

Spatial Structures in the Social Sciences 2013 Summer GIS Institute

Final Presentation Program

May 31, 2013 Population Studies and Training Center, Seminar Room

9:30 – 9:45 am	Welcome
9:45 – 11:30 am	Session I: GIS and Spatial Analysis in the Social Sciences
11:30 am – 12:30 pm	Session II: Ecology, Environment, and Disease
12:30 – 1:30 pm	Lunch
1:30 – 2:45 pm	Session III: Health and GIS
2:45 – 3:30 pm	Session IV: Marriage and Reproduction
3:30 – 4:30 pm	Session V: Historical Geography
4:30 – 4:45 pm	Certificate Presentation
4:45 pm	Close of Conference

PARTICIPANTS

Marcel Bertsch-Gout (Sociology)

Desislava Byanova (Economics)

Shubing Cai (Center for Gerontology & Health Care Research)

Roshani Dahal (Center for Gerontology & Health Care Research)

Julia Gaffield (John Carter Brown Library)

David Glancy (Economics)

Yara Jarallah (Sociology)

Colin Johnson (Political Science)

Pellumb Kelmendi (Political Science)

Rachel Lazerus (Center for Gerontology & Health Care Research)

Heather Leslie (CES/Ecology and Evolutionary Biology)

Rajesh Makineni (Center for Gerontology & Health Care Research)

Michelle Marcus (Economics)

Sara Matthiesen (American Studies)

Patrick Mayne (Sociology)

Angélica Meinhofer (Economics)

Daniel Platt (American Studies)

Ayalu Reda (Sociology)

Ida Sahlu (Epidemiology)

Micah Salkind (American Studies)

Daniela Scida (Economics)

Alba Serino (History of Art and Architecture)

Jessica Shoaff (Epidemiology)

Sanjay Raj Singh (Economics)

Nicholas Stacey (Economics)

PROGRAM

SESSION I:

GIS AND SPATIAL ANALYSIS IN THE SOCIAL SCIENCES

Sanjay Raj Singh, *Experienced Light Density: An Index for Population Density from Space*

Daniela Scida, *Disentangling the Effect of Geographical Distance on Stock Return Correlations*

David Glancy, *Border Discontinuities in Mortgage Lending*

Colin Johnson, *Mapping Movement: The Case of Tatarstan in Russia's Migration Streams*

Pellumb Kelmendi, *Subnational Variation in Electoral Support for Rebel Successor Parties*

Patrick Mayne, *Measuring Exposure to Public Housing Demolition in Chicago*

Micah Salkind, *Effects of Racial Segregation on Chicago's Cultural Economy and Post-Industrial Residential Development*

SESSION II:

ECOLOGY, ENVIRONMENT, AND DISEASE

Ayalu Alex Reda, *Spatial Variation in Perceptions of Risk of Malaria in Jimma, South West Ethiopia*

Nicholas Stacey, *South Africa's Experience with Malaria and DDT*

Ida Sahl, *Spatial Analysis of Schistosomiasis in Samar Province, the Philippines*

Heather Leslie, *Integrating Knowledge of Ecological Resilience into Marine Conservation: an Example from Mexico's Gulf of California*

LUNCH BREAK, 12:30–1:30

**SESSION III:
HEALTH AND GIS**

Marcel Bertsch-Gout, *An Evaluation of Rhode Island Community Mental Health Centers' Proximities to Vulnerable Tracts*

Roshani Dahal and Rajesh Makineni, *Visualizing Influenza Patterns in Nursing Homes in the U.S., 2000-2009*

Rachel Lazerus, Rajesh Makineni, Shubing Cai, *Plotting Veterans' Community Living Centers and Their Potential Markets*

Michelle Marcus, *Childhood Obesity: Whether Weather Affects Obesity through Exercise*

