The Economic Impact of the Build Back Better Plan on Osceola County

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Executive Summary

Overview

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).

Methodology

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.
Findings

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.
Introduction

Osceola County

This project is intended to provide economic findings of the impact of a federal grant on Osceola County. Osceola County is located in central Florida and encompasses a large fraction of the suburbs surrounding Orlando. Located a short drive away from well-known commercial theme parks and resorts such as Universal Studios Resorts and Walt Disney World, the economy of Osceola County is concentrated in the tourism sector, which includes hospitality, retail, entertainment, restaurants, and other related industries.

While the core industries in Osceola County cater to tourism, the county is experiencing population growth, increasing **44 percent** since **2010**, and is currently the **10th** fastest-growing county in the nation.[1] This is in part driven by its mild climate, urban amenities, and strategic positioning for conducting business. Additionally, Osceola County is in close proximity to railroads, a space base, a seaport, and an airport, making the county readily accessible by travel.[2] Osceola County is also strategically placed in terms of its workforce recruitment opportunities. Prominent educational institutions such as the University of Central Florida (UCF), the University of South Florida (USF), and the University of Florida (UF) are all within a two-hour drive from Osceola County.
While tourism plays a large role in Osceola County’s growth, the reliance on tourism makes the county vulnerable to macroeconomic downturns. One prominent example is the Covid-19 pandemic, where lockdown protocols throughout the country brought major travel and leisure vacations to a halt. Osceola County experienced a dramatic decrease in total revenue and employment due to the lockdown, as major theme parks, restaurants, entertainment venues, and retailers were temporarily closed. Consequently, the unemployment rate in Osceola County hit a record high of **29.8 percent** at the peak of the lockdown.[3] As the pandemic has subsided, unemployment has fallen to **3.1 percent** as of May 2023, as can be seen in Figure 2.[4]
Due in part to the extreme unemployment experienced during Covid-19, Osceola County’s leadership has prioritized diversifying its industrial mix to ensure greater economic stability simultaneously with the county’s growth. The most notable of these developments is the construction of NeoCity technology park.

**NeoCity**

NeoCity is a new and prominent semiconductor cluster located in northwestern Osceola County. Situated on 500 acres of land and owned by Osceola County, the technology park specializes in the development and manufacturing of advanced microchips at their Center for NeoVation, with an emphasis on photonic sensors and optic development. Microchips are key instruments to the medical, defense, and aerospace industries. Examples of the use of these intricate microchips include precision lasers in surgical instruments and integrated sensors for exact readings on newly launched satellites.
Advanced Packaging

For greater specificity in the operations of NeoCity, the tech park specializes in a form of semiconductor manufacturing referred to as advanced packaging of microchips. The goal of advanced packaging is to reduce the size and energy consumption of microchips so as to increase their longevity and resistance to corrosion, allowing the interconnected components to readily communicate and function as a whole in an integrated circuit board. [5] One of the main techniques for achieving this microchip packaging is through heterogeneous integration, which is similar to the idea of toy building blocks that stack on top of one another so that all of the components fit together into one microchip, as is demonstrated in Figure 3.

Figure 3. Example of Advanced Packaging
When creating a circuit board, instead of increasing the size or length of the board made up of connected microchips, the microchips are stacked to “enhance functionality and improve operating characteristics”. NeoCity offers these microchips to consumers in the highly demanding aerospace, medical, and defense sectors.

**Investment**

In addition to the ideal location of NeoCity and its specialization in advanced packaging, no other advanced microchip manufacturer with the production capabilities of NeoCity currently exists or operates in the United States. NeoCity has therefore received substantial investments to construct and develop the tech hub. Thus far, NeoCity has received over $273 million in various investments from its owner, Osceola County, as well as others to finance its growth. These financial supports can vary from private company investments to awarded grants. For example, the Department of Defense awarded NeoCity $20 million for its advanced research. With the desired economic diversification of Osceola County, NeoCity has continuously grown and continues to seek sources of funding, including the recent Build Back Better Regional Challenge.
Build Back Better
Regional Challenge

The Build Back Better Regional Challenge (BBBRC) is a $1 billion program as part of the American Rescue Plan Act put into action by the Economic Development Administration (EDA) in 2021 under the Biden Administration.[10] This Act aims to promote economic recovery from the COVID-19 pandemic while simultaneously restoring communities throughout the country. The awarded funds from the $1 billion total are specifically intended for eligible regional industry clusters dedicated to creating jobs, promoting local economic growth, and improving the competitiveness of the United States in the global markets.

