

**NBER Fall 2022**  
**Innovative Data in Household Finance:**  
**Opportunities and Challenges**

**New Frontiers in Transaction Data**

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**BBVA Research**

**Boston, 9<sup>th</sup> December 2022**

# BBVA: One of the largest banks in the world present in 25 countries

## Cash & Individual-to-Firm Card transactions

Data on amount of Cash Withdrawals,  
Cards MCC & COICOP & channel (online, physical).

## Individual-to-Firm Direct Debit

Data on amount, MCC and COICOP, date, type of transfer, involved parties.

## Individual-to-Firm & Firm-to-Firm Transfers

Data on amount, MCC and COICOP, date, type of transfer, involved parties. Data on NACE Code for Firm-to-Firm

## Individual & Firm Income and Wealth

Data on payrolls, subsidies and unemployment benefits for individuals and balance sheets for companies.

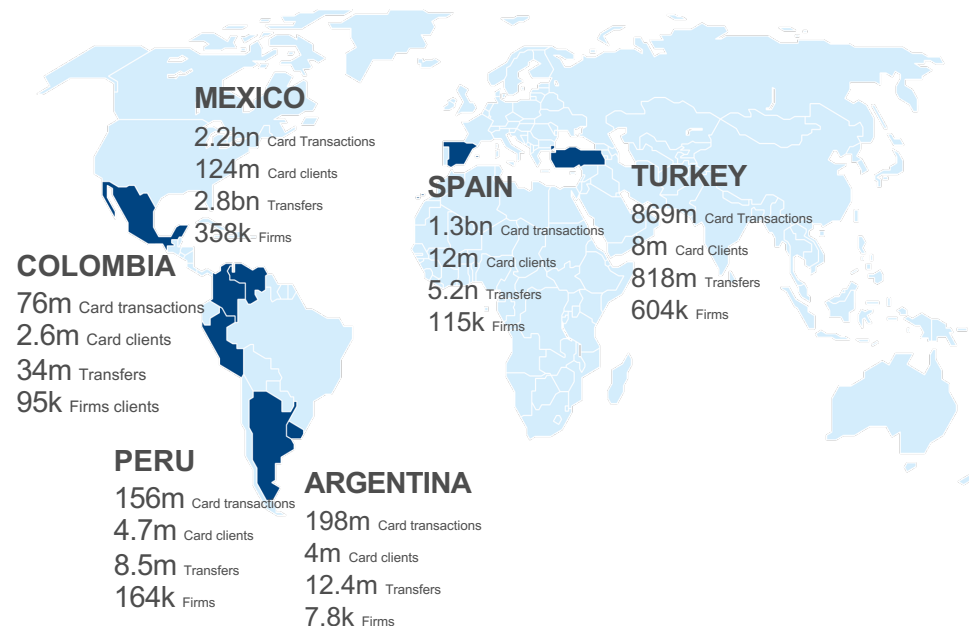
## Individual & Firms Financial

Data on deposits, mortgages, loans, other fin products & risk assessment for individuals and companies.

