

Introduction  
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Population  
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GDP  
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GDP per capita  
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Input-Output flows  
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Thank you  
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# Visualizing hierarchical data in Stata

Asjad Naqvi

Austrian Institute of Economic Research (WIFO)  
Vienna University of Economics and Business (WU)

Banco de Portugal BPLIM Workshop  
18 December 2023

## Data visualizations in Stata

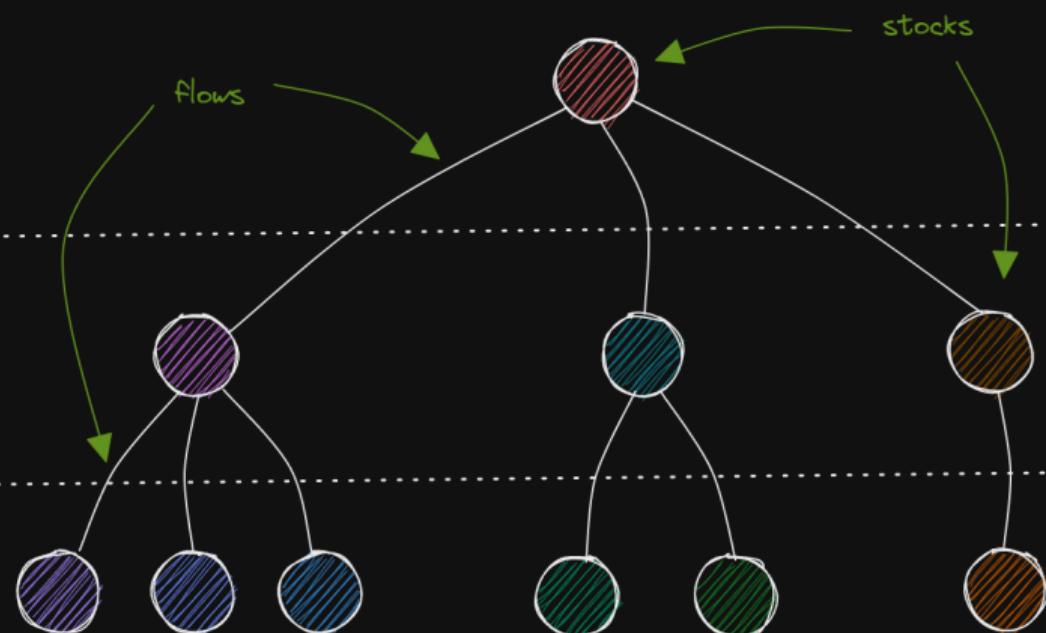
- My own packages: `alluvial`, `arcplot`, `bimap`, `bumparea`, `bumpline`, `circlebar`, `circlepack`, `clipgeo`, `delaunay`, `joyplot`, `marimekko`, `sankey`, `spider`, `streamplot`, `sunburst`, `treecluster`, `treemap`
- Today we will use some of these packages to plot hierarchical data for `Portugal`

## Hierarchical data

Layer 1

Layer 2

Layer 3

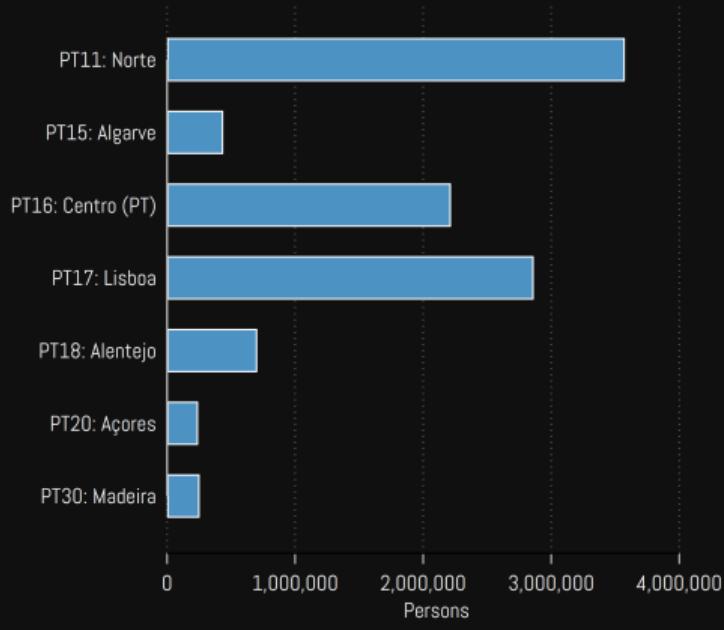


## Portugal in numbers:

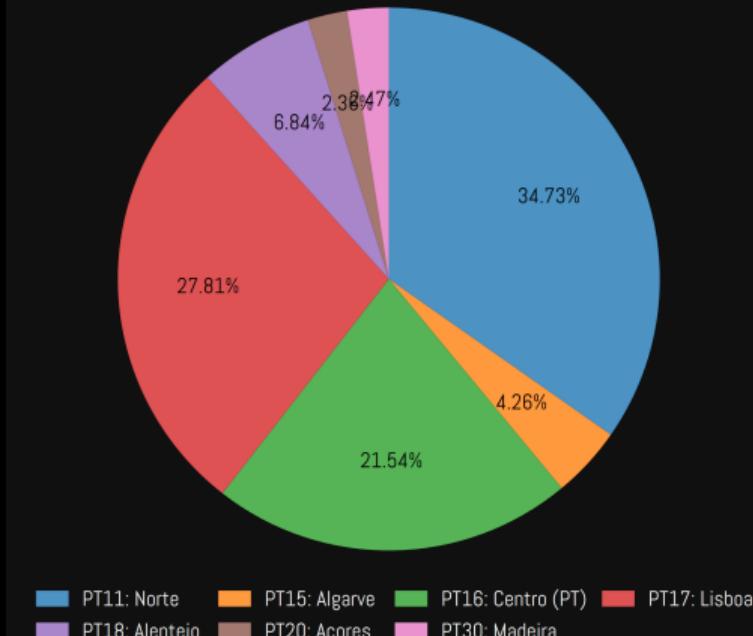
- Population: 10.4 million (2022)
- GDP per capita (PPP): EUR 19,000 (2023)
- Regions:
  - NUTS1 regions: 3
  - NUTS2 regions: 7
  - NUTS3 regions: 25