Awarded grants to the selected industry clusters are dispersed in two phases. In the first phase, 50-60 regional coalition finalists each receive $500,000 to fund 3-8 projects within their regional cluster as well as form additional economic development plans. In the second phase, 20-30 regional coalition awardees receive between $25-$100 million in funding to implement the proposed projects that the industry clusters have produced from Phase 1. Eligible applicants must form regional coalitions that include a lead institution and must demonstrate that they have 3-8 distinct yet interrelated projects aligned with the goal of developing a regional cluster.
In September 2022, the Biden Administration announced 21 regions that will each receive $25-65 million from the BBBRC to strengthen their economies. The EDA awarded these funds to 21 regions from 60 finalists that came from 529 applicants. The grant allocates $300 million to accelerate innovation in new technologies, $270 million to help workers access new jobs, $140 million to increase new business growth, and $110 million for infrastructure projects. The grant also apportions $100 million to stimulate small businesses growth and $50 million for coalition governance.

Build Back Better Plan

Osceola County was awarded $50.8 million from the BBBRC as a part of their proposal, the Build Back Better Plan (BBBP), to accelerate the growth of the semiconductor cluster at NeoCity. The grant funds will be used to expand semiconductor manufacturing by establishing a regional cluster within NeoCity by splitting these funds across seven interconnected projects. The goal of this regional cluster is to bring jobs and opportunities to the people of the area and provide economic opportunities to the region, with this grant money enabling NeoCity to put the necessary infrastructure in place to carry out their projects. Specifically, the grant money is used to “accelerate the growth of the specialized semiconductor cluster at NeoCITY.”[11] The region had already broken ground on this, but these funds serve to facilitate efficiency in carrying out the growth of NeoCity.
### Osceola County Coalition

When applying for the BBBRC, Osceola County outlined the key organizations that would expand NeoCity’s factories and outreach. These organizations can be broken into two groups: coalition members and coalition partners. The coalition members are organizations that lead the expansion of NeoCity by overseeing the projects that most closely align with their unique abilities. Meanwhile, the coalition partners are designated organizations that help with a single project that requires specialized skills. There are fifteen defined coalition partners in the BBBP proposal, and a list of these partners can be found in the appendix along with a description of what the organization does to aid in the success of NeoCity. 590 total jobs will be committed by these partners with 280 jobs being committed by BRIDG and Skywater and 310 jobs being committed by imec USA and SamYoung S&C.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Coalition Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osceola County Board of the county</td>
<td>Board of the county</td>
<td>Lead coalition member</td>
</tr>
<tr>
<td>Orlando Economic Partnership (OEP)</td>
<td>Non-profit economic and community development organization</td>
<td>Facilitates engagement between private, public, and non-profit sectors</td>
</tr>
<tr>
<td>University of Central Florida (UCF)</td>
<td>Prominent university in the area</td>
<td>Participates in NeoCity’s manufacturing and provides qualified STEM candidates to fuel the productivity of NeoCity</td>
</tr>
<tr>
<td>BRIDG</td>
<td>Non-profit established by Osceola County, Florida High Tech Corridor Council (FHTCC) and UCF</td>
<td>Oversees the research, development, and manufacturing of semiconductors, and offers connections with space, defense, and cybersecurity industries</td>
</tr>
</tbody>
</table>
Projects

The BBBP for Osceola County breaks the spending of the allotted grant funds into seven different projects in accordance with the requirements of the grant. Throughout the remainder of the report, we group these projects into two primary categories for expositional ease: infrastructure and outreach. We define infrastructure as any of the funding spent on the construction and development of NeoCity. Below, we describe which projects listed in the grant award will be classified as infrastructure. The second categorization will be outreach. Outreach projects in this category either involve recruiting potential employees or consist of community outreach which would make sure that NeoCity is meeting the needs of the surrounding community.

Infrastructure

Infrastructure is defined as any of the funding spent on the construction and development of NeoCity. This can range from the construction of buildings in NeoCity to the development of semiconductors. The first four projects of the BBBP in Osceola County are categorized under the infrastructure category.

Figure 4. Projects Categorized as Infrastructure
Center for NeoVation Expansion. The aim of this project is to improve and create infrastructure, such as renovating the existing manufacturing facilities and creating new production lines for semiconductor chips. SUSS Microtech, Tokyo Electron(TEL), and imec USA will provide industry-specific knowledge with regard to the creation and production of semiconductor chips and the skills needed to create these chips. According to the Construction journal, which shows the current listing where companies can bid on construction projects, the project will specifically focus on “…the required electrical service modifications and additions, to support the expansion, including improving Emergency Backup Power Capabilities (UPS) for Semiconductor Tools, Equipment and Machinery.”[12]

NeoVation Way Road. This project is a 0.56-mile-long roadway that connects NeoCity with the local public transit system, SunRail, and existing road infrastructure. According to the proposal from Osceola County, Osceola County will be the leader of this project with help from coalition partners Toho Water Authority and Kissimmee Utility. [13] Authority Construction of this road is already underway with previously awarded funds.

Advanced Packaging Program. This project prioritizes purchasing and installing advanced packaging manufacturing machinery to expand NeoCity production capacity. The specific type of advanced packaging manufacturing technique is a more specialized approach that few manufacturers employ. Partners such as Draper Labs and Siemens Corp will provide their technologies through partnerships with BRIDG.
Microelectronics Design and Production Digital Twin. This project is being led by UCF and BRIDG to utilize a portion of awarded funds to purchase computer modeling equipment to develop a digital twin of the Center for NeoVation and its semiconductor production line. A digital twin is “a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning, and reasoning to help decision making.”[14] Creating a computer model of the production facility provides feedback on microchip production as well as a training aid for workforce development.

