

Financial Inclusion, Inequality in Financial Access and Income Inequality– Evidence from European Countries

Panchanan Das
University of Calcutta

Why financial inclusion?

- Financial non-inclusion → non-inclusion in labour market → Income inequality → Slow growth ([Aizenman, Jinjark, and Park 2015](#))
- Financial non-inclusion is involuntary
- major cause for exclusion is lack of access to formal financial services

Literature

- financial inclusion enhances growth and reduces income inequality in presence of financial frictions ([Galor and Zeira 1993](#); [Aghion and Bolton 1997](#); [Galor and Moav 2004](#))
- financial inclusion and inequality is inverted U shaped ([Greenwood and Jovanovic 1990](#))
- impact of financial inclusion on poverty and income inequality in 30 European countries during 2004-2019 ([Tsouli 2022](#))

Financial Inclusion gap in Europe

	2011		2021	
	High income countries	Low income countries	High income countries	Low income countries
Access indicators				
Ownership of account at a financial institution	94	52	99	79
Ownership of debit card	77	39	92	60
Ownership of credit card	48	16	55	28
Use indicators				
Use electronic payment	69	21	75	56
Use account at a financial institution for saving	79	43	61	18
Borrow from a financial institution	16	10	16	15
Use Debit Card			93	76
Use Credit Card			82	78
Quality indicators				
Made any deposit into the account			89	82
Withdrew from the account			91	84
Made bill payments online using the Internet			65	40
Bought something online using the Internet			67	37

The study

- an alternative approach in measuring financial inclusion
use of MCA
- measuring inequality in financial inclusion
use of Theil's T index
in a multidimensional approach
- how financial inclusion is interlinked with income inequality?
use of Tobit estimation

The sample

- 15 poorest European countries in terms of GDP per capita
- micro level data from *Global Findex* (2011 and 2021)
- survey conducted by following multi stage stratified random sampling
- appropriate weighting is used to ensure a nationally representative sample for each economy
- number of sample adults: 12893 in 2021
15650 in 2011

