Fig. S1. Climate related protocols and agreements

Montreal Protocol

1987

Provisions to reduce the production and consumption of ODSs in order to protect the ozone layer

Kyoto Protocol

1997

An international treaty to **reduce GHG emissions**

One of the important international environment protocols effective since, 2005

2030

Provisions to reduce the existing emission by **half**

2070

Net zero emission

Provisions to reduce HFC emission and to decrease global temperature rise

Multilateral agreement within the UNFCCC; Provisions to reduce and mitigate GHG emissions
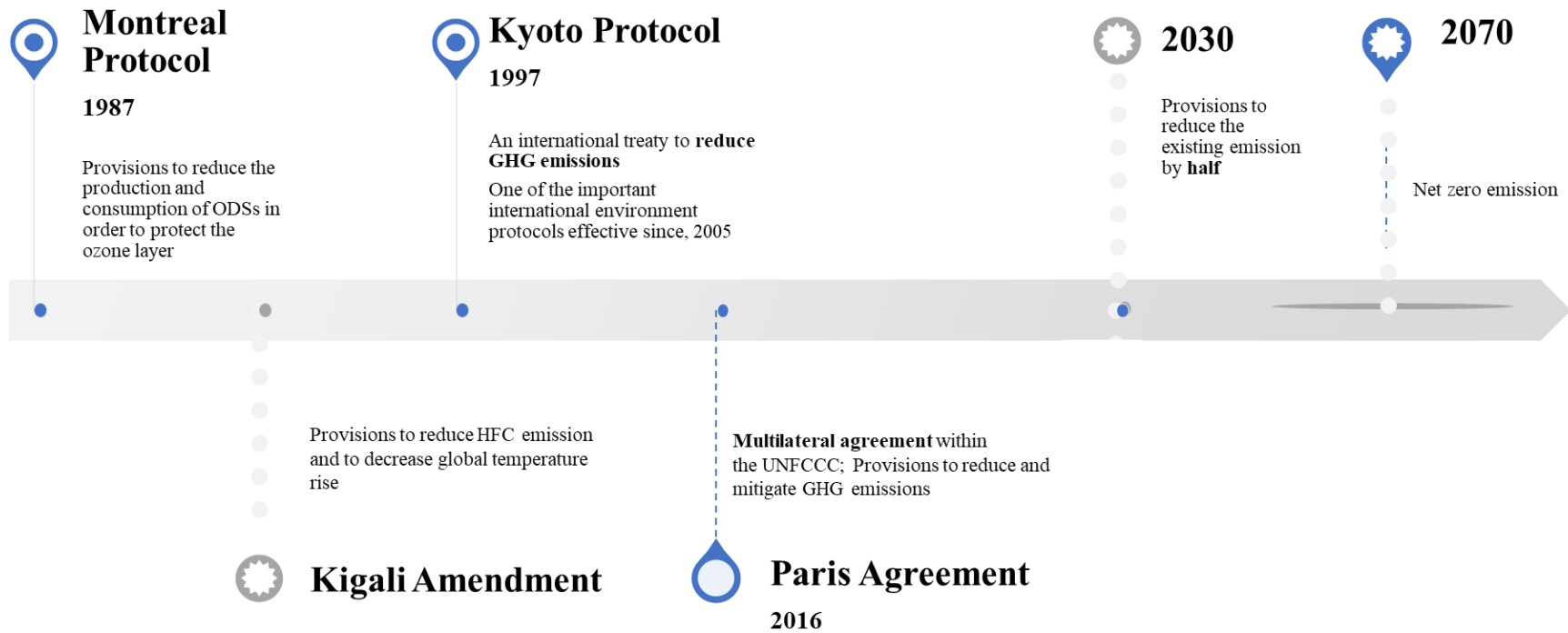
Kigali Amendment

Paris Agreement

2016

Table S1. Existing literature related to the study variables: Emission rate, Economic growth & Energy use nexus

Referencce	Variables	Time Period	Country	Methodology	Major Findings
1.	Economic growth, CO_2 and Energy consumption	1960-2005	Turkey	ARDL model	$CO_2 \leftrightarrow EG$ $EC \rightarrow CO_2$
2.	CO_2, FDI and Economic growth	1990-2011	Panel of 54 countries	Simultaneous Equations Models	$FDI \leftrightarrow EG$, $FDI \leftrightarrow CO_2$ and $CO_2 \rightarrow EG$
3.	CO_2 emissions, health expenditures, and economic growth	1995-2013	Global panel of 51 countries	Dynamic Simultaneous Equation Models	$CO_2 \leftrightarrow EG$ $HE \leftrightarrow EG$ (global panel) & $CO_2 \rightarrow HE$ *(except low-income group countries)*
4.	CO_2 emissions, GDP, Health expenditures-growth, Stock capital, population, urbanization and trade openness	1972-2012	Iran	Simultaneous Equations Models	$CO_2 \leftrightarrow EG$
5.	Energy consumption and CO_2 emission	1975-2011 (Quarterly)	Indonesia	Panel cointegration	EC increases CO_2 emissions
6.	Urbanization, CO_2 emission and Energy consumption	1971–2007	9 Newly Industrialized countries	Panel cointegration	**No linkage b/w** - EC and CO_2 - Urbanization & CO_2
7.	FDI-CO_2 Nexus	1990–2007	China	Johansen Cointegration	$FDI \rightarrow CO_2$
8.	CO_2–FDI-GDP Nexus	1990–2005	BRIC countries	Panel Cointegration	$FDI \rightarrow Y$ $Y \rightarrow CO_2$ $FDI \neq CO_2$

Note:

The arrow ($\rightarrow$) indicates the one-way linkage between the variables

The arrow ($\leftrightarrow$) indicates the two-way linkage between the variables

Table S2. Variable Calculation from data

Variables	Mean	Std. Deviation	Kurtosis	Skewness	Minimum	Maximum	Count
lghg	14.792	0.800	-0.830	0.719	13.906	16.376	90
lirri_land	10.514	1.519	-1.514	-0.420	8.383	12.109	90
lliv_stk_em	7.960	1.765	-1.509	-0.664	5.357	9.547	90
lur_pop	2.301	1.368	-0.867	-0.374	-0.202	4.709	90
lenrgy_use	5.032	0.425	-0.254	0.719	4.441	6.174	90
lgdp	28.657	0.847	-0.457	-0.249	26.876	30.313	90
lfdi	22.961	4.708	17.392	-3.964	0.000	26.450	90

Table S3. Pre-estimation tests and confirmations

S. No.	Violation	Test	Significance
1	Stationarity test: Unit root (sigma value ranges between 0 and 1)	Dickey Fuller/ Phillips Perron test	Stationary at 1st difference
2	Multicollinearity (Between independent variables)	Variance Inflation Factor (VIF)	Mild MC
3	Serial correlations (Between the error terms)	Wooldridge test (Panel data)	Presence
4	Heteroscedasticity (Variance in error terms)	BP - LM tests	Presence

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