## Demographics Individual & Firms

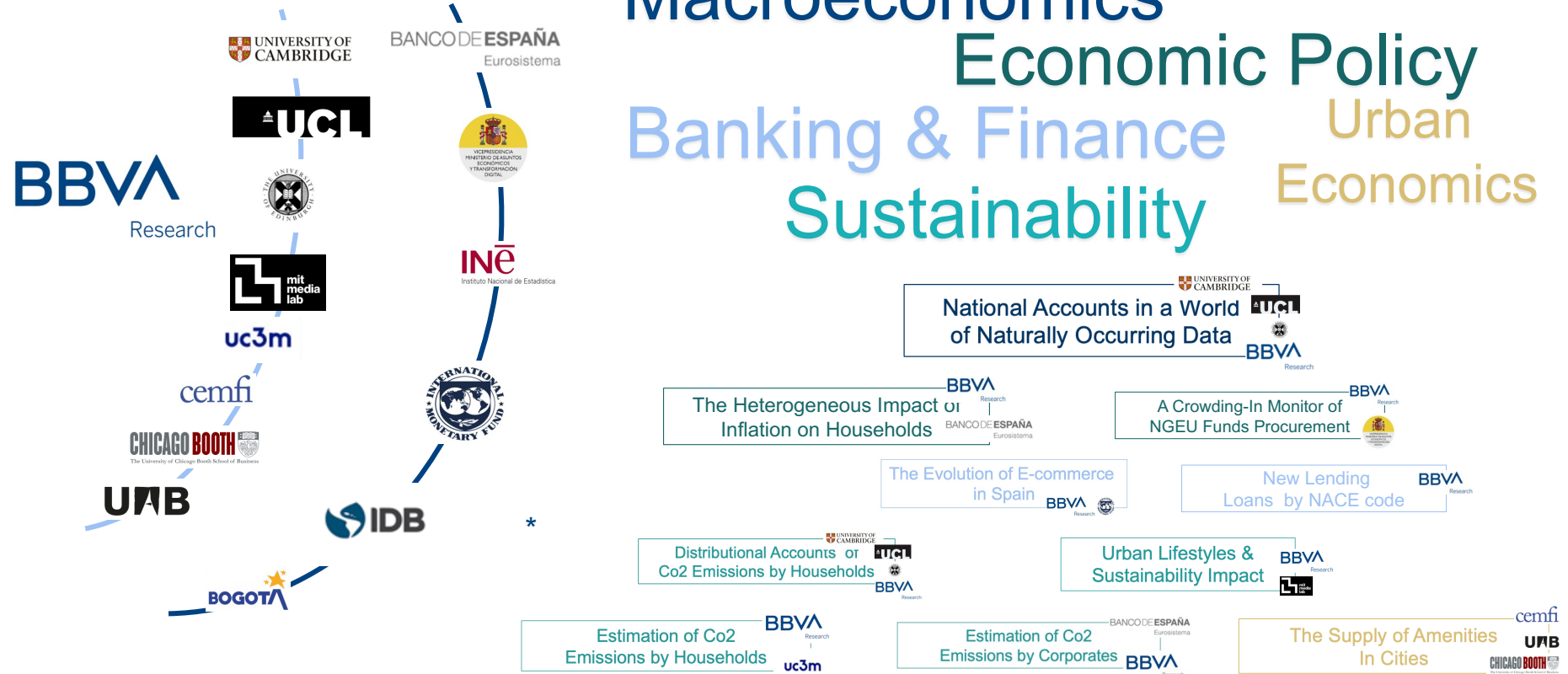
Data on Date, client age, gender, postal code, marital status, education for individuals. Firm Sector (NACE), size, postal code, fiscal data for Firms

## BBVA worldwide data in 2021 and type of data



# How do we work: The BBVA Research Model & Topics

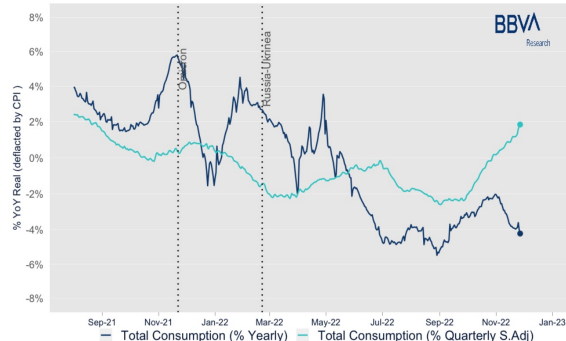
Macroeconomics  
Economic Policy  
Banking & Finance  
Sustainability  
Urban Economics