## Population of NUTS2 regions

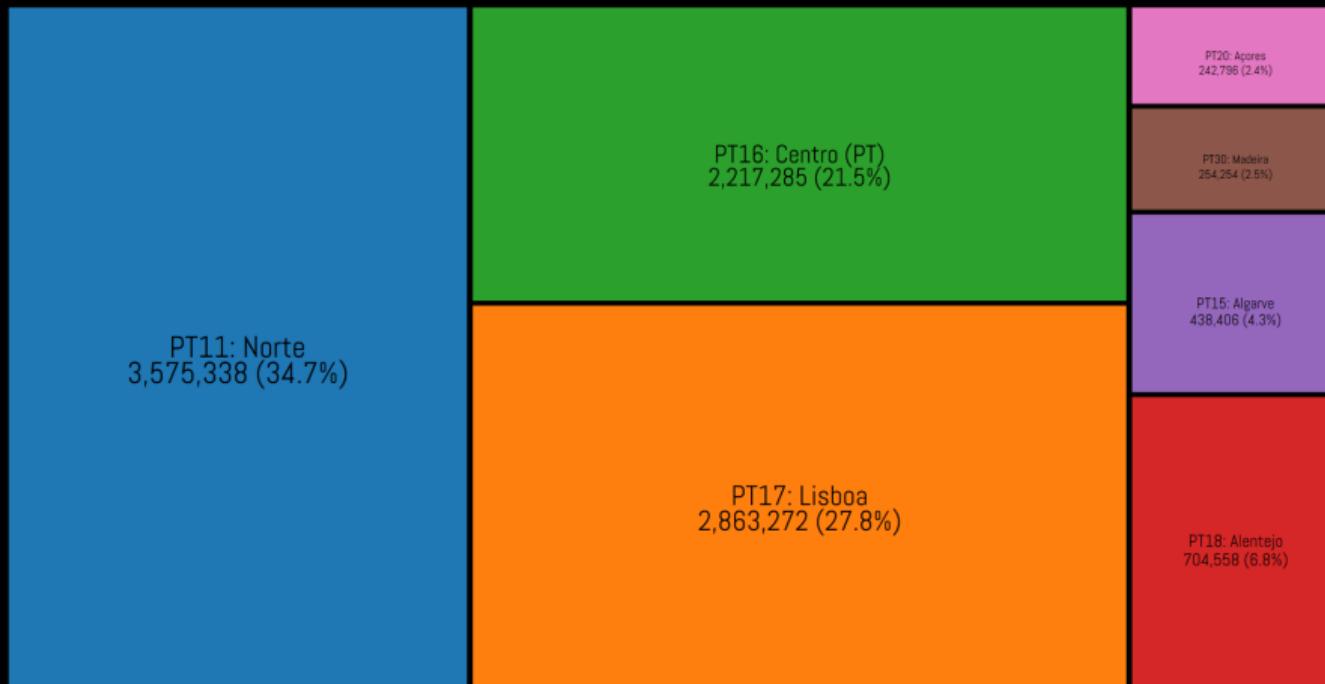


## Population of NUTS2 regions



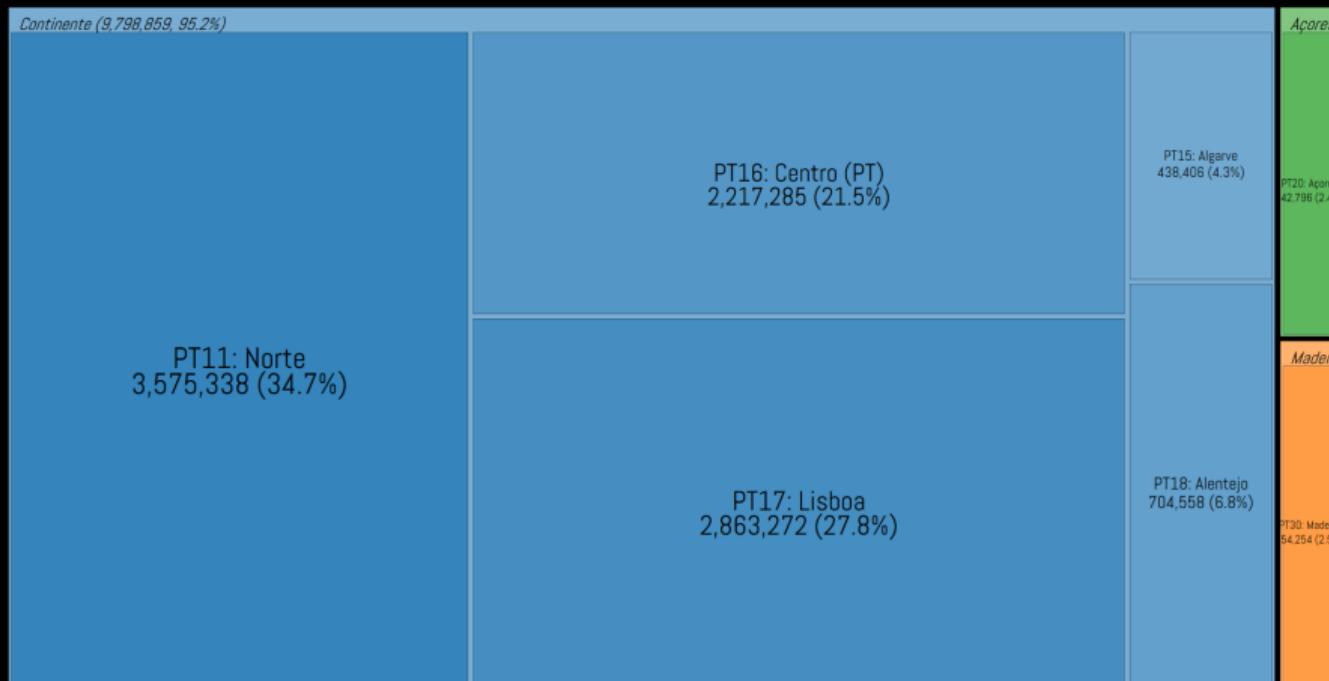
## treemap

### Population of NUTS2 regions



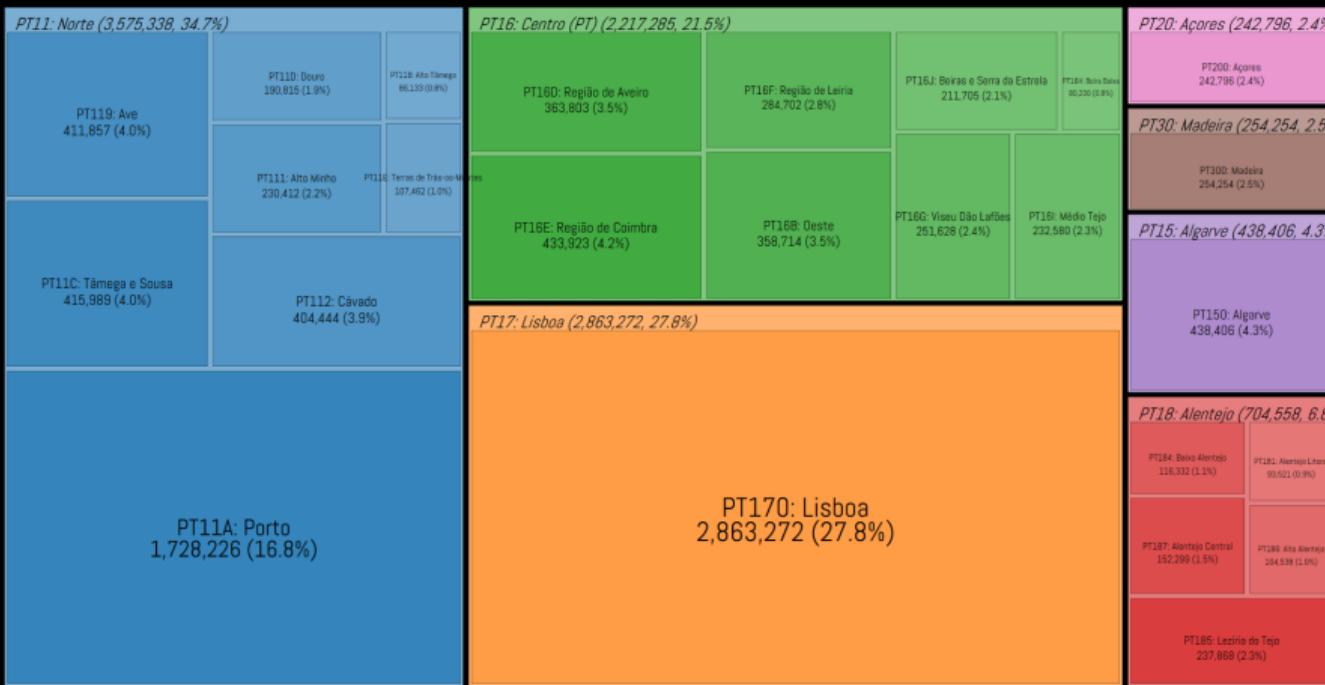
## treemap

### Population of NUTS2 regions



## treemap

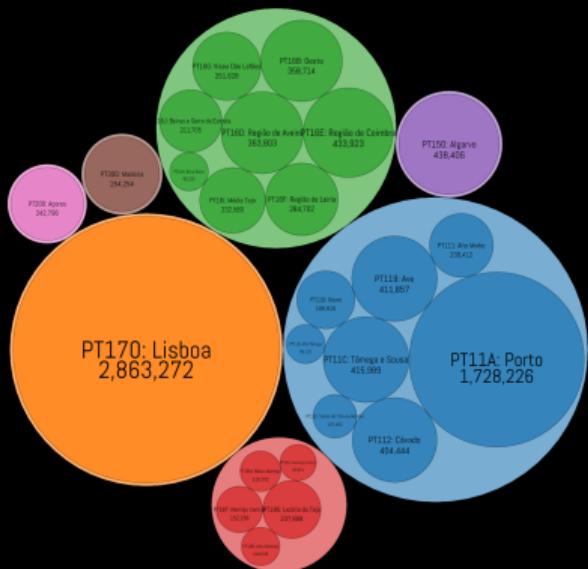
# Population of NUTS3 regions



Source: Eurostat table demo\_r\_pjngrp3.

