Assessing the Economic Impact of USET Tribal Nations on National Gross Domestic Product (GDP): A Broad Analysis

From the recovery from the Great Depression and World War II rose the idea of the gross domestic product (GDP). GDP has become the ultimate measure of a sovereign's overall well-being. As the popularity and prominence of GDP grew, it has not been easily transferable to the discussion regarding the measurable contributions of Tribal economic development to surrounding communities, in addition to our own economic growth and development. While there lacks a macro level look at the broad impacts, many Tribal Nations have done tremendous work to illustrate their economic impact to their local and state economies. Through these efforts, it is known that many of USET Tribal Nation members are the largest employers in their areas and contribute millions of dollars to local economies. However, other than some industry specific examples, there has not been an available understanding of this macro level for the GDP contribution and of the economic impact of Indian Country.

The goal for this study was first to see if a statistically significant estimate of a GDP number for Indian Country, specifically USET member Tribal Nations, could be reached. The methodology focused on the relationship of trade, not just profits. GDP is an evaluative measure of an economy's overall wealth and value, not simply stating the revenue estimates of businesses in an economy. The four economic principles included in this study were government expenditures (G), overall investment (I), consumption (C), and exports (X) minus imports (M). A sample of counties throughout the United States using a variety of 2023 public data sources from US Census, Internal Revenue Service, Bureau of Economic Analysis, and private data sources was used. The state and county level data was extrapolated further to identify Tribal Nation lands, as much as possible. Variables were pulled that impacted economic outcomes, such as wealth, employment, wages, and industry data. In addition, data was able to be normalized for economic impact and using a modified input/output formula researchers were able to isolate effects of USET Tribal Nations on GDP. As an initial finding, a statistically significant model showing <u>USET member Tribal Nations are responsible for an estimated amount of approximately $148 billion in Gross Domestic Product in 2023</u>. This estimate, when compared domestically, USET member Tribal Nations specific

GDP contributions alone would be ranked 36th out of the 50 states and would outrank many international governments.

GDP Financial Forecast Overview

The USET GDP and Financial Forecast (GDP Research) research project goal was to utilize a dynamic approach to provide public information in an understandable and consumable format to the general public, policy makers and other stakeholders. The study aims to estimate and analyze GDP, future market demand and the economic opportunity supporting economic development efforts in the USET region. Data was analyzed for direct, indirect, and induced benefits (combined as netEI), including financial (GDP, wages, and tax capture), employment, and quality of life impacts. The study includes USET strategic areas and generally known Tribal Homelands, territory, or jurisdictional boundaries.

Understanding Gross Domestic Product (GDP) and Economic Impact

The trade of goods and services and the measurement of the medium of exchange for related goods and service development

Magnolia: Branch Wildlife Reserve
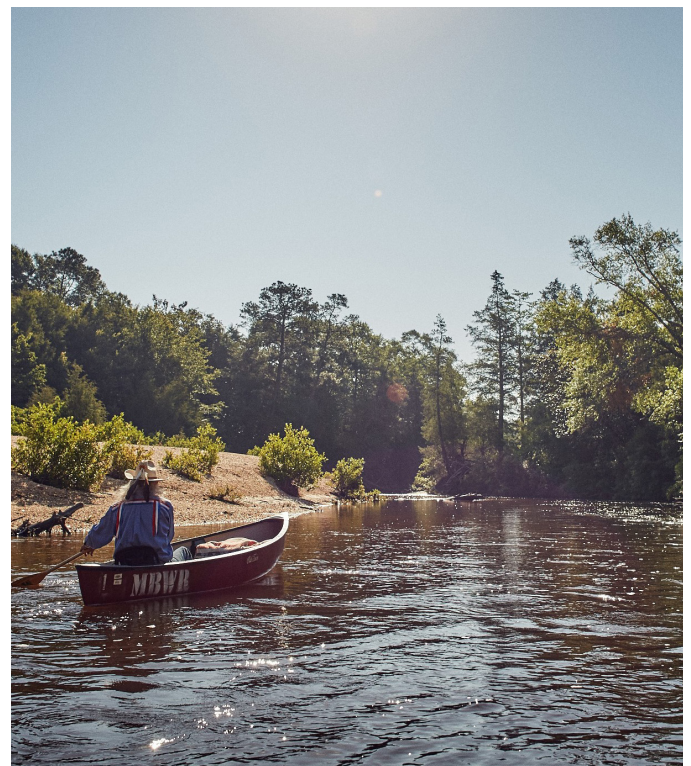
focuses on the relationship of trade, not just profits. These four economic principles include government expenditures (G), overall investment (I), consumption (C), and exports (X) minus imports (M) and are the major components of a functioning economy. GDP is an evaluative measure of the economy's overall well-being, not simply stating the revenue estimates of businesses in the economy. The overall formula results in "GDP = I + G + C + (X-M)" (Trevan & Panamaroff, 2022).