Outreach

The remaining projects as listed in the proposal are grouped into the category of outreach. These projects focus on community outreach and talent acquisition, including both the recruitment of new talent for the tech park as well as the continued outreach to the local region. The projects grouped into outreach are split into two different groups of education and administration later in the data parameters section to have the categories be more specific to the projects within them.

Figure 5. Projects Categorized as Outreach
Upskill Osceola. This project will recruit candidates that have the skill set to work in NeoCity and focus on the training and development of their skills. Grant funding will be used to “expand and scale a skill-based workforce development platform that broadens the talent pipeline.”[15] This goal will be met by combining the analytics of unique industry partners within the park and third parties to seek out the best candidates to work in NeoCity, regardless of their education. Following recruitment, the new employees will undergo their distinct training as per the project’s goal to align training and education.

Catalyst Osceola. This project is intended to facilitate engagement between NeoCity and the community. A Cluster Management Organization (CMO) will be created to oversee this project, aiming to “help those companies leverage the business opportunities that will eventually be available at NeoCity.”[16] According to the assistant county manager for Osceola County, the reason NeoCity was created was, “To provide opportunities for the residents of Osceola County.”[17]

Coalition Governance. Osceola County will establish a government entity to manage the funds of the grant. In conjunction with this committee, the Kissimmee/Osceola Chamber of Commerce will be sub-awarded funds to work with the government entity to voice the concerns of the community surrounding the semiconductor cluster. This aims to ensure that the community stays informed about how the projects affect their area.
Methodology

Input-Output Analysis

To evaluate the economic impact that the BBBP grant will have in Osceola County, we adopt an input-output analysis (I/O). This type of economic modeling generally takes an input of total employment, productivity, wages, or some other economic measurement and uses the interdependencies of different economic sectors to produce output in the form of changes to economic activity. This output measurement can be quantified by the effect of a policy change or new investment in terms of employment, spending, wages, or tax generation, and is specified for whichever industry or commodity will likely be affected.

For our model, we allocate the $50.8 million awarded by the BBBP across the target projects to forecast how the increased spending will affect employment, income, output, and taxes. The use of these funds will be divided into their respective sectors of impact, being divided into three specific parameters according to their relevant industries. These industries are semiconductor device manufacturing, other education services, and public relations. Using the proposed allocation of funds into these three parameters, we forecast the local economic impact.

The model predicts how the increases in spending in these industries will generate direct, indirect, and induced effects on the local economy. Direct effects refer to those initial economic impacts that are due to some change in employment or production directly tied to grant activity. Indirect effects are those secondary effects that occur following the change in the immediately affected sector. For example, an increase in production in one sector can lead to a supplier for that sector increasing their own economic activity. Thirdly, the induced effects are those that occur as a result of the direct effects and indirect effects. The purpose of these effects is to capture the impact multipliers that arise from changes in the economy due to the economic event. All of these outputs produce their quantified effects in terms of changes to income, salaries, total employment, and taxes at the local, state, and federal levels.
For the purpose of our economic analysis, we have decided to use the Impact Analysis for Planning, known as IMPLAN, an economic modeling software widely used for input-output analyses. As a leader in providing economic impact data, IMPLAN has been a trusted solution provider for the field of economics, both academic and professional, for over 40 years.[18] Providing economic data at detailed state, county, and local levels, IMPLAN is an appropriate economic modeling software tool for our analysis.
IMPLAN offers several benefits in the use of its software. One of the first benefits is that it is user-friendly insofar as the multipliers do not require manual adjustment for each impact analysis. Furthermore, IMPLAN allows for the modeling of multiple regions to allow observation of the impact of the economic conditions of one region on another. IMPLAN also provides results in multiple areas for a well-rounded understanding of economic change. This includes effects on output, employment, value-added, and taxes at federal, state, and local levels. These impacts can be broken down by industry so that indirect, direct, and induced effects are displayed on a singular screen for ease of the user.

In comparison to other economic models, IMPLAN permits the creation of new industries through aggregation or specification. This enables users to analyze a specific business or industry within the region of interest. The models within the software are meant to be used in any industry and are not limited by the size of the industry. Economic analysis can range from a small business trying to determine its economic impact to a government entity that is looking to see how a project benefits the state.

