Geo-Economic Fragmentation, Energy and Environment

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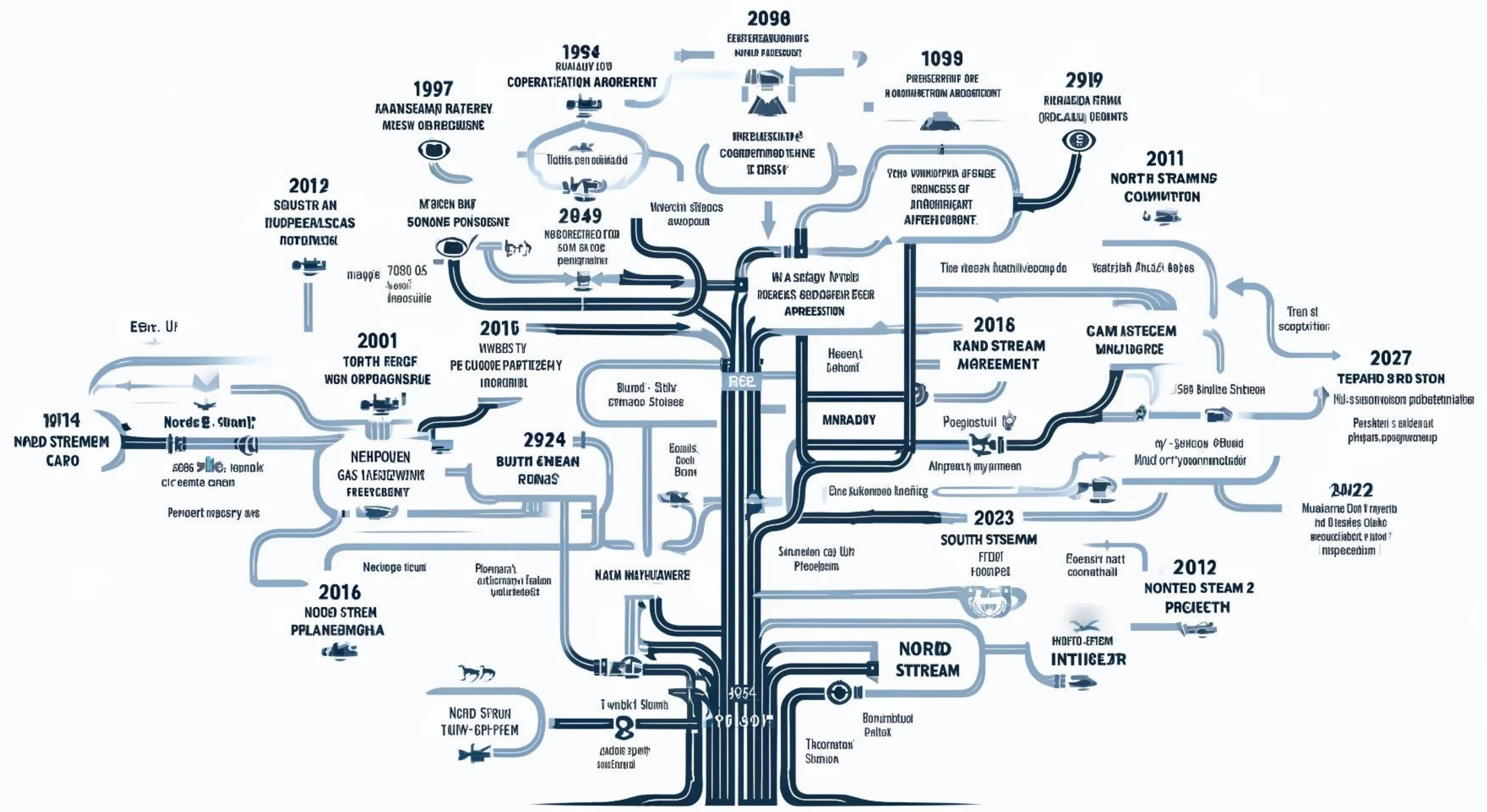
Agenda

- Does Dependency on Russian Energy Hinder the Local Energy Capacity in EU and OECD ?
- European Industrial Production in the Face of Energy Dynamics and Geopolitical Shocks
- Conflict, Sanctions and Sectoral Inflations in EU: Structural Breaks Analysis
- Environmental Policy Dilemma

Russia-EU Energy Dis-(Trade) Integration

- Scholarly discourse presents an array of perspectives on the short and long-term implications of Russia's energy trade with Europe. This dichotomy can be explained through examining the short-term benefits contrasted against the long-term costs. World-System Theory, which divides the world into core, semi-periphery, and periphery nations, emphasizing their economic and political connections.
- The energy trade integration between the EU and Russia has yielded substantial immediate benefits. The EU, with its high dependency on energy imports, has identified Russia as a stable and dependable provider of energy resources, contributing to approximately 40% of the EU's gas imports (Eurostat, 2020)
- For instance, Germany, the powerhouse of the EU's economy, depends on Russia for about 35% of its gas supply (Gritz & Wolff, 2024)
- EU’s over-reliance on energy allowed Russia to gain an excessive influence over its domestic issues, eventually it jeopardized its energy security due to political discord between two-counterparts(Siddi, 2017)
- Zbigniew Brzezinski, in his book The Grand Chessboard: American Primacy and Its Geostrategic Imperatives (1997



2098
1994
COPERATIEATION ARORERENT
1099
1997
2919
2012
2011
NORTH STRAMNG
COMMUTTON
2849
2016
2001
TORTH RERGE
2016
RAND STREAM
MAREEMENT
CAM ASTECEM
2027
19114
NARD STREMEM
CARO
MNRADBY
2924
2023
SOUTH STSEMM
2022
2016
NODD STREM
PPLANEBMGHA
2012
NONTED STEAM 2
PRACIETH
NORD
STREAM
NORD SPRUN
TUW-GPIPFEM

Major agreements

- **1994**: Partnership and Cooperation Agreement (PCA)
- **1997**: Yamal-Europe pipeline agreement
- **2000**: Nord Stream 1 pipeline planning
- **2005**: North European Gas Pipeline (NEGP) project initiated
- **2011**: Nord Stream 1 pipeline operational
- **2012**: South Stream pipeline planning
- **2014**: South Stream project cancellation
- **2015**: Nord Stream 2 planning initiated
- **2019**: TurkStream pipeline operational
- **2021:** Nord Stream 2 construction completed

Does Dependency on Russian Energy and Hinder the Local Energy Capacity in EU and OECD ?

Empirical Setup

- Outcome variable $Y_i = Y_i(T_i)$ which is local energy capacity

- No-dichotomous treatment variable = % of Reliance on Russian Energy

- Matching Variable: GDP growth, trade openness, labour force participation, environmental policy stringency, and country-specific proven oil reserves

Dose Response Function

$Y_i = Y_i(T_i)$, corresponding to the specific treatment level. Our focus is on the average response to the dosage function $\Psi(t) = E\{Y_i(t)\}$.

To elaborate further, if we denote $r(t, x) = f_{T|X}(t|x)$ as the conditional probability density function of the treatment given the covariates, then the GPS (Generalized Propensity Score) can be characterized as:

$$R = r(T|X)$$

$$\gamma(t, r) = E\{Y(t)|r(t, X) = r\} = E(Y|T = t, R = r)$$

$\gamma(t, r)$ is does response which is function of treatment (t) and GPS and $E\{Y(t)|r(t, X)$ is the expected value of outcome variable Y, given the treatment and covariates X vector.

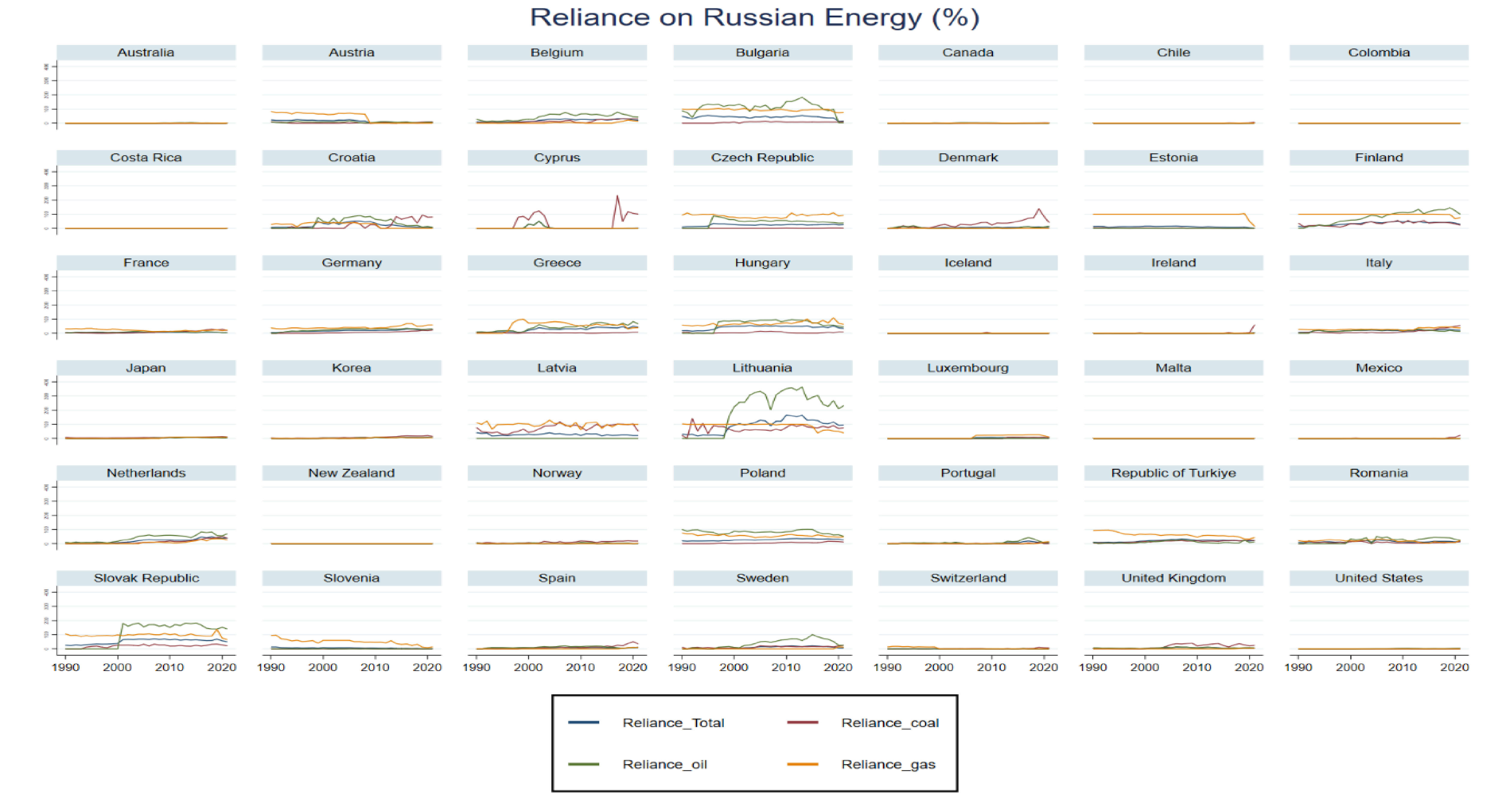
$$\psi(t) = E[\gamma\{t, r(t, X)\}]$$

Variable	Obs	Mean	Std. dev.	Min	Max
Treatment Variable					
Reliance on Russian Energy	1,376	13.77331	20.57883	0	165.3974
Covariate- Matching Variable					
GDP Growth Rate	1,326	2.678836	3.568779	-14.83861	24.37045
Trade Openness	1,352	25.07333	1.596064	21.38162	28.56305
Environment Policy Stringency	837	2.171898	1.06926	1.00e-06	4.888889
Labor Force	1,376	15.43076	1.550848	11.81923	18.93411
	1,254	4.330664	21.54878	0	180.021
Outcome Variable					
Total Energy Capacity	1,362	58.4824	148.4978	.25	1176.729
Renewable Energy Total	1,366	46.47828	94.18233	0	861.58
Solar energy	946	2.571105	8.83295	0	93.9867
Wind energy	946	3.881469	11.46363	0	132.4006
Bioenergy	946	1.107707	2.392668	0	18.928

