

State-by-State Analysis of Federal Government Transfers Net of Taxes Paid

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Abstract

This article provides an examination of United States federal fund transfers to each of the 50 states and the District of Columbia (DC) net of federal taxes from each jurisdiction. Every year, the federal government expends funds, which are distributed across the country. These funds are transferred via direct benefits to individuals, grants to state/local governments, procurements to private entities and state/local governments, and for federal employee wages and salaries in each state and DC. This study summarizes federal government expenditures to each state and DC net of federal tax revenues paid from each state and DC. The difference between federal expenditures and tax payments is referred to as the balance of payments. The article then shows that there are four key determinants of balance of payments: military spending and the proportions of the population that live in poverty, are elderly, and are disabled. In this exploratory analysis, ninety percent of the variation in the balance of payments as a share of gross state domestic product across the states and DC is explained by these factors, where the most important demographic factors are poverty and disability. The article also offers a discussion of health challenges associated with disability that could be influenced by implementing policies to help improve well-being, thereby reducing disability and poverty. Reductions in disability and poverty translate to reduced federal balance of payments, reduced federal deficits, and increased resilience to possible shocks associated with potential deficit reduction measures.

1 Introduction

This article provides a summary and analysis of United States (US) net federal fund transfers to each of the 50 states and the District of Columbia (DC). Each year, the federal government expends funds, which are distributed across the country. These funds are transferred by way of direct benefits to individuals, grants to state/local governments, procurement to private entities and state/local governments, and federal employee wages and salaries. The present study follows Miller A (2023) in summarizing federal government expenditures flowing to each state and DC and comparing them with federal tax revenues flowing from each state and DC. The difference between federal expenditures and tax payments is referred to as the balance of payments. Because the federal government runs perpetual deficits, the balance of payments is positive for all but eight states.¹ That is, for most states federal expenditures flowing in exceed federal tax revenues flowing out. Most subnational governments and economies are, to varying degrees, dependent on this net positive balance of payments. However, there are significant differences across the states in terms of reliance on federal funds; the reasons for these differences are multiple and will be analyzed and discussed in this article. As a prelude to the full analysis, this study finds that 90% of the variation in the balance of payments as a share of gross state domestic product across the states is explained by: 1) military spending, 2) the proportion of the population that is elderly, the proportion of the population that lives at or below the poverty line; and the proportion of the population that is disabled.

This article also includes a discussion of federal transfers in the form of direct payments, grants, procurement, and wages and salaries. While federal funds generate varying benefits to subnational governments and

¹Net interest payments are also excluded from the calculation.

Table 1: Federal Revenues and Expenditures, FY2022

Revenues		Expenditures	
Individual Income Taxes	\$ 2,629	Direct Payments	\$ 3,702
Social Insurance Taxes	\$ 1,475	Social Security	\$ 1,194
Corporate Income Taxes	\$ 425	Medicare	\$ 973
Excise Taxes ¹	\$ 88	Other Direct Payments ²	\$ 1,535
Estate and Gift Taxes	\$ 31	Grants	\$ 1,175
		Medicaid	\$ 588
		All Other ⁴	\$ 587
		Procurement	\$ 604
		Wages & Salaries	\$ 312
		Other federal Spending	\$ 105
Total Revenue	\$ 4,629	Total	\$ 5,934

Source: United State Federal Government.

¹ Includes excise taxes imposed on fuel, tobacco and alcohol products among others.

² Other Direct Payments include veterans benefits, employee retirement, and economic impact payments.

state/regional economies, over reliance on federal resources has the potential to exacerbate a shock should the federal government reduce the deficit. In fiscal year (FY) 2024, the federal government is expected to run a deficit of \$1.5 trillion. Holding taxes constant, reducing the deficit by 50% would cut federal spending by about \$2,200 per capita nationwide. However, since states differ greatly in reliance on federal funds as well as types of federal expenditures, deficit reduction by way of expenditure cuts would not have a uniform effect across the country. Some states would suffer far more than others, depending on the nature of the cuts. Conversely, a tax increase would affect states in a very different pattern than spending reductions.

Before turning to the evaluation, it is important to note that with the exception of Hicks (2024) and Miller A (2023), there is no closely related research examining the determinants of reliance on federal funds net of taxes paid in subnational economies. Hicks (2024) uses county level data to evaluate reliance on federal funds in local economies, and Miller A (2023) presents data on balance of payments for the 50 states and the District of Columbia with a focus on the state of New York. There is therefore no literature review section, though relevant articles are discussed in the body of the article.

The next section presents data and a discussion of the overall federal budget and the balance of payments across the states. Section 3 offers more detail on federal fund transfer types and the rationale for the existence of such transfers. Section 4 provides an evaluation of the differences across states in the balance of payments and the underlying reasons for those differences. The last section offers a discussion that focuses on improving resilience to fiscal shocks and concludes.

2 Federal Budget and Balance of Payments across the States

Federal government revenues and expenditure can be divided into several major components, as shown in Table 1. On the revenue side, individual income taxes and social insurance make up more than 82% of revenues with the remaining amount coming from corporate income taxes, other (excise) taxes, and estate and gift taxes. Note that total expenditures exceeded revenues by about \$1.3 trillion in 2022.

On the expenditure side, direct payments to qualifying people for Social Security, Medicare and other direct payments account for 63% of total federal expenditures. These payments are largely determined by eligibility criteria. For example, individuals who meet the appropriate age requirement are eligible for Social Security and Medicare benefits. Similarly, households below a certain income threshold qualify for welfare benefits, and the disabled may be eligible for Social Security Disability Insurance and other support. Thus, states with higher proportions of people who are elderly, in poverty, and disabled receive a greater inflow of direct payments.

Grant funding is the next largest category, making up about 20% of total federal expenditures of which Medicaid is the single largest component. Medicaid, health care assistance for low-income individuals, flows from the federal government to state governments. State governments then contribute matching funds from in-state sources to provide Medicaid assistance to qualifying individuals. Together, Social Security, Medicare and Medicaid are the largest “safety net” programs in the US. There are other federal transfer programs, including grants for community/economic development, education/training, family/social services, housing, income security, nutrition, transportation, and in recent years COVID-19 related assistance Klammer (2023). Generally, intergovernmental grants follow four general patterns Fisher (2022):

1. The grant is for a specific purpose (categorical) or for general use (general purpose).
2. The grant is allocated by formula or requires an application for specific projects.
3. The grant requires matching (matching) by the recipient or not (non-matching or lump sum).
4. The grant is limited in size or not.