The metrics and equations that are used on IMPLAN come from several expansive mathematical calculations that make use of the entire database of interrelated input-output matrices provide in the software.[19] This creates an easy to use interface for users, although the equations working that are used throughout the software are detailed and intricate. These powerful equations allow the user to get the information that they are looking for in a quick and responsive manner. These powerful metrics allow those using the software to do tasks ranging from looking at the data of a proposed policy in a small business to assessing the value created from renovations to a state highway. It also creates cohesion across the software as the same metrics and values are used throughout it.
Although IMPLAN is the model we chose for this analysis, all models come with some limitations and drawbacks. One of the first limitations is that IMPLAN relies on a set of parametric assumptions that have been automatically programmed. These assumptions might not capture the full impact of input because of the complex and dynamic situations that happen in the real world. This could lead to the model not estimating the effect correctly, especially in the instance of inputting our $50.8 million grant to the appropriate industries.

A possible second limitation is that our IMPLAN model is run for the Osceola region. Not having the specific area that would be affected by the grant could hinder the ability of the model to estimate the full impact of the grant. Additionally, IMPLAN considers the market in a static state and then does an analysis based on this state. This is a limitation because markets are dynamic in their nature and taking the static market might not capture the full market environment. Additionally, the IMPLAN model gives results that are in a monetary measure but does not account for non-monetary effects such as social and environmental impacts. This could be important when the user wants these effects and would use another model to get them, thus alluding to a limitation of the IMPLAN model.

Finally, the sensitivity of some industries' growth to others is an assumption that IMPLAN makes when providing results on how a certain amount of money in one industry would affect another industry. Even a small change can cause the results to change dramatically so this sensitivity assumption is a limitation of the model. This also comes up when talking about the leakages that come from the model. The IMPLAN model makes an assumption of how much money will stay in a region’s economy and uses that figure throughout the economic impact analysis, but the assumption of how much money will be spent in the same economy could be wrong which would make the model less accurate to the actual economic impact of the grant funds. This limitation could also be a benefit in the model as it allows the user to account for the leakages that the model does not have by the parametric assumptions inputted into the model.
Data Parameters

Our input data for our analysis consists of the awarded grant appropriately assigned according to each impacted industry by each project. The projects that utilize the funds will affect different sectors of Osceola County and are therefore broken out according to each sector and the dollar amount assigned for each. To input this grant money allocation into IMPLAN, we need to also specify which industry the money will be going to. These industries are uniquely identified by NAICS codes (North American Industry Classification System). Each NAICS code is bridged to a corresponding sector in IMPLAN, so that we can find the appropriate sector using a bridge between codes.

More information regarding the choices of these allocations is expanded on below, while the total breakdown of the dollar amount assigned to each project can be seen in Table 2.

Table 2. Overview of input data for analysis model

<table>
<thead>
<tr>
<th>Project</th>
<th>Direct Investment</th>
<th>Percent of Total Investment</th>
<th>IMPLAN Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NeoVation Expansion</td>
<td>$23M</td>
<td>45.3%</td>
<td>307</td>
</tr>
<tr>
<td>Advanced Packaging</td>
<td>$13.5M</td>
<td>26.5%</td>
<td>307</td>
</tr>
<tr>
<td>Production Digital Twin</td>
<td>$8.8M</td>
<td>17.3%</td>
<td>307</td>
</tr>
<tr>
<td>Upskill Osceola</td>
<td>$3.5M</td>
<td>6.9%</td>
<td>482</td>
</tr>
<tr>
<td>Catalyst Osceola</td>
<td>$1M</td>
<td>2%</td>
<td>465</td>
</tr>
<tr>
<td>Coalition Governance</td>
<td>$1M</td>
<td>2%</td>
<td>465</td>
</tr>
<tr>
<td>Total</td>
<td>$50.8M</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Infrastructure Parameters

Based on the awarded grant, approximately $45.3 million will be invested in infrastructure improvements. Below, we describe how we arrived at this total and how the spending will be allocated across different NAICS codes, and how these map into the industries designated within IMPLAN.

Calculating Infrastructure

The Center for NeoVation Expansion will focus on the expansion and facilitation of the clean room and the purchase and installation of tools and machinery. The estimated value of the project, according to the bidding information provided by the Construction Journal, is $23 million.[20] We use this estimate to allocate grant funding.

The Advanced Packaging Program, led by BRIDG, will purchase and install the advanced packaging equipment and support the new production line. Skywater made a statement that $36.5 million dollars would be allocated from the grant money to the Center for NeoVation Expansion and Advanced Packaging Program.[21] Subtracting the $23 million dedicated to the Center for NeoVation Expansion from the $36.5 million, we allocate $13.5 million dollars to this project.
The Microelectronics Design and Production Digital Twin will be allocated $8.8 million dollars from the grant money. The University of Central Florida stated that $8.8 million dollars of the $50.8 million would be allocated toward this project.[22] The UCF statement says “Through the Center for NeoVation’s digital twin, UCF will replicate its production line, increasing microchip reliability and productivity” meaning that the money will be spent on semiconductor machinery and related devices to make semiconductors. Therefore, $8.8 million is allocated to the semiconductor and related device manufacturing sector for the Center for NeoVation Expansion, which is coded as 307 in IMPLAN.

