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**Working Paper**

## Timely measurement of real effective exchange rates

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Online annex to the paper:

Darvas, Zsolt (2021) 'Timely measurement of real effective exchange rates', Working Paper 2021/15, Bruegel, <https://www.bruegel.org/2021/12/timely-measurement-of-real-effective-exchange-rates/>

23 December 2021

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## 1. Information about monthly data

		Availability of consumer price index data on 4 December 2021							Forecast errors in the January 1995 - November 2021 out-of-sample evaluation period						Included in the basket of 120 countries?	Included in the basket of 51 countries?
		Before extension		N.o. obs. missing from end	After extension		CPI forecasting method	CPI		REER120		REER51				
		First obs	Last obs		First obs	Last obs		MAPFE	RMSPFE	MAPFE	RMSPFE	MAPFE	RMSPFE			
Country name	Code	First obs	Last obs		First obs	Last obs	CPI forecasting method	MAPFE	RMSPFE	MAPFE	RMSPFE	MAPFE	RMSPFE			
1 Afghanistan	AF	2004M03	2020M03	20	2004M03	2021M11	AR3_rolling_60	3.31	4.60	3.31	4.58	3.31	4.58	0	0	
2 Albania	AL	1991M01	2021M10	1	1991M01	2022M12	IMF	0.75	2.81	0.75	2.82	0.75	2.82	1	0	
3 Algeria	DZ	1974M01	2021M08	3	1974M01	2021M11	AR1_recursive	0.80	1.02	0.79	1.01	0.79	1.02	1	0	
4 Angola	AO	1991M01	2021M10	1	1991M01	2021M11	Unchanged_1M_inflation	0.21	0.39	0.23	0.40	0.23	0.40	0	0	
5 Antigua and Barbuda	AG	1998M01	2021M06	5	1998M01	2022M12	IMF	0.70	0.95	0.70	0.95	0.70	0.95	0	0	
6 Argentina	AR	1950M01	2021M10	1	1950M01	2021M11	AR1_rolling_60	0.61	0.87	0.60	0.85	0.61	0.86	1	0	
7 Armenia	AM	1992M12	2021M10	1	1992M12	2021M11	AR1_rolling_60	0.36	0.48	0.35	0.47	0.35	0.47	1	0	
8 Australia	AU	1955M02	2021M08	3	1955M02	2021M11	AR4_recursive	0.23	0.42	0.21	0.38	0.21	0.39	1	1	
9 Austria	AT	1957M01	2021M11	0	1957M01	2021M11	no_missing_value	0.00	0.00	0.04	0.05	0.03	0.05	1	1	
10 Azerbaijan	AZ	1992M01	2021M10	1	1992M01	2021M11	AR6_recursive	0.48	0.83	0.48	0.83	0.48	0.82	0	0	
11 Bahamas	BS	1972M07	2021M06	5	1972M07	2022M12	IMF	0.68	0.87	0.70	0.88	0.70	0.88	1	0	
12 Bahrain	BH	1975M07	2021M08	3	1975M07	2021M11	AR1_rolling_60	0.67	0.95	0.68	0.93	0.68	0.93	1	0	
13 Bangladesh	BD	1993M07	2021M10	1	1992M12	2021M11	Unchanged_12M_inflation	0.14	0.21	0.15	0.23	0.15	0.23	1	0	
14 Barbados	BB	1965M10	2020M12	11	1965M10	2021M11	AR1_recursive	2.14	2.70	2.13	2.66	2.13	2.66	0	0	
15 Belarus	BY	1992M01	2021M10	1	1992M01	2021M11	AR3_recursive	0.27	0.37	0.26	0.34	0.30	0.39	0	0	
16 Belgium	BE	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.05	0.07	0.05	0.06	1	1	
17 Belize	BZ	1990M11	2020M05	18	1990M11	2021M11	AR1_rolling_60	0.66	1.04	0.66	1.02	0.67	1.02	1	0	
