ECONOMIC IMPACT OF THE 2020 CENSUS UNDERCOUNT IN TEXAS

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The Funding Implications Series

The Texas Census Institute created the Funding Implications Series to measure the effects of the 2020 Census undercount in Texas and inform stakeholders of the financial relevance of accurate counting in the 2030 Census. The first product of the series estimated the potential losses of federal funds for Texas relative to its undercounting, expanding its analysis by issue area. This is the second product of the series, and it studies the undercount's economic impact at the NAICS 2-digit industry level. The third part of this series will study the impact of undercounting at the county and regional level in Texas. Together, the parts of this series will offer valuable insights and recommendations for addressing the U.S. Census undercount and empowering stakeholders with the knowledge for effective decision-making and action.

Main Findings

- The 2020 Census Texas undercount cost Texas $25.1B in federal funds during a decade, which translates into a loss of $51B+ in output, $23B+ in labor income, $29B+ in GDP, and 384K+ jobs.
- Ensuring a complete count in the 2030 Census could let Texas access an estimated additional $28.3B during a decade, resulting in $57B+ in output, $26B+ in labor income, $33B+ in GDP, and 434K+ jobs for the next decade.
- Health Care and Social Assistance, Construction, Education, and Manufacturing were the industries impacted the most by the 2020 Census undercount.
- Health Care and Social Assistance, Real Estate and Rental and Leasing, and Finance and Insurance were the industries most affected, after inter-industry effects, by the undercount in 2020; and are predicted to experience the largest benefits of an accurate count in 2030.

Introduction

Texas was one of six states with an undercount in the 2020 Census, with the second-largest statewide undercount (547,968 people were not in the census estimates, 1.92% of the Texas population).[1] In September of 2023, the Project on Government Oversight (POGO) estimated that Texas received $150.3B in Fiscal Year 2020, in funds distributed through federal programs that relied on census data to allocate resources geographically.[2] However, little is known about how the undercount impacted the statewide distribution of these funds and the overall impact on the Texas economy when using these recent updates.

To our knowledge, there is only one related economic impact analysis, published by *The Perryman Group* in June 2022.[3] Due to the timing of its publication, we infer their analysis used an estimate of federal funds that is different from that of POGO (published in September 2023) or from a related exercise published by the U.S. Census Bureau in June 2023.[2,4]

In this study, the Texas Census Institute estimates the economic impact of the 2020 Census undercount in terms of jobs, labor income, value added (gross domestic product), and output by industry. To have this level of disaggregation, we use the list of 338 federal programs obtained by POGO. In particular, we match these programs to their closest 2-digit industry classification from the North American Industry Classification System (NAICS).[5] To estimate the economic impact of the 2020 Census undercount, we use the Input-Output (I-O) expanded model from IMPLAN.[6]

We undertook this study for two reasons. First, data analysts and researchers, particularly those with industry and sector knowledge, can use our estimates to provide a more detailed analysis of the economic impact of the

2020 Census undercount. Second, in the absence of updated information, our estimates for each of the 20 NAICS industries can inform policymakers and stakeholders about the potential gains for Texas if there is a complete count in the 2030 census.

Data and Methodology

This study uses three main data sources: POGO's list of 338 federal programs that relied on census data to allocate $150.3B in resources to Texas in FY 2020, the 2020 Census Post-Enumeration Survey Results, and the 2-digit NAICS classification.[1,2,5]

To establish a consistent analysis and consider it applicable to the years between decennial censuses, four COVID-related programs are excluded, reducing the total federal funds we analyze from $150.3B to $130.7B.