The NeoVation Way Road project is also grouped into the infrastructure category, but will not be considered as an input in our model as this project was awarded a separate $6 million state grant.[23] Considering the roadway has already begun construction and did not receive its funding from the BBBP awards, it will therefore not be included. While this project is excluded from our scope of work, our estimates for the impact of the BBBP may be underestimated as the development of the road may increase the productivity of the construction of the NeoVation facilities and manufacturing lines.
The infrastructure projects all work together towards the creation of semiconductor chips and all related materials. These projects ensure that all of the materials and techniques are used to create the finished semiconductor chips. Therefore, the projects associated with infrastructure are grouped into IMPLAN code 307, which is Semiconductor and related device manufacturing. This breakdown and conversion is demonstrated below.

Figure 7. Conversion of infrastructure industries to IMPLAN sectors
Education Parameters

The second parameter specified in our I/O model is for the industries impacted by the development of the **Upskill Osceola** Project, one of the three projects grouped into the outreach category of the BBBP projects. For this project, BBBP members and partners focus on talent acquisition and specific NeoCity training of newly hired individuals. The money that has been dedicated for this portion is **$3.5 million**. This amount is estimated from the remainder of the documented BBBP funds but is not explicitly documented as the total assigned funds for Upskill Osceola.

Our analysis considers this parameter within the category of "Other Education Services" in IMPLAN under code 482 because this sector encompasses educational and on-the-job training activities that can significantly impact the developing workforce of NeoCity as well as its technological advancement. While recruitment plays a role in talent acquisition, we selected “Other Education Services” in place of “Employment Services” due to the larger range of desired industries that are included in the educational services.

Figure 8. Conversion of education industries to IMPLAN sectors
Administrative Parameters

The third parameter specified for our model concerns establishing a community connection with NeoCity, stemming from the Catalyst Osceola and Coalition Governance projects. Both of these projects create a connection between the outside world and the members of the semiconductor cluster to address outstanding concerns or development in the surrounding region. The money that has been dedicated to administration is $2 million, funds which are subawarded and split between the two projects.

The analysis uses the category of “advertising, public relations, and related services” within IMPLAN because this is able to showcase how the cluster is able to relate with the general population by connecting with the local community. The use of $2 million for the sixth and seventh projects can be explained under these codes because it shows how NeoCity is working with the community and looking to talk to them. The codes can also be used to show how NeoCity is aiming to communicate with the community, with regards to what they are doing and its economic effects as well.

Figure 9. Conversion of administrative industries to IMPLAN sectors
The **Catalyst Osceola** project links cluster participants with the outside world to look at any specific problems between the cluster and the surrounding areas. This project is meant to ensure that members of the surrounding communities are able to see the benefits and opportunities that arise from the creation of the cluster. Considering the nature of public relations closely aligned with this project, the expected sector that this project will impact is Advertising, public relations, and related services, which is coded as 465 in IMPLAN, and had been allocated $1 million.

Finally, the last project is **Coalition Governance**. This project focuses on giving funds dedicated to community outreach and workshops to make sure that the community needs are heard, and has been allocated $1 million. Similarly to Catalyst Osceola, this aligns with the IMPLAN code for advertising, public relations, and related services, 465.
Results

Summary of Total Effects

After running our analysis of the $50.8 million distributed into the appropriate sectors, there are quantifiable direct, indirect, and induced impacts on employment, labor income, output, value-added, and taxes. The total summary of these effects can be seen below in Figure 4, while each effect is broken down and explained by each category throughout the remainder of the report.

With initial observation, the largest impacts are felt in the industries of specification for the model, which includes the Semiconductor and related device manufacturing, other educational services, advertising, public relations, and related services as the industries receiving the input of the grant funds. These three industries jointly have an estimated 505% growth percentage, with semiconductors contributing to 483% of that growth.
The first major finding from our analysis is the amount of output a certain industry had based on the parameters inputted into the model. The model predicts that there will be $63 million of total output by adding the grant funds into Osceola County. Of the $63 million dollars, $50.8 million is directly from the grant which is expected as this is equal to the exact amount of the grant and we would expect the return on output for the industries to be equal to the input so as not to be an adverse effect. Meanwhile, $12.31 million is predicted to be generated in indirect and induced output, meaning those industries that were not directly impacted by the BBBP funds. Considering the indirect and induced effects, this could be a prediction of the model that property will increase as the economy grows. Below is a graphic showing the monetary breakdown of these industries along with all other categories to capture the entire $63 million in output.

