

Research Statement

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How does globalization, i.e., the increasing movement of goods, capital and labor across national borders, change domestic politics? This is the core question that motivates my research. Contrary to the conventional wisdom that globalization changes the configuration of economic interests in domestic politics (i.e., the demand-side of policy), my research demonstrates the importance of understanding legislators' incentives for political survival in shaping governments' responses to globalization. I have studied this question cross-nationally as well as using originally-designed survey experiments and micro-level data within individual countries, particularly Japan.

Specifically, I have developed three research programs that address this overarching question:

- I. Globalization and Coalition-Building in Domestic Politics
- II. Political Institutions and Special Interest Politics
- III. Multilateralism/Legalization and Domestic Politics

For each of the programs, I describe representative peer-reviewed publications and ongoing research below. All papers referenced in this statement (except for book manuscripts) are available at: <http://www.polisci.ucsd.edu/~mnaoi/research/research.html>

I. Globalization and Coalition-Building in Domestic Politics

This research program examines (i) how party leaders in democracies build majority coalitions for an open economy or protectionism in legislatures and (ii) how this coalition-building process (side-payments and political persuasion) affects citizens' attitudes toward globalization. Scholars have seldom asked these questions despite the fact that almost all policy changes in democracies, including those that pertain to globalization, require majority support from legislators to become law.

My principal contribution to this question is a solo-authored book, *Building Legislative Coalitions for Globalization in Asia*, forthcoming at Cambridge University Press. This book explains the drastic reduction in barriers to foreign trade after World War II, during which party leaders used side-payments to buy off legislators' support for an open economy. I develop a novel approach to globalization, *Globalization as Legislation*, which predicts party leader choices among coalition-building strategies as well as their side-payment allocations to backbenchers under different electoral rules and party systems. I test this prediction using new commodity and district-level data on trade liberalization and side-payment allocations from Japan and Thailand. The book demonstrates that these newer democracies, with legacies of import-substitution strategies, achieved liberalization not despite the presence of interest group capturing and the entrenchment of legislators, but rather because of them. In the presence of interest group pressure, party leaders were able to channel legislators' rent-seeking incentives in the process of building majority coalitions for an open economy through the allocation side-payments. I further show that this side-payment allocation was based on the political needs of party leaders and backbenchers, not based on the sheer economic needs of industry or citizens (a la the compensation hypothesis), which resulted in the allocation favoring districts that incurred marginal net losses from liberalization. This approach and the findings therein break away from the conventional "insulation" argument regarding post-war liberalization, which considers politicians to be an obstacle to liberalization and credits the strong bureaucracy or president for liberalization.

My second extension is to examine the effect of legislative politics on public attitudes toward globalization. Majority coalition-building in a legislature requires bringing swing legislators (who are undecided about globalization) into the coalition through the use of side-payments (the focus of my book), persuasion and policy campaigns. This process can affect citizen attitudes toward globalization by exposing them to competing political discourse about the policy, yet, we still know very little about how this persuasion works. My contribution has been to develop and test different micro-mechanisms for how political persuasion affects the public's support for agricultural protectionism. Using a novel survey experiment, Naoi and Kume (2011) show the emergence of a "coalition of losers" between workers with low job security and farmers, who support high agricultural prices in Japan. Workers with low job security paradoxically support agricultural protectionism because agriculture symbolizes declining industry and job losses and hence triggers the fears of job losses among workers (which we call "projection mechanism"). In subsequent work (Naoi and Kume 2013), we further show that this projection mechanism works through individual psychology, not through a coalition of existing socio-economic organizations (such as labor unions, consumer cooperatives, and partisanships). These findings underscore the importance of understanding coalition formation at the micro as well as macro-level, and thereby address issues that have not been sufficiently explored since the classic works of Gourevitch (1986) and Rogowski (1989).

I am currently extending this research program in the following directions.

A. Consumer Interests in the Global Economy

What shapes consumer attitudes towards globalization and how do they influence government responses to the global economy? These are important questions because emerging research, including my own (Kuno and Naoi 2012, Naoi and Kume 2013), documents declining roles of class and sectoral-based organizations in shaping the government responses to the global economy.

I am currently working on two projects addressing this question. The first is my second solo-authored book project, "*Voting with the Wallet: Global Consumers and the New Politics of Economic Crisis*". This book project asks: Why did we observe relatively stable mass support for the open economy, despite scholarly and media concern over the rise of protectionism during the 2007-2009 global recession? This book seeks to explain the puzzling lack of a protectionist backlash during the financial crisis, using new cross-national data, as well as results from original experiments conducted in the United States and Japan – two economies that were heavily affected by the crisis. I argue that consumers, who have vested interests in the global economy, served as a vehicle of resistance towards protectionism in the face of strong protectionist demands from producers. I further show that what differentiates the 2007-2009 crisis from previous world-wide crises is that Chinese exports have sustained and fueled consumers' commitment to an open economy.

The Project Status: Completed 50% of research, 20% of writing. Completed meetings with two university presses and plan to submit the manuscript for review by fall, 2013. This book project has been supported by the SSRC/Abe Fellowship (\$73,600; PI Naoi), the Japanese government's Grand-in-Aid for Scientific Research (\$300,000; PI Ikuo Kume) and the UCSD's Committee on Research Grants (\$30,000 for the U.S. surveys with Gary Jacobson this coming fall; PI Naoi). The paper summarizing the gist of this book has been invited for revision and resubmission at *World Politics*.

The second project examines the public health consequences of the government efforts to mobilize support for an open economy among low-income consumers. Nita Rudra and I examine the cross-national prevalence of obesity as an unintended consequence of government efforts to compensate low-skilled workers for losses incurred by globalization. This paper will be presented at the annual meeting of American Political Science Association this fall.

B. Experimental Research on Political and Business Elites

Is political persuasion and framing effective in changing the minds of political and business elites? While emerging research has shown that less educated respondents are more sensitive to political framing, political and business elites might be equally or even more sensitive to such framing due to social desirability bias, high exposure to political discourse and the dense communication that exists among elites.

With this question in mind, I have conducted two original surveys with experimental manipulations that target Japanese elites. The first was a survey of business owners and executives in Japanese manufacturing and service industries, on their expectations about the Trans-Pacific Partnership Agreement (TPP), a preferential trade agreement with nine countries currently under negotiation. The survey was conducted with Arata Kuno, Michael Plouffe (UCSD graduate student) and Ikuo Kume. This survey leveraged regional variation in anti-TPP campaigns that were run by prefectural governments, in order to estimate the effect of the policy campaigns on firm owners' attitudes. We found that firm owners operating in negative-campaign prefectures expressed, on average, 15 percentage points more negative expectations about the effect of TPP. Our findings also lend strong support to Melitz's (2003) trade theory of heterogeneous firms and weak support to the sector-based trade model. The results are summarized in a working paper, currently in the final revision for submission to a journal (Kuno and Naoi, 2012).

The second was a survey experiment on Japanese Lower-House legislator support for agricultural protectionism, conducted before the 2009 election. The experiment manipulated the framing of different rationales for protecting agriculture (to protect farmer jobs vs. protect consumer safety) and elicited the legislators' support for agricultural protectionism. The preliminary results, presented at annual meeting of International Political Economy Society, suggest that "protect farmer jobs" framing mobilized urban legislators' support for protectionism by 38 percentage points –in essence, making urban legislators think like rural legislators (Naoi 2011).

Works Cited for This Section

Peer-reviewed Publications:

1: Megumi Naoi. *Building Legislative Coalitions for Globalization in Asia*, forthcoming, Cambridge University Press.

2: Megumi Naoi and Ikuo Kume. 2011. "Explaining Mass Support for Agricultural Protectionism: Evidence from a Survey Experiment During the Global Recession," *International Organization*, Vol.65, No.4, pp.771-795.

3: Megumi Naoi and Ikuo Kume. 2013. "Coalition of Losers: Why Agricultural Protectionism Has Survived During the Great Recession." A chapter contribution to Miles Kahler and David Lake eds. *Politics in New Hard Times*. Forthcoming at Cornell University Press.

Under Review & Projects in Progress:

1: Megumi Naoi and Ikuo Kume. 2012. "Resisting Protectionism (Take 2): A Survey Experiment on Mass Support for Open Economy During the Global Recession." Revise and resubmit, *World Politics*.

2: Megumi Naoi. 2012. *Voting with the Wallet: Global Consumers and the New Politics of Economic Crisis*. Second book ms. in progress.

3: Arata Kuno and Megumi Naoi. 2012. "Framing Business Interests: How Campaigns Affect Firms' Positions on Preferential Trade Agreements." Working paper in revision for submission to a journal.

4: Megumi Naoi and Nita Rudra. 2012. "Commerce, Coalitions and Obesity." 2012 APSA Paper.

5: Megumi Naoi. 2011. "The Losers' Paradox: A Legislator Survey Experiment on Why Losers Ultimately Win Protection." 2011 IPES presentation.

II. Political Institutions and Special Interest Politics

This research program examines the effects of political institutions, such as electoral systems and party systems, on interest group behavior. Understanding interest group behavior is *the* central pillar of political economy research, yet, comparative analyses of interest groups under different institutional arrangements are rare. My contribution to this literature has been two-fold. First, I have shown, along with Ellis Krauss (UCSD), that interest group lobbying is best considered as an effort to enforce and monitor contracts with legislators, and that electoral systems (i.e., majoritarian vs. proportional) affect lobbying strategies by making some contracts more enforceable than others (Naoi and Krauss 2009). Second, we have demonstrated that programmatic party systems, when combined with low informational environments, produce higher policy uncertainty for firms than clientelistic party systems (Kenyon and Naoi 2010). I am currently pursuing extensions of this research program in the following directions:

A. Two-party Competition and Special Interest Politics

How are pork barrel politics and policy position-taking of legislators related? Kearney and Naoi (2012) ask whether electoral competition based on pork and/or policy represents a trade-off or a complementary strategy for political candidates in mixed electoral systems, such as Japan. Applying multidimensional scaling techniques to candidate survey data from Japan, we demonstrate that the presence of pork in a given district tends to diminish the policy distance between the incumbent and the opponent in the economic policy dimension, yet, pork widens the distance for the security policy dimension. This paper is currently under review at a peer-reviewed journal (Kearney and Naoi 2012).