GDP and economic impact analysis uses a modified Input/Output (I/O) algorithm model to estimate impacts. Assessing the Economic Impact of USET member Tribal Nations transcended traditional economic studies and used community as well as business variables added to the existing economic variables. This impact represented initial, secondary, and tertiary effects that ripple throughout the economy when a change is made to a given input level. By using a modified I/O model, economists estimated the change in output across industries due to a change in inputs in one or more specific sectors as well as community variables ignored by other I/O approaches. Other appropriate statistical methods were utilized to measure significance, error, and overall impacts on other economic indicators, including:

- The **direct** impact of an economic shock as a fundamental change
  in expenditure. For example, building a bridge would require spending on cement, steel, construction equipment, labor, and other inputs.
- The **indirect**, or secondary, impact due to the suppliers of the inputs hiring workers to meet demand.
- The **induced**, or tertiary, impact that would result from the workers of suppliers purchasing more goods and services. This analysis can also be run in reverse, seeing what effects on inputs were likely the cause of observed changes in outputs.

Induced

Indirect

Direct
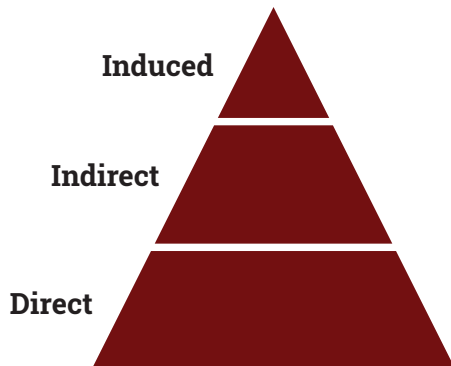
Methodology and Research Overview

Initially, the variables were analyzed for correlation and other diagnostics to ensure the outcomes are statistically significant. The software used a production function approach using a modified input/output algorithm to forecast GDP. The variables were transformed by centering and using the square root to introduce a smoothing effect reducing peakness and high correlative effects. Researchers reviewed model performance with each cluster of variables (economic, community and Tribal Nation), then statistically significant variables were identified, and economic variable clusters were created to focus on economic, community and Tribal Nation variables that impacted GDP outcomes. The clusters were created by isolating the community and economic variables and applying a principal component analysis (PCA) dimension reduction. Additionally, the Tribal Nation variables were also isolated with a PCA providing an effect specific to Tribal Nations. The PCA selection included a mathematical technique used in factor analysis to simplify and clarify complex patterns in data. Additionally, the selection of specific clusters included PCA's with characteristic value of >1. The researcher was able to isolate effects of USET Tribal Nations on GDP using this approach. Researchers also used proprietary software equipped with the innovative technology to aggregate and interpret data in ways that serve unique economic needs while providing data equity. Researchers used proven algorithms focused not only on macro-economic impacts, but understanding how multiple systems in the community and the surrounding areas help predict economic demand in Tribal communities.