# Naturally Occurring Data for Real Time & HD Economics...

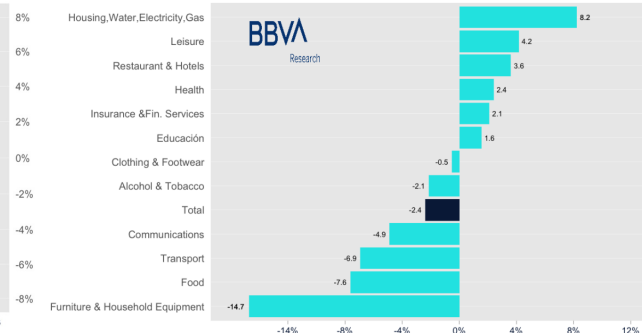
## Spain: BigData Total Consumption (BBVA Research)

(Real deflated by CPI, Cum 28D % Yearly & Cum 90D % QoQ Sadj)



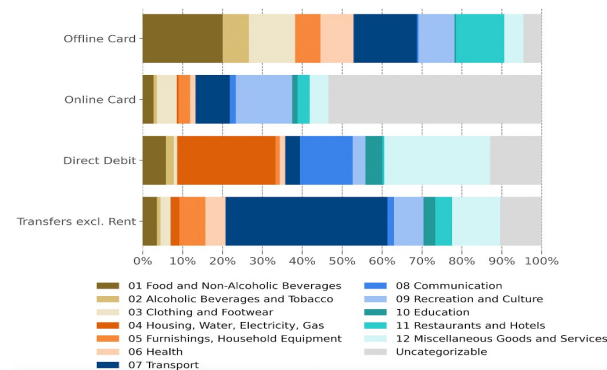
## Consumption by Categories (BBVA Research)

(Real deflated by individuals CPI Coicops, Cum 28D % Yearly)



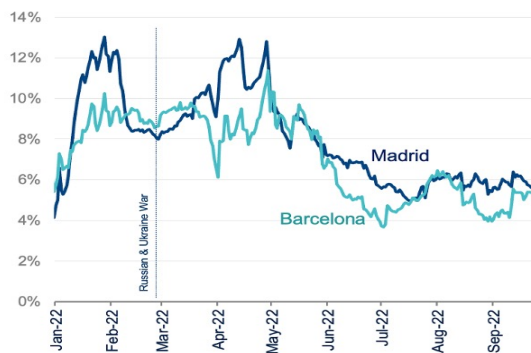
## Share of Spending in COICOP by Means of Payment

(distribution of COICOP Expenditure by Mean of Payment)



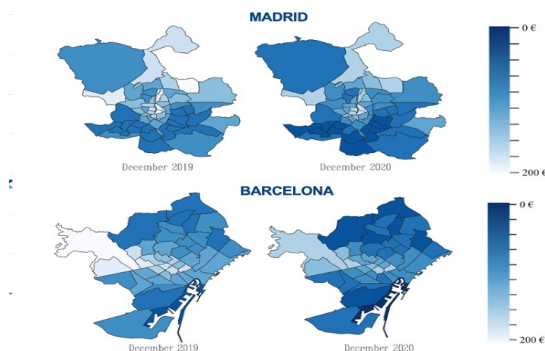
## Urban Big Data Consumption: Barcelona & Madrid

(Moving Average 28D, YoY Nominal)



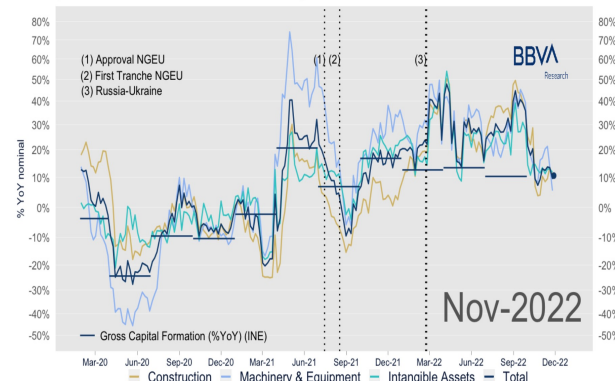
## Consumption in Restaurants & Hotels in 2020

(Avg Consumption per person December 2020 & December 2019, %)