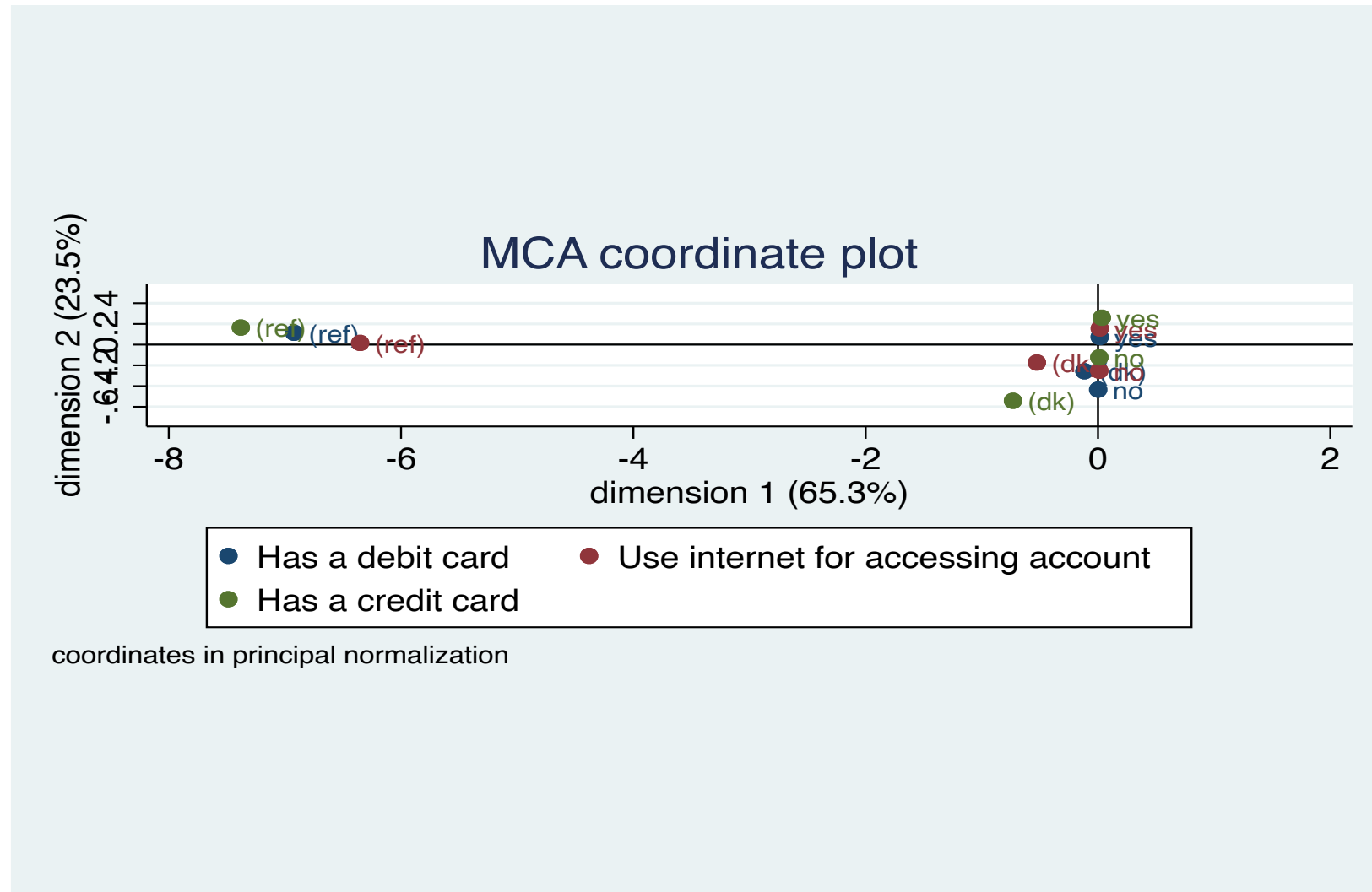
demand side analysis

- access to finance
 - Ownership of bank account
 - Ownership of debit card
 - Ownership of credit card
 - access to internet for financial transaction
- usage of financial services
 - Bank account
 - Debit card
 - Credit card
 - Other online transactions

financial inclusion index: two step method

- Step I: access index scores and use index scores are calculated with access and use indicators for each country by using MCA
 - indicators are categorical variables need to convert them in binary form
 - PCA is not appropriate in finding out weights endogenously
- Step II: financial inclusion index is calculated by taking access index scores and use index scores as two major dimensions of it
 - scores are the predicted values and are quantitative in nature, PCA is used
 - composite financial index scores are grouped into 5 equal parts

