



# Investment Matrix

## Gross Fixed Capital Formation

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# Agenda

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- I. Overview
- II. Sources of Information
- III. Methodology
- IV. Innovations CR2013
- V. Main Results
- VI. Concluding remarks



# I. Overview



# Gross Fixed Capital Formation

- ✓ *“Gross fixed capital formation is measured by the total value of a producer is acquisition, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of nonproduced assets”* ( System of National Accounts 2008, p.198).
- ✓ The SNA 2008 suggests different measurement focuses of this variable such as estimations by product, institutional sectors and also breakdown according to investor activity.



# The Current Framework

1977  
1986-  
1996



- **Publication of investment matrix**
  - In the framework of reference year project was published the investment matrix for 1977, 1986 and 1996.

2001 y  
2003



- **First studies of capital stock in the BCCh**
  - X.Aguilar (2001) provided series of capital stock for types of assets for the periods 1985–2000.
  - From 2003 investment information is available for every year.
  - J.Pérez (2003) incorporated new recommendations and sectorial perspective of investment and capital stock.

2008



- **New Series with reference 2008**
  - C.Henríquez (2008) provided the methodology of elaboration the investment matrixes and proposes improvements in the measurement of sectorial capital stock.

2016



- **Measurement of capital services.**
  - I.Fernández y P.Pinto (2016) Incorporate the last recommendations of the OECD (to be published).



# Investment data is available by economic activities

- Publication of investment Matrix is done for activities and assets:
  - with an opening of 48 assets and 111 activities → t+27 month.
  - With an opening of 4 assets and 11 activities → t+15 month.
- The information is published in **Yearbook of National Accounts** and in the **Statistical database** of the Bank (March of every year).
- Two versions are published: preliminary (n-2) and revised (n-3) at current and constant prices.
- Work is currently taking place to develop a quarterly indicator of a sectorial investment.



## II. Sources of Information



# Main Sources of information by assets.

Source	Institution	Contents
Cadastre of private investment projects	Corporación de Desarrollo Tecnológico de Bienes de Capital	Private investment projects
Planning permission or Building control	Instituto Nacional de Estadísticas	Planning permission or Building control
Surveys of engineering works	Banco Central de Chile	Engineering works
Imports of capital goods	Servicios Nacional de Aduanas	Value by importer id and tariff code





# Main Sources of information by economic activities.

Sources	Institution	Contents
Tax return form	Servicio de impuestos internos	Purchase and sale information for the total of companies in the country.
Financial statements: Financial corporations and general government	Superintendencia de Bancos e Instituciones Financieras y Contraloría General de la República	Integrated Economic Account by institutional sector, and estimate of the investment by the sector.
Financial statements: Non financial corporations	Superintendencia de Valores y Seguros	Estimate of the investment by the sector.
Annual Structural Surveys	Instituto Nacional de Estadísticas	Stocks, purchases and sales of fixed assets.
Annual Structural Surveys	Banco Central de Chile	Stocks, purchases and sales of fixed assets.



