Texas has the highest rate of uninsurance in the United States. And among the uninsured, Hispanics make up the vast majority. There is a growing literature documenting this disparity by insurance status and its effects on health outcomes. However, an important, yet less considered, outcome is that those with insurance face greater access barriers in areas with higher uninsurance rates than in those with insurance low uninsurance rates. There are two main reasons: health care professionals may avoid areas with high uninsurance and capital investment may lag in those areas. This is especially true in areas which have high numbers of immigrants because in addition to having lower uninsurance rates and hence less ability to pay, fewer providers are willing or able to work in those communities.

The Patient Protection and Affordable Care Act (PPACA) offers a natural experiment to test the positive spillovers of growing insurance rates on Hispanics with Medicaid. Although Texas has thus far rejected Medicaid expansion, many Texans have signed up for private insurance through exchanges, and others under 26 have obtained insurance through their parent's policies. Other provisions, such as guaranteed issue, community rating and provisions preventing the exclusion of pre-existing conditions may have attracted older and less healthy persons who were previously uninsured into insurance markets. Although their high use of services may cause access issues initially, their use of services may attract providers and health care capital investment into their areas, which may improve access for those on Medicaid in the long run.

We are focusing on the immigrant issues most closely, but they tend to live in counties and zip codes with high uninsurance. We will therefore focus on Hispanics in counties which are 40% Hispanic or more and Hispanics urban zipcodes which are 50% Hispanic or more.

Our specific aims are as follows:

1) To examine whether primary and preventive care utilization improves among those maintaining Medicaid (pre- and post PPACA exchanges) when insurance rates improve in an area. Our hypothesis is that those maintaining Medicare will see utilization improve.

2) To examine whether utilization of tertiary, capital-intensive health care improves among those maintaining Medicaid when insurance rates improve in an area. Our hypothesis is that those maintaining Medicare will see *local area* tertiary care utilization improve.

3) To examine whether out-of-pocket expenses per unit of service are lower for those maintaining Medicaid recipients when insurance rates improve in an area, controlling

for Medicaid managed care changes. Our hypothesis is that those maintaining Medicare will see utilization improve.

The data are from the Texas Medicaid claims file from August 2007 to August 2012. These data have all of the claims for Medicaid enrollees.

Background and Significance

The effect of insurance on health and health care utilization is a key focus of health economics and health services research. There is a great emphasis of individual health insurance status on outcomes. However, the effects of insurance may depend on the context of the community-level insurance rate. Pagan and Pauly used the Community Tracking Survey and found that *insured* people who live in areas with high uninsurance are more likely to have unmet medical needs.

Pauly and Pagan list several mechanisms where community effects, or spillovers, of insurance can occur. There may not be spillovers if the health care market is perfectly segmented. That is, if different people, such as those on Medicaid, receive completely different type of care from different providers than those on private insurance, then the uninsured segment of the market does not affect the care received. This may occur in certain markets in the US. However, in the border areas of Texas and in Hispanic communities, Medicaid recipients are often to be in the best position to pay for care because of high uninsurance. Private insurance is less common. Therefore, the markets we are studying are not likely to be segregated. Assuming there are shared providers and facilities (markets are not segmented), the uninsured may affect care because providers may charge higher prices to make up for uncompensated care for the uninsured. This will be tested in aim 3. If prices are driven up, price-sensitive Medicaid recipients, who face modest co-pays and deductibles and low income, may not seek care, either because they cannot afford it despite having insurance, or they do not believe the care is worth the cost they have to pay out-of-pocket. Finally, in communities with uninsurance, providers may not invest in health infrastructure and capital. Then those who receive healthcare may not receive needed tertiary care. We examine this in our second aim.

By exclusively emphasizing the effects of individually-held insurance on outcomes, the literatures in health economics and health services research may be subtly undermining support for universal health care. Persons with insurance may not support efforts to expand

insurance because they are not aware of the benefits of others having insurance on their own health outcomes. For instance, Medicare recipients are among the most ardent opponents of PPACA despite supporting Medicare. However, the illumination of spillover benefits might be persuasive. By analogy, many persons who typically do not support a large role for government support the expansion of public funding for school vouchers. This is partly due to a general support for private institutions. However, it is also due to the recognition that children attending a private school will receive better educations if they live in a community where a large percentage of children have the means to attend private schools. Many of the schools expenses are shared resources, such as gyms, libraries, and teachers and administrators themselves. Sports teams and special needs educational programs need critical mass to exist, so greater access to private schools not only helps students receiving vouchers, but those earning enough to receive them on their own without vouchers. Analogously, health care resources are shared by the community, but support for expansion of insurance is lower than is support for vouchers.