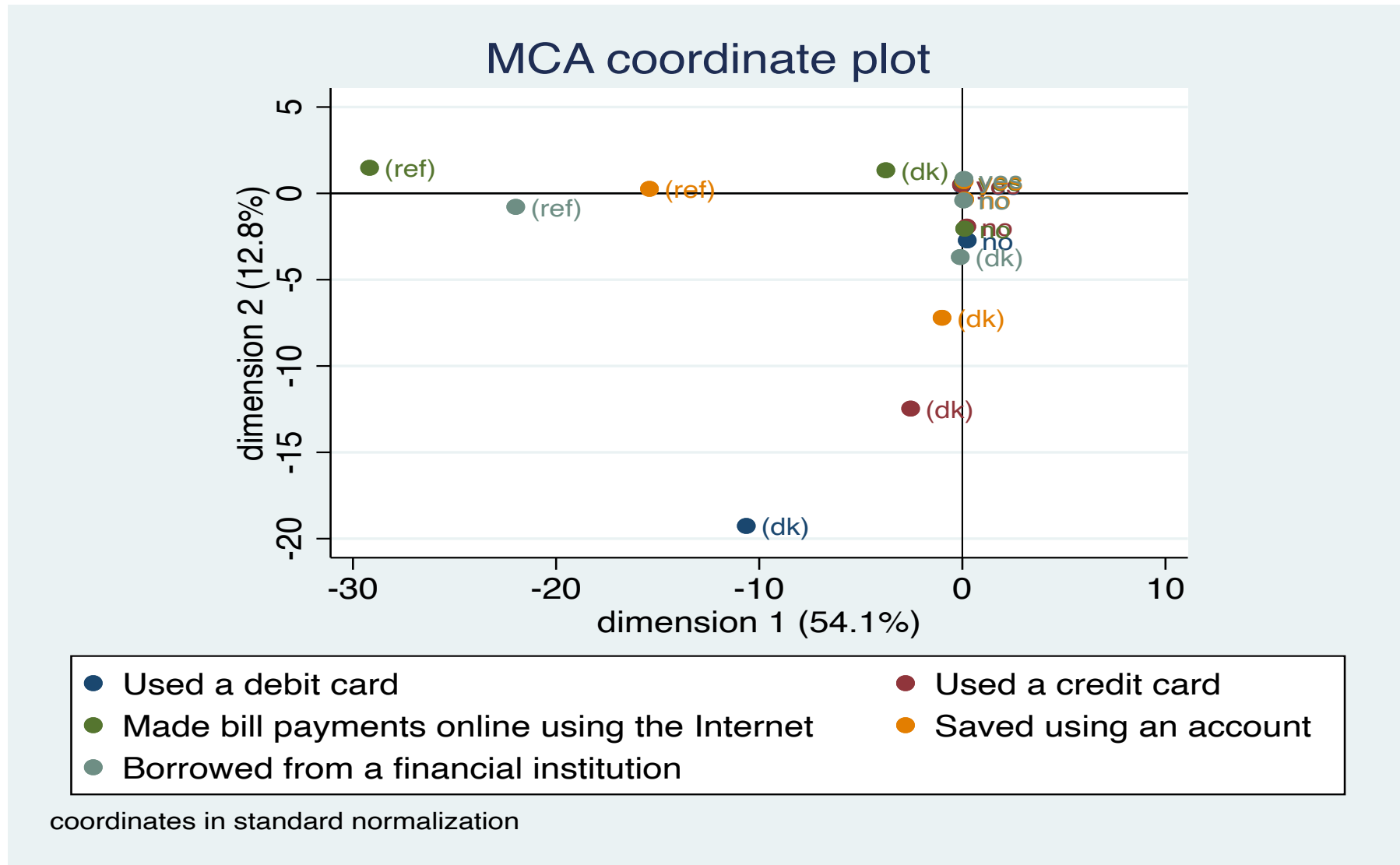
Components of access to finance in poor European countries: 2021



Mean scores of access to finance index

Countries	2011		2021	
Albania	0.45	(0.03)	2.66	(0.05)
Armenia	0.69	(0.02)	2.56	(0.05)
Bulgaria	0.01	(0.04)	1.28	(0.06)
Bosnia	0.03	(0.04)	1.73	(0.05)
Georgia	0.38	(0.03)	1.98	(0.05)
Greece	-0.22	(0.03)	0.66	(0.06)
Croatia	-0.79	(0.03)	1.03	(0.06)
Hungary	-0.39	(0.03)	0.92	(0.06)
Kazakhstan	0.22	(0.03)	1.20	(0.06)
Latvia	-0.69	(0.03)	0.47	(0.04)
Moldova	0.64	(0.02)	2.02	(0.05)
Romania			1.67	(0.06)
Russia	0.15	(0.02)	1.00	(0.04)
Serbia	-0.13	(0.04)	1.59	(0.06)
Turkey	-0.46	(0.04)	1.37	(0.07)
Ukraine	0.14	(0.04)	0.92	(0.07)