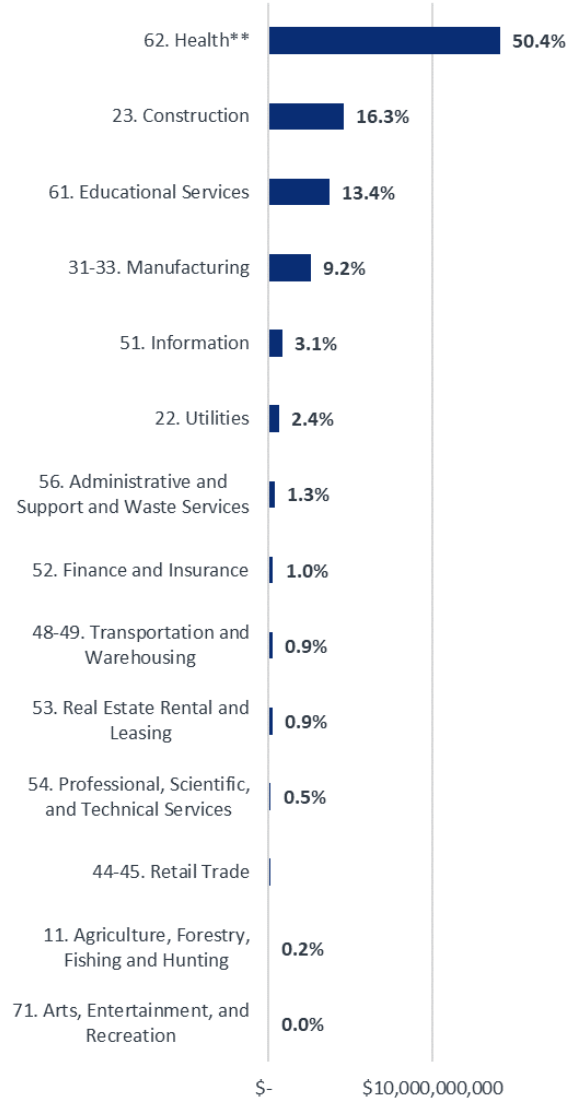
From the $130.7B, $116.9B are distributed to 167 federal programs related to the Health Care and Social Assistance industry. However, 6 programs (like Medicare, Medicaid, and SNAP, among others) absorb a relatively high share of federal funding, so we set them in a separate industry category to provide a clearer picture. For instance, $102.7B corresponds to Medicare Parts A, B, D, Medicaid, Medicaid Part D-Clawback, and SNAP. Collectively, this funding is 87.9% of the $116.9B of the total amount distributed to the Health Care and Social Assistance industry. The remaining $14.1B represents just 12.1% and includes 161 programs (referred to as *Health***). Figure 1 shows the allocation of federal funds to Texas in Fiscal Year 2020 for selected industries. The remaining 167 federal programs receive the other $13.8B that fall into 13 industries.

Assigning NAICS Classifications to Federal Programs

Federal Programs are uniquely identified using a code from the Catalog of Federal Domestic Assistance (CFDA). While knowing how a federal program might relate to a specific industry is useful; they are not directly associated with any particular industry classification—such as the NAICS—in a one-to-one matching process. Since the mapping of the two classifications system does not exist in official sources, we approximated the 2-digit NAICS code that relates the most closely to each federal program.[5] This process involves the following logic:

- Validate the CFDA codes: We validated the CFDA codes recorded originally by POGO for each program.
- Understand the program: We researched the 338 programs on POGO's list to understand their objectives and plausible relationships with industries.
- Identify relevant NAICS industries: We determined which 2-digit NAICS industry, or sector, the federal assistance program is intended to support the most.

Figure 1
Distribution of Federal Funds Geographically Directed to Texas by Industry, FY2020.



Note: Medicare A, B, D, Medicaid, Medicaid Part D-Clawback, and SNAP programs are excluded for a clearer comparison across industries. The percentage value is the share over the total amount of the displayed industries. The 2-digit NAICS code corresponds to the 2022 NAICS version.

It is important to note that the relationship between federal assistance programs and industries can change over time, so the TxCI keeps up to date with the latest program information and updates to CFDA and NAICS codes.