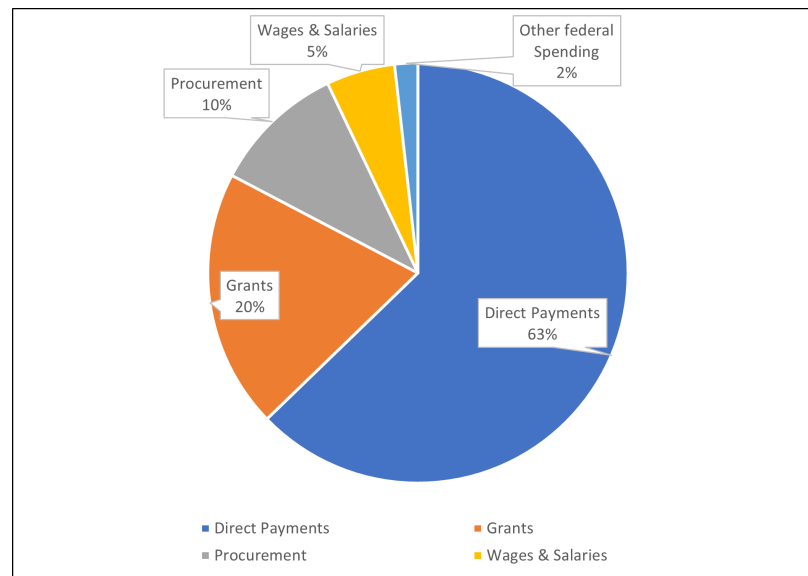
There are variety of factors that determine the inflow of grants to states, where a large proportion of funds are dispersed to states based on predetermined formulae. Generally, the disbursement of these funds depends on the economic and demographic make-up of a given state. States with higher levels of poverty, for example, will automatically receive greater grant dollars as part of the “safety net” effort. Other types of grants require the matching of specific needs with grant requirements, where successful grant applications make a strong case that the state or local government has indeed met the grant criteria. Finally, state and local government authorities are oftentimes required to comply with grant/funding conditions, which plays a role in their decision to apply for and be successful in obtaining funds. For example, access to educational resources from the federal government may require that educational institutions comply with gender-affirming care policies through Title IX of the Education Amendments of 1972 prohibiting sex discrimination in any educational program/activity receiving federal financial assistance United States Department of Education (2021b), which is controversial in parts of the country. A notable example of pushback is Florida where in 2023 transgender legislation was passed banning gender-affirming care for minors Contorno (2023). Recipients of COVID-19 related funds were encouraged to use funds to incentivize vaccine uptake in schools and more generally in the population United States Department of Treasury (2021); United States Department of Education (2021a). Turning to community/economic development, some grants may require state and local authorities to implement certain “green” policies as a condition of the grant Zelen (2022). To summarize, the federal government uses grant funds to incentivize state and local governments to implement national policies Burke (2022). Each grant opportunity will have its own objectives and stated conditions; state and local government authorities must review the relevant documents to determine the desirability of the funding opportunities and the conditions.

In FY2022, the federal government spent \$604 billion for the procurement of goods and services across the US, of which about 60% is for the Department of Defense. Another \$312 billion is spent on wages and salaries for federal government employees, about 37% of which was for military personnel. With this overall summary, we will next consider the distribution of federal government funds net of taxes paid across the US.

3 Federal Fund Transfers

Table 2 provides a summary of federal government direct payments, grants, procurement, wages and salaries, and other expenditure to each state and DC. The table includes expenditures expressed in total and per capita terms for each category, though the discussion focuses on per capita expenditures. On average, per capita direct payments were \$11,107, which is the largest component of spending. Per capita grants were second largest at \$3,526, followed by procurement (\$1,919), wages and salaries (\$935). The aggregated other spending category tallied to \$316 per capita. The variation in per capita spending across jurisdictions is substantial. For direct payments per capita, DC is highest at \$14,299 and Utah is lowest at \$7,827. Per capita grants also vary substantially across jurisdictions; DC is again highest at \$9,111 per capita, and Georgia is lowest at \$2,156 per capita. DC also has very high procurement and wages and salaries per capita, at

Figure 1: Federal Government Expenditures



\$46,972 and \$33,573, respectively. The nearby states of Maryland and Virginia also have high levels of per capita procurement and wages and salaries due their proximity to DC.

Table 3 presents tax revenues collected, expenditures disbursed, and the balance of payments (expenditures-revenues) by jurisdiction in total and per capita terms. Table 3 also provides balance of payments as a percentage of the jurisdiction gross domestic product (GDP). Balance of payments per GDP provides a useful measure of jurisdiction reliance on federal funds flowing to the jurisdiction as well as a measure of potential vulnerability should the federal government substantially reduce deficit spending. DC is an extreme outlier where the balance of payments is 83% of GDP. In New Mexico, 30% of GDP is attributable to the balance of payments, whereas Massachusetts is on the low end of the balance of payment spectrum at -3% of GDP. Variation in the balance of payment across the country is illustrated with a map as shown in Figure 2. While there is substantial within region variability in federal expenditures and the balance of payments, overall the southern region of the US has the highest level of expenditures and balance of payments. In total, there are eight states with non-positive balance of payments: California, Illinois, Massachusetts, New Hampshire, New Jersey, South Dakota, Utah, and Washington. There are several factors associated with non-positive balance of payments. Some states are relatively high-income (and thus high federal tax states), while other states such as Illinois, South Dakota, and Vermont have lower than average federal expenditure in-flows.

Table 2: Federal Expenditures Distributed by State, FY2022

	Direct Payments	Grants	Procurement	Wages & Salaries	Other	Direct Payments	Grants	Procurement	Wages & Salaries	Other
	Total (millions)	Total (millions)	Total (millions)	Total (millions)	Total (millions)	Per Capita	Per Capita	Per Capita	Per Capita	Per Capita
National	\$3,701,851	\$1,175,313	\$639,594	\$311,652	\$105,416	\$11,107	\$3,526	\$1,919	\$935	\$316
Region 1: Northeast	\$70,433	\$29,371	\$11,658	\$3,061	\$2,088	\$11,446	\$4,002	\$1,984	\$617	\$313
Connecticut	\$40,346	\$12,255	\$22,322	\$1,533	\$1,027	\$11,126	\$3,380	\$6,156	\$423	\$283
Maine	\$18,091	\$5,015	\$2,747	\$1,225	\$499	\$13,059	\$3,620	\$1,983	\$884	\$360
Massachusetts	\$75,612	\$26,304	\$17,918	\$3,390	\$1,992	\$10,830	\$3,767	\$2,566	\$486	\$285
New Hampshire	\$16,478	\$3,345	\$1,730	\$576	\$436	\$11,810	\$2,398	\$1,240	\$413	\$313
New Jersey	\$96,320	\$31,533	\$9,390	\$3,774	\$2,645	\$10,400	\$3,405	\$1,014	\$407	\$286
New York	\$210,435	\$126,475	\$29,406	\$8,592	\$8,090	\$10,694	\$6,427	\$1,494	\$437	\$411
Pennsylvania	\$156,584	\$51,569	\$19,696	\$6,659	\$3,565	\$12,071	\$3,975	\$1,518	\$513	\$275
Rhode Island	\$12,566	\$4,879	\$1,208	\$1,258	\$364	\$11,489	\$4,461	\$1,104	\$1,151	\$333
Vermont	\$7,464	\$2,966	\$505	\$540	\$174	\$11,535	\$4,584	\$780	\$835	\$269
Region 2: Midwest	\$63,161	\$18,443	\$5,642	\$3,018	\$2,005	\$10,854	\$3,083	\$1,036	\$690	\$476
Illinois	\$131,569	\$40,750	\$13,566	\$6,823	\$3,970	\$10,457	\$3,239	\$1,078	\$542	\$316
Indiana	\$72,872	\$21,562	\$8,155	\$2,636	\$1,984	\$10,665	\$3,156	\$1,193	\$386	\$290
Iowa	\$33,813	\$9,040	\$2,721	\$1,070	\$1,722	\$10,565	\$2,825	\$850	\$334	\$538
Kansas	\$31,824	\$6,847	\$4,201	\$3,452	\$1,542	\$10,835	\$2,331	\$1,430	\$1,175	\$525
Michigan	\$118,614	\$32,793	\$9,022	\$3,379	\$2,711	\$11,821	\$3,268	\$899	\$337	\$270
Minnesota	\$61,376	\$20,967	\$2,436	\$2,181	\$2,082	\$10,735	\$3,667	\$426	\$382	\$364
Missouri	\$71,528	\$22,263	\$11,222	\$4,806	\$2,115	\$11,578	\$3,604	\$1,817	\$778	\$342
Nebraska	\$20,737	\$5,237	\$1,313	\$1,669	\$1,179	\$10,538	\$2,661	\$667	\$848	\$599
North Dakota	\$7,398	\$2,787	\$975	\$1,200	\$802	\$9,494	\$3,576	\$1,251	\$1,540	\$1,029
Ohio	\$133,632	\$39,737	\$7,755	\$6,189	\$3,514	\$11,367	\$3,380	\$660	\$526	\$299
South Dakota	\$10,271	\$2,159	\$1,167	\$1,028	\$781	\$11,289	\$2,373	\$1,283	\$1,130	\$858
Wisconsin	\$64,293	\$17,169	\$5,166	\$1,784	\$1,664	\$10,911	\$2,914	\$877	\$303	\$282