18 Benin	BJ	1991M12	2021M08	3	1991M12	2021M11	AR4_rolling_60	1.38	1.71	1.38	1.71	1.38	1.71	0	0	
19 Bhutan	BT	1987M01	2020M11	12	1987M01	2021M11	AR5_recursive	1.48	1.71	1.46	1.71	1.46	1.72	0	0	
20 Bolivia	BO	1957M01	2021M10	1	1957M01	2021M11	AR1_rolling_60	0.26	0.40	0.29	0.43	0.29	0.43	1	0	
21 Bosnia/Herzegovina	BA	2005M01	2021M10	1	2005M01	2021M11	AR3_recursive	0.20	0.28	0.17	0.23	0.18	0.26	0	0	
22 Botswana	BW	1975M06	2021M10	1	1975M06	2021M11	AR3_rolling_60	0.20	0.38	0.24	0.40	0.25	0.41	1	0	
23 Brazil	BR	1979M12	2021M10	1	1979M12	2021M11	AR1_recursive	0.23	0.32	0.23	0.32	0.23	0.33	1	0	
24 Brunei Darussalam	BN	1987M01	2021M08	3	1987M01	2021M11	AR6_recursive	0.37	0.49	0.38	0.53	0.38	0.53	1	0	
25 Bulgaria	BG	1990M05	2021M10	1	1990M05	2021M11	AR1_recursive	0.26	0.33	0.23	0.30	0.24	0.30	1	0	
26 Burkina Faso	BF	1959M01	2021M09	2	1959M01	2021M11	AR6_recursive	0.84	1.07	0.83	1.04	0.83	1.04	1	1	
27 Burundi	BI	1974M01	2021M03	8	1974M01	2021M11	AR1_rolling_60	3.62	4.51	3.61	4.51	3.61	4.51	0	0	
28 Cambodia	KH	1994M10	2021M09	2	1992M12	2021M11	AR5_rolling_60	0.34	0.45	0.32	0.43	0.32	0.43	1	0	
29 Cameroon	CM	1968M01	2021M06	5	1968M01	2021M11	AR5_recursive	0.39	0.48	0.38	0.48	0.38	0.49	1	0	
30 Canada	CA	1950M01	2021M10	1	1950M01	2021M11	AR6_recursive	0.20	0.27	0.13	0.18	0.13	0.18	1	1	
31 Cape Verde	CV	1992M01	2021M03	8	1992M01	2021M11	AR3_rolling_60	0.82	1.06	0.83	1.06	0.82	1.06	1	0	
32 Central African Republic	CF	1981M01	2020M12	11	1981M01	2021M11	AR2_recursive	2.84	3.89	2.84	3.89	2.84	3.89	0	0	
33 Chad	TD	1982M12	2020M02	21	1982M12	2021M11	AR5_rolling_60	3.11	4.28	3.10	4.26	3.10	4.28	0	0	
34 Chile	CL	1970M01	2021M10	1	1970M01	2021M11	AR1_rolling_120	0.14	0.20	0.15	0.20	0.15	0.20	1	0	
35 China	CN	1986M01	2021M10	1	1986M01	2021M11	AR1_recursive	0.25	0.34	0.24	0.32	0.24	0.33	1	0	
36 Colombia	CO	1954M07	2021M10	1	1954M07	2021M11	AR1_rolling_120	0.15	0.22	0.16	0.23	0.17	0.24	1	1	
37 Comoros	KM	1995M01	2016M02	69	1995M01	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	
38 Congo, Dem. Rep.	CD	1963M01	2019M12	23	1963M01	2021M11	AR5_rolling_60	3.58	4.46	3.57	4.46	3.57	4.46	0	0	
39 Congo, Rep.	CG	1990M01	2020M12	11	1990M01	2021M11	AR6_recursive	1.29	1.58	1.30	1.59	1.31	1.59	0	0	
40 Costa Rica	CR	1957M01	2021M10	1	1957M01	2021M11	AR3_rolling_60	0.22	0.29	0.23	0.30	0.23	0.30	1	1	
41 Croatia	HR	1986M01	2021M10	1	1986M01	2021M11	AR1_rolling_60	0.20	0.25	0.17	0.22	0.17	0.22	1	0	
42 Curacao	AN	1970M01	2021M08	3	1970M01	2021M11	AR1_recursive	0.54	0.74	0.53	0.74	0.53	0.74	0	0	
43 Cyprus	CY	1957M01	2021M10	1	1957M01	2021M11	AR2_recursive	0.32	0.46	0.30	0.43	0.30	0.43	1	1	
44 Czech Republic	CZ	1970M01	2021M10	1	1970M01	2021M11	AR2_recursive	0.17	0.24	0.16	0.22	0.16	0.22	1	0	
45 Denmark	DK	1957M02	2021M10	1	1957M02	2021M11	AR1_rolling_60	0.12	0.16	0.10	0.14	0.10	0.14	1	1	

