Production and Income II

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Please Read Me

- Check the message **Welcome greeting** published in the News Bulletin Board.

- Dear student please edit your profile uploading a photo where your face is clearly visible.

- The purpose of the virtual meetings is to answer questions and not to make a summary of the study material.

- This presentation is based on (Cárdenas Santamaría et al. 2013, Chapter 2)

Purpose

Understand how production is measured using the concept of Gross Domestic Product (GDP)

Inflation adjustments in GPD

- Initially the Gross Domestic Product is expressed in current Local Currency Units (LCU) which is the sum of monetary values

- A particular monetary value is the product of a quantity and a unit price

- A change in the level of Gross Domestic Product, measure in current LCU, is a combination of changes in quantities and prices

  - Inflation adjustments, applied to GDP, **try** to eliminate the changes of prices

  - There are 2 approaches to make inflation adjustments (ABS 2003):

    - **Constant price estimates**
    - **Chain volume measures**

Inflation adjustments in GPD

- **Chain volume measures** is the alternative used by the Departamento Administrativo Nacional de Estadística (DANE) to make inflation adjustments
    - A gentle introduction to this approach is explained in (ABS 2003)
    - The monetary values adjusted using **chain volume measures** are not additive. This means that the sum of the components of an aggregate is not necessarily equal to the aggregate
        - In addition to the values adjusted using **chain volume measures**, DANE reports a value known as statistical discrepancy because of non additivity

Inflation adjustments in GPD

- Expenditure/Final demand approach using chain volume measures and expressed in thousands of millions (Colombia)

Concepto	2015	2019[a]	2020[b]
Gasto de consumo final	670201	755028	725740
Gasto de consumo final individual de los hogares y las ISFLH[c]	551013	613001	578589
Gasto de consumo final del gobierno general	119188	142152	147365
Formación bruta de capital	191305	194743	155169
Exportaciones	125936	133714	109228
Importaciones	182750	202250	167264
Producto interno bruto	804692	882029	822088
Discrepancia estadística	0	794	-785

Source: DANE - Cuentas Nacionales Anuales - Producto Interno Bruto (PIB) - Series encadenadas de volumen con año de referencia 2015

Last update: 2021-05-14

[a] Provisional data

[b] Preliminary data

[c] Instituciones sin fines de lucro que sirven a los hogares

Inflation adjustments in GPD

- Expenditure/Final demand approach using current prices and expressed in thousands of millions (Colombia)

Concepto	2015	2019[a]	2020[b]
Gasto de consumo final	670201	894601	878562
Gasto de consumo final individual de los hogares y las ISFLH[c]	551013	727394	700870
Gasto de consumo final del gobierno general	119188	167207	177691
Formación bruta de capital	191305	228240	190663
Exportaciones	125936	168212	135609
Importaciones	182750	229934	201911
Producto interno bruto	804692	1061119	1002922

Source: DANE - Cuentas Nacionales Anuales - Producto Interno Bruto (PIB) - Precios corrientes
Last update: 2021-05-14
[a] Provisional data
[b] Preliminary data
[c] Instituciones sin fines de lucro que sirven a los hogares

Economics sectors and GDP

- ISIC adapted for Colombia (DANE 2020, p 85)

Section	Division	Description
A	01-03	Agricultura, ganadería, caza, silvicultura y pesca
B	05-09	Explotación de minas y canteras
C	10-33	Industrias manufactureras
D	35	Suministro de electricidad, gas, vapor, y aire acondicionado
E	36-39	Distribución de agua; evacuación y tratamiento de aguas residuales, gestión de desechos y actividades de saneamiento ambiental
F	41-43	Construcción
G	45-47	Comercio al por mayor y al por menor; reparación de vehículos automotores y motocicletas
H	49-53	Transporte y almacenamiento
I	55-56	Alojamiento y servicios de comida
J	58-63	Información y comunicaciones
K	64-66	Actividades financieras y de seguros

Economics sectors and GDP

- ISIC adapted for Colombia (DANE 2020, p 85)

