

The Institutional Sources of Energy Transitions

Phillip Lipsky (University of Toronto)

Work in Collaboration with:

Jared Finnegan (Princeton University)

Jonas Meckling (UC Berkeley)

Florence Metz (University of Twente)

Introduction

- Puzzle: what determines scope and nature energy transitions across countries?
- Lessons from 1970s oil shocks, implications for climate change
- Discussion of implications for Japanese energy policymaking



Jared Finnegan,
Princeton



Jonas Meckling,
UC Berkeley



Florence Metz,
Twente

Funding from Robert O. Keohane's Balzan Prize for International Relations gratefully acknowledged.

Theory

- Political institutions affect the degree and nature of energy transitions
- Two mechanisms: insulation and compensation
- Policy tools:
 - Demand-side policies: Imposing costs on consumers, e.g., gas taxes, carbon taxes
 - Supply-side policies: Imposing costs on producers, e.g., fuel economy standards, clean energy mandates

Three Political Options

Government Policymakers have three choices when faced with the need for energy transition:

1. “Ignore” → insulation from economic losers
2. “Pay off” → compensation of losers
3. “Do nothing” → policy retreat/wavering

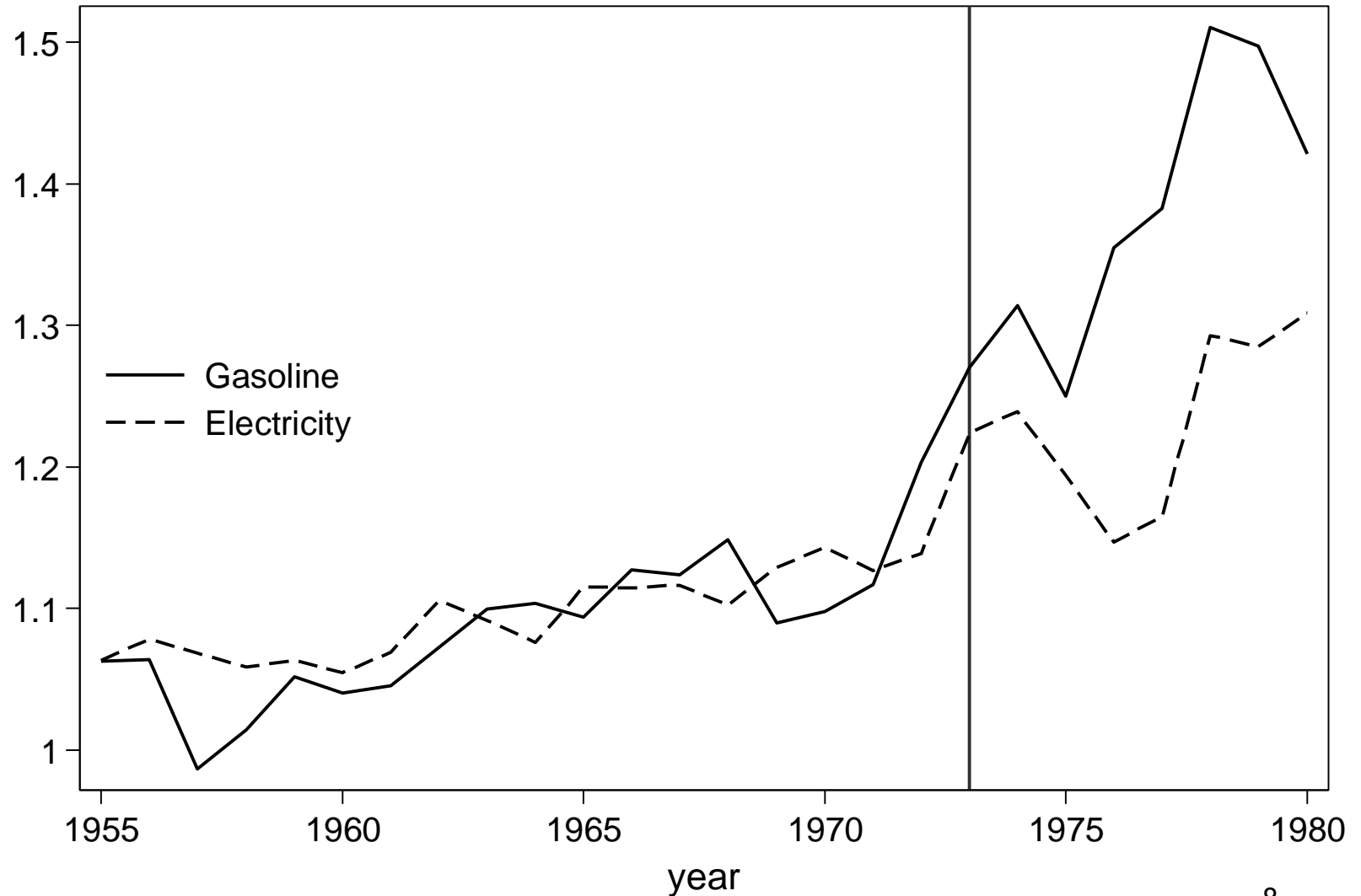
Four Political Institutions

- Focus on four institutions:
 - Electoral rules (insulation from consumers)
 - Welfare state (compensation of consumers)
 - Bureaucratic insulation (insulation from producers)
 - Interest intermediation (compensation of producers)
- Countries without these institutions face difficulty overcoming resistance to change
- These institutions also determine patterns of transition

Electoral Rules

- Proportional electoral rules tend to make politicians less sensitive to backlash from voters / consumers compared to majoritarian rules (Rogowski & Kayser, 2002; Bawn & Thies 2003)
- Increases ability of governments to facilitate energy conservation through demand-side measures: e.g. gasoline taxes, carbon taxes
- Under majoritarian rules, demand-side measures tend to solicit voter backlash (gasoline taxes as “third rail” of US politics)

