State and Local Expenditure Trend Analysis

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ABSTRACT

State and local governments expenditure is rising steady, with average per capita expenditure of 12,052 in 2019. Social service expenditure is the fastest rising while education is the largest expenditure of state and local government. This study analyzes state and local governments expenditure, with a focus on social service expenditure, from 2008-2019. The results indicate that while Medicaid expansion does cause social service expenditure to rise, state dependency changes have bigger effect on the rise of social service expenditure than Medicaid expansion. This study does not document a significant influence of Patient Protection and Affordable Care Act on social service expenditure. The rise of social service expenditure is accompanied by the downward trend of education and capital outlay expenditure. This study refrains from drawing any conclusions on how social service expenditure affects education and capital outlay expenditure since various other factors need to be incorporated. This study also highlights uniqueness of each state. Wyoming spends the most and Florida spends the least per capita on education. District of Columbia spends the most while Nevada spends the least on social service. While social service expenditure is the fastest rising expenditure in most states, Connecticut's unfunded pension liabilities forced the state to cut significantly on social service expenditure.

Keywords: Public Finance, Social Service Expenditure, State and Local Government, Education, Capital Outlay, Medicaid Expansion, PPACA

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INTRODUCTION

State and local governments provide a broad range of services to citizens with public resources. State and local governments financial stability and accountability are of interest to all citizens. United States Government Accountability Office (GAO) (2020) examined state and local government spending from 1998 to 2018. The analysis shows that health spending, as part of social service spending, had the largest increase, rising to 24% of all spending in 2018. Social service program includes Medicaid and welfare programs. PPACA(Patient Protection and Affordable Care Act) became law in March, 2010. PPACA made a number of changes to Medicaid. The most widely discussed is the expansion of eligibility to adults with incomes up to 133 percent of the federal poverty level. Over three quarters of states have opted to expand Medicaid to date. Most states that choose not to adopt Medicaid expansion are in the southeast. The twelve states that choose not to adopt Medicaid expansion by 2022 are Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, Texas, Kansas, Wyoming, South Dakota, Wisconsin.

The purpose of this study is to analyze how state and local expenditures changes over time from 2008 to 2019. The study looks at both dollar amount and changes in composition. This study does in depth analysis of composition changes in state and local government spending. The analysis sheds light on whether Medicaid expansion adoption contributes to the rise of social service expenditure and how the rise affects other categories of expenditure. This study analyzes how state dependency rate, population over 65 and younger than 18, affects social service expenditure. Our population aged significantly from 2008 to 2019. Medicaid expansion and aging population can both contribute to social service expenditure's rise. This study separates the effects of potential contributing factors. The analysis also highlights each state's uniqueness.

LITERATURE REVIEW

Keeping government consumption at bay can be beneficial to corporate performance. Qi, Yu, Yang, and Xie (2022) showed that increased local government consumption leads to declines in firm productivity, increases in corporate tax burden, and declines in government efficiency. The results are based on China prefecture-level city governments. State expenditure can be influenced by various factors, from demographics, state personal income level, to politics. In the pursuit of constraining government's ability to tax and spend, many states have approved supermajority requirement, which requires supermajority to increase revenue. Hankins (2022) revisited how supermajority requirements affect state revenue and expenditure using matching method. The results suggest that supermajority requirements do not have a robust effect on government expenditures or tax revenue. Knight (2000) found evidence that a supermajority requirement leads to lower effective tax rate. However, Lee, Borcherding, and Kang (2014) documented an opposite result. They found supermajority rule is positively related to tax revenue. Lee (2018) found that the predicted tax rate was lower up to twelve years after adoption of the requirement and eventually recovered as more time passed.

Capital outlay and education expenditure have drawn particular interest among the public and researchers. In recent years, government health care spending has drawn more and more interest because of its growth. As GAO (2020) pointed out, health spending has the largest increase from 1998 to 2018. Patton and Lipford (2020) pointed out the continued rise of social welfare expenditure in comparison to Smith's government duties expenditures (national defense,