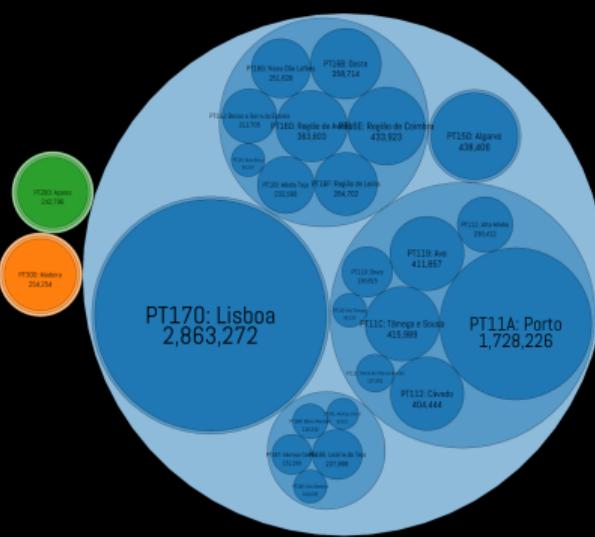
## circlepack

## Population of NUTS3 regions



Source: Eurostat table demo\_r\_pjngrp3.

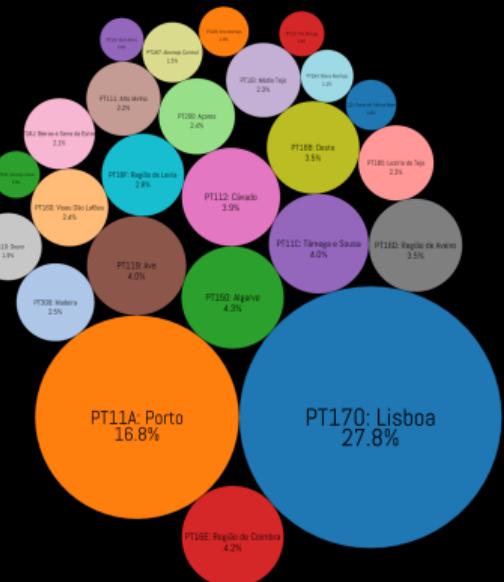
## Population of NUTS3 regions



Source: Eurostat table demo\_r\_pjngrp3.

circlepack

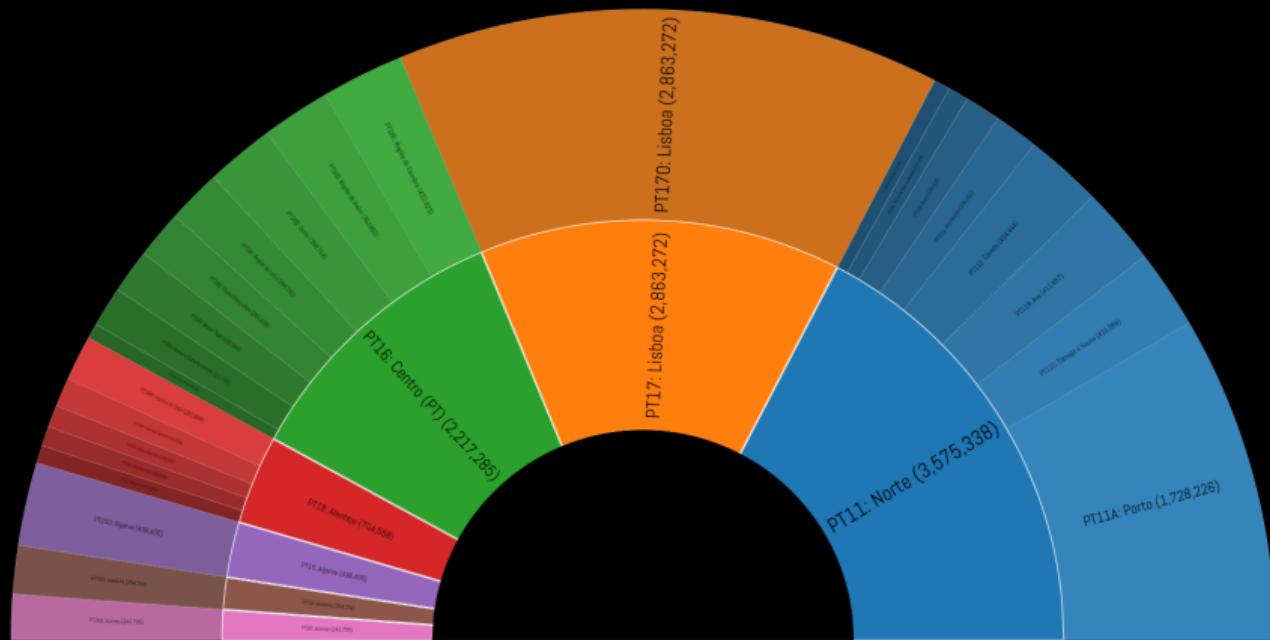
## Population of NUTS3 regions



Source: Eurostat table demo\_r\_pjangerp3.

sunburst

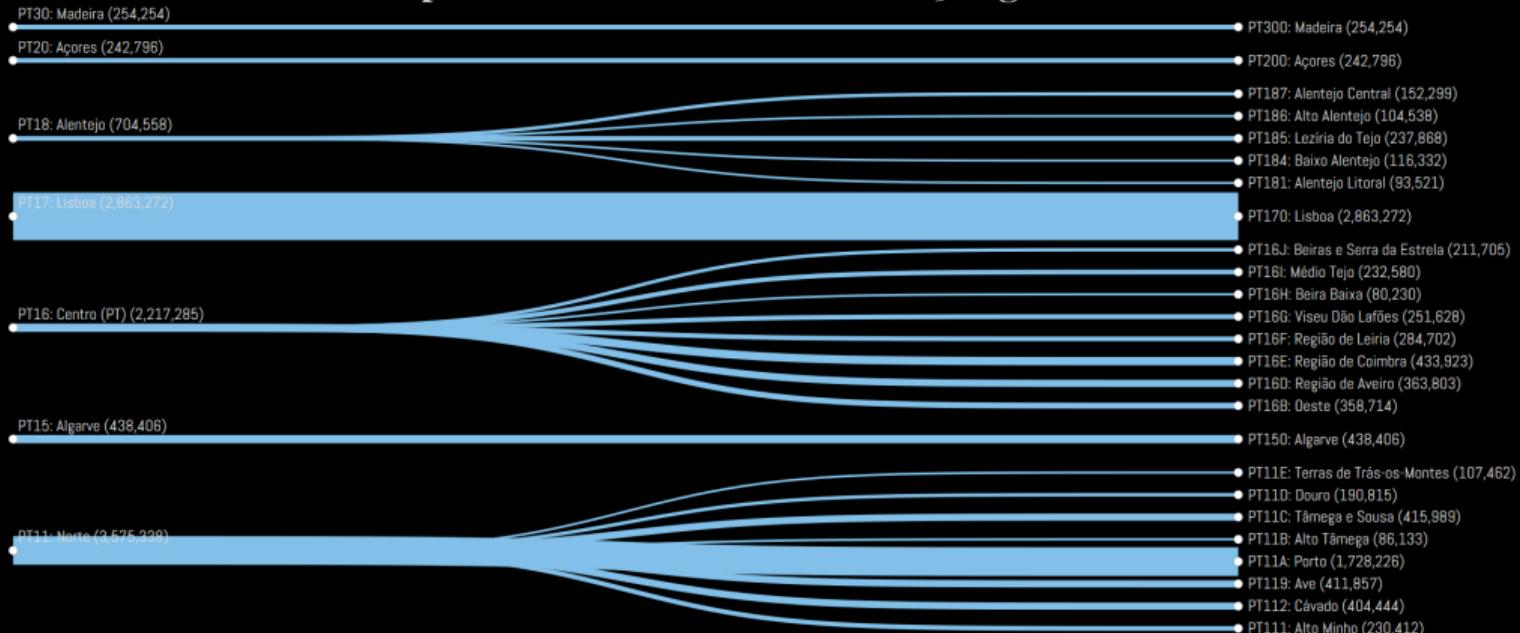
## Population of NUTS3 regions



Source: Eurostat table demo\_r\_pjangular3.

treecluster

## Population of NUTS2 and NUTS3 regions



Source: Eurostat table demo\_r\_pjiangrp3.