Country name	Code	Availability of consumer price index data on 4 December 2021						Forecast errors in the January 1995 - November 2021 out-of-sample evaluation period						Included in the basket of 120 countries?	Included in the basket of 51 countries?
		Before extension		N.o. obs. missing from end	After extension		CPI forecasting method	CPI		REER120		REER51			
		First obs	Last obs		First obs	Last obs		MAPFE	RMSPFE	MAPFE	RMSPFE	MAPFE	RMSPFE		
46 Djibouti	DJ	1987M01	2020M12	11	1987M01	2021M11	AR1_rolling_60	1.75	2.23	1.76	2.22	1.76	2.23	0	0
47 Dominica	DM	1965M06	2021M06	5	1965M06	2021M11	AR1_rolling_60	0.63	0.80	0.62	0.79	0.62	0.80	1	0
48 Dominican Republic	DO	1957M01	2021M10	1	1957M01	2021M11	AR1_rolling_60	0.28	0.38	0.23	0.32	0.23	0.31	1	1
49 Ecuador	EC	1957M01	2021M10	1	1957M01	2021M11	AR6_rolling_120	0.19	0.26	0.20	0.29	0.21	0.29	1	1
50 Egypt	EG	1957M01	2021M10	1	1957M01	2021M11	AR3_recursive	0.70	1.04	0.71	1.04	0.70	1.03	1	1
51 El Salvador	SV	1957M01	2021M10	1	1957M01	2021M11	AR1_rolling_60	0.21	0.34	0.18	0.30	0.18	0.30	1	1
52 Equatorial Guinea	GQ	1985M01	2021M03	8	1985M01	2022M12	IMF	1.29	1.57	1.30	1.59	1.31	1.59	0	0
53 Estonia	EE	1992M01	2021M10	1	1992M01	2021M11	AR1_rolling_60	0.30	0.41	0.28	0.37	0.28	0.37	1	0
54 Eswatini	SZ	1967M01	2020M09	14	1967M01	2021M11	AR2_rolling_60	1.60	2.02	1.59	1.98	1.59	1.98	0	0
55 Ethiopia	ET	1966M01	2020M08	15	1966M01	2021M11	AR2_recursive	4.14	4.95	4.13	4.95	4.13	4.95	0	0
56 Fiji	FJ	1969M01	2021M08	3	1969M01	2021M11	AR3_rolling_60	0.99	1.33	1.02	1.36	1.02	1.37	1	0
57 Finland	FI	1955M01	2021M10	1	1955M01	2021M11	AR6_recursive	0.13	0.18	0.11	0.14	0.11	0.14	1	1
58 France	FR	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.05	0.07	0.05	0.06	1	1
59 Gabon	GA	1963M01	2021M03	8	1963M01	2021M11	AR1_recursive	1.07	1.40	1.08	1.40	1.07	1.39	0	0
60 Gambia	GM	1961M01	2021M10	1	1961M01	2021M11	AR1_rolling_60	0.21	0.32	0.21	0.31	0.21	0.31	1	0
61 Georgia	GE	1994M01	2021M10	1	1994M01	2021M11	AR2_recursive	0.40	0.61	0.40	0.60	0.40	0.60	0	0
62 Germany	DE	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.06	0.08	0.05	0.07	1	1
63 Ghana	GH	1963M03	2021M10	1	1963M03	2021M11	AR2_rolling_120	0.29	0.43	0.30	0.46	0.31	0.46	1	0
64 Greece	GR	1955M01	2021M10	1	1955M01	2021M11	AR2_recursive	0.25	0.33	0.22	0.30	0.22	0.30	1	1
65 Grenada	GD	1976M01	2021M06	5	1976M01	2021M11	AR6_rolling_60	0.53	0.72	0.50	0.67	0.53	0.71	1	0
66 Guatemala	GT	1957M01	2021M10	1	1957M01	2021M11	AR2_rolling_60	0.26	0.36	0.28	0.38	0.28	0.38	1	1
67 Guinea	GN	2004M01	2021M10	1	2004M01	2021M11	AR1_rolling_60	0.36	1.05	0.37	1.06	0.37	1.07	0	0
68 Guinea Bissau	GW	1986M02	2020M07	16	1986M02	2021M11	AR6_rolling_60	0.86	1.18	0.86	1.17	0.86	1.18	1	0
69 Guyana	GY	1994M01	2020M11	12	1992M12	2021M11	AR6_rolling_60	1.17	1.69	1.16	1.66	1.16	1.66	0	0
70 Haiti	HT	1957M01	2021M08	3	1957M01	2021M11	AR6_recursive	0.90	1.33	0.90	1.34	0.90	1.34	1	1
71 Honduras	HN	1957M01	2021M10	1	1957M01	2021M11	AR1_rolling_60	0.15	0.21	0.16	0.21	0.16	0.21	1	1
72 Hong Kong, China	HK	1980M10	2021M10	1	1980M10	2021M11	AR1_recursive	0.44	0.71	0.45	0.71	0.46	0.73	1	0
73 Hungary	HU	1969M01	2021M10	1	1969M01	2021M11	AR6_rolling_120	0.21	0.29	0.19	0.25	0.19	0.25	1	0
74 Iceland	IS	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.06	0.09	0.06	0.09	1	1
75 India	IN	1957M01	2021M10	1	1957M01	2021M11	AR5_recursive	0.35	0.49	0.36	0.50	0.37	0.50	1	1
76 Indonesia	ID	1968M01	2021M11	0	1968M01	2021M11	no_missing_value	0.00	0.00	0.08	0.11	0.08	0.11	1	0
77 Iran	IR	1987M01	2020M02	21	1987M01	2021M11	Unchanged_1M_inflation	18.27	28.05	18.27	28.06	18.27	28.06	0	0
78 Iraq	IQ	2007M01	2021M07	4	2007M01	2021M11	AR1_rolling_60	0.95	1.31	0.94	1.30	0.95	1.31	0	0
79 Ireland	IE	1955M02	2021M10	1	1955M02	2021M11	AR4_recursive	0.20	0.28	0.19	0.25	0.19	0.25	1	1
80 Israel	IL	1952M01	2021M10	1	1952M01	2021M11	AR5_recursive	0.17	0.24	0.17	0.24	0.17	0.24	1	1
81 Italy	IT	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.05	0.07	0.04	0.06	1	1
82 Ivory Coast	CI	1960M01	2021M10	1	1960M01	2021M11	AR2_rolling_60	0.38	0.52	0.38	0.51	0.38	0.51	1	1
83 Jamaica	JM	1957M01	2021M10	1	1957M01	2021M11	AR2_rolling_120	0.37	0.51	0.35	0.48	0.36	0.49	1	1
84 Japan	JP	1955M01	2021M10	1	1955M01	2021M11	AR1_recursive	0.15	0.21	0.16	0.23	0.16	0.23	1	1
85 Jordan	JO	1976M01	2021M10	1	1976M01	2021M11	AR4_recursive	0.39	0.53	0.38	0.51	0.38	0.51	1	0
86 Kazakhstan	KZ	1992M12	2021M10	1	1992M12	2021M11	AR2_recursive	0.24	0.51	0.25	0.52	0.25	0.52	1	0
87 Kenya	KE	1968M01	2021M11	0	1968M01	2021M11	no_missing_value	0.00	0.00	0.06	0.08	0.06	0.09	1	0
88 Kiribati	KI	2006M01	2019M12	23	2006M01	2021M11	AR6_rolling_60	2.87	3.43	2.85	3.40	2.88	3.44	0	0
89 Korea South	KR	1951M08	2021M10	1	1951M08	2021M11	AR1_rolling_60	0.19	0.25	0.18	0.24	0.19	0.24	1	1
90 Kuwait	KW	1973M01	2021M04	7	1973M01	2021M11	AR6_recursive	0.52	0.65	0.51	0.64	0.52	0.64	1	0