B. The Government's Assistance to Firms under Alternative Electoral Systems

With two economists, Takeo Hoshi (UCSD) and Satoshi Koibuchi (Chuo University), I am exploring the effect of electoral systems on the government's decision to grant financial loans to small and medium sized firms during Japan's lost two decades. Japanese Upper-House elections provide an ideal research design to test this: they utilize both single-member and multi-member districts and expose only half of the representatives to elections every three years. We are currently matching a large-scale dataset of financial conditions and the borrowings of Japanese small and medium sized firms (250,000 firms per year) with municipality-level electoral data since 1990. This dataset will likely generate several articles that advance our understanding of how electoral competition affects government intervention in the market and the effect of this intervention on firm productivity.

Works Cited for This Section

Peer-reviewed Publications:

1: Megumi Naoi and Ellis Krauss. 2009. "Who Lobbies Whom: Special Interest Politics under Alternative Electoral Systems," *American Journal of Political Science*, Vol.53, No.4. October 2009. pp.874-892.

2: Tom Kenyon and Megumi Naoi. 2010. "Policy Uncertainty in Hybrid Regimes: Evidence from

Firm-level Surveys,” *Comparative Political Studies*. Vol.43, No. 4, April 2010. pp.486- 510.

Under Review & Projects in Progress

1: Matt Kearney and Megumi Naoi. 2012. “Pork for Hawks: Pork Barrel Politics and Candidates’ Policy Positioning.” *Under Review*.

2: The Government’s Assistance to Firms under Alternative Electoral Systems. Project in progress.

III. Multilateralism/Legalization and Domestic Politics

This research program examines the effect of international law and multilateral agreements on domestic politics. My contribution here has been three-fold. First, contrary to the conventional wisdom that international trade has become increasingly legalized and multilateralized under the WTO, I demonstrate that domestic electoral politics account for the government’s decision to use GATT/WTO-compliant policy instruments, such as escape clauses and anti-dumping duties, for trade protection (Naoi 2009). This article introduced the basis for later dissent against the arguments of Keohane, Macedo and Moravcsik (*IO*, 2009). Along with Erik Gartzke, I argue that multilateralism does not “enhance” democratic procedures but rather undermines them by either insulating the policy-making process from majoritarian preferences or fueling special interest politics (Gartzke and Naoi, 2011). Finally, in a policy paper prepared for legislators and trade negotiators in Japan and the U.S., we show that smaller multilateral agreements, such as the Trans-Pacific Partnership Agreement, offer a more politically feasible and economically beneficial “middle ground” than bilateral or WTO-based liberalization for both Japanese and American governments (Lowell et al. 2012). I am currently pursuing the following extensions in this research program:

A. Legalization and Domestic Politics in Authoritarian Systems

How do authoritarian regimes, that generally lack transparency and democratic accountability, enforce international trade agreements? Continuing the theme of trade instrument choice developed in Naoi (2009), I examine the Chinese government’s choice between a transparent and market-driven mechanism and discretionary and government-led enforcement mechanism for export restraint agreements with the United States, Japan and South Korea. Using new commodity-level data on the Chinese government’s trade instrument choices, I show that the Chinese government chooses a transparent and market-driven mechanism to deter collusion between industries with high political clout and local-government officials. This paper is in revision for submission to a journal.

B. Individual Support for Bailout Programs for Losers: Coordinated Survey Experiments

Does citizen support for a government’s bailout program increase or decrease if citizens attribute blame for the economic conditions to the government, as opposed to something apolitical (e.g., natural disaster or technological change)? This question is critical to understanding the conditions under which multilateral liberalization fuels or tempers the domestic demands for compensation (Gartzke and Naoi 2011). With this question in mind, I designed coordinated survey experiments in Japan (completed, March 2012) and the United States (forthcoming, Winter 2012 with the Cooperative Congressional Election Study) that manipulate the causes of industry’s financial losses (natural disaster vs. multilateral trade agreement) as well as who suffered from it (farmers, manufacturing industries, etc) and gauge respondent’s support for government bailout programs “using tax payer dollars”. The preliminary finding from the Japanese experiment is that those who perceived the government to have some influence over the contents of the multilateral agreement are more likely to support the bailout –suggesting a micro

foundation for why powerful countries in the multilateral negotiations (such as the United States) are often the most vulnerable to the demand for compensation from special interest groups at home.

Peer-reviewed Publications:

1: Megumi Naoi, 2009. "Shopping for Protection: The Politics of Choosing Trade Instruments in a Partially-Legalized World," *International Studies Quarterly*, Vol.53, Issue 2, June 2009. pp.421-444.

2: Erik Gartzke and Megumi Naoi. 2011. "Multilateralism and Democracy: A Response to Keohane, Macedo and Moravcsik," *International Organization*, Vol.65, No.3, pp.589-598.

3: Julia Lowell, Shujiro Urata, Megumi Naoi and Rachel Swanger. 2012. The United States, Japan, and Free Trade: Moving in the Same Direction? *RAND Occasional Paper Series*.

Working Paper & Projects in Progress:

1: Megumi Naoi. "Public vs. Private Enforcement of Trade Agreements: Evidence from Chinese Trade". Working paper.

2: Coordinated Survey Experiments on Who Support Bailout in Japan and the United States. Project in progress.

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Research Statement

Over the past seven years, my research interests have focused on gender socialization and identity development, academic achievement and motivation, and research methodologies. I investigate the intersection of race, ethnicity and gender, and its implication for identity development and educational attainment. I am particularly interested in the socialization of masculinity among African American boys as mediated by their relationships with significant individuals, as well as the micro- and macro-level structures and psychosocial experiences that influence African American and Latino students' educational experiences. My research is theoretically informed by developmental psychology, feminist relational psychology, gender role strain, conceptions of Black masculinity and theories of motivation and achievement. Even more important, my research is guided by the principal that socio-cultural and historical context are important in the study of phenomenon. To this end, I use both qualitative and quantitative research methodologies in my research. Below, I describe my past, current and future research initiatives in the areas of interest stated above.

Gender socialization and identity development

The scholarship on African American boys has focused almost exclusively on pathology and risk. Such research and writing has contributed to disingenuous characterization and limited understanding of African American boys' lives. Noticeably absent from this work is an understanding of the ways in which their behaviors and presentation of self are adaptive and reflective of agency and purpose. As a doctoral student, I began to address this gap in knowledge in my dissertation study of adolescent African American males. One of the main goals of the study was to examine the ways in which they constructed their masculine identity and responded to messages from significant adults and peers about socio-cultural and normative gender behavior and characteristics. A significant finding of this research is that African American boys are active participants in the construction of their masculine identity, as evident by the multiple ways in which they responded to socio-cultural conceptions of masculinity [1]. Another interesting finding was the boys' articulation of rules governing gendered behavior and characteristics, specifically crying and fighting. Their narrative accounts provided insight into the process through which the rules are communicated across generations and within peer groups [2]. Central to the findings of my dissertation is the importance of a contextual understanding of development, and the role of adult and peer relationships in the socialization of gender norms.

Recognizing the impact of early socialization practices on development, I expanded my work on boy's development by co-collaborating with Dr. Oscar Barbarin (University of North Carolina at Chapel Hill, PI) on a study of African American boys' during their formative years (age 3-8). As a base for understanding the development of African American boys, this project aims to provide insight into how young African-American boys are making sense of their world. Specifically, this project examines the social, academic, and familial environment for clues related to factors that might influence academic, socio-emotional and identity development. Using ethnographic methods, the following broad research questions are under investigation: 1.) *How do African-American boys understand the world around them?* and 2.) *How does the environment influence African-American boys?* Preliminary findings suggest that African American boys' understanding of the world is informed by direct, indirect, and inadvertent/unintentional messages communicated by their parents. These messages are often reflective of parent's race, gender and academic expectations, as well as their lived experiences. We expect this finding to be consistent across all families in the study, and have begun the process of preparing a peer-review manuscript focusing on this typology of messages [3]. Subsequent analyses of the data will have implications for a large-scale intervention project under

the direction of Dr. Barbarin. Within the context of this project (Promoting Academic Success in Boys of Color), I am assisting in the development of assessment and evaluation tools to be implemented over the course of the project, and serve as the lead qualitative investigator. The goals of this project are to build and support the partnership between the families, schools, and communities to improve the academic achievement and socio-emotional development of boys of color. A secondary goal of the project is to provide family-, teacher-, and community-based interventions that have shown some evidence of improving the learning and development of boys of color.

Academic Achievement and Motivation

In addition to gender socialization and identity development, my research explores minority students' academic achievement and motivation. Specifically, I am interested in the factors that arrest and promote school engagement, participation, and performance for minority students attending urban schools. As a graduate student, I collaborated with Drs. Michael Nakkula and Joel Vargas (Harvard University Graduate School of Education and Jobs for the Future, respectively) on a longitudinal study examining the schooling experiences of African American and Latino students participating in the Early College High School Initiative (ECHS). The goal of the initiative is to reduce the attrition rate of African American and Latino students at the post-secondary level by providing access to and support in college-level courses while enrolled in high school. Early analyses suggest that enrollment in an ECHS contributes to increased academic self-concept, engagement, and performance [4]. Having recently completed our fourth year of data collection (senior year), we are in the process of analyzing the data to understand more fully the students' experiences and the implication for academic identity development and educational attainment.

In addition to the ECHS initiative, I collaborated on another longitudinal project with Dr. Janine Bempechat (Wheelock College) that focused on high achievement among low income students of color, and examined individual, family, and school factors that both foster and inhibit academic achievement in public and Catholic schools. Although we continue to analyze the data, preliminary analysis suggests the importance of school structure, school culture, and teacher-student relationships in the differential achievement levels across school type. Like the ECHS study, subsequent analysis of this data will focus on the nuances in the students' perception of their educational experiences.