Jessica Shoaff, *Distance of Rhode Island Schools to Highways*

**SESSION IV:
MARRIAGE AND REPRODUCTION**

Yara Jarallah, *Marriage Patterns across Space*

Angélica Meinhofer, *She's at the Top of Her Game, but... Too Old to Be a Mom?*

Sara Matthiesen, *Fertile Ground: The Rise of Crisis Pregnancy Centers in the U.S.*

**SESSION V:
HISTORICAL GEOGRAPHY**

Daniel Platt, *The Social Origins of Mandela, Massachusetts, 1970–1986*

Desislava Byanova, *The Long-Run Development Path of Poland: Do Borders from the 1815-1918 Period Still Matter?*

Alba Serino, *The Monastery of San Martino al Cimino: Spatial Analysis of a Medieval Landscape*

Julia Gaffield, *Early-Modern Shipping in the Atlantic World*

PRESENTATION ABSTRACTS

Marcel Bertsch-Gout – An Evaluation of Rhode Island Community Mental Health Centers' Proximities to Vulnerable Tracts

The purpose of my project will be to analyze the placement of community mental health centers in Rhode Island. These centers are conglomerates of mental health facilities that provide a continuum of mental health care with the purpose of reintegrating consumers back into their community. They aim to be 'hospitals without walls.' Each center takes charge of a particular catchment area, within which they support those with mental ill-health. For my project, firstly, I intend to evaluate the wellbeing of residents within and around center catchment areas to show whether or not the placement of these centers is appreciably relevant to the wellbeing of nearby communities, as opposed to individual service users. Secondly, I intend to analyze catchment areas' demographic as well as wellbeing shifts within the past few decades. These centers are primarily geared towards the disadvantaged with mental ill-health, and this portion of the project will investigate whether or not gentrification or other social landscape alterations are making community mental health center resources less accessible. So far, my wellbeing and demographic data will be culled from US Census data.

Desislava Byanova – The Long-Run Development Path of Poland: Do Borders from the 1815-1918 Period Still Matter?

A large body of economics literature examines the long-run persistence of institutions and social structures and attempts to explain contemporary development by looking into the history of a particular country or region. In this project, I attempt to shed some light on the relationship between Poland's current level of development and the turbulent events that the country underwent during the 18th and 19th century. During the 17th and most of the 18th century, Poland was considered as one of the great European Powers. However, internal disorder led to three partitions of the country, with the last one in 1795 completely erasing Poland from the map. The entire territory of the former powerful empire was left under the auspices of Prussia, Russia, and Austria-Hungary for over 100 years – for the period 1795-1918 – until the Second Polish Republic was established at the end of World War I in 1918. An important fact is that the three empires that gained control over the Polish territories differed significantly in their institutional framework and social organization, the level and speed of industrialization, etc. Naturally, we should expect these differences to be translated into differential development paths for the different parts of Poland. Thus, according to the view that the effect of institutions persists over time, we should be able to observe differences in today's level of development across the different regions of contemporary Poland. In order to test whether this is indeed the case, I use the historical border that separated Prussia, Russia, and Austria-Hungary, and compare today's development outcomes across that border. More specifically, I focus my analysis on a tight band on each side of the border, assuming that other variables that influence contemporary development outcomes do not change discontinuously across that border. This strategy allows me to assess the long-run persistence effect.

Roshani Dahal and Rajesh Makineni – Visualizing Influenza Patterns in Nursing Homes in the U.S., 2000-2009

The morbidity, mortality, and health-care costs associated with seasonal influenza are substantial and the elderly incur more than 90% of the disease burden, with nursing home (NH) residents being especially vulnerable. Influenza vaccination in the United States is recommended for all individuals six months of age and older. Mor and colleagues at Brown University estimated the impact of influenza vaccination on hospitalization and mortality in the nursing home (NH) population, comparing vaccine to circulating strain match across nine influenza seasons. Medicare data was merged with NH assessments for all fee-for service, long stay NH residents located in the 122 CDC surveillance cities between 2000 and 2009 to create non-summer weekly facility aggregates of hospitalizations due to pneumonia and influenza (P&I), all-cause mortality among NH residents, and city-level P&I mortality, as reported by the CDC. The seasonal vaccine match rate was calculated for influenza A/H1N1, A/H3N2 and B strains and compared each outcome in seasons of high and low match rates using a facility fixed effects multivariate regression model.