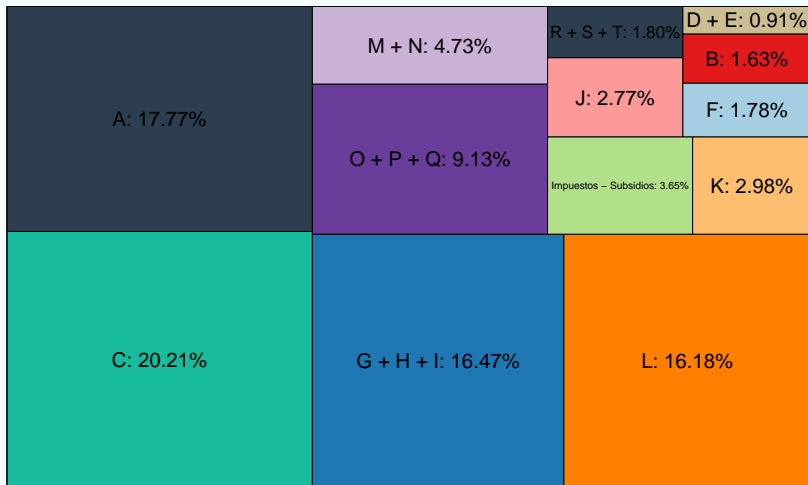| Section	Division	Description
L	68	Actividades inmobiliarias
M	69-75	Actividades profesionales, científicas y técnicas
N	77-82	Actividades de servicios administrativos y de poyo
O	84	Administración pública y defensa; planes de seguridad social de afiliación obligatoria
P	85	Educación
Q	86-88	Actividades de atención de la salud humana y de asistencia social
R	90-93	Actividades artísticas, de entretenimiento y recreación
S	94-96	Otras actividades de servicios
T	97-98	Actividades de los hogares en calidad de empleadores; actividades no diferenciadas de los hogares individuales como productores de bienes y servicios para uso propio
U	99	Actividades de organizaciones y entidades extraterritoriales[a]

[a] Because of extraterritoriality, in the context of international law, the production units that belong to this category are not part of the domestic territory

Economics sectors and GDP

Sectors and share in GDP for Colombia

Period: 1975
Observation: Monetary values at current prices are used because of chain volume measures non–additivity

A: 17.77%

M + N: 4.73%

R + S + T: 1.80%

D + E: 0.91%

B: 1.63%

J: 2.77%

F: 1.78%

O + P + Q: 9.13%

Impuestos – Subsidios: 3.65%
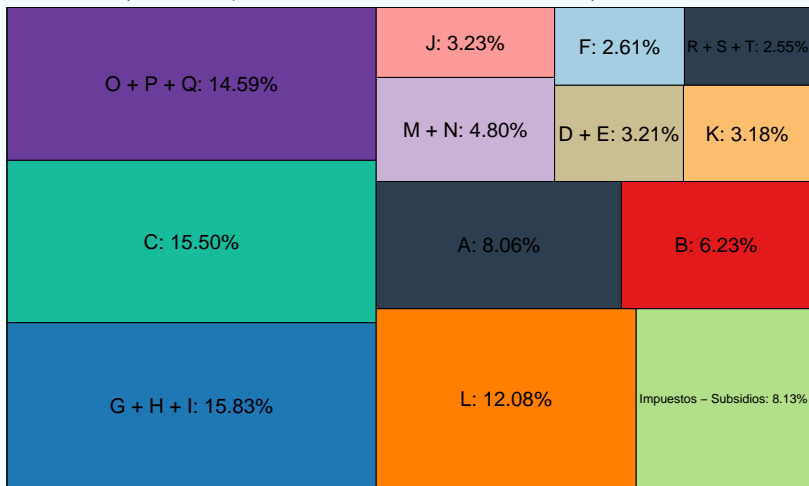
K: 2.98%

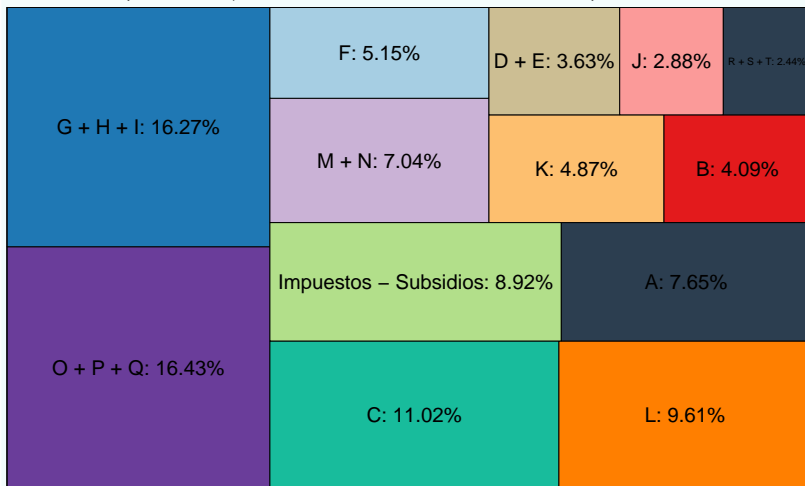C: 20.21%

G + H + I: 16.47%

L: 16.18%

Source: DANE – Cuentas Nacionales Anuales – Retropolación Base 2015 – PIB enfoque de la producción y del gasto a precios corrientes
Update: 2021–02–15