Table 2: Federal Expenditures Distributed by State, FY2022 (continued)										
	Direct Payments	Grants	Procurement	Wages & Salaries	Other	Direct Payments	Grants	Procurement	Wages & Salaries	Other
	Total (millions)	Total (millions)	Total (millions)	Total (millions)	Total (millions)	Per Capita	Per Capita	Per Capita	Per Capita	Per Capita
Region 3: South	\$88,813	\$21,622	\$19,713	\$10,152	\$2,246	\$12,300	\$3,546	\$4,852	\$3,127	\$330
Alabama	\$65,848	\$12,414	\$14,124	\$5,340	\$1,568	\$12,977	\$2,446	\$2,783	\$1,052	\$309
Arkansas	\$35,964	\$11,695	\$1,367	\$1,727	\$1,178	\$11,808	\$3,840	\$449	\$567	\$387
Delaware	\$13,194	\$3,905	\$81	\$738	\$284	\$12,956	\$3,834	\$80	\$724	\$279
Florida	\$291,114	\$50,603	\$26,616	\$15,973	\$5,763	\$13,087	\$2,275	\$1,196	\$718	\$259
Georgia	\$123,816	\$23,523	\$8,402	\$12,687	\$3,404	\$11,346	\$2,156	\$770	\$1,163	\$312
Kentucky	\$52,319	\$19,993	\$11,890	\$5,073	\$1,584	\$11,595	\$4,431	\$2,635	\$1,124	\$351
Louisiana	\$54,628	\$23,996	\$3,605	\$3,483	\$1,701	\$11,901	\$5,228	\$785	\$759	\$371
Maryland	\$76,167	\$21,167	\$42,129	\$21,419	\$1,602	\$12,355	\$3,434	\$6,834	\$3,474	\$260
Mississippi	\$37,440	\$10,268	\$4,998	\$2,832	\$1,342	\$12,734	\$3,492	\$1,700	\$963	\$456
North Carolina	\$128,576	\$27,978	\$8,590	\$12,775	\$2,934	\$12,018	\$2,615	\$803	\$1,194	\$274
Oklahoma	\$47,471	\$11,397	\$5,009	\$5,143	\$1,408	\$11,809	\$2,835	\$1,246	\$1,279	\$350
South Carolina	\$69,320	\$11,767	\$7,184	\$4,675	\$1,291	\$13,122	\$2,227	\$1,360	\$885	\$244
Tennessee	\$81,864	\$16,733	\$11,425	\$4,025	\$2,534	\$11,610	\$2,373	\$1,620	\$571	\$359
Texas	\$294,678	\$83,573	\$67,399	\$24,253	\$8,505	\$9,813	\$2,783	\$2,244	\$808	\$283
Virginia	\$103,396	\$24,724	\$89,489	\$27,957	\$2,165	\$11,907	\$2,847	\$10,306	\$3,219	\$249
West Virginia	\$24,421	\$7,719	\$1,257	\$1,925	\$557	\$13,757	\$4,348	\$708	\$1,084	\$314
District of Columbia	\$9,606	\$6,121	\$31,556	\$22,554	\$365	\$14,299	\$9,111	\$46,972	\$33,573	\$544
Region 4: West	\$61,554	\$24,776	\$10,142	\$5,793	\$1,875	\$10,555	\$3,951	\$2,005	\$1,459	\$295
Alaska	\$7,311	\$5,035	\$3,308	\$2,898	\$164	\$9,965	\$6,864	\$4,509	\$3,950	\$224
Arizona	\$80,835	\$32,864	\$15,351	\$5,629	\$1,606	\$10,984	\$4,466	\$2,086	\$765	\$218
California	\$384,299	\$179,339	\$57,583	\$29,496	\$13,627	\$9,846	\$4,595	\$1,475	\$756	\$349
Colorado	\$57,729	\$16,319	\$13,989	\$7,244	\$1,814	\$9,885	\$2,794	\$2,395	\$1,240	\$311
Hawaii	\$16,270	\$5,435	\$3,517	\$6,101	\$430	\$11,297	\$3,774	\$2,442	\$4,236	\$299
Idaho	\$19,549	\$4,656	\$2,458	\$1,204	\$556	\$10,082	\$2,401	\$1,268	\$621	\$287
Montana	\$12,697	\$3,828	\$925	\$1,175	\$589	\$11,308	\$3,409	\$824	\$1,047	\$524
Nevada	\$34,771	\$7,952	\$3,258	\$2,542	\$662	\$10,942	\$2,502	\$1,025	\$800	\$208
New Mexico	\$24,485	\$13,566	\$11,676	\$3,254	\$537	\$11,586	\$6,419	\$5,525	\$1,540	\$254
Oregon	\$49,664	\$18,108	\$1,897	\$2,100	\$1,200	\$11,713	\$4,271	\$447	\$495	\$283
Utah	\$26,463	\$7,537	\$5,263	\$3,052	\$918	\$7,827	\$2,229	\$1,557	\$903	\$271
Washington	\$79,401	\$24,864	\$12,066	\$9,827	\$2,073	\$10,198	\$3,193	\$1,550	\$1,262	\$266
Wyoming	\$6,735	\$2,583	\$559	\$786	\$196	\$11,584	\$4,442	\$962	\$1,351	\$336

Source: Miller A (2023) and the United States Federal Government.

Table 3: Federal Tax Revenues, Expenditures, and Balance of Payments (Expend - Rev) Distributed by State, FY20221¹

	Tax Revenue Total (millions)	Expenditure Total (millions)	Expend - Rev Total (millions)	Tax Revenue Per Capita	Expenditure Per Capita	Expend - Rev Per Capita	GDP Per Capita ²	(Expend - Rev)/ GDP	Expend/ GDP	Rev/ GDP
National	\$4,628,663	\$5,933,826	\$1,305,163	\$13,888	\$17,804	\$3,916	\$ 65,423	0.06	0.27214	0.21228
Region 1: Northeast	\$107,787	\$116,611	\$8,824	\$15,842	\$18,361	\$2,519	\$71,750	0.04	0.25979	0.21827
Connecticut	\$73,106	\$77,484	\$4,378	\$20,160	\$21,368	\$1,207	\$ 83,340	0.01	0.25639	0.24191
Maine	\$15,271	\$27,578	\$12,306	\$11,024	\$19,907	\$8,883	\$ 60,425	0.15	0.32944	0.18243
Massachusetts	\$141,917	\$125,215	(\$16,701)	\$20,326	\$17,934	(\$2,392)	\$ 84,551	-0.03	0.21211	0.24040
New Hampshire	\$24,243	\$22,565	(\$1,678)	\$17,376	\$16,173	(\$1,203)	\$ 73,711	-0.02	0.21941	0.23573
New Jersey	\$161,616	\$143,662	(\$17,954)	\$17,450	\$15,511	(\$1,939)	\$ 77,206	-0.03	0.20091	0.22602
New York	\$361,829	\$382,998	\$21,170	\$18,388	\$19,464	\$1,076	\$ 75,423	0.01	0.25807	0.24380
Pennsylvania	\$170,301	\$238,073	\$67,771	\$13,128	\$18,353	\$5,224	\$ 64,506	0.08	0.28451	0.20352
Rhode Island	\$14,203	\$20,275	\$6,072	\$12,986	\$18,537	\$5,552	\$ 63,551	0.09	0.29169	0.20433
Vermont	\$7,598	\$11,649	\$4,051	\$11,742	\$18,002	\$6,261	\$ 63,035	0.10	0.28559	0.18627
Region 2: Midwest	\$71,761	\$92,268	\$20,507	\$12,718	\$16,139	\$3,422	\$62,706	0.06	0.25893	0.20223
Illinois	\$192,670	\$196,677	\$4,007	\$15,313	\$15,632	\$318	\$ 67,653	0.00	0.23106	0.22635
Indiana	\$74,525	\$107,209	\$32,683	\$10,907	\$15,690	\$4,783	\$ 58,329	0.08	0.26899	0.18698
Iowa	\$36,036	\$48,366	\$12,330	\$11,259	\$15,112	\$3,852	\$ 60,238	0.06	0.25087	0.18692
Kansas	\$34,704	\$47,866	\$13,161	\$11,816	\$16,297	\$4,481	\$ 60,433	0.07	0.26966	0.19552
Michigan	\$115,586	\$166,520	\$50,934	\$11,519	\$16,595	\$5,076	\$ 57,043	0.09	0.29093	0.20194
Minnesota	\$82,300	\$89,041	\$6,741	\$14,395	\$15,574	\$1,179	\$ 68,874	0.02	0.22613	0.20901
Missouri	\$69,053	\$111,934	\$42,880	\$11,177	\$18,118	\$6,941	\$ 57,825	0.12	0.31333	0.19330
Nebraska	\$25,701	\$30,135	\$4,433	\$13,060	\$15,313	\$2,253	\$ 64,263	0.04	0.23829	0.20323
North Dakota	\$9,893	\$13,162	\$3,269	\$12,695	\$16,890	\$4,196	\$ 70,391	0.06	0.23995	0.18035
Ohio	\$132,318	\$190,827	\$58,510	\$11,255	\$16,232	\$4,977	\$ 57,759	0.09	0.28103	0.19487
South Dakota	\$15,305	\$15,406	\$101	\$16,822	\$16,933	\$111	\$ 68,173	0.00	0.24838	0.24675
Wisconsin	\$73,039	\$90,075	\$17,037	\$12,395	\$15,286	\$2,891	\$ 61,496	0.05	0.24857	0.20156