The top industries affected directly by the grant are semiconductors, other educational services and advertising/public relations/ related services. This makes sense as the money went directly to these industries. The top indirect and induced industries that showed the highest output are Owner-occupied dwellings and other real estate. The top ten indirect and induced industries impacted by the grant can be seen below in Figure 12. Note: The graph below is omitting semiconductors, other educational services and advertising/public relations/ related services as these are relative to the direct impact.
Figure 12. Top 10 Industries by Output Impact

**Top 10 Industries by Output Impact**

- Owner-occupied dwellings: $1.3M
- Real estate: $1.1M
- Hospitals: $0.6M
- Management of companies: $0.6M
- Warehousing and storage: $0.5M
- Limited-service restaurants: $0.3M
- Employment services: $0.3M
- Services to buildings: $0.3M
- Offices of physicians: $0.3M
- Truck transportation: $0.3M
Employment

The next impact of notice is on employment, which refers to those newly created jobs as a result of the economic impact. In this instance, the input of the BBBP expects a total impact of 211 newly created jobs. As would be expected, the sectors that have the expected largest increase in employment are those in the specified industries of impact, with the Semiconductor and related device Manufacturing industry expecting an employment impact of 58 employees, the Other educational services industries expecting 51 employees, and the Advertising, public related services industry expecting 15 employees. While these industries share the direct effects of the BBBP funds, the industries which feel the greatest indirect and induced effects can be seen in Figure 9, for a total indirect impact of 46 employees and a total induced impact of 41 employees. The industry with the largest indirect impact is the warehousing and storage industry, while the industry with the largest induced impact is the Limited-Service Restaurants.
Additionally, several occupations are impacted by the BBBP in terms of employment. While industries allow us to see where production will be affected, terms of employment are best measured in the expected types of positions created. As there are several industries that will see an increase in employment, there are several occupations that come with those. These include 12 other teachers and instructors, 8 business operations specialists, 8 assemblers and fabricators, and 7 engineers. While other occupations are expected to open up new positions, the top 10 occupations that will feel these effects are below in Figure 10.

Figure 15. Top 10 Occupations by Employment

![Top 10 Occupations by Employment](image)
Value Added

The next observed output is that of value added. Value added is defined as the difference between the output for an industry and the cost of the inputs that were put into the model, therefore taking a look at how much these industries are contributing to the Gross Domestic Product (GDP). Value added is comprised of labor income, Other Property Income (OPI), and Taxes on Production and Imports (TOPI). OPI is made up of the consumption of fixed capital, corporate profits, and business current transfer payments.[24] Meanwhile, TOPI is comprised of all other sales and excise taxes, as well as property taxes, special assessments, and other taxes.[25] Additionally, the indirect effects of value added are the values that are created from business-to-business transactions, stemming from the economic activity or event at hand. The induced effects of value added are the values created from household spending, also stemming from the economic activity or event as well.

In our study, the direct effects of value added equate to $21.7 million from the Build Back Better Plan grant money. This figure is equal to the GDP or GSP for the state of Florida. This includes the $14.7 million in direct labor income, as well as TOPI plus OPI. This provides us with the value associated with the sales of completed semiconductor microchips produced in NeoCity. The indirect effects of value added are equal to $2.7 million from the business-to-business transactions. This includes the $1.8 million from indirect labor income, as well as TOPI plus OPI. This represents the value created from the transactions that occurred between NeoCity and its suppliers, those who help in the production of the semiconductor chips. Lastly, the induced effects of value added are equal to $3.4 million showing the value created from household spending from those involved in the business.

![Value Added Breakdown](image-url)
cycle. This estimate shows any additional spending that occurred within households, stemming from the Build Back Better Plan being put into place. The direct, indirect, and induced effects add up to a total of $28 million in value added from the BBBP funds.

The impact of the value added to the region can also be observed in the industries contributing to the economy. As would be expected, the industries receiving the allocation of grant funds are expected to see the greatest contribution of value added. Meanwhile, other industries such as owner-occupied dwellings and other real estate see increases in value added. The top industries as well as their contribution can be seen in Figure 11. Note that semiconductor manufacturing ($19.5 million value added) is not included due to scale.

Figure 17. Top 5 Industries by Value Added
Labor Income

The next output produced in IMPLAN is labor income, which is made up of two different parts: employee compensation and proprietor income. Employee compensation is the total salaries and wages disbursed to employees within the company or organization. Besides wages and salaries, payroll taxes and benefits are also included in this total. Meanwhile, proprietor income consists of payments received by self-employed individuals or unincorporated business owners. The direct effects associated with labor income are the payrolls to employees in a company or organization, spanning across all industries. Indirect effects occur through the amount of spending that happens from purchases between the direct company or organization and other businesses in the area, specifically their suppliers. The induced effects represent the spending that occurs from the households of these employees.

In our study, the direct labor income generated from the Build Back Better Plan grant in Osceola County is $14.7 million. This estimate includes the payment of wages, payroll taxes, and benefits to employees who are expected to be a part of NeoCity and its operations. The activities of those from NeoCity create $1.8 million of indirect labor income for the employees of the potential suppliers to NeoCity. This showcases the amount of income generated by suppliers and contractors working with NeoCity. The employees of both NeoCity and their suppliers are projected to create an induced effect of $1.6 million. This figure portrays what the households of employees in NeoCity and their suppliers are expected to spend on their own personal household needs and necessities from their wages. The direct, indirect, and induced effects total $18 million in labor income.
The impact on total employee compensation and total proprietor income can be observed through the impact on their relative industries, as can be seen in Figures 12 and 13.