Economics sectors and GDP

Sectors and share in GDP for Colombia

Period: 2000
Observation: Monetary values at current prices are used because of chain volume measures non–additivity

O + P + Q: 14.59%

J: 3.23%

F: 2.61%

R + S + T: 2.55%

M + N: 4.80%

D + E: 3.21%

K: 3.18%

C: 15.50%

A: 8.06%

B: 6.23%

G + H + I: 15.83%

L: 12.08%

Impuestos – Subsidios: 8.13%

Source: DANE – Cuentas Nacionales Anuales – Retropolación Base 2015 – PIB enfoque de la producción y del gasto a precios corrientes
Update: 2021–02–15

Economics sectors and GDP

Sectors and share in GDP for Colombia

Period: 2020
Observation: Monetary values at current prices are used because of chain volume measures non–additivity

G + H + I: 16.27%

F: 5.15%

D + E: 3.63% J: 2.88% R + S + T: 2.44%

M + N: 7.04%

K: 4.87%

B: 4.09%

O + P + Q: 16.43%

Impuestos – Subsidios: 8.92%

A: 7.65%

C: 11.02%

L: 9.61%

Source: DANE – Cuentas Nacionales Anuales – Retropolación Base 2015 – PIB enfoque de la producción y del gasto a precios corrientes
Update: 2021–02–15

Macroeconomic identity

- Uses that firms, non-profit institutions, government bodies, households and the external sector give to production

$$
\begin{aligned}
\textbf{Demand}_t =& \text{Gasto de consumo final individual de los hogares y las ISFLH}_t + \\
& \text{Gasto de consumo final del gobierno general}_t + \\
& \text{Formación bruta de capital}_t + \\
& \text{Exportaciones}_t \\
=& C_t + G_t + I_t + X_t
\end{aligned}
$$

Macroeconomic identity

- Aggregate value generated by the production units in a territory, plus taxes minus subsidies on products, plus products produced outside the territory offered to the territory

$$
\begin{aligned}
\textbf{Supply}_t =& \text{Valor agregado bruto}_t + \\
& \text{Impuestos menos subvenciones sobre los productos}_t + \\
& \text{Importaciones}_t \\
=& \text{Producto interno bruto}_t + \\
& \text{Importaciones}_t \\
=& GDP_t + M_t
\end{aligned}
$$

Macroeconomic identity

$$\textbf{Supply}_t = \textbf{Demand}_t$$
$$GDP_t + M_t = C_t + G_t + I_t + X_t$$
$$GDP_t = (C_t + G_t + I_t) + (X_t - M_t)$$

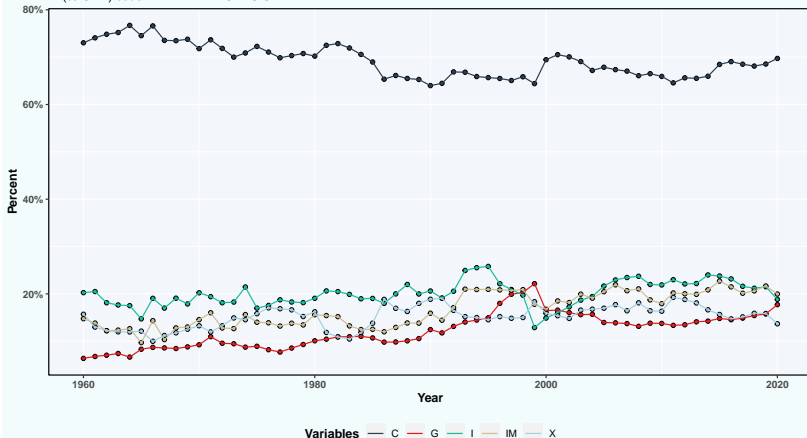# Macroeconomic identity

Share of GDP components in Colombia

C (% GDP) code WDI: NE.CON.PRVT.CN
G (% GDP) code WDI: NE.CON.GOVT.CN
I (% GDP) code WDI: NE.GDI.TOTL.CN
X (% GDP) code WDI: NE.EXP.GNFS.CN
M (% GDP) code WDI: NE.IMP.GNFS.CN

Variables — C — G — I — IM — X

Source: World Development Indicators (WDI) – World Bank
Last update date: 2021–07–30

Resource of interest

If you want a summary about the topic of Gross Domestic Product check out[1]:

- https://youtu.be/YXTjJSGWnsE

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[1]Banco de la República de Colombia - Cátedras de Macroeconomía y Banca Central

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References

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Cárdenas Santamaría, Mauricio, Roberto Junguito, Camilo García, and María Fernanda Rosales. 2013. *Introducción a La Economía Colombiana*. Bogotá, Colombia: Alfaomega.

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