administration of justice, transportation, education, and training and employment). The other side of the equation is that public investment in infrastructure in the U.S. is lagging (Ebel, Petersen, and Vu 2013; Wang and Wu 2018). Capital outlay expenditure are related to per capita income, percent urban, the rate of population growth, the percentage of state-local tax revenue derived from state sources, and federal aid (Osman 1969). Wang and Wu (2018) using data from 1992 to 2012 found that local tax and expenditure limitations and legal debt limitations restrict municipal capital spending while a higher municipal fund balance and intergovernmental revenue show a positive effect on capital expenditure. Fisher and Wassmer (2015) showed that the more ideologically liberal states invest more in capital projects and population growth and density have significant positive effects on capital spending. Tian, Teng, Guo (2021) showed that state and local education expenditure can be influenced by neighboring localities (yardstick competition model). Blankenau, Cassou, and Ingram (2007) explored a stylized model of human capital accumulation that differentiates K-12 education from college as K-12 education is mandatory and funded exclusively by government and higher level of education is optional and requires some private expenditure. They analyzed the trade-off between public funding of K-12 and college education. They concluded that when public education expenditures are low, all agents prefer the budget be allocated to K-12 education. When expenditures are large enough, all prefer that some portion of the budget be allocated to college education. Humphreys (2000) concluded that state-specific changes in the business cycle have significant effects on state appropriations to higher education. A 1% decline in real per capital income was associated with a 1.39% decline in state appropriations to higher education per student in the following year. Empirical research on factors affecting social service expenditure is scarce. Dupor and Guerrero (2021) concluded that government-financed health care, through Medicare and Medicaid, does have stimulating effect on the economy.

METHODOLOGY

This study includes data from 2008-2019 from U.S. Census Bureau. State and local total expenditures are used to capture the whole expenditure on each category. Descriptive statistics on each state highlight each state's uniqueness and focus. Descriptive statistics also show a clear picture of each state's total expenditure per capita, and how it is allocated to different main categories. Correlation analysis illustrate how each category is related to each other. The study performs visual illustration in addition to correlation analysis to show how social service expenditure affects other categories of expenditures over time.

State dependency rate, population over 65 and under 18, can contributes to social service expenditure. Our population aged significantly from 2008 to 2019. Patient Protection and Affordable Care Act became law in 2010. Most states choose to expand Medicaid in 2014. While PPACA and Medicaid expansion both can contribute to the rise of medical expense, thus social service expenditure, aging population can cause the rise of medical expense as well. All three factors are considered using regression analysis to separate the effects.

RESULTS

As Table 1 illustrates, District of Columbia, Alaska, New York and Wyoming are the top four states/district in terms of average state and local expenditure per capita from 2008 to 2019, ranging from $23,893 to $16,195. The four states with the lowest per capita expenditures are all

in the south except Idaho. They are Idaho, Georgia, Arizona, and Arkansas, ranging from $7,679 to $8,366. The highest expenditure item for state and local government is education, with an average of $2,995 per capita. Social service is the next highest item with an average of $1,809 per capita. Wyoming spends the most on education at $4,702 per capita, followed by Alaska, Vermont, and District of Columbia. Florida spends the least per capita on education at $2,043 per capita, followed by Idaho, Tennessee, and Nevada. District of Columbia spends the most on social service at $4,933 per capita, followed by New York, Alaska, and Massachusetts. Nevada spends the least on social service at $1,013 per capita, followed by Georgia, Utah, and Texas. Another item that is of public interest is expenditure on public safety. Expenditure on public safety is on average $715 per capita from 2008 to 2019. District of Columbia, Alaska, California, and New York spend the most while Indiana, West Virginia, Iowa, and Kentucky spend the least on public safety.

Table 2 shows that state and local governments on average spend 28.63% on education, 16.88% on social services, and 6.75% on public safety. Vermont, Texas, New Hampshire, and Arkansas have the highest while District of Columbia, Alaska, Hawaii, and California have the lowest percentage spending on education. Maine, Arkansas, West Virginia and Vermont have the highest while Wyoming, Nevada, Nebraska and Colorado have the lowest percentage spending on social service. Nevada, Florida, Arizona, and Maryland have the highest while Iowa, North Dakoda, Kentucky, and West Virginia have the lowest percentage spending on public safety.

Table 3 includes total revenue to show the overall financial picture of state and local government. State and local government finance generally speaking is healthy with revenue above expenditure in most of the years investigated. In dollar terms without considering inflation, most expenditure categories see steady growth except insurance and trust, which shows fluctuations over the years. Social service expenditure sees the biggest increase of 62% while governmental administration and capital outlay expenditures see the smallest increase of 11% from 2008 to 2019. Environment & housing and transportation expenditures have more than 40% increase. However, they are relatively smaller expenditure categories. In 2019, the average state and local government education expenditure per capita is $3,340, and the average social service expenditure per capita is $2,253.

As Table 4 illustrates, social service expenditure is up by 3.87% while education expenditure is down by 1.82% as a percentage of total expenditure from 2008 to 2019. Capital outlay sees a drop of 1.69% and governmental administration is down by 1.11% as a percentage of total expenditure from 2008 to 2019. How social service spending affects other categories of spending is further analyzed by correlation analysis and visualization.

As Table 5 indicates, state and local social service expenditure is significantly negatively associated with capital outlay, public safety, education, governmental administration, and transportation. The only two categories of expenditures that are not significantly correlated with social service expenditure are environment & housing and insurance & trust. State and local governments need to make decisions and tradeoffs on limited public resources. If social service expenditure takes a bigger part in the state and local finance, other categories of expenditures need to be adjusted to balance the overall budget. Education as the highest expenditure of state and local government is significantly negatively associated with every other category of expenditure. It means increased education budget comes with the reduction of all other major categories of expenditure, but also means increase in other major categories of expenditure significantly reduces education budget. Capital outlay is significantly negatively associated with social service, education, and insurance & trust.