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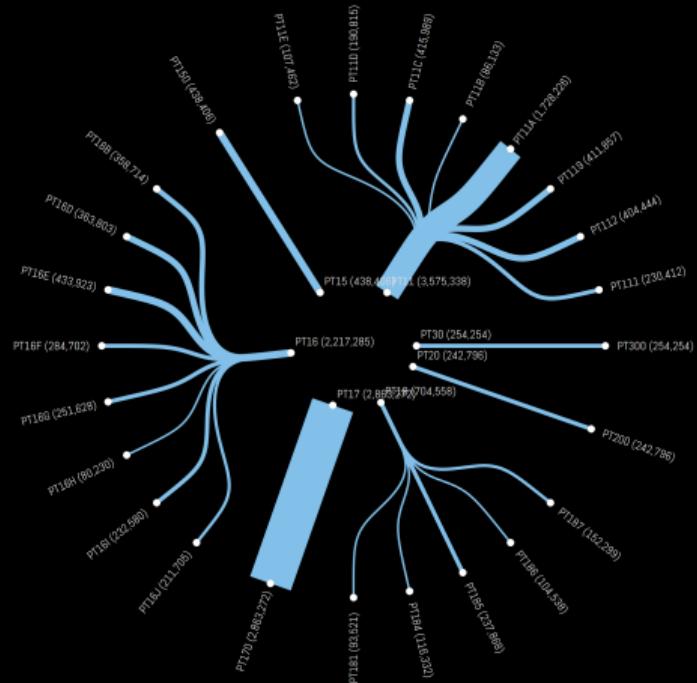
GDP  
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GDP per capita  
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Input-Output flows  
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## treecluster





BANCO DE PORTUGAL  
EUROSYSTEM

# BPstat

DateData domainsPublicationsMetadataHelpSearch...EN

Home > Data domain

## National accounts

The national accounts comprise the financial and non-financial accounts of the economy covering the main macroeconomic variables and the relations between the resident institutional sectors and the rest of the world

### Data sub-domains

 National financial accounts	 National financial accounts - Interlinkages between sectors	 GDP Expenditure approach
 GDP Production approach	 Net Lending/Net Borrowing	 Income and savings
 Investment and capital stock	 National accounts deflators	 Time-series for the Portuguese economy - Household wealth
 Time-series for the Portuguese economy - GDP and main components of expenditure	 Time-series for the Portuguese economy - Household disposable income	 Time-series for the Portuguese economy - Employment (national accounts concept)

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Input-Output flows  
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Source: Banco de Portugal

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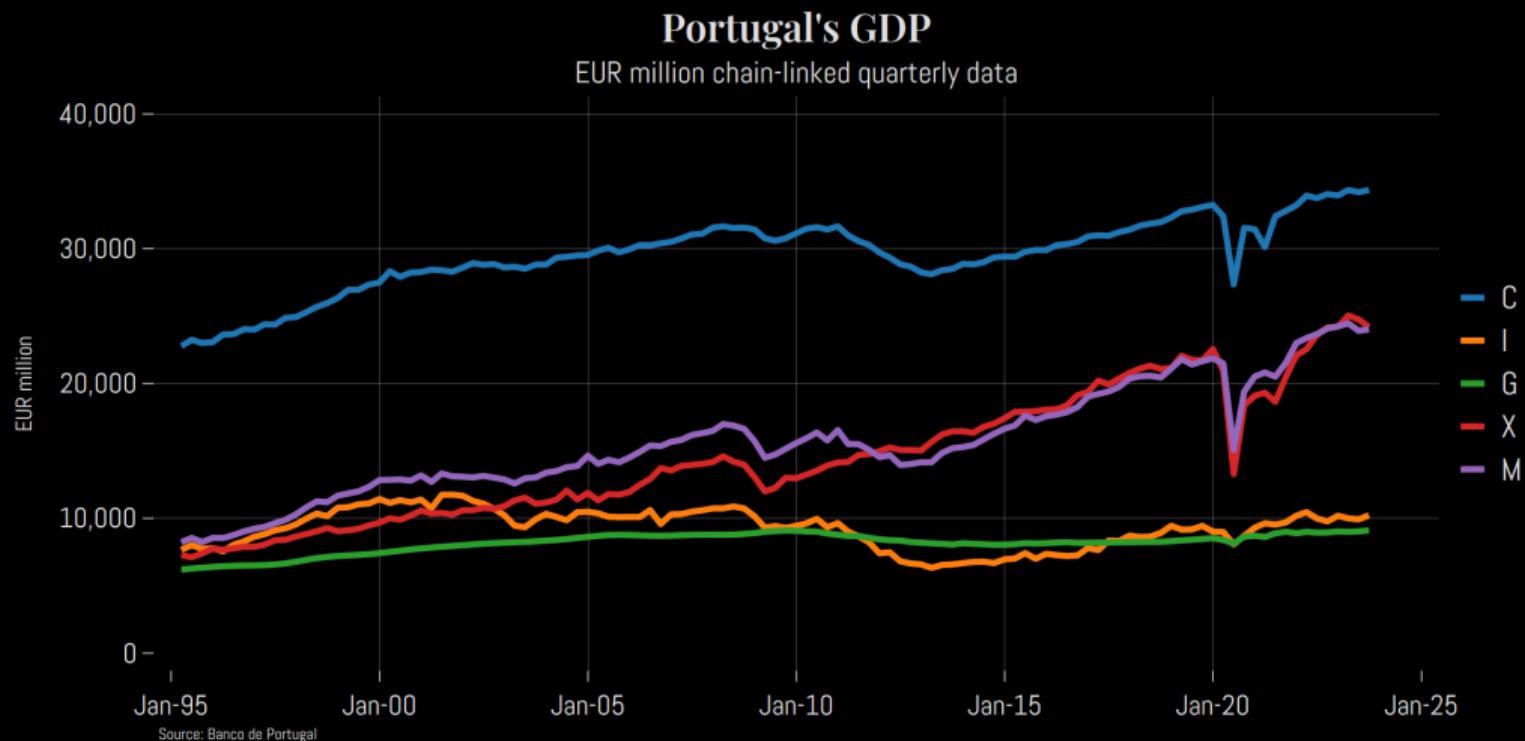
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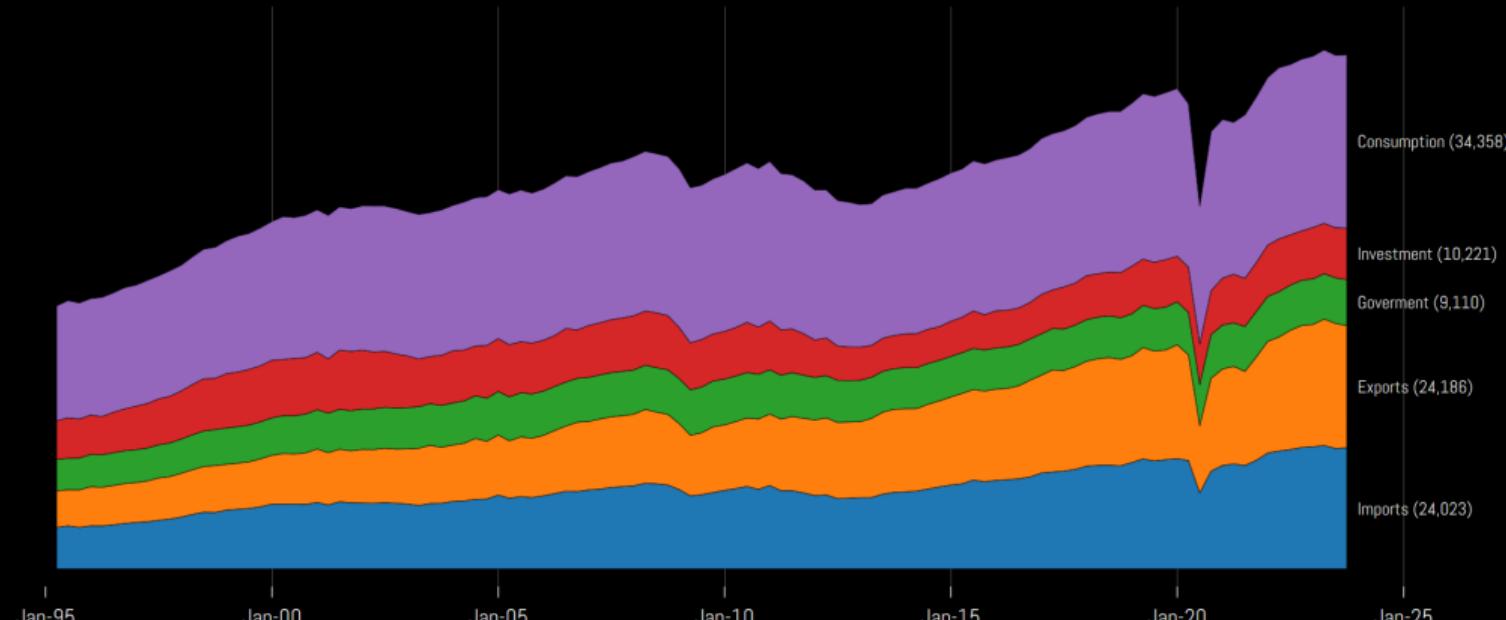
Input-Output flows  
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streamplot