In the S4 GIS institute, we have used the data provided by Mor and colleagues to compare patterns of influenza spread during a good and a bad vaccine match year using ArcGIS to create maps. Do influenza hospitalizations within nursing homes increase suddenly ('popcorn effect') on a weekly basis and does this same pattern hold for nursing homes across the states? Alternatively, do influenza hospitalizations start to appear in one nursing home and gradually spread to nearby nursing homes within cities? Here we only compare two influenza seasons; however, the goal is to create a dynamic map of influenza spread spanning years 2000 to 2009.

Julia Gaffield – Early-Modern Shipping in the Atlantic World

Ship captains of merchant and navy vessels kept detailed daily records of their voyages. This wealth of sources has generally been underused by historians because of the difficulty in understanding the meanings of coordinates without visualizations of the documents. My project seeks to plot the daily latitude and longitude entries of the ship captains in order to visualize that exact locations of the ships while in harbor and while at sea. This process involves translating the coordinate system from the early-modern period to contemporary methods as well as figuring out the exact coordinates of different cities (some of which underwent name changes). The broader goal of this project is to analyze the location and frequency of British Navy patrols around the island of Hispaniola after the Haitian Declaration of Independence (1 January 1804). This will help me understand how the British sought to physically contain the implications of the world's only successful slave revolution in France's former colony, Saint-Domingue/Haiti.

David Glancy – Border Discontinuities in Mortgage Lending

While the majority of the literature on the subprime crisis has focused on national or international level causes of the crisis, such as the moral hazard problems relating to securitization, derivatives, or credit ratings, I investigate the potential role of state policies in either aggravating or mitigating the crisis. Specifically, I measure the discontinuity in subprime lending behavior at state borders, using tract level Home Mortgage Disclosure Act data.

I then attempt to identify correlates of this discontinuity to shed light on what policies may have influenced lending. For one, differences in restrictions on interstate branching influence the

composition of the banking sector on either end of the border and can thus influence lending. Other policy differences may exist but not be easily quantified, thus I also test for if discontinuities can be explained by endogenous variables reflecting differences in state policies.

Yara Jarallah – Marriage Patterns across Space

This project aims to map marriage patterns across space in Lebanon using the nationally representative Lebanese and Family Health survey of 2004. This project is descriptive in nature and aims to map marriage patterns across the five administrative areas (Mohafazat) of Lebanon. Although data on religion is not available in this survey, I will be using the administrative areas as proxies since each administrative area is predominantly home to one religious sect. I hypothesize that marriage patterns would differ 1) across and 2) within religious sects. I will thus first map marriage patterns: percent of women single, married, and in cousin marriage across the five administrative areas and second examine how these patterns differ by socioeconomic status using education as proxy.

Colin Johnson – Mapping Movement: The Case of Tatarstan in Russia's Migration Streams

This presentation seeks to present a spatial representation of a variety of migration patterns in the Russian Federation, including intraregional, interregional, and international. Russia's economic resurgence in the 21st century has generated the wealth and economic activity to support the world's second largest immigrant population, an ever-necessary process in light of Russia's troubling population decline. This explosion of international labor migration has occurred within the last fifteen years, and the characteristics of the migration flows have been changing rapidly with regards to the destination, employment profile, and the demographic profile of the migrants themselves.

To illustrate the migration flows, I will be using data from the Federal Migration Service, the Russian Statistical Agency, and the Tatarstan Statistical Agency. These data will allow me to show the international migration flows over the last ten years in all of Russia's 83 subnational regions. I will also focus my analysis on Tatarstan, a region that has emerged as a "new destination site" for international migrants beyond the usual destinations of Moscow and St. Petersburg. Using locally-produced data for 2012, I will be able to present the intra/inter-regional migration flows and international migration flows among Tatarstan's districts. This analysis will allow me to explore the population changes in response to the high economic diversification and growth that Tatarstan has enjoyed for the last decade. The results of this presentation will be implemented into my dissertation, which studies the political responses to international migration in Tatarstan and neighboring regions.