## Spain: Big Data Investment Index (BBVA Research)

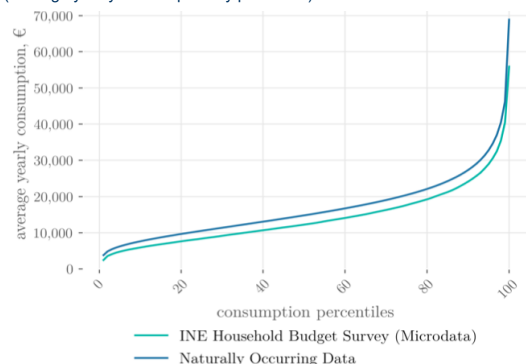
(Nominal, % YoY, cumulative 28D - Fecha:22-11)



# ...and Economic Analysis: Macro Consistent Distributional Accounts & IO Tables

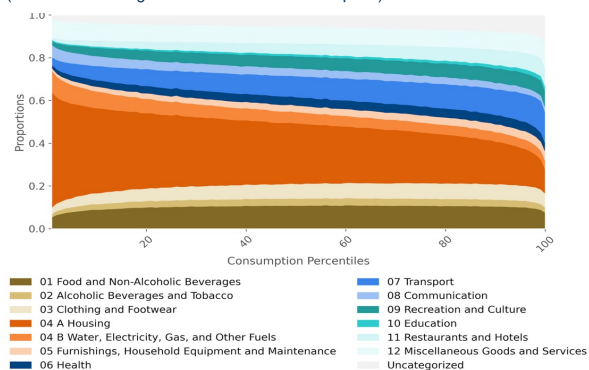
## Consumption Inequality: Big data vs Official

(Average yearly consumption by percentile)

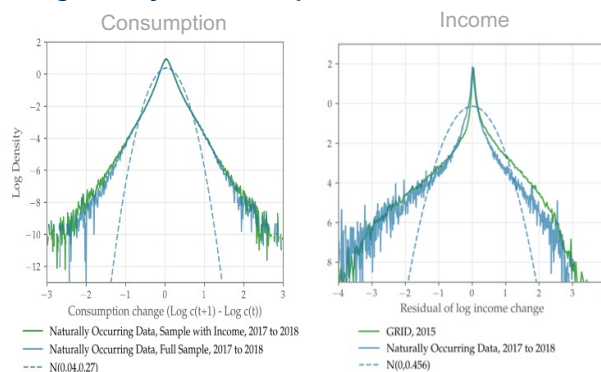


## Consumption Distribution by Categories 2017

(Percentile & Categories as % of Total Consumption)

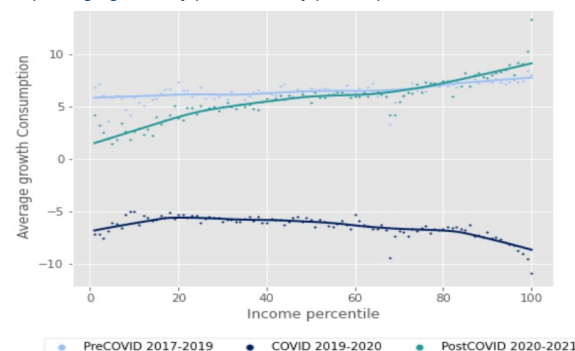


## Log Density of Consumption & Income Growth



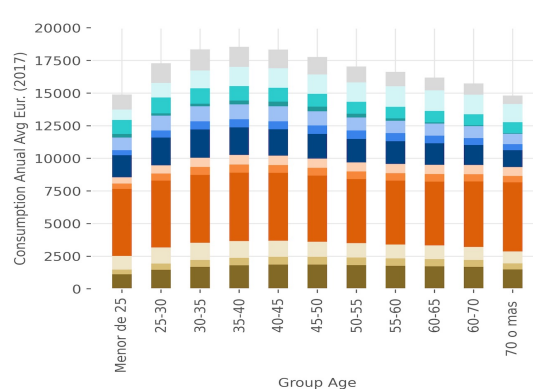
## Consumption Growth by Income percentiles

(average growth by percentiles by periods)