Figure 18. Top 5 Industries by Employee Compensation

Figure 19. Top 5 Industries by Proprietor Income
Taxes

The last output examined is taxes, which represent the total amount of taxes that will be paid by the different industries and establishments impacted by the usage of the grant money. The direct effects associated with taxes are those paid on the wages and payments associated with the direct business or associated being impacted. The indirect effects of taxes look at the taxes being paid on transactions between the direct business or association and its suppliers or intermediaries. The induced effects take a look at taxes generated from the spending of employees that are involved in these business transactions.

In our study, the model finds that there will be a **$5.3 million** impact on taxes that stems from the Build Back Better Plan grant in Osceola County. With **$3.94 million** of this being in direct taxes created, stemming from the taxes generated on employee wages and compensation within NeoCity. NeoCity and their transactions with their suppliers who provide the necessary materials to create the semiconductor chips will produce **$590 thousand** in tax revenue. The household spending that occurs from employees who are a part of these business cycles will generate **$740 thousand** in tax revenues.
The tax impact is broken down into five different levels: sub county general, sub county special districts, county, state, and federal. The sub county general represents taxes paid by city or township governments in the affected region. Sub county special districts are the taxes that are paid by both fire and school districts. The county taxes are those paid and collected by county governments. The state taxes are the funds that come from the state governments.[27] Lastly, there are federal taxes, which are mostly made up of income and employee taxes.

These effects can further be broken down by geography type as well. Federal taxes make up a majority of the overall tax impact, as it creates $3.95 million. This mostly comes from the taxes on the wages of employees within NeoCity. Following this is the state tax impact with $570 thousand in taxes created, coming from taxes within the state of Florida. There is then the county taxes with $400 thousand, where in this study are the taxes from Osceola County. Sub county special districts generate $280 thousand in tax revenues, this value comes from the taxes paid by the schools and fire districts that are a part of the Osceola County region. The last tax by geography type is the sub county general taxes, producing $70 thousand. This represents the taxes paid by all cities and townships within Osceola County.
Conclusion

From our analysis, we find that the acquisition of the Build Back Better Plan grant funds has the ability to create several effects within the Osceola County region. One of the first effects is that it is expected to bring 211 jobs through the creation of NeoCity. The employees that are generated through this funding are expected to create $18 million in labor income. These jobs will help to create additional spending within Osceola County as these employees and their families spend their earnings within the area. This spending from these additional jobs is expected to create $28 million in value added as well for the region. The industries within Osceola County are to produce $63 million in output after the introduction of the funds from the grant. Lastly, $5.3 million is also expected to be produced through all of the tax payments that are required in these business transactions and deals.

Osceola County is looking to find ways to bring new industries to it and with the use of this grant money they are aiming to help them do this. It will allow them to lessen their reliance on tourism as they attempt to establish a semiconductor cluster within NeoCity. Osceola County is looking to see how an influx in high-skilled labor will play a role in changing the scope of its current economic status through new jobs and its effects into other industries.
References

Endnotes

1  Source: https://www.chooseosceola.com/

2  Source: https://www.neocityfl.com/

3  Source: https://fred.stlouisfed.org/series/FLOSCE7URN

4  Ibid.

5  Source: https://oricus-semicon.com/what-are-the-advanced-packaging-technologies/

6  Source: https://ase.aseglobal.com/heterogeneous-integration/


8  Ibid.


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Skywater Technology specializes in the development and manufacturing of integrated circuits. Runs center of NeoVation which was originally run by UCF but because of state budget cuts, has stepped down. The agreement to oversee operations will last till 2044. The goals are to operate, attract investment, apply for the proposed new Federal Advanced Packaging National Manufacturing Institute and create 220 jobs in the next 5 years. Contributing 9.08 mil

Florida High Tech Corridor Council (FHTCC) was made to retain and grow the high tech industry in the 21 counties surrounding UCF and USF.

Imec USA Semiconductor company in NeoCity. International company. Partnership with ICAMR which does manufacturing research. Will give 10 jobs.

SUSS Microtech partnered with BRIDG to provide manufacturing production skills to Central Florida. They provide tools to BRIDG to be more efficient.

Tokyo Electron (TEL) partnership with BRIDG to give them tools and tech to commercialize the development of emerging semiconductors. TEL is a global leader in semiconductors and flat panel display equipment.

Siemens Corp partnership with BRIDG to make the digital twin. The digital twin is to make the chips better. They will be helping optimize performance and enhance manufacturing.

Deca Skywater signed a deal with them so they could use their technology in NeoCity.