	Country name	Code	Availability of consumer price index data on 4 December 2021					Forecast errors in the January 1995 - November 2021 out-of-sample evaluation period						Included in the basket of 120 countries?	Included in the basket of 51 countries?	
			Before extension		N.o. obs. missing from end	After extension		CPI		REER120		REER51				
			First obs	Last obs		First obs	Last obs	MAPFE	RMSPFE	MAPFE	RMSPFE	MAPFE	RMSPFE			
91	Kyrgyzstan	KG	1995M01	2021M10	1	1995M01	2021M11	AR5_rolling_120	0.42	0.62	0.41	0.61	0.42	0.63	0	0
92	Lao	LA	1987M12	2021M10	1	1987M12	2021M11	AR2_rolling_120	0.24	0.32	0.26	0.35	0.24	0.32	1	0
93	Latvia	LV	1990M12	2021M10	1	1990M12	2021M11	AR2_recursive	0.26	0.35	0.24	0.33	0.25	0.33	1	0
94	Lebanon	LB	2007M12	2021M10	1	2007M12	2021M11	AR3_recursive	1.64	3.36	1.63	3.37	1.63	3.37	0	0
95	Lesotho	LS	1999M07	2021M10	1	1999M07	2021M11	AR1_rolling_60	0.24	0.36	0.26	0.38	0.26	0.38	0	0
96	Liberia	LR	2001M01	2019M02	33	2001M01	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0
97	Libya	LY	1987M01	2014M05	90	1987M01	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0
98	Lithuania	LT	1990M12	2021M10	1	1990M12	2021M11	AR6_rolling_120	0.22	0.31	0.20	0.27	0.20	0.27	1	0
99	Luxembourg	LU	1955M01	2021M10	1	1955M01	2021M11	AR1_recursive	0.20	0.37	0.18	0.35	0.18	0.35	1	1
100	Madagascar	MG	1964M01	2021M08	3	1964M01	2021M11	AR5_rolling_120	0.45	0.59	0.44	0.59	0.44	0.59	1	0
101	Malawi	MW	1980M01	2021M09	2	1980M01	2021M11	AR5_recursive	0.90	1.17	0.89	1.16	0.90	1.16	1	0
102	Malaysia	MY	1957M01	2021M10	1	1957M01	2021M11	AR2_recursive	0.33	0.50	0.30	0.44	0.30	0.44	1	1
103	Maldives	MV	1985M01	2021M09	2	1985M01	2021M11	AR1_rolling_60	0.73	0.98	0.71	0.96	0.71	0.96	1	0
104	Mali	ML	1987M07	2021M09	2	1987M07	2021M11	AR1_recursive	1.04	1.38	1.02	1.35	1.01	1.34	0	0
105	Malta	MT	1957M01	2021M10	1	1957M01	2021M11	AR2_rolling_60	0.11	0.14	0.12	0.15	0.11	0.15	1	1
106	Mauritania	MR	1985M07	2021M10	1	1985M07	2021M11	AR1_rolling_60	0.24	0.35	0.25	0.36	0.25	0.36	1	0
107	Mauritius	MU	1962M07	2021M10	1	1962M07	2021M11	AR3_rolling_120	0.52	0.73	0.52	0.74	0.53	0.74	1	0
108	Mexico	MX	1957M01	2021M10	1	1957M01	2021M11	AR1_recursive	0.16	0.27	0.17	0.25	0.17	0.25	1	1
109	Moldova	MD	1991M01	2021M10	1	1991M01	2021M11	AR4_recursive	0.34	0.52	0.33	0.51	0.33	0.51	1	0
110	Mongolia	MN	1991M01	2021M10	1	1991M01	2021M11	AR1_rolling_60	0.42	0.56	0.43	0.56	0.42	0.55	1	0
