

Chapter 1: Introduction

In December 1997, world leaders gathered at a historic conference in Kyoto, Japan to negotiate an international treaty to mitigate greenhouse gas emissions. A scientific consensus had emerged that greenhouse gases like CO₂ were contributing to global warming, and the international community sought to develop a response under the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol, the first international agreement of its kind, included binding targets for 38 “Annex I” industrialized countries, foreseeing a 5.2% emissions reduction from 1990 levels by 2012.

As the hosts of this historic meeting, Japanese representatives took on an active leadership role in treaty negotiations, accepting an ambitious international commitment: a 6% reduction in greenhouse gases from 1990 levels, which were already low in international comparison. Japan came to the table with an impressive track record of energy conservation. The country had responded aggressively to the 1970s oil shocks by promoting energy efficiency and rationalization. Effectively, Japanese policy was mitigating CO₂ emissions before climate change became an international priority: in the decade prior to the 1973 oil shock, Japanese CO₂ emissions had been increasing by an annualized rate of 11%; in the subsequent decade, Japan’s economy continued to grow robustly, but emissions slightly decreased.¹ Japanese industry was at the forefront of energy saving technologies. Keenly aware of the symbolism of the Kyoto

¹ World Bank, World Development Indicators, CO₂ emissions (kt)

meeting, Toyota accelerated development of its hybrid electric Prius to showcase the vehicle for international delegates.²

Yet, Japan's performance under the Kyoto Protocol was deeply disappointing. Japanese public concern over climate change has remained consistently robust.³ However, the Japanese government implemented very little in the way of new policy measures to mitigate CO₂ emissions and enacted several reforms that lowered energy prices for consumers, effectively encouraging greater energy use. Rather than declining by 6% as envisioned, Japanese emissions *rose* during the Kyoto commitment period. Japan became the worst performer under the Kyoto Protocol in absolute terms, exceeding its target by 44 MtCO₂e, even after accounting for land-use change and forestry.⁴ Japan was able to meet its treaty obligations only by relying heavily on flexibility mechanisms, paying to take credit for emissions reductions in other countries such as the Czech Republic, Ukraine, and Estonia. Once a country that fashioned itself a climate change leader, Japan became a cellar dweller in international climate change policy rankings.⁵ In 2010, Japan stunned the international community with a “bombshell” declaration of its categorical opposition to the second commitment period of the Kyoto Protocol. Japanese delegates came under withering criticism from the international community, cast as the “villains” and “fossils”

² “Toyota Steps on the Gas; A Leaner, Tougher Company Gambles on Global Leadership With New 'Eco-Car,’” *The Washington Post*, 12-14-1997; “Toyota first to offer gas-electric car,” *The Associated Press*, 10-15-1997.

³ For example, in a 2005 poll commissioned by the Ministry of Foreign Affairs found that 72% of Japanese survey respondents considered global warming a “global problem that is of serious concern to me in my daily life.” Global warming received the highest affirmative response among the issues listed, which included environmental destruction (59%), terrorism and war (49%), infectious diseases (34%), international criminal activity (29%), and human rights abuses (28%). Ministry of Foreign Affairs (Japan), “Chikyu Kankyo Mondai ni Kansuru Ishiki Chosa,” 2005.

⁴ Shishlov, Morel and Bellassen 2016

⁵ E.g. according to the Climate Change Performance Index, Japan was 54 out of 60 countries in terms of “climate policy” as of 2017. Burck et al. 2017.

of climate change negotiations.⁶ In dramatic fashion, Japan effectively turned its back on the international framework that bore the name of its ancient capital.⁷

For much of its history, New Zealand was a laggard in energy conservation efforts. In the early 1990s, the country had among the lowest energy prices in the developed world, and greenhouse gas emissions had risen rapidly: on a per capita basis, New Zealand CO₂ emissions had increased by 36% between 1970 and 1990, a period during which average OECD emissions by the same measure were essentially flat.⁸ In light of New Zealand's historical underperformance, the country was assigned an unambitious target of 0% under the Kyoto Protocol, i.e. no need to reduce emissions from 1990s levels.

Like Japan, New Zealand came under widespread criticism for exiting from the second commitment period of the Kyoto Protocol in 2012, freeing itself from binding international commitments to reduce greenhouse gas emissions. However, despite turning its back on Kyoto, New Zealand has achieved remarkable progress in energy conservation and greenhouse gas emissions reductions. In 2001, the legislature passed the landmark Energy Efficiency and Conservation Act, which provided the legal basis for the first time for the government to promote energy efficiency and renewable energy. The act also elevated the Efficiency and Conservation Authority to an independent agency tasked with promoting environmental objectives. In 2008, the government implemented an emissions trading scheme, which has been maintained despite the country's exit from the Kyoto Protocol.

⁶ "Japan said "cast as villain" at Cancun climate talks" *BBC*, 12-12-2010; "Fossil' Japan seen as obstacle in Cancun," Reuters, 12-2-2010.