Pellumb Kelmendi – Subnational Variation in Electoral Support for Rebel Successor Parties

My project will explore spatial patterns in the post-conflict electoral performance of a former rebel organization in Kosovo. My dissertation research analyzes the conditions under which former rebel organizations reinvent themselves as political parties in post-conflict democracies and why some former rebel organizations successfully transform into a single successor party whereas others do not. As part of this larger question, however, I am also interested in understanding the determinants of subnational variation in electoral support for rebel successor

parties. Understanding the political transition of former rebel organizations and their post-conflict electoral performance has serious implications for broader theoretical questions related to conflict resolution and post-conflict peace duration, political legacies of civil wars, development of party organizations and institutionalization of party systems, and party politics and electoral violence in general.

Why does the political appeal of former rebels vary across municipalities and regions of the same country? One of my hypotheses is that divergent patterns of wartime rebel recruitment and deployment affect the success or failure of former rebels to mobilize local electoral support in different regions of the same country after the war is over. Being at an early stage of my research, I do not have a whole lot of data to explore this question. For the purpose of the institute project, I have created a small database that includes Kosovo municipal-level data on vote share for the rebel successor party, the number of rebel recruits during the war, wartime civilian casualties, municipal population, and general socioeconomic indicators for each municipality. The idea is to represent and compare some of this data through maps so as to get a general sense of potential spatial patterns involved, correlations among key variables of interest etc.

Rachel Lazerus, Rajesh Makineni, Shubing Cai – Plotting Veterans' Community Living Centers and Their Potential Markets

Community Living Centers (CLCs) are nursing homes that are intended as places for long-term care for veterans, where veterans can maintain their independence while receiving treatment. CLCs offer 24-hour nursing care, and restorative care, as well as maintaining close ties to VA Medical Centers. Currently, eligibility for CLCs is based on clinical need and setting availability. In order to expand the numbers of available CLCs, we are examining potential markets for long-term community living centers. Using coordinate data from the VA, we will plot all of the current CLCs, as well as other nursing homes that house veterans, nursing homes that contract with the VA, the VA Medical Centers, and the State Veteran Homes. We will merge this data with existing state- and county-level data in order to understand the distribution of nursing homes and CLCs. We will then use spatial data to optimize zones that the current CLCs will be able to utilize in order to expand their markets. Our work will be used as the foundation for future projects with the VA Medical Center examining the distribution of CLCs and the availability relative to the needs of the current and future veteran population.

Heather Leslie – Integrating Knowledge of Ecological Resilience into Marine Conservation: an Example from Mexico's Gulf of California

Humans receive many benefits from healthy oceans, including abundant food, clean water, and protection from coastal storms. Yet the impacts of human activities on coastal and ocean ecosystems are greater than ever before, and many impacts negatively influence the continued production of these benefits. In Mexico's Gulf of California region, I am working with an international team of scientists and conservation practitioners to better understand these connections between oceans and the people who benefit from and impact these ecosystems. I am particularly interested in the linkages between people and marine ecosystems that are mediated by small-scale fisheries. For my GIS project, I will explore how existing natural and social science information can help inform the implementation of marine conservation strategies in the region. Practitioners already have identified >50 priority sites for conservation throughout the region, but they have not decided where they will work first or what strategies to employ. Today

I will illustrate how mapping of data indicative of ecological resilience to climate variability and other types of social and ecological shocks can help inform the location and choice of conservation strategies in this and other regions.

