relations in economics.



=

Appearance/perception  
Complication!



# Economic Gobbledygook & Business Analysis



## Crescimento do PIB brasileiro em 2022 sobe de 1,4% a 2%, prevê IFI

Por outro lado, para 2023, a entidade reduziu a estimativa para o crescimento econômico de 0,7% para 0,6%, afetada pelo aumento de juros

veja

RADAR RADAR ECONÔMICO POLÍTICA ECONOMIA SAÚDE MUNDO CULTURA PLACAR AGENDA VERDE

Economia

## Inflação desacelera, mas medidas do governo podem ter curto impacto

Os sinais de respiro são ótima notícia para o país. No entanto, há dúvidas sobre a sustentabilidade da estratégia, que periga resultar em efeitos colaterais



## Taxa de desemprego cai para 9,3% no 2º trimestre, diz IBGE

É o menor percentual desde dezembro de 2015; desocupação atinge 10,1 milhões de pessoas

ECONOMÊS

**(...) despite the gradual popularization of the economy**

## **BBB 21' e a Curva de Phillips: entenda a teoria econômica citada por Gilberto que viralizou nas redes**

Economista que se livrou do último paredão citou conceito para explicar a relação entre moeda, desemprego e alta dos preços

Carolina Nalin

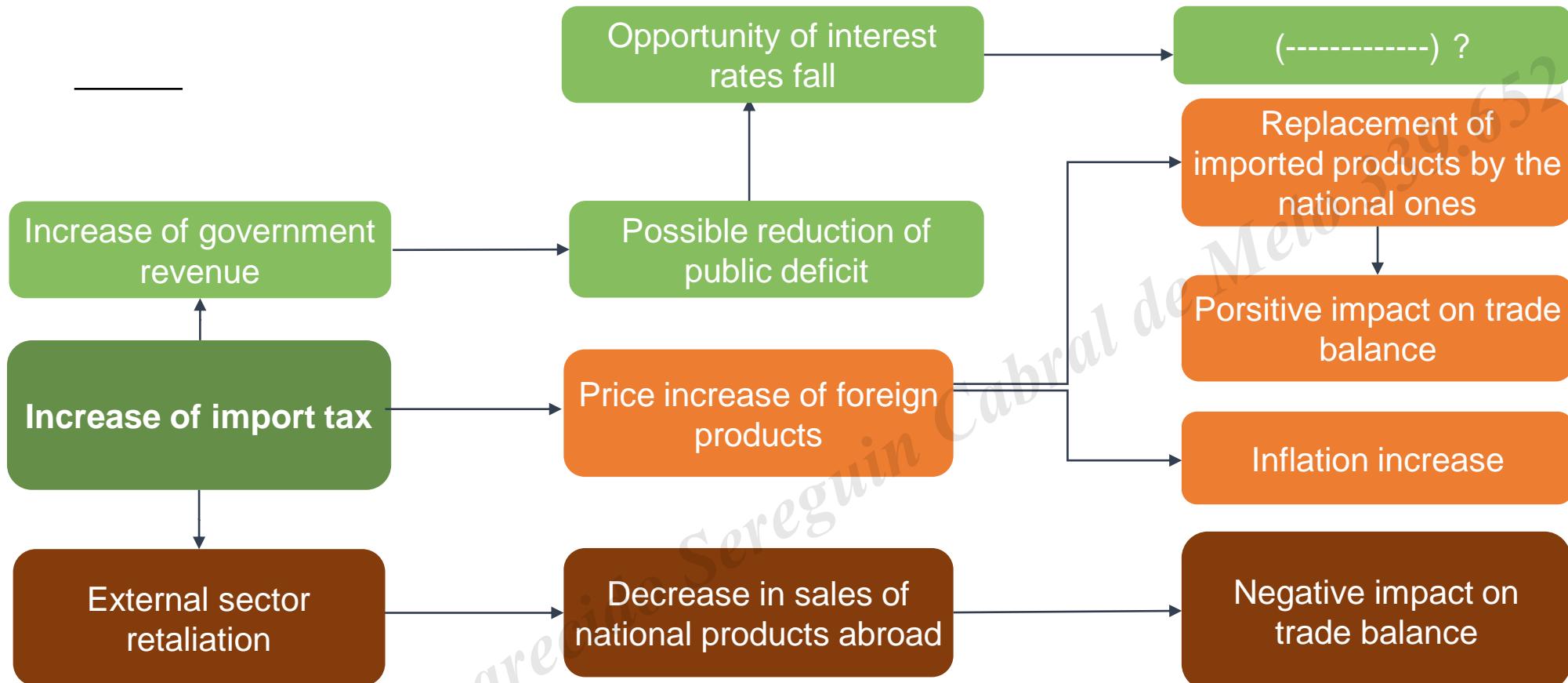
28/02/2021 - 18:21 / Atualizado em 24/02/2021 - 11:26



Economista Gilberto Nogueira, participante do 'BBB21', explica teoria macroeconômica Foto: Reprodução / TV Globo