¹ Source: Miller A (2023) and the United State Federal Government.

² Source: FRED Economic Data (2021) Economic Data accessed on 2/14/2024 from <https://fred.stlouisfed.org/release/tables?rid=110\&eid=257197\&od=2021-01-01\#>.

Table 3: Federal Tax Revenues, Expenditures, and Balance of Payments (Expend - Rev) Distributed by State, FY20221¹ (continued)

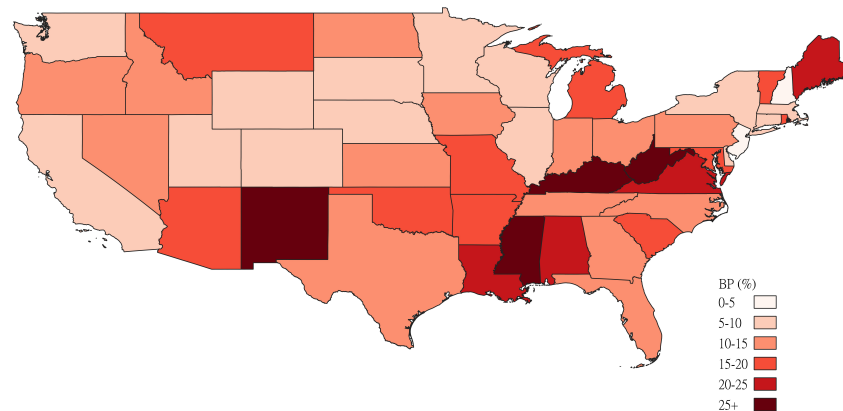
	Tax Revenue Total (millions)	Expenditure Total (millions)	Expend - Rev Total (millions)	Tax Revenue Per Capita	Expenditure Per Capita	Expend - Rev Per Capita	GDP Per Capita ²	(Expend - Rev)/ GDP	Expend/ GDP	Rev/ GDP
Region 3: South	\$92,517	\$142,546	\$50,029	\$12,175	\$24,154	\$11,979	\$59,721	0.18	0.37924	0.19915
Alabama	\$47,331	\$99,294	\$51,963	\$9,328	\$19,568	\$10,240	\$ 50,920	0.20	0.38429	0.18318
Arkansas	\$29,924	\$51,931	\$22,008	\$9,825	\$17,051	\$7,226	\$ 52,604	0.14	0.32414	0.18677
Delaware	\$17,834	\$18,202	\$368	\$17,512	\$17,874	\$361	\$ 63,177	0.01	0.28291	0.27719
Florida	\$314,632	\$390,069	\$75,437	\$14,144	\$17,535	\$3,391	\$ 64,804	0.05	0.27059	0.21826
Georgia	\$129,276	\$171,833	\$42,558	\$11,846	\$15,746	\$3,900	\$ 56,588	0.07	0.27826	0.20934
Kentucky	\$41,099	\$90,859	\$49,760	\$9,108	\$20,136	\$11,028	\$ 51,929	0.21	0.38776	0.17540
Louisiana	\$42,988	\$87,413	\$44,425	\$9,365	\$19,043	\$9,678	\$ 54,527	0.18	0.34924	0.17175
Maryland	\$92,900	\$162,484	\$69,584	\$15,070	\$26,357	\$11,288	\$ 70,236	0.16	0.37527	0.21456
Mississippi	\$22,281	\$56,879	\$34,598	\$7,578	\$19,346	\$11,768	\$ 46,388	0.25	0.41705	0.16337
North Carolina	\$122,884	\$180,853	\$57,969	\$11,486	\$16,904	\$5,418	\$ 58,125	0.09	0.29082	0.19760
Oklahoma	\$36,702	\$70,428	\$33,726	\$9,130	\$17,520	\$8,390	\$ 56,306	0.15	0.31116	0.16215
South Carolina	\$54,005	\$94,236	\$40,232	\$10,223	\$17,839	\$7,616	\$ 53,615	0.14	0.33272	0.19068
Tennessee	\$82,560	\$116,582	\$34,021	\$11,708	\$16,533	\$4,825	\$ 58,311	0.08	0.28354	0.20079
Texas	\$381,486	\$478,407	\$96,921	\$12,704	\$15,931	\$3,228	\$ 62,585	0.05	0.25455	0.20298
Virginia	\$125,984	\$247,731	\$121,747	\$14,508	\$28,529	\$14,020	\$ 69,021	0.20	0.41333	0.21020
West Virginia	\$13,581	\$35,879	\$22,298	\$7,651	\$20,212	\$12,561	\$ 50,024	0.25	0.40404	0.15294
District of Columbia	\$17,325	\$70,202	\$52,877	\$25,789	\$104,498	\$78,709	\$ 96,092	0.82	1.08748	0.26838
Region 4: West	\$94,204	\$104,140	\$9,936	\$13,397	\$18,265	\$4,867	\$64,907	0.08	0.28654	0.20456
Alaska	\$8,761	\$18,716	\$9,955	\$11,943	\$25,514	\$13,570	\$ 68,664	0.20	0.37157	0.17393
Arizona	\$84,826	\$136,285	\$51,459	\$11,527	\$18,519	\$6,992	\$ 58,390	0.12	0.31716	0.19741
California	\$679,348	\$664,344	(\$15,004)	\$17,406	\$17,022	(\$384)	\$ 77,013	0.00	0.22102	0.22601
Colorado	\$90,281	\$97,095	\$6,814	\$15,459	\$16,626	\$1,167	\$ 75,708	0.02	0.21961	0.20420
Hawaii	\$15,992	\$31,753	\$15,761	\$11,104	\$22,047	\$10,943	\$ 61,813	0.18	0.35668	0.17964
Idaho	\$21,262	\$28,423	\$7,161	\$10,965	\$14,658	\$3,693	\$ 56,615	0.07	0.25891	0.19368
Montana	\$12,733	\$19,214	\$6,481	\$11,340	\$17,112	\$5,772	\$ 60,984	0.09	0.28060	0.18595
Nevada	\$47,808	\$49,185	\$1,377	\$15,045	\$15,478	\$433	\$ 62,092	0.01	0.24927	0.24230
New Mexico	\$17,479	\$53,517	\$36,038	\$8,271	\$25,323	\$17,052	\$ 52,190	0.33	0.48522	0.15848
Oregon	\$53,125	\$72,970	\$19,845	\$12,529	\$17,209	\$4,680	\$ 62,314	0.08	0.27617	0.20106
Utah	\$42,873	\$43,233	\$360	\$12,681	\$12,788	\$106	\$ 59,449	0.00	0.21510	0.21331
Washington	\$139,732	\$128,231	(\$11,501)	\$17,947	\$16,470	(\$1,477)	\$ 75,345	-0.02	0.21859	0.23820
Wyoming	\$10,435	\$10,858	\$423	\$17,949	\$18,676	\$727	\$ 73,216	0.01	0.25508	0.24515

Note: The data do not include tax revenues and spending from Puerto Rico and other outlying areas.