Distribution of Reliance or Treatment

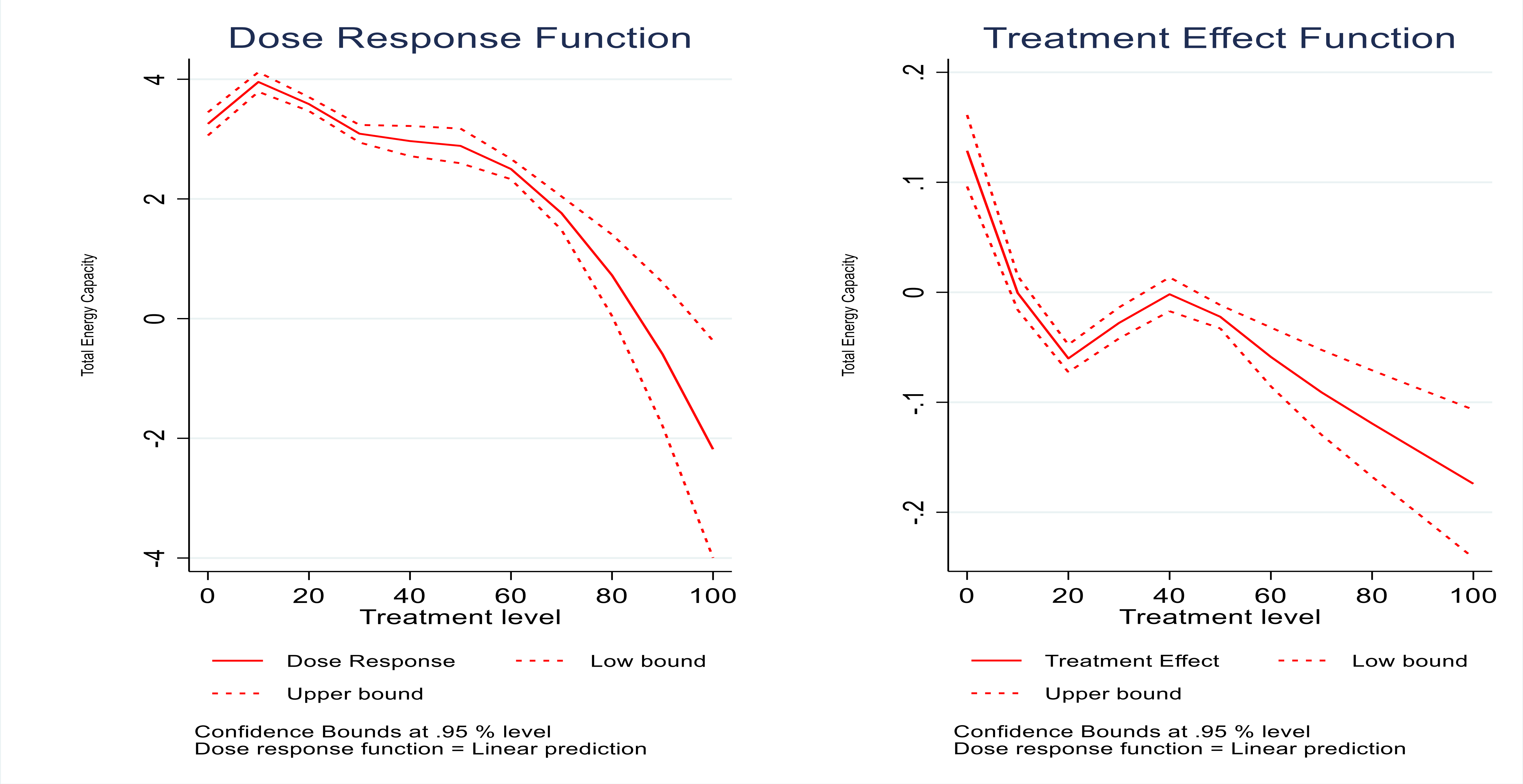
T

	Percentiles	Smallest		
1%	0	0		
5%	.0055625	0		
10%	.0701708	0	Obs	779
25%	1.126167	0	Sum of wgt.	779
50%	7.353785		Mean	14.04155
		Largest	Std. dev.	15.80656
75%	22.91816	67.95496		
90%	36.46448	68.2411	Variance	249.8475
95%	48.36882	68.86954	Skewness	1.342642
99%	66.01558	69.85736	Kurtosis	4.312674

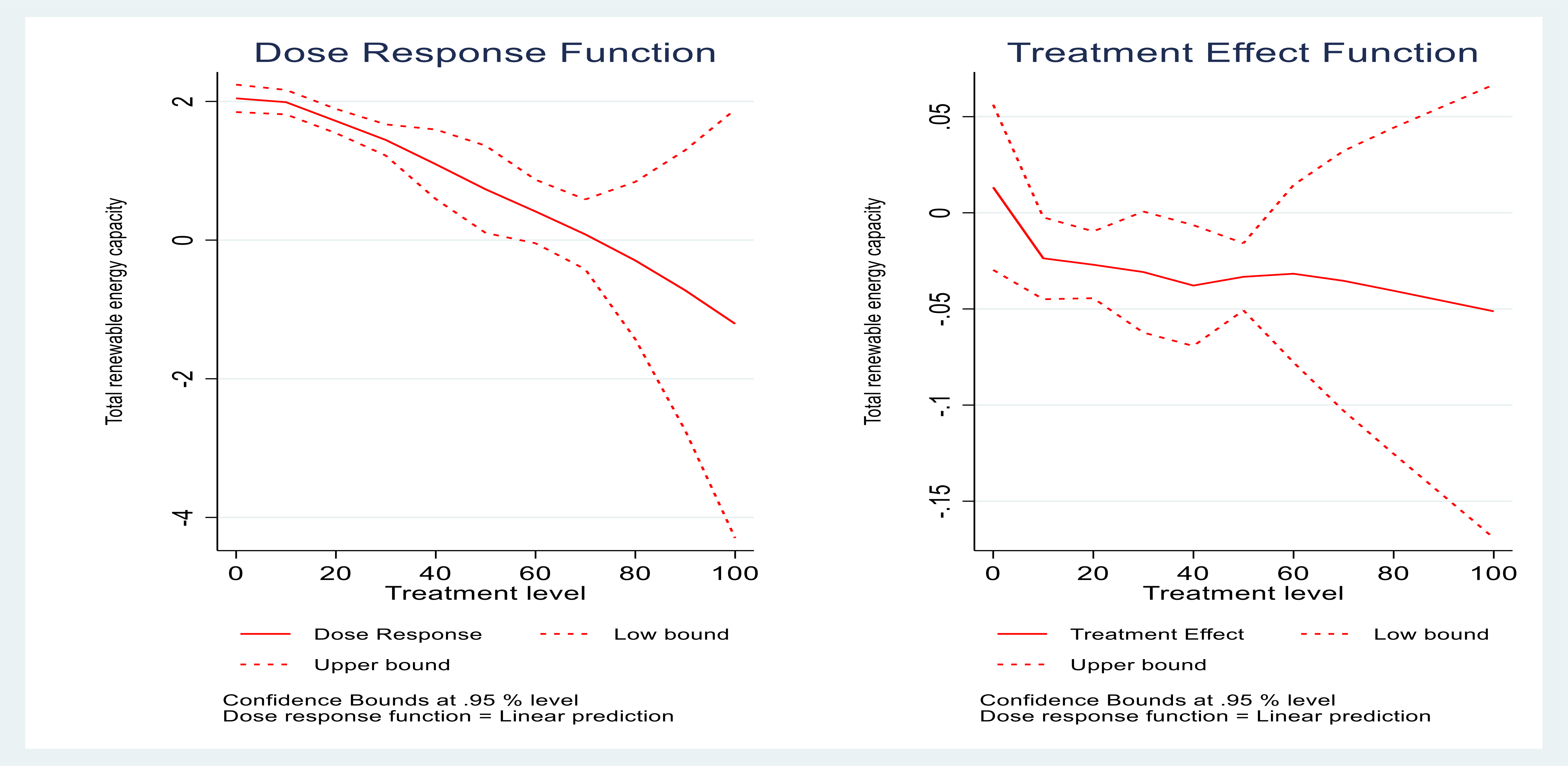


Reliance on Russian Energy (%)
Australia
Austria
Belgium
Bulgaria
Canada
Chile
Colombia
Costa Rica
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Korea
Latvia
Lithuania
Luxembourg
Malta
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Republic of Turkiye
Romania
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
United Kingdom
United States
1990
2000
2010
2020
Reliance_Total
Reliance_coal
Reliance_oil
Reliance_gas

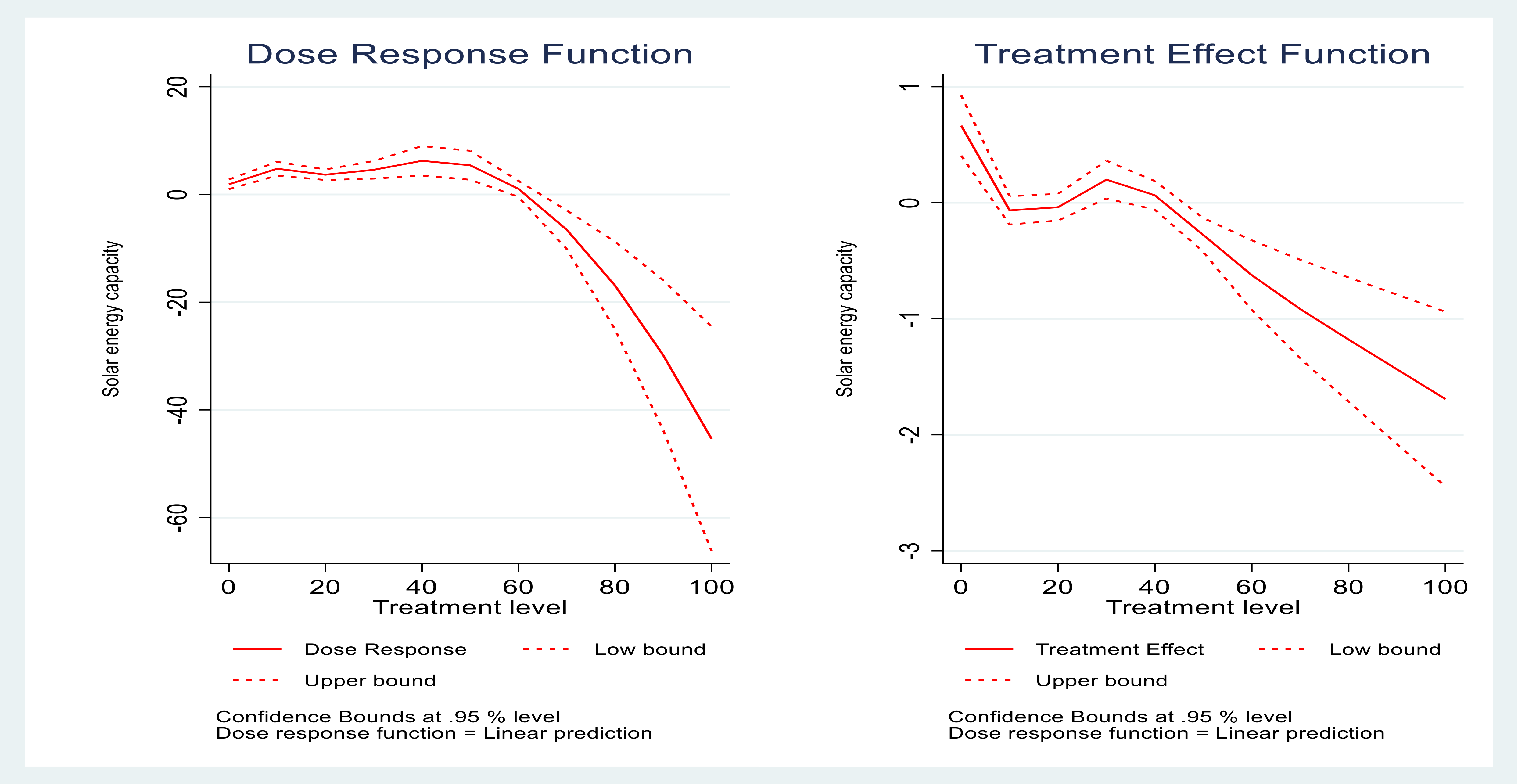
The Dose Response of Russian Energy Reliance to Total Energy Capacity



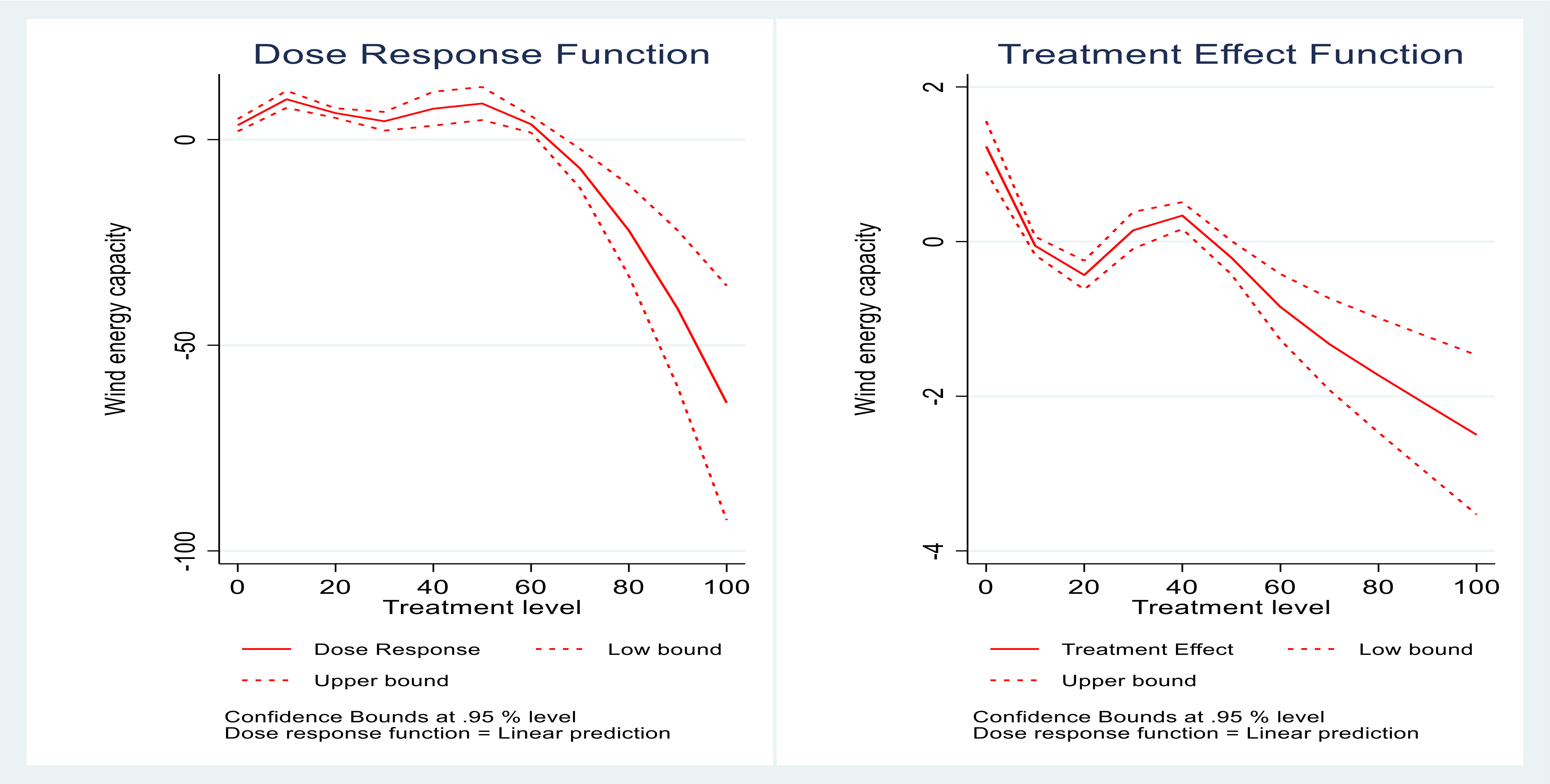
Estimated does response of total renewable energy capacity to reliance on Russian energy