My involvement in these two studies has contributed to my interest in the micro (e.g., school structure) and macro-structural (e.g., racism and discrimination) and contextual factors that impact academic achievement and motivation. Even more, they have increased my interest in the psychosocial experiences that inform one's sense of self and academic achievement. For students struggling to integrate and understand competing aspects of their identity, this area of inquiry seems particularly important. For example, studies have found boys of color to be particularly at-risk for dis-identification, disengagement and under-achievement when they are unable to successfully integrate their social, academic and gender identity (Dance, 2002; Ferguson, 2000). Therefore, it is critical to understand how we can support students, in general, and boys in particular in their academic pursuits while simultaneously attending to their emotional and psychological well-being. This line of research may prove useful in designing multi-system interventions to promote social and academic development of African-American boys.

Research Methodology

In addition to the above research areas, I am interested in exploring more concretely the ways in which qualitative and quantitative methods of inquiry can be used in concert to inform an understanding of this phenomenon. Although much of my recent research on masculinity is qualitative in design, I have begun to think about the ways in which survey instruments can be used to facilitate an understanding of gender identity development for adolescent boys of color. While several instruments exist measuring various aspects of gender role and identity development, I know of only one instrument that is designed solely for use with adolescent boys and it is in the infancy stage of development. Further, less than five percent of the boys sampled, from which the scale was piloted and validated, identified as African American, suggesting that the scale may not be useful for diverse populations of adolescent boys (Chu et. al, 2005). Given the history of misuse of psychological measures to pathologize and marginalize African American males, it is especially important to develop scales that are sensitive to socio-cultural context. Therefore, it seems prudent to explore how qualitative data and existing knowledge about masculinity scales can be used together to create a scale that measures the degree to which African American boys internalize messages about masculinity and if the process of internalization is developmental or experiential while considering context. In general, a mixed-method approach will allow for a more comprehensive and contextual understanding of boys' development. To this end, my training and experience as a statistician and qualitative researcher provide a solid foundation for thinking about how these two methodological approaches might be integrated to more fully understand the lives of boys of color, and ultimately contribute to the creation of new knowledge about boys' development.

Future Directions of Research

Over the next few years, I plan to continue my efforts to contribute to the research and scholarship on boy's development. In particular, I will expand the work of my dissertation in two interrelated ways: 1) by examining the ways in which other marginalized male groups (e.g., Latino, Asian, gay youth) narrate, construct, and make sense of their masculine identity. A secondary goal of this research is to investigate the ways boys from diverse cultures are unique and similar in their gender socialization and identity development; and 2) by examining more explicitly the impact of gender socialization practices on psychological and emotional health, and academic engagement and achievement. An important goal of this research is to contribute to the development of culturally-appropriate and sensitive programming and policies that improve the outcomes (i.e., emotional, social, psychological, educational) of boys of color.

Related to my interest in academic achievement and motivation, I plan to continue my collaborative work on the ECHS initiative. Currently, Dr. Nakkula and I are pursuing funding opportunities to follow-up with the students upon completion of their first year of college. A particular focus will be on the sustainability of an achieved academic identity beyond the first year of college. Additionally, I will expand this area of research by collaborating on a study of the middle-school transition. The goal of this project, broadly, is to identify factors that lead to academic success across the transition to middle school for African American youth, and how this process differs for boys versus girls. To this end, I will be submitting a grant application, along with my collaborators (Drs. Beth Kurtz-Costes and Stephanie Rowley, University of North Carolina—Chapel Hill and University of Michigan—Ann Arbor, respectively), to the National Science Foundation, Developmental and Learning Science program, to support this research initiative.

In moving forward, my research agenda has the potential to further elucidate gender socialization processes and identity development for boys of color, in general, and African American boys in particular. Even more, it seeks to elucidate the complex contextual and structural factors that are the underpinnings of students' academic success. Finally, my research will enhance the field of psychology and education in four main areas: 1) gender socialization process in marginalized communities, 2) adolescent development; 3) student motivation and achievement; and 4) research methodology.

[1] Howard, L.C. (*under review*). Performing masculinity: A qualitative examination of adolescent African American boys' response to gender scripts.

[2] Howard, L.C. (*under review*). African American boys' masculine identity: Understanding the rules of crying and fighting.

[3] Howard, L.C., McCrae, M.T., Sterrett, E.M., & Barbarin, O.A. (*in preparation*). Exploring the lives of African American boys during the formative years: An ethnographic study.

[4] Nakkula, M.J. & Foster, K.C. (2007). Academic identity development: Students' experiences in two early college high schools. In N. Hoffman, J. Vargas, A. Venezia & M. Miller (Eds.), *Minding the gap: Why integrating high school with college makes sense and how to do it*, (pp. 151-1570). Cambridge, MA: Harvard University Press.

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Jennifer Currin-McCulloch Research Statement

My research trajectory, informed by two decades of clinical practice as an oncology and palliative care social worker, investigates psychosocial adaptation to illness and the function of hope in balancing developmental and physical transitions. Specifically, my dissertation focuses on young adults with advanced cancer and how they engage hope to cope with their life-limiting illness.

While working as an oncology and palliative care social worker at a teaching hospital in Georgia, I consistently incorporated research into my patient care. I served as principal investigator and co-investigator in eight different studies that focused on adjustment to cancer, quality of life, and the psychosocial impacts of transitions in care for those with cancer. For instance, I conducted a mixed methods study of women with breast cancer to study their biopsychosocial quality of life at three, six, 12, and 18 months after completion of cancer treatment. I also developed two studies exploring the impacts of massage on individuals receiving cancer treatment. The initial study ($n=251$), "A Hospital-Based Intervention Using Massage to Reduce Distress among Oncology Patients," was published in *Cancer Nursing* (IF:1.844). The second study ($n= 56$) aimed to discover how a series of six massage therapy interventions influenced the self-identified biopsychosocial-spiritual concerns of individuals receiving treatment for breast, colorectal, gynecologic and lung cancers.

Prior to leaving practice, I became intrigued by the relationship between social determinants of health and the physiological and emotional presentations of distress among individuals at the time of cancer diagnosis. I developed a study ($n=143$) to look at the roles education, race/ethnicity, and insurance status played in adjusting to cancer. The results showed that insurance status predicted higher levels of distress than education, disease stage, or symptom burden. For the majority of these studies, I sought out grant funding and received support from state, foundation, and private funders. Performing these research studies provided a solid foundation for me in psychosocial research; however, I wanted to answer deeper questions about coping, resilience, and adaptation and to gather additional experience in qualitative and mixed method study design and data analysis.

As a Doctoral Fellow in the Institute for Collaborative Health Research and Practice, I collaborate with my mentor, Barbara Jones, Ph.D., and student peers. I work with the research team to study the impacts of cancer on patients and their families. I assist with assenting, consenting, and administering study measurements to parents who have cancer and their minor children between the ages of 5 and 15. These measurements assess the effects of a six-session, child-centered, group psychosocial intervention utilizing play, recreation, education, and self-expression. The randomized controlled trial (RCT), which has 60 families enrolled, examines differences between the intervention and waitlist control groups in family communication, child behavior, and child anxiety at three points in time. Another of our studies that has received significant national attention is a study entitled, "Psychosocial Standards of Care for Children with Cancer and Their Families: A National Survey of Pediatric Oncology Social Workers," which appears in *Social Work in Health Care* (IF:1.097).

We are currently conducting a study with 115 English- and Spanish-speaking adults receiving cancer treatment and their caregivers to assess functional quality of life, anxiety,

depression, and financial distress. In the first of two assessment points, we found significant relationships between depression, pain, and financial distress on functional quality of life. Additionally, we discovered that this random sample of patients in the clinic included a majority who were stage IV at time of diagnosis, uninsured or underinsured, and earned below \$25,000 a year. These findings led me to develop a qualitative sub-study to discover the specific ways in which the financial burdens of cancer treatment effect participants' physical, social and emotional well-being. Results from this mixed-methods study will inform the development of holistic programs to address patients' and caregivers' unmet biopsychosocial needs at the **LIVESTRONG** Cancer Institutes at the Dell Seton Medical Center at The University of Texas at Austin.

Due to my primary research focus on psychosocial oncology, I partnered with Anao Zhang, a fellow colleague with similar academic interests. We initially examined the role of SFBT in medical settings which yielded a publication in *Behavioral Medicine* entitled, "The Effectiveness of Strength-Based, Solution-Focused Brief Therapy in Medical Settings: A Systematic Review and Meta-Analysis" (IF:2.880). Next, we developed and pilot-tested a tool to determine the unmet needs of parents of children with cancer at a pediatric hospital in Shanghai, China. The study, "Assessing the Needs of Parents of Children Diagnosed with Cancer in China: A Psychometric Development of a Needs Assessment Tool" was published in the *Journal of Pediatric Oncology Nursing* (IF:1.294). Lastly, we designed a study to determine the effectiveness of SFBT in pediatric oncology settings. The study compared SFBT with cognitive behavioral therapy (CBT) and found that SFBT significantly exceeded CBT in improving parental depression, anxiety and increasing hope. The study, "Solution-Focused Brief Therapy for Parents of Children with Cancer in China: A Randomized Controlled Trial" was published in *Supportive Care in Cancer* (IF:2.676).

My dissertation study, funded by the American Cancer Society and a P.E.O. Scholars Award, marries my practice experience and research interests into a grounded theory study entitled *The Meaning and Function of Hope among Young Adults with Advanced Cancer*. The purpose of the study is to develop a theory that explains how young adults (YAs), aged 18-39, with advanced cancer engage hope to cope with their life-limiting illness. This traditional dissertation includes a three-fold approach. First, I will investigate the meaning and function of hope among YAs with advanced cancer throughout their disease trajectory. Second, I will explore how YAs engage internal, interpersonal, and structural resources to cultivate hope. Lastly, I will discover how YAs employ hope to balance dual transitions from adolescence into young adulthood and from perceived longevity to the knowledge of living within a shortened timeframe. I anticipate a sample size of 20-25 participants, based on previous studies of hope in mixed-age samples of adults with advanced cancer. Recruitment sites include two hospital systems, the **LIVESTRONG** Cancer Institutes, and Memorial Health University Medical Center in, Savannah, Georgia, as well as cancer support organizations in Central Texas.

My extensive clinical practice has fed the development of a substantial list of research questions that I would like to explore. I will initially focus on advancing my dissertation findings to develop a *Hope-Engendering SFBT Intervention* for YAs with advanced cancer. My long-term research goals include further studies with YAs and how they navigate periods of liminality, anticipatory grief, and preparations for the final phase of life.