As Figure 1 illustrates, social service expenditure has become a much bigger percentage of state and local expenditure since 2008. It increased from 14.81% to 18.68% of total expenditure on average from 2008 to 2019. Even though correlation analysis reveals the change is significantly associated with all categories of expenditures except environment & housing and insurance & trust, Figure 1 shows that the rise of social service expenditure affects education and capital outlay expenditures the most. Capital outlay is referring to the overall capital outlay and it can be any category of expenditure.

As Table 6 indicates, average/median increase of social service expenditure as percentage of total expenditure is 3.87%/4%. The highlighted states are states that did not adopt Medicaid expansion in 2019. Idaho, Utah, Nebraska, Oklahoma, and Missouri have adopted Medicaid expansion after 2019. Average/median increase of social service expenditure as percentage of total expenditure for states that opt not to expand Medicaid by 2019 is 2.22%/2.25% from 2008 to 2019, which is significantly lower than the average/median increase of 4.70%/4.20% for the states and District of Columbia that opt to expand Medicaid. The decision to expand Medicaid does contribute to the rise of social service expenditure. However, social service expenditure became a bigger part of state and local expenditure even without the adoption. GAO (2020) discussed how health care cost after PPACA has risen, especially for states that adopted Medicaid expansion. This study agrees.

Four states stand out as outliers through analysis of social service expenditure changes from 2008 to 2019 as illustrated in Table 6. Table 7 shows the four states' various categories of expenditures as percentage of total expenditure in 2008 and 2019. Connecticut social service expenditure as percentage of total expenditure decreased from 14.75% to 9.27% while insurance & trust increased from 9.86% to 13.73%. As Kevin Lembo, state comptroller commented: "Connecticut's unfunded pension liabilities are a crushing debt that increasingly crowd out other state budget priorities." Louisiana, Arizona, and California all have significantly larger increase in social service expenditure compared with other states. And they all have increase in insurance & trust expenditure as well. The largest adjustment these three states made to their expenditures is to reduce capital outlay.

The passing of patient protection and affordable care act does not have a significant effect on social service expenditure. Medicaid expansion significantly increases social service expenditure percentage point as total expenditure by 1.97. As our population is aging with median percentage of citizens over 65 at 15.78% in 2019, up from 12.42% in 2008, for the 50 states and District of Columbia, social service expenditure percentage point as total expenditure significantly increased by 1.86. Our minor population is declining in the same time period. Its median is 22.11% of the population in 2019, down from 24.05% in 2008, for the 50 states and District of Columbia. This decrease has significantly increased social service expenditure percentage point as total expenditure by 0.75. Our state dependency changes contribute 2.61 percentage point increase while Medicaid expansion contributed 1.97 percentage point increase of social service to total expenditure from 2008 to 2019.

CONCLUSION

Education expenditure is the largest expenditure for state and local government. However, social service expenditure rose significantly from 2008 to 2019. This is caused by aging population and Medicaid expansion. The rise of social service expenditure crowds out all other major categories of expenditure except environment & housing and insurance & trust. The

rise of social service expenditure is accompanied by the downward trend of education and capital outlay expenditure. This downward trend for education expenditure can be the result of many factors, such as demographic changes, economic cycles, and the rise of social service expenditure. Capital outlay downward trend can be caused by slowed population growth and changes in federal grant as well as the rise of social service expenditure. This study is not drawing conclusions on what caused the downward trend of education and capital outlay expenditure. Future research on education and capital outlay expenditure incorporating various factors will provide more answers. This research uses data before the pandemic. The pandemic has created significant volatility in the economy. Future research on public finance during and post pandemic is greatly warranted.

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TABLE 1: Average per Capita Expenditure by State from 2008 to 2019