Draper non-profit that work on advanced packaging with BRIDG.
<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockley Photonics</td>
<td>Private partner working on advanced packaging project with BRIDG</td>
</tr>
<tr>
<td>Samyoung S&amp;C</td>
<td>South Korean company that will bring environmental sensor production and manufacturing to NeoCity. Make 300 new jobs in NeoCity in 10 years.</td>
</tr>
<tr>
<td>Osceola County School District</td>
<td>Osceola County School district is in charge of NeoCity Academy which is STEM magnet highschool which educates students on skills used in NeoCity</td>
</tr>
<tr>
<td>Valencia College</td>
<td>Valencia College has a new program which will educate students on the skills they need to be a lab technician or engineer in NeoCity. This curriculum will be centered around semiconductors and has received a $3.7 million dollar state grant that is not a part of the $50.8 million in EDA funds.</td>
</tr>
<tr>
<td>Osceola Technical College</td>
<td>Osceola Technical College is a public school in unincorporated Osceola County, Florida. It awards certificates in programs designed to train individuals for entry-level employment and to improve current job skills for employed students</td>
</tr>
<tr>
<td>Kissimmee/Osceola Chamber of Commerce</td>
<td>Will provide consulting to the BBBP.</td>
</tr>
<tr>
<td>Kissimmee Utility Authority</td>
<td>Will provide utilities infrastructure for NeoVation Way Road project</td>
</tr>
<tr>
<td>Toho Water Authority</td>
<td>Will provide utilities infrastructure for NeoVation Way Road project</td>
</tr>
<tr>
<td>CareerSource</td>
<td>Will help create the talent pipeline for Upskill Osceola.</td>
</tr>
</tbody>
</table>
Appendix B: Second Scenario Forecast

In the proposal for the build back better regional challenge, both coalition members and coalition partners pledged to create a certain number of jobs. The coalition members consisted of BRIDG and Skywater who pledged 280 jobs once the facility had been fully renovated and new advanced packaging equipment was ready to use. The coalition partners who pledged jobs are imec and SamYoung, who pledged 310 combined. 300 of these jobs are pledged by SamYoung, which has stated it plans to establish a headquarters in Neocity over the next 10 years once Neocity facilities are renovated. With Neocity already receiving $273 million in funds, the $50.8 million will accelerate the process of Neocity being built. If these jobs were only pledged under the condition these EDA funds were awarded, we have done an economic analysis on the impact of adding 590 total jobs to the semiconductor industry using an employment output analysis. The below graphs are the total economic impact broken in categories such as: output, employment, value added, labor income and taxes.
Appendix B: Second Scenario Forecast

Output

The graphics below show the output impact of the 590 jobs being added to the semiconductor manufacturing industry. The Semiconductor industry is predicted to have a $462 million impact output as results of the 590 jobs. The graph below the semiconductor figure are the top 10 industries by impact output when omitting semiconductor manufacturing. This has been omitted because of the scale of semiconductor manufacturing compared to other industries.
Appendix B: Second Scenario Forecast

Top 10 Industries by Output Impact

- Owner-occupied dwellings: $10.9M
- Management of companies: $5.7M
- Hospitals: $5.0M
- Warehousing and storage: $4.6M
- Other real estate: $4.5M
- Limited-service restaurants: $2.9M
- Truck transportation: $2.7M
- Offices of physicians: $2.5M
- Employment services: $2.5M
- Services to buildings: $2.3M
Appendix B: Second Scenario Forecast

Employment

Top 5 Industries Employment

<table>
<thead>
<tr>
<th>Industry</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductor Manufacturing</td>
<td>590</td>
</tr>
<tr>
<td>Warehousing and storage</td>
<td>54</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>36</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>30</td>
</tr>
<tr>
<td>Employment services</td>
<td>28</td>
</tr>
</tbody>
</table>
Appendix B: Second Scenario Forecast

Top 10 Occupations by Employment

- Production Occupations: 726
- Architecture and Engineering: 420
- Office and Administration: 381
- Assemblers and Fabricators: 319
- Engineers: 294
- Transportation: 268
- Other Production: 252
- Management Occupations: 249
- Sales and Related Occupations: 249
- Electronics Assemblers: 242
Appendix B: Second Scenario Forecast

Value Added

**Top 5 Industries by Value Added**

- Owner-occupied dwellings: $8.6M
- Hospitals: $2.7M
- Management of companies: $2.2M
- Warehousing and storage: $2.0M
- Real estate: $1.7M
Appendix B: Second Scenario Forecast

Labor Income

**Top 5 Industries by Employee Compensation**

- Hospitals: $2.24M
- Management of companies: $1.80M
- Offices of physicians: $1.52M
- Warehousing and storage: $1.51M
- Business support services: $0.93M

**Top 5 Industries by Proprietor Income**

- Truck transportation: $0.67M
- Warehousing and storage: $0.34M
- Internet publishing and broadcasting: $0.28M
- Automotive repair: $0.22M
- Personal care services: $0.19M
Appendix B: Second Scenario Forecast

Taxes

**Taxes by Effect**

- Direct: $35.97M
- Induced: $6.42M
- Indirect: $4.68M

**Taxes by Geography Type**

- Federal: $34.55M
- State: $5.43M
- County: $3.76M
- Sub County Special Districts: $2.62M
- Sub County General: $0.71M