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Research Statement

Kristin N. Garrett

My research agenda broadly centers on American political behavior, including public opinion and political psychology. More specifically, I am interested in questions related to morality and politics, religion and politics, and innovative research methods. My work examines how family environments, group affiliations, peer influences, media frames, political cues, moral convictions, religious beliefs, personality traits, self-interest, and knowledge influence political attitudes and actions. Taken together, this research provides insights about the ways personal and social factors shape citizens' political views.

Dissertation Research: Morality and Politics

Recent work in moral and political psychology shows that moral conviction—perceiving a connection to one's core beliefs about right and wrong—influences everything from issue attitudes to intolerance, partisan intensity to voting intentions, and political engagement to political compromise. Despite these findings, important questions remain about why moral conviction emerges, how it affects political actions and attitudes, and how we measure it. My dissertation, *Causes, Political Consequences, and Measurement of Moral Conviction*, sheds light on these puzzles by showing that key socializing agents influence the development of moral conviction, that moral conviction heightens partisan division, and that we can use physiological response indicators to assess moral conviction.

In the first empirical chapter, I apply insights from moral psychology to help explain why bias and hostility across party lines have increased substantially among segments of the American electorate. Building on what we know about the attributes of moral conviction, I posit that this attitude dimension heightens affective polarization beyond the effects of partisanship. This means people are more likely to show aversion to opposing partisans and affinity for copartisans, irrespective of partisan strength, if they base their opinions on moral convictions rather than personal preferences or normative conventions. Using data from the 2012 ANES Evaluations of Government and Society Study (EGSS), I find support for my theory: Democrats and Republicans who tend to moralize politics are more likely to express polarized affect, job approval ratings, and blame attribution toward in-party and out-party leaders even after I control for party identification and ideology. These findings shed light on the moral roots of partisan division in the U.S. and raise important normative questions about the divisive effects of moral conviction and the consequences of campaign strategies to moralize politics. This paper is finished and will soon be sent out for review.

In the second empirical chapter, I assess the validity of survey items typically used to measure moral conviction by conducting a lab experiment on over 70 undergraduate students. I utilize physiological response indicators—primarily skin conductance—and an online survey to compare people's automatic, unfiltered reaction to political issues with their self-reported moral conviction on the issues. This method allows me to evaluate how well survey responses to the questions used to assess moral conviction actually correlate with the emotional arousal that, by definition, should accompany moral conviction. It also lets me investigate why some individuals moderate their intuitive reaction to political objects and report less moral conviction. This project is important to the morality and politics literature because it will provide insights about whether there is a biological basis for the attitude domain we call moral conviction or whether moral conviction is a cognitive construction prompted by certain survey questions. I am almost done analyzing the data for this project, which I plan to complete by December 2015. Based on the sheer amount of data I have collected and the number of hypotheses I plan to test, I will likely get two chapters out of this study.

In the final empirical chapter, I investigate how socializing agents influence the emergence of moral conviction. Scholars have identified substantial variance in people's moral convictions about politics, yet

they have not uncovered why people moralize certain issues, leaders, or causes, but not others. I theorize that close social relationships in childhood and adolescence and emotionally salient experiences in young adulthood influence the development of moral convictions by helping to fine-tune people's natural moral faculty so that it is more sensitive to moral stimuli and by connecting specific issues to this mental system for processing morality. To test this theory, I am administering a novel two-wave panel survey to incoming college students and their parents. The results of this study will provide insights about how parents, peers, religious communities, and schools encourage the development of moralized political attitudes. I have already administered the first wave of this study, I will administer the second wave in March 2016, and I will complete this paper by April 2016. To date, I have completed one of the three empirical chapters of my dissertation, and I plan to defend the dissertation in Spring 2016.

Public Opinion Research

Outside of my dissertation, I am working on broader projects pertaining to the effects of individual traits and media messages on political attitudes. For example, in a paper we presented at this year's MPSA Conference, Mike MacKuen and I tell a more nuanced story about the impact of self-interest and symbolic values on tax policy preferences than previous work has portrayed (MacKuen and Garrett 2015). Extant studies show that symbolic predispositions like partisanship and personal beliefs exert more influence on people's policy attitudes than self-interest. After conducting a national survey experiment, however, we discover that when the correct pieces of altruism, political sophistication, and ideology are coupled with a particularly framed debate, many people discern and act on their self-interest. We plan to submit this paper to a journal and then build on this project by investigating how liberals' and conservatives' different frames of references for defining self-interest and altruism influence their policy preferences.

In other recent work, I contribute to the framing and motivated reasoning literatures. In one paper, I examine how citizens respond to moral frames in the presence of real-world signals like partisan source cues. I argue that when party cues are absent, frames appealing to individuals' moral foundations will influence their voting choices and issue attitudes, but when party cues are present, they will trigger motivated reasoning that moderates the impact of moral foundation frames. Results from a survey experiment administered to a convenience sample provide initial support for this theory. Motivated reasoning prompted by party cues curbs the persuasive effect of moral foundation frames on people's candidate preferences and immigration attitudes. I plan to follow up on this project by administering my survey to a nationally representative sample. In another paper, Tom Carsey and I show evidence from a national survey experiment that elite religious cues influence shifts in how respondents of different religious affiliations view environmental regulations.

Religion and Politics Research

I am also interested in studying the ways people's religious views shape their political actions and attitudes. My master's thesis investigates the broader question of how different socializing environments mediate the political impact of group affiliations in the specific setting of religion and politics. Drawing on contextual effects literature, I theorize that high contextual complexity—where a person's cultural environment and social group convey convicting norms and generate cross-pressures—increases the political relevance of group commitment. When contextual complexity is low, group membership is largely sufficient to shape people's political actions and identity, but when contextual complexity is high, membership alone is not enough to define people's political positions; it requires their dedication to the group. I apply this theory to examine how age mediates the connection between the religious and political behavior of evangelical Protestants, and I find support for my hypothesis: the political effects of religious commitment are greater among young evangelicals, who were socialized into politics in a more complex context than older evangelicals. Moving forward, I plan to add a few years of data to my analysis and then submit this paper

for review. I also intend to apply this theory of contextual complexity to the intersection of other cultural environments and group affiliations.

Research Using Innovative Methods

In addition, I enjoy getting to tackle tough questions with innovative research methods, even if the questions fall outside my substantive areas of interest. For example, state politics scholars have long suggested that interest groups encourage the spread of policy ideas across states, but the current methodology for studying diffusion—event history analysis—cannot parse out interest group influence. In a recent *State Politics & Policy Quarterly* article, Josh Jansa and I address this problem by developing a new method, combining text and network analysis, to measure whether states borrow bill language from other states or interest groups. Applying this method, we show that interest group model legislation plays a central role in the spread of policies (Garrett and Jansa 2015).

For my dissertation, I also employ a new method, combining physiological response analysis with traditional survey research, to test my expectations about the validity of moral conviction items and why some individuals moderate their self-reported conviction. By conducting an innovative study, I am able to address questions about the nature of moral conviction and what we are actually measuring with moral conviction survey items. As a result, this research will help validate or challenge moral conviction as a unique attitude dimension that influences political behavior and opinion.

Integrating Research and Teaching

As part of my research agenda, I try to integrate my research and teaching by frequently incorporating results from my own research into class lectures and discussions. Along the way, I have discovered that practicing the ability to clearly and creatively explain my research to students helps me grow as a scholar. It forces me to clarify concepts and simplify my story, it keeps me from hiding weaknesses in my theory behind technical jargon, and it opens my research to students' ideas and critiques. Also, I enjoy giving students the opportunity to help pilot test surveys and lab protocols for current research projects. This benefits students by exposing them to political science research methods and by fostering a spirit of inquiry in the classroom, and it strengthens my research by helping me work out problems before conducting a study.

Future Research

While there are several lines of inquiry stemming from my current work on public opinion and religion and politics that I hope to pursue moving forward, I plan to start by building on my dissertation. First, I have a lot of data from my physiological response project, and I look forward to testing other hypotheses that I do not have room to address in my dissertation. For example, in order to investigate the role that cognition, affect, and arousal play in encouraging moral conviction, I embedded a survey experiment in my physiological response study that tests how prompts to encourage cognitive engagement versus emotional arousal influence physiological responses and self-reported moral conviction.

Second, I intend to examine how political leaders become moralized. While I show in my first dissertation chapter that moral conviction generally drives polarized responses toward Republican and Democratic leaders, I also find that people appear to develop morally convicted attitudes about certain party leaders more than others. Together with Tim Ryan, I plan to study what factors—whether clear party ties, negative media coverage, or polarizing policy stances—facilitate morally convicted attitudes about political elites.

Third, I have applied for a National Science Foundation grant to fund a national panel study examining how political frames influence the development of morally convicted attitudes over time. This research will shed light on the mechanisms by which political messages encourage the emergence of moral conviction,

helping us think about the ways political actors and media outlets might contribute to the moralization of politics. One of the challenges for existing literature on morality and politics is the lack of longitudinal data needed for us to investigate questions about how moral conviction develops and influences political attitudes over time. The four-wave panel study I plan to conduct will provide better data for us to assess the antecedents and implications of moral conviction, which I have already begun to uncover in my dissertation.

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Statement of Research Interests

Adam Gómez

I am interested in the phenomenology of politics, the ways that individuals experience politics, and the ideological frameworks through which they navigate the political world. My research focuses on the ways that political actors and ordinary citizens understand politics, how they think about it and what it means to them, and the rhetoric that they use to persuade one another. To this end, I am interested on the one hand in the development of national identity, for example, what it means to think of oneself as an American at a given point in history. On the other hand, I am interested in the intersection of religious and political thought, as many groups and individuals draw their ethical, anthropological and even ontological assumptions from their religious beliefs and heritage, which in turn structure their political understandings. At the same time, political beliefs and categories importantly shape religious belief and practice, so that in practical terms it can be difficult to distinguish where the political ends and the religious begins. It is my belief that this area of overlap between these two categories is where much of politics take place.