Estimating the Direct Economic Impact, or Funding Implications, at the State Level and by Industry

This study builds upon the work of Dudley Poston and Rogelio Saenz.[7] In mid-2022, they estimated the federal funding losses for Texas—or direct economic impact—due to the 2020 Census undercounting by approximating the per capita amount each person should be entitled to and estimated a 10-year loss of $19B for Texas. However, more detailed and updated data on federal funding was recently published by the U.S. Census Bureau and POGO in 2023, making their estimate less than it should be.[2,4]

Poston and Saenz's per capita approach is limited because some programs do not serve the entire population. Still, it is equivalent to the scenario in which the undercount rate affects proportionally the federal funds received by states. While changes in the population might have larger or smaller effects than the undercount rate, this approach remains conservative by not making further assumptions.

Therefore, to remain conservative in our calculations, we estimate the direct economic impact for each of the twenty 2-digit NAICS industries as a 1.92% reduction of federal funds distributed to each (which would suggest the undercount, on average, impacts proportionally to all the industries). Then, the statewide direct economic impact is measured as the sum of all the industry-level direct economic impacts.

Estimating the Total Economic Impact at the State Level

To estimate the total economic impact of the 2020 Census undercount, we use the Input-Output (I-O) expanded model from IMPLAN.[6] It "*…expands upon the traditional Input-Output approach to also include transactions between industries and institutions and between institutions themselves, thereby capturing all monetary market transactions in a given time period. IMPLAN can more accurately be described as a Social Account Matrix (SAM) model…*".[8]

As calculated by IMPLAN, the total economic impact is the sum of direct, indirect, and induced economic impacts. The direct effects are those we estimated first to observe the funding reduction by industry. The indirect effects are purchases cross-linked across industries in the supply chain that originated from the direct economic impact. The induced effects are the spillovers from employees' labor income and spending behavior. The Total Economic Impact is estimated in terms of Output, Value Added (GDP), Labor Income, and Jobs.

Estimating the Total Economic Impact by Industry

IMPLAN illustrates how the impact in one industry affects others. So, by adding up how each industry was affected by others, we can estimate how the total economic impact in terms of Jobs, Labor Income, and Value Added (GDP) is distributed across 2-digit NAICS industries.

This estimation helps identify the industries that are more vulnerable to inaccurate census counts and more likely to benefit from an accurate 2030 Census.

Results

Direct Economic Impact, or Funding Implications, at the State Level and by Industry

Considering all programs, our estimates indicate that the reduction of federal funds in Texas due to the undercount rate is $2.8B in annual allocations, using FY 2020 population numbers. This figure goes down to $2.5B annually when excluding COVID-related programs. The TxCI used data from 2020 to calculate every year's allocation from 2020 to 2030 to give us the 10-year total. This exercise suggests a shortfall of $25.1B over a decade in federal funds due to undercount.[9]

The reduction in federal funds would translate into a 10-year loss of $51B+ in output, $23B+ in labor income, $29B+ in GDP, and 384K+ jobs.

The industry with the largest direct impact is estimated to be the Health Care and Social Assistance industry, with an estimated $2.2B annual loss in Texas. The 10-year loss is estimated at $22B(see Table 1). In the chart below, we separated this industry to examine the implications for the largest federal programs (Medicare Parts A, B, D,

Medicaid, Medicaid Part D-Clawback, and SNAP). These programs are estimated to lose $1.9B annually, or $19.3B over the decade. The remaining *Health*** programs are expected to lose $265.8 million yearly, or $2.7B during a decade.

Table 1
Direct Funding Implications by Industry, FY 2020.

2-Digit NAICS Industry	Total
62. Health Care and Social Assistance (No-COVID)	$2,196,987,974
62. Medicare A, B, D, Medicaid, Medicaid Part D-Clawback, and SNAP	*$1,931,203,184*
*62. Health***	*$265,784,790*
23. Construction	$86,090,550
61. Educational Services (No-COVID)	$70,510,519
31-33. Manufacturing	$48,249,853
51. Information	$16,253,283
22. Utilities	$12,530,925
56. Administrative and Support and Waste Services	$6,901,122
52. Finance and Insurance	$5,337,378
48-49. Transportation and Warehousing	$4,758,357
53. Real Estate Rental and Leasing	$4,711,878
54. Professional, Scientific, and Technical Services	$2,679,631
44-45. Retail Trade	$2,315,246
11. Agriculture, Forestry, Fishing and Hunting	$843,907
71. Arts, Entertainment, and Recreation	$33,020

Note: The NAICS code corresponds to the 2022 NAICS version.

