Applied Projects

Executive Summaries by the Master's Class of 2023

Economic Impact of Build Back Better Plan on Osceola County
Cost Benefit Analysis of a Clean Slate Act in Florida
Medicaid Housing Assistance Waiver: Pilot Program Analysis
Economic Analysis of Utility-Scale Solar
Hamilton County Economic Development Analysis
Property Tax Impacts of Florida’s Universal School Voucher Bill
Osceola County is the 10th fastest-growing county in America. Located in Central Florida, the county relies heavily on the tourism industry to aid economic growth. However, the county has recently prioritized economic diversity following the Covid-19 Pandemic. An essential contributor to this diversity is NeoCity Technology Park, an innovative microchip manufacturer located in Osceola County. The tech park specializes in advanced packaging, a unique type of component integration that makes NeoCity one of the first semiconductor clusters of its kind in the United States. To accelerate the growth of NeoCity, Osceola County applied for funding from the Economic Development Administration and received $50.8 Million for its Build Back Better Plan (BBBP).

This analysis uses an Input-Output model to observe the economic effects generated by the $50.8 Million BBBP grant. The inputs for this analysis are the allocations of the grant according to the Osceola County proposal, categorized into the industries of infrastructure, education, and administration. This analysis is performed through the software IMPLAN to calculate changes in economic activity through direct, indirect, and induced effects. In IMPLAN, the model specification for predicting the economic impact of the grant funds is an industry contribution analysis. These changes to economic activity include increases in employment, value-added, and taxes. The allocations of the inputs are shown below.
The $50.8 million dollars is predicted to create a total of 211 jobs, 124 jobs directly from the grant and 87 indirect and induced jobs. The top 3 industries that are predicted to have the highest job growth are semiconductors, education, and public relations. The model predicts there will be an impact of $28 million dollars in value added. Of the $28 million in value added, $21.7 million is directly from the grant while $6.3 million is from indirect and induced value added. The top 3 industries that are predicted to have the highest value-added are shown below.

The model predicts that $5.3 million in taxes will be generated by the grant funds. Of the $5.3 million in taxes, $3.9 million will be directly from the spending of the grant funds while $1.4 million is from indirect and induced spending. In regards to the types of taxes collected, 75% of the taxes will be collected at the federal level and 11% will come at the state level.
Cost Benefit Analysis of a Clean Slate Act in Florida

Executive Summary

This project is intended to estimate a cost-benefit analysis of enacting a Clean Slate law in Florida over a five year period. According to the Clean Slate Initiative, in order for a law to be considered a Clean Slate law, it must include: the automatic clearance of non-violent arrest records, misdemeanor records, and a strong recommendation for felony records.

| Our Approach |
For our analysis, we analyzed two scenarios for a Clean Slate law in Florida. Scenario A includes only misdemeanor convictions, while Scenario B also includes some low-level felony convictions. We examine what would happen if those non-violent convictions were automatically cleared. For each scenario, we estimate the net benefits of enacting a Clean Slate law in Florida over the next five years.

| Costs |
To find the estimated cost of Clean Slate laws in Florida over the next five years, we found the per-capita fixed and the net present value (NPV) of per-capita recurring costs provided by the fiscal analyses from states that have already passed a Clean Slate law and multiplied that by Florida's population. To determine what the total cost of the program, we combined the fixed costs, recurring costs, and foregone fees for five years under Scenarios A and B.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Fixed Costs</th>
<th>Recurring Costs</th>
<th>Foregone Fees</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$ 4.7 M</td>
<td>$ 12.7 M</td>
<td>$ 34.6 M</td>
<td>$ 52.0 M</td>
</tr>
<tr>
<td>B</td>
<td>$ 4.7 M</td>
<td>$ 12.7 M</td>
<td>$ 40.1 M</td>
<td>$ 57.5 M</td>
</tr>
</tbody>
</table>

Dankner | Greer | Thompson
| Benefits |

A major component of the benefits of passing a Clean Slate law in Florida comes in the form of expanded employment eligibility. Record clearing can open up employment opportunities that were previously unattainable due to a criminal record. In order to quantify the benefit of enacting a Clean Slate law, we estimated the NPV of the sales tax revenue generated from newly employed individuals over the next five years.

