

Rise of the CBDCs: online annex

This online annex gives additional tables, regression results and figures to complement “Rise of the CBDCs: drivers, approaches and technologies”. See main text for further discussion.

Univariate OLS regressions on overall CBDC project index¹

Table A1

Digital infrastructure												
Mobile cellular subscriptions (per 100 people)	0.004*** (0.001)											
Broadband subscriptions (fixed line, per 100 people)	0.021*** (0.004)											
Innovation capacity												
Innovation output score (WIPO)	0.025*** (0.005)											
Fast payment system dummy	0.416*** (0.112)											
Institutional characteristics												
Government effectiveness	0.268*** (0.047)											
Informal economy (% of GDP)	-0.02*** (0.006)											
Development and financial inclusion												
Ln(GDP per capita)	0.174*** (0.035)											
Account ownership (% age 15+)	0.01*** (0.002)											
Financial development index ²	1.67*** (0.231)											
Public interest in CBDCs												
Search interest index (Google/Baidu) ³	0.234*** (0.049)											
Cross-border transactions												
Remittances ⁴ to GDP	-0.03*** (0.006)											
Trade openness ⁵											0.001 (0.002)	
Number of observations	169	167	118	175	175	122	168	135	158	175	110	134
Pseudo R ²	0.068	0.168	0.189	0.093	0.162	0.077	0.132	0.155	0.290	0.160	0.077	0.004

Robust standard errors in parentheses; ***/**/* denotes results that are significant at the 1/5/10% level.

¹ For all the independent variables, average over the period 2013–2019, subject to data availability. ² Sviridzenka (2016). ³ Data have been normalised. ⁴ Sum of inflows and outflows. ⁵ Sum of imports and exports divided by the country GDP. Data for 2018.

Sources: Bech et al (2020); WIPO (2018); Medina and Schneider (2019); Sviridzenka (2016); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; Baidu; central banks' websites; Datastream; Google Trends; authors' calculations.

Univariate ordered probit regressions on retail CBDC project index¹

Table A2

Digital infrastructure												
Mobile cellular subscriptions (per 100 people)	0.005** (0.002)											
Broadband subscriptions (fixed line, per 100 people)	0.037*** (0.008)											
Innovation capacity												
Innovation output score (WIPO)	0.046*** (0.010)											
Fast payment system dummy	0.678*** (0.227)											
Institutional characteristics												
Government effectiveness	0.522*** (0.114)											
Informal economy (% of GDP)	-0.027** (0.013)											
Development and financial inclusion												
Ln(GDP per capita)	0.352*** (0.09)											
Account ownership (% age 15+)	0.018*** (0.005)											
Financial development index ²	2.616*** (0.519)											
Public interest in CBDCs												
Search interest index (Google/Baidu) ³	0.258*** (0.067)											
Cross-border transactions												
Remittances ⁴ to GDP	-0.138** (0.069)											
Trade openness ⁵	-0.007** (0.004)											
Number of observations	169	167	118	175	175	122	168	135	158	175	110	134
Pseudo R ²	0.016	0.108	0.135	0.047	0.10	0.038	0.086	0.09	0.149	0.052	0.101	0.031

Robust standard errors in parentheses; ***/**/* denotes results that are significant at the 1/5/10% level.

¹ For all the independent variables, average over the period 2013–2019, subject to data availability. ² Svirydzhenka (2016). ³ Data have been normalised. ⁴ Sum of inflows and outflows. ⁵ Sum of imports and exports divided by the country GDP. Data for 2018.

Sources: Bech et al (2020); WIPO (2018); Medina and Schneider (2019); Svirydzhenka (2016); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; Baidu; central banks' websites; Datastream; Google Trends; authors' calculations.

Univariate ordered probit regressions on wholesale CBDC project index¹

Table A3

Digital infrastructure

Mobile cellular subscriptions (per 100 people)	0.01** (0.004)
Broadband subscriptions (fixed line, per 100 people)	0.037*** (0.01)

Innovation capacity

Innovation output score (WIPO)	0.037*** (0.01)
Fast payment system dummy	1.023*** (0.3)

Institutional characteristics

Government effectiveness	0.762*** (0.193)
Informal economy (% of GDP)	-0.059** (0.025)

Development and financial inclusion

Ln(GDP per capita)	0.479*** (0.128)
Account ownership (% age 15+)	0.03*** (0.009)
Financial development index ²	3.532*** (0.739)

Public interest in CBDCs

Search interest index (Google/Baidu) ³	0.526*** (0.117)
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Cross-border transactions

Remittances ⁴ to GDP	-0.219** (0.097)
Trade openness ⁵	0.005* (0.003)

Number of observations	169	167	118	175	175	122	168	135	158	175	110	134
Pseudo R ²	0.071	0.119	0.101	0.108	0.191	0.147	0.145	0.185	0.267	0.218	0.119	0.037

Robust standard errors in parentheses; ***/**/* denotes results that are significant at the 1/5/10% level.

¹ For all the independent variables, average over the period 2013–2019, subject to data availability. ² Svirydzhenka (2016). ³ Data have been normalised. ⁴ Sum of inflows and outflows. ⁵ Sum of imports and exports divided by the country GDP. Data for 2018.

Sources: Bech et al (2020); WIPO (2018); Medina and Schneider (2019); Svirydzhenka (2016); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; Baidu; central banks' websites; Datastream; Google Trends; authors' calculations.