## III. Methodology



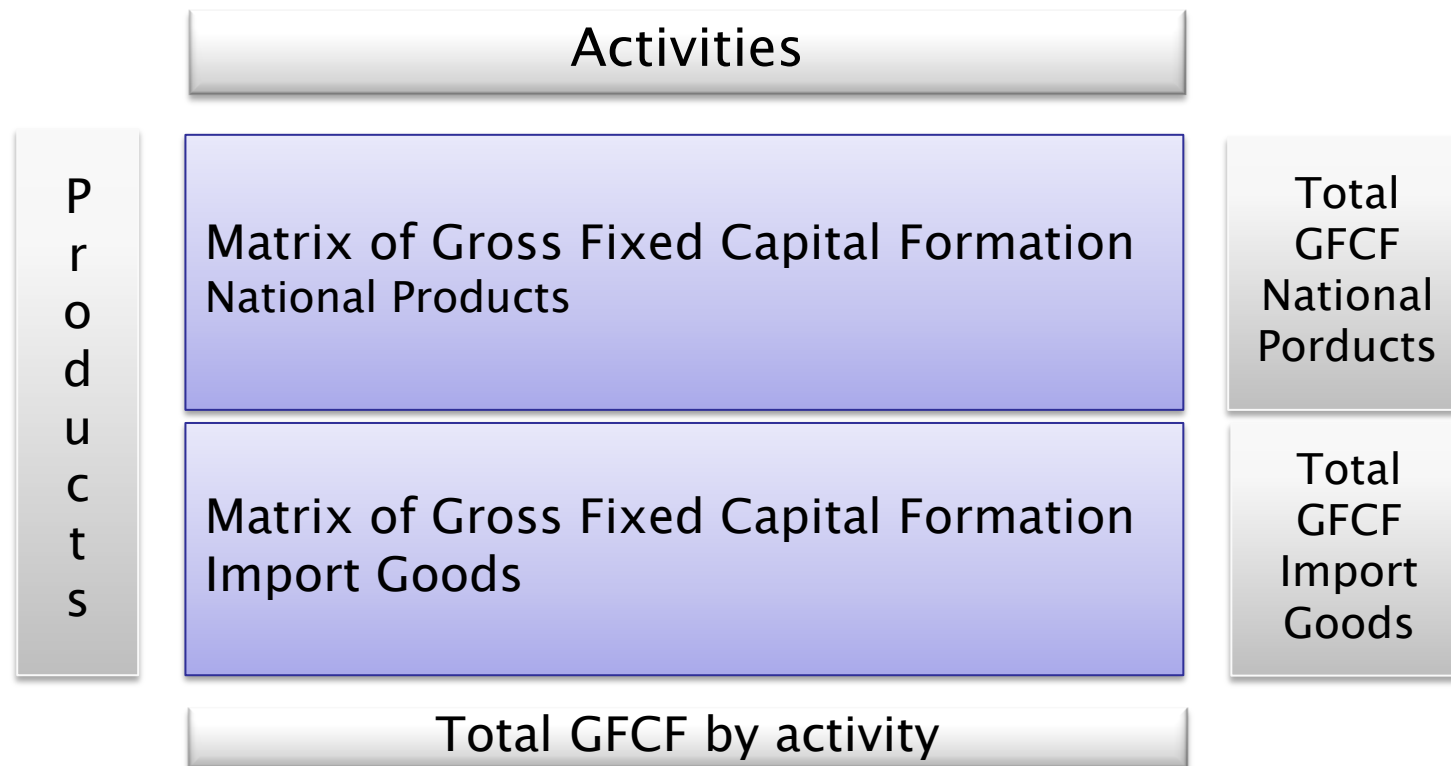
# Methodology

## ✓ General Methodology (CR2013)

- GFCF is estimated at a level of 159 economic activities for products classified as capital goods.
- Breakdown by activity is based on two criteria:
  - According to the investor's ID.
  - According to the objective of the good (specific and generic goods).
- The final result comes from the process of reconciling the different sources of information.



# Structure of Investment Matrix





# Methodology

## National Capital Goods

### *Construction:*

- Residential Building (houses–apart.)
- Nonresidential Building
- Engineering works (Road, ports)

### *Rest of national goods:*

- *Agriculture–Forestry–Fishery and Manufacturing products*  
(cattle, not native forest, vineyard)

## Imported Capital Goods

- Direct purchases: Without intermediation.
- Goods for resale: imported assets for trading.

## Estimations by activity

- Allocation of capital goods by specific use.
- Distribution structure for national and imported general goods.
  - Tax Declaration (revenue– fixed assets)
  - Financial statements (institutional sector: SNF, SF, Government)
  - Surveys (net investment– revenue).