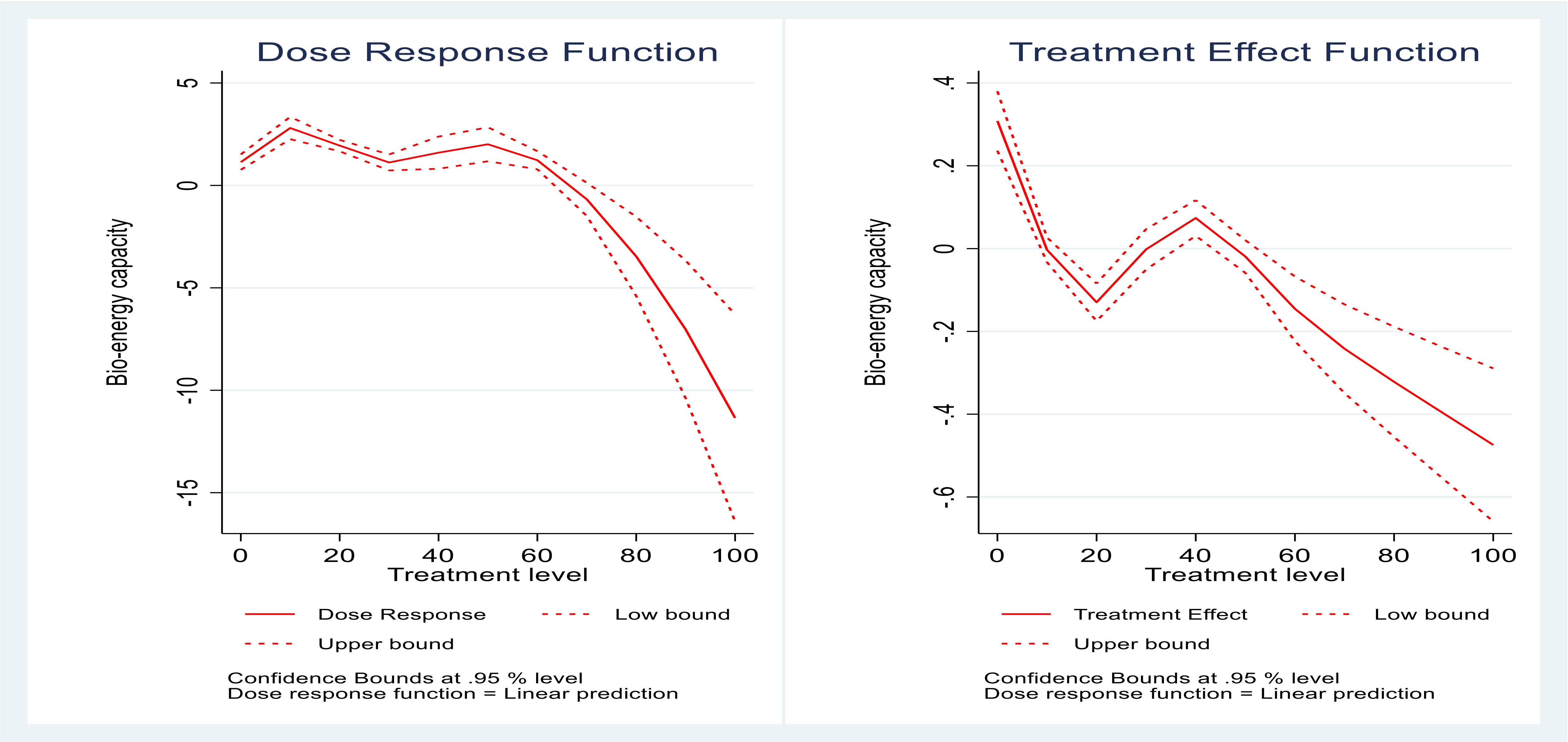
Estimated does response of reliance on Russian energy on Solar energy capacity.



Estimated does response of reliance on Russian energy on Wind energy capacity.



Estimated does response of reliance on Russian energy on Bio-energy capacity



Summary

- The empirical results reveal that countries relying heavily on Russian energy have experienced negative treatment effects compared to nations with no reliance on Russian energy.
- This is true even after controlling for factors such as GDP growth, trade openness, labour force participation, environmental policy stringency, and country-specific proven oil reserves.
- The inadequate growth of necessary infrastructure for mining and refining, lower transportation costs, and improved diplomatic relations leading to easier access to cheaper energy imports are among the underlying factors contributing to this trend.

European Industrial Production in the Face of Energy Dynamics and Geopolitical Shocks

Variable	Description	Sources
Total Industrial Production Index (TIPI)	Industrial production includes the production of industrial enterprises. The indicator covers such sectors of the economy as manufacturing, electricity generation, mining and others. The indicator is calculated as the ratio of output in a particular year to 2015 (2015 output = 100).	Organization for Economic Cooperation and Development https://data.oecd.org/
Manufacture Production Index (MPI)	Cleared of the influence of construction total industrial production index. The indicator is calculated as the ratio of output in a particular year to 2015 (2015 output = 100)	Organization for Economic Cooperation and Development https://data.oecd.org/
The price of Brent crude oil (OP)	The cost of Brent crude oil in dollars per barrel.	The World Bank https://www.worldbank.org/
The price of natural gas in Europe (GP)	The cost of natural gas in Europe. From April 2015 – Netherlands Title Transfer; during April 2015 – average import border price and a spot price component	The World Bank https://www.worldbank.org/
The oil price shock (OPS)	We apply Hodrick-Person filter to generate oil price shocks.	Compiled by the authors on the basis of World Bank data
The gas price shock (GPS)	We apply Hodrick-Person filter to generate oil price shocks.	Compiled by the authors on the basis of World Bank data
Real Effective Exchange Rate (REER)	An indicator that characterizes the dynamics of exchange rates. It is calculated as the weighted sum of the indices of the real exchange rate of a given year in relation to the base. Each such index is multiplied by the share of trading partner countries in foreign trade turnover.	Brussels European and Global Economic Laboratory https://www.bruegel.org/
Geopolitical Risk Index (GPR)	The Index, a well-known information policy specialist today, has published 10 news (Chicago Tribune, the Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, the Los Angeles Times, New York Times, USA Today, The Wall Street Journal and Washington Post). The index is calculated by counting the number of articles that include information. about adverse events in 8 categories.	Dario Caldara & Matteo Iacoviello https://www.matteoiacoviello.com/
Geopolitical Acts Index (GPRA)	A narrower indicator relative to GPR. Search is carried out only by categories: Beginning of War, Escalation of War, Terror Acts.	Dario Caldara & Matteo Iacoviello https://www.matteoiacoviello.com/

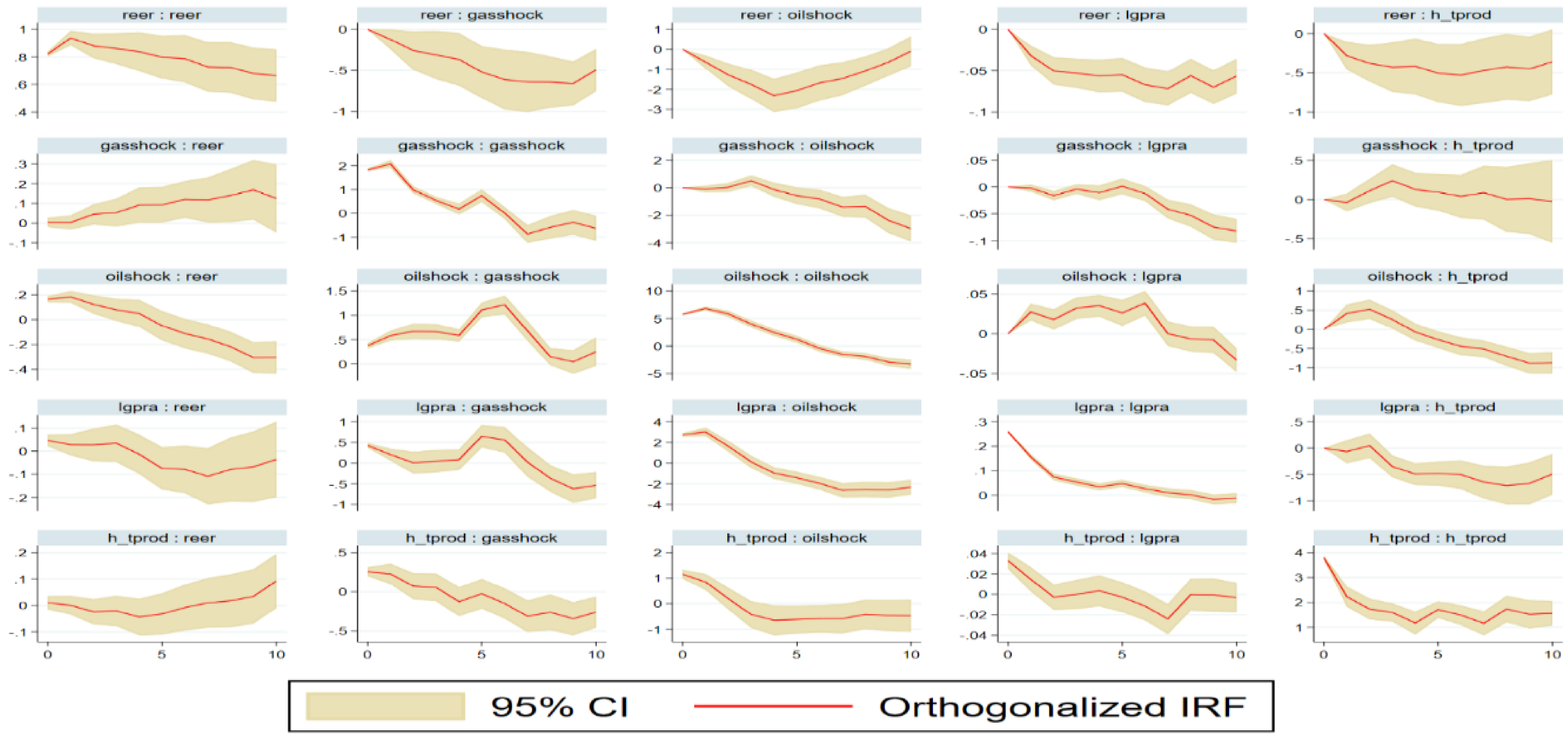
Panel Vector-Autoregressive under System Generalized Method of Moments