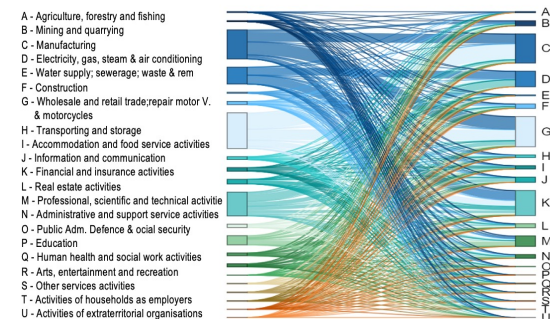
## Spain: Consumption by Category & Age 2017

(Categories and Age. Avg annual Eur)



## Financial Firm-to-Firm Transactions IO Table

(BBVA Intra sector Firm-to-firm Transactions)



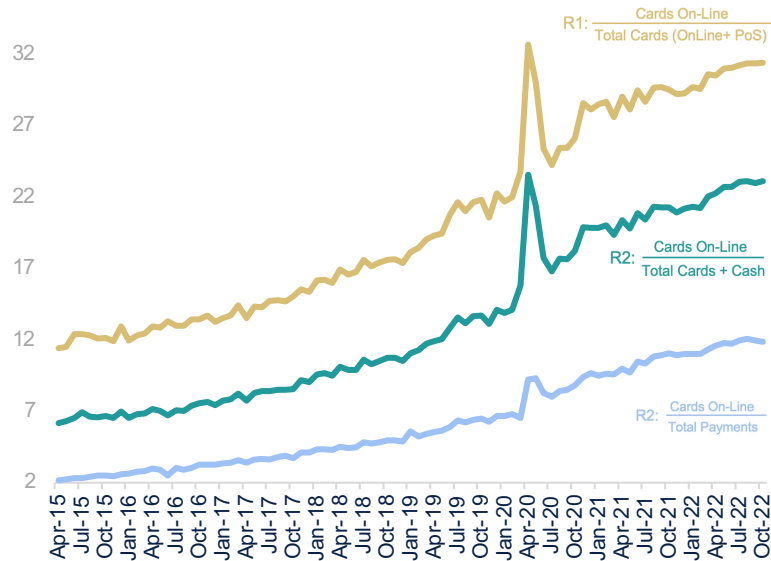
# Banking Analysis: E-Commerce & Highly Definition New Lending

## The Evolution of E-commerce in Spain



### Spain: The E-Commerce relative to other payments

(Cards On-Line expenditure relative to other Payments. Alternative ratios in %)



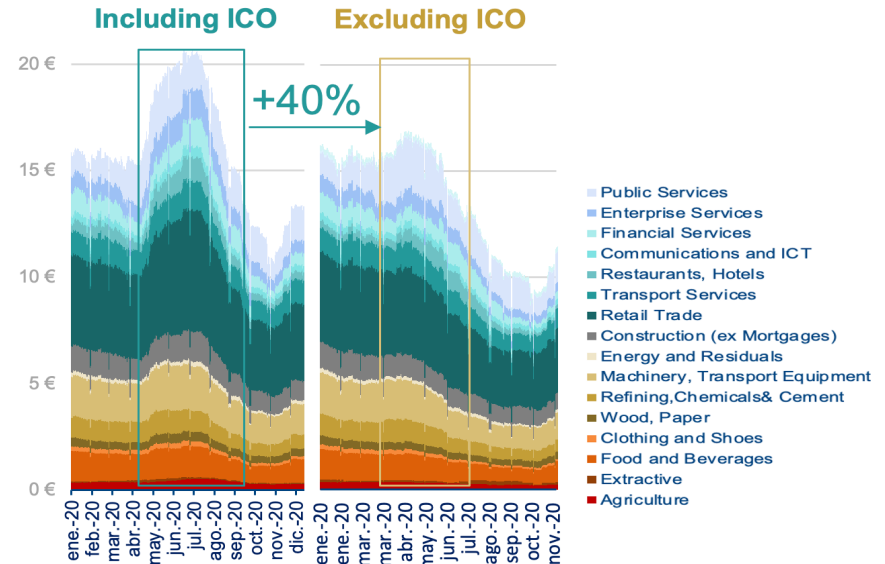
Source: BBVA Research & IMF (forthcoming)