Mi'kmaq Farms and Fish Hatchery

The researcher used a sample of 3,143 counties and county equivalents throughout the United States and isolated variables using a proprietary modified input/output algorithm, consistent with economic, economic impact, and other cross country economic studies. The research represents results consistent with other forecast studies using production function and input/output analytics. The current GDP research expands traditional input/output analytics and provides community and Tribal Nation data in addition to economic data to normalize the results of the study. The variables were grouped into categories providing explanation of the variables, which are represented in categories of economic, community and Tribal Nation-based variables. Some of the variables included wages, population, and Tribal Nation reservations land barriers. The Tribal Nation variables are used to forecast GDP while normalizing peaks and bias in the data, especially in relation to GDP and population. The normalized GDP outcomes were used to estimate the impacts of USET member Tribal Nations on overall GDP. Researchers isolated variables specifically for USET member Tribal Nations. This forecast analyzed the differences in predicted GDP and the impacts on GDP specific to USET member geographies.

In assessing the economic impact for a GDP analysis report, it is crucial to recognize that there are multiple methodologies that exist, each yielding a diverse range of dollar figures. These variations stem from differing assumptions, data sources, and analytical frameworks employed in each approach. For the purpose of this report, researchers aimed to provide a robust and credible assessment that reflects the complexities of the Tribal economic landscape, while acknowledging that future evaluations may leverage alternative methods or benchmarks to capture additional dimensions of economic impact.

Outcomes and Results

"Outcomes were statistically significant while controlling for multiple correlations and non-constant variances."

The modified input/output model results provided a statistically significant cluster constant and beta variables ($p<.05$) for model development as well as cluster outputs. The constant and beta variables all had a variable inflation factor of (VIF) <1. The model outcomes were treated for multiple correlations through variable modification with squaring the variables, which were returned to their original values. The overall model was able to explain 91.3% of variance with a significant analysis of variance (ARNOVA $p<.05$) that there are variable relationships with GDP.

Two models were used to forecast GDP of USET member Tribal Nations, with and without Tribal Nation clusters. The difference between models that utilized 1) Tribal Nation clusters and 2) without Tribal Nation clusters isolating the effects that Tribal Nations had on GDP. These differences were summarized and provided in output tables as an aggregate total of GDP. Outcomes were statistically significant while controlling for multiple correlations and non-constant variances.
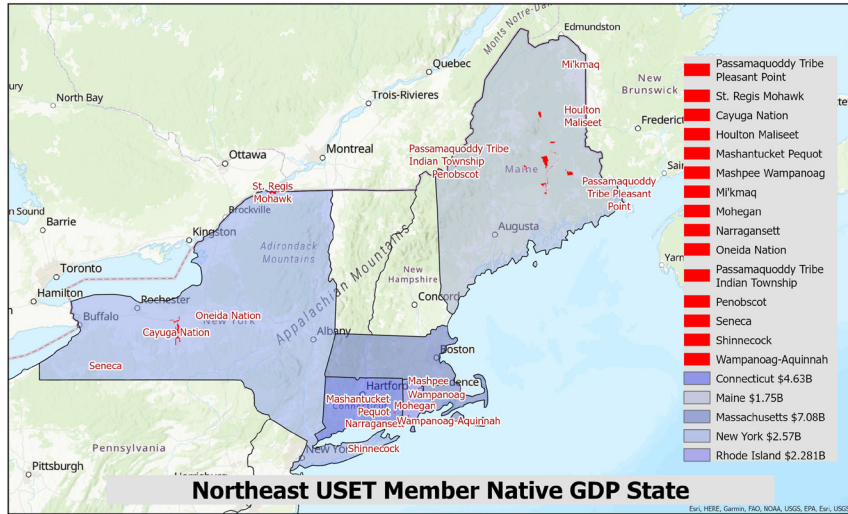
USET Tribal Nations are Responsible for an Estimated Amount of \$148,350,841,201 in Gross Domestic Product