Gasoline and electricity prices



Welfare State Institutions

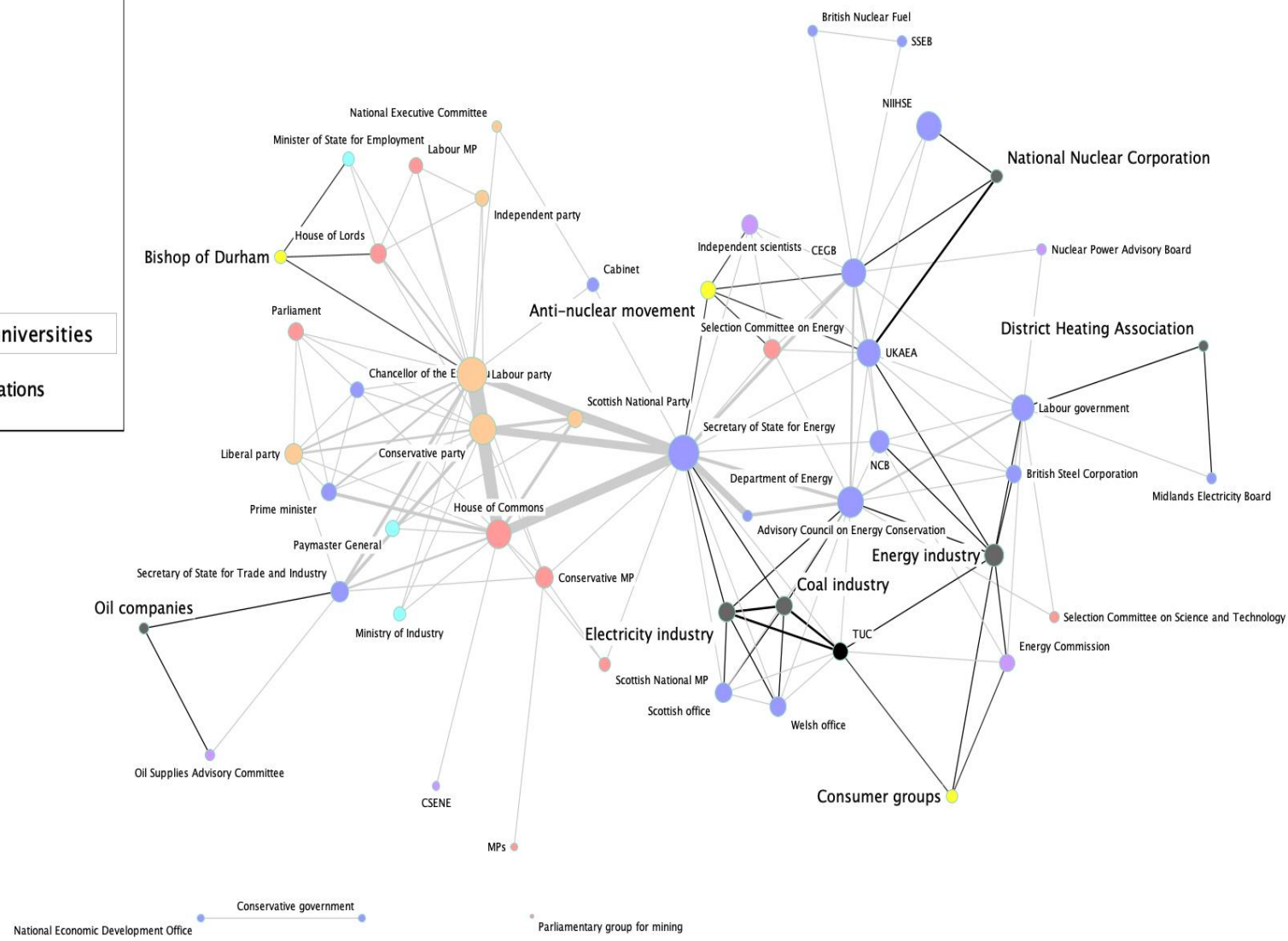
- Strong welfare state can compensate energy consumers & cushion the blow of demand-side policy measures
- France: majoritarian electoral system but strong welfare state institutions going back to mid-20th century (e.g. incorporation of Alsace Lorraine)
- During oil shocks, higher consumer energy taxes were compensated through double-digit annual expansion in social welfare spending

Bureaucratic Insulation

- Strong, autonomous bureaucracies can accelerate industrial energy transition
- France: Dirigiste state & Messmer Plan promotes transition to nuclear energy
- Japan: MITI role in improving energy efficiency and diversifying supply

Interest Intermediation

- Corporatist institutions can facilitate compensation of declining industries, creating consensus in favor of transition
- Germany: economic support for declining coal sector while investing in renewable energy
- UK: minimal change during oil shocks as state adopts laissez faire approach



Empirical Analysis

- Difference-in-differences using oil shock and presence of insulation or compensation institutions.
- Findings:
 - Demand-side: countries with PR or welfare state increased gasoline tax rates more rapidly
 - Supply-side: countries with independent bureaucracy or corporatism reduced dependence on oil in power generation more rapidly
- Supplement with case studies and discourse network analysis to examine politics of transition

**Institutional
Insulation**

Y

N

Policy Change

**Institutional
Compensation**

Y

N

Policy Change

No Policy Change

**Equivalent
Energy Policy
Outcomes**

General patterns

- PR Electoral System + Corporatism (e.g. Germany, Denmark): demand & supply-side transition with producer compensation
- Bureaucratic Insulation + Welfare State (France): supply-side and demand-side transition with consumer compensation
- Absence of insulation & compensation mechanisms (USA, Australia): limited transitions