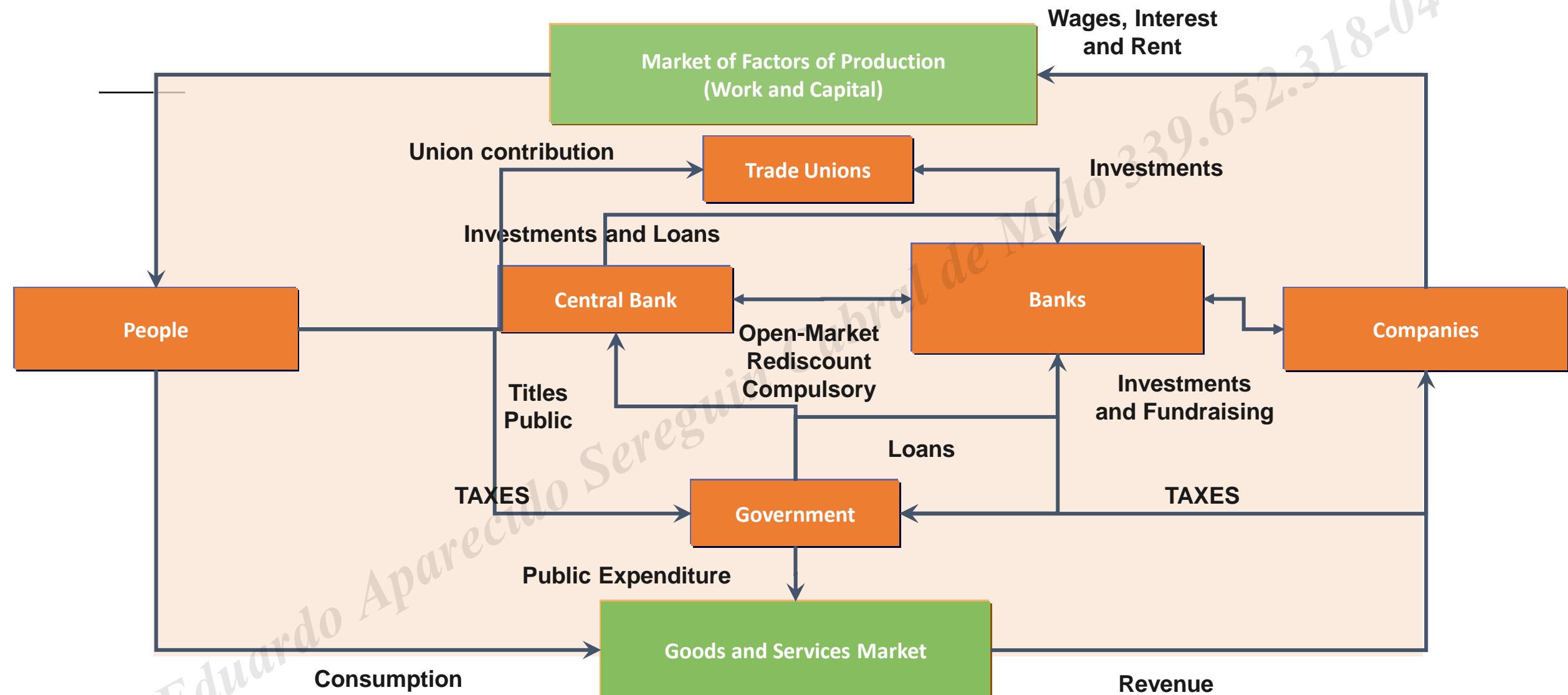


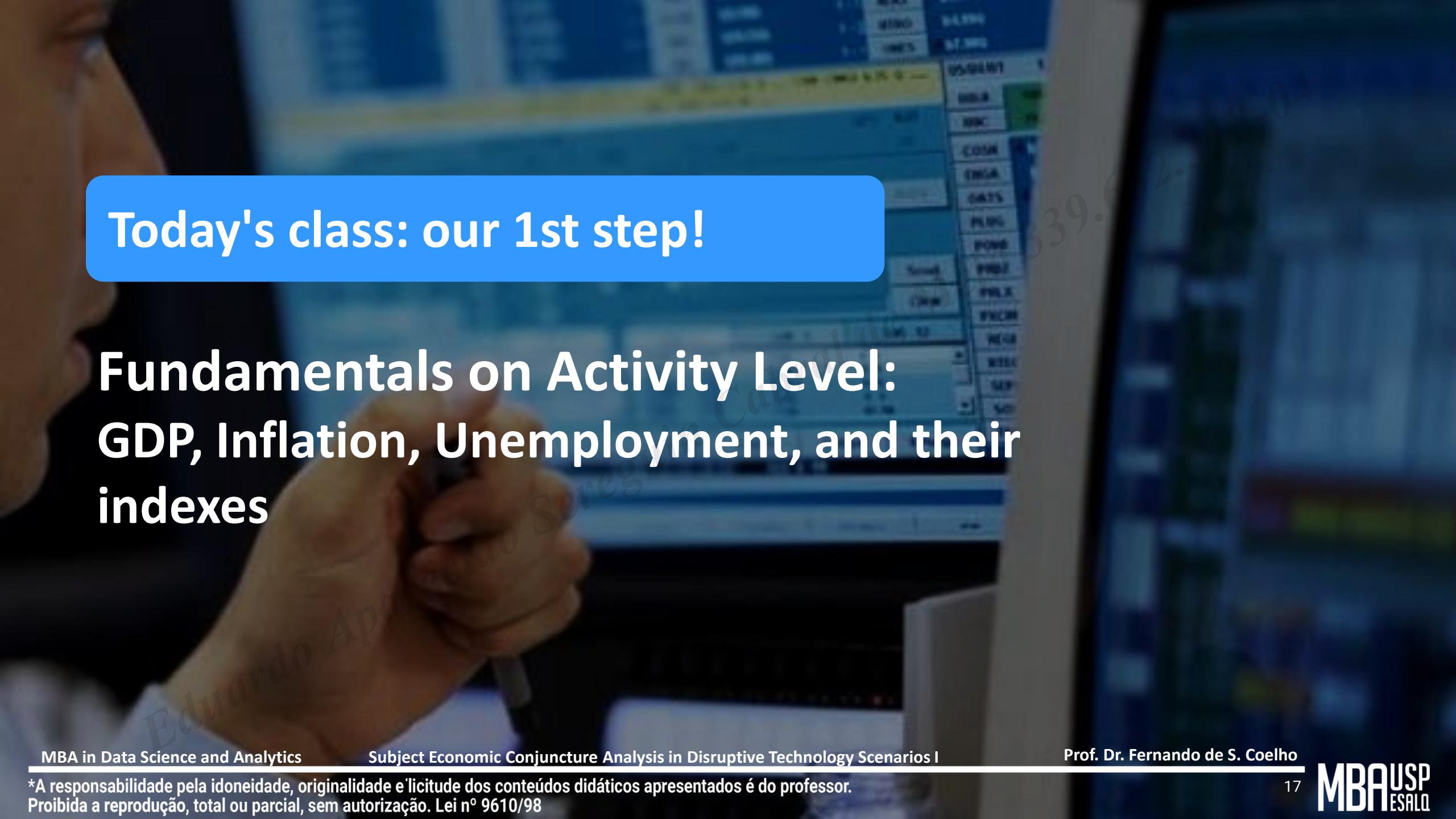
# The Complexity of the Cause and Effect Relations



Know the terms and know "two sides of the same coin", that is, the trade-off!

# Illustrating the Economy: the circular flow of income – agents and markets

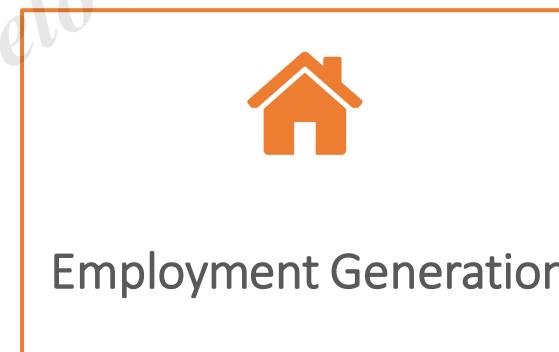




Today's class: our 1st step!

# Fundamentals on Activity Level: GDP, Inflation, Unemployment, and their indexes

# Economically, countries aim for:



Activity Level

Indicator: GDP

Indicator: Inflation Rate

Indicator: Unemployment Rate

# What is GDP?

---

It is the approximate measure of income generation of an economy in a given period of time.

Express in monetary value the total of **goods and services** produced within the geographical limits of a territory (country, region, state or municipality).

Synthetic indicator of an economy, as well as a thermometer of aggregate income flow (do not confound with the wealth stock).