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Newly Employed</th>
<th>Taxable Spending</th>
<th>State Average Sales Tax Rate</th>
<th>Total Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>24 K / Year</td>
<td>$15,900 / Year</td>
<td>6.0%</td>
<td>$108.2 M</td>
</tr>
<tr>
<td>B</td>
<td>35 K / Year</td>
<td>$15,900 / Year</td>
<td>6.0%</td>
<td>$152.8 M</td>
</tr>
</tbody>
</table>

To calculate NPV, we used the educational attainment levels of eligible individuals to estimate an average annual salary for each scenario. Using the average salary, we estimated the average annual spending on taxable goods and multiplied that by the state sales tax associated with it for each scenario for the next five years.

| Findings |

Our findings indicated that the benefits of Clean Slate laws significantly exceed the costs. After implementation, it is not costly to maintain due to the automatic nature of the program. The bulk of the benefits stem from new employment opportunities to individuals after record clearing.

Some counties in Florida will experience a larger impact due to higher crime rates, as can be seen by the map above. In aggregate, our analysis found that between 188K to 221K people in Florida could get their record cleared annually.
Medicaid Housing Assistance Waiver

Kilpatrick | Medeiros | Politano

Pilot Program Analysis

The Medicaid housing pilot program, effective since December 2019, aims to provide housing assistance to unhoused or at-risk of being unhoused Medicaid recipients. It offers transitional housing, support services, and counseling to improve health outcomes. Eligibility requirements include being 21 years old or older and having a severe mental illness, substance use disorder, or both. The program operates in Florida Regions 5 and 7, which account for 20% of Florida’s unhoused population.

Our Approach

We conducted a cost-benefit analysis to analyze the impact and effectiveness of the program. This cost-benefit analysis considered costs for emergency departments, hospitalizations, and criminal justice systems. The analysis was broken down into a Medicaid benefit scenario and an overall societal benefit scenario.

The Medicaid benefit was calculated by using difference in differences to find the change in ER visits and hospitalization stay over the span of 3 years. 78% of the cost of a visit to an emergency room, is the total cost paid by Medicaid, and the estimate we use within our analysis. The average cost of hospitalization incurred by Medicaid was found using the same method, but factoring in the average cost per day for inpatient care. The overall societal benefit was also conducted in the same manner, in addition to including cost of incarceration.

All results were determined as part of a student-lead project and without verification by the Agency for Health Care Administration.
Findings

In the cost-benefit analysis conducted, we find that the Medicaid Housing Assistance Waiver Pilot Program, Medicaid has received a total benefit of $12.6 million. This benefit consists of the emergency room benefit and inpatient care benefit. We quantify the reduction in emergency room visits and days in inpatient care for treated individuals relative to untreated individuals. Using the reduction of visits, multiplying by the average cost of a visit to the the respective medical facility, and the number of participants is how we calculate the total benefit of each medical facility.

The total benefit from emergency room savings is approximately $6.7 million since the program has gone into effect. The total inpatient care benefit since the program has gone into effect is approximately $5.8 million.

The per person per month cost is $194.29. Since program effectiveness, there has been an estimated $11.5 million spent on 1533 individuals. The total net benefit is approximately $1.1 million. The net benefit does not include the intangible benefit (happiness, standard of living, etc.) these individuals experience post treatment. We explore community benefit and societal benefit in more detail in our report.

Benefit Snapshot

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Costs</th>
<th>Net Benefit*</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12.6 million</td>
<td>$11.5 million</td>
<td>$1.1 million</td>
</tr>
</tbody>
</table>

All results were determined as part of a student-lead project and without verification by the Agency for Health Care Administration. *Net benefit is based solely off of inpatient and ER calculations.
Economic Analysis of Utility-Scale Solar
Logan Fenimore | Grayson Leal | Ryan San Filippo | Lars Shmidheiser

**Background**
Florida is now the third-largest producer of solar energy in the country. Solar generation in the state has increased from 9,000-megawatt hours to over 1M megawatt hours in the past seven years. Additionally, the cost of installing solar panels has decreased dramatically over this same period. However, as Florida continues to see substantial solar growth with no signs of slowing down, there has been pushback against the expansion of utility-scale solar. The pushback revolves around not-in-my-backyard policy pushes from county citizens, concerns related to the loss of farmland, and a decrease in surrounding property values. We center on this dynamic issue and analyze the fiscal impacts associated with the construction and operation of a utility-scale solar facility in Florida.