My dissertation, *The Nation Invisible: American Civil Religion and the American Political Tradition, 1838-1925*, reflects these interests. In it, I argue that civil religion is an influential aspect of American national identity, structuring Americans' sense of the national *telos* and the liberties, obligations and prohibitions that are believed to derive from it. I present American civil religion as a rhetorical tradition that describes the United States as having a particular relationship with God, akin to that described in the Old Testament as existing between God and the ancient Israelites. While other scholars have considered the form and content of this tradition, this project is interpretive in approach, and to my knowledge is the first study to base its claims in a detailed engagement with civil religious texts. Thus, I provide a richer account of this tradition, with a fuller analysis of its content than that present in earlier studies. The tradition of American civil religion links American politics to metaphysical questions of ultimate political and religious import, including the relationship between liberty and equality, the nature of sin and of virtue (both inside and outside of the national community), and the role of the United States in world history. These tropes of public speech are more than mere rhetoric, as they work to structure American self-understanding and in this way exercise a deep influence on American politics.

An important difference between my work and the great majority of scholarship on American civil religion is the fact that it is more aligned with the legacy of Max Weber than it is with that of Émile Durkheim. My dissertation emphasizes the ways in which beliefs influence political action over the ways by which they separate in-groups from out-groups. While I address both questions, with special attention to issues of race and gender, American civil religion is much more than a means of demarcating insiders from outsiders. For Americans, it is a way of thinking about their relationship as a people to their political ideals, which many Americans have historically invested with the force

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of religious belief. The language of civil religion points to the ways that Americans have answered the basic political questions of who they are and what they should do.

While this language provides tools with which political actors can mobilize support, it also works to commit them to particular programs of action, and to speak and act in a religious mode. Taking into account social, political, and theological influences, I examine in detail the speech of four pivotal figures in the development of American civil religion: John L. O'Sullivan, Abraham Lincoln, Woodrow Wilson, and William Jennings Bryan. My dissertation is organized with a chapter on each of the above four men, except for Lincoln on whom I write two chapters, following the typology of Max Weber as adapted by Martin E. Marty by dividing his speech into priestly and prophetic strains. I structure my examination of the civil religious framework of each of these men within three primary questions. One, does the individual prioritize liberty over equality, or vice versa? Two, where does he locate sin, and what is his understanding of that sin? Three, does he believe that the United States is obligated to model democracy to the world, or that the nation has a responsibility to actively proselytize democratic government?

Each figure considered in my dissertation answers these three questions in different ways, and their answers are important for the politics of our time as well as that of their own, as the thought and language of each of these men have had an impact on American self-understanding in important and enduring ways. For example, it is Lincoln's location of sin within the American polity, which he understands to be covenanted with God to demonstrate to the world the possibility of political equality, which drives him to urge the nation to forgiveness and reconciliation in his Second Inaugural Address. John L. O'Sullivan, on the other hand, locates sin exclusively beyond American borders, and thus sees the United States as destined by God to redeem the world from tyranny by spreading democratic liberty across the globe. Wilson synthesizes Lincoln and O'Sullivan's arguments: like the former (whom he describes in messianic terms as "a font of living water") he views America as a covenanted community, and believes this covenant to legitimate increased coercion at home. This covenant, however, along with its coercive enforcement, are in the service of the same global crusade for democracy that O'Sullivan described, as Wilson like him locates sin outside of the United States. Bryan, finally, locates sin within the United States, but importantly *not* among Americans: he deploys the Manichean conflict between good and evil, familiar from Wilson and O'Sullivan before him, within American borders, as virtuous 'real' Americans, primarily the white rural poor, confront utterly corrupt and un-American elites, who work against the equality that Bryan, like Lincoln, believes to be the teleological endpoint of American politics.

In this way, and unlike any other study before mine, I engage with American civil religion substantively and reveal it to be a coherent and dynamic tradition of belief. This tradition is with us still: it is no accident that Martin Luther King invoked Lincoln's prophetic language in his "I Have a Dream" speech, which called the nation to account for its failures and hypocrisies. Nor is it coincidental that George W. Bush, in his 2003 State of the Union address, justified the invasion of Iraq by saying that "Americans are a free people, who know that freedom is the right of every person and the future of every nation. The liberty we prize is not America's gift to the world, it is God's gift to humanity", all but quoting Wilson's justification for American involvement in World War I. Though my dissertation looks to the 19th and early 20th centuries, my intent is to provide the resources for us to understand the America of today, as the themes and tropes explored in my dissertation even now shape the way that Americans think about themselves and their place in the world.

I am currently revising my dissertation for publication as a book. My article “Deus Vult! John L. O’Sullivan, Manifest Destiny & American Democratic Messianism” (a revision of my dissertation chapter) will be published in the Fall issue of *American Political Thought*, and I will shortly submit a revision of my Wilson chapter for publication.

Other future projects include two articles. The first will argue for the usefulness of the Augustinian conceptualization of sin for contemporary political theory, drawing on the political thought of Abraham Lincoln, Reinhold Niebuhr, and Carl Schmitt. The second, which I am writing in collaboration with my colleague Antony Lyon (of UC San Diego’s Humanities Program), will argue for the place of gratitude among the highest political virtues.

Adam Gómez

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STATEMENT OF RESEARCH
for
Kevin McGarigal
September 2002

Goals and Philosophy

The goals of my research program are as follows:

- develop a diverse and productive research program in landscape ecology,
- provide a strong scientific basis for natural resource conservation decisions, and
- train graduate and undergraduate students in research and natural resource conservation.

The overall goal of my research program is to provide natural resource managers with information and tools that will enable them to become better stewards of healthy and sustainable ecosystems. Solutions to real-world natural resource problems typically require an understanding of basic ecological patterns and processes. Thus, my research strives to combine studies of basic ecological questions with applied research. Although my research program spans the continuum from basic to applied ecological questions, it focuses mostly on the conservation of biological diversity and providing a strong scientific basis for natural resource management decisions. Thus, my overall research program is very applied and is driven largely by the resource information needs of local, state and federal agencies, and nongovernmental conservation organizations.

Natural resource management issues are typically multidimensional and exist at multiple spatial and temporal scales. Dealing with such complex, multivariate and multi-scaled problems often invokes the use of quantitative and interdisciplinary approaches. Consequently, my research increasingly involves the development and use of computer models, geographic information systems (GIS), and multivariate statistical techniques, and working collaboratively in a multi-disciplinary environment.

Additionally, involvement of graduate students in research is a critical aspect of my research program. Through the research process I strive to train students in basic ecological concepts, research methodology, management strategies, and philosophies of science. I gain tremendous gratification from training and working with bright, energetic, young minds. I also take much enjoyment from expanding my research horizons in new areas of the world and with new research questions and technologies.

Research Focus

My research efforts focus on identifying and quantifying spatial patterns in the distribution of resources and the agents responsible for those patterns, how these patterns affect variation in the distribution and abundance of wildlife, how these patterns and processes change over time under

natural and anthropogenic influences, and how to apply this knowledge to manage natural resources. Because animals live in heterogeneous environments that are constantly changing in response to disturbance and successional processes, knowledge of how the spatial pattern of habitat influences animal movements and population dynamics is essential in order to predict and responsibly manage wildlife.

In order to understand how pattern affects animal populations, we must first be able to identify and quantify pattern. Thus, **a major focus of my research is on the development of methods to quantify spatial pattern.** For this purpose, I developed a computer software program called FRAGSTATS to quantify landscape patterns from spatial pattern data within a geographic information system (GIS). Basically, this program reads an input image representing a 2-dimensional mosaic of patches (e.g., habitat patches, land cover types) and computes several hundred metrics that characterize the composition (e.g., the amount of each patch type) and spatial configuration (e.g., size, shape, density, dispersion, interspersion, and diversity of patches) of the landscape mosaic. I completed development of the original program during my post-doctoral work at Oregon State University. I published the software and accompanying documentation as a U.S. Forest Service General Technical Report and made the software available to the public domain via a web-based distribution mechanism. Recently I completed a major revision of the software, including the development of a sophisticated graphical user interface and on-line help system, as well as the implementation of many new metrics and analytical capabilities. Currently, this program is used world-wide by hundreds of researchers and land management agencies, including federal agencies such as the U.S. Forest Service, Bureau of Land Management, and the Environmental Protection Agency, and is widely recognized as the leading program of this sort. The development and support of FRAGSTATS is the cornerstone of my service program (discussed below), but it has also provided me with a platform to investigate the theoretical and empirical behavior of landscape pattern metrics. Thus, a major focus of my current research program involves evaluating various methods and metrics for describing landscape patterns.

Another focus of my research is on developing an understanding of how landscape patterns influence the spatial structure and dynamics of animal populations. Although this research has many components and involves many studies, there are three primary thrusts. One thrust is on developing an understanding of the dynamics of spatial patterns in disturbance-dominated landscapes subject to both natural (e.g., fire) and anthropogenic (e.g., logging) disturbances and the implications for wildlife populations inhabiting these dynamic landscapes. To accomplish this, my students and I develop simulation models and habitat suitability models using spatially-explicit data within a GIS framework. The results of these studies are designed to help federal resource managers devise land management strategies that have a proper spatial-temporal reference to the natural range of variation in landscape patterns and wildlife populations. The second thrust involves field studies investigating the effects of habitat fragmentation on animal distribution and abundance. Here, we explicitly focus on empirical tests of theoretical predictions; specifically, whether threshold phenomena exist in the relationship between habitat loss and fragmentation and animal occurrence and abundance. Thus far, the emphasis has been on birds. The third thrust involves elucidating the factors controlling the spatial structure and dynamics of amphibian metapopulations inhabiting clusters of vernal pools. We employ a combination of computer modeling and field experimentation to address these

questions. This information is used in conservation planning and has played a vital role in informing land acquisition decisions.

A final focus of my research is on developing new tools (e.g., decision-support systems) for resource managers to identify conservation priorities and to develop landscape-level, biodiversity conservation strategies. This research aims to make the best scientific information on biodiversity available to the managers responsible for making decisions regarding biodiversity conservation. This research involves synthesizing vast amounts of complex scientific data, developing computer models for the analysis of complex spatial data, and working with experts and various stakeholder groups to develop conservation strategies.