# GDP: operationalizing the concept in a model\*

$$GDP = C + I + G + (Ex - Im)$$

Consumption  
Investment  
**Government expenditure**  
Export  
Import

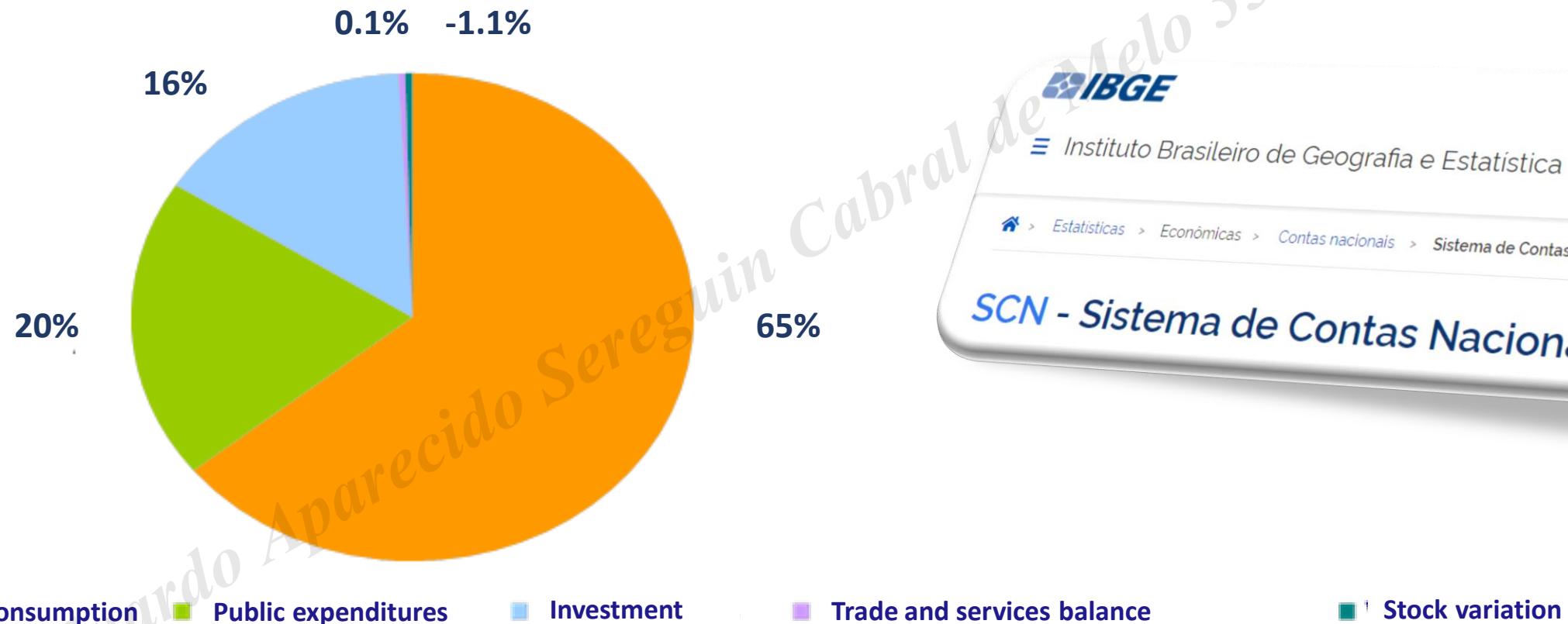
\*The point of the GDP of expenditure

Similarly, there are the points of supply/production and income

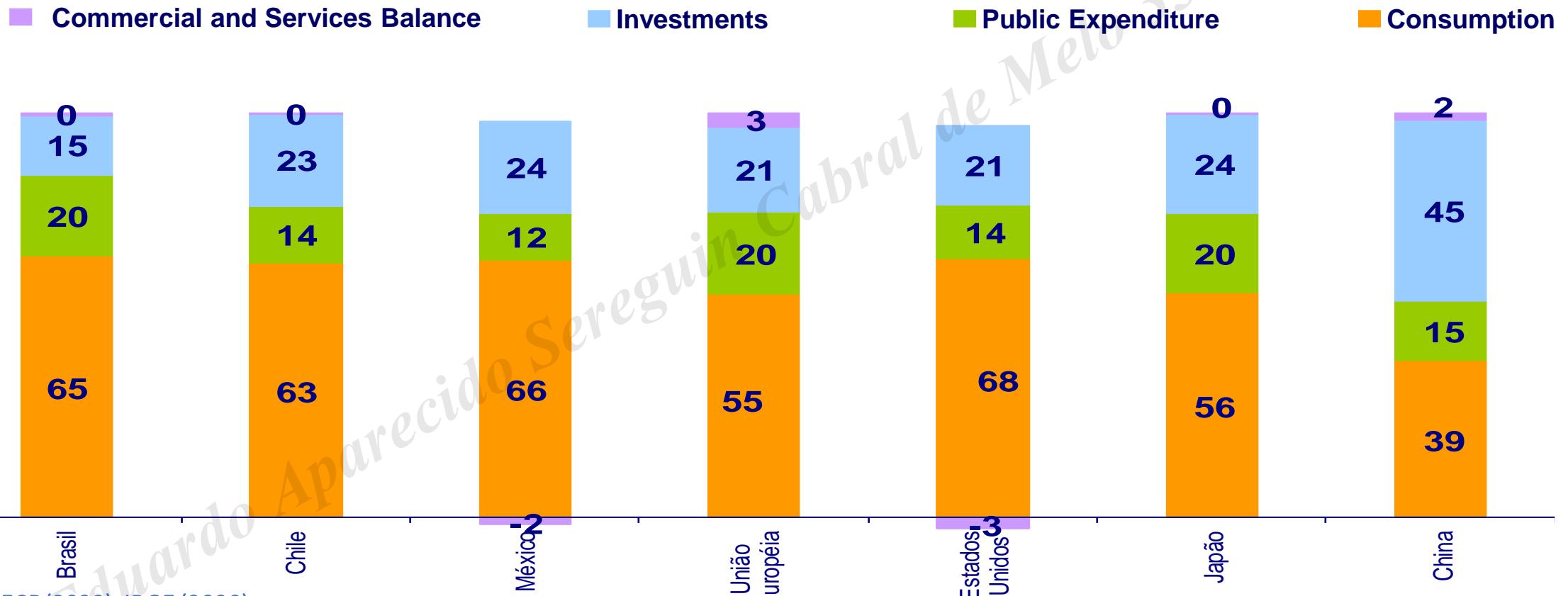
For more information: <https://www.ibge.gov.br/explica/pib.php>

# GDP of Brazil: the point of expenditure

Example: Brazilian economy in a recent year -2020.  
(GDP around R\$ 7.3 trillion)

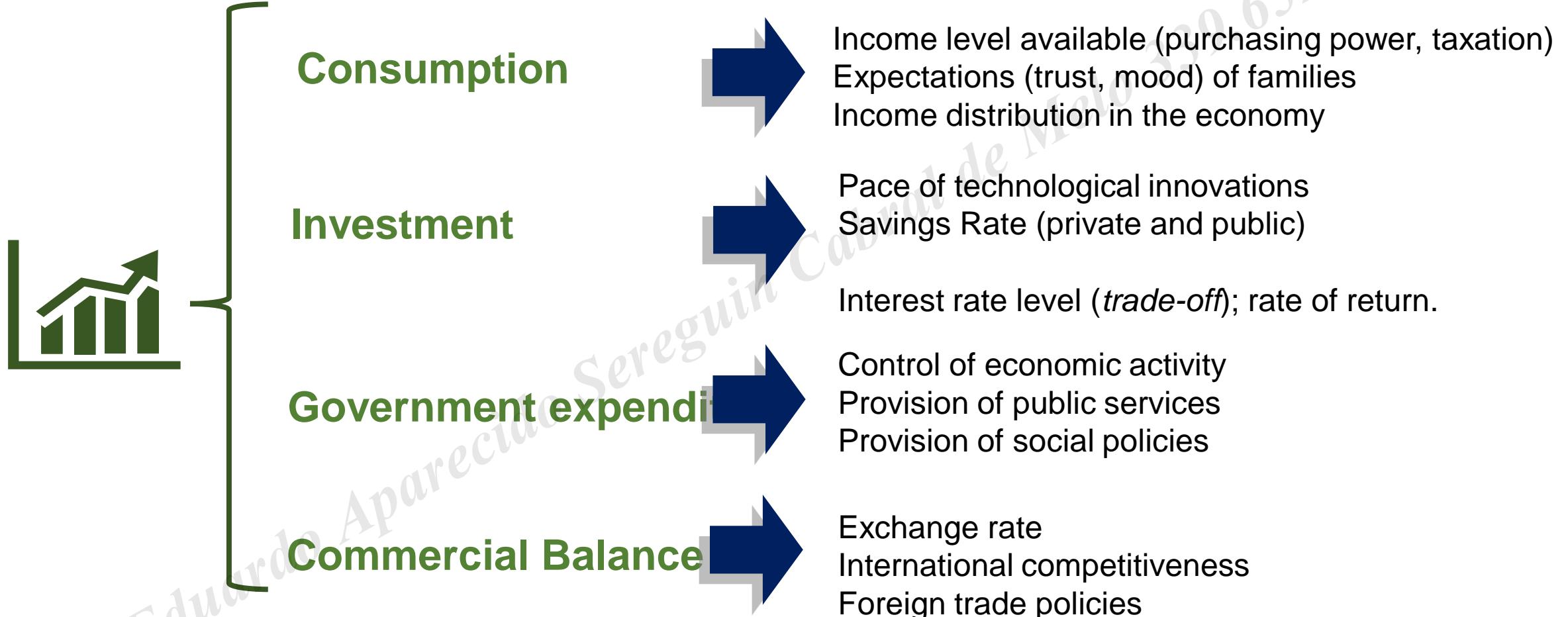


# Standard of the GDP in some countries/regions by the point of expenditure/demand



Source: OECD(2020); IBGE (2020)