The focus of the study was to estimate the gross domestic product value of USET member Tribal Nations. Researchers analyzed GDP throughout the United States using existing research as a guide to develop an input/output model that normalized GDP outputs with variables from Tribal Nations that share borders with the United States. This study can provide a statistically significant model showing USET members are responsible for an estimated amount of \$148,350,841,201 in Gross Domestic Product. Whereas \$148B is still a fraction of the overall United States 2023 GDP of \$28 Trillion, it is still a large amount of economic activity.
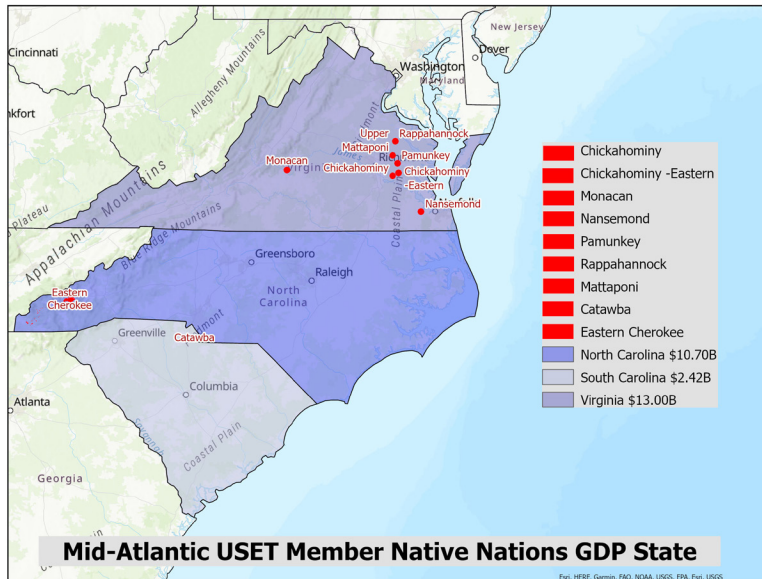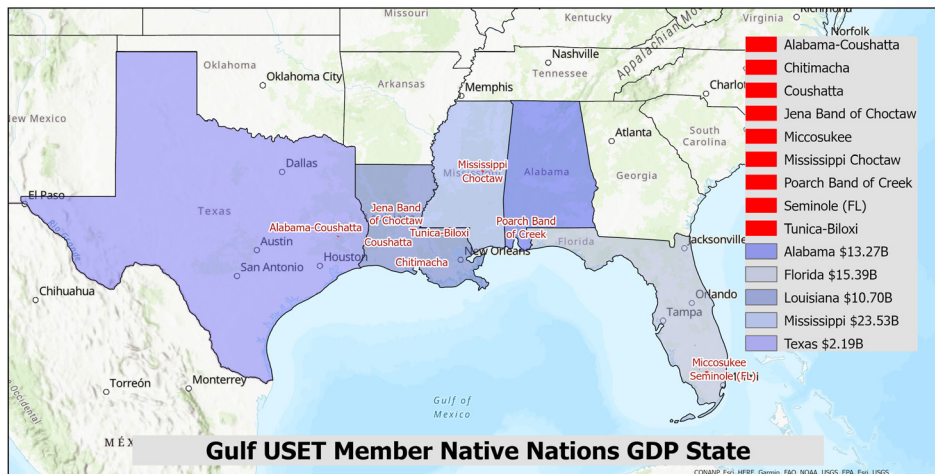
Mi'kmaq Farms and Fish Hatchery

Total Northeast USET Member Nation: $57.14 billion

Northeast USET Member Native GDP State

Legend:
- Passamaquoddy Tribe Pleasant Point
- St. Regis Mohawk
- Cayuga Nation
- Houlton Maliseet
- Mashantucket Pequot
- Mashpee Wampanoag
- Mi'kmaq
- Mohegan
- Narragansett
- Oneida Nation
- Passamaquoddy Tribe Indian Township
- Penobscot
- Seneca
- Shinnecock
- Wampanoag-Aquinnah
- Connecticut $4.63B
- Maine $1.75B
- Massachusetts $7.08B
- New York $2.57B
- Rhode Island $2.281B

