

SSI & SSA Disability Trends Across U.S. State (2001 - 2020)

Here's the goal, tools requirements and questions from stakeholders which data analyst need to answer via BI dashboard. The analyst can use programming language for data cleaning and EDA for make it more accessible. The deadline is in 2 weeks and need to present their report to stakeholders.

Goal: To gain a deeper understanding of trends, patterns, and key factors influencing Social Security Administration (SSA) disability claim outcomes using data visualization and business intelligence techniques. This understanding can potentially inform policy discussions, resource allocation, and claimant support efforts.

Tools: Python, Tableau Dashboard

Questions:

How has the number of disability claims filed changed over time? Are there any noticeable peaks or troughs?

1. Are there seasonal patterns in disability claim filings or outcomes?
 2. Does the approval rate vary significantly across different demographic groups?
 3. What is trend difference between Adult and Child Disability Trends?
 4. Which states performed well and poor. And what could be the reasons?
 5. **Give some recommendations for low performing states.**
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Dataset link: <https://catalog.data.gov/dataset/ssa-disability-claim-data>

GitHub: <https://github.com/jenish112/SSA/blob/main/SSA.ipynb>

Tableau link:

<https://public.tableau.com/app/profile/jenish.vekariya/viz/SSAAnalysis/Dashboard1>

Report

I used Python for Exploring Data Analysis (EDA) and data cleaning. Why Python? because it has many libraries that can help us perform EDA, such as pandas, numpy, matplotlib, and seaborn.

Firstly, I pull up the data from government website and inserted into Jupiter Notebook. Then I did data exploration and data cleaning using these libraries. And at the end I exported into csv file for BI dashboard.

I used Tableau for BI dashboard, because it's easy and can be free deployment on cloud. Since I need to present this to non-technical person, I tried to make as simple and quickly to understandable as possible. For that I used very simple charts and KPIs to understand the trends.

Insights

Are there seasonal patterns in disability claim filings or outcomes?

- No clear seasonal patterns are evident from the dashboard.
- We have yearly data, not monthly or quarterly.

Does the approval rate vary significantly across different demographic groups?

- Yes, it does.
 - **Adult** SSA Disability Approval Rate: ~6.07%
 - **Child** SSI Benefits Approval Rate: ~1.54%
- This indicates a significantly higher approval rate for adults than for children across the board.

What is the trend difference between Adult and Child Disability Trends?

Adult Trends:

- **Filing rates** (red line) have seen a **peak around 2009–2011**, followed by a **steady decline**.
- **Favorable rates** (green line) remained **relatively flat**, with a dip post-2010 and a recent increase around 2018.

Child Trends:

- **Filing rates** (blue line) have remained **more stable**, except on 2019, followed by drastic drop.
- **Favorable rates** (yellow line) are **low but consistent** over the years.

Summary:

- Adults saw greater variation in filing and favorable rates.
- Child-related metrics are lower and more stable, with generally less favorable outcomes.

Poor performing states vs Well-performing states

Top 3 well-performing states: CA, TX, FL

Reasons for Strong Performance:

- Large populations naturally contribute to higher volumes, but they also perform well in approval volume, suggesting:
 - Strong legal advocacy and disability support networks.
 - Better access to medical documentation and specialists.
 - Possibly more lenient SSA district offices.
 - High awareness among applicants about eligibility and appeals.

Top 3 low-performing states: AK, ND, WY

Possible Reasons for Weak Performance:

- **Lower public awareness** of the SSI/SSA process.
- **Fewer resources for legal or medical documentation** during claims.
- **More stringent local SSA district decisions** or higher backlog.
- **Lower investment in disability support services** or education about appeal processes.

Give some recommendations for low performing states.

- These states may benefit from **improved outreach or support** during application, especially for child SSI benefits.
- States like **WY and AK**, with both **low child case volumes and low favorable outcomes**, may need **community health interventions or pediatric disability screening programs**.
- States should adopt **transparent reporting on claim rejections** and appeal outcomes to identify systemic issues.