The issue of the community effects of insurance is especially interesting in Texas. Many communities are home to a large numbers of immigrants, especially Hispanics. Hispanics are far and away the least likely to have insurance in our country to have insurance. Generally, the longer Hispanics are in the United States, the more likely they are to have insurance. However, the majority of Hispanics have insurance of some type, and they are more likely live in areas with other immigrants from Mexico. Thus far, Texas has not sought the expansion funds for Medicaid. However, private insurance through the Federal exchanges started happening in 2013, and there could be spillovers to those on Medicaid. For this proposal, we are examining the pre-exchange period. However, the long-term plan is to examine whether access and health improve for those maintaining insurance.

In the period after expansion, crowding could occur, temporarily lowering access. First, in order to save money, persons without insurance would likely wait until they acquire insurance to seek care. Second, in the short-run, medical professionals would not immediately relocated to or locate in areas with increasing levels of insurance. New facilities and capital equipment would be purchased, but only over time.

Methods

We will focus on areas in Texas which have high numbers of Hispanics. This will likely mean border areas and urban areas. We will focus on Hispanics who were 50 or older in August of 2007 living in counties where at least 40% of the county is Hispanic or in zipcodes

where at least 50% of the zipcode is Hispanic based on 2007 Census population estimates. We will include all claims from August 2007 to August 2012, and then later as the data become available. The data will be arranged into a yearly panel or cohort at the individual level.

Our model will be a fixed effects model, with fixed effects for the county and the individual. Our model is as follows:

$$Y_{it} = X_{it} B + A_{it} C + A_i + u_{it} \text{ for } t=1,..,T \text{ and } i=1,...,N$$

Subscript t refers to the year and the subscript i to the individual. Variables X_{it} refer to independent variables related to the individual. A_{it} variables are county-level community variables. The term A_i is the fixed effect for the individual, and u_{it} is the random error term. With fixed effects, variables that are time invariant, such as race or ethnicity, cannot be included in the model. We are therefore segmenting by race and ethnicity by focusing on Hispanics. We will include a dummy variable for managed care.

Note that due to the lack of frequency of available data at the county level, we will collapse monthly data to yearly. For instance, The A_{it} variables are county-level community variables, including the unemployment rate, the percentage in poverty, and the percent unemployed. These data come from the Area Resources File by county. In the latter phase of the project, we will adjust the initial uninsurance rate with county-level enrollment numbers from the exchanges. These data are available monthly from the Department of Health and Human Services. We also hope to be able to adjust for changes in the uninsurance rate prior to the start of the exchanges.

Several dependent variables, Y_{it}, will be assessed. Using claims data, we will create variables for counts of primary care visits (Aim 1). We will also create counts of preventive treatments (Aim 2). This means that our dependent variables are count data, and will need to be estimated with a suitable model such as a Poisson or Negative Binomial. In the initial phase, these will be yearly counts. Our hypothesis is that primary and preventive usage for the insured will increase as county-level uninsurance declines.

We will also examine tertiary care. Our data allow us to examine not only whether tertiary care was received, but also the location of the care. If uninsurance rates are low in a community, or if uninsurance is reduced via the PPACA exchanges, then we would expect greater access to tertiary care *in the local market* relative to medical need.

Finally, we will examine the out-of-pocket expense for Medicaid recipients. Our hypothesis is that greater access to insurance reduces strain on the community health market and hence leads to lower prices. This in turn leads to lower co-pays and out-of-pocket costs for Medicaid

recipients per unit of service. We examine out-of-pocket cost per unit of service because if prices are high due to low uninsurance, utilization may decline.

For aim 3, the out-of-pocket expenses per unit of service is the dependent variable, Y_{it}. This is a continuous variable which means we can use a least-squares fixed effects model.