**Methodology**
We examine the local economic impact associated with utility-scale solar from the county-level perspective. This study utilizes an IMPLAN input-output model to estimate the conversion from a citrus farm to a solar farm in Hendry County, Florida. Factors considered are jobs, labor income, GDP, and county taxes. We also examine historical parcel and tax collector data to calculate the 10-year realized gain in property tax revenue to the county after an agriculture parcel is transitioned to a solar farm. The assessed value used in the property tax calculation is determined by applying the 80% Florida legislative abatement to the expected cost of construction of the project. We also include an expected 3% yearly depreciation of capital and a 1% yearly depreciation of farmland in our estimate.

**Results**
The input-output model suggests that converting a citrus farm to a solar farm would yield considerable economic benefits to Hendry County. Over a ten-year period, the transition of a citrus farm to a solar facility will support 174 net jobs and $6.7M in net labor income. The project will produce a net $20.8M in gross domestic product and $1.2M in cumulative county tax revenue during this period.
Over the ten-year period in which a citrus farm is converted to a fully operational utility-scale solar center, Hendry County sees a $873,160 realized net gain in property tax revenue. This gain is strictly generated by the parcel in question. In the graphic below, there is a significant jump in property tax revenue generated by the solar facility in year 1 due to the land use code change from agriculture to utility and the accumulation of capital on the parcel due to the construction phase. After the large jump in property tax revenue from year 0 to year 1 from the solar facility, there is a steady decline in perpetuity due to the depreciation of solar panels over time.

Solar Facility PTR ($1.05 Million) - Citrus Farm PTR ($176,840) = Hendry County PTR Net Increase ($873,160)
HAMITON COUNTY ECONOMIC DEVELOPMENT ANALYSIS: EXECUTIVE SUMMARY

Introduction
Hamilton County is a rural county bordering the Florida-Georgia state line. Over 25 percent of all private sector jobs, and 29 percent of property tax revenue, come from mining – specifically, phosphate mining. Phosphate mining has been a principal revenue generator for the county since the 1960s, but deposits are projected to be depleted in approximately six years. Our team is tasked with estimating the tax loss associated with the inevitable departure of phosphate mining operations; proposing multiple scenarios in which both the employment and tax losses could be offset in a post-mining economy; and exploring how to attract new businesses to the county.

Industry Impact
We explore the tax streams that will be lost once operations cease.

**Severance Tax:** This is collected by the state and distributed back to the local government; it is an annual excise tax applied to the total dry tonnage of phosphate rock severed from the earth. From the Florida Department of Revenue's tax distributions, we find that the county received $700,000 in such tax in 2022.

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**Real Estate:** Using the Hamilton County Property Appraiser database, we sift through the 300 parcels allotted to phosphate mining. Operations generated $1.02 million in real estate taxes in 2022. After considering agricultural reversion scenarios, we estimate that the county will lose $830,000 in such taxes.

**Tangible Personal Property (TPP):** This is the tax on the industry’s equipment and supplies – from administrative supplies like desks and chairs to mining equipment like draglines and tractors. From the tax collector, we find that the county received $4.4 million in such taxes from phosphate operations in 2022.
Hamilton County would need to generate $5.93 million in taxes and 800 jobs from the expansion or recruitment of other industries.

**Methodology**

After calculating the total loss, we use Input-Output modeling to explore two aggressive industry expansion scenarios that would lessen the $5.93 million loss:

**Scenario 1: Increasing Output**
- Direct Jobs: 961
- Indirect Jobs: 184
- Induced Jobs: 62
- County Taxes: $2.8 million
- Total: 1,207 jobs added

**Scenario 2: Expanding Employment**
- Direct Jobs: 979
- Indirect Jobs: 195
- Induced Jobs: 65
- County Taxes: $3.0 million
- Total: 1,239 jobs added

Using IMPLAN, we are able to calculate the direct, indirect, and induced effects of a post-mining economy. We consider each scenario in regards to manufacturing, agriculture and forestry, wholesale trade, transportation and warehousing, and construction industries. Quarterly Census of Employment and Wages (QCEW) and County Business Patterns (CBP) data are used to identify attractive new industries and estimate future output and employment.