	Total expd.	Ins. & trust	Env. & HSG	Trans.	Gov. adm.	Cap Ex	SS	PS	Edu.
District of Columbia	23,893	806	538	49	1,749	4,345	4,933	1,794	3,984
Alaska	20,916	1,746	369	402	1,818	3,186	2,844	1,245	4,617
New York	16,284	1,741	258	360	1,186	1,765	3,000	1,027	3,959
Wyoming	16,195	1,258	328	55	1,188	2,456	1,398	961	4,702
California	12,979	1,535	376	151	976	1,202	2,172	1,122	3,034
Massachusetts	12,468	1,380	336	242	985	1,103	2,682	719	3,093
North Dakota	11,915	822	336	69	749	2,257	1,646	569	3,564
New Jersey	11,828	1,539	301	218	806	962	1,748	786	3,829
Vermont	11,819	653	217	44	689	841	2,600	662	4,141
Oregon	11,636	1,399	406	127	862	1,126	1,945	846	3,016
Delaware	11,551	818	281	374	1,078	1,138	2,211	787	3,749
Washington	11,454	1,074	527	212	750	1,597	1,428	754	3,022
Rhode Island	11,312	1,515	301	93	1,127	706	2,478	903	3,045
Connecticut	11,269	1,477	238	32	1,076	1,034	1,421	695	3,498
Nebraska	11,202	538	223	60	538	1,531	1,332	614	3,369
Hawaii	11,162	1,010	481	358	987	1,449	1,734	648	2,470
Minnesota	11,115	1,018	330	99	783	1,223	2,443	627	3,124
New Mexico	11,007	1,036	226	48	782	1,159	2,393	824	3,164
Illinois	10,679	1,489	226	187	932	1,070	1,569	765	2,839
Pennsylvania	10,671	1,193	298	150	829	1,035	2,141	632	3,042
Maryland	10,646	916	324	164	818	892	1,836	932	3,261
Louisiana	10,409	959	203	82	799	1,180	1,807	754	2,623
Iowa	10,389	792	308	31	555	1,415	1,684	488	3,295
Ohio	10,248	1,462	255	57	732	954	2,011	653	2,903
Wisconsin	10,066	1,078	262	67	665	941	1,881	724	3,058
Colorado	10,060	1,073	291	196	912	1,239	1,238	763	2,800
Kansas	9,589	703	252	54	728	1,137	1,292	588	3,097
Mississippi	9,476	825	166	32	520	892	1,850	526	2,589
Montana	9,408	927	236	58	769	1,052	1,573	667	2,660
Michigan	9,401	1,045	242	69	621	650	1,487	630	2,975
South Carolina	9,398	758	219	86	600	953	1,424	519	2,789
Kentucky	9,387	1,011	210	66	722	961	2,020	473	2,678
Maine	9,376	763	236	136	679	643	2,324	517	2,557
Alabama	9,370	736	190	57	530	892	1,456	528	2,895
Utah	9,216	579	257	79	726	1,391	1,130	551	2,964
Virginia	9,148	669	276	193	704	1,007	1,306	753	2,992
West Virginia	9,142	801	242	76	685	842	2,072	492	2,875
Texas	8,788	683	221	141	621	1,237	1,224	620	2,927

New Hampshire	8,728	587	194	156	804	642	1,478	641	2,904
North Carolina	8,714	698	225	57	525	860	1,343	605	2,525
Tennessee	8,673	522	204	53	543	783	1,602	571	2,109
South Dakota	8,669	598	247	33	679	1,379	1,230	527	2,586
Missouri	8,622	852	202	66	574	811	1,392	584	2,430
Nevada	8,496	925	244	188	770	1,121	1,013	923	2,141
Oklahoma	8,463	692	215	98	499	1,079	1,597	594	2,597
Florida	8,458	604	345	214	579	968	1,239	842	2,043
Indiana	8,413	528	274	39	598	896	1,649	501	2,587
Arkansas	8,366	665	193	30	525	812	1,901	502	2,745
Arizona	8,191	687	238	73	592	956	1,556	778	2,158
Georgia	8,080	736	243	110	505	938	1,098	588	2,657
Idaho	7,679	686	327	45	593	787	1,407	644	2,047
Average	10,675	953	277	120	785	1,206	1,809	715	2,995

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TABLE 2: State and Local Government Average Expenditures Composition by Percentage