Components of use of finance in poor European countries: 2021



Mean score of use index of financial services

Countries	2011		2021	
Albania	0.29	(0.04)	1.83	(0.03)
Armenia	-0.04	(0.05)	1.36	(0.04)
Bulgaria	0.36	(0.03)	1.29	(0.04)
Bosnia	0.22	(0.04)	1.55	(0.04)
Georgia	0.29	(0.04)	1.33	(0.04)
Greece	0.28	(0.03)	0.69	(0.05)
Croatia	0.10	(0.03)	0.97	(0.04)
Hungary	-0.07	(0.04)	0.71	(0.04)
Kazakhstan	0.19	(0.04)	0.89	(0.05)
Latvia	-0.36	(0.04)	0.31	(0.04)
Moldova	0.40	(0.03)	1.44	(0.03)
Romania			1.19	(0.04)
Russia	0.26	(0.03)	0.71	(0.03)
Serbia	0.28	(0.03)	1.28	(0.04)
Turkey	0.39	(0.03)	1.00	(0.04)
Ukraine	0.37	(0.03)	0.94	(0.05)

Financial inclusion index

	Mean score			
	2011		2021	
Albania	0.30	(1.02)	1.65	(0.62)
Armenia	0.21	(1.20)	1.33	(0.91)
Bulgaria	0.05	(1.02)	0.70	(1.11)
Bosnia	-0.06	(1.12)	1.07	(1.00)
Georgia	0.25	(1.05)	1.04	(1.08)
Greece	-0.18	(0.98)	0.06	(0.99)
Croatia	-0.73	(1.15)	0.39	(1.12)
Hungary	-0.58	(1.24)	0.19	(1.06)
Kazakhstan	0.05	(1.22)	0.42	(1.28)
Latvia	-1.03	(1.19)	-0.26	(0.86)
Moldova	0.52	(0.88)	1.13	(1.00)
Romania			0.82	(1.11)
Russia	0.07	(1.06)	0.22	(1.15)
Serbia	-0.12	(1.17)	0.83	(1.10)
Turkey	-0.27	(1.16)	0.57	(1.34)
Ukraine	0.14	(1.11)	0.33	(1.28)
All	-0.08	(1.17)	0.63	(1.19)

Inequality in financial inclusion: Theil's T index

	2011	2021
Albania	0.03	0.04
Armenia	0.02	0.07
Bulgaria	0.04	0.22
Bosnia	0.06	0.15
Georgia	0.04	0.11
Greece	0.08	0.29
Croatia	0.07	0.25
Hungary	0.04	0.34
Kazakhstan	0.02	0.21
Latvia	0.04	0.59
Moldova	0.02	0.12
Romania		0.20
Russia	0.06	0.26
Serbia	0.06	0.21
Turkey	0.01	0.15
Ukraine	0.04	0.23
All	0.043	0.18
Within group	0.038	0.16
Between group	0.004	0.02

Tobit estimation of inclusion index score

	2011		2021	
age	-0.06	(-20.72)	-0.04	(-13.17)
age ²	0.001	(21.77)	0.001	(17.47)
Sex dummy				
male	0.10	(4.72)	-0.11	(-5.27)
Education dummy				
Secondary school	-0.25	(-10.09)	-0.60	(-20.54)
Tertiary education or more	-0.66	(-18.88)	-1.08	(-33.07)
Income quantile				
second 20%	-0.10	(-2.96)	-0.17	(-5.01)
middle 20%	-0.14	(-4.38)	-0.30	(-8.91)
fourth 20%	-0.24	(-7.33)	-0.42	(-12.43)
richest 20%	-0.39	(-11.79)	-0.54	(-15.93)
Intercept	1.36	(22.82)	2.07	(28.72)
Number of observation	15,915		16,853	
Uncensored observation	15,909		16,853	
F(11, 15904)	151.78		319.28	
Prob > F	0.00		0.00	
Pseudo R2	0.0347		0.0714	

Concluding remarks

- major concern is on involuntary exclusion from financial services and the responsible factors for such type of exclusion
- investigates the role of income inequality in explaining inequality in financial inclusion
- Tobit estimation suggests a strong association between inequality in financial access and income inequality after controlling for the effects of education, age and gender