⁷ "Japan drops Kyoto bombshell at Cancun," *The Guardian*, 12-2-2010.

⁸ International Energy Agency, "Indicators for CO₂ Emissions." Measured in CO₂ / Population (tCO₂ per capita)

New Zealand's gasoline taxes roughly doubled between 1990 and 2016, encouraging consumers to drive less and purchase more energy efficient vehicles. The price of electricity in New Zealand increased by about 70% between 1992 and 2015 in real terms, pushing electricity prices from about 50% to 120% of the OECD average.⁹ Similarly, CO₂ emissions in New Zealand reversed their historical trend, declining in both absolute and per capita terms by about 20% after peaking in the early 2000s. Like Japan, New Zealand turned its back on international climate change cooperation. Yet, unlike Japan, New Zealand has continued to implement aggressive policies that drove up energy prices and meaningfully reduced greenhouse gas emissions.

The Puzzle: Variation in Energy and Climate Change Politics

Since the Arab Oil Embargo of 1973, governments have intervened extensively in the energy sector in order to address the negative externalities of unfettered energy consumption, pursuing energy conservation efforts in order to mitigate the risk of supply shocks.¹⁰ From the early 1990s, energy policy became intertwined with the management of global climate change, which has developed into a major topic of international cooperation.¹¹ Human activity has increased atmospheric concentrations of CO₂ from pre-industrial levels of 280 ppm to 391 ppm, the highest level in 800,000 years.¹² Greenhouse gases like CO₂ can increase global temperatures by preventing heat from escaping into space, leading to potentially damaging

⁹ Calculated from OECD, "National Prices in National Currency toe" and data on annual inflation from the Reserve Bank of New Zealand.

¹⁰ Deese and Nye 1981, Yergin 2006, Jacobson 2009

¹¹ von Stein 2008, Keohane and Victor 2011

¹² IPCC 2013

consequences such as rising sea levels, droughts, and flooding.¹³ Devising effective solutions to climate change remains one of the most pressing priorities for international policymakers.

Yet, the story of international cooperation on climate change is also one of repeated disappointments. The predominant response of the international community has been the pursuit of emissions reductions through the creation of international environmental agreements and institutions.¹⁴ However, broad, international climate change cooperation has achieved mixed results at best.¹⁵ A large share of the emissions reductions under the Kyoto Protocol were due to extraneous factors, such as the collapse of the former Soviet Union and the 2008 global financial crisis, which curtailed economic activity and hence emissions.¹⁶

As the anecdotes at the beginning of this chapter illustrate, national policies towards energy conservation and climate change mitigation vary, and often in ways that do not clearly correlate with international efforts. Some countries fail to reduce emissions despite self-committing to legally binding international treaties. Others have pursued aggressive policies to conserve energy and improve energy efficiency despite being under no international obligation to do so, and hence in a position to free ride on the mitigation efforts of other countries. What explains such variation?

This question has acquired newfound salience as international cooperative efforts have essentially abandoned legally binding targets as a mechanism to address climate change. The Paris Agreement of 2015 instead established a non-binding framework, under which countries will submit intended nationally determined contributions (INDCs) every five years.

¹³ Parry et al. 2007

¹⁴ Stone and McLean 2004, von Stein 2008, Bättig and Bernauer 2009, Keohane and Victor 2011, Keohane 2015.

¹⁵ Victor 2011, Harris 2007.

¹⁶ Peters et al. 2012

Enforcement of the plans is left to public and peer pressure.¹⁷ What can we expect under an international framework that lacks enforcement provisions and relies heavily on domestic political mechanisms?

In this book, I will make two core arguments. First, climate change mitigation is a joint product, inherently combining policies with both private and public goods characteristics. Mitigation measures are deeply intertwined with other policy issues – e.g. energy security, localized environmental pollution, taxation, redistribution, transportation – that are characterized by high domestic political salience and tend to trump strategic incentives arising from the international consequences of greenhouse gas emissions. Hence, understanding variation in climate change policies requires a careful analysis of the domestic political context in related issue areas.

Second, domestic political institutions play a critical role in shaping policies and outcomes that affect energy conservation and climate change policies. I argue that political institutions that insulate politicians from diffuse energy consumers are associated with greater energy conservation. This runs counter to conventional wisdom, which often sees producers – particularly energy-intensive firms – as the primary impediments to climate change mitigation. However, governments are generally constrained from targeting producers because they are internationally footloose, i.e., aggressive regulation or taxation of producers tends to lead to international relocation rather than conservation.