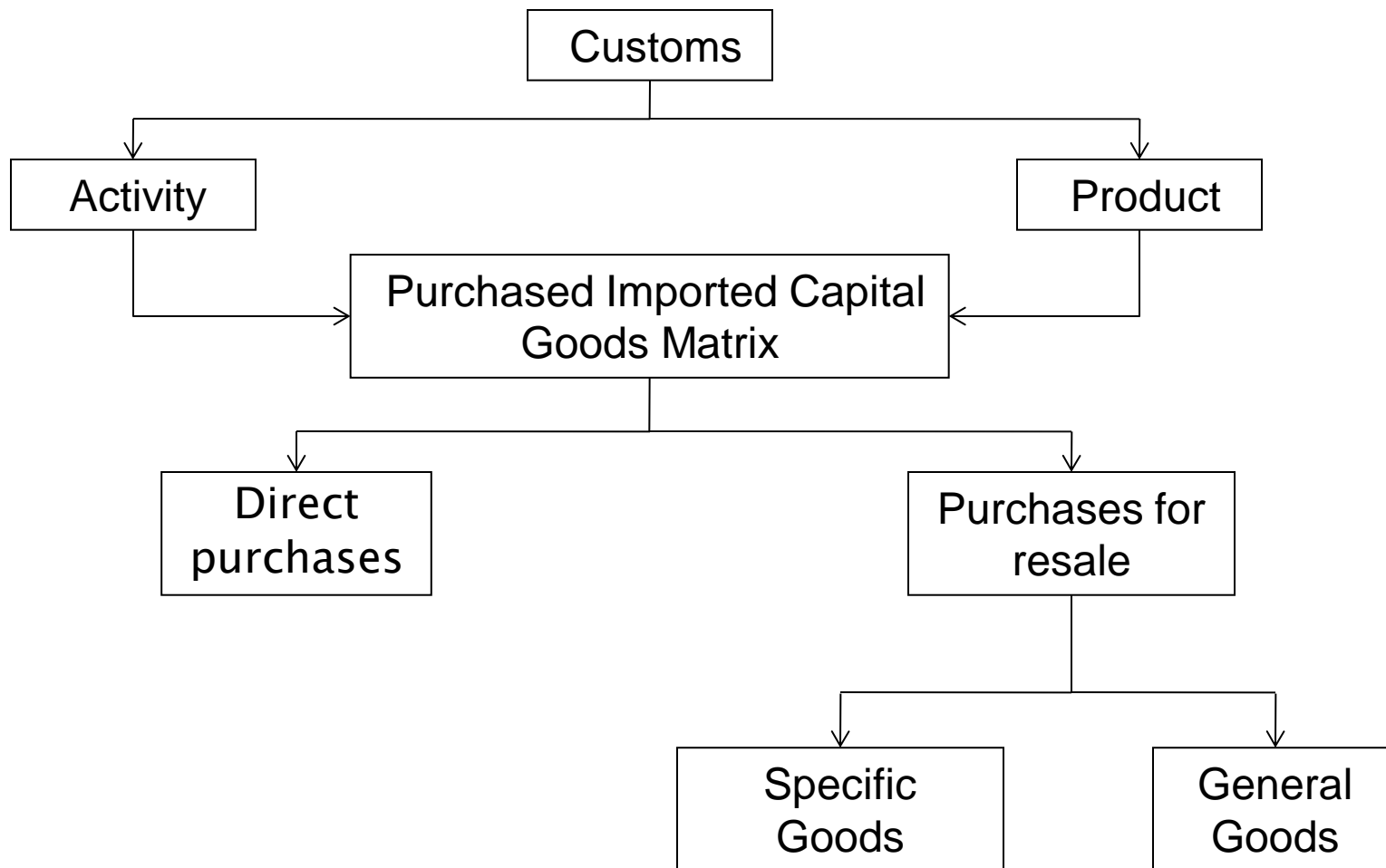
## Conciliation Process

- National and imported general goods are distributed (Example: Computers).
- The sectors are adjusted to the total of investment provided (Examples. SF – Government).
- The results are adjusted by activity to the total by products obtained from SUT.



# Distribution of imported capital goods

- ✓ Machinery and equipment imports





## IV. innovations



# Innovation and methodologic improvement: Inclusion of new products (services) considered as capital goods.

- ✓ The new measurement considers GFCF :
  - Research and Development Services
  
- ✓ The new measurement considers improvements in the following services:
  - Mining exploration and evaluation services.
  - Software Development Service
  - Specialized construction services
  - Real estate services
  - Architectural, engineering, scientific and technological services
  - Legal and accounting Services.