111	Morocco	MA	1957M01	2021M10	1	1957M01	2021M11	AR4_rolling_120	0.30	0.37	0.30	0.37	0.30	0.37	1	1
112	Mozambique	MZ	1989M12	2021M10	1	1989M12	2021M11	AR1_rolling_120	0.38	0.58	0.39	0.60	0.40	0.60	1	0
113	Myanmar	MM	1970M01	2020M11	12	1970M01	2021M11	AR4_rolling_60	2.80	3.48	2.81	3.50	2.81	3.51	0	0
114	Namibia	NA	2001M12	2021M10	1	2001M12	2021M11	AR1_rolling_60	0.22	0.33	0.21	0.31	0.21	0.32	0	0
115	Nepal	NP	1963M07	2021M09	2	1963M07	2021M11	AR6_recursive	0.56	0.75	0.58	0.77	0.59	0.77	1	0
116	Netherlands	NL	1957M01	2021M10	1	1957M01	2021M11	AR3_recursive	0.17	0.23	0.16	0.21	0.16	0.21	1	1
117	New Zealand	NZ	1955M02	2021M08	3	1955M02	2021M11	AR4_recursive	0.23	0.32	0.19	0.26	0.18	0.26	1	1
118	Nicaragua	NI	1990M01	2021M10	1	1990M01	2021M11	AR4_rolling_120	0.24	0.32	0.21	0.29	0.21	0.29	1	0
119	Niger	NE	1968M01	2020M02	21	1968M01	2022M12	IMF	2.48	3.10	2.46	3.09	2.46	3.09	0	0
120	Nigeria	NG	1960M01	2021M10	1	1960M01	2021M11	Unchanged_1M_inflation	0.15	0.29	0.17	0.30	0.17	0.29	1	0
121	North Macedonia	MK	1993M01	2021M10	1	1993M01	2021M11	AR5_recursive	0.20	0.30	0.19	0.27	0.19	0.28	1	0
122	Norway	NO	1950M01	2021M10	1	1950M01	2021M11	AR1_recursive	0.19	0.28	0.21	0.29	0.21	0.28	1	1
123	Oman	OM	2001M01	2021M10	1	2001M01	2021M11	AR1_rolling_60	0.24	0.33	0.23	0.33	0.23	0.33	0	0
124	Pakistan	PK	1957M01	2021M11	0	1957M01	2021M11	no_missing_value	0.00	0.00	0.07	0.10	0.07	0.10	1	1
125	Panama	PA	1974M07	2021M10	1	1974M07	2021M11	AR6_recursive	0.22	0.31	0.20	0.28	0.20	0.28	1	0
126	Papua New Guinea	PG	1971M02	2021M05	6	1971M02	2021M11	AR1_recursive	0.56	0.86	0.57	0.89	0.57	0.90	1	0
127	Paraguay	PY	1957M01	2021M10	1	1957M01	2021M11	AR3_rolling_60	0.31	0.44	0.33	0.44	0.30	0.44	1	1
128	Peru	PE	1957M01	2021M11	0	1957M01	2021M11	no_missing_value	0.00	0.00	0.07	0.10	0.08	0.11	1	0
129	Philippines	PH	1957M01	2021M10	1	1957M01	2021M11	AR2_recursive	0.20	0.27	0.20	0.26	0.20	0.26	1	1
130	Poland	PL	1987M01	2021M10	1	1987M01	2021M11	AR2_recursive	0.19	0.27	0.17	0.24	0.17	0.25	1	0
131	Portugal	PT	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.03	0.05	0.03	0.05	1	1
132	Qatar	QA	2002M12	2021M10	1	2002M12	2021M11	AR6_recursive	0.35	0.47	0.34	0.46	0.35	0.47	0	0
133	Romania	RO	1990M10	2021M10	1	1990M10	2021M11	AR2_rolling_120	0.27	0.48	0.25	0.47	0.25	0.47	1	0
134	Russia	RU	1990M12	2021M10	1	1990M12	2021M11	Unchanged_1M_inflation	0.17	0.27	0.19	0.30	0.19	0.30	1	0
135	Rwanda	RW	1965M04	2021M10	1	1965M04	2021M11	AR1_rolling_120	0.66	0.91	0.66	0.90	0.66	0.90	1	0