What domestic political institutions allow policymakers to stay in office despite imposing adjustment burdens on diffuse consumers? I focus in particular on electoral institutions. Specific electoral institutions can make it more or less difficult for governments to impose higher energy costs on consumers. In particular, majoritarian electoral systems create incentives for

¹⁷ Bodansky 2016

politicians to appeal broadly to the general public, making it difficult to implement policies that raise consumer energy prices.¹⁸ On the other hand, non-majoritarian systems make it more feasible for governments to retain office by offsetting support lost from diffuse consumers by redistributing the revenues or rents to organized interest groups. Other political institutions – such as delegation of environmental policymaking authority to insulated bureaucracies – can have similar consequences, but electoral institutions are attractive for empirical purposes, as it is highly unlikely that they are endogenous to energy or climate change policy.¹⁹

This chapter provides an overview and outlines the contributions of the book. It explains the substantive importance of energy politics and climate change and presents the main puzzles the book seeks to answer. Namely, what explains the striking variation in energy and climate change policy among major economies? I focus in particular on advanced industrialized countries with democratic institutions, though I will discuss extensions to developing countries and autocracies in the conclusion. Why do some countries take aggressive steps to mitigate the consumption of fossil fuels, while others do not? Why does this variation appear to exhibit very little relationship with international commitments negotiated among states concerning climate change? In the next section, I will demonstrate how academic scholarship in political science and political economy has oftentimes neglected energy politics in comparison to other topics of comparable substantive importance. I will then outline the core arguments of the book and summarize the remaining chapters.

¹⁸ Rogowski and Kayser 2002, Bawn and Thies 2003, Rosenbluth and Thies 2010, Chang et al. 2010

¹⁹ The delegation of authority over energy and environmental policy to politically insulated bureaucracies – either domestic or supranational – that can take into account broader public goals such as energy security, pollution, and climate change, also increases the scope for policies that raise consumer energy prices. However, such delegation is often endogenous to energy policy choices and hence more difficult to evaluate empirically. I will discuss the role of independent bureaucracies in the context of the Japan and European Union case studies. For an early account of state insulation from pluralistic interests in energy policy, see Krasner 1978.

The Politics of Energy

The politics of energy is reemerging as a major, substantive area of inquiry for political science after two decades of relative quiet. The importance of energy for contemporary politics and the world economy is self-evident. The global energy market is estimated to be around \$6 trillion annually, or about 9% of world GDP.²⁰ This compares to about \$15 trillion for world merchandise trade, \$1.5 trillion for world FDI flows,²¹ and \$0.1 trillion for bilateral foreign aid.²² Energy issues are deeply intertwined with some of the most important policy issues of our time: securing stable access to energy sources and utilizing them in a responsible, sustainable manner; managing the rise of emerging economies, such as China, and their seemingly insatiable energy needs; mitigating the emission of greenhouse gases and other pollutants that contribute to climate change and global warming.

Despite the importance of these issues, political scientists have often neglected the politics of energy and climate change.²³ Robert Keohane laments that “climate change is one of the major political and institutional, as well as ecological, challenges of our time... In view of the magnitude of climate change, it is distressing to observe the slow response from political science as a discipline.”²⁴ Debra Javeline similarly notes that “Political scientists have been largely absent from the conversation.”²⁵

²⁰ Figure as of 2010. U.S. Department of Commerce, “The Energy Industry in the United States,” 2010; World Bank, World Development Indicators, 2010.

²¹ World Bank, World Development Indicators, 2010.

²² OECD, “Development Aid Reaches an Historic High in 2010,” Press Release available at http://www.oecd.org/document/61/0,3746,en_2649_34447_47515235_1_1_1_1,00.html

²³ Hughes and Lipsky 2013, Javeline 2014, Hancock and Vivoda 2014, Keohane 2015

²⁴ Keohane 2015, 19

²⁵ Javeline 2014

Academic research on the politics of energy has been fickle. Figure 1 reproduces a plot from Hughes and Lipsky²⁶ depicting the percentage of journal articles primarily devoted to the study of energy politics in top political science journals from 1972-2012.²⁷ We examined six, high-impact journals that primarily publish academic work in political science: *American Political Science Review*, *American Journal of Political Science*, *International Organization*, *International Security*, *Journal of Politics*, and *World Politics*. To maintain consistency across journals, we only considered peer-reviewed research articles and research notes.²⁸ Articles were deemed to be related to the politics of energy if the author explicitly stated that the article concerned energy issues, or a primary independent or dependent variable in the study was directly related to energy.²⁹

Attention to the politics of energy has fluctuated over time. Figure 1 includes a plot of real oil prices (the dotted line).³⁰ As the figure illustrates, there was a rapid increase in journal publications related to energy issues during the 1970s oil shocks – between the early and late 1970s, the percentage of top journal publications devoted to energy jumped from about 1% to 4% of the total. Academic interest waned in the 1980s and 1990s in lockstep with declining oil prices. This trend is not dissimilar to the pattern of policy response among major economies, in which energy efficiency measures undertaken in the 1970s were oftentimes rolled back in subsequent decades as oil prices declined.

²⁶ Hughes and Lipsky 2013.

²⁷ We plot three-year rolling averages to smooth out short-term fluctuations.