State	Ins. & trust	Env. & HSG	Trans.	Gov. adm.	CapEx	Social service	Public safety	Edu.
Vermont	5.55%	1.83%	0.37%	5.89%	7.11%	21.94%	5.59%	35.02%
Texas	7.77%	2.51%	1.60%	7.09%	14.07%	13.89%	7.07%	33.33%
New Hampshire	6.72%	2.21%	1.79%	9.22%	7.39%	16.85%	7.33%	33.31%
Arkansas	7.96%	2.31%	0.37%	6.30%	9.73%	22.45%	6.01%	32.97%
Georgia	9.11%	3.00%	1.36%	6.24%	11.62%	13.59%	7.29%	32.88%
Virginia	7.30%	3.00%	2.08%	7.72%	11.03%	14.23%	8.24%	32.79%
Delaware	7.09%	2.44%	3.24%	9.37%	9.89%	19.01%	6.83%	32.42%
New Jersey	13.00%	2.56%	1.83%	6.84%	8.17%	14.72%	6.66%	32.35%
Kansas	7.36%	2.63%	0.56%	7.66%	11.87%	13.43%	6.14%	32.30%
Utah	6.31%	2.78%	0.86%	7.90%	15.12%	12.23%	6.00%	32.17%
Iowa	7.62%	2.94%	0.29%	5.37%	13.68%	16.13%	4.71%	31.77%
Michigan	11.16%	2.58%	0.73%	6.61%	6.92%	15.74%	6.71%	31.69%
West Virginia	8.71%	2.65%	0.83%	7.51%	9.32%	22.40%	5.39%	31.66%
Connecticut	13.06%	2.11%	0.28%	9.55%	9.16%	12.68%	6.17%	31.03%
Alabama	7.84%	2.02%	0.61%	5.67%	9.56%	15.45%	5.65%	30.98%
Indiana	6.33%	3.22%	0.45%	7.12%	10.67%	19.44%	5.95%	30.79%
Maryland	8.61%	3.03%	1.52%	7.71%	8.38%	17.13%	8.76%	30.74%
Oklahoma	8.18%	2.53%	1.16%	5.92%	12.75%	18.84%	7.01%	30.72%
Wisconsin	10.74%	2.60%	0.66%	6.62%	9.32%	18.57%	7.21%	30.40%
North Dakota	6.89%	2.82%	0.57%	6.39%	18.54%	13.77%	4.76%	30.12%
Nebraska	4.78%	1.98%	0.54%	4.81%	13.69%	11.89%	5.46%	30.01%
South Dakota	6.86%	2.84%	0.38%	7.87%	15.97%	14.18%	6.08%	29.80%
South Carolina	8.08%	2.33%	0.91%	6.43%	10.13%	15.13%	5.53%	29.67%
Wyoming	7.73%	2.02%	0.34%	7.34%	15.30%	8.65%	5.96%	29.04%
North Carolina	8.05%	2.58%	0.65%	6.03%	9.88%	15.38%	6.94%	29.01%
New Mexico	9.40%	2.05%	0.44%	7.15%	10.65%	21.54%	7.49%	28.86%
Kentucky	10.79%	2.23%	0.70%	7.76%	10.31%	21.26%	5.07%	28.61%
Pennsylvania	11.24%	2.80%	1.40%	7.82%	9.72%	19.95%	5.93%	28.48%
Ohio	14.29%	2.48%	0.56%	7.17%	9.34%	19.46%	6.38%	28.38%
Montana	9.83%	2.49%	0.61%	8.20%	11.24%	16.55%	7.09%	28.35%
Missouri	9.86%	2.32%	0.77%	6.66%	9.47%	16.10%	6.77%	28.24%
Minnesota	9.21%	2.95%	0.89%	7.07%	10.99%	21.89%	5.64%	28.13%
Colorado	10.69%	2.89%	1.94%	9.09%	12.33%	12.15%	7.60%	27.81%
Mississippi	8.67%	1.74%	0.33%	5.49%	9.47%	19.46%	5.55%	27.33%

Maine	8.13%	2.51%	1.44%	7.25%	6.85%	24.75%	5.51%	27.28%
Rhode Island	13.47%	2.64%	0.82%	9.98%	6.24%	21.77%	7.97%	26.94%
Idaho	8.93%	4.25%	0.58%	7.73%	10.25%	18.28%	8.38%	26.68%
Illinois	13.90%	2.11%	1.74%	8.70%	10.08%	14.64%	7.16%	26.65%
Arizona	8.41%	2.91%	0.90%	7.23%	11.64%	18.94%	9.50%	26.36%
Washington	9.43%	4.59%	1.84%	6.56%	14.00%	12.42%	6.60%	26.33%
Oregon	12.18%	3.48%	1.10%	7.44%	9.81%	16.33%	7.31%	26.00%
Nevada	10.89%	2.88%	2.21%	9.10%	13.14%	11.82%	10.89 %	25.22%
Louisiana	9.22%	1.95%	0.79%	7.69%	11.35%	17.34%	7.25%	25.20%
Massachusetts	11.16%	2.70%	1.93%	7.96%	8.83%	21.29%	5.78%	24.83%
Tennessee	6.02%	2.34%	0.61%	6.25%	9.03%	18.44%	6.58%	24.34%
New York	10.71%	1.58%	2.21%	7.31%	10.91%	18.27%	6.33%	24.31%
Florida	7.15%	4.09%	2.53%	6.85%	11.40%	14.68%	9.95%	24.16%
California	11.86%	2.91%	1.16%	7.60%	9.38%	16.35%	8.70%	23.39%
Hawaii	9.06%	4.29%	3.18%	8.93%	12.89%	15.45%	5.80%	22.24%
Alaska	8.35%	1.77%	1.92%	8.70%	15.23%	13.59%	5.94%	22.11%
District of Columbia	3.39%	2.24%	0.21%	7.31%	18.01%	20.66%	7.57%	16.74%
Average	9.00%	2.64%	1.11%	7.34%	11.02%	16.88%	6.75%	28.63%