## Portugal's GDP by expenditure

EUR million chain-linked quarterly data



Jan-95

Jan-00

Jan-05

Jan-10

Jan-15

Jan-20

Jan-25

Source: Banco de Portugal

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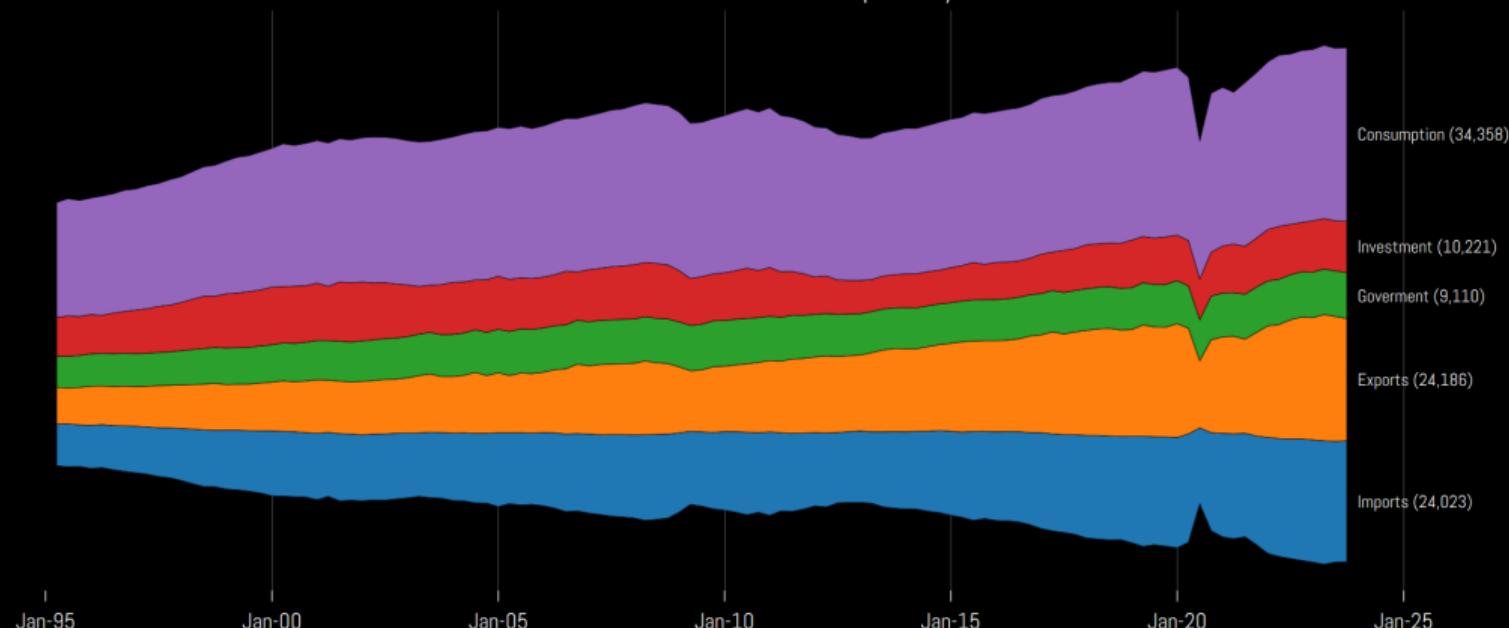
Input-Output flows  
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streamplot

## Portugal's GDP by expenditure

EUR million chain-linked quarterly data



Jan-95

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Source: Banco de Portugal

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GDP per capita  
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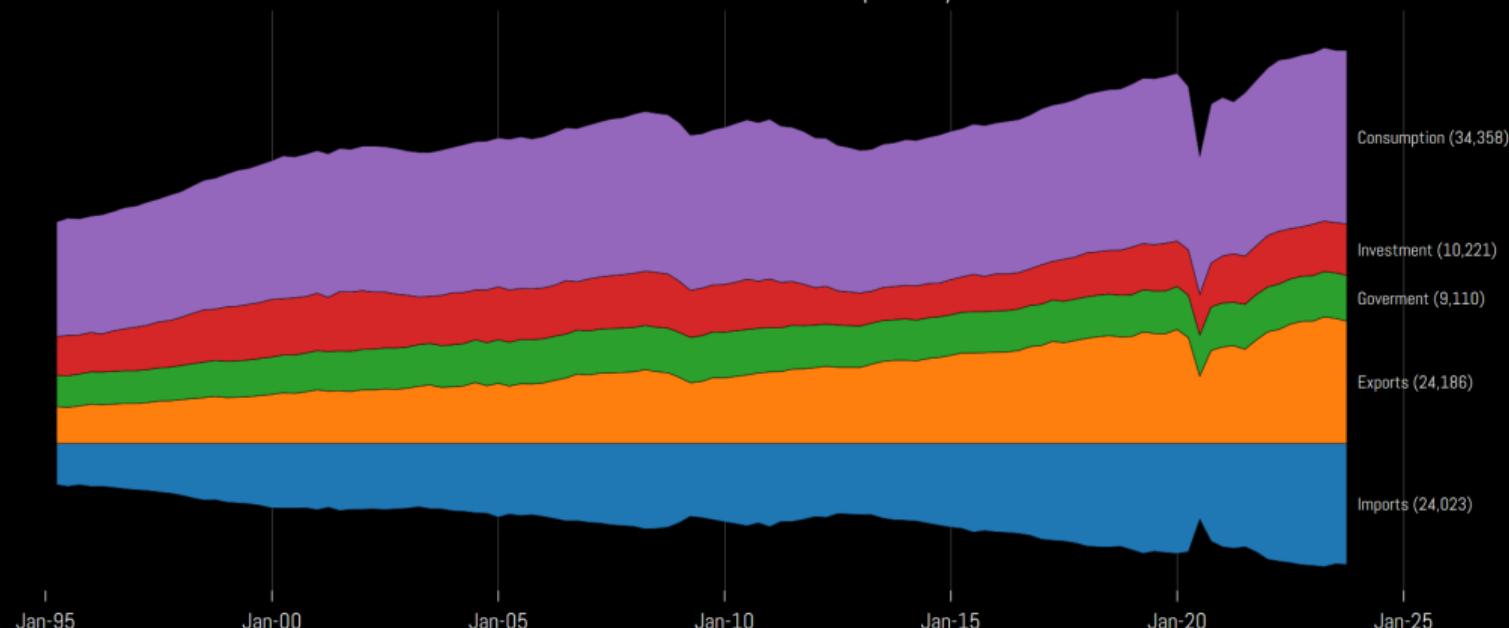
Input-Output flows  
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streamplot