¹ Source: Miller A (2023) and the United State Federal Government.

² Source: FRED Economic Data accessed on 2/14/2024 from [https://fred.stlouisfed.org/release/tables?rid=110&eid=257197&od=2021-01-01\#](https://fred.stlouisfed.org/release/tables?rid=110&eid=257197&od=2021-01-01\#.).

Figure 2: Map of Federal Balance of Payments as Proportion of State GDP



4 Regression Analysis

There are several factors that determine the percentage of jurisdiction GDP attributable to the balance of payments. To my knowledge, with the exception of Hicks (2024) there is no closely related research examining the flows of federal dollars in and out of subnational jurisdictions. Thus, guidance from the literature on appropriate covariates to include in the regressions is limited. The strategy used here is to include economic and demographic factors that are known to drive federal expenditures flowing in and federal taxes flowing out of a jurisdiction. Key drivers of federal expenditure inflow are factors such as the size of the elderly population who may qualify for social security benefits and Medicare and the numbers of people living below the poverty line who may receive federal “safety net” assistance. Similarly, jurisdictions with a larger military presence or businesses with critical military contracts will see greater federal expenditure inflows. Last, jurisdictions in which there are more people with disabilities may also see greater federal inflows as many with disabilities qualify for assistance. On the tax outflow side, jurisdictions with greater income, less poverty, more elderly and disabled may contribute less to the overall tax effort.

Given these considerations, the following variables are included in the exploratory regression models. The first factor is DC, which is the center of federal government activities where the concentration of federal spending is highest. Military spending as a percentage of state GDP is a factor that varies significantly across the states. Median household income may also be important; higher income leads to higher marginal income tax rates and may reduce the need for income support expenditures. Of particular interest in this study is that a large proportion of direct payments and grants depend on the demographic and health characteristics of each jurisdiction. Jurisdictions with higher proportions of their population that are elderly, poverty, and disability will receive higher federal assistance and pay lower taxes, thus leading to a higher balance of payments. In Table 4 below, I present summary statistics for all variables used in the evaluation. Variable definitions and data sources for all variables are provided in the Appendix. Table 5 presents exploratory multivariate regression analyses where the balance of payments as a proportion of GDP in jurisdiction j is modelled as a function of the proportion of people of age 65 or older (Elderly), the proportion of population living in poverty (Poverty), the proportion of the population that is disabled (Disability), median household

Table 4: Summary Statistics

Variable	Mean	Std. Dev.
Elderly	0.173	0.020
Disabled	0.140	0.020
Poverty	0.124	0.026
Income (Nominal US Dollars)	\$75,458	\$13,087
DC	0.020	0.140
Military/GDP	0.026	0.021
Balance of Payments/GDP	0.101	0.131
Expenditure/GDP	0.306	0.128
Revenue/GDP	0.205	0.028

income (Income) an indicator variable equal to 1 for DC and 0 otherwise (DC), and military spending as a proportion of GDP (Military). I also present regressions where the balance of payments is split into federal expenditures per GDP and federal tax revenues per GDP. This split enables the exploration of whether expenditures or tax revenues are more sensitive to the explanatory variables. Equation 1 presents the multiple regression models:

$$\text{Fiscal Measure}_{ij} = f(\text{DC}, \text{Military}_j, \text{Income}_j, \text{Elderly}_j, \text{Disability}_j, \text{Poverty}_j) \quad (1)$$

where Fiscal Measure type i is the balance of payments as a proportion of GDP in jurisdiction j , federal expenditures as a proportion of GDP in jurisdiction j , federal revenues as a proportion of GDP in jurisdiction j . DC is an indicator for whether the jurisdiction is DC, and zero otherwise, Military in jurisdiction j is equal to the percentage of GDP attributed to military spending. Income is median household income in 2022 dollars in jurisdiction j .² Elderly $_j$, Disability $_j$, Poverty $_j$ in jurisdiction j are equal the proportions of the jurisdiction population that are 65 and older, disabled, and living in poverty, respectively. The fiscal measures are for FY2022, whereas the demographic variables are for 2021. The one-year lag in the in demographic variables reduces concerns about potential simultaneity. The regressions are estimated using ordinary least squares with robust standard errors.

As reported in Table 4, on average 10% of jurisdiction GDP is attributable to federal balance of payments, but there is significant variation across the states and DC.³ Eight states have non-positive balance of payments (California, Illinois, Massachusetts, New Hampshire, New Jersey, South Dakota, Utah, and Washington). The jurisdiction average percentages of the population that are elderly, disabled, and living in poverty are 17%, 14%, and 12%, respectively. Again, there is considerable variation across the states and DC in these percentages. Military spending as a percentage of GDP is about 2.6% on average, but with cross-jurisdiction variability. Based on federal criteria for various federal transfer program and income tax policy, it is hypothesized that after controlling for DC, military spending, and median household income, jurisdictions with higher percentages of people who are elderly, living in poverty, and disabled will have higher federal balance of payments. Note that as societies age, they tend to have higher percentages of people who are disabled. Thus, the elderly and disabled variables are correlated and yet both may lead to greater net federal transfers. Similarly, the disabled are less likely to be in the labor force and thus disability is correlated with poverty. The correlations between disability/elderly and disability/poverty are 0.45 and 0.78, respectively. Also, those who are disabled may require personal care, which may pull family members away from gainful employment. As a final note of caution, the disability rate within a jurisdiction is correlated with other potential societal health problems, which in turn are related to the balance of payments. Thus, it may be appropriate to consider the disability rate as a proxy for overall health within a jurisdiction.

Table 5 presents four regressions in which the balance of payments/GDP, federal expenditures/GDP, and federal revenue/GDP are modelled as a function of the DC, military spending/GDP (Military), median

²Data on the disability rate come from The American Community Survey, which includes six questions with “yes” or “no” response options that capture information regarding disability (hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty. Respondents who report any one of the six disability types are considered to have a disability.

³Note that in Table 3 the nationwide average is 6%. The 10% figure is the non-weighted average of the states and DC.

Table 5: Balance of Payment, Expenditure, and Revenue Regressions

Dependent Variable: Balance of Payments/GDP (BP/GDP), Expenditure/GDP (Exp/GDP), Revenue/GDP (Rev/GDP)					
Independent Variable	BP/GDP	BP/GDP	BP/GDP	Exp/GDP	Rev/GDP
Elderly	0.663 (1.60)		0.218 (0.47)	0.403 (1.21)	0.1845 (0.96)
Poverty	1.871*** (2.95)		1.239* (1.77)	1.083** (2.09)	-0.152 (-0.52)
Disabled		2.037*** (3.92)	1.417** (2.05)	0.881* (1.86)	-0.571 (-1.61)
Income	-0.000 (-0.33)	-0.000 (-1.37)	0.000 (0.03)	0.000 (.025)	0.000 (0.62)
DC	0.681*** (15.41)	0.762*** (30.72)	0.704*** (17.30)	0.762*** (23.52)	0.058*** (3.77)
Military	2.055*** (6.71)	1.979*** (6.84)	1.867*** (6.58)	1.667*** (7.34)	-0.201 (-1.37)
Number of Observations	51	51	51	51	51
R-squared	0.89	0.89	0.90	0.94	0.47

Robust standard errors with t-values in parentheses. *p<0.10. **p <0.01. ***p <0.001.