TABLE 3: State and Local Government Expenditure per Capita from 2008 to 2019

2008	Total rev.	Total expd.	Ins. & trust	Env. & HSG	Trans.	Gov. Adm.	CapEx	Social service	PS	Edu.
2008	9,097	9,406	684	228	101	760	1,193	1,391	665	2,765
2009	7,475	9,874	817	238	101	781	1,235	1,487	688	2,841
2010	10,454	10,224	1,069	246	103	769	1,225	1,563	684	2,853
2011	11,302	10,261	1,040	255	105	751	1,167	1,630	682	2,856
2012	10,032	10,249	988	266	111	785	1,146	1,628	684	2,871
2013	11,227	10,303	960	268	117	776	1,124	1,689	689	2,893
2014	11,619	10,582	983	280	121	772	1,111	1,795	703	2,950
2015	10,905	10,831	922	288	126	773	1,170	1,942	718	3,022
2016	10,669	11,118	957	296	130	778	1,222	2,042	733	3,120
2017	12,070	11,454	980	311	138	799	1,283	2,113	758	3,183
2018	12,480	11,746	1,007	321	143	833	1,274	2,172	779	3,243
2019	12,364	12,052	1,033	329	148	846	1,321	2,253	796	3,340
Change	36%	28%	51%	44%	47%	11%	11%	62%	20%	21%

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TABLE 4: State and Local Government Expenditure Composition from 2008 to 2019

Year	Ins. & trust	Env. & HSG	Trans.	Gov. adm.	CapEx	SS	PS	Edu.
2008	7.36%	2.48%	1.05%	8.07%	12.37%	14.81%	7.05%	30.09%
2009	8.36%	2.46%	1.01%	7.86%	12.31%	15.12%	6.97%	29.39%
2010	10.55%	2.44%	1.00%	7.47%	11.75%	15.29%	6.70%	28.44%
2011	10.18%	2.53%	1.01%	7.29%	11.18%	15.89%	6.66%	28.36%
2012	9.70%	2.64%	1.08%	7.62%	10.97%	15.89%	6.71%	28.51%
2013	9.37%	2.66%	1.14%	7.53%	10.57%	16.40%	6.74%	28.58%
2014	9.39%	2.70%	1.14%	7.27%	10.13%	17.02%	6.73%	28.39%
2015	8.58%	2.73%	1.16%	7.10%	10.40%	18.04%	6.72%	28.40%
2016	8.66%	2.73%	1.16%	6.95%	10.61%	18.42%	6.67%	28.52%
2017	8.61%	2.78%	1.19%	6.93%	10.69%	18.52%	6.70%	28.34%
2018	8.63%	2.78%	1.21%	7.00%	10.54%	18.53%	6.68%	28.23%
2019	8.61%	2.78%	1.23%	6.96%	10.68%	18.68%	6.66%	28.27%
Change	1.25%	0.30%	0.17%	-1.11%	-1.69%	3.87%	-0.39%	-1.82%

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TABLE 5: State and Local Expenditure Composition Correlation Analysis

Pearson Correlation Coefficients								
	SS	CapEx	PS	Edu.	Gov. adm.	Trans.	Env. & HSG	Ins. & trust
SS	1.0000	-0.4885	-0.1594	-0.1291	-0.1686	-0.1081	-0.0625	-0.0120
		<.0001	<.0001	0.0014	<.0001	0.0074	0.1223	0.7678
CapEx	-0.4885	1.0000	-0.0586	-0.1915	-0.0247	-0.0479	0.0599	-0.3951
	<.0001		0.1475	<.0001	0.5423	0.2366	0.1390	<.0001
PS	-0.1594	-0.0586	1.0000	-0.2435	0.3120	0.3101	0.2929	0.1303
	<.0001	0.1475		<.0001	<.0001	<.0001	<.0001	0.0012
Edu.	-0.1291	-0.1915	-0.2435	1.0000	-0.1449	-0.1804	-0.1570	-0.1180
	0.0014	<.0001	<.0001		0.0003	<.0001	<.0001	0.0035
Gov. adm.	-0.1686	-0.0247	0.3120	-0.1449	1.0000	0.3653	0.0587	0.3022
	<.0001	0.5423	<.0001	0.0003		<.0001	0.1468	<.0001
Trans.	-0.1081	-0.0479	0.3101	-0.1804	0.3653	1.0000	0.3294	0.1257
	0.0074	0.2366	<.0001	<.0001	<.0001		<.0001	0.0018
Env. & HSG	-0.0625	0.0599	0.2929	-0.1570	0.0587	0.3294	1.0000	0.0263
	0.1223	0.1390	<.0001	<.0001	0.1468	<.0001		0.5160
Ins. & trust	-0.0120	-0.3951	0.1303	-0.1180	0.3022	0.1257	0.0263	1.0000
	0.7678	<.0001	0.0012	0.0035	<.0001	0.0018	0.5160	