The equation describing Panel VAR has the following formulation

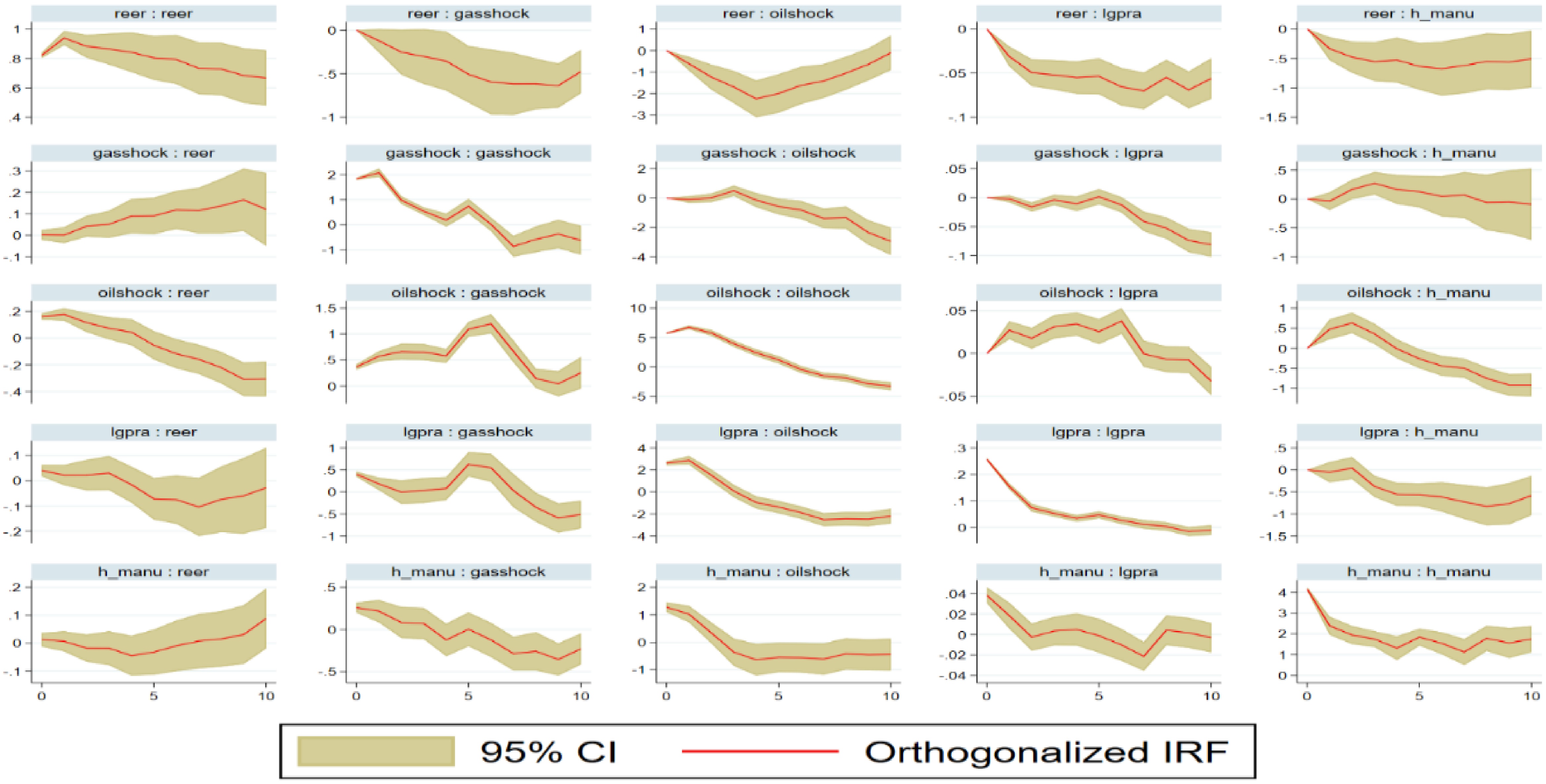
- $Y_{it} = Y_{it-1}A_1 + Y_{it-2}A_2 + \cdots + Y_{it-p}A_p + X_{it}B + u_i + e_{it}$ (1)

Where Y_{it} – vector of dependent variables, X_{it} – vector of regressors, u_i – vector of dependent variable-specific panel fixed effects, e_{it} – errors.

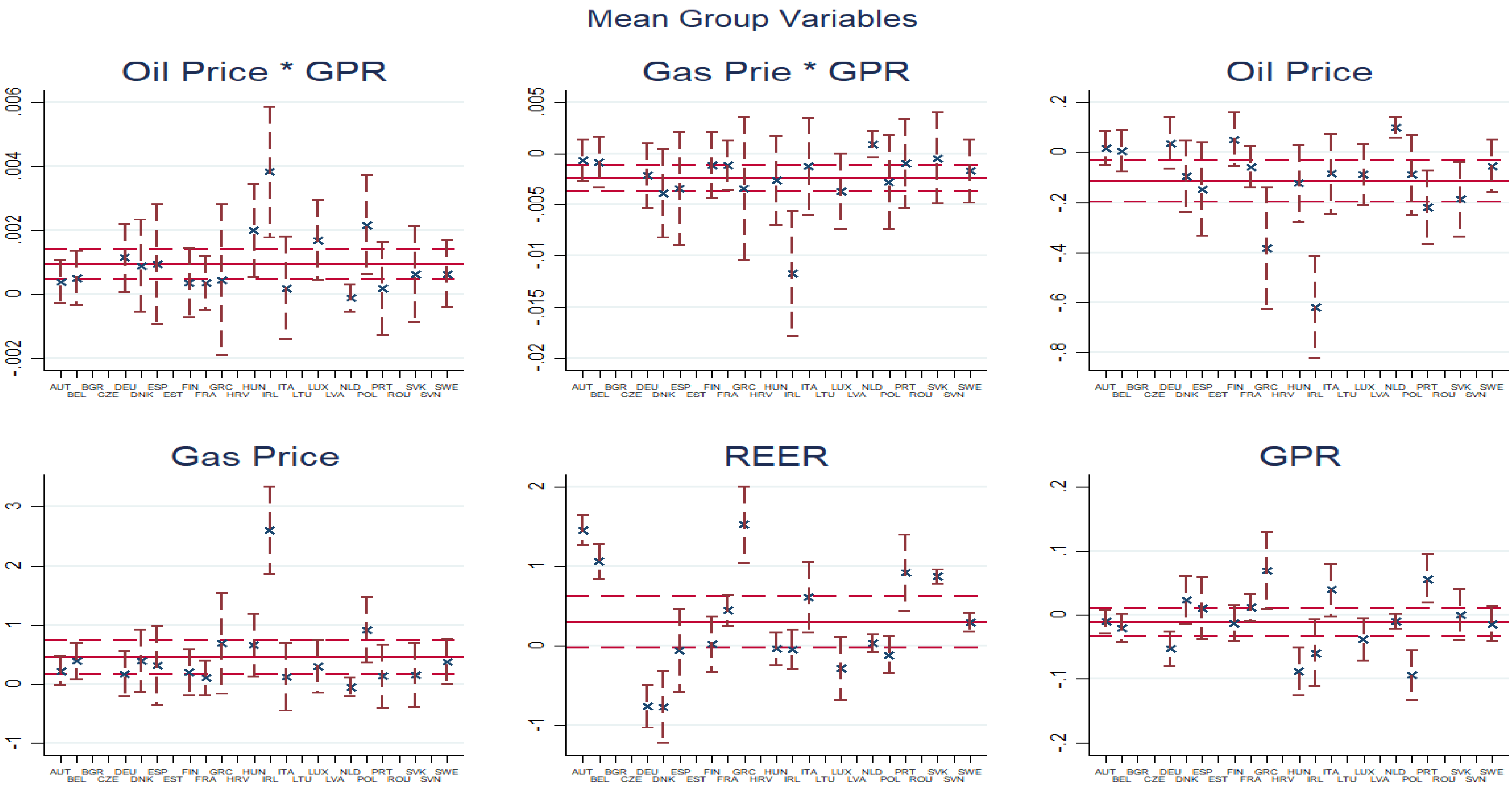
Responses of TIPI to oil and gas price shocks, REER and GPRA obtained by the Panel VAR under GMM estimator



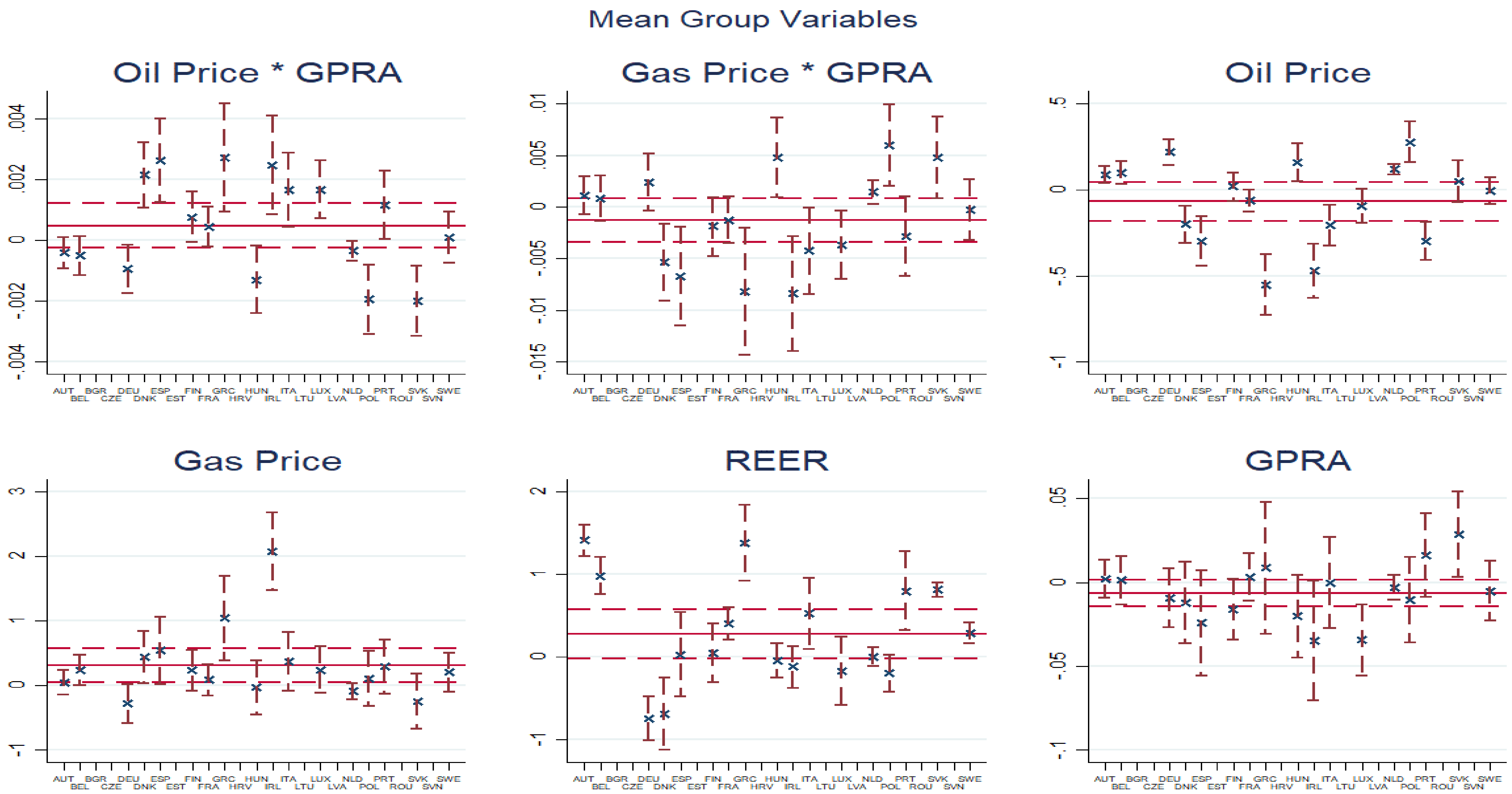
Responses of TIPI to oil and gas price shocks, REER and GPRA obtained by the Panel VAR under GMM estimator.



Joint effect with GPR to Total Industrial Production Index



Joint effect with GPRA to Total Industrial Production Index



Summary

- European industrial production exhibits a degree of vulnerability to oil price shocks, particularly in the case of manufacturing production

- Industrial sector demonstrates resilience when faced with shocks in gas prices.

- Notably, industrial production responds adversely to geopolitical risks and escalations, with the impact being more pronounced in the presence of geopolitically induced hydrocarbon price shocks.

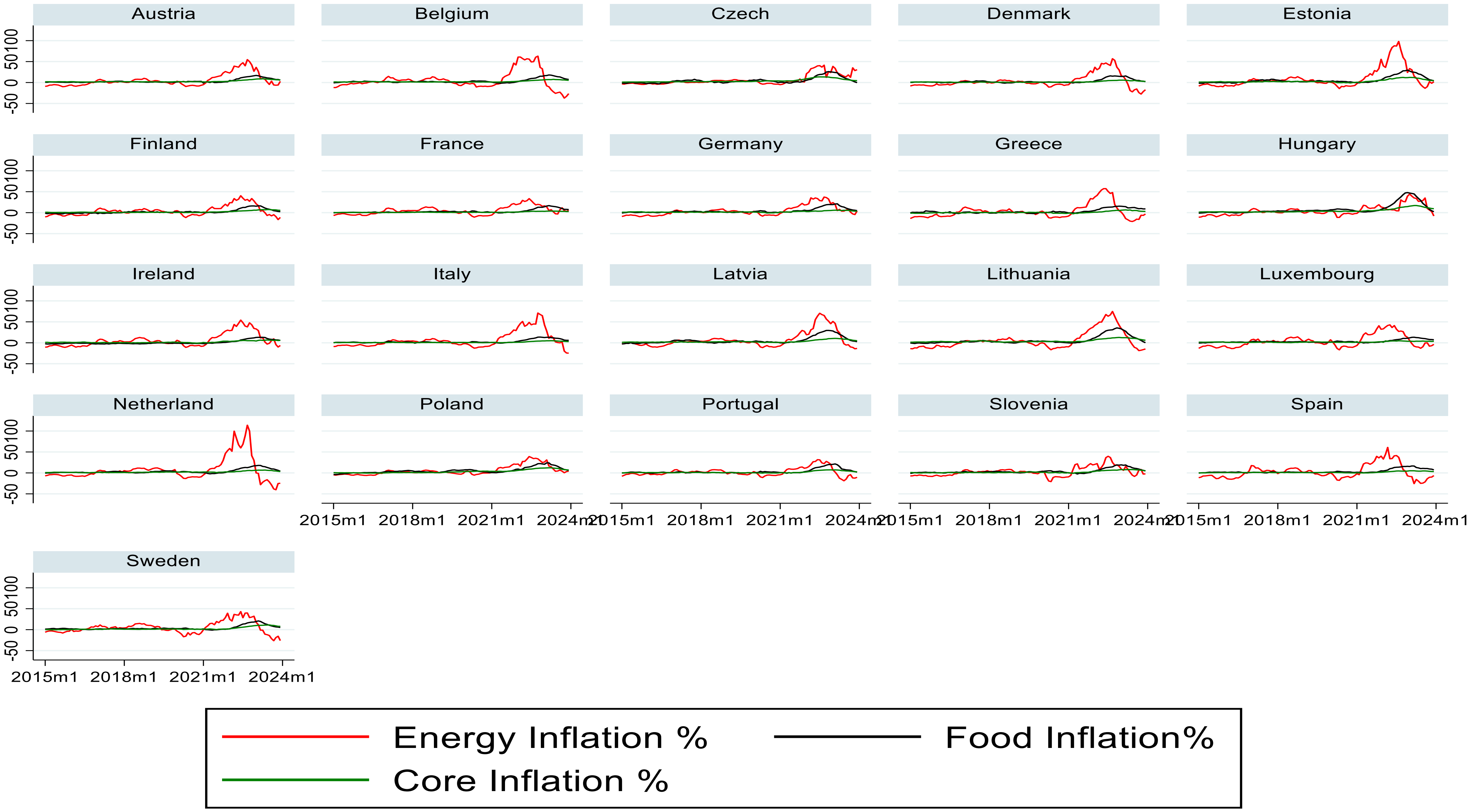
- Our country-specific analysis underscores significant variations in vulnerability and resilience across the examined nations