Michelle Marcus – Childhood Obesity: Whether Weather Affects Obesity through Exercise

In addition to widespread growth in adult obesity rates, the prevalence of obesity among children has almost tripled since 1890, and the prevalence of US children classified as overweight is currently considered to be an epidemic. Despite the severity of the obesity epidemic, research in this area has been somewhat neglected due to issues of endogeneity and the difficulty of identification. In fact, childhood obesity is positively correlated with such things as low socio-economic status, sedentary behaviors, fast food consumption, certain ethnic groups, lack of nutritional information, and poor diet quality. However, the direction and magnitude of the causality are difficult to identify due to endogeneity among these factors. I propose to circumvent the endogeneity of physical activity and childhood obesity by using plausibly exogenous variation in weather across time and location to determine the effect of weather conditions on childhood obesity, through its effect on physical activity. Childhood obesity measures come from the California Physical Fitness Test, which provides data on students in grades 5, 7, and 9, yearly from 1999 to 2012. Weather data comes from the National Climatic Data Center's (NCDC) Global Historical Climatology Network - Daily (GHCN-Daily). Identification will come from variation in weather conditions that cannot be anticipated. My methodology will use geographic location and year fixed effects to control for “typical” weather conditions.

Sara Matthiesen – Fertile Ground: The Rise of Crisis Pregnancy Centers in the U.S.

In this presentation I will explore the growth and influence of what is often called the social service arm of the pro-life movement, the pregnancy help movement. Using directories of crisis pregnancy centers published by Alternatives to Abortion International (now Heartbeat International), I plan to map the growth of centers over the course of the last four decades. Doing so will allow me to identify how growth may have varied by location, and start to explore possible explanations for such variation. I also hope to match center locations with demographic data specific to those areas in order to investigate claims that crisis pregnancy centers target vulnerable populations by operating primarily in low-income areas. By illustrating the relationship between crisis pregnancy centers and the characteristics of the areas they operate in, I hope to further explore the role these centers play in connecting poor pregnant women to social welfare services such as Women, Infants, and Children (WIC). While crisis pregnancy centers are often dismissed as yet another “anti-choice” tactic by abortion and reproductive rights advocates, I am interested in the ways crisis pregnancy centers have provided support to poor pregnant women during a period when state services to this population were being cut.

Patrick Mayne – Measuring Exposure to Public Housing Demolition in Chicago

While public housing project demolition is frequently justified as improving neighborhood quality and thus quality-of-life of neighborhood residents, there have been few studies which have looked at specific individual outcomes for people living near former public housing project sites in the wake of demolition. The Chicago Housing Authority (CHA) demolished nearly 40% of its public housing stock between 1992 and 2004, leading to large changes in the landscape of the city and potentially the lives of its residents. This presentation investigates ways of

measuring exposure to such demolitions using data provided by the CHA on the date, location, and size of such demolitions. Adjacency- and distance-based methods for computing census tract-level exposure indices will be presented and compared.

Angélica Meinhofer – She’s at the Top of Her Game, but...Too Old to Be a Mom?

This study uses Vital Statistics Birth Data and Quarterly Census of Employment and Wages Data to estimate the impact of improving female labor market opportunities on birth outcomes. It also evaluates the importance of advanced maternal age as a mechanism through which the effect of such opportunities may operate. Results from within maternal cohort comparisons suggest that increases in potential wage growth at the time of labor force entry are associated with delayed childbearing and increases in the multiple births rate. However, the positive effects from improving female labor market opportunities outweigh the negative influences of these risk factors on newborn health.

Daniel Platt – The Social Origins of Mandela, Massachusetts, 1970–1986

In the summer of the 1986, a citizens’ movement led by journalist Andrew Jones and urban planner Curtis Davis successfully petitioned the Massachusetts state legislature to include a referendum on that November’s ballot calling for the incorporation of several Boston neighborhoods into a separate and independent city. Activists with the Greater Roxbury Incorporation Project (GRIP) spent the next several months inviting residents of Roxbury, Mattapan, and parts of Dorchester, Jamaica Plain, Columbia Point, and the South End to consider the democratic possibilities of de-annexation. Municipal government, they argued, would allow Boston’s lower-income communities to improve public services, discourage predatory lending practices, and control economic development, breaking the postwar pattern of downtown growth at neighborhood expense. Appealing not only to a solidarity based on past victimization but also to higher ideals of unity and justice, Jones and Davis gave their proposed city a name with deep cultural resonance, asking Bostonians to cast a vote for Mandela, Massachusetts. This presentation narrates GRIP’s campaign and uses census data to consider how changing patterns of urban inequality contributed to the politics of separatism.