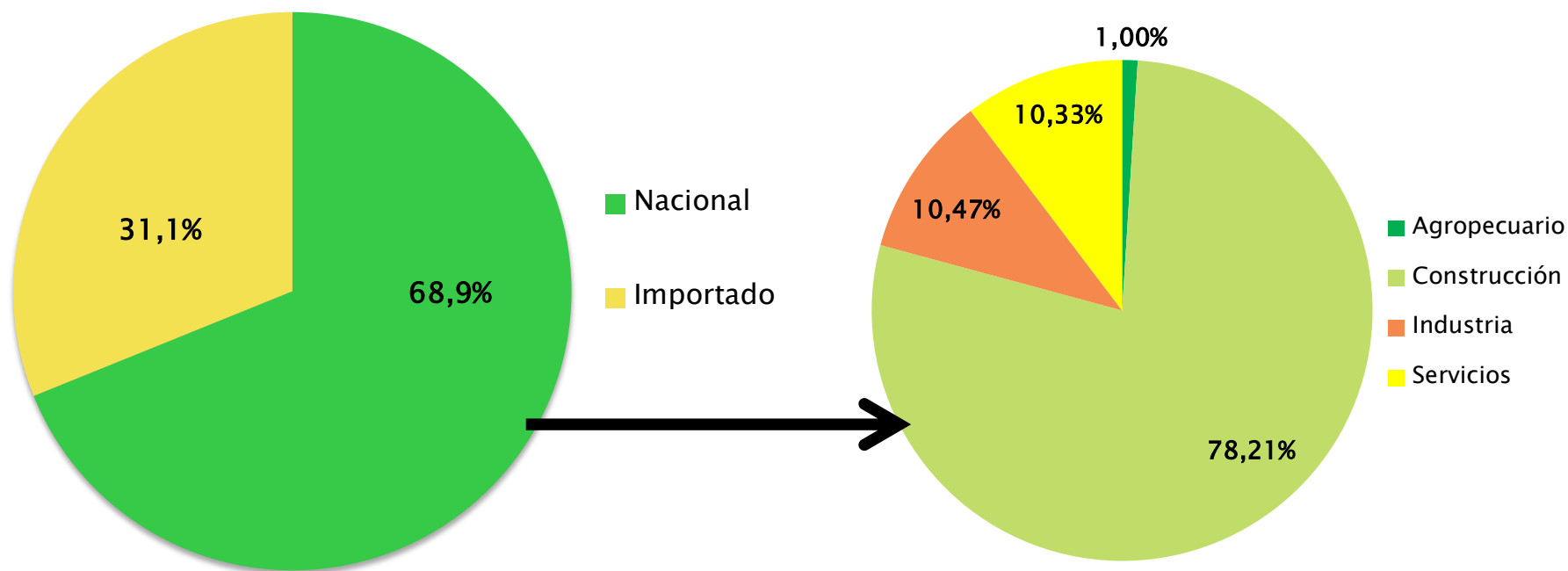
# V. Main Results



# In the year 2013, around one-third of the total investment of the economy was of national origin.

- Gross fixed capital formation represented on average 23% of GDP at current prices for the period 2008-2015.

**Gráfico 2.** Percentage composition of the investment by origin and type of goods.



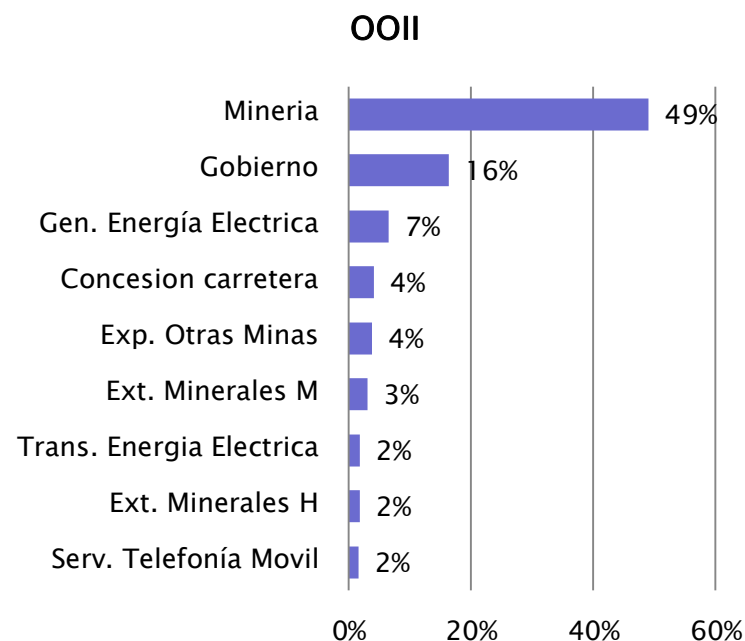
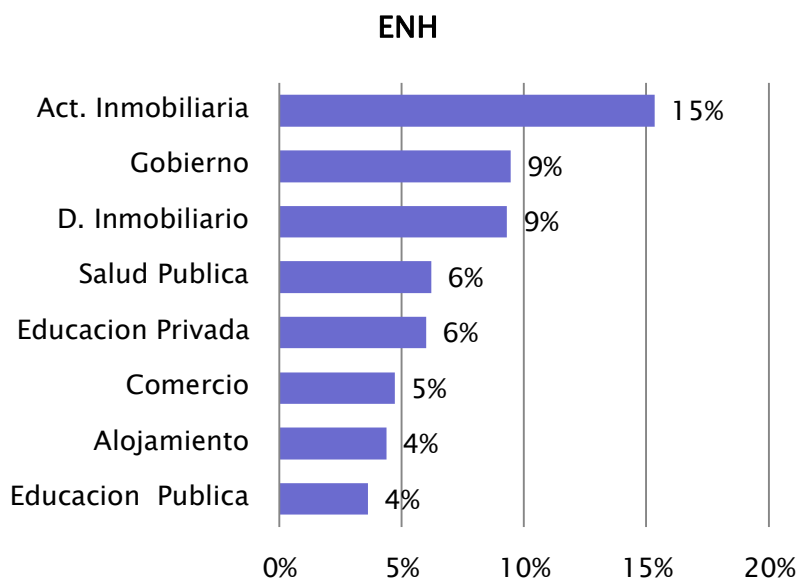