Country name	Code	Availability of consumer price index data on 4 December 2021						Forecast errors in the January 1995 - November 2021 out-of-sample evaluation period						Included in the basket of 120 countries?	Included in the basket of 51 countries?	
		Before extension		N.o. obs. missing from end	After extension		CPI forecasting method	CPI		REER120		REER51				
		First obs	Last obs		First obs	Last obs		MAPFE	RMSPFE	MAPFE	RMSPFE	MAPFE	RMSPFE			
136 Saint Kitts and Nevis	KN	1979M01	2021M06	5	1979M01	2021M11	AR5_rolling_60	0.74	0.94	0.71	0.89	0.73	0.91	1	0	
137 Saint Lucia	LC	1964M04	2021M06	5	1964M04	2021M11	AR1_rolling_60	1.23	1.49	1.18	1.43	1.19	1.44	0	0	
138 Saint Vincent and the Grenadine	VC	1975M01	2021M06	5	1975M01	2021M11	AR3_rolling_120	0.74	1.04	0.72	1.01	0.72	1.01	1	0	
139 Sao Tome and Principe	ST	1996M12	2019M08	27	1996M12	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	
140 Saudi Arabia	SA	1980M02	2021M10	1	1980M02	2021M11	AR1_rolling_60	0.36	0.81	0.37	0.81	0.37	0.81	1	0	
141 Senegal	SN	1968M01	2021M04	7	1968M01	2021M11	AR1_recursive	0.79	0.95	0.80	0.95	0.80	0.95	1	0	
142 Serbia	SQ	1994M02	2021M10	1	1994M02	2021M11	AR6_recursive	0.26	0.33	0.24	0.30	0.24	0.31	0	0	
143 Seychelles	SC	1969M06	2020M03	20	1969M06	2022M12	IMF	1.45	1.78	1.44	1.76	1.44	1.76	0	0	
144 Sierra Leone	SL	1990M01	2021M07	4	1990M01	2021M11	AR1_recursive	1.38	1.82	1.38	1.83	1.38	1.82	0	0	
145 Singapore	SG	1961M01	2021M10	1	1961M01	2021M11	AR4_recursive	0.17	0.23	0.13	0.21	0.14	0.21	1	0	
146 Slovakia	SK	1970M01	2021M10	1	1970M01	2021M11	AR5_recursive	0.16	0.22	0.14	0.21	0.15	0.21	1	0	
147 Slovenia	SI	1980M01	2021M11	0	1980M01	2021M11	no_missing_value	0.00	0.00	0.04	0.05	0.03	0.04	1	0	
148 Solomon Islands	SB	1978M01	2020M12	11	1978M01	2021M11	AR5_rolling_60	3.28	4.41	3.31	4.45	3.32	4.46	0	0	
149 South Africa	ZA	1957M01	2021M10	1	1957M01	2021M11	AR3_rolling_120	0.19	0.25	0.18	0.23	0.18	0.23	1	1	
150 Spain	ES	1954M03	2021M11	0	1954M03	2021M11	no_missing_value	0.00	0.00	0.04	0.05	0.04	0.05	1	1	
151 Sri Lanka	LK	1959M01	2021M01	10	1959M01	2022M12	IMF	1.51	1.89	1.52	1.90	1.52	1.90	0	0	
152 Sudan	SD	1957M01	2021M03	8	1957M01	2021M11	AR2_rolling_120	15.88	23.53	15.87	23.51	15.88	23.52	0	0	
153 Suriname	SR	1969M01	2021M09	2	1969M01	2021M11	AR4_recursive	2.40	4.06	2.40	4.08	2.39	4.08	0	0	
154 Sweden	SE	1955M01	2021M10	1	1955M01	2021M11	AR2_recursive	0.17	0.24	0.15	0.21	0.15	0.22	1	1	
155 Switzerland	CH	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.04	0.06	0.04	0.06	1	1	
156 Syrian Arab Republic	SY	1957M01	2020M03	20	1957M01	2021M11	AR5_recursive	32.82	66.59	41.49	87.21	41.49	87.24	0	0	
157 Taiwan	TW	1959M01	2021M10	1	1959M01	2021M11	AR1_rolling_60	0.26	0.35	0.25	0.32	0.25	0.33	1	1	
158 Tajikistan	TJ	2000M01	2021M10	1	2000M01	2021M11	AR2_rolling_60	0.30	0.42	0.31	0.43	0.31	0.44	0	0	
159 Tanzania, United Republic of	TZ	1969M02	2021M09	2	1969M02	2021M11	AR1_rolling_60	0.27	0.36	0.25	0.34	0.25	0.34	1	0	
160 Thailand	TH	1965M01	2021M10	1	1965M01	2021M11	AR1_recursive	0.28	0.48	0.26	0.44	0.26	0.44	1	0	
161 Togo	TG	1970M01	2021M05	6	1970M01	2021M11	AR3_rolling_60	0.96	1.21	0.95	1.21	0.95	1.21	1	0	
162 Tonga	TO	1990M01	2018M09	38	1990M01	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	
163 Trinidad and Tobago	TT	1957M01	2021M08	3	1957M01	2021M11	AR3_rolling_60	0.57	0.78	0.57	0.77	0.58	0.78	1	1	
164 Tunisia	TN	1987M01	2021M10	1	1987M01	2021M11	AR6_rolling_120	0.16	0.22	0.16	0.22	0.16	0.22	1	0	
165 Turkey	TR	1955M01	2021M11	0	1955M01	2021M11	no_missing_value	0.00	0.00	0.05	0.06	0.04	0.06	1	1	
166 Uganda	UG	1989M09	2021M11	0	1989M09	2021M11	no_missing_value	0.00	0.00	0.05	0.08	0.07	0.09	1	0	
167 Ukraine	UA	1991M08	2021M03	8	1991M08	2022M12	IMF	3.22	5.45	3.21	5.46	3.21	5.44	0	0	
168 United Arab Emirates	AE	2007M01	2021M09	2	2007M01	2021M11	AR1_rolling_120	0.49	0.65	0.49	0.63	0.49	0.64	0	0	
169 United Kingdom	GB	1955M01	2021M10	1	1955M01	2021M11	AR6_recursive	0.12	0.19	0.11	0.17	0.11	0.17	1	1	
170 United States	US	1955M01	2021M10	1	1955M01	2021M11	AR4_recursive	0.15	0.21	0.12	0.16	0.12	0.16	1	1	
171 Uruguay	UY	1950M01	2021M10	1	1950M01	2021M11	AR1_rolling_120	0.20	0.28	0.26	0.35	0.22	0.32	1	1	
172 Uzbekistan	UZ	2007M12	2021M10	1	2007M12	2021M11	AR2_rolling_120	0.27	0.47	0.28	0.49	0.29	0.49	0	0	
173 Venezuela	VE	1987M01	2019M04	31	1987M01	2022M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	
174 Vietnam	VN	1995M01	2021M11	0	1995M01	2021M11	no_missing_value	0.00	0.00	0.07	0.10	0.07	0.10	0	0	
175 Western Samoa	WS	1967M01	2021M09	2	1967M01	2021M11	AR1_recursive	1.06	1.51	1.02	1.44	1.03	1.45	0	0	
176 Yemen	YE	1997M07	2015M12	71	1997M07	2021M12	IMF_because_over_24_missing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	
177 Zambia	ZM	1985M01	2021M11	0	1985M01	2021M11	no_missing_value	0.00	0.00	0.08	0.11	0.09	0.12	1	0	
178 Euro area (12 countries)	EA12	weighted average of data of the first 12 euro-member countries							n.a.	n.a.	0.08	0.11	0.08	0.12	0	0