## Portugal's GDP by expenditure

EUR million chain-linked quarterly data



Jan-95

Jan-00

Jan-05

Jan-10

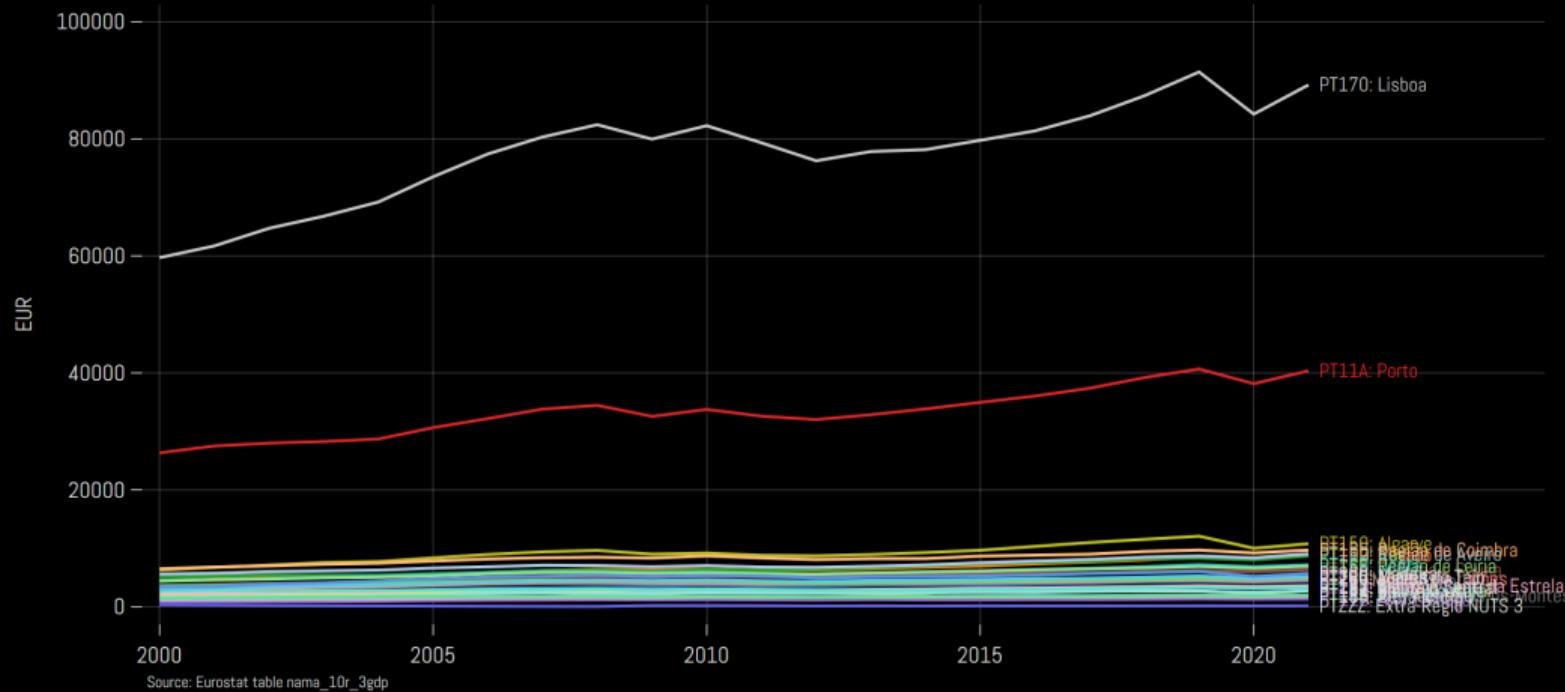
Jan-15

Jan-20

Jan-25

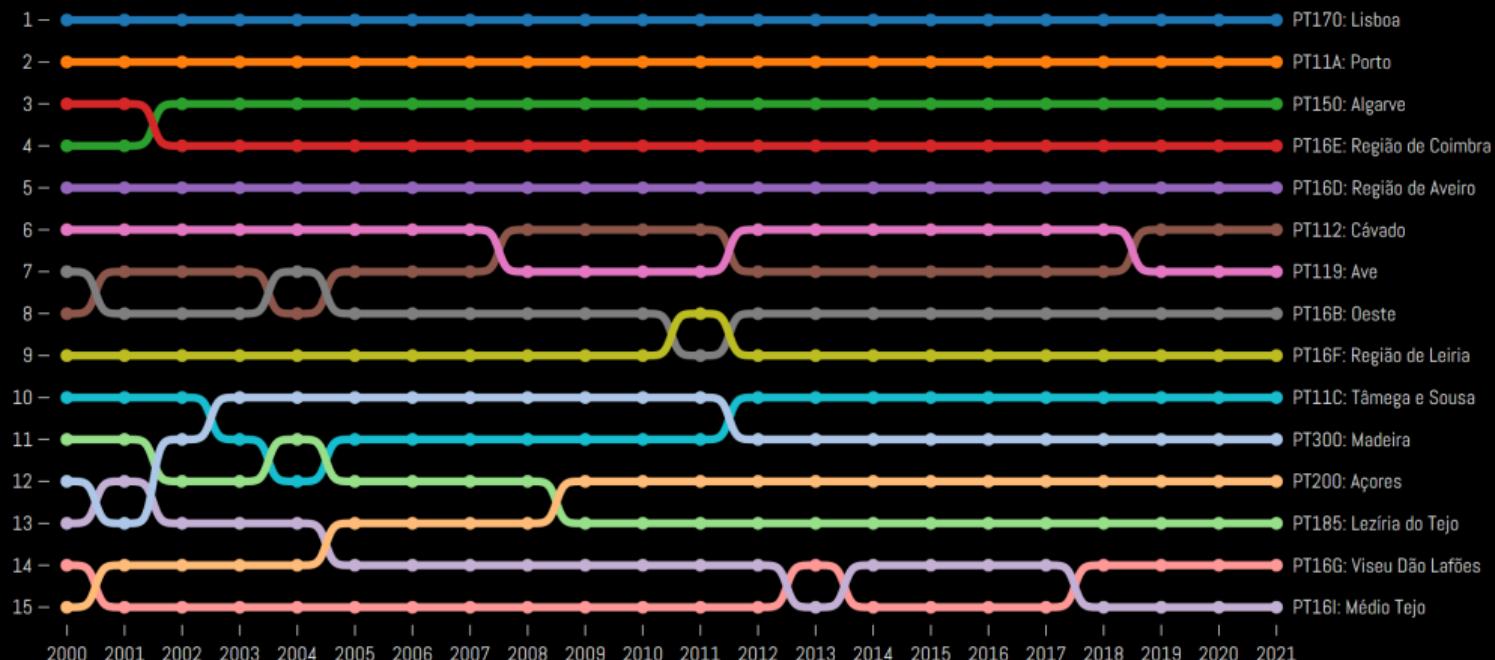
Source: Banco de Portugal

## Portugal's NUTS3 real GDP per capita



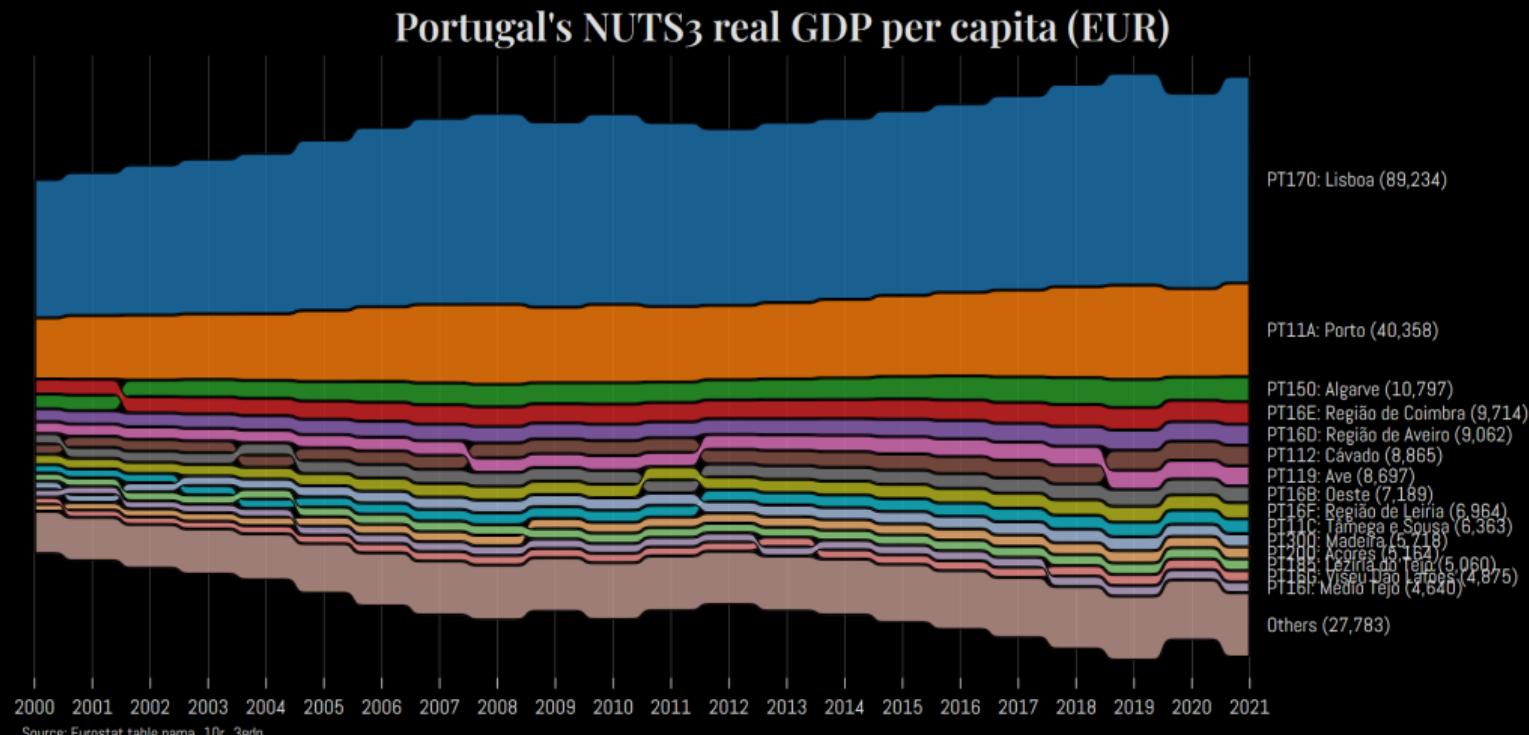
bumpline

## Portugal's NUTS3 real GDP per capita (Top 15)



Source: Eurostat table name\_10r\_3gdp

bumparea



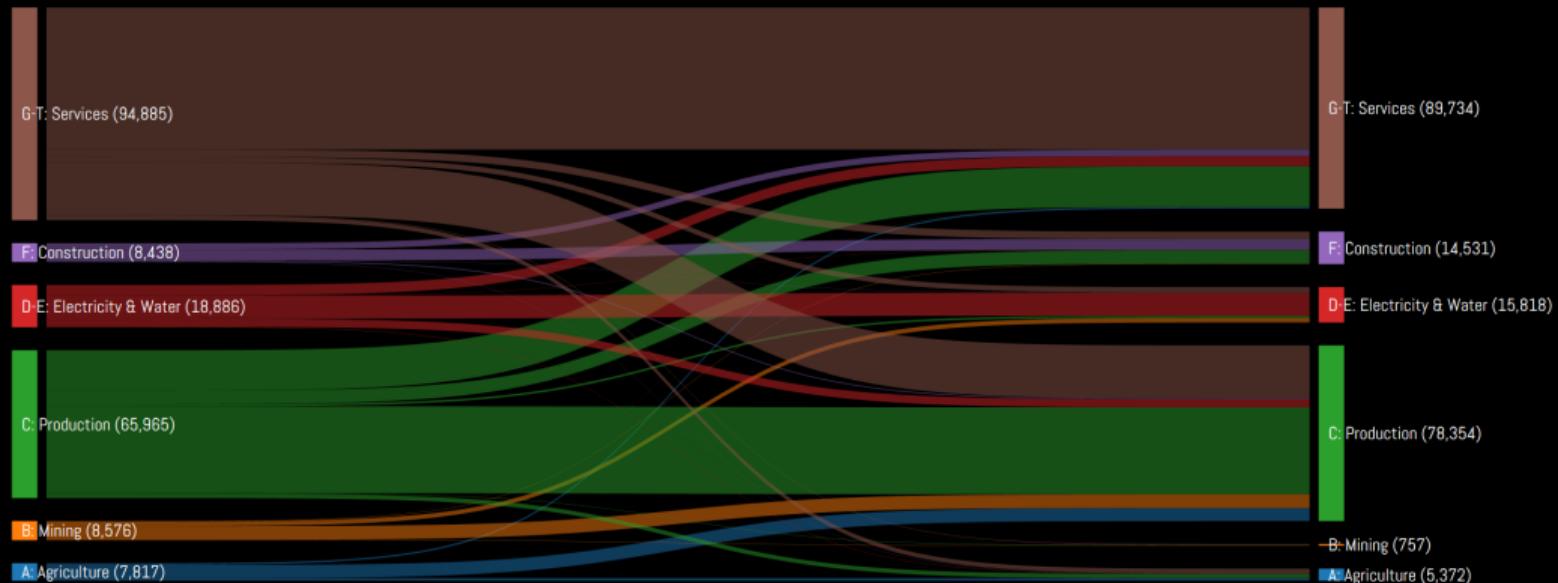
	Intermediate demand						Final demand					Output
	A	B	C	D-E	F	G-T	C	I	G	EX	IM	
<b>A: Agriculture</b>	1,135	1	5,862	13	17	788	4,080	557	5	1,511	(3,371)	<b>10,598</b>
<b>B: Mining</b>	3	178	6,114	2,028	188	65	29	324	1	810	(8,180)	<b>1,559</b>
<b>C: Production</b>	1,968	217	38,796	966	5,995	18,023	35,945	11,973	865	53,345	(55,664)	<b>112,429</b>
<b>D-E: Elec./Water</b>	173	70	3,624	10,284	136	4,599	4,843	198	103	425	(311)	<b>24,145</b>
<b>F: Construction</b>	121	25	408	120	4,879	2,886	280	15,265	163	112	(158)	<b>24,100</b>