## New Lending Loans by NACE code



### Spain: New Loans & Credit Supporting Scheme ICO

(in Eur Bn. Cumulative 90 days New Lending Operations by NACE Code)



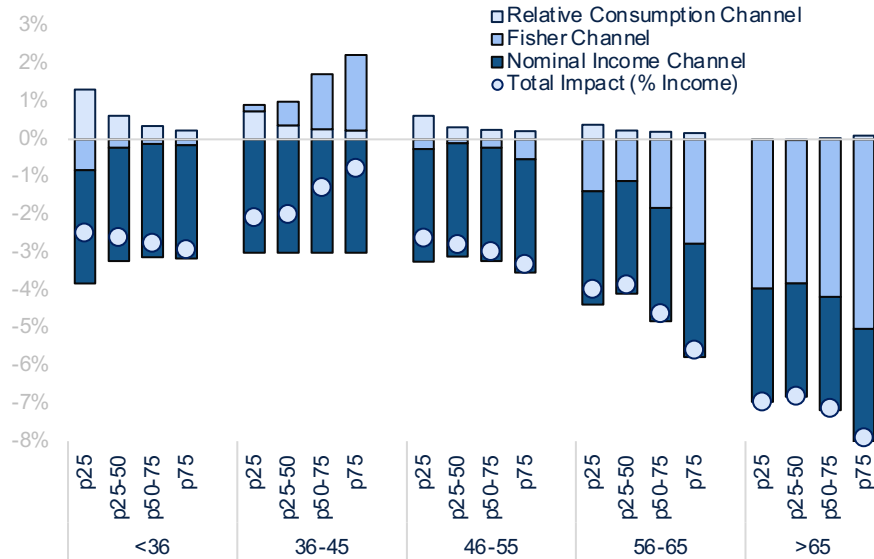
Source: BBVA Research

# Economic Policy: Big Data for Monetary & Fiscal Policies

## The Heterogeneous Impact of Inflation on Households

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BANCODE ESPAÑA  
Eurosisistema

**Effect of “Inflation Shock” on Household by Income & Age**  
(Unexpected Inflation Shock by Age & Percentiles of Income. in % of Income)

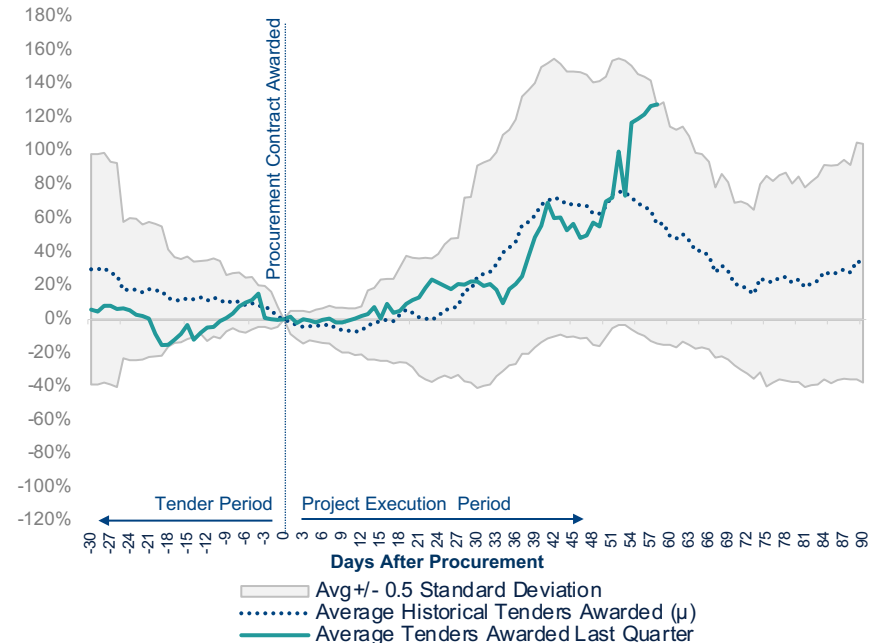


Source: Forthcoming by Cardoso et al (BBVA Research and Bank of Spain)