Ayalu Alex Reda – Spatial Variation in Perceptions of Risk of Malaria in Jimma, South West Ethiopia

According to the World Health Organization’s report on malaria, despite significant progress in the past decade in controlling the disease, there were an estimated 219 million cases of- and 660 thousand deaths from malaria worldwide in 2010. The majority of these cases occurred in the African region with an estimated 174 million cases and 596 thousand deaths . As in the rest of sub-Saharan Africa, in Ethiopia, laboratory confirmed cases of malaria have declined by 70% in the past decade through concerted prevention and control efforts prioritizing mass distribution of insecticide treated bed-nets; vector control; rapid diagnosis and treatment of cases; and health information, education, and communication (IEC) interventions. Given the geographic variation of malaria, and despite a wide literature examining knowledge, attitude, and practices toward malaria in the country, there are only a few studies that investigate the spatial and contextual components of health behaviors related to malaria in the country. In this study, I aim to examine the spatial variation in malaria risk perception and prevention behavior among households in Jimma, South West Ethiopia. I will use individual and spatial data from the Jimma Longitudinal Family Survey of Youth (JLFSY).

Ida Sahlu – Spatial Analysis of Schistosomiasis in Samar Province, the Philippines

Schistosomiasis, a chronic parasitic infection caused by trematode worms, is among the 17 neglected tropical diseases as defined by the World Health Organization. Schistosomiasis remains a public health concern, as it is endemic in 76 countries and territories. The three main parasites, *Schistosoma haematobium*, *S. japonicum*, and *S. mansoni*, account for 90% of the estimated 207 million schistosomiasis infections worldwide. Infection is acquired through contact with water contaminated by schistosomes, larval forms (cercariae) of the parasite. In the Philippines, a total of 12 million people are currently at risk of infection, with 2.5 million directly exposed to *S. japonicum* through water contact activities. Data from a cross-sectional study conducted in 50 irrigated and rain-fed villages in Samar Province, the Philippines were used to evaluate the association between the presence of snail colonies, village characteristics and risk of human infection.

Micah Salkind – Effects of Racial Segregation on Chicago’s Cultural Economy and Post-Industrial Residential Development

This mapping project shows how structural segregation of African Americans shaped the development of Chicago’s cultural economy well into the late 20th century. Mapping sites of vice in 1910 – 1940s Chicago, such as queer cabarets and brothels on the Near West Side and Near South Sides, and comparing their locations to those of mid-century Blues and Soul distributors and Black music clubs, and the record stores, discotechs, juice bars and house music parties of the 1970s and 80s, can help show how early 20th century segregation continued to shape the geography of the city’s cultural economy well into the post-industrial era. To add a layer to the story being told, these maps integrate data showing where new residential development has taken place on the Near South and West Sides during the 1980s.

By representing the spatial overlap of new residential developments and the historic clustering of sites relevant African American culture workers, I am able to better think through the spatial dimensions of segregated Black cultural production’s connection to middle-class urban gentrification and what I’m calling “cultural displacement” experienced by Blacks on the Near West and Near South Sides.

Visualizing spatial continuity in Chicago’s Black cultural economy across the 20th century in tandem with changing development in the post-industrial era can augment archival and ethnographic evidence used by historians to index gentrification. It can also open new space for analyzing continuity and change experienced by Black communities who developed the city’s cultural economy.