# GDP components and its impact factors

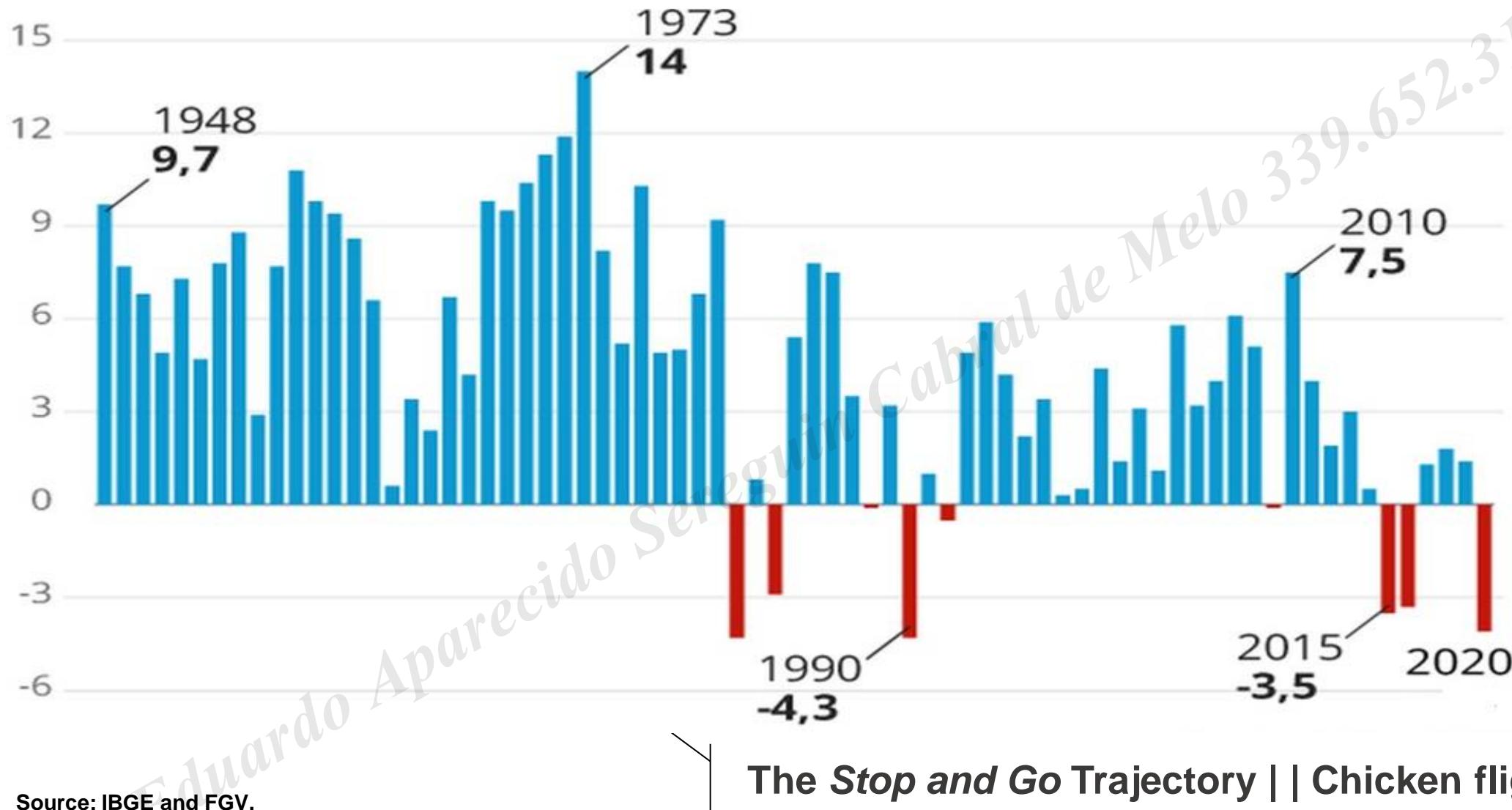


# Attention 1 – Quarterly GDP calculation and result by different points

Comparison Period	Indicators						
	GDP	AGRO	INDUS	SERV	FBCF	CONS. FAM	CONS. GOV
Quarterly / previous quarterly (with seasonal adjust)	1,2%	0,5%	2,2%	1,3%	4,8%	2,6%	-0,9%
Quarterly / same quarterly as the previous one (without seasonal adjust)	3,2%	-2,5%	1,9%	4,5%	1,5%	5,3%	0,7%
Accumulates in four quarterly / same period as the previous year (without seasonal adjust)	2,6%	-5,5%	0,1%	4,3%	3,5%	3,4%	2,5%
Current values in the second quarterly (R\$)	2,4 trilhões	167,7 bilhões	475,6 bilhões	1,4 trilhão	448,6 bilhões	1,5 trilhão	440,5 bilhões
Taxa de investimento (FBCF/PIB) no 2º trimestre de 2022 = 18,7%							

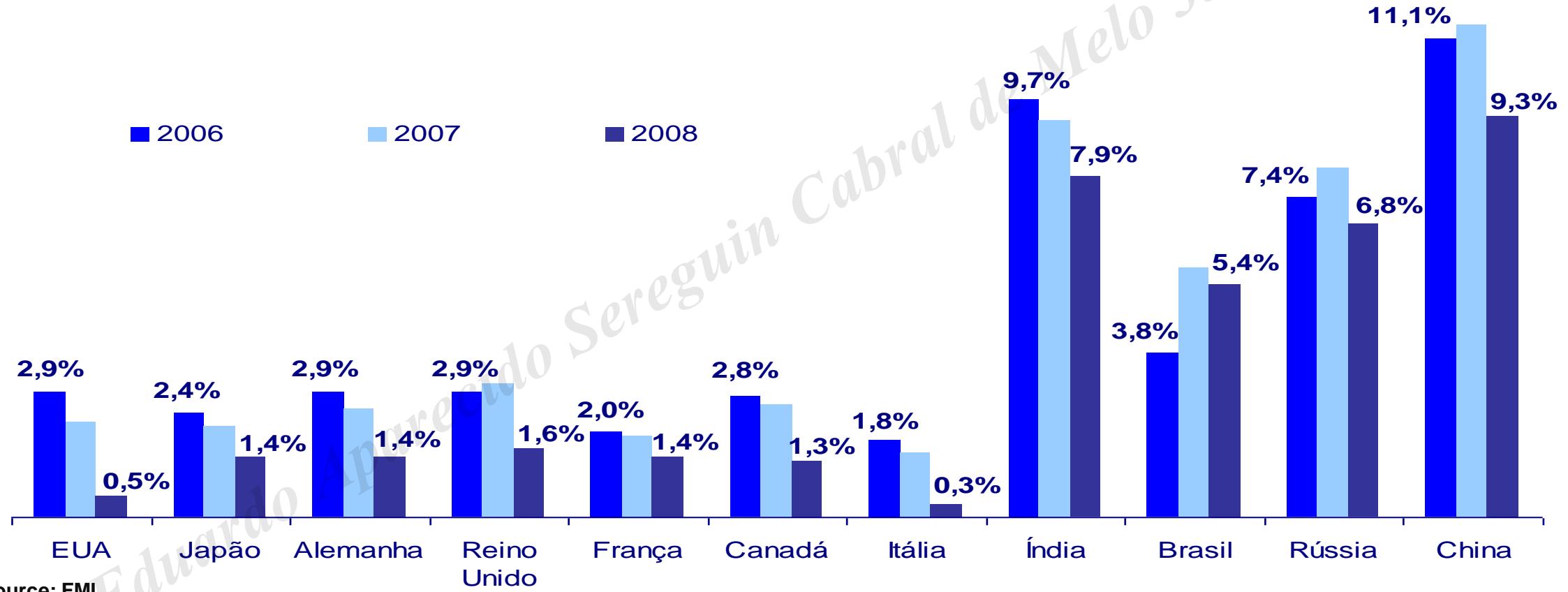
Source: IBGE

## Attention 2 – Brazil: erratic trajectory of GDP growth (%)



Source: IBGE and FGV.