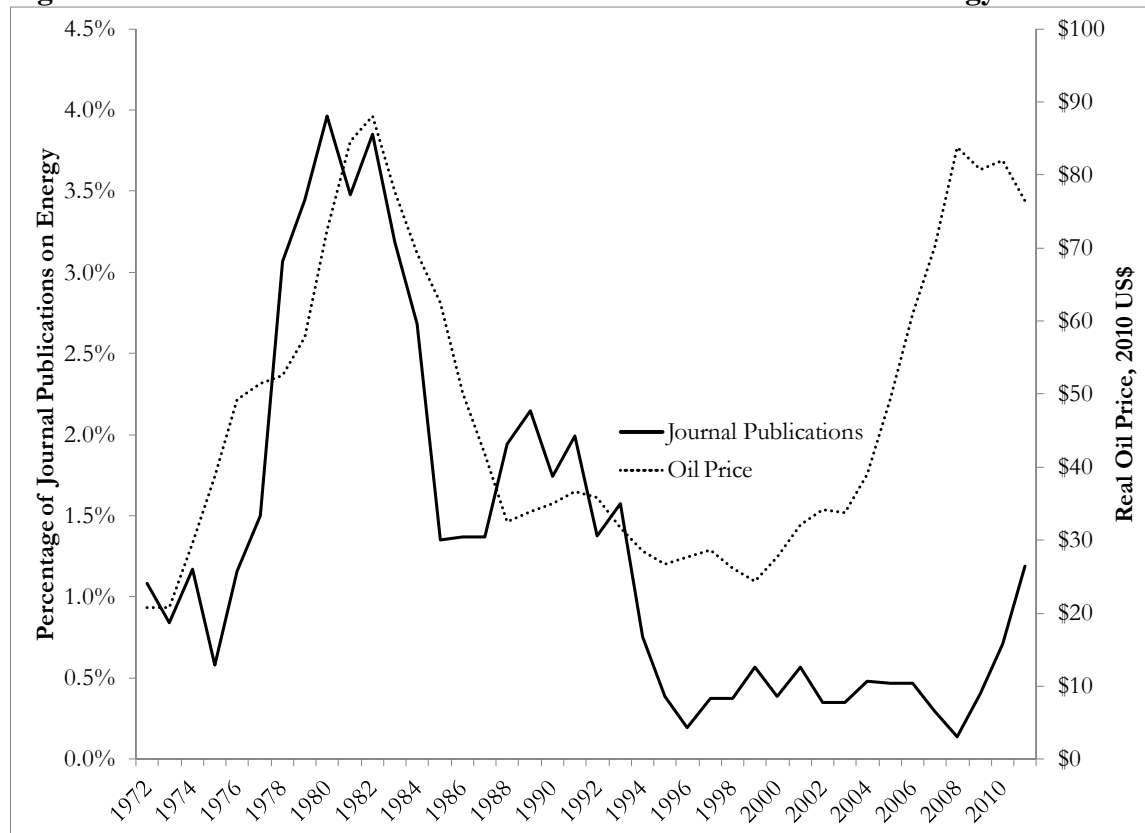
²⁸ The following article types were omitted: book reviews, comments, editor's notes, front and back matter, letters to the editor, overviews, and symposiums.

²⁹ Several articles in the sample concerned nuclear proliferation. We excluded these if they focused on nuclear proliferation solely from the perspective of nuclear weapons and international security, but we included them if nuclear energy and power generation was an important consideration.

³⁰ We use data on the West Texas Intermediate Spot Oil Price, obtained from Dow Jones & Company. We adjust for inflation using the U.S. consumer price index.

Somewhat puzzling is the fact that the recent run up in oil prices – to levels comparable to the 1970s in real terms – did not facilitate a comparable resurgence of academic interest in energy. In terms of substance, relevant articles published in the surveyed journals in recent years focus predominantly on the political effects of natural resource endowments³¹ and nuclear energy with a heavy focus on international security implications.³² There still remains a paucity of published work in top political science journals on the politics of energy and climate change, particularly among advanced industrialized countries.

Figure 1: Political Science Journal Publications on the Politics of Energy



Note: Excerpted from Hughes and Lipsky 2013. The figure shows three-year rolling averages of publication numbers to smooth out short-term fluctuations. Oil prices are the inflation-adjusted annualized mean West Texas Intermediate spot price; the posted price is used prior to 1982.

³¹ Morrison 2009, Colgan 2010, Hertog 2010

³² Llewelyn 2007, Nincic 2010, Hymans 2011

This book contributes to an emerging literature that fills this lacuna by examining the politics of energy and climate change through the application of contemporary theories and methods from international and comparative political economy. Much of the existing scholarship on the politics of climate change emphasizes the fact that the mitigation of global warming poses a classic public goods problem: international cooperation is particularly difficult because the costs of mitigation are locally concentrated while the benefits are globally diffuse.³³ While this proposition is theoretically sound, the behavior of states has not necessarily followed suit: some countries have aggressively pursued policies to reduce energy consumption and increase energy efficiency despite the absence of international obligations, while others have failed to do so despite accepting binding international commitments.