Major Accomplishments

Since beginning my current appointment at the University, I have obtained \$1,453,100 in support from state and federal agencies and NGOs for research. My research efforts to date (including graduate and post-graduate work) have led to publication of 23 refereed papers (15 submitted since 1997), 9 technical papers (3 since 1997), 4 book chapters (2 since 1997), 1 book (since 1997), 5 major reports or published abstracts (2 since 1997) and 22 presentations of my research at professional meetings at the regional, national and international levels (9 since 1997). Copies of the refereed papers, book (title and table of contents pages only), book chapter, and technical papers are included in the Research Appendix. My major research accomplishments can be summarized as follows:

First, I authored a textbook, published in 2000 by Springer-Verlag, New York, on the use and application of multivariate statistics in wildlife and ecology research. This textbook represents a major accomplishment and was been a significant focus of my efforts over the first few years of my appointment at UMass. It represents the first multivariate textbook written from a conceptual and practical perspective designed for nonstatisticians in the fields of wildlife and ecology and serves as the primary text for a graduate-level course on the subject that I teach in the Department of Natural Resources Conservation.

Second, because this faculty position represents my first appointment after completing my post-doc position at Oregon State University, I came to this institution without external grant support. Therefore, the majority of my research effort has been devoted to obtaining external funding to establish a new research program. To this end, I successfully led efforts to obtain external funding to begin several new research initiatives, which now form the major foci of my research program, as described above. In addition to several small research projects, I obtained \$193,000 from the USDA Forest Service to investigate landscape dynamics on the San Juan National Forest in southwest Colorado. Based on preliminary accomplishments, I was successful in obtaining an additional \$354,000, bringing the total to \$547,000. Similarly, I obtained \$160,000 from the Massachusetts Natural Heritage and Endangered Species Program and The Nature Conservancy to investigate marbled salamander ecology and conservation. Finally, I obtained \$200,000 from the Massachusetts Executive Office of Environmental Affairs to develop a decision-support system for identifying priorities for conservation action based on a biodiversity assessment, and recently obtained an additional \$100,000 to extend this work. These

research grants have allowed me to take on 9 graduate students (6 MS, 3 PhD), 1 post-doctoral associate, 4 full-time equivalent professional staff research assistants, and several part-time field research assistants. This represents my major research achievement thus far and promises to pay great dividends over the next few years in terms of publications and grants (see below).

Future Plans

My plans for the future involve building strength in each of the focal areas of my research program, as outlined above. Specifically, I plan to build on the initial capital investments made in each of these research areas by using the investments as leverage to attract additional external support. In addition, as these initial projects mature over the next few years I plan to focus on publishing results. My specific publication plans, including probable authors, title, and possible publication outlet, for the next three years are as follows:

Year 2002-2003

- McGarigal, K., S. A. Cushman, and C. Regan. A protocol for assessing habitat fragmentation. USDA Forest Service General Technical Report. [*will be ready to submit Fall 2002*].
- Garrett, J. and K. McGarigal. The importance of eastern hemlock to avian communities in western Massachusetts. *Conservation Biology*. [*will be ready to submit Fall 2002*].
- Jenkins, C., K. McGarigal, and L. Gamble. Timing, orientation, and habitat use of marbled salamander breeding migrations in western Massachusetts. *Journal of Herpetology* or *Conservation Biology*. [*will be ready to submit Fall 2002*].
- McGarigal, K. Use of stone wall corridors by forest floor vertebrates in western Massachusetts. *Landscape Ecology* or *Conservation Biology*.
- McGarigal, K., C. Griffin, S. Jackson, and others. Strategic biodiversity conservation planning: a landscape ecological approach. *Conservation Biology*.
- McGarigal, K., C. Griffin, S. Jackson, and others. Comparing the use of coarse- and fine-filter strategies for evaluating biodiversity potential at the watershed scale. *Conservation Biology*.
- Gamble, L., K. McGarigal, and C. Jenkins. Metapopulation structure of marbled salamanders in western Massachusetts. *Conservation Biology* or *Ecology*.

Year 2003-2005

- McGarigal, K., S. A. Cushman, M. C. Neel, and E. Ene. *Landscape Structure Analysis: Theory and Applications using FRAGSTATS*. [potential publishers include Kluwer, Springer-Verlag, and Island Press].

- McGarigal, K., S. Cushman, and S. G. Stafford. *Multivariate Statistics for Wildlife and Ecology Research*, Second Edition. Springer-Verlag, New York. [*substantial revision, including several additional chapters on newer statistical techniques and additional empirical examples; publisher has already strongly endorsed the project*].

In addition to my plans for continued investment in these current research efforts and corresponding publication plans, I plan to seek new opportunities for collaborative, multi-disciplinary research projects. In particular, I hope to expand my involvement in international research programs.

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Research Statement

Annika M. Mueller

Institute for Quantitative Social Science, Harvard University

I am a Post-Doctoral Fellow at the IQSS at Harvard University with an interest in contributing to a deeper understanding of individual decision-making. Human behavior is often characterized by deviations from perfect rationality and influenced by numerous factors that cloud the researcher's view of underlying causalities. I employ field, lab, and lab-in-the-field experiments, develop survey tools and analyze large panel data sets to better understand economic decision-making and its psychological underpinnings, generating insights to inform theory as well as real world decision makers in the areas of public policy and management.

The majority of my current research applies field and lab-in-the-field experiments to test insights from classical and behavioral economics in the contexts of economic development (Sub-Saharan Africa) and the design of innovation contests (USA/internationally).

This research statement is organized as follows: The first section discusses my work in the area of development economics/public policy, with a focus on my dissertation papers. The second section discusses my work in the area of contests/management from my postdoctoral work. Both sections include plans for future research in the respective areas.

Experiments in the Area of Development Economics

Current Work:

The two chapters of my dissertation, which together form the basis of my first job market paper, are derived from a series of experiments in Malawi designed to investigate social norms:

The first chapter of my dissertation explores the role of culture as a co-determinant of economic growth by investigating the prevalence of six widely discussed norms of distributive justice in poor, rural communities of Malawi. I do this using a lab-in-the-field experiment in the form of a one-shot two-person dictator game with a production phase. More precisely, subjects had the option of generating social surplus through sorting beans. The social surplus generated by two matched players would then be shared by the dictator, who would be randomly determined among them, after the sorting decisions had been carried out by the participants. Alternatively, subjects had the choice to return all or part of the unsorted beans for money that would not go into the common pot but was theirs for certain. Subjects faced different rates of return for sorting, had different amounts of beans available for sorting as a proxy for differing opportunities to exert effort, and faced random income shocks in some treatments after carrying out their sorting decisions.

I find that decisions are guided by self-interest balanced with a multiplicity of norms. Interestingly, and despite a large influence of strict egalitarianism on sharing behavior, subjects in my sample react as intuitively expected to all experimental variations. Specifically, subjects reward own and others' effort, take relative rates of return into account, and compensate themselves and others for income shocks and limited opportunities to exert effort.

The knowledge gained contributes to the debate of culture as a determinant of economic growth in important ways. Arguably, the link between norms of distributive justice and redistributive outcomes is closer in environments with a relative lack of formal institutions. Therefore, in such environments, norms set incentives for effort-based production in a more immediate way, co-determining whether and which productive activities are encouraged in society. In this context, egalitarian norms have often been pointed out to inhibit the emergence of entrepreneurial activity in rural areas of developing countries. Despite the consequent importance of the relative prevalence of norms for rural development, previous evidence about sharing behavior for developing countries has generally not allowed for the distinction between various norms of distributive justice. Norms map a set of variables which can be identified in the real world, as well as in experimental settings, into an optimal distribution of effort-generated income. Thus, identifying underlying norms of distributive justice is of crucial importance for gaining a deeper understanding of the impact of cultural values on output, and ultimately development, since it allows for a better assessment of the generalizability/external validity of results. This chapter is an improvement over the current literature because studies that *did* focus on norms of distributive justice usually did not focus on effort generated income; those that did have tended to employ a design that lets subjects invest part of a windfall gain obtained in the course of the experiment, which is likely an unsatisfactory proxy for effort-generated income. For the reasons outlined above, these may be serious omissions in the context of development.

Predicting the expected impact of values on behavior in the medium to long run remains difficult nevertheless, since sharing norms may not be independent from the current social environment of those who subscribe to them. Specifically, sharing norms may either be fully internalized or domain-specific to a particular informational environment, two options between which I discriminate in the second chapter of my dissertation. In this chapter, which together with the first chapter forms the basis of my first job market paper, I extend the experimental framework of the first chapter using imperfect information regarding the size of the pie and share taken by the dictator on the side of the receiver. The purpose is to investigate the origins of the high prevalence of equal sharing of effort-generated income that I found among the subjects of my first chapter, and, more generally, to understand how subjects balance their behavior between self-interest and norm-adherence if their degree of norm-adherence can no longer be fully judged by others.

I find that dictators act more selfishly under incomplete information, i.e. deviate further from the various norms of distributive justice in situations where their social image cannot be damaged by such action. This finding is significant for two reasons, which help us gain perspective on the findings of the first chapter: a) when norms are domain-specific to a particular informational environment, changes in community structures arguably lead to more abrupt changes in sharing behavior, and b) community structures are rapidly changing in the developing world (think, for example, internal migration, out-migration and remittances, but also increased financial infrastructure such as the introduction of bank accounts).

The third chapter of my dissertation, which is co-authored with my colleagues at the University of Michigan, the IPA, and the World Bank, draws lessons from a randomized field experiment in rural Malawi that temporarily increased access to markets for previously isolated areas through regular subsidized transport. The cost of being isolated is a growing subject of research in development economics. Rural road investments have been pointed out to be critical for households to overcome spatial poverty traps. Over the past decades, many such investments in Sub-Saharan Africa seem to have been built on donors' and governments' assumption that the provision of roads that are passable for motorized vehicles will automatically lead to market provision of such transport and thus, poverty reduction and income generation. There is, however, a lack of rigorous evidence on these assumptions; namely the lack of randomized field studies evaluating the profitability of routes.