<b>G-T: Services</b>	1,971	266	23,551	2,408	3,317	63,372	96,981	14,865	39,317	43,392	(34,226)	<b>255,213</b>
<b>Taxes (Foreign)</b>	-	-	-	-	-	-	28	-	-	-	-	(28)
<b>Taxes (Domestic)</b>	285	76	4,796	875	779	7,985	14,680	2,049	432	1,079	-	-
<b>Int. consumption</b>	5,657	833	83,151	16,694	15,310	97,719	156,865	45,231	40,886	100,675	(101,938)	-
<b>Value added</b>	4,942	726	29,279	7,451	8,789	157,493	-	-	-	-	-	-
<b>Output</b>	<b>10,599</b>	<b>1,559</b>	<b>112,430</b>	<b>24,145</b>	<b>24,100</b>	<b>255,212</b>						

Source: Own conversion of OECD ICIO data. All values in Million USD.

sankey

# Portugal's I-O Intermediate flows

(2021 USD million)



Source: OECD ICIO

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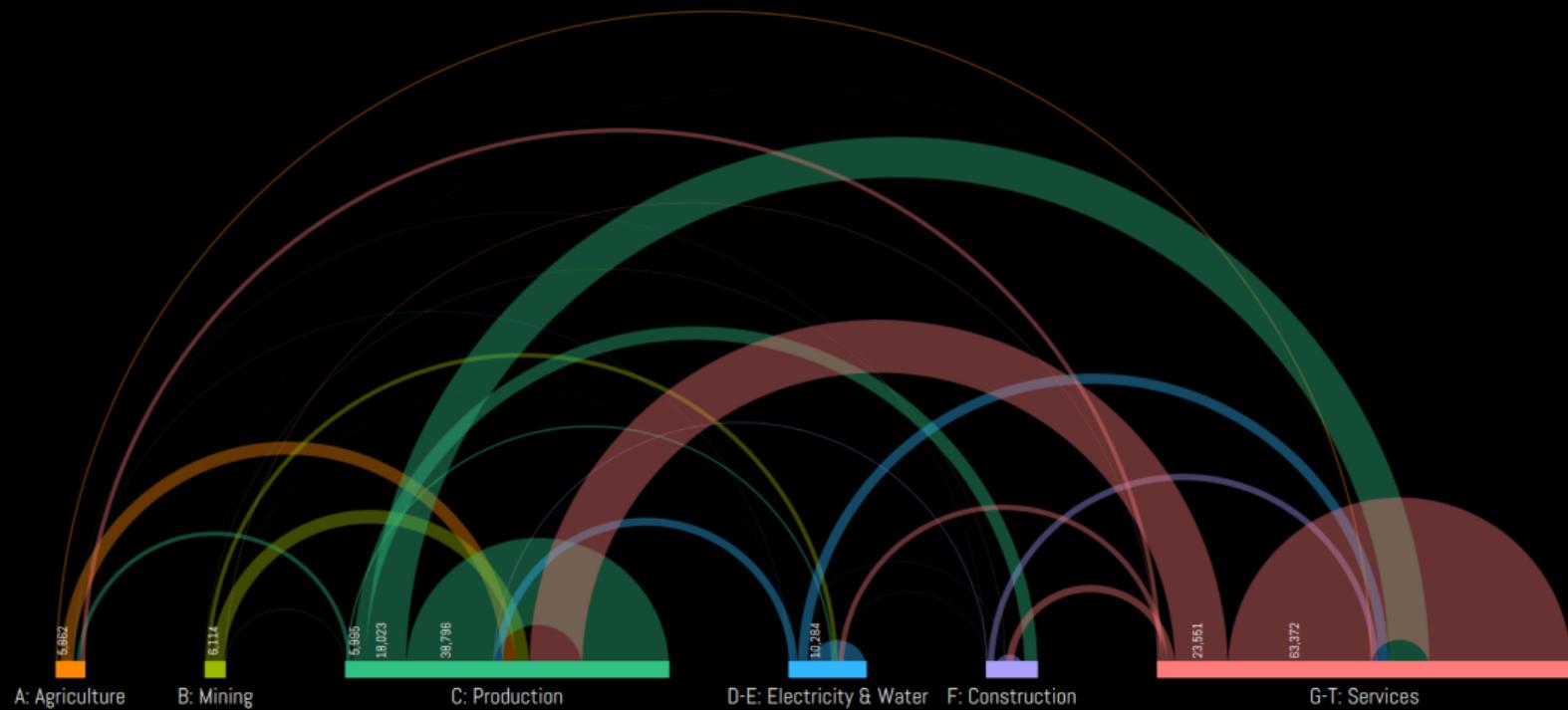
GDP  
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GDP per capita  
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Input-Output flows  
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Thank you  
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## arcplot