Daniela Scida – Disentangling the Effect of Geographical Distance on Stock Return Correlations

Previous literature has found that, in the US, the correlation of stock returns declines with distance between firms. This literature identifies three main theories that might explain why stock returns are correlated with distance: local economy shocks, industry clustering and local investor bias. However, recent efforts have been mostly oriented to isolate this last effect. In this paper, I revisit this literature for the US, with the aim of disentangling these three effects instead of only focusing on one of them. This is accomplished by exploiting a sample that contains all the stocks actively traded in the US, taking into account whether firms are small or large, which industry they belong to, and the headquarters geographic location. In order to achieve this objective I will conduct spatial analysis based on a simple OLS regression. My hypothesis is that large firms are unlikely to be affected by local economy shocks. Hence, by comparing the effect of distance on stock return correlations for small and big firms, within a same geographical area, I could capture the local economy shock effect. In addition, by focusing on big firms and controlling by industry I could capture the local investor effect. Finally, from the two previous exercises, I could isolate the industry clustering effect from the overall effect.

Alba Serino – The Monastery of San Martino al Cimino: Spatial Analysis of a Medieval Landscape

The Cistercian Order was responsible of a great process of transformation of the medieval European landscape, which took place between the 12th and 13th centuries. Through the example of the monastery of San Martino al Cimino (Viterbo), in the northern part of the Lazio region in Italy, I would like to analyze this process of transformation, by identifying the ways in which the monastic foundation influenced the landscape where it had settled. To do this, I will reconstruct the development of San Martino's estates from the 11th to the beginning of the 14th century in relation to the road network and the use of land. The spatial analysis through ArcGIS will help me to identify the patterns of development of these estates. In order to reconstruct the domains of the Cistercian foundation, I will combine together documentary sources (mostly land transaction documents) and archaeological data (ruins found within the monastery's ancient domain) with the use of the software.

In my presentation I would like to highlight both the difficulties and advantages of applying spatial analysis in GIS software to historical studies. On one hand it is in fact very difficult to collect a sufficient set of data to work on, but on the other hand the software results of great help to manage and view together information of different kinds.

Jessica Shoaff – Distance of Rhode Island Schools to Highways

Air pollution has been associated with a myriad of negative health effects in children. In the United States auto traffic is one of the leading contributors to air pollution. Air quality analysis has shown predictable pollution gradients near major highways with higher levels of air pollution closer to highways. Increased exposure to air pollution--by household proximity to highways or time spent near highways-- has been associated with an increase in adverse events. Children spend a significant portion of their time at school and as such the proximity of schools to highways should be better understood. I will be mapping the location of schools in Rhode Island and determining their proximity to major highways.

Sanjay Raj Singh – Experienced Light Density: An Index for Population Density from Space

Population Density is measured as Population/Area. However this may not be useful in understanding many socio-economic concepts. We seek to construct a more representative index of population density. Using DMSP-OLS's global mapping of artificial lighting present at the earth's surface - in other words, Night-time Lights data - we calculate a measure, that we call, Experienced Light Density: Throw a dart on a map. Take a compass and draw a circle of a given radius centered on that 'point'. Count the number of light 'points' in that circle and divide it by the area of the circle, we have the light density of the circle. Now do it for every such 'point' within a country. Take a weighted average of all these 'points', weighting by the intensity of light at the 'point'. This is the Experienced Light Density.

Nicholas Stacey – South Africa's Experience with Malaria and DDT

Malaria is a disease that significantly impacts the wellbeing of many in developing countries. There are various interventions that reduce the impact of the disease. One of these is indoor residual spraying (IRS) with insecticides. One insecticide, which is particularly effective, is dichlorodiphenyltrichloroethane (DDT). DDT is hailed by many as vital to the fight against Malaria, but as a dangerous pollutant to others. As such it has not been uniformly adopted in malaria burdened African countries. South Africa in 1996 discontinued the use of DDT and subsequently malaria deaths rose significantly, only to fall again in 2000 when use of DDT was re-started. This project estimates the impact of this unintended policy experiment on a variety of economic outcomes.