The randomized experiment summarized in this paper is the first of this kind in Sub-Saharan Africa and illustrates that improving the condition of roads does not necessarily generate transport provision at an affordable price for villagers. In other words, based on take-up, this experiment demonstrates that a bus provider cannot, at any price, break-even on these routes. This result is strengthened by the fact that subsidized transport was provided on a regular basis over a period of six months. This contrasts sharply to an often encountered situation in real life in which a bus provider often does not possess the required funds to scout out a new area for more than a few days. Potential customers cannot predict the supply of transport well in such a case and hence (depending on the specifics of the area and its population), observed demand during such a scouting period may seem lower than actual demand would be if regular supply of transport was available, leading the bus provider to underestimate potential demand for transport service and not provide services to potentially profitable routes. Given that in our study a regular bus schedule was communicated to all potential customers and this schedule was honored by the transport provider, we can conclude that in our case true demand was revealed and yet a bus provider cannot make a profit on these routes.

This explains why many rural roads in relatively good condition are currently not being used by motorized vehicles and has important public policy implications. It helps policy makers design solutions that actually increase access to markets through a) an increased understanding of why, despite massive investments in infrastructure, the expected outcomes on access to markets have often not materialized, and hence, b) an increased understanding about which data to collect in order to be able to assess whether rural road investments may crowd out investments in other sectors that may have a greater impact on economic and social development.

Future work:

A related paper I am currently working on with my co-authors is based on the same field experiment and looks at income, health, and time-allocation effects of the transport subsidy (including spill-over effects) over a period of six months.

I view all of the above-mentioned papers as works in progress that I intend to complete and submit for publication within the next eight months, and that may lead to further related projects. I have been to Malawi for a total of 1.5 years and have access to a large logistical network. I intend to harness this research capital, as well as my personal contacts with government officials and villagers, during the next years of my career for several additional projects.

Specifically, I intend to conduct another lab-in-the-field experiment in Malawi in Spring 2013 in which I look at how stable spiteful preferences are, and am also currently going through the IRB approval process for a methods paper for which the idea stems out of my experiences during the piloting.

Experiments in the Area of the Economics of Contests

Current work:

Two papers coming out of my first year at the Harvard-NASA tournament lab deal with creative workers in an open crowdsourcing contest setting.

The first, which is also my second job market paper, is a field experiment that investigates the impact of various levels and combinations of cash, job market signaling, and peer signaling incentives on participation, effort, and performance of creative workers in a real innovation tournament on an open crowdsourcing platform. Over the last decade there has been an increased focus on the optimal application and academic study of non-monetary incentives, including signaling. But while contests feature a multitude of such incentives, no prior field experiment, to our knowledge, has disentangled the effects of signaling (in the form of the revelation of the rank-order of contestants) from monetary incentives on the composition of entrants in public contests.

Theoretically, the outcome of a tournament can reveal information about the abilities of the entrants. This revelation can bring status and prestige to the winners (e.g. in the case of the X-Prize) and thus act as a reward. However, for entrants who do poorly the revelation can be damaging. In effect, publicizing the tournament outcome creates personalized entry fees for entrants so that those with lower ability opt out. All in all, our model shows that the ability-dependent incentives created by the public nature of some tournaments imply that entrants in such tournaments will be more able and exert more effort than those in an equivalent private tournament.

We test the implications of the theoretical model with data from a field-experiment that features a real-world, non-trivial, prestigious innovation task by randomizing coders across contests which differ only with respect to incentives offered. Specifically, we offer various combinations of three types of prizes on two levels: high and low cash prizes, public announcement of the results to their peers or not, and an optional announcement of results to potential employers in some treatments.

All participants were part of the TopCoder community of programmers and competed over 4 days to produce the highest performing algorithm to solve an abstract computer science problem. Cash prizes were offered for the top five solutions in each treatment cell, totaling \$500 and \$1500 in the low and high cash treatments, respectively. The results were made public in the public announcement treatment by publishing a “glory page” on the TopCoder website listing the rank-order results of the top five participants in the respective treatment cells. The winners in the optional job market signal treatment were offered a reference letter including their rank-order in the tournament that could optionally be sent to Google and the NASA Jet Propulsion Laboratory recruitment headquarters. Both organizations participated in organizing the tournament and are popular potential employers for members of the TopCoder community.

Our data include a high-quality objective skill measure which enables us to understand how individuals of different skill levels react to different incentive mixes. In addition, survey data allows us to investigate how effects differ for people driven by different self-reported motives for participation. Our results are supportive of the theoretical implications. Publically announcing results increases participation by high ability entrants about 30% over when there is no announcement. We can also verify our hypotheses regarding signaling and the opting-out of low ability entrants and identify situations in which cash as additional incentive can be used to compensate such entrants for the expected cost of sending a negative signal about their ability. Given that tournaments are a historically important and increasingly popular mechanism to elicit innovation; our findings highlight a low cost mechanism by which to control entry.

The second paper looks into sorting and participation dynamics of differently motivated software developers in different types of contests on an open crowdsourcing platform over a three year period. To examine these dynamics we have put together an extensive panel data set on contest characteristics/incentives and participation information, coders’ motives for participation at the time of joining, current motives, and information about why these have changed from when they joined the platform (if they did). One feature of the data that is particularly novel is that the classification of contests regarding subjective incentives (such as the status gained from winning a particular contest) that we use stems from a

meta-contest we launched among platform members for this purpose. This feature allows us to explicitly consider a multitude of non-pecuniary besides pecuniary motives and incentives for driving observed behavior.

We confirm that observed behaviors are consistent with an evolution of motives. Consistent with there being a “life cycle” of non-monetary motives, we observe sorting patterns that initially intensify in accordance with early work motives and eventually wane. In many cases, workers eventually stop participating. This study is significant for multiple reasons. Despite wide recognition in the (open source) innovation literature that the appeal of non-pecuniary incentives appears to be especially conspicuous for creative workers, model based analyses and considerations of institutional designs that focus on individuals’ motives are static. Additionally, compared to literature in other fields on dynamics similar to the one’s we consider (pertaining to individuals’ career paths), we have a relative wealth of data on non-pecuniary motives and incentives, as well as on how they evolve. Our findings highlight that institutions designed to harness non-monetary motivates may need to carefully contend with the possibility of muted incentives or accelerated attrition; “staging” or life cycles might therefore be inherent factors in managing crowdsourcing platforms.

Future work:

I have two other works in progress. The first is a lab experiment on a modified trust game that partially untangles the multitude of facets of trusting behavior as measured in a traditional trust game. The second is a project with colleagues from the Peking University HSBC Business School on a follow-up study to their paper on gender signaling in all-pay auction experiments.

There are also plans with my co-authors at Harvard and LBS to collaborate on future projects. One question which particularly interests us is the so-called “alliance formation puzzle” in contests, which we hope to investigate using a field experiment.

To summarize, at this point in my career, my primary interests are in experimental economics applied to the field of economic development and management. I have pursued these interests to date by conducting field experiments in two very different contexts, and lab-in-the-field experiments on social norms. In the immediate future I would like to go further with lab and lab-in-the-field experiments in the realm of social norms. In the long term I see myself working on expanding my expertise in these areas by a mixture of experimental and empirical work.

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Research Statement

Shanjun Li

My primary research focus is on environmental and energy economics with secondary interests in empirical industrial organization and applied microeconomics in general. My research goal is to improve public policy making through understanding the impacts of environmental and energy policies and efficient policy design.

My research program emphasizes two important aspects: (1) a sharp focus on important policies or questions that have salient policy implications, and (2) developing or utilizing methodologies that allow for rich counterfactual and welfare analysis.

A large number of environmental and energy policies have been implemented or proposed at various government levels. These policies could have significant implications for social welfare and it is crucial to understand the impacts of these policies on different economic players and on the society as a whole. Equally important, it is important for us as economists to not only point out the impacts of the policies as they are implemented but also inform policy makers about the (more) efficient policy alternatives whether they are popular politically or not.

In understanding the impacts of environmental and energy policies and efficient policy design, my research blends both reduced-form and structural methods. I take a pragmatic approach in choosing empirical strategies. Reduced-form methods are often adequate for evaluating direct policy impacts while the structural approach is needed in order to address two additional issues of my interest: welfare impacts, and comparisons with alternative policy designs.

My research program has three major areas: (1) U.S. domestic environmental and energy issues; (2) international environmental and energy policies; and (3) other applied microeconomic topics. My research has been funded by agencies such as the National Science Foundation and USDA, supported by the International Monetary Fund and the World Bank, and reported by news media including the National Public Radio and the Associated Press.

1. U.S. Domestic Environmental and Energy Issues

I have examined a variety of important domestic environmental and energy policies with a focus on the transportation sector, which is responsible for the majority of urban air pollution and nearly 30% of carbon emissions. My research in this area so far can be separated into three strands: consumer response to fuel costs, policy interventions to promote fuel efficiency, and the drivers of vehicle demand. In addition, I have conducted four studies related to the U.S. electricity sector. My current research in this major area focuses on electric vehicles and the public transit systems. I in turn discuss these five subgroups of research projects in this area.

1.1. Consumer Response to Fuel Costs

Understanding consumer response to fuel costs is critical for understanding the impacts of gasoline taxes and the efficiency of fuel economy regulations such as Corporate Average Fuel Economy (CAFE) Standards. I have published three refereed journal articles on this topic. The first paper, published in *American Economic Journal: Economic Policy* (2009), examines how

gasoline price changes affect the composition of the vehicle fleet and finds that high gasoline prices shift new auto purchases towards more fuel-efficient vehicles, and speed up the scrapping of older, less fuel-efficient vehicles. The second paper, published in *Economics Letters* (2012), examines a methodological issue in the literature dealing with the energy paradox (consumer undervaluation of future fuel costs) in vehicle demand and argues that ignoring consumer heterogeneity in marginal willingness to pay for future fuel costs in discrete choice modeling could overstate consumer undervaluation. The third paper, also published in *American Economic Journal: Economic Policy* (2014), focuses on consumer responses to gasoline taxes and finds that consumers are more responsive to gasoline tax changes than commensurate changes in pre-tax gasoline price changes. These studies have been cited 99, 19, 37 times respectively according to Google scholar by August 2014. They have also been covered by the news media including Forbes.com, Washington Post, the Associated Press and NRP marketplace.