FIGURE 1: Expenditure Components by Year

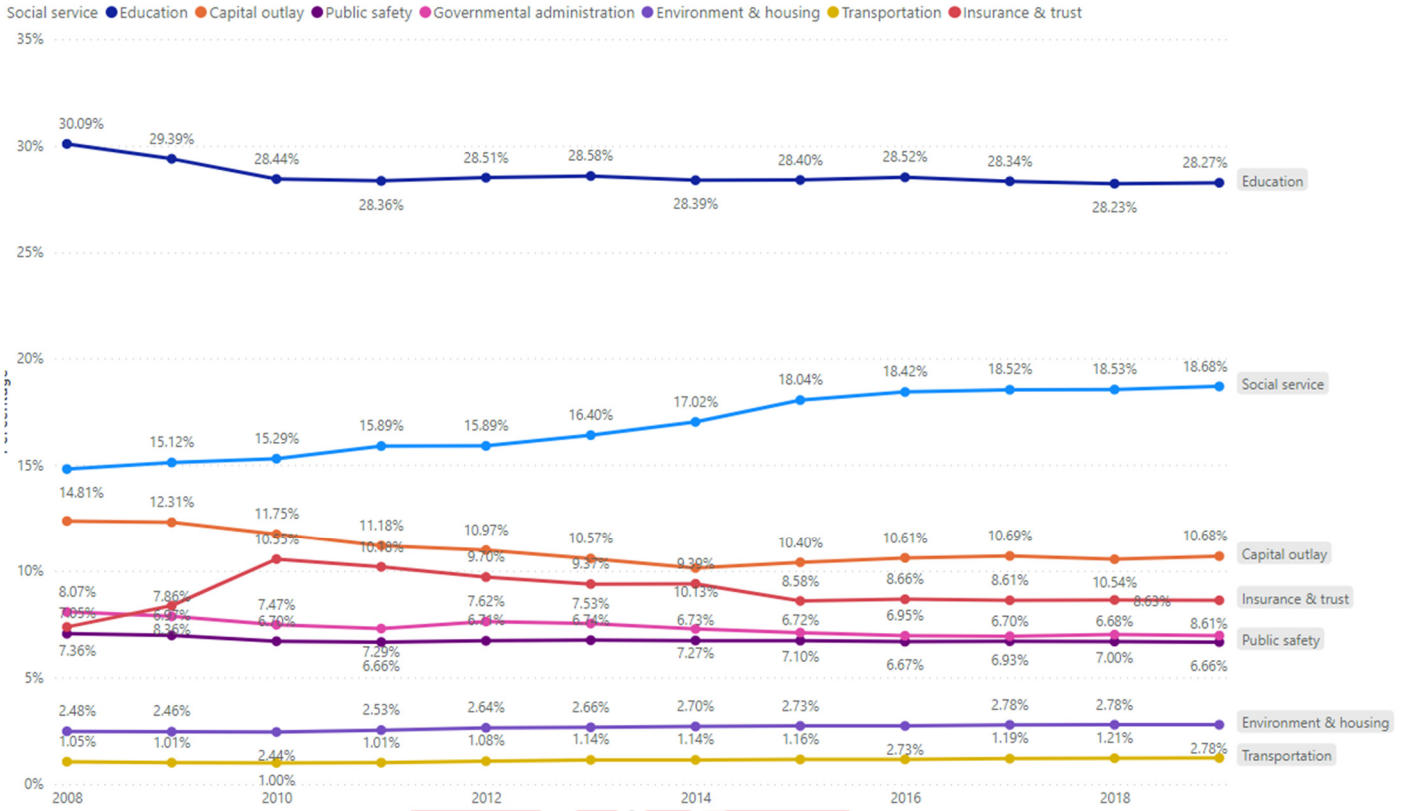

TABLE 6: Medicaid Expansion Adoption and Social Service Expenditure

State	2019 social service expenditure per capita	2019 social service expenditure as % of total expenditure	2008 social service expenditure per capita	2008 social service expenditure as % of total expenditure	Increase of social service expenditure as % of total expenditure from 2008 to 2019
District of Columbia	5,800	20.29%	4,160	18.63%	1.66%
New York	4,069	21.00%	2,287	16.76%	4.24%
Alaska	3,809	18.58%	2,058	10.97%	7.61%
Massachusetts	3,575	24.97%	1,914	18.09%	6.88%
California	3,391	21.00%	1,350	11.97%	9.03%
Rhode Island	3,100	23.99%	2,041	20.38%	3.61%
Minnesota	3,021	23.58%	1,908	19.67%	3.91%
New Mexico	3,016	24.20%	1,827	18.76%	5.44%
Vermont	2,985	21.51%	2,010	20.68%	0.83%
Oregon	2,877	20.15%	1,088	11.85%	8.30%
Pennsylvania	2,783	22.28%	1,670	18.56%	3.72%
Louisiana	2,721	24.84%	1,299	12.28%	12.56%
Delaware	2,717	20.53%	1,632	15.90%	4.63%
West Virginia	2,697	25.68%	1,383	18.69%	6.99%
Kentucky	2,646	25.31%	1,428	17.71%	7.60%
Maine	2,626	25.61%	1,883	22.38%	3.23%
Arkansas	2,573	26.96%	1,317	18.75%	8.21%
Ohio	2,535	21.86%	1,467	16.43%	5.43%
Wisconsin	2,341	21.00%	1,326	15.17%	5.83%
Maryland	2,306	18.47%	1,291	14.32%	4.15%
Indiana	2,233	23.15%	1,300	17.09%	6.06%
Arizona	2,184	24.80%	1,151	13.80%	11.00%
Montana	2,155	20.50%	1,107	13.30%	7.20%
New Jersey	2,140	16.84%	1,449	13.76%	3.08%
Mississippi	2,125	20.62%	1,440	16.87%	3.75%
Iowa	2,096	17.66%	1,289	15.06%	2.60%
Hawaii	2,087	15.82%	1,249	12.39%	3.43%
North Dakota	2,054	15.23%	1,232	14.44%	0.79%
Michigan	1,903	17.55%	1,161	13.79%	3.76%
Illinois	1,898	15.55%	1,274	14.01%	1.54%
Tennessee	1,853	19.25%	1,311	16.52%	2.73%
New Hampshire	1,822	18.60%	1,244	16.43%	2.17%

Oklahoma	1,779	19.41%	1,312	17.52%	1.89%
Colorado	1,677	14.58%	859	9.82%	4.76%