Conflict, Sanctions and Sectoral Inflations in EU: Structural Breaks Analysis

Model

- Energy Inflation =f(reliance on Russian oil, Interest Rate , **Russia-Ukraine Conflict,** Consumer Confidence Index, global GPR, GRP for Russia)
- Food Inflation =f(reliance on Russian oil, Interest Rate , **Russia-Ukraine Conflict,** Consumer Confidence Index, global GPR, GRP for Russia)
- Core Inflation =f(reliance on Russian oil, Interest Rate , **Russia-Ukraine Conflict,** Consumer Confidence Index, global GPR, GRP for Russia)

Variable	Description	Source
Energy Inflation (EI)	Inflation in energy prices is measured by the consumer price index. Measured as the increase in prices in the current month compared to prices of this month last year.	OECD stats.oecd.org
Food Inflation (FI)	Inflation in food prices is measured by the consumer price index. Measured as the increase in prices in the current month compared to prices of this month last year.	OECD stats.oecd.org
Non-Energy and Non-Food Inflation (NENFI)	Core inflation is measured by the consumer price index. Measured as the increase in prices in the current month compared to prices of this month last year.	OECD stats.oecd.org
Consumer Confidence Index (CCI)	An indicator that reflects households' expectations about their future state. Values above 100 reflect positive expectations, while values less than 100 indicate a pessimistic view.	OECD stats.oecd.org
GPR	A general index of global geopolitical risk is based on text searches among 10 news outlets (Chicago Tribune, Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, Los Angeles Times, The New York Times, USA Today, The Wall Street Journal, The Washington Post) across 8 word categories (War Threats, Peace Threats, Military Buildups, Nuclear Threats, Terror Threats, Beginning of War, Escalation of War, Terror Acts).	Caldara & Iacoviello www.matteoiacoviello.com
Russian GPR (GPRRUS)	Country-specific index is based on counting the occurrence of joint mentions of a country name (or its capital or its main city).	Caldara & Iacoviello www.matteoiacoviello.com
Russia-Ukraine Conflict (RUC)	Dummy variable, 0 – before February 2022, 1 – after February 2022.	Compiled by the authors
Reliance on Russian Oil (RRO)	Ratio of oil imported from Russia to total oil consumption in the country for the period.	International Energy Agency www.iea.org
Interest Rate (IR)	Interest rates on financial instruments with maturity of 1 year or less set by the central bank.	OECD stats.oecd.org



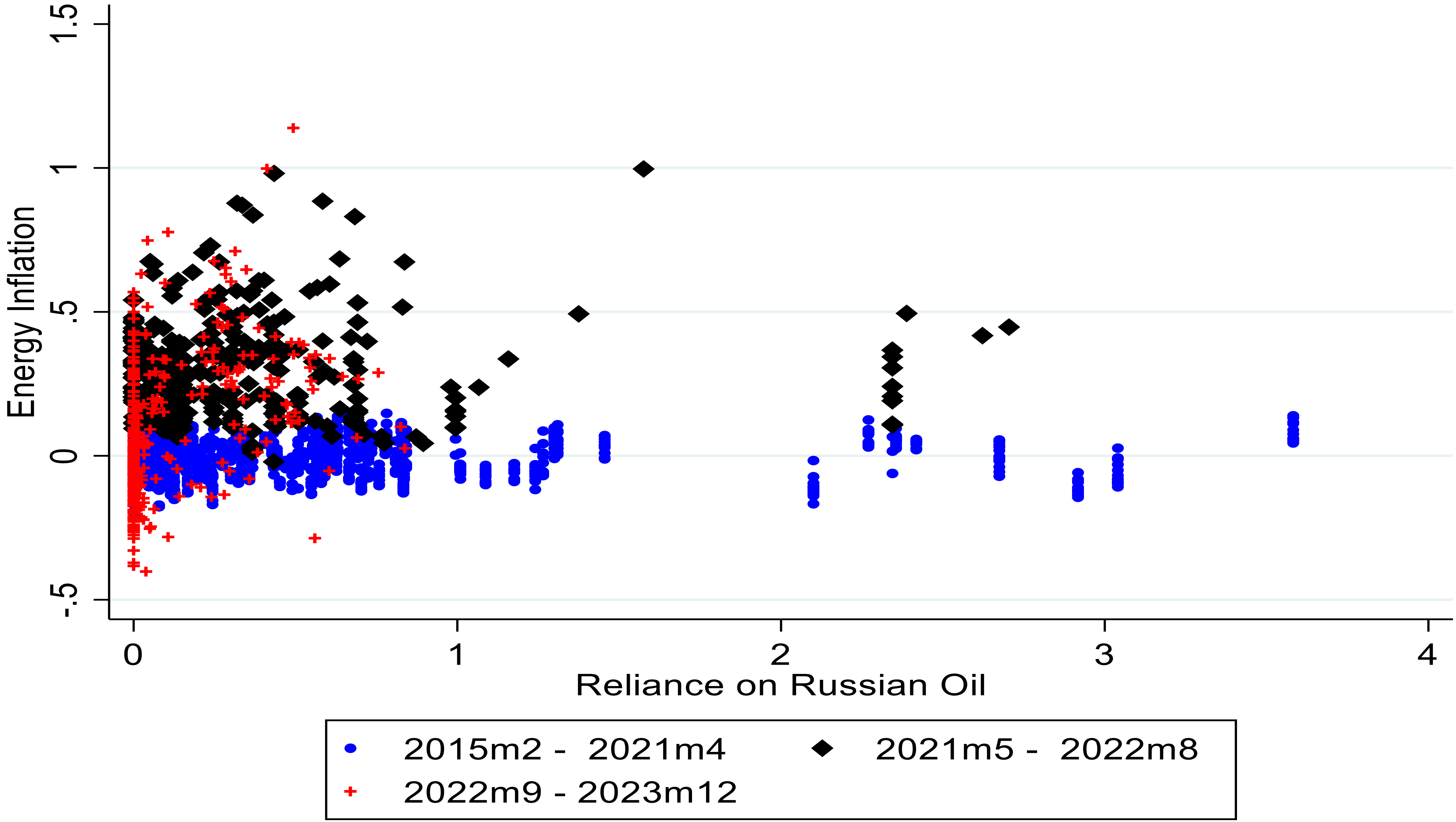
Austria
Belgium
Czech
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Netherland
Poland
Portugal
Slovenia
Spain
Sweden
-50 0 50100
2015m1 2018m1 2021m1 2024m1
Energy Inflation %
Food Inflation%
Core Inflation %

Methodology

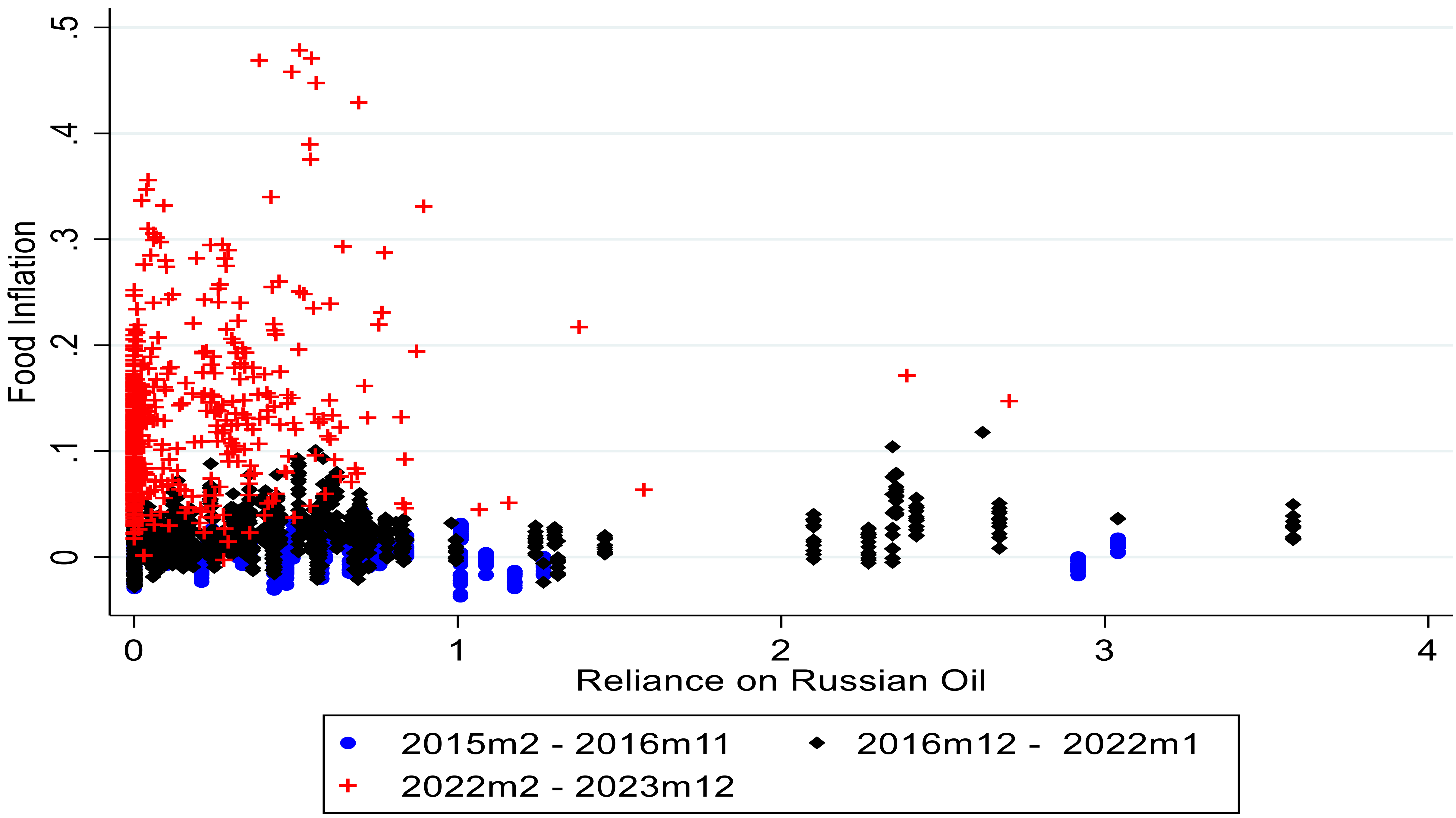
- IV regression to solve the problem of endogeneity

- The structural break in panel data model to identify the presence of structural breaks and determine when they occurred

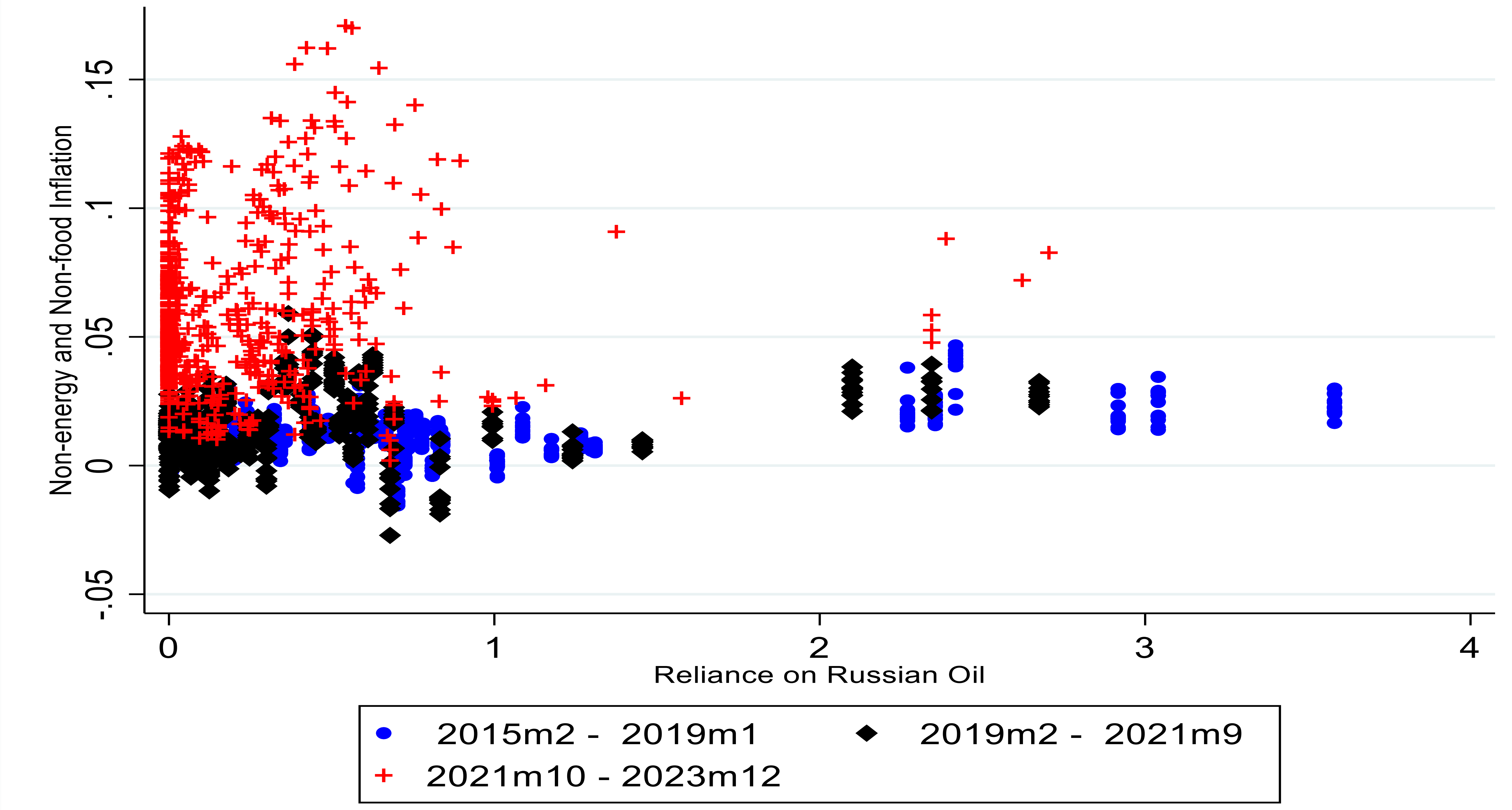
Number of Break	Index	Date	[95% Conf. Interval]	
Model 1: energy Inflation				
1	75	2021m4	2021m2	2021m4
2	91	2022m8	2022m6	2022m8
Test for multiple breaks at unknown break-dates, H0: no break(s) vs. H1: 2 break(s)				
Test Statistics	252.27***			
Model 2: Food Inflation				
1		2016m11	2016m10	2016m12
2		2022m1	2021m12	2022m2
Test for multiple breaks at unknown break-dates, H0: no break(s) vs. H1: 2 break(s)				
Test Statistics	125.85 ***			
Model 3: Non-energy & Non-food inflation				
1	48	2019m1	2018m12	2019m2
2	80	2021m9	2021m8	2021m10
Test for multiple breaks at unknown break-dates, H0: no break(s) vs. H1: 2 break(s)				
Test Statistics	205.47***			