# Attention 3 – GDP growth rate: developed countries versus developing countries (a sample between the boom and the crisis: 2006-2008)



Source: FMI

# GDP performance in Brazil in recent years

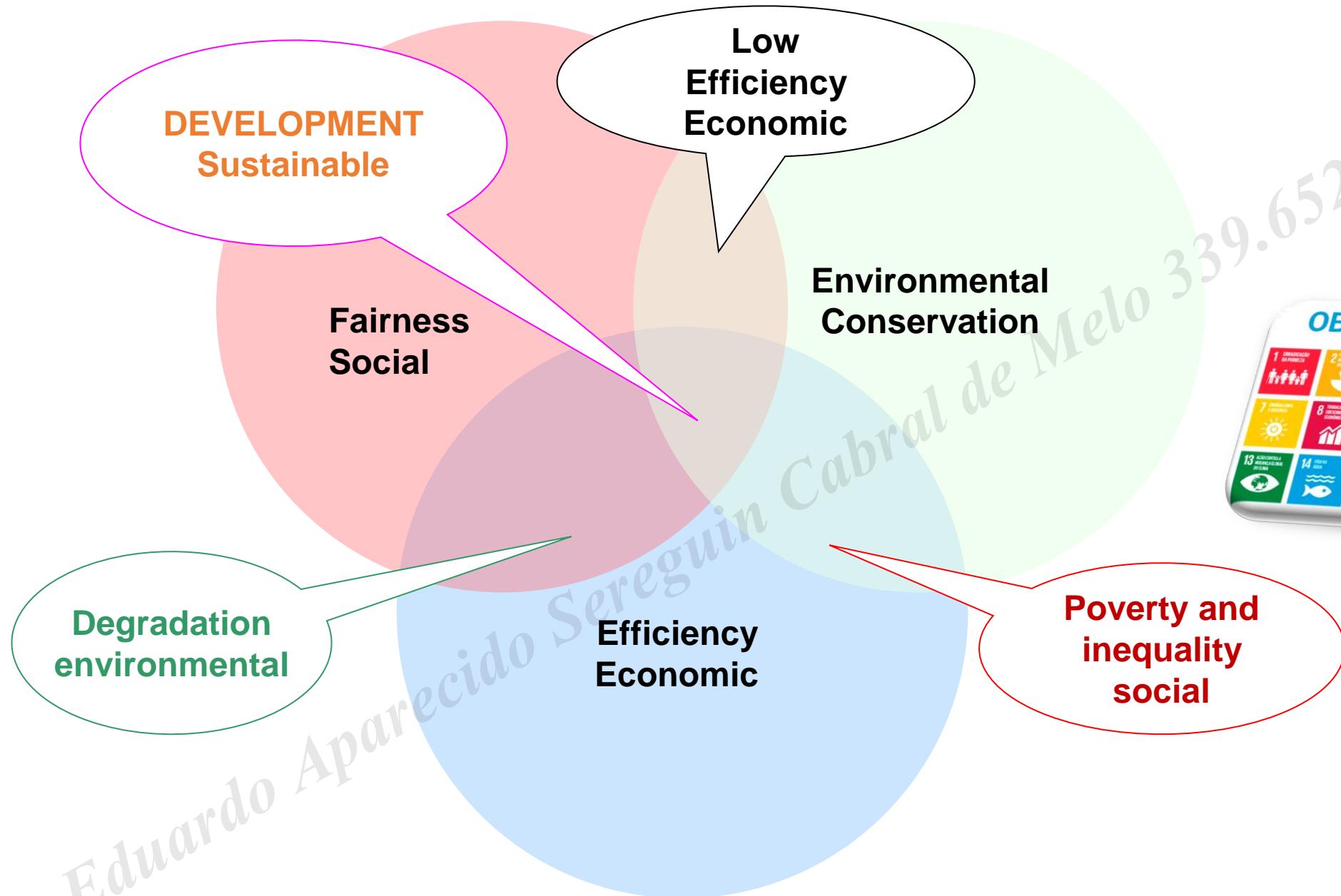
Brasil	2015	2016	2017	2018	2019	2020	2021	2022P
<b>PIB</b>								
GDP real growth - %	-3,5	-3,3	1,3	1,8	1,2	-3,9	4,6	2,4
Nominal GDP – BRL bi	5.996	6.269	6.585	7.004	7.389	7.468	8.679	9.727
Nominal GDP – USD bi	1.800	1.798	2.063	1.916	1.872	1.447	1.609	1.875
Population – Million	203,5	205,2	206,8	208,5	210,1	211,8	213,3	214,8
GDP per capita - USD	8.847	8.764	9.977	9.189	8.910	6.834	7.541	8.730
 <ul style="list-style-type: none"><li>Oscillation of the real growth rate in the period; see how it was low, when the numbers did not decreased.</li><li>Value of the nominal GDP in BRL increased year by year (since it is not deflated).</li><li>Value of nominal GDP in USD varied according to the exchange rate</li><li>GDP per capita depends on population estimation</li></ul>								

Source: IBGE and Boletim Focus

# Attention: growth ≠ development



- **economic growth** is necessary, but it is not sufficient for **socioeconomic development**;
- therefore, **development** is not restricted to **growth!**
- Multidimensionality of **the development** from the end of the 20th century.
- Observe, for example, the concept of **sustainable development | SDGs**.
- With the indicators of **development, quality of life and income distribution**, such as **ID/PNUD, IPQV/IBGE and Gini Index**.



# Review: first learning of this class:

---

- What is a macroeconomic conjuncture analysis
- GDP as an economic growth indicator
- The perspective of expenditure -  $GDP = C + I + G + (Ex - Im)$
- The impact factors of each component of GDP
- Difference between economic growth and development
- HDI as an indicator for thinking of development



## Survey 1: applying the class knowledge

---

**Which of the factors below is plausible to explain the NEGATIVE growth rate of -3,9% of the Brazilian GDP in 2020?**

- (A) Decrease of families' available income
- (B) Stabilization of productive investments
- (C) Increment of exchange devaluation
- (D) Increase of current government expenditure



# Survey 1: answers and interpretation

---

**Which of the factors below is plausible to explain the NEGATIVE growth rate of Brazilian GDP of -3,9% per year in 2020?**

- (A) Decrease of families' available income
- (B) Stabilization of productive investments
- (C) Increment of exchange devaluation
- (D) Increase of current government expenditure

$$\text{GDP} = C + I + G + (Ex - Im)$$



# What is Inflation and what are the types?

Inflation: the increase in the price level of an economy.