Washington	1,669	12.59%	1,180	11.64%	0.95%
Virginia	1,662	15.63%	1,030	12.75%	2.88%
Kansas	1,636	14.98%	1,141	13.57%	1.41%
Idaho	1,630	19.04%	1,071	15.24%	3.80%
Alabama	1,621	15.75%	968	12.07%	3.68%
South Carolina	1,610	15.49%	1,203	13.71%	1.78%
Missouri	1,602	16.63%	1,069	14.15%	2.48%
Wyoming	1,515	8.76%	1,229	8.92%	-0.16%
Nevada	1,513	15.59%	688	8.51%	7.08%
Nebraska	1,501	12.17%	1,189	12.12%	0.05%
North Carolina	1,495	15.37%	1,125	14.54%	0.83%
Texas	1,427	14.24%	934	11.91%	2.33%
South Dakota	1,363	14.51%	1,025	13.95%	0.56%
Utah	1,347	12.47%	852	10.22%	2.25%
Florida	1,342	14.49%	1,053	12.30%	2.19%
Georgia	1,248	14.37%	984	12.04%	2.33%
Connecticut	1,123	9.27%	1,462	14.75%	-5.48%
Mean	2,253	18.68%	1,391	14.81%	3.87%
Median	2,096	19%	1,289	14%	4%

TABLE 7: Social Service Expenditure-Outlier States

Year	State	CapEx	Ins. & trust	Gov. adm.	Env. & HSG	Trans.	Public safety	Education	Social service
2008	Connecticut	8.99%	9.86%	9.56%	2.05%	0.26%	6.64%	31.65%	14.75%
2019	Connecticut	9.12%	13.73%	9.47%	2.09%	0.29%	6.02%	32.42%	9.27%
2008	Louisiana	11.69%	6.83%	7.61%	1.55%	0.64%	6.93%	25.18%	12.28%
2019	Louisiana	8.60%	10.22%	6.35%	2.06%	0.95%	6.52%	24.99%	24.84%
2008	Arizona	17.81%	6.56%	8.42%	2.54%	0.97%	9.71%	26.80%	13.80%
2019	Arizona	11.02%	7.92%	6.00%	2.80%	0.78%	9.42%	26.56%	24.80%
2008	California	11.52%	9.84%	8.58%	3.00%	1.09%	9.77%	25.13%	11.97%
2019	California	8.21%	11.25%	6.42%	2.70%	1.20%	7.81%	23.79%	21.00%

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TABLE 8: Social Service Expenditure, PPACA, Medicaid Expansion, and State Dependency
Overall model: $p<0.0001$; adjusted $R^2=0.3243$

Variable	Parameter estimate	Standard error	t value	Pr > |t|
Intercept	0.1747	0.0269	6.48	<.0001
PPACA	0.0023	0.0039	0.6	0.5493
Medicaid Expansion	0.0197	0.0032	6.19	<.0001
>65	0.5532	0.0874	6.33	<.0001
0-17	-0.3873	0.0799	-4.85	<.0001