Energy Inflation
1.5
1
.5
0
-.5
0
1
2
3
4
Reliance on Russian Oil
2015m2 - 2021m4
2021m5 - 2022m8
2022m9 - 2023m12



Food Inflation
0
.1
.2
.3
.4
.5
0
1
2
3
4
Reliance on Russian Oil
2015m2 - 2016m11
2016m12 - 2022m1
2022m2 - 2023m12



Non-energy and Non-food Inflation
-.05
0
.05
.1
.15
0
1
2
3
4
Reliance on Russian Oil
2015m2 - 2019m1
2019m2 - 2021m9
2021m10 - 2023m12

DV: EI	M1	M2	M3
RRO	-0.057***	-0.032***	-0.050**
	(0.028)	(0.0105)	(0.022)
RUC	0.193***		
	(0.017)		
RUC*RRO	0.085***		
	(0.048)		
GPRRUS		0.071***	
		(0.004)	
GPRRUS*RRO		0.026***	
		(0.006)	
GPR			0.0015***
			(0.0001)
GPR*RRO			0.0004*
			(0.0002)
CCI	-0.006***	-0.014***	-0.024***
	(0.002)	(0.002)	(0.002)
SIR	-0.013***	-0.018***	-0.016***
	(0.004)	(0.002)	(0.002)
Const.	0.602***	1.025***	1.872***
	(0.202)	(0.156)	(0.163)
adj. R-sq	0.221	0.349	0.218

Robustness check to overcome endogeneity issue

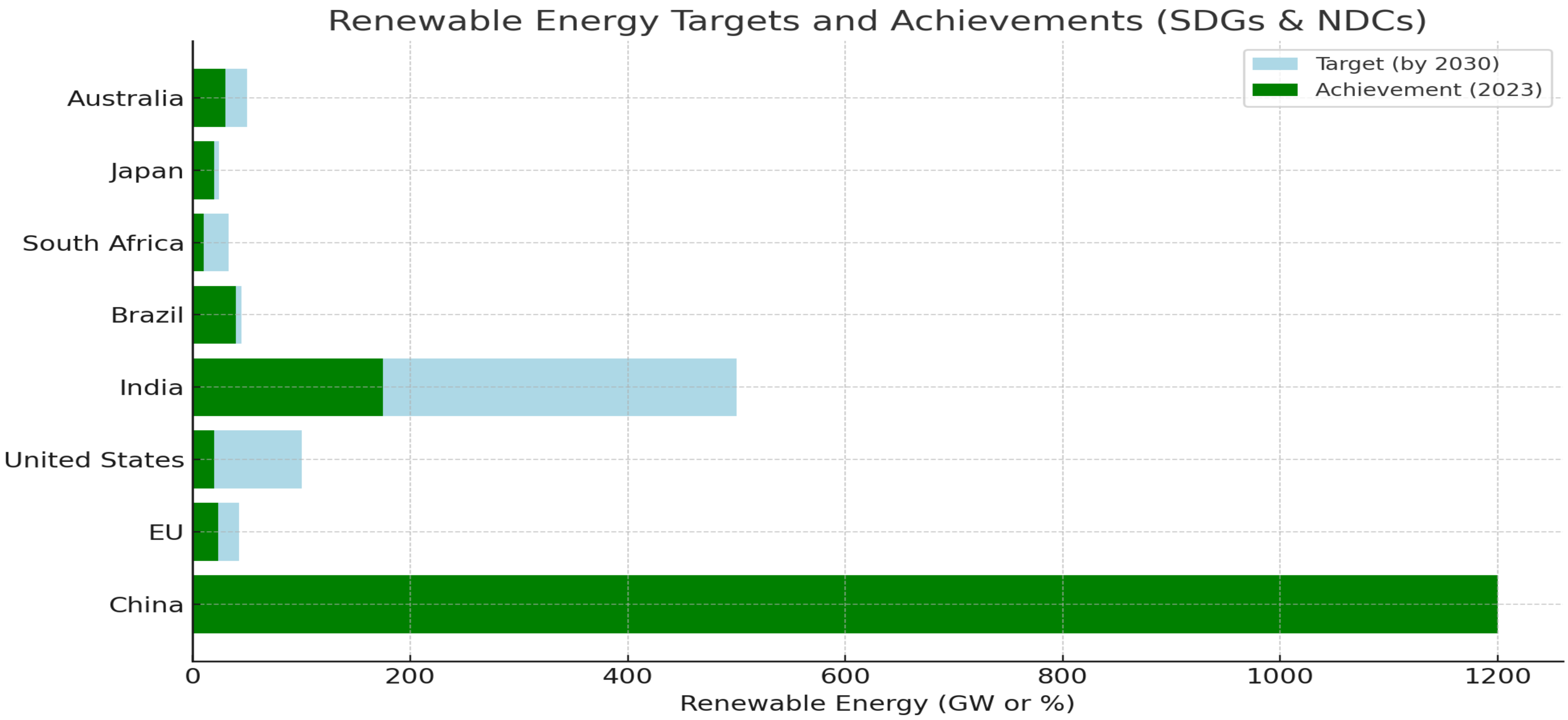
Variables	EI		FI		NENFI	
	M1	M2	M3	M4	M5	M6
RRO_{t-1}	-0.0119	-0.055 ***	-0.0060	0.0431***	-0.015***	-0.019***
	(0.0154)	(0.0189)	(0.0061)	(0.0146)	(0.0038)	(0.0052)
CCI_{t-1}	-0.037***	-0.0028*	-0.0015***	-0.0039***	-0.00082***	-0.0019***
	(0.0045)	(0.0017)	(0.00047)	(0.00051)	(0.00029)	(0.00018)
IR_{t-1}	-0.120***	-0.060***	-0.008***	0.0118***	-0.00148	0.00642***
	(0.0033)	(0.0030)	(0.0017)	(0.00078)	(0.0010)	(0.00028)
RUC_{t-1}	0.4125***		0.129***		0.0530***	
	(0.0140)		(0.0114)		(0.00721)	
$RUC * RRO_{t-1}$	-0.2480*		-0.975*		-0.835**	
	(0.1422)		(0.590)		(0.372)	
$GPRRUS_{t-1}$		0.0724***		0.0298***		0.0083***
		(0.0036)		(0.0025)		(0.0009)
$GPRRUS * RRO_{t-1}$		-0.0439***		-0.0674***		-0.0062
		(0.0085)		(0.0130)		(0.00467)
Observations	1,939	1,939	1,927	1,927	1,927	1,927
R-squared	0.4748	0.3587	0.473	0.429	0.010	0.654

Note: Identification test (Anderson canon. corr. LM statistic): 8.064
Chi-sq. (6) P-val = 0.2335, Instrumented: L.RUS*RRO. Included instruments: L.RRO L.CCI L.IR L.RUC
Excluded instruments: GPR IPI GPD REER log(M2) LIR Absorb (id#RUC*RRO)