In recognition of the failures of the top-down approach of the Kyoto Protocol, international cooperation has moved towards non-binding, voluntary commitments under the Paris Agreement of 2015. This new international framework relies heavily on countries to develop and carry out emissions reduction plans of their own volition. Concurrently, scholars have increasingly called for more research on the domestic political processes that facilitate or undermine energy conservation and climate change policies.³⁴

Recent work has made important progress in specific areas, but significant gaps remain. An obvious source of cross-national variation in climate change policy is citizen preferences. However, survey evidence reveals limited variation in preferences towards climate change and associated policies, even among countries with strikingly different policies, such as Germany, Japan, Sweden, and the United States.³⁵ What variation does exist is not meaningfully

³³ See, among many others, Incropera 2015, Dessler 2015, Stern 2007, Keohane 2015

³⁴ Hughes and Lipsy 2013, Javeline 2014, Hancock and Vivoda 2014, Keohane 2015

³⁵ Reiner et al. 2006

associated with variation in policy outcomes.³⁶ This suggests that citizen preferences are not the primary source of cross-national variation in energy and climate change policies.

Some scholarship has made piecemeal progress in explaining the adoption of specific climate change mitigation measures – e.g. green taxes,³⁷ gasoline taxes,³⁸ subsidies for wind power,³⁹ feed-in tariff schemes,⁴⁰ and bureaucratic resources devoted to energy⁴¹ – but this work generally lacks an overarching theoretical framework to tie together the separate strands and findings.⁴²

Bättig and Bernauer find that democracies are generally more likely to pursue international climate change commitments due to their larger winning coalitions and greater tendency to provide public goods.⁴³ However, they also find that democracies do not perform any better than autocracies in terms of actual emissions outcomes, the ultimate measure of whether climate change will be mitigated. In addition, their observations provide limited insight about the nontrivial variation in policies and outcomes among advanced industrialized countries, which are almost uniformly democratic.⁴⁴ This book seeks to explain variation in both *policy* and *outcomes*, particularly among democratic, advanced industrialized states.

David Victor offers a useful framework that calls attention to domestic political impediments to global climate change efforts. He argues that diffuse costs tend to produce command-and-control regulations as policymakers seek to obscure the costs of mitigation, while

³⁶ See Chapter 3 and discussion in Hughes and Urpelainen 2015

³⁷ Hugh and Xun 2012

³⁸ Broz and Maliniak 2009

³⁹ Vasi 2011

⁴⁰ Bayer and Urpelainen 2016

⁴¹ Hughes 2012

⁴² Hughes and Urpelainen 2015

⁴³ Bättig and Bernauer 2009, Bayer and Urpelainen 2016

⁴⁴ Singapore is a notable exception.

concentrated costs will lead to market mechanisms such as emissions trading schemes.⁴⁵ This theory provides a concise, convincing explanation for why the international framework under the UNFCCC, which emphasizes national targets, tends to sit uncomfortably with national policy, which often avoids targets and emphasizes regulatory measures. However, the framework is less suited to explaining cross-national or over-time variation in energy policy: for example, Japanese energy policy changed dramatically over the past three decades, but there has been no change in the fact that Japanese industry is concentrated and well organized, while Japanese consumers are diffuse. My theory complements Victor's work by offering an explanation for such variation.

Hughes and Urpelainen offer another useful framework for explaining energy and climate change policy choice based on case studies of Japan, the United States, Germany, and Australia.⁴⁶ For example, they argue that countries with “institutional capacity” – a bureaucratic agency with a formal mandate to implement climate policies – will tend to opt for regulatory measures, while green party representation in the national legislature will create a bias towards environmental policies that impose costs rather than benefits on voters and industries. This is a helpful framework for thinking about policy choice, but an important concern is that the key independent variables used – environmental authority of bureaucratic agencies, green party legislative share, and the size of the green and energy-intensive sectors – are endogenous to policy choices motivated by other factors. For example, politicians who grant authority over climate change policy to a dedicated bureaucratic agency may do so because they seek to insulate policymaking or prioritize regulatory measures. As I will discuss at length below, I avoid this concern in this book by focusing on a key independent variable – electoral institutions – which is highly unlikely to be endogenous to energy or climate change policy choices.

⁴⁵ Victor 2011, Chapter 3.