## Demand-pull inflation

- Wage level
- Credit availability
- Means of Payment

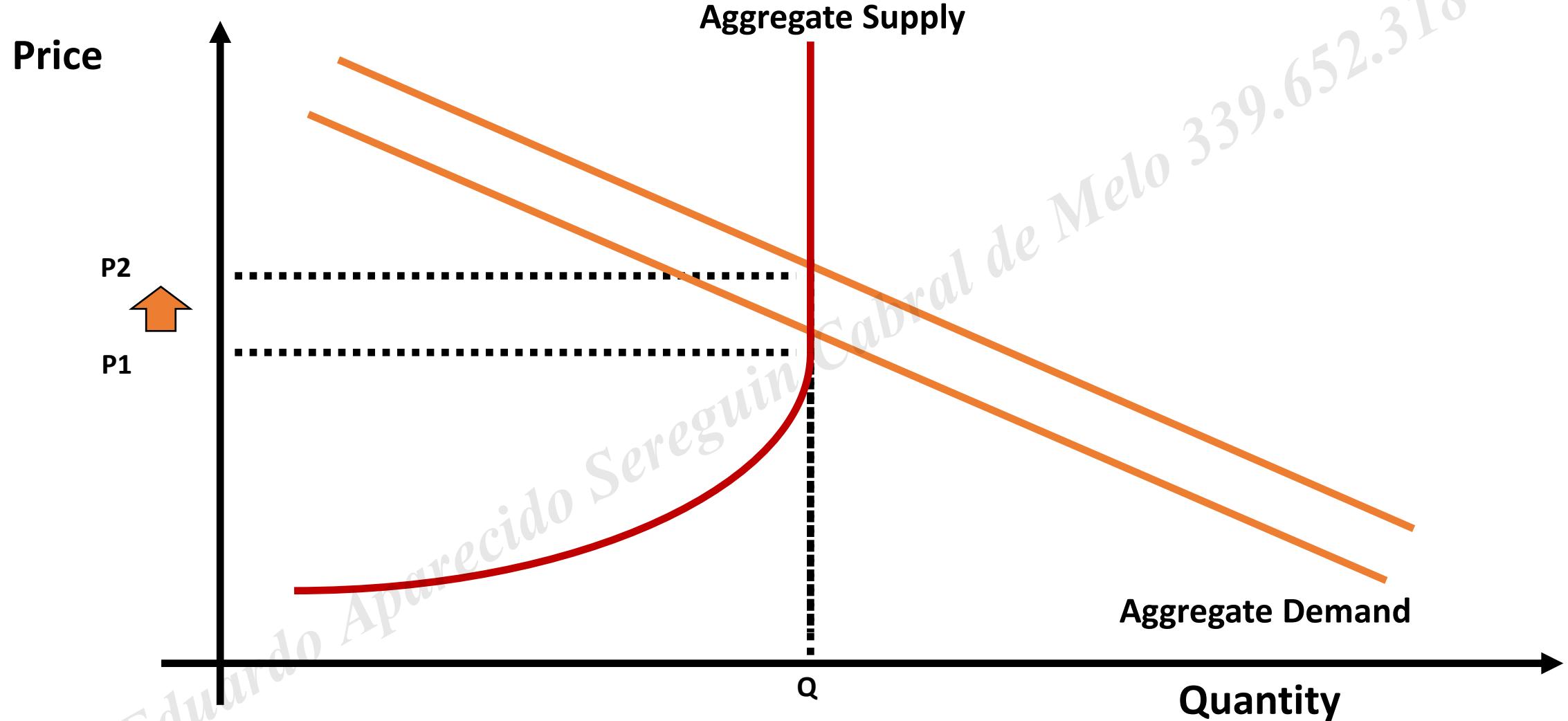
## Cost-Push Inflation

- Supply shock (-)
- Administered prices
- Cost of prod./adm.

## Inertial Inflation

- Inertial inflation
- Expectation of agents
- Economy indexing

# Demand-pull Inflation: illustration



# Cost-push Inflation: two examples

Example 1



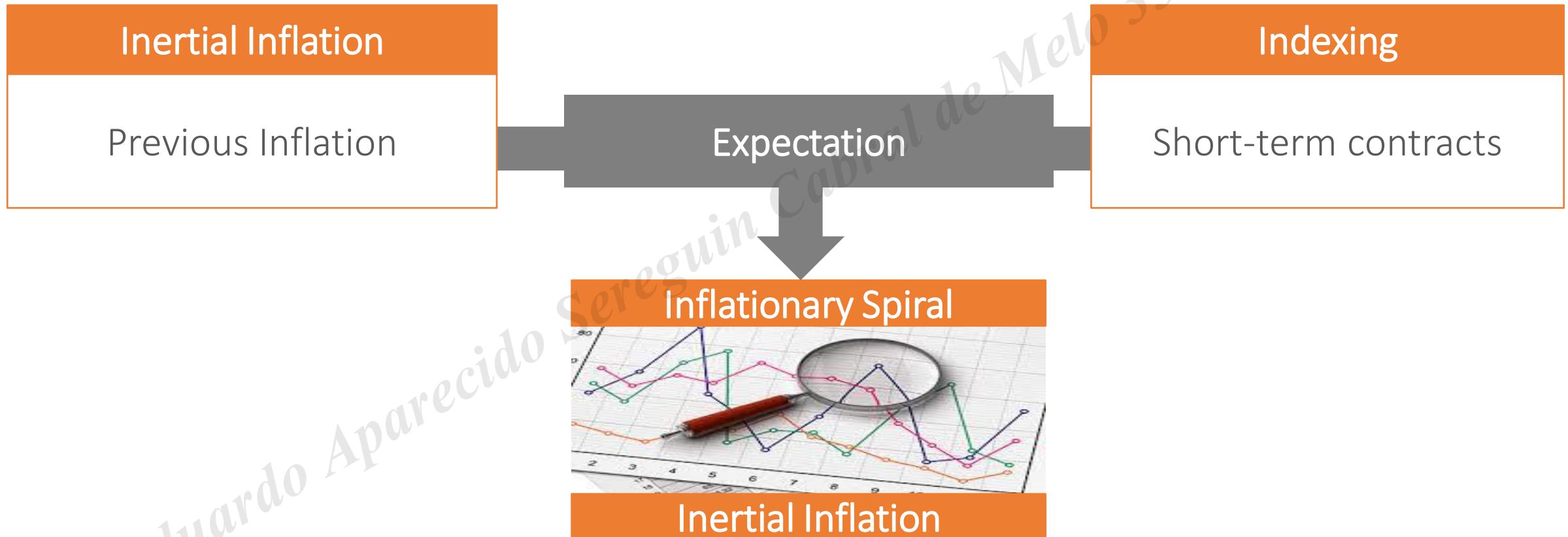
Example 2



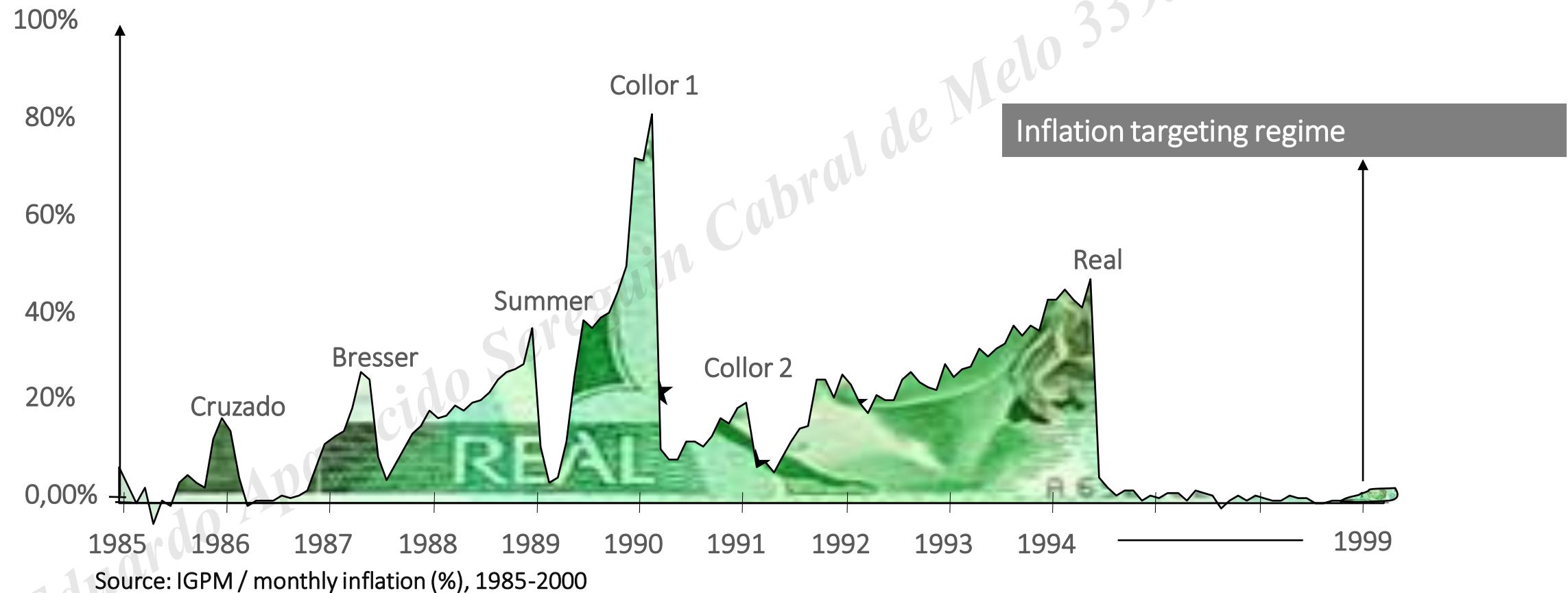
Brazil (2019/2020), increase of the meat price.  
Supply shock (-), for the increase of exports.