household income (Income), and the variables and Elderly, Poverty, and Disabled. The column 1 regression omits Disabled and the column 2 regression includes Disabled but Poverty and Elderly are omitted. Column 3 includes all three variables. Note that the R-squares are high at 0.89 to 0.90 for regressions in columns 1 - 3. R-squares are typically not this high in cross-sectional regressions. There is also a high level of statistical significance in the variable coefficients. The DC and military spending coefficients are highly significant, indicating that jurisdictions with greater military presence and contracting have a higher balance of payments. Note, however, that median household income is never statistically significant in any of the regressions. Somewhat surprisingly the coefficient on Elderly is also statistically insignificant in all regressions. However, Poverty is positive and statistically significant in columns 1 and 3. In columns 2 and 3, the coefficients on Disability are also statistically significant. However, since there are correlations between Elderly, Poverty and Disability, the magnitude and statistical significance of the coefficients on all three variables fall in column 3 when all three variables are included in the regression, though Poverty and Disability maintain statistical significance. Overall, the net in-flow of funds appears most concentrated in jurisdictions with higher levels of poverty and disability. While the elderly qualify for Social Security and Medicare benefits and thus help drive the flow of federal direct transfers, the more important factors appear to be disability and poverty.

Columns 4 and 5 present regressions for expenditures/GDP and revenues/GDP. For the expenditures/GDP regression (column 4), we see that, with the exception of Elderly and Income, the independent variables are positive and statistically significant, with a high R-square of 0.94. The revenue/GDP regression (column 5) has a lower R-square of 0.46, where none of the population make-up variables are statistically significant. Taken together, the most important drivers of balance of payments in this analysis are poverty and disability. Moreover, society has the potential to influence both factors, which is discussed next.

Poverty and Disability

There are several approaches that have been used by national and subnational governments to help reduce poverty. However, a distinction should be made between providing public resources to alleviate the conditions of those living in poverty, which increases the balance of payments, and reducing poverty by strengthening economic opportunity and helping individuals come out of poverty. The latter approach would reduce rather than increase the balance of payments. While a review of the extensive research on poverty reduction is beyond the scope of the present article, the primary strategy is the multi-pronged approach of promoting development/job creation, increasing worker skills, and improving health (Cremin and Nakabugo, 2012).

In the context of the US experience, states have implemented a variety of tax and spending policies and educational opportunities to promote economic growth and opportunity with varying degrees of success. Undoubtedly, states will continue these efforts with the goal of strengthening their economies and reducing poverty. However, a key factor in poverty is human well-being. People who struggle with disabilities and health problems are less likely to be fully employed and more likely to struggle with poverty.

As shown in Figures 3 and 4, the rates of disability vary considerably across the states and over time. Generally, the jurisdictions with the highest rates of disability are the southern states (Alabama, Oklahoma, Arkansas, Kentucky, Mississippi, and West Virginia) where the disability rate exceeds 18%.⁴ Several states are on the other end of the spectrum with disability rates of 11% and 12% (Utah, DC, New Jersey, Colorado, Minnesota, California, Maryland, North Dakota, Illinois, and Texas). Jurisdictions with higher rates of disability receive more federal assistance and may generate less tax revenue, leading to significantly higher balance of payments.

Figure 3: Proportion of Population That Is Disabled by State

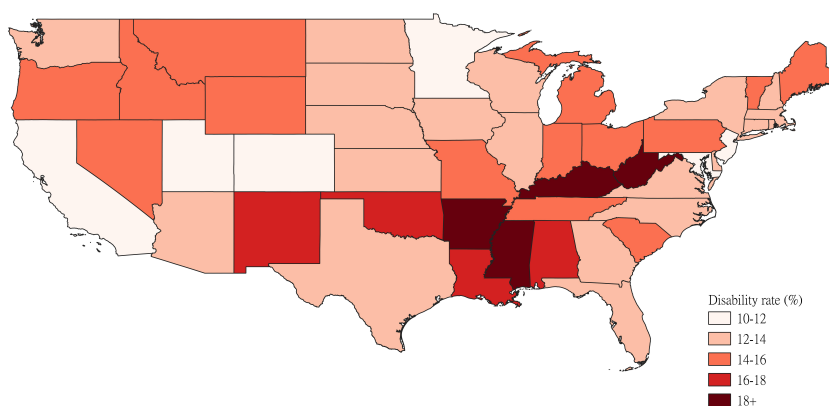
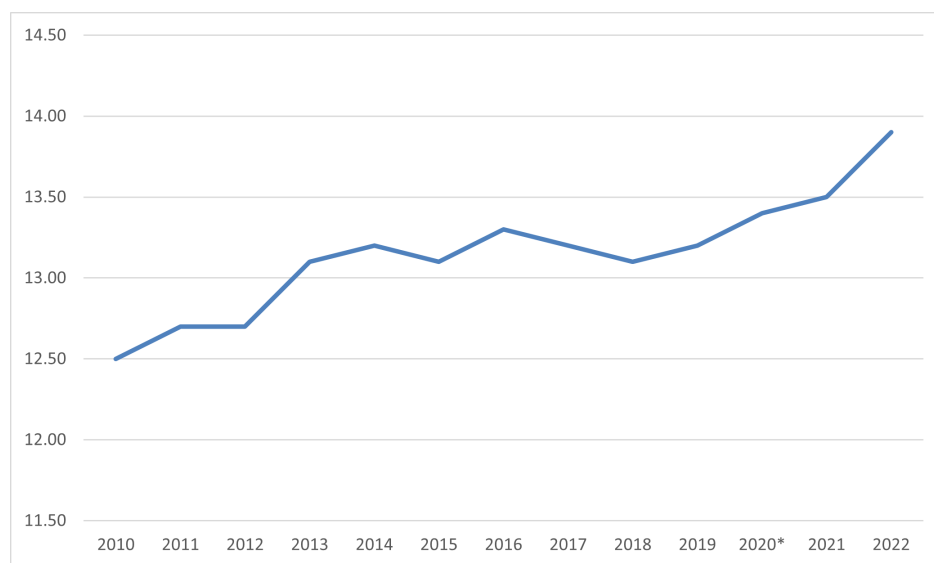


Figure 4 shows that between 2010 and 2022 the disability rate increased from 12.5% of the US population to nearly 14%. Also note the similarity between the disability map and the balance of payment map presented in Figure 2. The map in Figure 3 shows substantial variation in the disability rate, with highest concentrations in the southern states. According to the regression estimates found in column three of Table 5, if the US had maintained a 12.5% average disability rate, the net balance of payments would have been about 35% lower than it was in 2022. Given a projected deficit of \$1.5 trillion in 2024, a reduction in the balance of payments of 35% translates to a \$530 billion reduction in the federal deficit annually, resulting from a \$319 billion decrease in expenditures and a \$212 billion increase in tax revenues. Suppose that instead of the increased disability experienced over this timeframe the average disability rate had fallen to 11%. In this scenario federal deficits would have been about \$1.1 trillion billion lower.

According to the column 3 estimates in Table 5, the difference between West Virginia with a 19% disability rate and Utah with an 11% disability rate generates a difference in the ratio of balance of payments to GDP of 0.113. Figure 5 presents balance of payments per capita (Old BPPC) and the projected balance of payments per capita (New BPPC) if each state were to reduce the disability rate to 11%, the same as Utah. In this

⁴New Mexico's disability rate is also 18%.

Figure 4: Proportion of Population with Disability, 2010-2022



scenario, the number of states with a nonpositive balance of payments increases from eight to 12. States such as Alabama, Arkansas, Kentucky, Louisiana, New Mexico, Oklahoma, and West Virginia would experience a reduction in balance of payments per capita of thousands of dollars. Figure 5 illustrates how substantial differences in well-being affect fiscal balances across the states: Human health is directly linked to fiscal health.