Implications for Climate Change

- Electoral insulation: High-income democracies with proportional rules have adopted more ambitious climate policies and stringent energy efficiency policies (recent work by Finnegan, Lipsky).
- Bureaucratic insulation: Autonomous environmental bureaucracies allow for greater goal attainment in climate policy, e.g. CA vs DE (Meckling and Nahm 2018).
- Corporatism: Germany's coal phase-out through buying support from energy-intensive industry and regions
- Welfare state: compensation less feasible compared to 1970s due to budgetary pressures and austerity across OECD countries

Figure 2: Number of National Carbon Taxes or ETS by Electoral System, 1990-2017

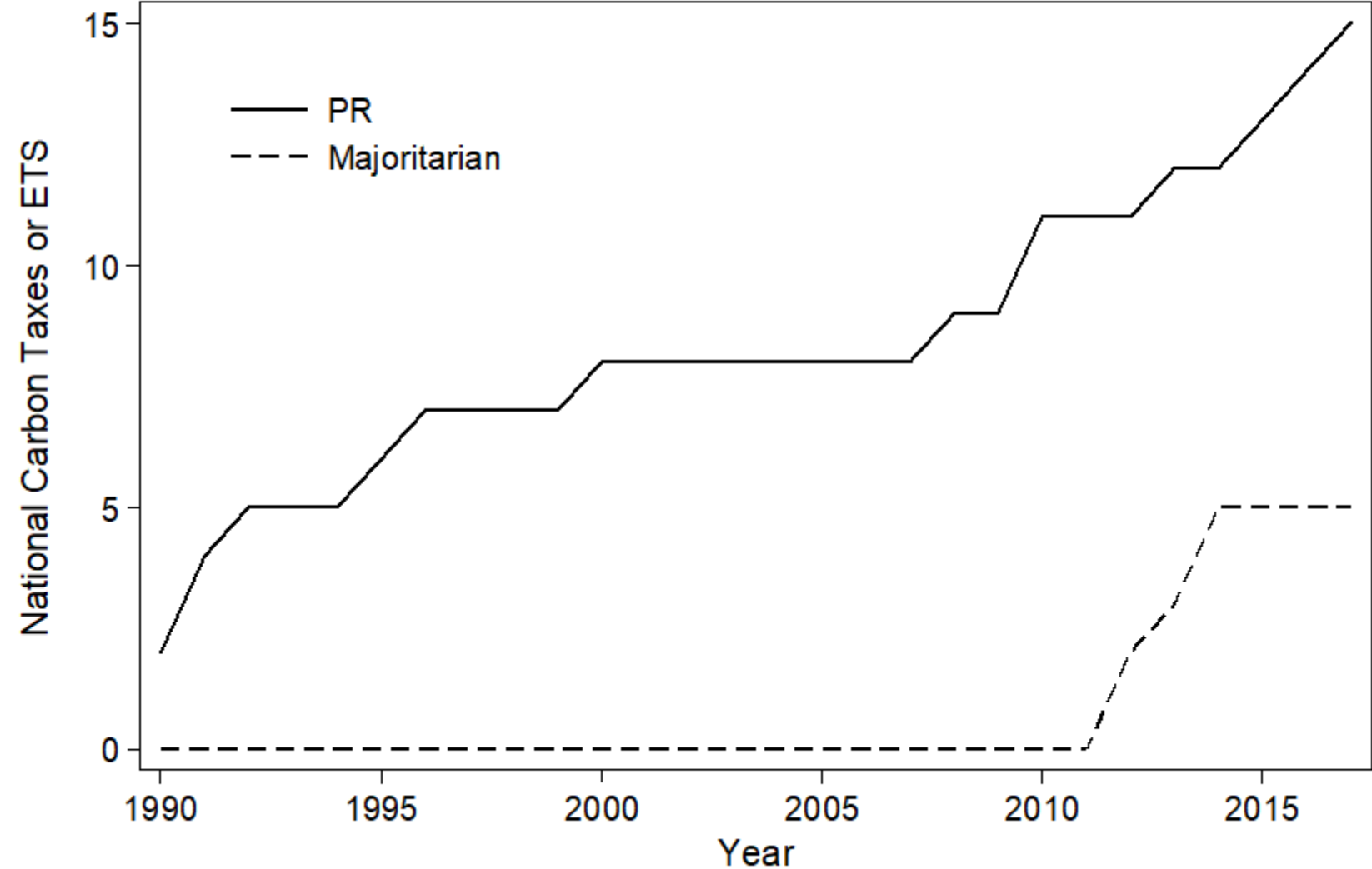
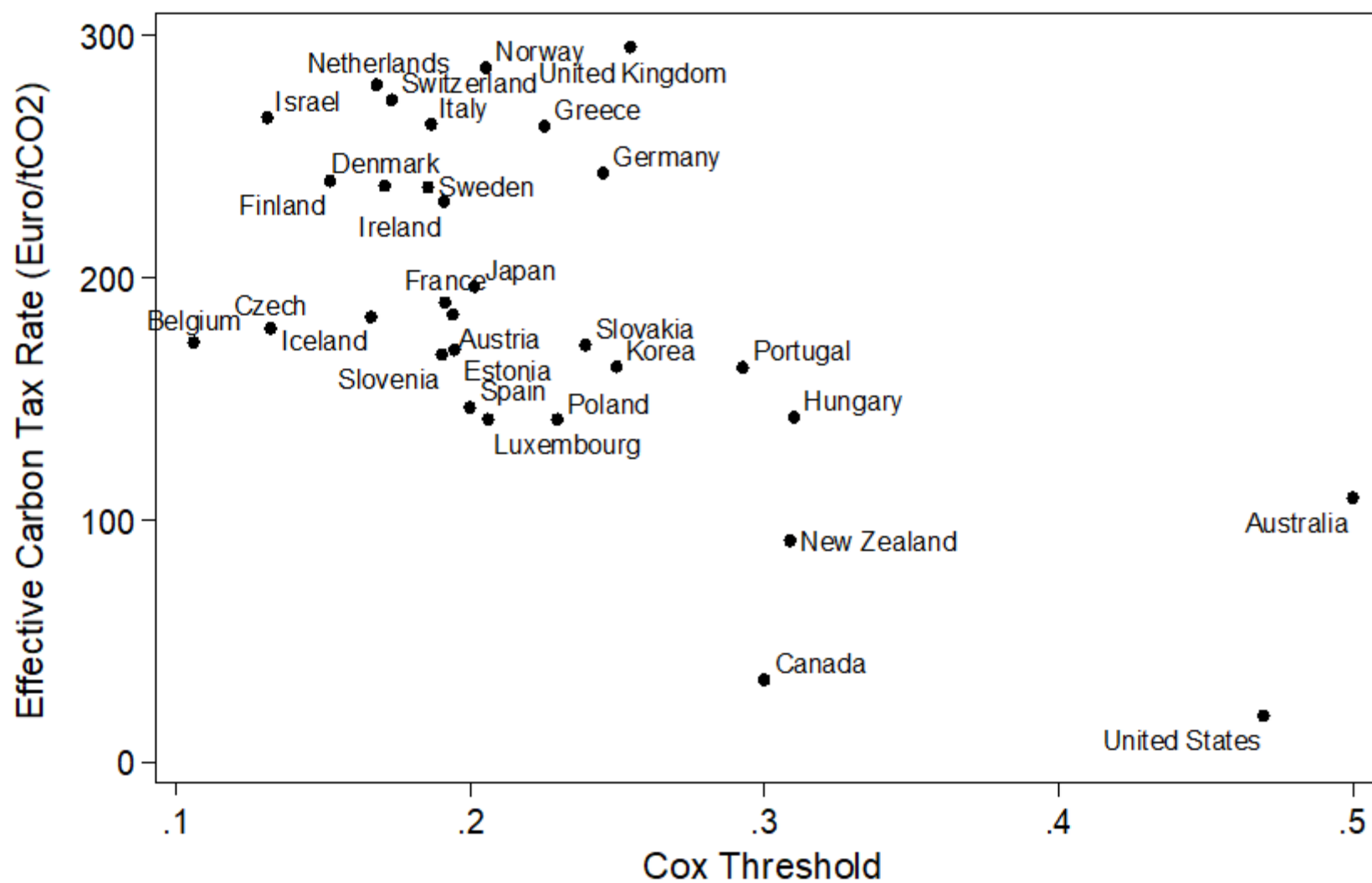