The Health Care and Social Assistance industry had the largest direct economic impact across all variables under study. Approximately 90%, 92%, 91%, and 92% of the total impact on Output, Labor Income, Value Added (GDP), and Jobs were derived from this industry. These shares equal $46B in output, $21.6B in labor income, $27.1B in value added (GDP), and 352K+ jobs during a decade. The next three industries that could benefit the state economy from an accurate 2030 Census are Construction, Educational Services, and Manufacturing.

After the Health Care and Social Assistance industry, the three industries with the largest direct impact are Construction, Educational Services, and Manufacturing. Altogether, $204.9M annually is lost to Texas in federal programs related to these programs, with a potential $2.0B 10-year effect. The remaining 10 industries have a direct economic impact of $56.3M yearly and $563M over 10 years.

Total Economic Impact at the State Level: Opportunities for the Next Decade

By studying how Texas was affected by the 2020 Census undercount, we estimate the potential benefits of a complete count in the 2030 Census. Without a 2030 undercount, Texas would have the following gains over the next decade:

- $57.8B in Texas' Output
- $26.5B in Labor Income
- $33.7B in Value Added (GDP)
- 434K+ jobs.

Total Economic Impact by Industry: Opportunities for the Next Decade

One of the advantages of the Input-Output approach is that we can observe how changes in one industry affect others. Table A1 in the Appendix shows how the industries were potentially affected by the undercount, which could translate into gains if the 2030 Census is accurate.

Concluding Remarks

Our research shed light on the direct and total economic impact of the 2020 Census undercount on the Texas economy. The implications are profound, impacting the allocation of federal funds across various sectors and regions within the state. The Texas Census Institute's Funding Implications Series has undertaken a comprehensive analysis of the economic impact of the census, serving as a valuable resource for informed decision-making, advocacy, and action, especially as we approach the 2030 Census.

As noted above, Texas incurred a significant financial loss due to the 2020 Census undercount, resulting in a

staggering $25.1B loss over the decade after the 2020 Census.

Considering the population projections of the Texas Demographic Center, Texas is expected to have 32,912,882 people in 2030. If action is not taken to reduce the undercount in Texas and it remains the same (at a 1.92% rate), Texas would miss 631,927 people in the next Census. If those residents were counted, Texas would access an additional $28.3B over a decade, resulting in $57B+ in output, $26B+ in labor income, $33B+ in GDP, and 434K+ jobs for the next decade.

Along with the funding implications, the census undercount also brings issue-specific implications. The industries with the largest direct economic impact due to the census undercount are Health, Construction, Education, and Manufacturing. After observing all the inter-industry effects, Health, Real Estate and Rental and Leasing, and Finance and Insurance were the industries most affected by the undercount in 2020 and are predicted to experience the largest benefits of an accurate count in 2030.

The funding implications presented in this brief underscore the critical importance of an accurate Census count.

Additionally, inaccurate data can misallocate resources, hinder effective planning, and risk taxpayer funds. Key industries, including Health Care and Social Assistance, Construction, Educational Services, and Manufacturing, have an outsize impact on economic stability, workforce development, and educational opportunities, with repercussions on the health and well-being of the population, educational quality, and public infrastructure development.

To address the funding implications of the 2020 Census undercount, we offer the following recommendations:

Census Data Quality: Promote initiatives to improve Census data quality, especially at the sub-state level. Encourage cooperation between the U.S. Census Bureau and external stakeholders to ensure more accurate and comprehensive data collection.