⁴⁶ Hughes and Urpelainen 2015

In short, the politics of energy and climate change has emerged as an important substantive topic for policymaking and scholarship. Important progress has been made towards explaining policy choices and, to a lesser degree, outcomes. My theory moves beyond the existing scholarship in three respects. First, I offer a theoretical framework that explains a large range of energy policy choices and outcomes. My theory makes specific predictions about distinct variables such as gasoline and carbon taxes, electricity prices, what type of transportation citizens use to travel, energy efficiency, and CO₂ emissions. Importantly, my theory also explains variation in energy policymaking before climate change concerns became salient in the 1990s: the vast majority of recent work, which focuses on climate change mitigation measures, has limited applicability to energy policy choices in earlier decades.

Second, my theory is parsimonious and unlikely to be subject to endogeneity concerns. Existing work often has a “kitchen sink” feeling, in which a large number of explanatory variables are evaluated in order to explain a single policy choice or outcome. This is not necessarily the incorrect approach: energy policymaking is often complex and subject to multiple influences. However, it is also useful to develop and test parsimonious theories that are able to explain a large degree of empirical variation. In addition, existing work often relies on independent variables that are themselves likely consequences of other institutions or policy choices – e.g. green party seat share or the share of renewable energy in power generation.⁴⁷ Electoral institutions are clearly exogenous to energy policy.

Third, because my theory makes broad predictions about energy policy, and energy is a crucial input for essentially all modern human activity, my findings have important implications for our understanding of seemingly unrelated political outcomes. This is best illustrated in

⁴⁷ Aklin and Urpelainen 2013, Hughes and Urpelainen 2015

Chapter 4, where I use my theoretical framework to challenge a seminal finding in the scholarship on the determinants of cross-national price levels. I show that higher prices in PR countries, which the existing literature attributes to producer power, are likely due to energy conservation and climate change mitigation policies. This is a finding that has important normative implications for how we understand the consequences of electoral institutions.

Argument and Layout of the Book

The central argument of this book is that energy and climate change policy choices are critically shaped by domestic political institutions. Political institutions – I focus in particular on electoral institutions – that create incentives for politicians to cater to organized interest groups over diffuse consumers are associated with greater energy conservation. Countries that successfully conserve energy and reduce emissions tend to do so by imposing high energy prices on consumers and redistributing the consequent revenues or rents to organized interest groups. The opposite pattern – imposing costs on concentrated groups and rewarding consumers – is typically less effective because of an asymmetry in outside options: compared to consumers, energy-intensive industry tends to be internationally footloose and able to credibly threaten exit. Hence, successful energy conservation and climate change mitigation tends to occur on the back of unorganized energy users in countries where politicians are relatively unresponsive to their interests.

In Chapter 2, I will outline the theory of the book. In the first section, I examine the conventional wisdom concerning climate change politics, which holds that climate change mitigation is a global public good, and hence unlikely in the absence of international cooperation. I argue that this is not necessarily accurate because climate change mitigation is a joint product, inherently combining policies with both private and public goods characteristics.

Mitigation measures are deeply intertwined with other policy issues that are characterized by high domestic political salience, such as energy security, localized environmental pollution, taxation, redistribution, and transportation. The politics of these related issues tend to overshadow strategic incentives arising from the international consequences of greenhouse gas emissions. Hence, understanding variation in climate change policies requires a careful analysis of the domestic political context in related issue areas. Importantly, the impact of these associated policies on energy conservation is not uniformly negative – e.g., resistance to higher energy taxes cuts against energy conservation, but concerns about localized pollution or energy security create incentives for conservation independent of international climate change concerns.

In the second section, I develop a novel theory of energy politics, arguing that the interaction of outside options and institutions has important consequences for energy and climate change policy. I begin by considering a government that seeks to promote energy conservation for exogenous reasons, such as high politics concerns over energy security. Energy conservation beyond what would obtain in the absence of government intervention entails adjustment costs, and these costs can be imposed uniformly or selectively: on organized industry or diffuse energy consumers. However, there is an asymmetry in the outside options of industry and consumers: e.g. a steel producer is internationally footloose and can threaten international relocation in response to imposed costs, while a commuter in Tokyo is unlikely to relocate to New York over high transportation costs.⁴⁸ Furthermore, concentrated costs and competitive pressures create strong motivations for industry to organize politically to lobby against government intervention.⁴⁹ As a consequence, governments are constrained from imposing a heavy burden on industry for the purposes of energy conservation.

⁴⁸ For an analogous argument, see Rodrik 1997

⁴⁹ Victor 2011

Although diffuse energy consumers lack exit options, they have the ability to voice their opposition to adjustment costs through the ballot box. Under electoral institutions that empower diffuse consumers, such as majoritarian systems,⁵⁰ politicians are doubly constrained: unable to impose the burden of energy conservation on consumers or industry. However, under electoral systems that create political incentives to cater to organized interest groups, such as proportional systems, there is a viable strategy: imposing high energy prices on consumers and redistributing the consequent revenues or rents to organized interests, which provide offsetting electoral and financial support.⁵¹ This is the principal strategy that has been used by countries that successfully achieved energy conservation and emission reductions during the past five decades.