To my knowledge there are no similar studies with which to make comparisons. However, recent work by Khavjou et al. (2021) estimates state disability-associated health care expenditures to be \$868 billion in 2015, which includes both federal transfers and state expenditures. Though not directly comparable, the finding is roughly consistent with the present paper.⁵ Though the two estimates are determined using different methods, they both suggest that disability accounts for a substantial fiscal obligation.

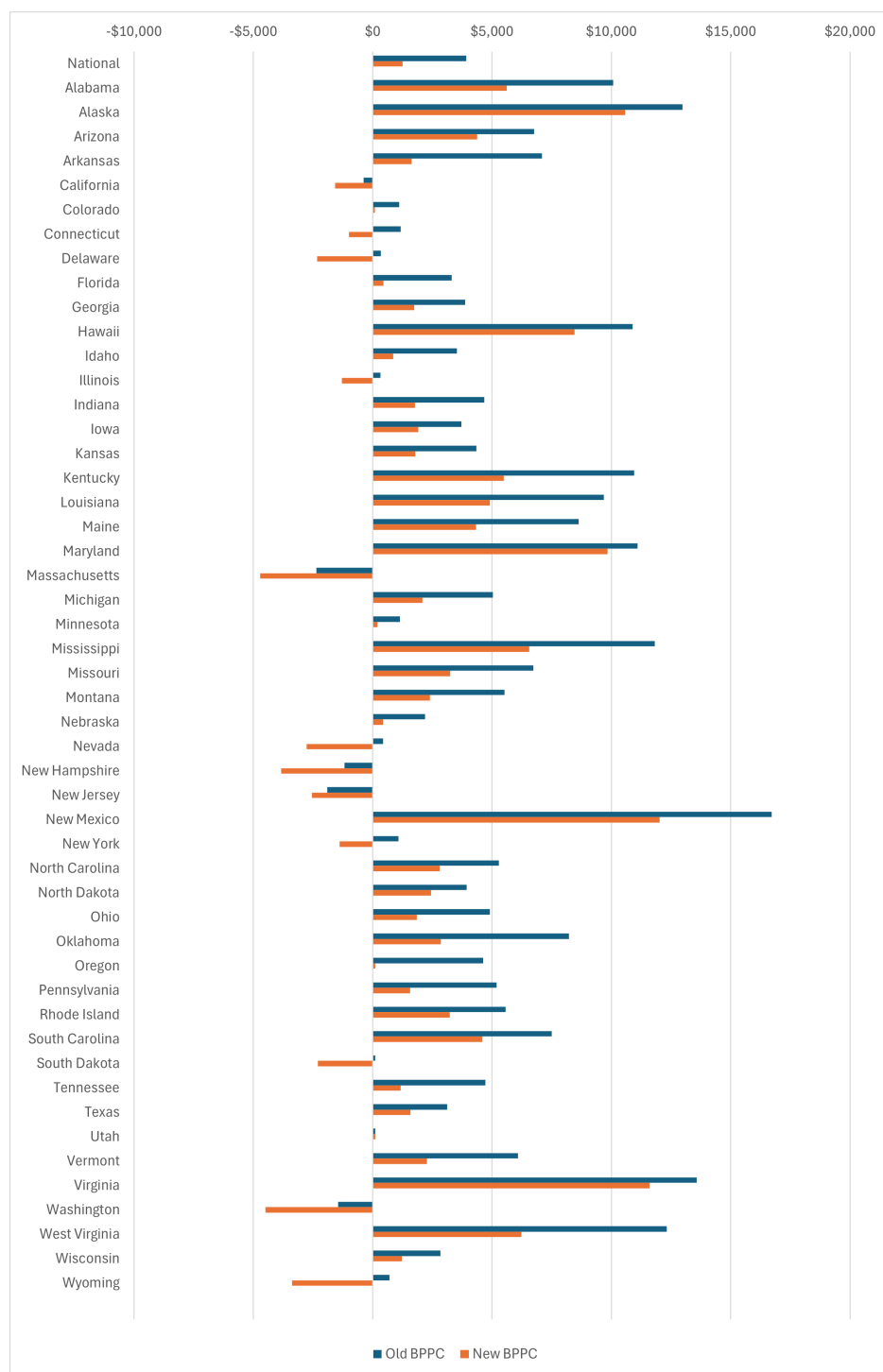
While many types of disability are beyond the control of individuals and society, some are directly related to lifestyle choices, and thus potentially avoidable or even reversible. A discussion of the underlying causes of disability and what can potentially be done to reduce disability is therefore in order. According to Sruthi (2024), the ten leading causes of disability are arthritis, back pain, ischemic heart disease, depression, cancer, stroke, Alzheimer's disease, chronic obstructive pulmonary disease (COPD), diabetes mellitus, and kidney disease. The underlying causes of these conditions are multiple, often interrelated, and complex. However, many of these conditions are directly related to lifestyle choices, where the effects accumulate over time. The most significant factors that contribute to disability that are to some degree within our control are an unhealthy diet, tobacco use, excessive alcohol consumption, misuse of drugs/pharmaceuticals, and lack of physical activity.⁶

Diabetes is also a major contributor to disability and is a factor in many of the other leading causes of disability. According to the Centers for Disease Control and Prevention (2024), about 19 percent of those in the 45-64 age category have diabetes, whereas the rate is 29% for those over the age of 65. The onset of type 2 diabetes over the life cycle is associated with poor diet, lack of physical activity, and obesity (Mayo Clinic, 2024b). A major contributing factor to kidney disease is diabetes and high blood pressure, which are

⁵Khavjou et al. (2021) include state spending whereas the present study focuses only on federal spending. Khavjou et al. (2021) focus on disability-specific expenditures, whereas the present study includes all types of federal spending as well as tax revenue losses.

⁶See Cleveland (2024); Mayo Clinic (2020, 2022b,a, 2023a, 2024a,c), for summaries of a variety of factors, including lifestyle choices, that influence the risks of arthritis, back pain, heart disease, depression, cancer, stroke, Alzheimer's disease, and Chronic obstructive pulmonary disease.

Figure 5: Balance of Payment Comparison with Reduced Disability



in turn influenced by lifestyle choices such as diet and smoking (Mayo Clinic, 2023b). Nearly every major cause of disability is to some degree influenced by lifestyle choices relating to diet, physical activity, tobacco use, and drug and alcohol use. While societal patterns are complex and not easily altered, with concerted

Table 6: Poverty Rate and Median Household Income Regressions

Independent Variable	Poverty	Income
Elderly	-0.426*** (-2.88)	37,698 (0.70)
Disabled	1.241*** (12.22)	-519,738*** (-10.49)
DC	0.034*** (5.04)	6,043 (1.56)
Military	-0.130** (-2.07)	157,266** (2.86)
Number of Observations	51	51
R-square	0.74	0.73

Robust standard errors with t-values in parentheses. *p < 0.10. **p < 0.01. ***p < 0.001.

effort is possible to shift lifestyle behaviors, thereby reducing health problems and disability.

Another major trend that may lead to increased disability rates over time is the percentage of children being diagnosed with autism spectrum disorder (ASD). In 2000, the reported ASD rate was 1 in 149 children. By 2016, the ASD rate had increased to 1 in 54. Recent reports ranged from 1 in 36 to 1 in 40 children.⁷ As these ASD children become adults, a significant proportion will lack the skills needed to be self-sufficient and thus will be categorized as disabled. Many ASD adults require oversight and care, which draws familial caretakers away from the formal labor market. Blaxill et al. (2023) estimated the societal costs of ASD to be \$223 billion/year in 2020. However, with the increasing trend coupled with more ASD children transitioning to disabled adults, the societal cost of ASD is expected to increase to \$1.36 trillion/year by 2040. Blaxill et al. (2023) call for an “urgent focus on prevention strategies”.

Disabilities have clear associations with poverty and reduced income earning potential. However, the connection between disability and economic outcomes runs both ways. Disabilities can and often do limit economic outcomes (Meyer and Mok, 2019). However, unemployment often leads to stress, depression, unhealthy behaviors, and reduced healthcare access. This higher unemployment results in increased disability and reduced life expectancy (Laditka and Laditka, 2016). Also, the counter-cyclical relationship between rising disability program participation and economic conditions is well documented (Black et al., 2002). With this understanding, it is instructive to examine the relationship between economic outcomes (poverty and median household income) and disability using state level data with standard regression analyses.