# The investment in construction represents 78% of the investment of national products, and the 54% of the total investment of the country.

## ✓ Construction

Tabla 1. Opening Gross fixed capital formation in construction, 2013.

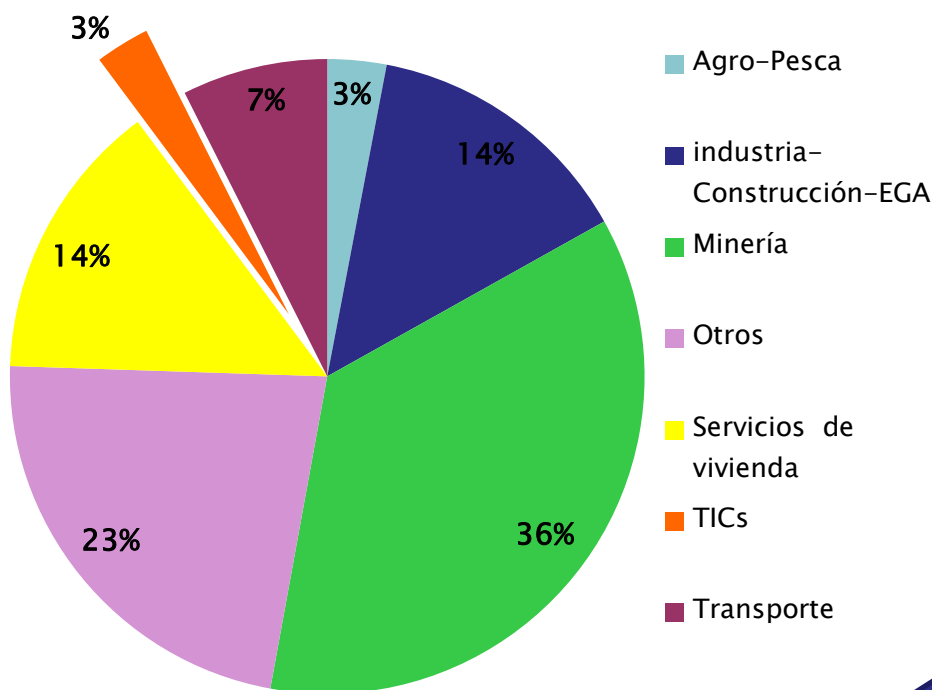
Residential building	Nonresidential Building	Engineering work	Construction services
24.36%	17.96%	38.70%	18.98%