Total Mid-Atlantic USET Member Nation: $26.12 billion

Mid-Atlantic USET Member Native Nations GDP State

Legend:
- Chickahominy
- Chickahominy -Eastern
- Monacan
- Nansemond
- Pamunkey
- Rappahannock
- Mattaponi
- Catawba
- Eastern Cherokee
- North Carolina $10.70B
- South Carolina $2.42B
- Virginia $13.00B

Total Gulf USET Member Nation: $65.09 billion

Gulf USET Member Native Nations GDP State

Legend:
- Alabama-Coushatta
- Chitimacha
- Coushatta
- Jena Band of Choctaw
- Miccosukee
- Mississippi Choctaw
- Poarch Band of Creek
- Seminole (FL)
- Tunica-Biloxi
- Alabama $13.27B
- Florida $15.39B
- Louisiana $10.70B
- Mississippi $23.53B
- Texas $2.19B

Future Economic Impact of $3,746,078,353 Throughout the USET Region

There is a solid economic foundation moving forward now that the current estimated GDP of USET member Tribal Nations has been established. If implementing policies could support future growth to meet current market demand, there would be an economic impact (netEI) of $3,746,078,353 throughout the USET region. This impact would support new businesses, current suppliers and vendors, and increased jobs and wages.

Total Northeast USET Member Nation netEI	$89.20 (in billions)
Total Mid-Atlantic USET Member Nation netEI	$64.47 (in billions)
Total Gulf USET Member Nation net EI	$220.94 (in billions)
Total USET Member Nation net EI	**$3,746,078,353**

There are incredible opportunities identified throughout the USET region showing future business opportunities. Based on analysis, there are approximately 1,844 currently in demand in new businesses. Once these new businesses are clustered, a thoughtful purposeful strategy could be implemented to help focus different industry sectors with new Tribal Nation partners.

Total Northeast USET Member Nation Net Demand	459
Total Mid-Atlantic USET Member Nation Net Demand	286
Total Gulf USET Member Nation Net Demand	1099
Total USET Member Nation Net Demand	**1844**

An aggressive strategy to build on the current GDP of USET members, the economic impact will lead to new jobs and wages. It is estimated that a 26,587 total of new jobs would be created with a total of $1,323,637,832 new wages. Consumption leads to the largest impact of GDP growth and new employment will lead to new consumption throughout the USET region.

	Jobs	Wages
Total Northeast USET Member Nation	6,437.90	$343,885,213.39
Total Mid-Atlantic USET Member Nation	4,825.55	$230,106,070.32
Total Gulf USET Member Nation	15,323.81	$749,646,548.82
Total USET Member Nation	**26,587.26**	**$1,323,637,832.53**

Approximately $468,745,388 of New Tax Dollars

With increased economic activity from economic policies that support the growth of Tribal economies, approximately $468,745,388 of new tax dollars could be captured throughout adjacent regions. These tax revenues could be used to support better public services, education, and quality of life. They could also be used to fund new infrastructure to support economic growth.

Total Northeast USET Member Nation Tax Impact	$117.95 million
Total Mid-Atlantic USET Member Nation Tax Impact	$83.85 million
Total Gulf USET Member Nation Tax Impact	266.95 million

Summary and Reflection

This initial report has supported performance that has long been known, USET member Tribal Nations make an incredible impact on their local and the United States economy. By recognizing this foundational performance, USET Tribal Nations create positive gains not only among Tribal Nations, but also with regional economies.

Although we want to celebrate this inaugural estimate, there are some key points to keep in mind in the understanding of this estimate and in our next steps. USET will be one of the first organizations to introduce macro-economic data to understand economic impacts, however, improved data analytics will support catalytic changes. Advancing the use of Tribally sourced data and integrating data sovereignty will help support future understanding of how to improve social and economic conditions. Additionally, investments in new data infrastructure will expedite future opportunities and further studies.

Second, this data set was evaluated at a county level and does not reflect the growing sophistication of economic impact outside our traditional land areas. Expanding data sets to include all areas of Tribal economic activity will lead to a truer reflection of the total GDP contribution of USET members.