## 2. Data sources for monthly data

### *Consumer prices*

We use alternative datasets. For each country, we aim to use a single dataset, but often we combine two or three datasets. Whenever we combine alternative datasets, we check the available time periods for each country and the similarities of the data in the overlapping sample periods. When the earliest and the most recent data points are from the same data source, we use that data source. When the earliest and the most recent data points are from different data sources, we chain to each other the data from alternative sources to obtain the maximum time period available.

We also check for data recording errors. For example, on a few occasions, a price level time series with large values suddenly falls to close to zero and then continues to gradually increase from that level, which suggests there is a break in the time series. We exclude data before such breaks.

For consumer prices, we use seasonally adjusted values because within-year seasonality is not relevant for the underlying development of the real value of currencies. We use seasonally adjusted series from the Global Economic Monitor dataset of the World Bank and we adjust data from all other sources using the X12 method.

We use three main data sources for monthly consumer prices.

1. Global Economic Monitor (GEM) dataset of the World Bank:

<https://datacatalog.worldbank.org/search/dataset/0037798>

This dataset has two versions: an irregularly updated online interface includes monthly data from January 1987 (in December 2021, the most recent observation was for June 2020), while a downloadable zip file is updated daily, but includes data only for the most recent 360 months. The country coverage also slightly differs across the two versions. We use both versions. We use the indicator 'CPI Price, nominal, seas. adj.'.

2. The International Financial Statistics (IFS) of the International Monetary Fund (IMF):

<https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b>

3. Consumer price indices dataset of the OECD:

[https://stats.oecd.org/index.aspx?DataSetCode=PRICES\\_CPI](https://stats.oecd.org/index.aspx?DataSetCode=PRICES_CPI)

We also collect data from national statistical offices or central banks for 22 countries. For 13 countries, recent observations are collected from national sources and thus this data is collected at every update of our dataset. For an additional 9 countries, historical data is collected to extend the time series available in our three main data sources backwards.

Countries for which recent data is collected:

Angola: <https://www.bna.ao/#/estatisticas/consultar-dados/estatisticas-preco-contas-nacionais/detalhe/1>

Anguilla: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

Antigua and Barbuda: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

Argentina:

[https://www.indec.gob.ar/nivel4\\_default.asp?id\\_tema\\_1=3&id\\_tema\\_2=5&id\\_tema\\_3=31](https://www.indec.gob.ar/nivel4_default.asp?id_tema_1=3&id_tema_2=5&id_tema_3=31)

Aruba: <http://cbs.aw/wp/index.php/category/business-economy/inflation-prices/tables-cpi/>

Curaçao: <https://www.cbs.cw/prices-tables>

Dominica: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

Grenada: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

Papua New Guinea: <http://www.bankpng.gov.pg/statistics/quarterly-economic-bulletin-statistical-tables/>

Saint Lucia: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

St Kitts and Nevis: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

St Vincent and the Grenadines: <https://www.eccb-centralbank.org/p/consumer-price-index-2>

Uzbekistan: <https://stat.uz/en/official-statistics/prices-and-indexes>

Countries for which historical data is collected from national sources to extend the time series available in our three main data sources backwards:

Columbia: [http://www.banrep.gov.co/es/series-estadisticas/see\\_precios\\_ipc.htm](http://www.banrep.gov.co/es/series-estadisticas/see_precios_ipc.htm)

Czech Republic: statistical yearbooks of Czechoslovakia (data refers to Czechoslovakia as a whole)

Dominican Republic: <http://www.bancentral.gov.do/>

Hungary: <http://statinfo.ksh.hu/Statinfo/haViewer.jsp>

Moldova: <http://www.statistica.md/pageview.php?l=en&idc=335&id=2344>

Slovakia: statistical yearbooks of Czechoslovakia (data refers to Czechoslovakia as a whole)

Syria: website not available anymore (e.g. the December 2017 data was available at:

<http://www.cbssyr.sy/CPI/cpi-month12-2017.htm>)

Taiwan: <http://eng.stat.gov.tw/ct.asp?xItem=12092&ctNode=1558>

Uruguay: <http://www.ine.gub.uy/preciosysalarios/ipc2008.asp?Indicador=ipc>

For three countries (Australia, New Zealand, Papua New Guinea), monthly CPI data is not available, but the highest data frequency in our full sample period is quarterly. We thus approximate monthly CPI based on quarterly CPI by linear interpolation so that these countries are included in our monthly REER dataset<sup>1</sup>. For Bhutan, quarterly data is available in IMF IFS from 2003Q2, while monthly data is available in the World Bank GEM for 1987m01-2017m11 and thus we combined these two sources. For an additional four countries (Denmark, Ireland, Tanzania), monthly CPI data is

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<sup>1</sup> Such an approximation has been done for other datasets too, because monthly CPI-based REER is published for some of these countries, like Australia and New Zealand, by the BIS, IMF, OECD and World Bank.



available now, but quarterly data starts earlier: for these countries, we use interpolated quarterly data up to the first observation of monthly data.

### ***US dollar exchange rates***

We collect exchange rates against the US dollar and used that to calculate bilateral exchange rates between all countries. The two main data sources are the Global Economic Monitor dataset of the World Bank and the International Financial Statistics of the International Monetary Fund (see the weblinks above). Some data is collected from the Bloomberg terminal.