Stakeholder Engagement: Engage relevant stakeholders, including industry experts, local governments, and advocacy groups, to raise awareness of the undercount's impact and work collaboratively to develop strategies for better data collection in the future.

Continued Research and Analysis: Encourage researchers and data analysts to delve deeper into the specific funding implications in various sectors and regions, using the findings from this study as a foundation for further research and detailed analysis.

The potential benefits for the state, projected for the decade following the 2030 census, highlight a compelling opportunity for substantial growth and recovery. By avoiding an undercount, Texas stands to gain over $57.8 billion in output, $26.5 billion in labor income, $33.7B in value added (GDP), and the creation of more than 434,000 jobs.

Notably, the Health Care and Social Assistance industry emerges as pivotal, bearing the largest impact on all examined variables. This industry, accounting for around 90% of the total impact, underscores the critical role that accurate census data plays in shaping economic outcomes. The insights from this study not only serve as a foundation for further in-depth analyses by data analysts and researchers but also offer valuable information to stakeholders, emphasizing the potential gains for Texas in the absence of an undercount in the upcoming 2030 census.

As Texas navigates the path toward the next census, these estimates serve as a crucial resource for informed decision-making, resource allocation, and strategic planning. The prospect of realizing substantial economic benefits underscores the importance of accurate and comprehensive census data in shaping the future trajectory of the Lone Star State.

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Appendix

Table A1
Total Economic Impact by Industry, FY 2020.

2-Digit NAICS Industry	Output	Labor Income	Value Added (GDP)	Jobs
62. Health Care and Social Assistance (No-COVID)	$2,421,125,055	$1,464,579,428	$1,492,581,348	22,981
62. Medicare A, B, D, Medicaid, Medicaid Part D-Clawback, and SNAP	*$2,128,224,857*	*$1,287,399,152*	*$1,312,013,487*	*20,201*
*62. Health***	*$292,900,199*	*$177,180,276*	*$180,567,861*	*2,780*
53. Real Estate and Rental and Leasing	$457,041,734	$39,978,210	$303,138,960	1,184
52. Finance and Insurance	$377,487,276	$109,147,927	$166,495,498	1,514
54. Professional, Scientific, and Technical Services	$229,363,913	$131,091,641	$155,290,638	1,388
31-33. Manufacturing	$206,911,150	$31,616,588	$66,209,052	316
56. Administrative and Support and Waste Management and Remediation Services	$200,389,104	$99,483,104	$116,162,967	2,125
42. Wholesale Trade	$174,106,843	$51,228,381	$109,362,202	504
44-45. Retail Trade	$155,208,454	$59,893,263	$93,960,289	1,557
51. Information	$152,899,550	$26,920,522	$71,775,740	267
72. Accommodation and Food Services	$117,825,276	$44,207,582	$63,222,395	1,647
23. Construction	$112,996,423	$47,096,365	$56,529,597	736
81. Other Services (except Public Administration)	$95,238,247	$55,009,619	$60,822,149	1,264
48-49. Transportation and Warehousing	$90,126,210	$46,439,044	$47,237,371	699
61. Educational Services	$88,210,701	$55,733,102	$58,657,484	1,263
22. Utilities	$81,144,788	$14,463,425	$38,680,872	69
55. Management of Companies and Enterprises	$67,426,949	$34,393,260	$39,470,843	320
92. Public Administration (Government Enterprises)	$43,643,447	$14,274,285	$22,298,621	154
21. Mining, Quarrying, and Oil and Gas Extraction	$17,316,055	$9,871,454	$8,005,668	37
71. Arts, Entertainment, and Recreation	$16,335,075	$9,154,663	$10,824,363	306
11. Agriculture, Forestry, Fishing and Hunting	$9,289,605	$2,353,781	$3,200,300	137
Total	**$5,114,085,857**	**$2,346,935,644**	**$2,983,926,359**	**38,469**

Note: The NAICS code corresponds to the 2022 NAICS version. Industries are ordered by the economic impact on Output.