I next consider the preferences of government policymakers as an endogenous variable: I argue that proportional systems are also more likely to produce governments that prioritize energy conservation and emissions mitigation policies. This is for two reasons. First, governing coalitions in PR countries tend to lean center-left due to redistributive incentives,⁵² and environmentalism is strongly correlated with a left-wing orientation cross-nationally, both among individuals and political parties. Second, the lower effective thresholds for legislative representation under PR make it easier for single-issue parties to emerge and exercise political influence.⁵³ Consequently, green parties have been more often viable and pivotal in PR countries. As I show in the empirical section, this has been an important factor in enacting energy conservation policies in specific countries and time periods, such as Germany and New Zealand in recent years. However, it is best conceptualized as a secondary and supplemental

⁵⁰ Rogowski and Kayser 2002, Bawn and Thies 2003, Rosenbluth and Thies 2010, Chang et al. 2010

⁵¹ Lipsy 2012

⁵² Iversen and Soskice 2006

⁵³ Kitschelt 1989, Rohrschneider 1993, Burchell 2002, Folke 2014

factor: for example, it cannot account for much of the empirical variation in Japan, which has been almost consistently controlled by a conservative government with no viable green party.

In Chapter 3, the first empirical chapter of the book, I present evidence from an original dataset covering cross-national energy consumption patterns since the 1970s. This data includes a range of measures that are not available in conventional databases and allows for the disaggregation of energy consumption into individual components, i.e. total usage, usage mode, and energy efficiency by mode. This disaggregation allows for detailed testing of my theoretical propositions that would be impossible with aggregated data. I pay particular attention to transportation and electricity usage, which most clearly reflect the diffuse decisions of consumers. Using both cross-sectional evidence and panel data, which takes advantage of institutional changes within countries, I show that empirical variation in energy usage and efficiency is consistent with my theoretical predictions. In particular, majoritarian electoral systems are consistently associated with lower energy prices, greater energy use, lower energy efficiency, and greater CO₂ emissions. I show that this association also holds for countries that implemented electoral reform, which makes it highly unlikely that country-specific confounding variables, such as culture or natural resource endowments, are responsible for the results.

I also examine several alternative explanations. The most obvious possibility is variation in the preferences of citizens cross-nationally: e.g. citizens in Denmark may be more environmentally conscious than those in Australia. However, as I show, there is limited variation in citizen preferences over climate change and associated policy measures, and what variation does exist is not meaningfully correlated with variation in policy outcomes. It is also possible that majoritarian electoral institutions actually facilitate greater energy conservation by empowering diffuse voters who care about environmental issues: this possibility cannot be ruled

out theoretically, but it is easy to test empirically as the predictions are directly opposed to my theory. I also consider several other alternative mechanisms, such as the tendency for PR systems to invest more in infrastructure. These alternative mechanisms have some validity, but each fails to account for an important element of the observed empirical variation.

One important question that arises from the empirical analysis in Chapter 3 is whether the observed variation in energy policies can be explained by some other factor that covaries with electoral institutions. A particularly important potential counterargument concerns the relationship between electoral systems and prices. In recent years, a seminal literature has emerged arguing that PR systems are associated with higher prices because they favor the interests of producers over consumers. This raises the possibility that the patterns observed in Chapter 3 are derivative of more general variation in price levels: energy prices in PR countries may be higher due to the simple fact that all prices are higher. In Chapter 4, I present evidence that rules out this alternative explanation. Contrary to consumer-producer power theory, which predicts a systematic relationship between electoral systems and prices, I show that price-level differences across electoral systems: 1. only emerged after the 1970s oil shocks, as countries implemented energy demand management policies; and 2. the differences that do exist are concentrated in energy-intensive consumption: energy prices are higher in PR countries, but other prices are not.

Chapter 5 and 6 provide an extended examination of Japan, a pivotal case for the book. Japan underwent major institutional transformations in the 1990s, which fundamentally altered the relationship between politicians and consumers. The case study offers not only evidence consistent with theory, but also an opportunity to demonstrate the validity of the proposed causal mechanisms. In Chapter 5, I examine Japan's response to the 1970s oil shocks and analyze the

limitations of conventional explanations that focus on culture, industrial policy, private sector initiative, and energy security. Using both data and extensive qualitative evidence gathered from interviews, I show that Japan's promotion of energy efficiency relied heavily on raising prices for diffuse energy consumption. These policies were based on what I call "efficiency clientelism." Efficiency clientelism coupled the achievement of energy efficiency goals – an important national prerogative for Japan after the 1970s oil shocks – with the political survival of the Liberal Democratic Party (LDP). Policies were implemented consistent with two outcomes: 1. Impose diffuse costs on the general population in the direction of encouraging greater energy conservation or energy efficiency; 2. Redistribute the revenues or economic rents attributable to higher costs in order to benefit narrow, organized supporters of ruling politicians. Efficiency clientelism was effective precisely because of the symbiosis between energy efficiency goals and Japan's postwar political arrangements – an electoral system that encouraged particularism over broad, public appeal, and consequent LDP one-party dominance, and an elite bureaucracy with considerable autonomy and agenda-setting power. I offer extended case studies of highway tolls, automobile taxation, gasoline taxes, and electricity regulation to examine the operation of efficiency clientelism.