Brazil (2021), official inflation was 10.06%.  
 $\Delta$  of prices administered by the government

# Inertial Inflation: explanation of the phenomenon



# Contemporary Brazil: hyperinflation to control



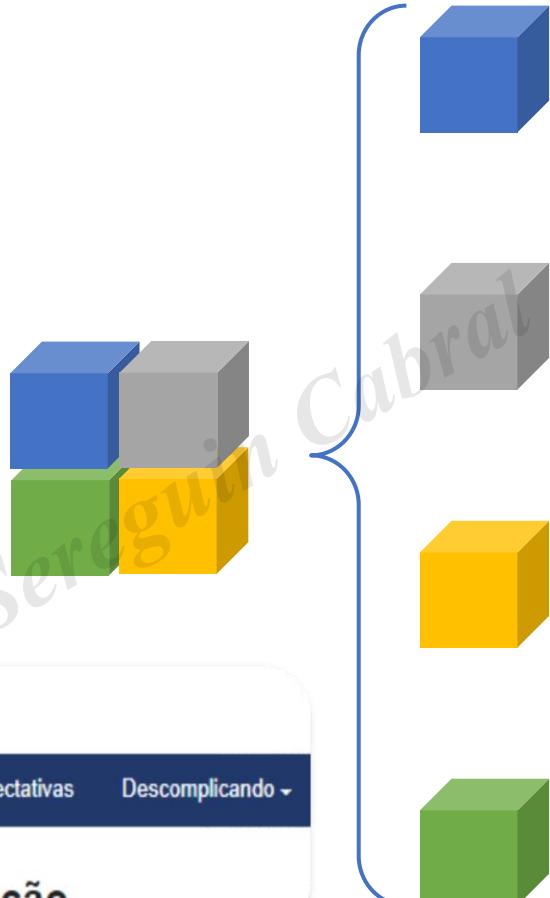
# Brazil: the main consumer price index

For more information: <https://portal-da-inflacao-ibre.fgv.br/#/>



Painel da Inflação Análise da Inflação Índices FGV Sua Inflação Expectativas Descomplicando

Portal da Inflação



**IPCA - IBGE**

Usage: Inflation targeting

**IGPM - FGV**

Usage: Contracts

**IPC - FIPE**

Usage: SP Taxes

**ICV - DIEESE**

Usage: Wage Agreements

# Inflation in Brazil in recent years

Brasil	2015	2016	2017	2018	2019	2020	2021	2022P
<b>Inflation</b>								
IPCA - %	10,7	6,3	2,9	3,7	4,3	4,5	10,1	6,4
IGP-M - %	10,5	7,2	-0,5	7,5	7,3	23,1	17,8	9,6

• Difference of methodology between IPCA and IGP-M  
• Use of official inflation alternative to IGPM for contract review during the pandemic  
• Inflation goal: it was 4% in 2020, 3.75% for 2021 and 3.5% for 2022.  
• IPCA (Extended National Consumer Price Index) : 4.4% in the year (Jan-Aug); 8.7% in the last 12 months.  
• Deflation in the last bimester of 2022: July: - 0.68% | August: -0.36%

Source: IBGE and Boletim Focus

# Survey 1: applying the class knowledge

---

**What explains the inflation rate within the goal of inflation in the quadrennium 2017-2020 (2.9%, 3.7%, 4.3% and 4.5%, respectively)?**

- (A) Reduction of inertial inflation
- (B) Decrease in credit supply for consumers
- (C) Non-adjustment of prices administered by the government
- (D) Low aggregate demand of families for goods and services



## Survey 2: answers and interpretation

---

**What explains the inflation rate within the goal of inflation in the quadrennium 2017-2020 (2.9%, 3.7%, 4.3% and 4.5%, respectively)?**

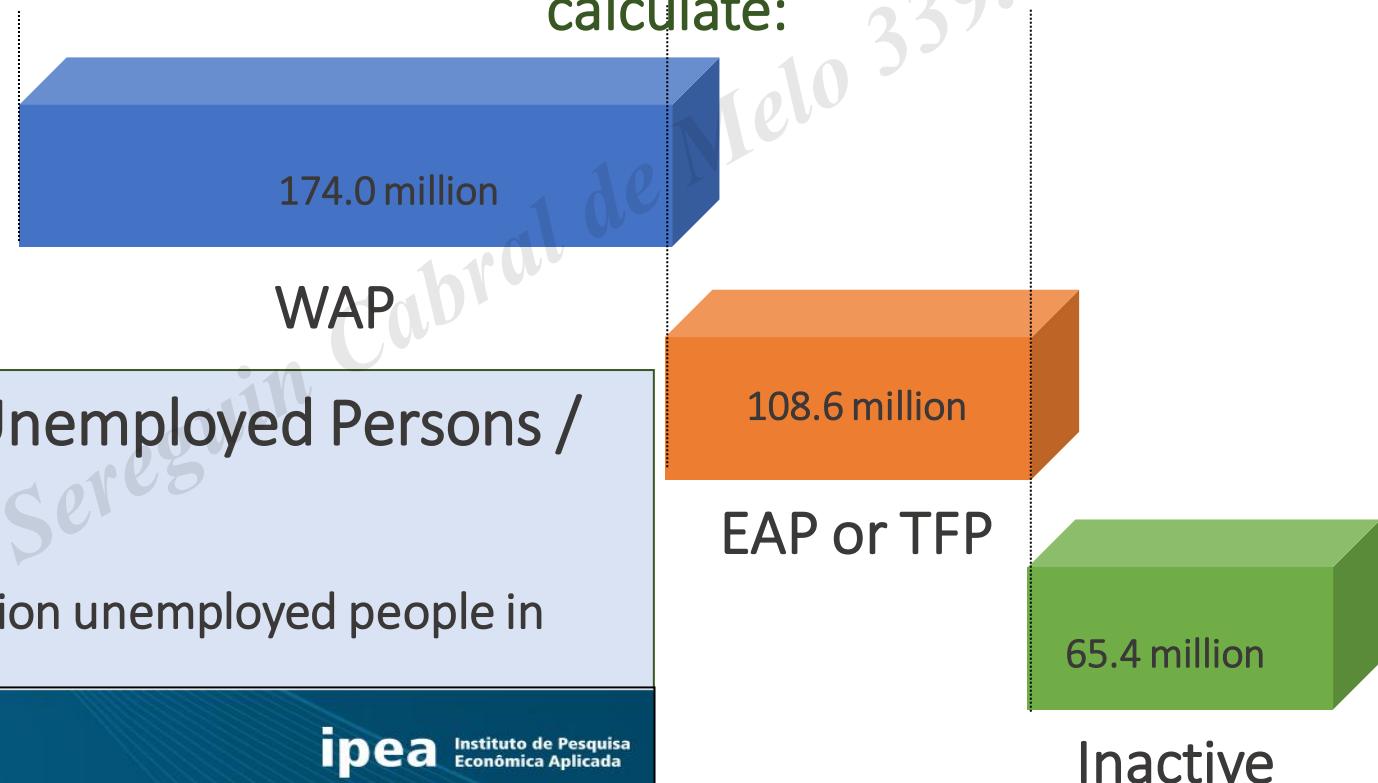
- (A) Reduction of inertial inflation
- (B) Decrease in credit supply for consumers
- (C) Non-adjustment of prices administered by the government
- (D) Low aggregate demand of families for goods and services

How did the Central Bank (Bacen) seek to stimulate the economy in the occasion?