Additional country-specific data is collected for the following countries:

Georgia: <https://old.nbg.gov.ge/index.php?m=304>

São Tomé e Príncipe: <http://www.bcstp.st/Banco-Central?x=wOgqPO8BIRrdHdPOd1%2BEuA==&&z=cSv1rm9PMiOZwbfa2IRzzw==>

Sudan: <https://cbos.gov.sd/en/exchange-rates>

Turkmenistan: [https://www.cbt.tm/kurs/2021\\_en.html](https://www.cbt.tm/kurs/2021_en.html)

Venezuela: Federal Reserve Bank of St. Louis (data includes a break in September 2018 which was adjusted) <https://fred.stlouisfed.org/series/EXVZUS>

## **3. Data sources for annual data**

### ***Consumer prices***

The main source for data from 1980 is the World Economic Outlook database of the International Monetary Fund. The source of most of earlier data is the World Development Indicators of the World Bank.

Additional sources:

Aruba: as listed for the monthly data

Curaçao: as listed for the monthly data

Syria: as listed for the monthly data

Annual inflation rate was taken from EBRD for the following countries and time periods, which was chained backward to the WEO data: Armenia (1989-1993), Georgia (1990-94), Kazakhstan (1991-92), Kyrgyz Republic (1991-92), Latvia (1989-92), Lithuania (1989-92), FYI Macedonia (1989-91), Russia (1989-92), Serbia (1994-97), Slovenia (1989-92), Azerbaijan (1990-92), Belarus (1989-92), Tajikistan (1989-92), Ukraine (1989-92), Turkmenistan (1989-92), Uzbekistan (1989-92), Montenegro (1995-2000) and Estonia (1989-1991).

For Chile the data is from the National Statistical Institute of Chile.

For the Czech Republic data for 1960-1995 is from the Czech statistics office, and refers to the Czech Socialist Republic before 1993.

For Slovakia data for 1970-92 is from the Statistical Office of the Slovak Republic, and refers to Czechoslovakia up to 1990 and the Slovak Socialist Republic for 1991-92.

For Germany and UK data before 1980 is from the AMECO.

For Taiwan the data is from the National Statistics of the Republic of China (Taiwan).

The 2002 IMF World Economic Outlook was used for obtaining pre-1980 data for the following countries: Angola (1970-80), Antigua and Barbuda (1970-80), Bangladesh (1970-80), Belize (1970-80), Benin (1970-80), Bhutan (1970-80), Botswana (1970-74), Brazil (1970-80), Cape Verde (1970-80), Chad (1970-80), China mainland (1970-80), Comoros (1970-80), Djibouti (1970-91), Dominica (1980), Equatorial Guinea (1970-80), Guinea (1970-80), Guinea-Bissau (1970-80), Guyana (1970-80), Hong Kong (1970-80), Lao (1970-80), Lebanon (1970-80), Malawi (1970-80), Maldives (1970-80), Mali (1970-80), Moldova (1990-92), Namibia (1970-90), Nicaragua (1970-88), Republic of Congo (1970-80), Romania (1970-80), Sierra Leone (1970-80), Tunisia (1970-80), Vanuatu (1970-76) and Zambia (1970-80).

For Hungary, pre-1972 data is from the Central Statistical Office of Hungary.

### ***US dollar exchange rates***

The main source is the World Development Indicators of the World Bank which includes data from 1960. More recent data is collected from the same sources as for the monthly data described above.

For several countries, earlier annual data is taken from the Penn World Tables (PWT): Albania (1970-92), Argentina (1950-61), Armenia (1990-92), Belarus (1990-94), Bosnia & Herzegovina (1990-96), Bulgaria (1975-85), Cambodia (1974-89), Croatia (1990-91), Czechoslovakia – used for the Czech Republic and Slovakia (1980-92), Estonia (1991-92), Georgia (1990-95), Indonesia (1960-66), Iraq (1991-2003), Kazakhstan (1990-93), Kyrgyz Republic (1990-93), Latvia (1987-91), Lithuania (1987-91), Macedonia – former Yugoslav Republic (1990-93), Mauritania (2004), Moldova (1990-94), Mongolia (1970-90), Montenegro (1990-98), Poland (1960-94), Russia (1990-92), Serbia (1990-96), Slovenia (1990), Somalia (1990-2009), Tajikistan (1990-91), Turkmenistan (1990-2009), Ukraine (1987-92), Uzbekistan (1990-2009), Venezuela (1960-63), Vietnam (1970-85), and Yemen (1969-89). In each case we have carefully checked that later data of the PWT and WDI are identical or almost identical.

Data is taken from the EBRD for Azerbaijan (1989-1991).

For Turkmenistan, 2010-11 data is taken from the Central Bank of Turkmenistan.

## **4. Data for the euro area**

Eleven countries joined the euro area in 1999 and eight countries joined between 2001 and 2015. Many of the newer member countries were not independent countries before 1990 and data is not available from 1960. We would like to avoid compositional changes in our euro-area REER indicators and thus for our full sample period starting in 1960, we calculate the weighted average of the first twelve euro members (both for CPI and USD rate). The weights were calculated on the basis of consumption in 1995-2018.

Before entry to the euro area, we use the exchange rate of national currency relative to the US dollar, while for the period of euro membership, we multiplied the euro/dollar exchange rate with the conversion rate to the euro.

Naturally, the REER index for the euro area relates to extra-euro area trade (intra euro-area trade flows are not considered).