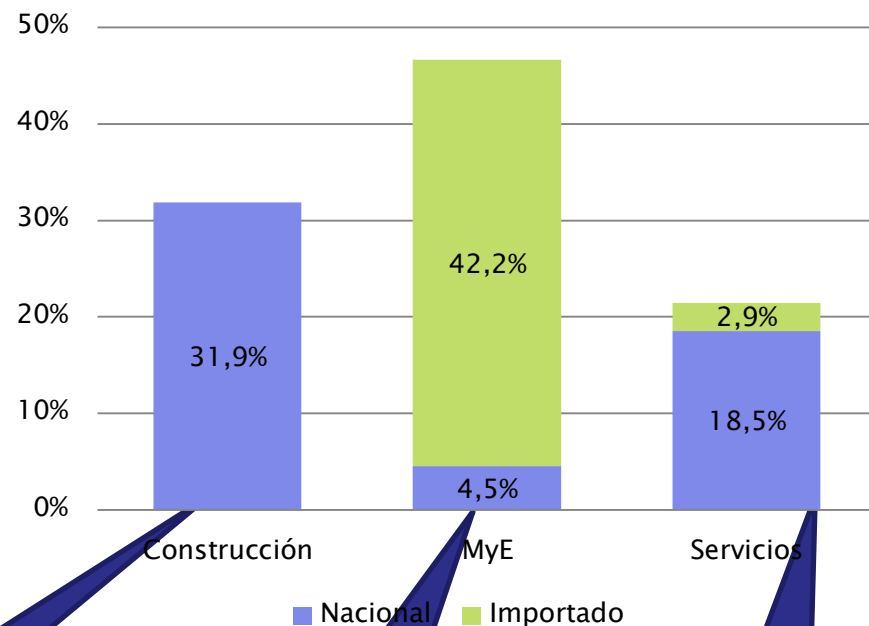


# Breakdown by economic activities

**Gráfico 3.** Gross fixed capital formation by economic activity. Percentage Composition. Year 2013.



**Gráfico 4.** Breakdown of investment in information and communication technologies. Percentage Composition. Year 2013.



Other Engineering Works and specialized construction services

Structural metal products, computer equipment and electronic products

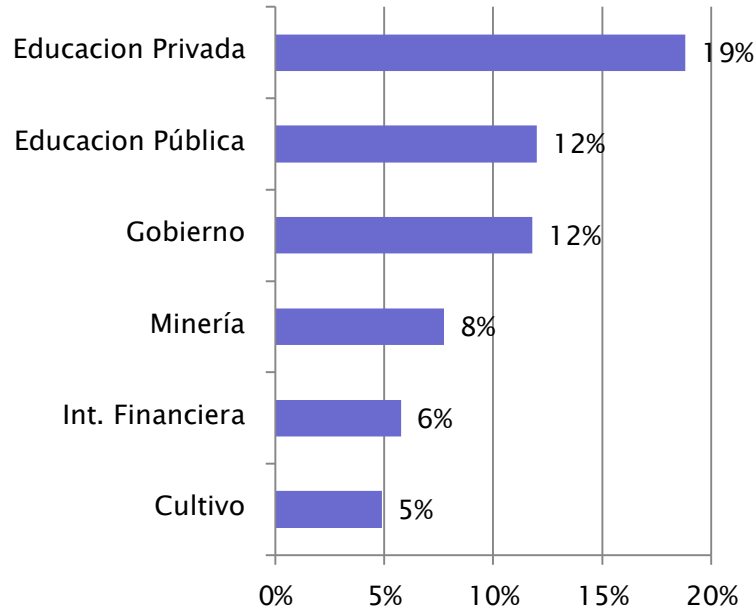
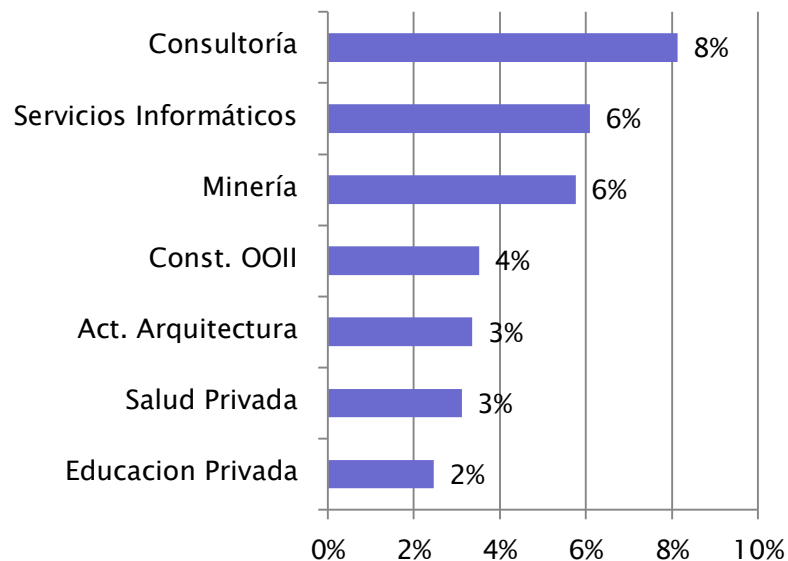
Software development services and R & D services



# The investment in Software development services is about 5.2% of the total country investment.

**Tabla 2.** Research and development services and software development services as percentage of total GFCF, year 2013.

Software Development Service	Research and Development Services
5.22%	1.5%





# Concluding remarks



# Concluding remarks

- The Central Bank is working to adopt the best standards of investment measurements, such as new openings by assets and incorporating new services.
- The new investment matrix will be published on December 22th, 2016.
- The gross fixed capital formation series 2013 – 2015 will be published on March 20th, 2017.
- During 2017 will be published linked series for capital stock and investment with reference 2013.



# Investment Matrix

# Gross Fixed Capital formation

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