## A Crowding-In Monitor of NGEU Funds Procurement

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Eurosisistema

**Impact of NGEU Funds on New Loans: Construction Sector**  
(Loans Awarded vs Non-Awarded ratio evolution. Procurement Award Day= 0)



Source: Forthcoming by BBVA Research & Spanish Ministry of Economics

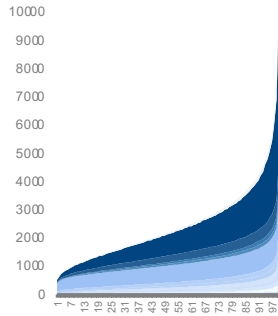


# Sustainability: Distributional Co2 Emissions & Sustainable Life-Styles

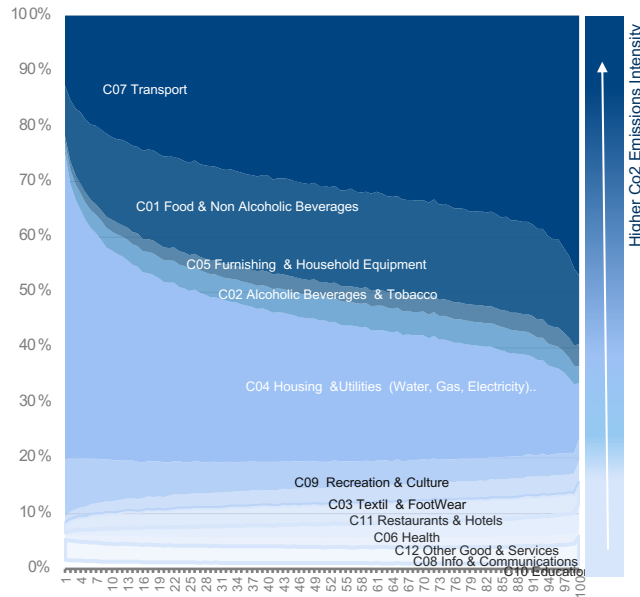
## Distributional Accounts of Co2 Emissions by Households



Households Co2 Emissions  
(000 Tonnes)



Households Co2 Emissions by Consumption Category  
(% of total Emissions)



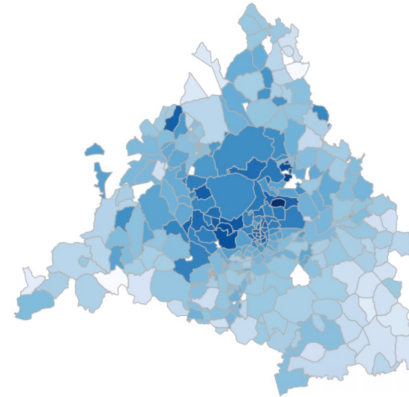
Source: BBVA Research (forthcoming)

## Urban Life-Styles and Sustainability

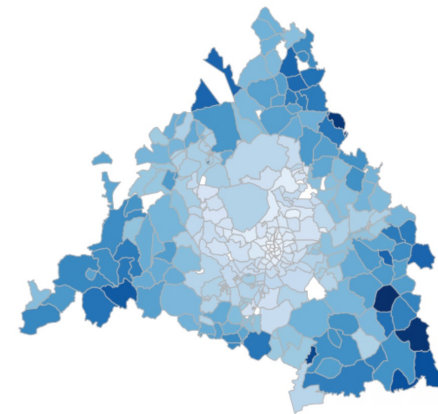


Madrid Lifestyles: Inner vs Outer Lifestyles Madrid Region  
(Average Lifestyle intensity by zip-code)

Go Bars & Restaurants



Car Trips



Source: BBVA Research & Esteban Moro MIT Media Lab (forthcoming)