1.2 Policy Interventions to Promote Fuel Efficiency

There are a variety of domestic policy interventions with the goal of promoting the adoption of more fuel-efficient vehicles. My research has looked at two important policies: federal income tax incentives for hybrid vehicle purchases, and cash-for-clunkers programs. On hybrid vehicles, my coauthor and I offered one of first studies that investigates the demand for hybrid vehicles and the effectiveness and cost-effectiveness of federal income tax incentives for hybrid vehicle purchases. This study was published in *International Economic Review* (2011) and has been cited 92 times and referenced extensively by the Congressional Budget Office report on the effect of federal tax credit of electric vehicle purchases (<http://www.cbo.gov/publication/43576>).

On cash-for-clunkers, a popular \$3 billion stimulus program in 2009, my coauthors and I conducted one of the first studies on the impact of the program by simultaneously looking at both the stimulus and environmental outcomes. This article, published in *Journal of Environmental Economics and Management* (2013), has been cited over 40 times in academic papers and covered by popular media such as Washington Post.

I have subsequently extended the paper to investigate the trade-off between the stimulus and environmental objectives in the program and understand how the pursuit of reduced carbon emissions impacts the effectiveness of the stimulus objective. While our first paper on cash-for-clunkers employs the difference-in-differences method (a reduced-form method) to evaluate policy impacts, this study, currently under review, relies on a structural approach where we construct a dynamic stochastic discrete choice model of vehicle ownership and estimate the underlying model parameters. Counterfactual simulations with different program designs show that the environmental elements of the program significantly limit program effectiveness for demand stimulus. This is the first analysis to my knowledge that quantitatively evaluates the trade-off between environmental and stimulus objectives.

1.3 Understanding Drivers of Vehicle Choice

The third strand of studies in the transportation area examines various factors in passenger vehicles demand. One of the factors is vehicle safety. In a paper published in *Journal of Applied Econometrics* (2012), I focused on the relationship between traffic safety and vehicle choice and offered the first empirical study that links vehicle safety and consumer demand for large vehicles such as SUVs and pickup trucks. My analysis finds that contrary to the conventional wisdom, a

vehicle fleet with more large vehicles such as SUVs could lead to more traffic fatalities. This is because although a large vehicle is generally safer for their passengers, it could be more dangerous to others in crashes. The safety gain to their own passengers does not offset the greater risk posed to other vehicles. My study also shows that consumers do take into account internal vehicle safety (protection for themselves) in vehicle purchase decisions and this partially explains the increasing market share of large vehicles from the late 1990's. These findings have very important implications for the design of government policies such as fuel economy standards that could alter the size distribution of the vehicles on the road.

In another study published in *Journal of Environmental Economics and Management* (2011), my coauthors and I offered the first study that correlates the increasing prevalence of obesity and increasing popularity of large vehicles. The study shows that in areas of high rate of obesity and overweight people, the vehicles on the road are on average larger and less fuel efficient. The finding suggests that the increasing prevalence of obesity might have contributed to the growing gasoline demand in the U.S. during the past three decades. This implies that policies that address the national challenge of obesity could have a double-dividend in reducing oil dependence.

1.4 U.S. Electricity Sector

In addition to the transportation sector, I have also studied several issues in the electricity sector, responsible for about 40% of energy consumption, 70% of sulfur dioxide emissions and over 30% of carbon emissions in the U.S. I have two published papers and two working papers in this area. In order to reduce electricity consumption, electric utilities have employed demand-side management (DSM) programs such as subsidies on energy efficiency improvement for nearly three decades and these programs have been thought by policy makers to be cost-effective measures. In a study published in the *Energy Journal* (2012), my coauthors and I examine the impacts and cost-effectiveness of DSM programs to reduce household electricity consumption while dealing with the endogeneity of DSM spending. My second study in this area develops a method to estimate household electricity demand using publicly available household expenditure data while taking into account nonlinear price schedules. It was published in *International Journal of Industrial Organization* (2014). In the third study (under review), my coauthors and I investigate the impacts of electricity market restructuring on fuel efficiency, utilization and new to this area, cost of coal purchases among coal-fired power plants. In addition we also examine the potential environmental impacts of restructuring due to the improvement in fuel efficiency and the reshuffling of capacity utilization. The fourth study in this area offers the first economic analysis to assess the role of renewable energy policies in landfill gas to energy projects. It is currently Revise & Resubmit at *Energy Economics*.

1.5 Recent Focus on Electric Vehicles and Public Transit

My current focus in the U.S. transportation sector includes: (1) the diffusion of alternative fuel vehicles such as electric vehicles; and (2) the public transit systems. Electric vehicles are considered a promising technology to reduce local air pollution, carbon emissions and oil consumption. The diffusion of the technology faces substantial barriers such as the lack of charging infrastructure. I am interested in understanding: (1) the impacts of government incentives; and (2) the importance of the charging infrastructure on electric vehicle demand (i.e., indirect network effects). The research on electric vehicles is funded by NSF (\$700,000) from 2012-2016 and is generating multiple papers. In one working paper, we find positive and

significant indirect network effects for electric vehicles: a 10% increase in the number of charging stations per million people in a city increases the market share of electric vehicles by 3.3%. We also find that the \$7500 tax credit that electric vehicle buyers are eligible for contributed to about 36% of the electric vehicle sales from 2011 to 2013.

Having focused on the private transportation sector, I have recently engaged in research projects to understand the provision of public transit service and the efficiency of the public transit systems. Improvement in the quality of public transit should generate multiple benefits: improving the quality of life of urban residents, and reducing private vehicle usage and the externalities associated with urban driving. My research projects focus on public buses, which are a major component of the public transit system and represent a multi-billion dollar investment. Contrary to the private passenger vehicle fleet, the fleet fuel economy of public buses has not improved over time and it does not respond to fuel prices. Motivated by this stylized fact, my coauthors and I carried out analyses on bus fleet turnover and capital investment of transit agencies. Our study highlights the role of energy prices, environmental regulations, and especially the “Buy America” mandate associated with federal funding in both demand and supply of public transit buses. This paper is under revision for the *Journal of Urban Economics*. An ongoing project extends this work and examines the efficiency of different transit systems by empirically testing if privatization helps reduce costs. This question, under contentious debates, has direct and important implications especially given the tight budget.

2. International Environmental and Energy Policies

2.1 EU ETS and Energy Prices

At the international level, I have examined the competitive impacts of the European Union’s Emissions Trading Schedule (EU ETS), the first international cap-and-trade program for CO₂ and the largest carbon pricing scheme in the world. Our analysis does not substantiate concerns over carbon leakage, job loss and industry competitiveness during the study period from 2005 to 2009. This study, published in *Energy Policy* (2013), is part of a large project supported by the World Bank “Growing Green: The Economic Benefits of Climate Action”. The findings from the project have been used to inform governments in the Europe and Central Asia on energy policies.

Although the principle that energy taxes should reflect adverse environmental impacts from energy use is well established, there has been little previous work providing guidance on how countries can put this principle into practice. In a coauthored book titled “Getting Energy Prices Right: from Principle to Practice”, my coauthors and I develop a set of practical tools to show how the major environmental damages from energy use can be quantified in different countries. Based on these tools, we estimate corrective taxes for multiple fuels in about 150 countries and the results suggest that there is pervasive mispricing of energy across developed and developing countries. This book was recently published by the International Monetary Fund.

2.2 China’s Environmental and Energy Challenges

My recent focus on international research looks at China’s environmental and energy challenges and policies options. China accounts for more than 40% of the coal consumption and 30% of the CO₂ emissions in the world. It has been the largest CO₂ emitter since 2006 and the largest

vehicle market since 2009. National policies in China make a global difference. Federal and local governments are implementing a host of policies to address environmental challenges but the efficacy of these policies is largely unknown. I believe that there is a lot to gain by studying these policies and I have initiated multiple projects on China's transportation policies.

I have recently finished a study (under review) on examining the vehicle license quota system in Beijing and Shanghai. The quota system caps the newly issued vehicle licenses and is being adopted by many large cities to curb the growth of vehicle ownership. Different mechanisms are used to allocate these licenses. For example, Beijing uses monthly lotteries while Shanghai uses auctions. In this study, I quantify the welfare consequences of different allocation mechanisms (auction and lottery). My analysis is based on a structural demand model with a novel identification strategy of combining micro-moments and the common unobservable assumption used in the impact evaluation literature. Although Beijing's lottery system has a large advantage in reducing automobile externalities over auction, the advantage is offset by the significant allocative cost from misallocation. The lottery system resulted in a loss of nearly 36 billion Yuan (\$6 billion) in social welfare in 2012. A uniform price auction would have generated 21 billion Yuan to the Beijing municipal government, more than covering all the subsidies to the local public transit system. This project embodies the two important features that I discussed above: utilizing structural estimation to conduct welfare analysis on an important policy question. It won the award for the Best Paper in Regulatory Economics during the 12th Annual International Industrial Organization Conference.

I am currently working on two other projects in the transportation area and one project in the electricity area in China. One of the transportation projects tries to understand the fuel economy technology and the rate of technology progress of China's auto makers and the other focuses on measuring the welfare impacts of China's newly established Corporate Average Fuel Consumption Standards. The electricity project aims to understand the impacts of market reform in the electricity sector started from 2002 on power plant efficiency based on a unique data set of all power plants in China from 1998 to 2010.

3. Other Applied Microeconomic Topics

I have worked on several other applied microeconomic topics. These projects are partly driven by my interests in broad microeconomic questions and partly driven by data availability. My coauthors and I offered the first structural analysis on the importance of peer effects in group lending programs by estimating a static game of incomplete information. Group lending is a popular micro-finance format that is considered a feasible and even profitable channel to extend the credit to the poor. We empirically quantify the importance of peer effects in fostering high repayment rates. It was published in *Journal of Applied Econometrics* (2013). I have also published a paper in *Health Economics* that investigates how patient-level factors, in particular cost considerations, affect the physicians' prescribing decisions in a context of U.S. commercial fee-antibiotics program. Another recent paper examines the drivers behind the continuous and significant price drop in China's automobile market and is forthcoming in *Journal of Economics and Management Strategy*. I have ongoing projects on the capitalization of subway expansion in property values in Beijing and on the impact of consumer boycott on vehicle demand in China.