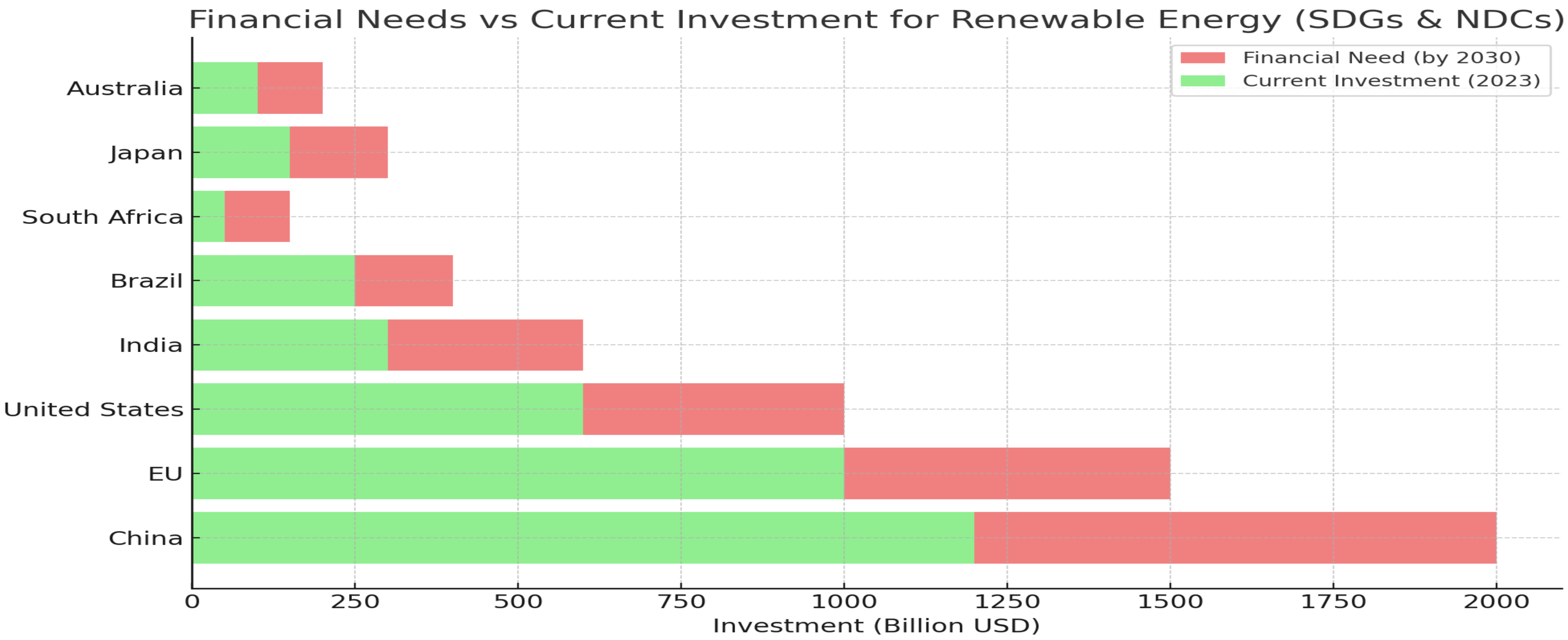
	EI (%)			FI (%)			NENFI (%)			RRO (fraction)		
Country	Before RUC	After RUC	Diff.	Before RUC	After RUC	Diff.	Before RUC	After RUC	Diff.	Before RUC	After RUC	Diff.
Austria	1.173	22.380	22.207[a]	1.448	11.498	10.054[a]	1.873	6.881	5.008[a]	0.054	0.002	-0.052[a]
	(0.936)	(4.513)	(2.918)	(0.106)	(0.727)	(0.419)	(0.047)	(0.313)	(0.182)	(0.002)	(0.001)	(0.005)
Belgium	3.948	12.077	8.129[c]	1.490	11.965	10.476[a]	1.597	5.828	4.230[a]	0.559	0.135	-0.424[a]
	(1.453)	(8.190)	(5.000)	(0.142)	(0.875)	(0.520)	(0.044)	(0.251)	(0.153)	(0.012)	(0.032)	(0.029)
Czech	1.061	27.848	26.786[a]	1.915	15.108	13.193[a]	2.780	10.009	7.229[a]	0.413	0.435	0.021*
	(0.523)	(9.905)	(1.478)	(0.303)	(1.776)	(1.070)	(0.182)	(0.686)	(0.497)	(0.004)	(0.020)	(0.013)
Denmark	0.844	13.661	12.818[a]	1.033	10.523	9.491[a]	0.947	4.366	3.419[a]	0.091	0.003	-0.088[a]
	(0.939)	(6.440)	(3.713)	(0.135)	(4.834)	(0.580)	(0.039)	(0.211)	(0.131)	(0.006)	(0.006)	(0.012)
Estonia	3.330	34.303	30.973[a]	2.386	18.738	16.352[a]	1.843	9.405	7.562[a]	1.138	0.105	-1.033[a]
	(1.310)	(8.068)	(4.790)	(0.287)	(1.617)	(0.987)	(0.136)	(0.544)	(0.382)	(0.133)	(0.030)	(0.265)
Finland	1.763	13.923	12.160[a]	0.293	10.411	10.117[a]	0.888	5.644	4.756[a]	1.245	0.109	-1.136[a]
	(0.817)	(4.041)	(2.589)	(0.175)	(1.026)	(0.619)	(0.057)	(0.287)	(0.183)	(0.014)	(0.035)	(0.033)
France	2.593	14.259	11.666[a]	1.318	10.592	9.274[a]	0.750	3.205	2.454[a]	0.083	0.049	-0.034[a]
	(0.857)	(2.346)	(2.064)	(0.107)	(0.874)	(0.484)	(0.038)	(0.095)	(0.089)	(0.004)	(0.013)	(0.010)
Germany	0.877	18.084	17.206[a]	1.919	13.225	11.306[a]	1.371	4.651	3.281[a]	0.317	0.124	-0.193[a]
	(0.811)	(3.143)	(2.246)	(0.158)	(1.157)	(0.656)	(0.083)	(0.191)	(0.190)	(0.003)	(0.028)	(0.015)
Greece	0.872	11.592	10.719[a]	0.834	12.217	11.382[a]	-0.190	4.435	4.625[a]	0.659	0.202	-0.457[a]
	(1.215)	(6.369)	(3.988)	(0.188)	(0.478)	(0.442)	(0.092)	(0.314)	(0.241)	(0.011)	(0.044)	(0.031)
Hungary	1.231	20.066	18.835[a]	3.506	28.039	24.533[a]	2.713	12.523	9.810[a]	0.595	0.594	-0.001
	(0.766)	(3.263)	(2.227)	(0.292)	(3.166)	(1.682)	(0.138)	(0.659)	(0.428)	(0.011)	(0.049)	(0.033)
Ireland	1.472	23.241	21.769[a]	1.320	8.934	10.255[a]	0.860	5.462	4.603[a]	0.011	0.001	-0.010[c]
	(1.060)	(4.605)	(3.115)	(0.117)	(0.677)	(0.411)	(0.102)	(0.155)	(0.216)	(0.002)	(0.001)	(0.005)
Italy	1.625	25.545	23.920[a]	1.095	10.108	9.012[a]	0.633	3.743	3.110[a]	0.184	0.118	-0.066[a]
	(1.188)	(6.301)	(3.929)	(0.108)	(0.591)	(0.364)	(0.028)	(0.199)	(0.114)	(0.003)	(0.030)	(0.016)
Latvia	1.648	29.169	27.521[a]	2.134	18.349	16.215[a]	1.880	8.034	6.154[a]	0.189	0.252	0.063[a]
	(0.927)	(6.447)	(3.704)	(0.290)	(1.936)	(1.124)	(0.077)	(0.386)	(0.246)	(0.005)	(0.010)	(0.011)
Lithuania	0.767	26.750	25.983[a]	2.177	21.500	19.323[a]	2.905	10.350	7.445[a]	2.541	0.102	-2.439[a]
	(1.373)	(7.137)	(4.483)	(0.296)	(2.367)	(1.319)	(0.130)	(0.406)	(0.328)	(0.035)	(0.061)	(0.075)
Luxemburg	2.004	10.862	8.858[a]	1.797	9.270	7.473[a]	1.388	3.944	2.556[a]	0	0	0
	(1.370)	(4.257)	(1.425)	(0.109)	(0.558)	(0.352)	(0.062)	(0.086)	(0.131)	(0)	(0)	(0)
Netherland	3.688	22.138	18.450[a]	1.617	11.991	10.374[a]	1.510	5.159	3.649[a]	0.702	0.274	-0.428[a]
	(1.473)	(11.368)	(6.379)	(0.175)	(0.860)	(0.552)	(0.064)	(0.268)	(0.184)	(0.016)	(0.058)	(0.043)
Poland	1.836	20.223	18.386[a]	2.847	16.023	13.176[a]	1.749	9.909	8.160[a]	0.709	0.225	-0.484[a]
	(0.707)	(2.862)	(2.001)	(0.316)	(1.180)	(0.860)	(0.193)	(0.384)	(0.428)	(0.016)	(0.043)	(0.038)
Portugal	0.812	6.961	6.150[a]	1.064	12.357	11.292[a]	0.674	5.559	4.885[a]	0.229	0.006	-0.223[a]
	(0.617)	(3.935)	(2.314)	(0.113)	(1.317)	(0.694)	(0.061)	(0.320)	(0.200)	(0.014)	(0.006)	(0.028)
Slovenia	0.747	12.146	11.398[a]	1.747	12.912	11.164[a]	0.938	6.739	5.801[a]	0.004	0.104	0.100[a]

Environmental Policy Dilemma

Tracking SDGs & NDCs underpinning Paris Agreements



Financial Needs

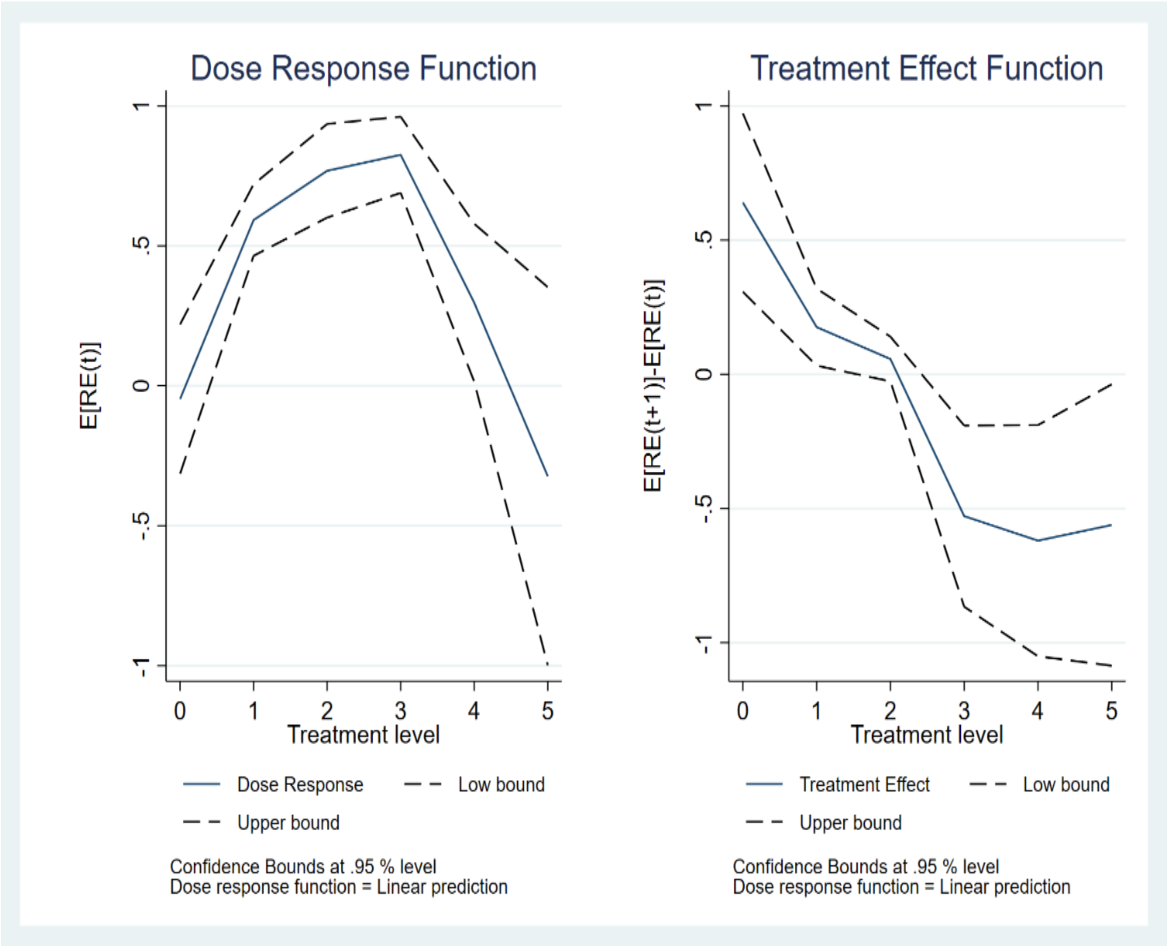


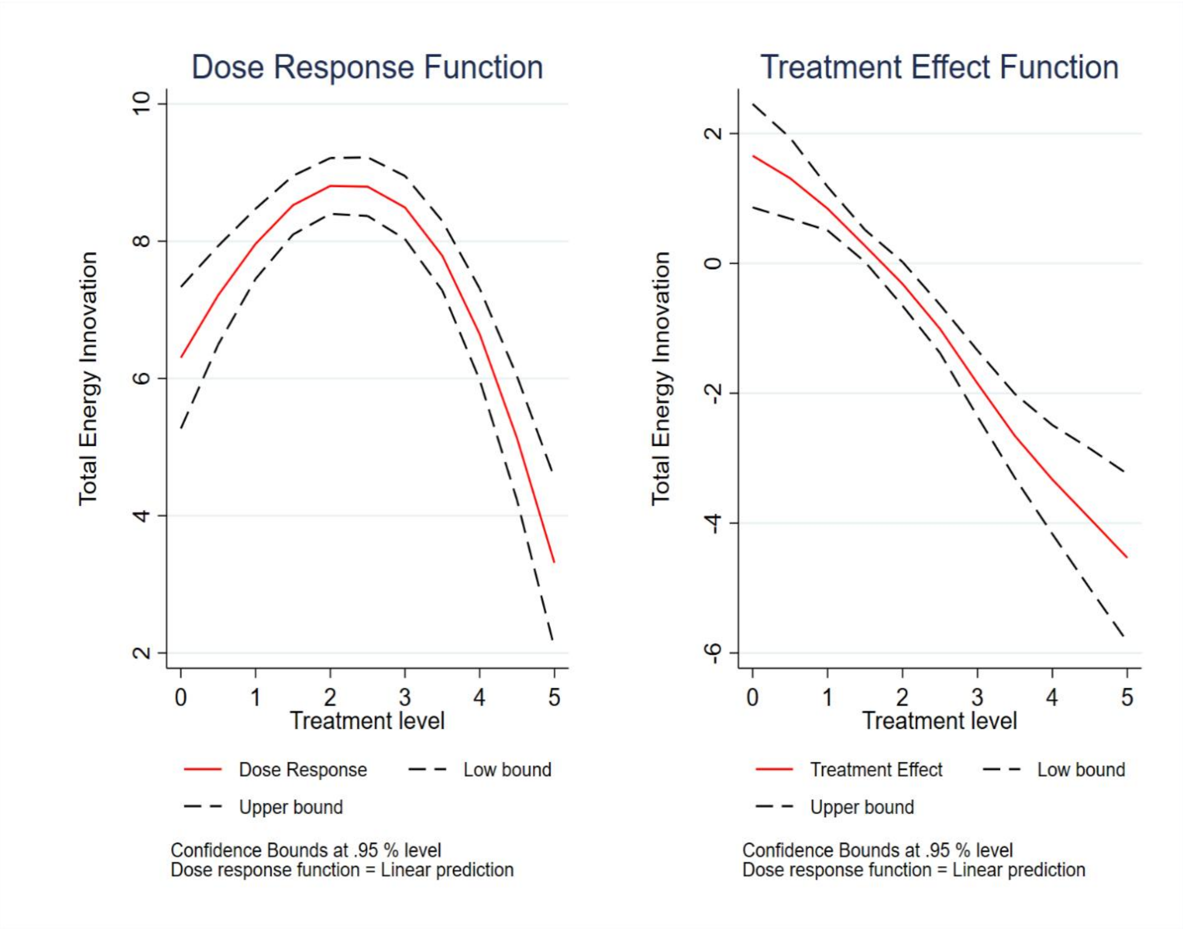
While China has achieved its wind and solar capacity goals
supporting future growth, enhancing grid infrastructure, storage capacity, and energy efficiency