Japanese energy policy transformed dramatically during and after the 1990s, which is the subject of Chapter 6. Japan's electoral reform of 1994 replaced a multimember district single nontransferable vote system with a mixed-member system dominated by single member districts. Under the old electoral system, legislators were frequently elected with a small share of the vote in each district, and therefore had strong incentives to appeal narrowly to organized interests. The new electoral system creates stronger incentives to appeal broadly to the general voter, as the threshold for victory in single member districts is much higher. In effect, Japan has

transitioned to an electoral system that necessitates broad, public appeal by politicians.⁵⁴ This has made it much more challenging to defend existing policies that imposed high energy costs on consumers.

Using the synthetic control method,⁵⁵ I show that Japanese CO₂ emission reductions decelerated sharply compared to similar countries after electoral reform in 1994. This shift was accompanied by a clear shift in the policymaking context in Japan. Although Japanese leaders have publicly announced ambitious CO₂ mitigation targets to address global warming, and despite sharp increases in global energy prices reminiscent of the 1970s, recent debates in Japan have revolved around the *elimination* of policies that encourage energy efficiency. These contradictory forces are illustrated most acutely by the Democratic Party of Japan (DPJ), which came to power in 2009 simultaneously promising to dramatically reduce CO₂ emissions while slashing various energy-related levies. These pressures made it extremely difficult for Japan to meet its obligations under the Kyoto Protocol, and the country ultimately withdrew from the second commitment period of the treaty.

In Chapter 7, I consider several additional country case studies to supplement the detailed analysis of Japan. New Zealand provides an important complement to Japan's experience. New Zealand reformed its electoral system at roughly the same time as Japan, in 1993, but in the opposite direction, moving from a Westminster-style majoritarian system to a mixed-member proportional system. My theory predicts that this change should have led to a shift in New Zealand in the direction of higher energy prices and lower CO₂ emissions due to electoral incentives that placed less emphasis on consumers. This was indeed the case. Energy and CO₂

⁵⁴ Rosenbluth and Thies 2010, Catalinac 2016

⁵⁵ Abadie, Diamond and Hainmueller 2015

intensity in New Zealand declined sharply after electoral reform. This was accomplished by raising prices for gasoline and electricity, implementing a variety of new energy efficiency policies, and enacting an emissions trading scheme. In addition, New Zealand has created complex, opaque policy mechanisms that funnel revenues and subsidies to organized interest groups, much like those that existed under Japan before electoral reform.

I also examine energy and climate change politics in several other countries to evaluate consistency with the proposed theoretical propositions. Unlike Japan and New Zealand, these countries do not offer over-time variation in electoral institutions. Nonetheless, it is important for both theoretical and substantive purposes to demonstrate that observed political patterns outside of these two countries are consistent with the theoretical propositions. First, I consider two majoritarian countries: Australia and the United States. As my theory predicts, these countries have suffered from chronic underperformance in energy conservation, driven to an important degree by the inability to meaningfully raise the price of energy consumption. Second, I consider Nordic countries, which use PR electoral rules. I show that these countries did not achieve energy efficiency by targeting all sectors equally. Instead, they are characterized by high energy prices for individual end users and relatively modest measures targeting energy-intensive industry. Third, I discuss the United Kingdom, which offers an interesting mixture of political institutions – a country with a majoritarian electoral system that has also delegated considerable authority over environmental and climate change policy to the European Union. I show how EU membership has led the UK to adopt energy conservation policies that were more aggressive than the government unilaterally preferred. This suggests that Brexit will likely lead to nontrivial consequences for future energy and climate change policymaking in the UK.

Finally, Chapter 8 summarizes the key findings of the book and discusses broader implications. First, I discuss policy implications and what international steps might be taken to encourage emissions mitigation in light of the findings. I suggest several policy mixes that could be worth trying in countries with majoritarian electoral systems, such as a revenue-neutral carbon tax that remits proceeds to consumers. I also discuss how universalistic international institutions and regime complexes could be refocused to constrain the outside options of energy-intensive industry and hence shift the burden of climate change mitigation away from diffuse energy users. Second, I discuss how the theory could be extended and applied to other countries, such as developing countries and non-democracies, such as China. Although electoral incentives have less relevance in autocracies, small winning coalitions can play a similar role, insulating autocrats from the diffuse interests of energy consumers. This presents an important opportunity for emissions mitigation through international cooperation, such as the provision of targeted aid and technical transfers of best-practice policies from PR countries. Finally, I offer suggestions for future research and discuss how the theory might applied more broadly to policymaking in other issue areas.

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