Table 6 presents two regressions in which the poverty rate (Poverty) and median household income (Income) are regressed on DC, Military, Elderly, Poverty, and Disabled. The R-squares are 0.74 and 0.73 in the Poverty and Income regressions, respectively, indicating that a high proportion of the variation across states in the poverty rate and median household income is accounted for by the explanatory variables. With the exception of Elderly in the Income regressions, all the coefficients on the explanatory variables are statistically significant. Of particular interest is the large statistically significant coefficients on Disability in both the Poverty and Income regressions. In the case of the Poverty regression, a one percentage point reduction in the disability rate translates to a 1.24 percentage point reduction in the poverty rate. While caution is warranted in attributing these relationships as entirely causal, the strong associations suggest that improving overall health (thereby reducing disability) may substantively reduce poverty and increase household income. This finding suggests that reducing disability would generate additional secondary effects (beyond the direct effects presented in Table 5) in reducing the balance of payments (and federal debt) through poverty reduction.

⁷Blaxill et al. (2023) for a summary of autism trends and the anticipated associated societal costs.

5 Discussion and Conclusion

In this study, I report on and examine the variation across the states and DC in federal government balance of payments as a proportion of GDP for FY 2022, showing significant variation where some states receive a high net inflow of federal dollars as a percentage of GDP. Aside from DC's extremely high balance of payments, New Mexico is highest among states where the balance of payments is 30% of state GDP. Massachusetts and New Jersey are the lowest, where the balance of payments is just -3% of GDP. New Mexico's high balance of payments is the result of having a relatively low per capita GDP in combination with relatively high federal grants and procurement.

With federal debt growing faster than the overall economy, the current rate of federal deficit spending is unsustainable. At some point, the federal government will likely implement deficit reduction measures to bring deficits to more sustainable levels, which may require some combination of tax increases and/or expenditure cuts. A 50% reduction in the projected \$1.5 trillion deficit in fiscal year 2024 by way of expenditure cuts would result in a \$2,200 per capita reduction nationwide. However, jurisdictions with a relatively high reliance on net federal dollars are potentially exposed to a greater shock, depending on the nature of the spending cuts. If tax increases are used to close the gap, higher income jurisdictions would experience a relatively larger shock. In the interest of balancing the geographic distribution of the shock, policy makers could consider using a mixture of expenditure cuts and tax increases. However, the potential differential geographic/jurisdictional impact is just one of many other important considerations in federal fiscal policy decisions.

States often implement policies designed to improve economic opportunities, which may help to reduce poverty and associated government obligations, while at the same time increase tax revenues. Jurisdictions sometimes focus on attracting young talent via in-migration. Both approaches, if successful, have the potential to increase resiliency. A far less common strategy, from a fiscal resilience perspective, is implementing policies targeted at improving societal health. The present study shows the strong association between the disability rate and the net balance of payments. The findings presented in this article suggest that implementing measures to improve overall health (thereby reducing disability) will increase economic resilience, reduce federal spending, and reduce deficits. Implementing additional policies/actions to help society become physically and mentally healthier could be an important fiscal strategy. The recent work of Koch and McNab (2024) shows that even though the proportion of people with disabilities has increased, disabled beneficiaries through Social Security Disability Insurance peaked in 2014 and has been in decline since. By this measure, conditions have modestly improved. Nevertheless, given that a reversal in health and disability is a long-term process, policy makers at the subnational level may find it useful to engage in scenario planning for federal deficit reduction.

Another strategy is to increase efforts to employ those with disabilities. There were many difficulties associated with the COVID-19 crisis, including adverse impacts on employment, particularly for the disabled. However, following the crisis employment among the disabled rebounded at a faster pace than the non-disabled, and this rebound was due to increased labor force participation among the disabled (Ne'eman and Maestas, 2023). Further, increased labor force participation among the disabled is at least partly the result of increased flexibility on the part of employers to allow telework and other reasonable accommodations (Ne'eman and Maestas, 2023). Additional federal and state policies to encourage flexibility in work arrangements may generate meaningful gains in employment, reductions in poverty, and improvements in the balance of payments.

In future work, it will be important to consider other indicators of societal well-being in addition to disability to increase our understanding of the relationship between human health and fiscal health. Expanding the analysis from a cross-section to a panel over several years may yield important insights as well as confirm the findings of the present cross-sectional evaluation. While the current exploratory analysis offers new insights, there is an opportunity to address this topic more rigorously. For example, use of panel data will capture changes in the balance of payments over time. Panel data may better identify causal relationships between the balance of payments and socioeconomic factors such as the aging population, poverty and health/disability. One could also potentially model the role of migration patterns as well as state level policies within a panel framework. Finally, as shown in the present study, the balance of payments and socioeconomic forces tend to exhibit regional patterns: a larger dataset may enable formal evaluation using

spatial econometric tools.

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Appendix

Table 7: Variable Definitions and Data Sources

Variable	Definition	Source
Elderly	Proportion of Population Over the Age of 65 in 2021	United States Census Bureau (2024)
Disabled	Proportion of the Population that is Disabled in 2021	Institute on Disability. (March 1, 2024). Percentage of people in the U.S. who had a disability from 2008 to 2022 [Graph]. In <i>Statista</i> . Retrieved May 03, 2024, from https://www.statista.com/statistics/792697/disability-in-the-us-population-share/ .
Poverty	Proportion of the Population in Poverty in 2021	United States Census Bureau (2024)
Income	Median Household Income in 2022	United States Census Bureau (September 13, 2023). Median Household Income in the United States in 2022, by State (in 2022 U.S. Dollars). In <i>Statistica</i> . Retrieved June 18, 2024, from https://www.statista.com/statistics/233170/median-household-income-in-the-united-states-by-state/
DC	Indicator Variable Equal to 1 if the Jurisdiction is the District of Columbia, and 0 Otherwise	Created by Author.

Military/ GDP	Military Spending as a Proportion of State GDP	United States Department of Defense. (2024). Defense Spending by State – Fiscal Year 2021. Retrieved May 14, 2024 from dsbs-fy2021 — Office of Local Defense Community Cooperation (oldcc.gov).
Balance of Payments/ GDP	(Federal Expenditure – Federal Revenue in a State)/State GDP	Miller, A., Doulis, M. Reale, P., Scheuermann, T., Coldiston, C., Ghasemi, S., Arzoumanian, M., Simons, J. (2023). New York's Balance of Payments in the Federal Budget: Federal Fiscal Year 2021. Office of Budget and Policy Analysis, State of New York. FRED Economic Data accessed on 2/14/2024 from #https://fred.stlouisfed.org/release/tables?rid=110&eid=257197&od=2021-01-01# .
Expenditure/ GDP	Federal Expenditures in a State /State GDP	Miller, A., Doulis, M. Reale, P., Scheuermann, T., Coldiston, C., Ghasemi, S., Arzoumanian, M., Simons, J. (2023). New York's Balance of Payments in the Federal Budget: Federal Fiscal Year 2021. Office of Budget and Policy Analysis, State of New York. FRED Economic Data accessed on 2/14/2024 from #https://fred.stlouisfed.org/release/tables?rid=110&eid=257197&od=2021-01-01# .
Revenue/ GDP	Federal Revenue in a State/State GDP	Miller, A., Doulis, M. Reale, P., Scheuermann, T., Coldiston, C., Ghasemi, S., Arzoumanian, M., Simons, J. (2023). New York's Balance of Payments in the Federal Budget: Federal Fiscal Year 2021. Office of Budget and Policy Analysis, State of New York. FRED Economic Data accessed on 2/14/2024 from #https://fred.stlouisfed.org/release/tables?rid=110&eid=257197&od=2021-01-01# .