Figure 3: Electoral Institutions and Effective Carbon Tax Rate, 2015



Implications for Japanese Energy Policy

- Institutional changes in Japan have made energy transitions today more difficult compared to 1970s
- Electoral reform (1994): shift from relatively proportional single-nontransferable vote multimember district system (中選挙区制) to mixed system emphasizing single member districts (小選挙区制)
- Administrative reform (1998): reduces autonomy of bureaucracy and centralizes authority around politicians, especially Prime Minister

Japan's Institutional Configuration

- Oil Shocks:
 - Demand-side: SNTV-MMD electoral system allows robust demand-side measures, limited compensation
 - Supply-side: Independent authority of MITI allows robust supply-side measures in coordination with industry
- Contemporary Climate Change:
 - Demand-side: majoritarian electoral system and weak welfare state → no mechanism for insulation or compensation
 - Supply-side: Weakened bureaucratic authority limits insulation; compensation still possible but budgetary constraints

Consequences

- Political context of Japanese energy policy has become more like the USA
 - Difficulty of raising consumer energy prices such as gasoline tax, carbon tax
 - Industries tied to fossil fuels have stronger influence to obstruct transformational policies
- Ambitious response to oil shocks not matched by ambitious response to climate change

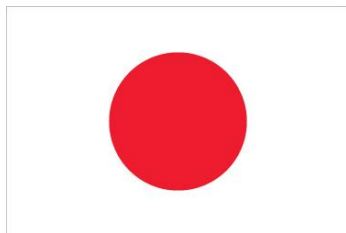




Figure 10: Japanese Automobile-related Taxes and Fees

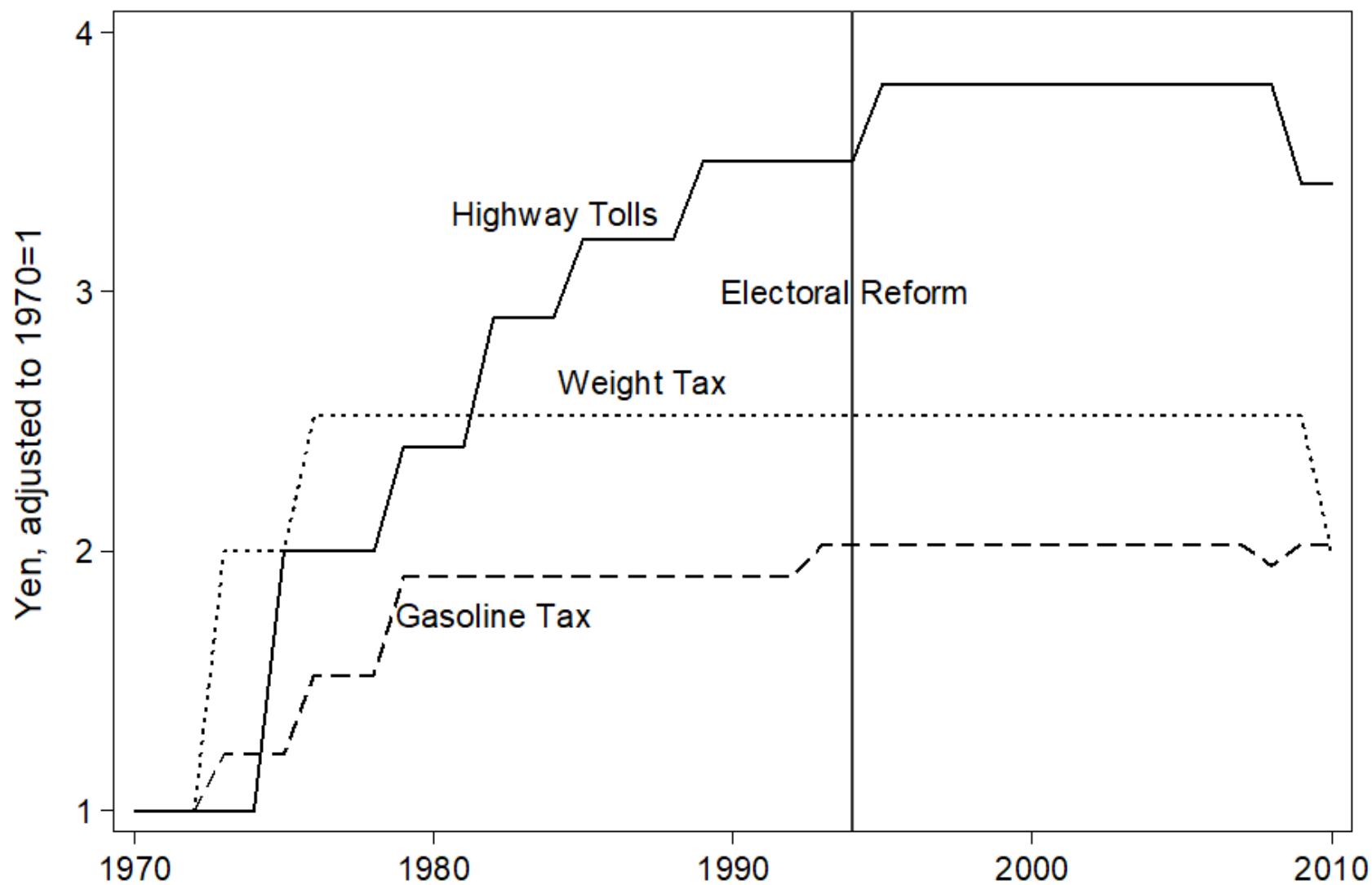


Figure 11: Japanese Automobile Weight Tax and Acquisition Tax Revenues per Vehicle (1994=1)