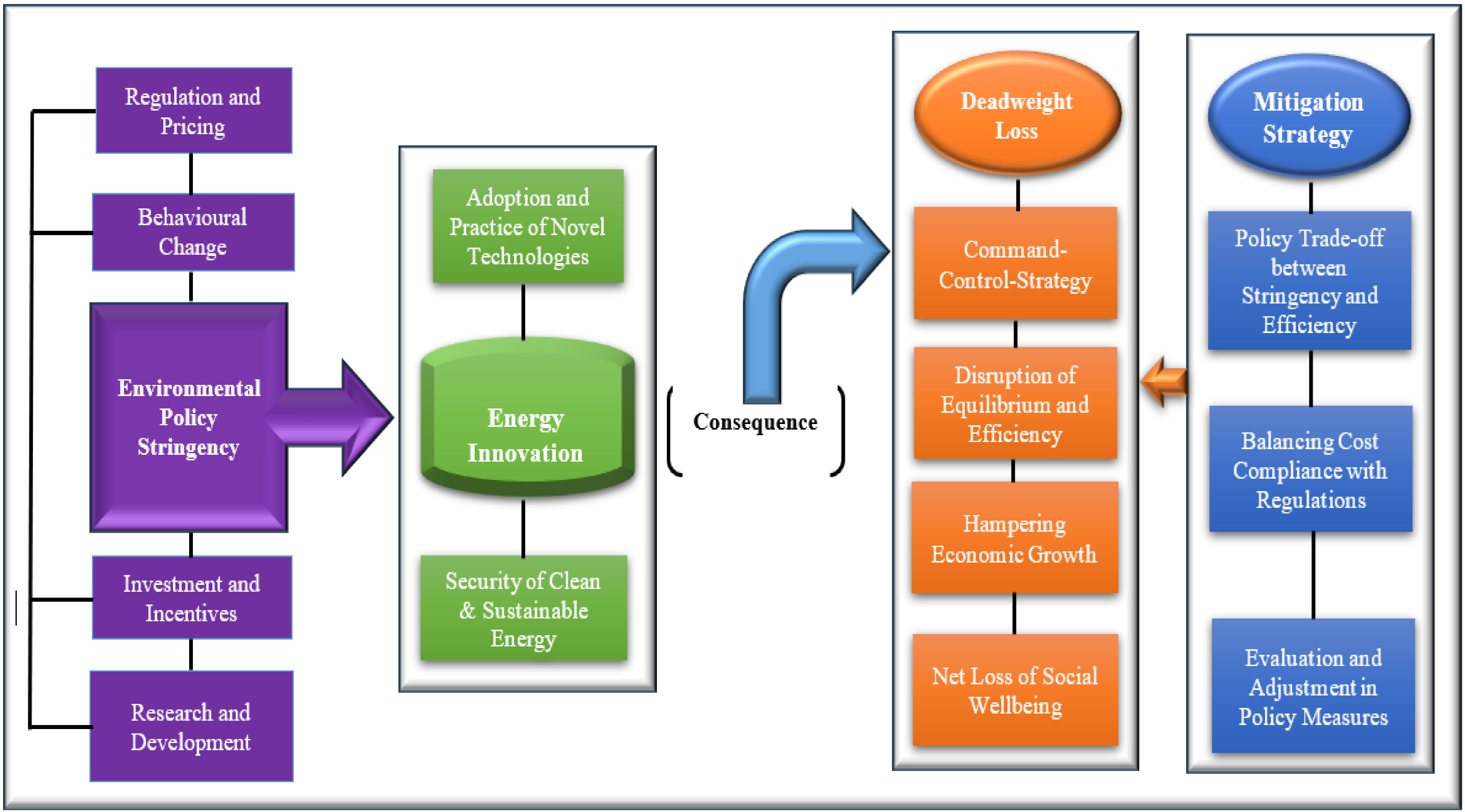
Why the required investment is challenging

- High Upfront Capital Costs, (including critical mineral)
- Government Fund Dependency vs. Market-Driven Growth
- Financing Gaps and Access to Capital
- Policy and Regulatory Uncertainty
- Energy Infrastructure and Grid Modernization
- Energy Transition and Fossil Fuel Dependency
- Lack of Institutional Capacity
- Lack of Financial Instruments for Risk Mitigation

Effectiveness of environmental Policy Stringency (Sohag et al. 2024, Energy Economics)

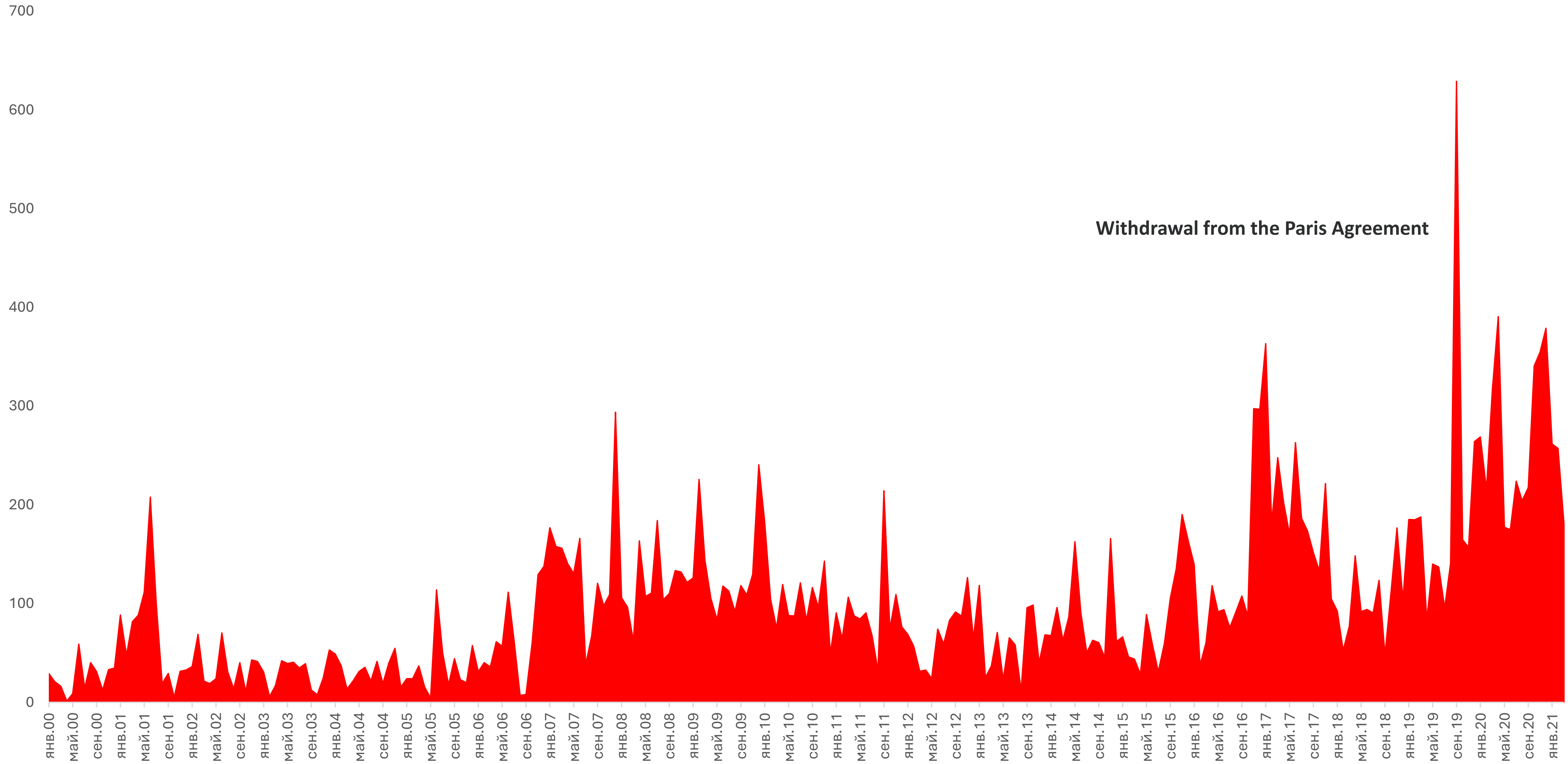






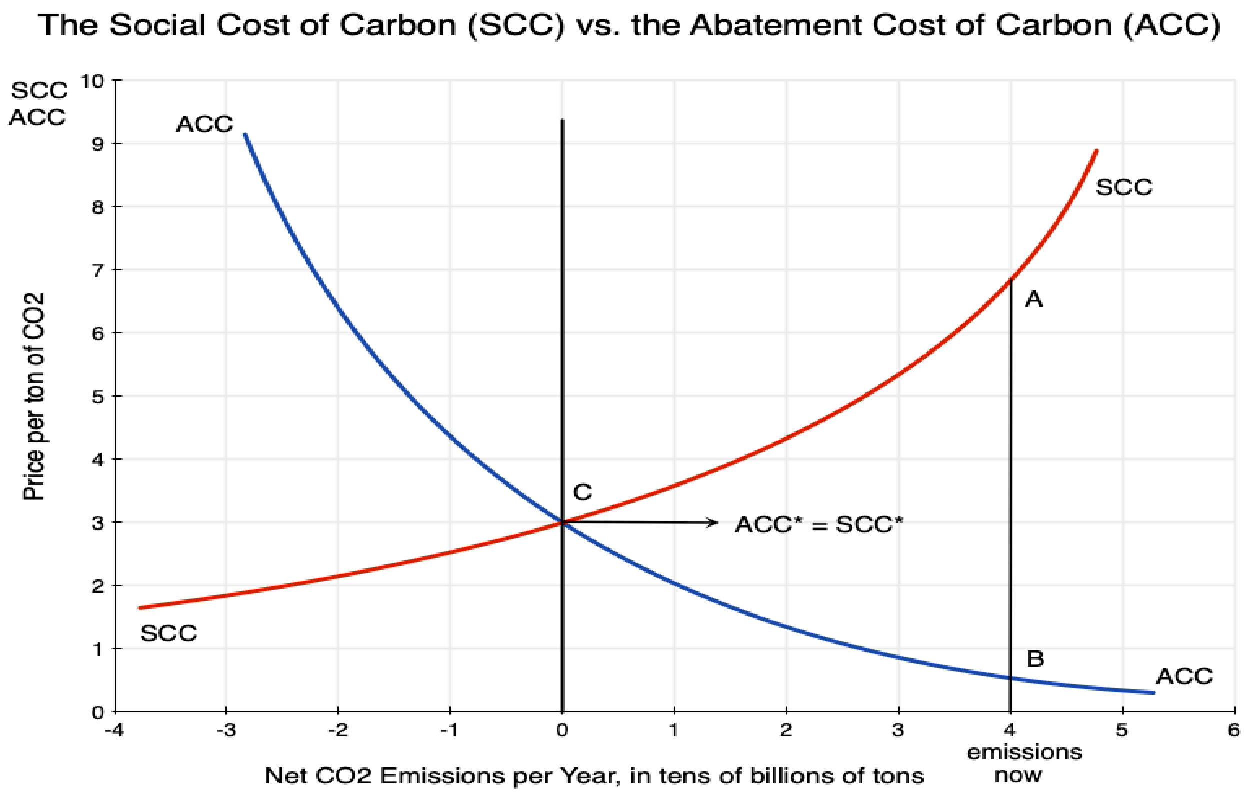
Regulation and Pricing
Behavioural Change
Environmental Policy Stringency
Investment and Incentives
Research and Development
Adoption and Practice of Novel Technologies
Energy Innovation
Security of Clean & Sustainable Energy
Consequence
Deadweight Loss
Command-Control-Strategy
Disruption of Equilibrium and Efficiency
Hampering Economic Growth
Net Loss of Social Wellbeing
Mitigation Strategy
Policy Trade-off between Stringency and Efficiency
Balancing Cost Compliance with Regulations
Evaluation and Adjustment in Policy Measures

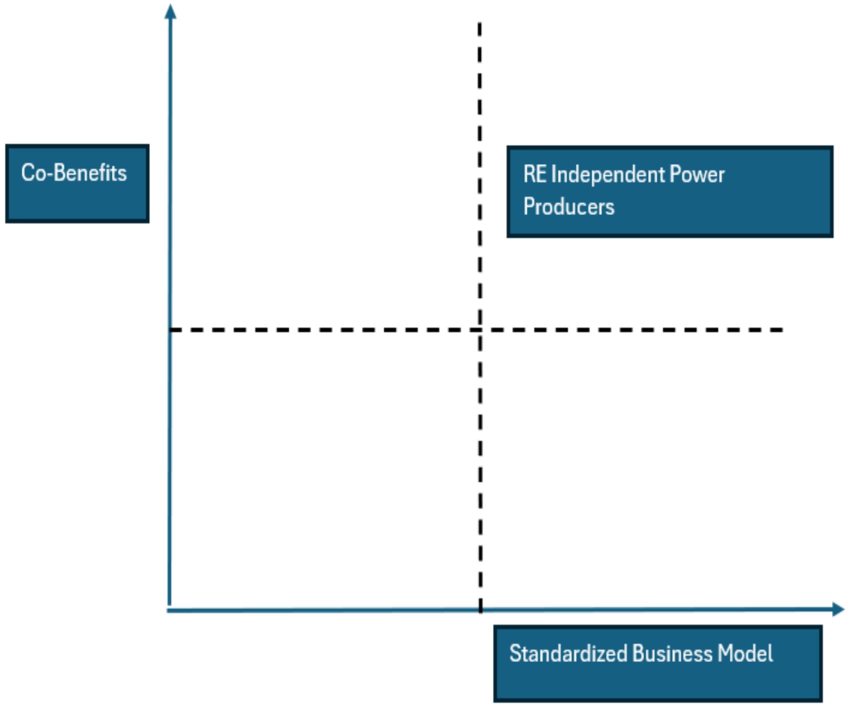
Climate Policy Uncertainty in USA



Market Solution: Way-out

- Renewable Energy-based Independent Power Producers (RE-based IPPs) ensuring co-benefits





My Views

- In game theory, a **dominant strategy** is a strategy that yields the highest payoff for a player, regardless of the strategies chosen by other players. When it comes to non-cooperation, dominant strategies often lead players to act in their own self-interest, which can result in outcomes that are suboptimal for all involved.
- No Moral framework

Conclusion and Policy Recommendation

- Our findings indicate that dependence on Russian oil tends to curb energy and core inflations over time. Conversely, the Russia-Ukraine conflict, alongside Russian and global geopolitical risks, has exacerbated inflation across all sectors.
- Notably, our analysis reveals a reverse causal relationship between inflation and geo-economic fragmentation in the context of Russian oil during the Russia-Ukraine conflict.
- IV regression results indicate a negative inflation response to these combined shocks, confirming the robustness of our findings through multiple structural break analyses

- Policy Implication –Cooperation

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