Thirdly, although GDP measures a society's overall well-being, it is rooted in capitalism. It continues a colonized view of an understanding of what a "successful" economy is that does not align with

indigenous values. Global movements and thought leaders are exploring how GDP can be redefined to include alternative metrics of success, and we look forward to working with this body to examine what those metrics might be for our membership.

Finally, we want to reiterate that GDP and sharing other economic impacts does not negate the trust and treaty obligations owed to Tribal Nations. The US federal government should continue to invest in Tribal Nations and their economic efforts. These investments are supported by the immense potential benefits and economic multipliers that have reflected qualitatively but now also quantitively.

Under a new diplomatic relationship model, as outlined in USET's Marshall Plan for Indian Country, the US should adopt policies and practices that respect and strengthen Tribal Nations' sovereignty over their own economic development and revenue generation. Federal policy should align itself with decades of research showing that Tribal self-determination and self-governance are the essential ingredients for economic growth among Tribal Nations. The challenges of this policy transformation can only be met through genuine partnerships of cooperation and collaboration with Tribal Nations. Five decades into the self-determination era, the objective of establishing strong, self-determined, Tribal governments remains elusive in many Tribal communities. By honoring its trust and treaty obligations to protect Tribal Nations' right to continue to exist as self-governing entities and by embracing Tribal Nations' exercise of sovereignty over matters of economic development and revenue generation, the US would position itself as an ally in sustainable nation rebuilding.

The findings of this inaugural study suggest new data to stimulate positive policy change. Below is the list of recommendations based on the data analytics:
- The US federal government should continue to invest in USET Tribal Nations and their economic efforts. These investments are supported by the immense potential benefits not only to Tribal Nations, but also the regions that share borders with the USET member Tribal Nations.
- Tribal Nations should support outside investments to stimulate new economic growth. This approach will support a policy that encourages investment (i.e., loans, CDFI, investments, tax credits) with Tribal communities and the surrounding regions.
- Improved data analytics will support catalytic changes. Data sovereignty will help support the future understanding of how to improve social and economic conditions. USET members should continue finding ways to explore data solutions that are unique to the Tribal Nations. Additionally, investments in new data infrastructure as well as tools to help support economic growth will expedite future opportunities.
- The opportunities for future businesses, jobs, wages, and taxes are obvious and quantifiable. Tribal Nations are good for the current business environment and supporting future economic growth, which is a positive for regions that share borders with Tribal communities.
- New and improved infrastructure will help guide the future growth of Tribal economies throughout the USET regions. Transportation, water and sewer, broadband, and public transportation will help provide new opportunities for new businesses wanting to relocate, develop or move to Tribal Nations.

Passamaquoddy Award Winning Basket Maker Jeanette Neptune-Parker

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Special Acknowledgements and Credits

A special acknowledgement to the USET/USET SPF Board of Directors, Executive Officers Committee, past leadership, organizational founders, and overall membership for its strength, courage, wisdom, and vision that has consistently guided the principled and forward-thinking approach to our organizational advocacy and education and for prioritizing the United States' full honoring of its sacred trust and treaty obligations and promises to Tribal Nations.

Concept, Content, and Vision Architects: Kitcki A. Carroll, USET/USET SPF Executive Director; Tihtiyas Sabattus, USET/USET SPF Deputy Director

Drafter: Dr. Eric. Trevan and team. Research was provided by aLocal, a Native owned economic analytics and software company, which offers comprehensive economic advising services, software development and net economic impact analysis (netEI) through its market and economic analytics software, aLocal Development.

Additional Reviewers: Dr. Mark Little; Dr. Randall Akee; Dr. Thomas Stratmann; Dr. Robert Miller; F. Michael Willis, Hobbs Straus Dean & Walker, LLP; Liz Malerba, USET SPF Policy & Legislative Affairs Director

The numerous past and present Indian Country leaders, advocates, and wisdom keepers who work tirelessly in the name of justice for Indian Country.