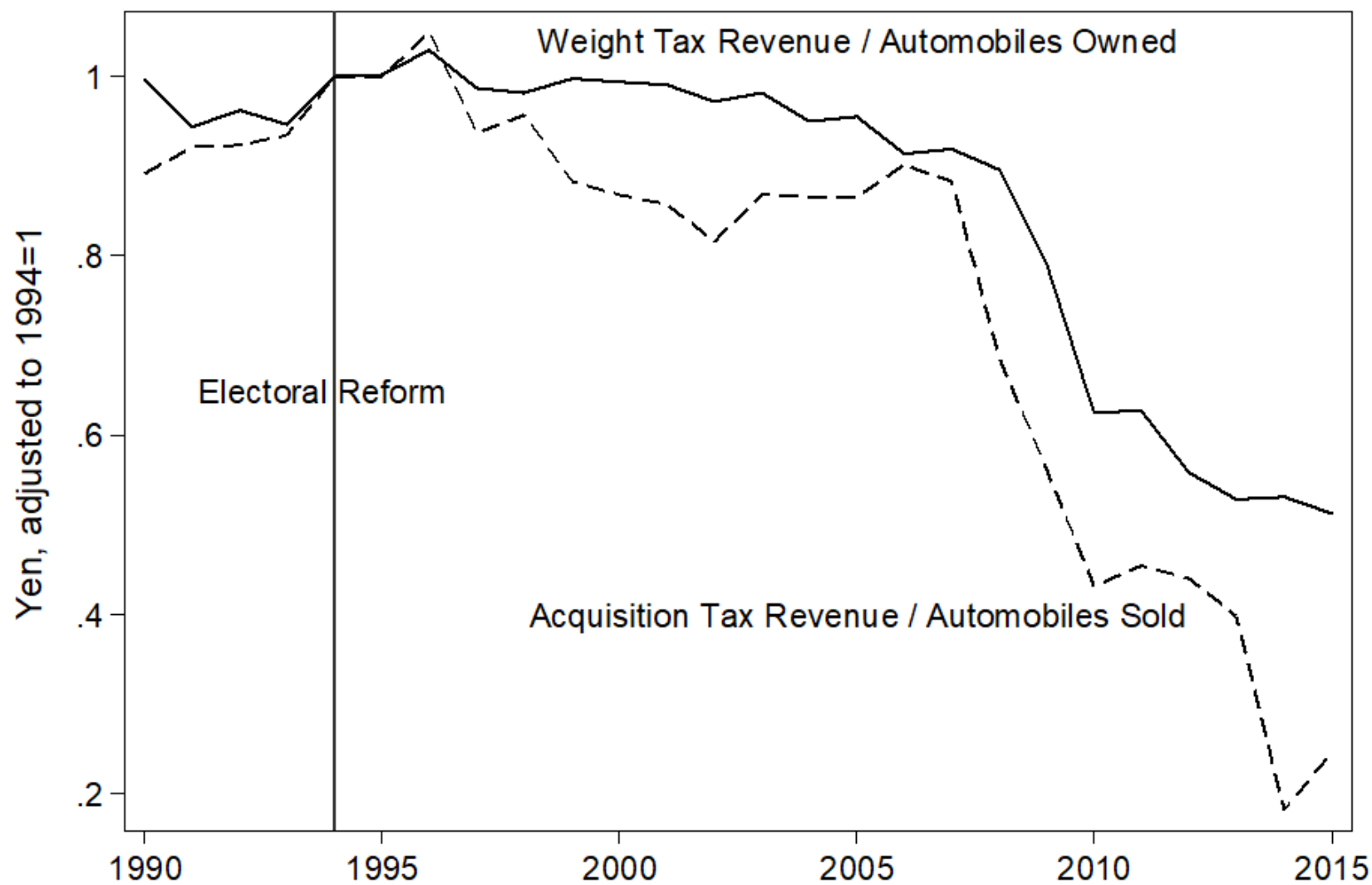
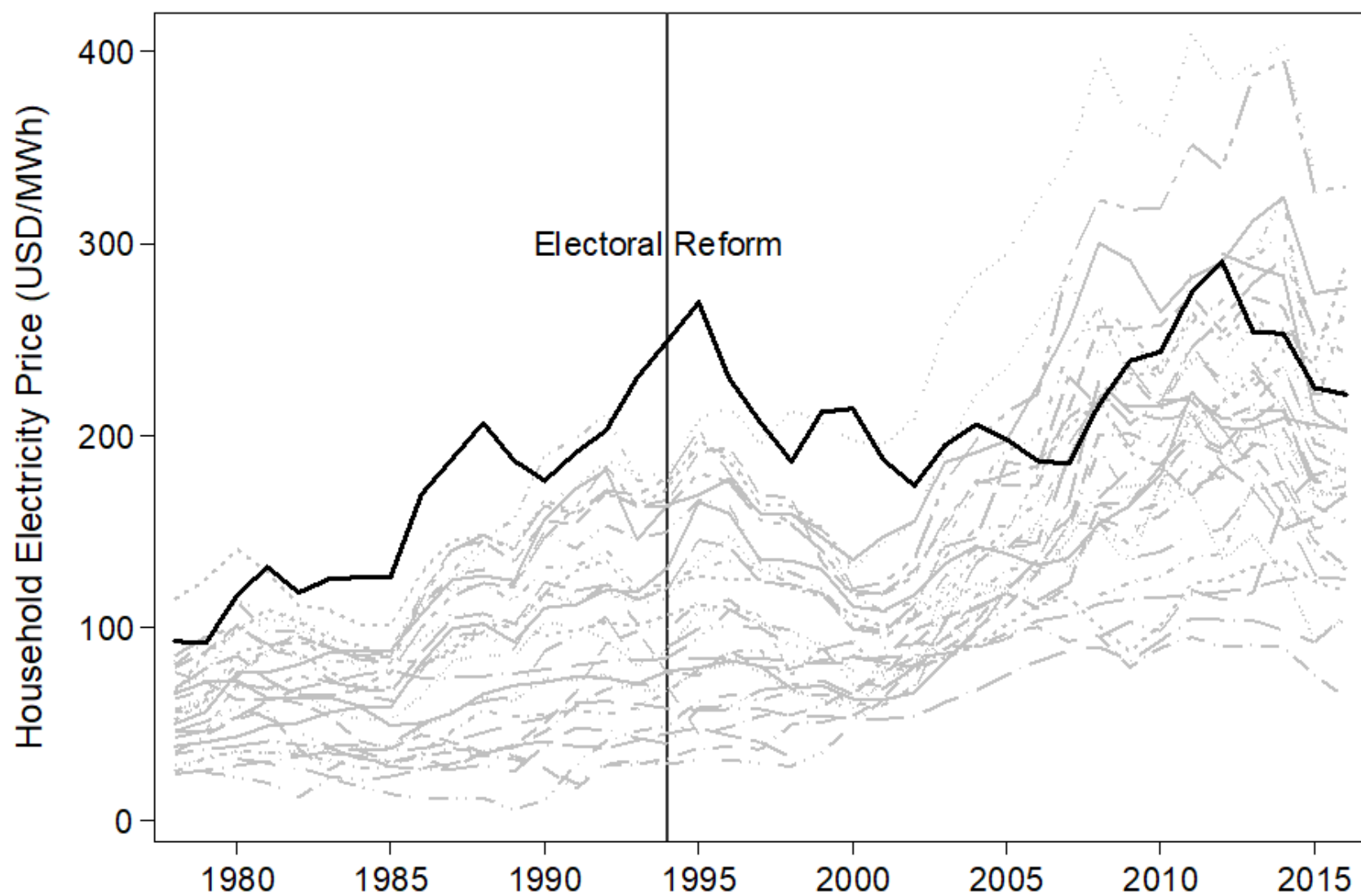


Figure 12: Household Electricity Prices in Japan and Other OECD Countries (1978-2016)



Total Energy Supply (MTOE)