Pairwise correlations among independent variables

Table A4

	Mobile cellular subscriptions	Broadband subscriptions	Innovation output score	Fast payment system dummy	Government effectiveness	Informal economy	Ln(GDP per capita)	Account ownership	Financial development	Search interest index	Remittances to GDP	Trade openness
Mobile cellular subscriptions	1											
Broadband subscriptions	0.44	1										
Innovation output score	0.28	0.85	1									
Fast payment system dummy	0.29	0.53	0.54	1								
Government effectiveness	0.56	0.83	0.83	0.53	1							
Informal economy	-0.32	-0.67	-0.73	-0.44	-0.77	1						
Ln(GDP per capita)	0.59	0.84	0.75	0.46	0.86	-0.69	1					
Account ownership	0.51	0.82	0.77	0.58	0.84	-0.71	0.84	1				
Financial development	0.43	0.80	0.81	0.60	0.84	-0.69	0.81	0.79	1			
Search interest index	0.12	0.34	0.36	0.36	0.36	-0.36	0.29	0.34	0.51	1		
Remittances to GDP	-0.16	-0.39	-0.31	-0.38	-0.41	0.40	-0.43	-0.43	-0.40	-0.26	1	
Trade openness	0.24	0.23	0.30	0.09	0.25	-0.26	0.24	0.29	0.13	-0.04	0.06	1

Sources: Bech, Hancock and Zhang (2020); WIPO (2018); Medina and Schneider (2019); Svirydzenka (2016); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; Baidu; central bank websites; Datastream; GoogleTrends; authors' calculations.

Multivariate OLS regressions on CBDC project indices¹

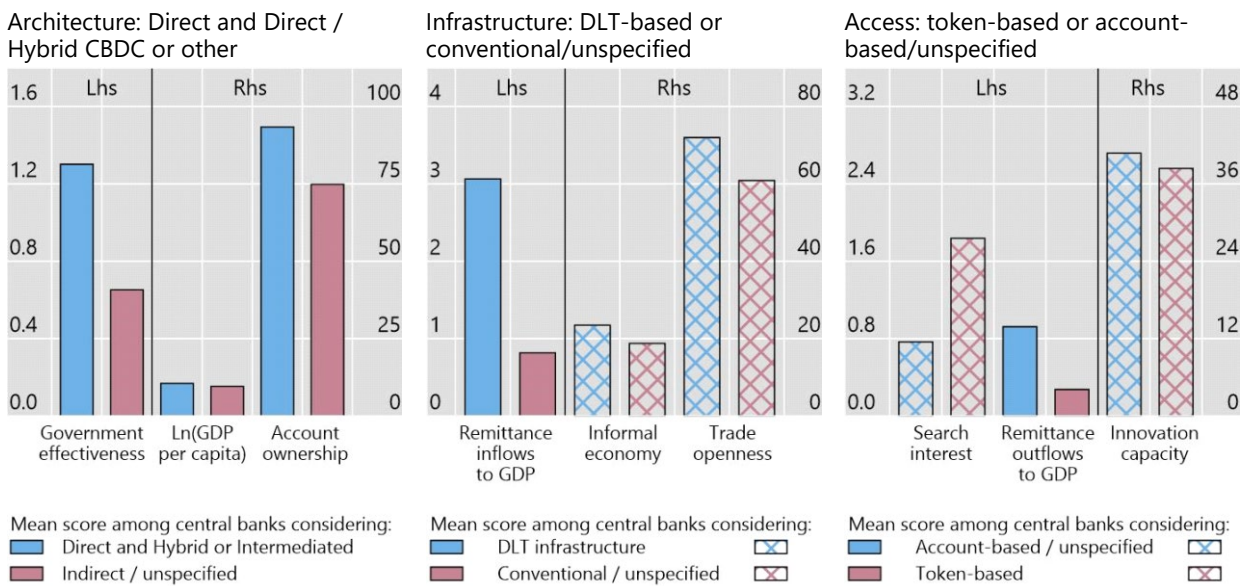
Table A5

	Overall CBDC project index		Retail CBDC project index		Wholesale CBDC project index	
Mobile cellular subscriptions (per 100 people)	0.004*	0.004		0.003**		0.001
	(0.002)	(0.003)		(0.002)		(0.002)
Innovation output score (WIPO)	0.022***		0.027***	0.031***		
	(0.005)		(0.007)	(0.006)		
Informal economy (% of GDP)		0.013*	0.013*	0.014*		0.004
		(0.007)	(0.007)	(0.008)		(0.006)
Financial development Index ²		1.932***			1.035***	1.193***
		(0.361)			(0.264)	(0.431)
Trade openness ³		-0.000		-0.005***	0.002	0.002
		(0.002)		(0.001)	(0.001)	(0.002)
Number of observations	118	105	110	100	132	105
R ²	0.219	0.315	0.187	0.297	0.234	0.254

Robust standard errors in parentheses; ***/**/* denotes results that are significant at the 1/5/10% level. Constants are not reported.

¹ For all the independent variables, average over the period 2013–2019, subject to data availability. ² Svirydzenka K (2016): "Introducing a new broad-based Index of financial development", IMF Working Paper, 15. ⁴ Sum of imports and exports divided by the country GDP. Data for 2018.

Sources: WIPO (2018); Medina and Schneider (2019); Svirydzenka (2016); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; central banks' websites; Datastream; authors' calculations.



Each bar visualises the cross-country average for the countries adopting the specific project feature. The solid fill denotes results that are significant at the 5/10% level in a probit univariate regression with robust standard errors.

Sources: WIPO (2018); Medina and Schneider (2019); IMF, *World Economic Outlook*; World Bank, *Remittance Prices Worldwide*, remittanceprices.worldbank.org; World Bank; Baidu; central banks' websites; Datastream; Google Trends; authors' calculations.