**Findings**

We offer two aggressive, but feasible, employment and output expansion scenarios that would make up half of the loss. Paired with decreased county expenditures and new business attraction to the area, these scenarios will help the county make up 50% of the $5.93 million annual loss by 2029.

If Hamilton County can increase employment in each sector by 50 percent and output in each sector by 55 percent by the time phosphate operations halt in 2029, half of the annual tax revenue lost would be replaced. Continued expansion over the same 6-year time frame post-2029, with annual compounding, would allow the county to break-even and even exceed the loss by 2035.
EXECUTIVE SUMMARY

PROPERTY TAX IMPACTS OF FLORIDA'S UNIVERSAL SCHOOL VOUCHER BILL

INTRODUCTION

Coined as the Universal School Voucher bill, Florida House Bill 1 enacts an expansion of school choice options. Though previously bound by school zoning restrictions, every K-12 student in Florida can now attend any public or private school with a voucher to supplement tuition and transportation fees. The implementation of this law weakens the tie between real estate and education, as parents no longer need to prioritize nearby schools' performance when choosing a home. Research of past voucher programs in the U.S. suggests that homes' market values may respond as parents' priorities change. We have been tasked with estimating the possible change in Florida's property tax revenue now that family's home buying decisions are not as tightly linked to school attendance zones.

METHODOLOGY

To estimate a change in statewide tax revenue, we overlaid geospatial data of school attendance boundaries onto 6.4 million homes in Florida. This identified home values and test scores for the primary public schools that each home is zoned for.

According to empirical research, a 1% increase in test scores is predicted to increase a home's value by 0.42%. Therefore, to simulate weakening the tie between real estate and education, we applied premiums and discounts to homes' market values according to the performance of their assigned primary public school. After obtaining new market value estimates for the homes, we subtracted the appropriate assessment limitations and property tax exemptions to find new taxable values.

To obtain resulting tax revenue estimates, we applied the appropriate millage rates to each parcel, including millage rates levied by the home's school district, county, and municipality. Lastly, we aggregated revenue changes for each home in the state, and compared this result to Florida's current property tax revenue of $26 billion.
FINDINGS

Our analysis estimates a short-run decrease of $133 million in Florida property taxes as a result of House Bill 1. This estimate was derived through careful consideration of county-specific factors (such as private school options and variation in school quality) that may influence the impact of the voucher expansion on property values in Florida. Our estimated change in property taxes reflects our finding that the impact of the Universal School Voucher program is likely to be negative, but modest. For reference, a $133 million loss equates to a 0.5% decrease in property taxes. When accounting only for changes in school district tax revenue, our results estimate a small decrease in per-pupil funding of $18.22.

Though the aggregate results are modest, home values in certain areas, such as Miami-Dade county, are expected to change by significant amounts. Looking at the highest performing schools in Miami-Dade, houses within their attendance boundaries are expected to depreciate by over $16,000 on average. This result, however, estimates these homes saving $308 on their annual property taxes.

By contrast, homes in the lowest performing school zones in Miami-Dade County are expected to appreciate by over $17,000 on average. This is accompanied by an additional $327 in annual tax burden for these homes. To examine this effect county-wide, total property tax revenue in Miami-Dade could potentially decline by over $64 million.

The market value changes in homes across Miami-Dade county may vary widely, causing an offsetting effect. As such, we expect the most significant impact to be observed at the individual home or neighborhood level. On average, homes in Miami-Dade County may decrease in value by 0.33%.

Our analysis focuses on potential short-run effects on home values and property taxes after the implementation of the universal school voucher program; however, there will likely be long-run effects as well. The landscape of school choice options may change over the next couple of years; new schools may open up, while other schools may shut down. Changes in school choice options may continue to affect home values and property taxes in the future. More research is needed to determine long-run effects, but we expect the short-run effects of House Bill 1 to be modest.