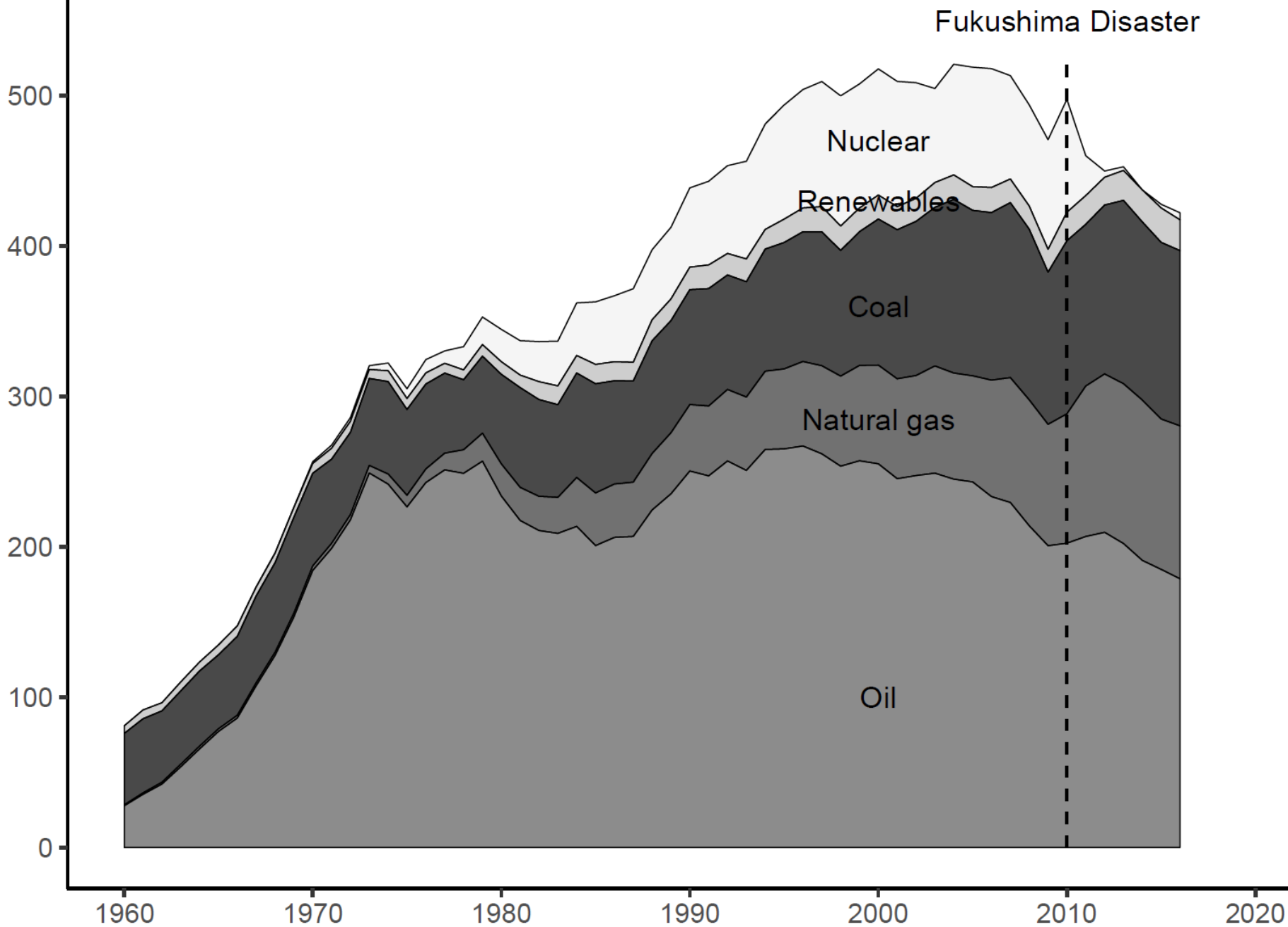
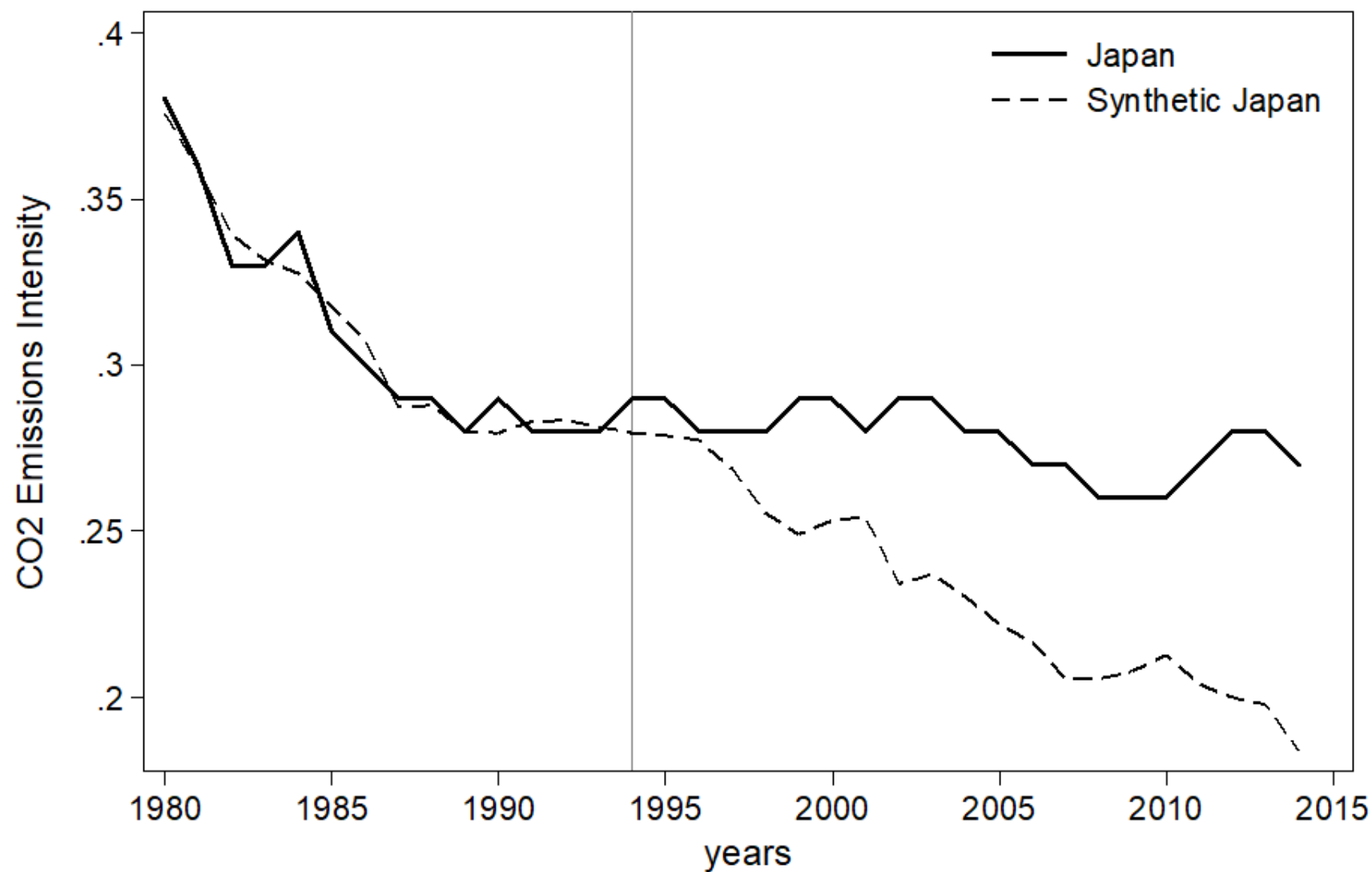
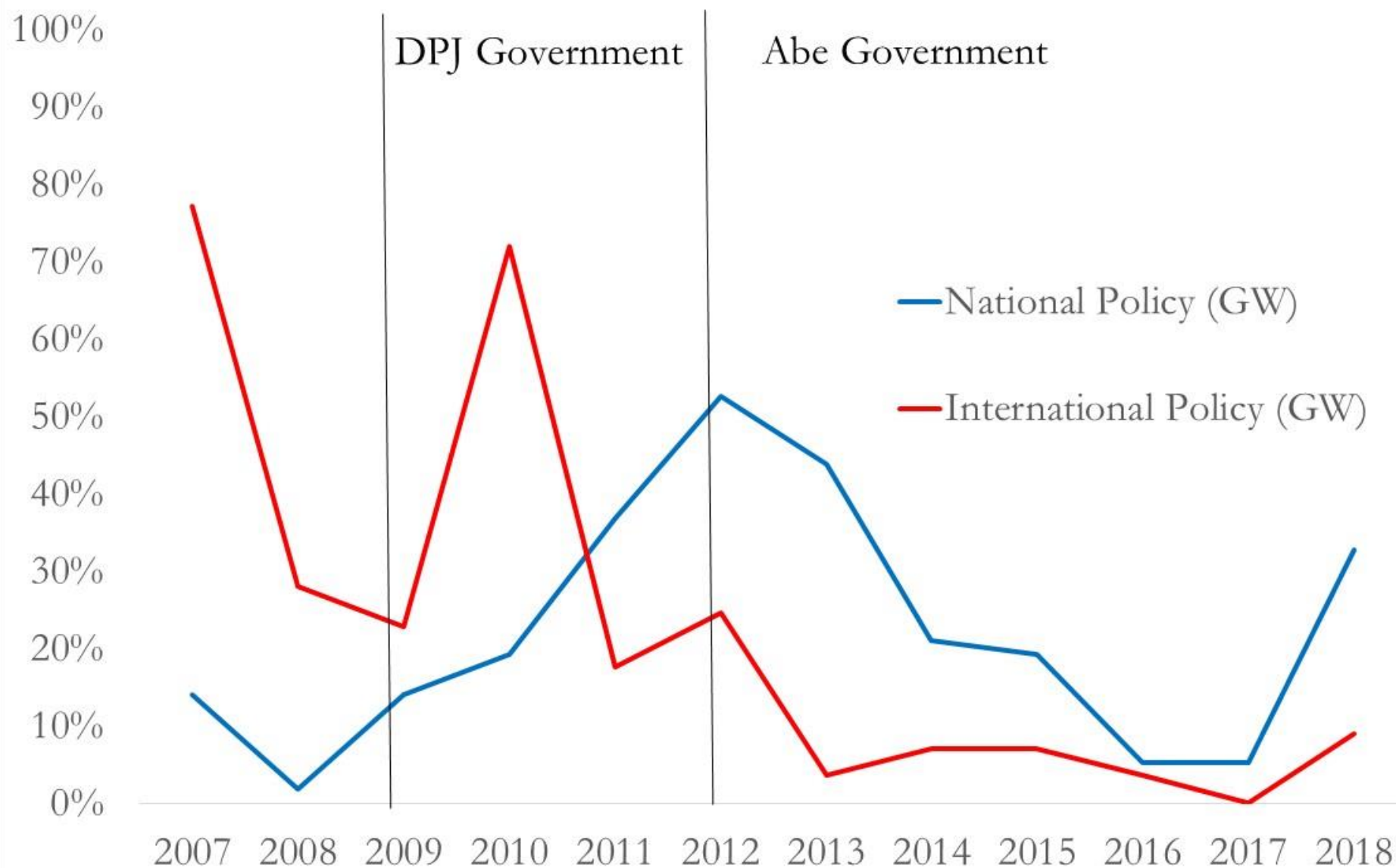




Figure 6: Trends in CO₂ Emissions Intensity: Japan vs. Synthetic Japan



Expert Evaluation of Japanese Climate Policy (International Percentile Rank, Germanwatch)



Japan and Climate Change: Moving Forward

- Japanese public supports climate change mitigation, Japan faces increasing international criticism
- Increasing authority of politicians means political leadership could make important difference
- Next generation leaders (e.g. Kono Taro, Koizumi Shinjiro) more personally invested in environmental issues compared to Abe
- UK 2008 Climate Change Act may serve as an important model: legally binding targets to overcome weak insulation & compensation institutions