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GDP  
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GDP per capita  
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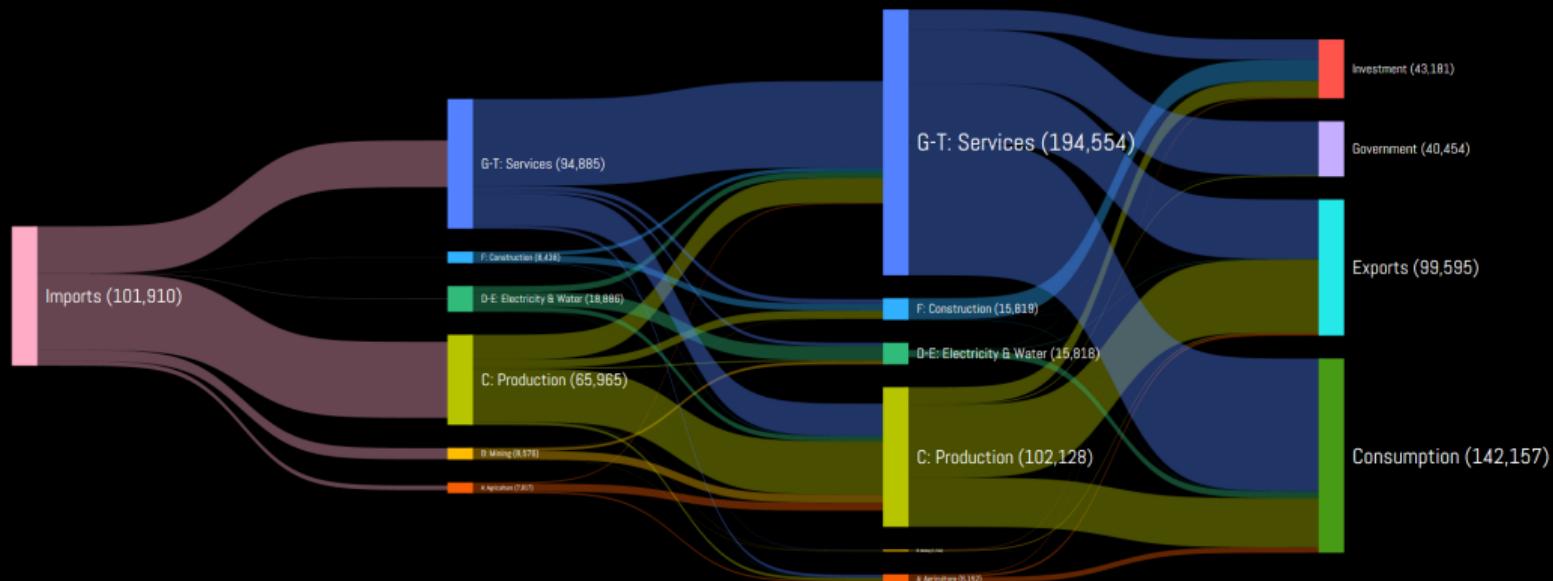
Input-Output flows  
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Thank you  
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sankey

# Portugal's Input-Output flows

(2021 USD million)



Source: OECD IFCIO

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GDP per capita  
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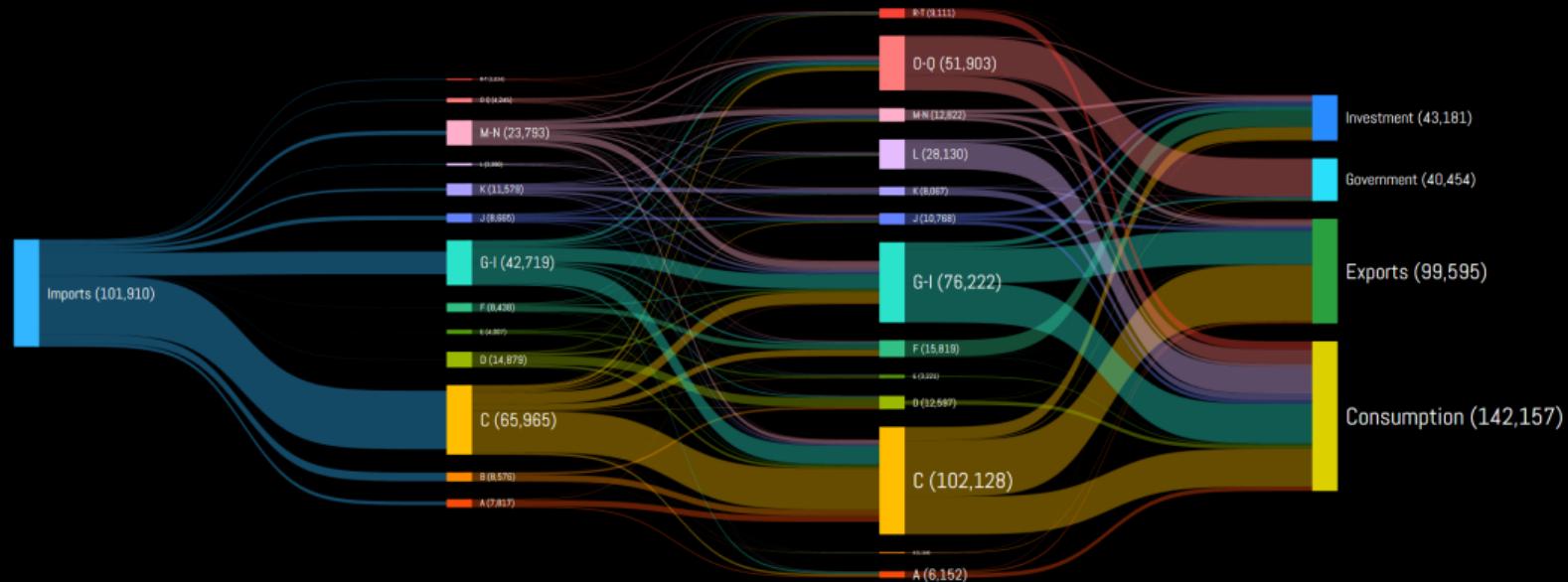
Input-Output flows  
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Thank you  
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sankey

# Portugal's Input-Output flows

(2021 USD million)



Source: OECD IFCIO

## More Stata visualizations:

-  [The Stata Guide on Medium](#)
-  [The Stata Gallery on Medium](#)
-  [#30DayMapChallenge 2021](#)
-  [#30DayMapChallenge 2022](#)

## Connect with me:

-  [@ asjadnaqvi@gmail.com](mailto:asjadnaqvi@gmail.com)
-  [github.com/asjadnaqvi](https://github.com/asjadnaqvi)
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