# Labour Market and Unemployment Rate

From the total population of the country (214 million), we calculate:



Unemployment Rate = No. of Unemployed Persons /  
EAP

Brazil (2nd tri. 2022): 9.1%, with 9.9 million unemployed people in  
EAP. 98.7 million are occupied

Carta de Conjuntura

ipea Instituto de Pesquisa  
Econômica Aplicada

Visão Geral Indicadores Ipea Atividade Econômica Mercado de Trabalho Inflação Setor Externo Moeda e Crédito Finanças Públicas Economia Mundial Agropecuária Equipe



# Unemployment Types: concept and types

## Friction

- Incompatibilities (...)
- Information Asymmetry
- Rotational

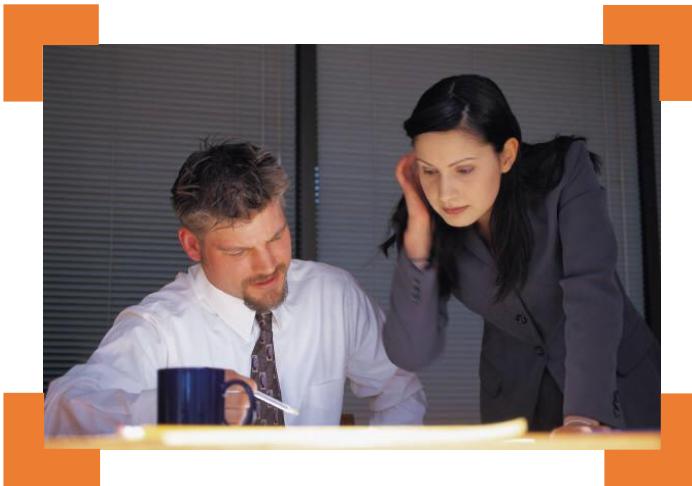
## Conjuncture

- Economic crisis
- Seasonality
- External shock

## Structure

- Agricultural mechanics
- Industrial automation
- Artificial intelligence

# Brazil: unemployment rates



Continuous PNAD - IBGE



PED – DIEESE/SEADE

## Methodology:

- Pop. Working Age Population (PIA): 14 years
- Unoccupied: unoccupied, available
- 211 thousand households in 3,500 municipalities
- Around 2000 interviewers, by phone
- Quarterly Average (month data with the two months previous)



# Unemployment in Brazil in the last years

## Brasil

	2015	2016	2017	2018	2019	2020	2021	2022P
<b>Mercado de Trabalho</b>								
Unemployment national rate – annual average (*)	8,6	11,6	12,8	12,4	12,0	13,8	13,2	9,5
Unemployment national rate – end of year (*)	9,7	12,8	12,5	12,4	11,7	14,9	11,8	9,1

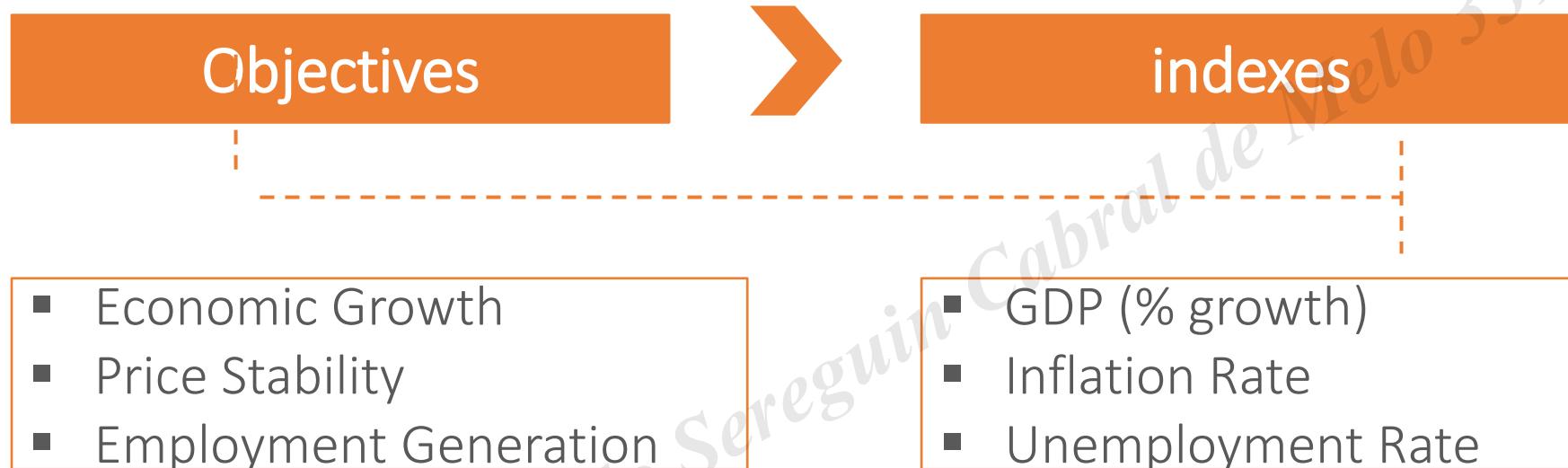
In addition to the unemployment rate, it is essential to analyze:

- **Participation rate:** 62 % of WAP with discouragement rate around 4.2 million people
- **Average income:** Approximately R\$ 2,693.00 (nominal increase of 6% and real decrease of 5.1%) and profile of the created jobs.
- **Formality rate:** 60% (43.4 million with employment record book, 12 million public servers and 4.3 million employees)
- **Informality rate:** 40 % (13.1 million people without employment record book and 25.9 million people on their own)
- **Under occupation of the Workforce (by insufficient hours):** 6.5 million workers
- **Underutilization rate:** 20.6 million (unemployed + underoccupied + discouraged) + without availability: 6.5 million.

Source: IBGE and PNAD Contínua (segundo trimestre de 2022)

# In summary: the level of activity of an economy

---



# Macroeconomy & Business Environment

## Macroeconomy: activity level | economic policies

Recent Past



Current Conjuncture



Future Scenarios

### Sector, Markets and Organizations



Plan



Objectives



Actions

# Brazil: Activity Level projection 2022 (base August 31)



GDP (% growth)

Projection 2022

**2.4% (market); and 2.5% (government)**

(Average) Unemployment Rate

**9.5% (average); 9.0% (end of year)**

Inflation rate

**IPCA: 6.4% (3.5% CMN inflation targeting);  
IGPM: 9.6%**

Assumptions



# Economic Problems and its *trade-off* !?



**How to promote economic growth without risking prices stability ( considering the inflation in the last 18 months)?**

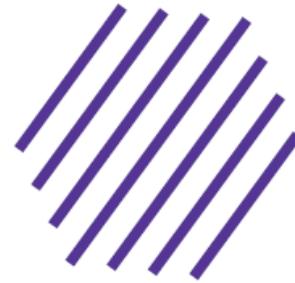
**How to determine the country interest rate in 2022/2, considering a neutral rate (or equilibrium rate)?**

**How to balance government revenue and expenditure facing social demands after the pandemic?**

**Finally, these are economic policy matters, the theme of our today's class.**

# Thank you very much for your attention during the class!

---



DATA SCIENCE  
AND ANALYTICS



[www.facebook.com/fernandosouzacoelho](https://www.facebook.com/fernandosouzacoelho)

I see you on September 27, in our class 2.