

Minnesota Transportation Funding Redistribution (2009-2014)
Who Contributes More, Who Receives More?

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The focus of this analysis is the redistribution of transportation funding across Minnesota. Transportation funding comes from all levels of government – the federal government, the state government, and local governments that include counties, cities, and townships. Transportation funding that are directly generated by local taxes and fees are used in corresponding local jurisdictions. Federal or state transportation funding – generated through a variety of federal or state revenue sources – are also contributed by people in local jurisdictions, but these revenues are allocated through certain budgetary procedures and may or may not be used in the original point of collection. Hence are the questions of transportation funding redistribution: What are the areas that contribute more to transportation funding? What are those that receive more? What are the areas that contribute more than they receive, or vice versa? Those are empirical questions to be answered in this report, for the purpose to facilitate informed decision making.¹

Counties in Minnesota are divided into eight transportation districts, which are also called Area Transportation Partnerships (ATP).² In this project, we aim to examine the redistribution of transportation funding between 2009 and 2013. We aggregate or allocate data to the county level for analysis, and then present the aggregated results at the district level. Federal and state transportation grants to local governments are often distributed to transportation districts before they are used in different counties. Showing the pattern of redistribution at the district level has significant policy implications. Besides, it smooths out annual fluctuations associated with transportation grants to individual counties.

The analysis includes with three steps. First, we calculate the share of transportation revenues contributed from different localities. Second, we examine the share of federal and state transportation expenditures across different localities. Third, we compare the expenditure share and the revenue share for each district to see what are the areas that contribute more than they receive, or vice versa. We present our findings with federal and state transportation revenues (which have redistribution effects) for both roadway development and public transit. In

¹ While we at times discuss possible reasons for the current redistribution pattern, the normative judgement regarding the pattern are beyond the scope here.

² See “Transportation Planning Partners” on MNDOT website. Available through <http://www.dot.state.mn.us/planning/program/mpordcatp.html>.

appendices we also show the results for two alternative ways of analysis, one concerns only roadway expenditure but not transit, and the other includes not only federal and state transportation revenues but also local efforts that by themselves do not have redistributive effects.

1. The Revenue Share

We define the Revenue Share (R-Share) as a district's share in the collection of federal and state transportation revenues.

- The contribution of federal fuel taxes from Minnesota is downloaded from the Federal Highway Administration. The data come from two accounts.
 - R1a: The highway account has annual data between 2009 and 2013. The contribution of federal fuel taxes from Minnesota is then allocated to each county based on county VMT (Vehicle Miles Traveled).
 - R1b: The transit account has data only for 2012. We estimate the data for 2009, 2010, 2011, and 2012 assuming that transit account and highway account maintains a stable ratio between 2009 and 2013. The contribution is also allocated to each county based on county VMT (Vehicle Miles Traveled).
- State transportation revenues include state fuel tax, vehicle registration tax, and motor vehicle sales tax.
 - R2a: The state fuel tax revenue is allocated to each county based on county VMT.
 - R2b: Data for vehicle registration tax revenue at each county are collected from Minnesota Department of Public Safety.
 - R2c: Motor vehicle sales tax is allocated with the combination of two approaches: 50% based on vehicle registration tax and 50% based on vehicle count. This is the approach used by the Department of Public Safety, which uses the combination of two allocation bases because motor vehicle sales tax is affected not only by vehicle counts but also by the value of vehicles.

For all those revenues sources, the Metro district accounts for slightly less than half of statewide revenue (about 48%), clearly because these metropolitan counties have a disproportional higher share of vehicles and travel volumes than other counties.

2. The Expenditure Share

We define the Expenditure Share (E-Share) as a district's share in the distribution of federal and state transportation expenditures, including three components.

- The first is state trunk highway expenditures directly spent by the MnDOT.
 - E1a: The statewide construction costs have been allocated by MnDOT to the counties based on road segments.
 - E1b: We allocate the statewide maintenance costs based on each county's share of construction costs in the whole state.
- The second component is federal and state transportation grants to support local roads.
 - E2a: Counties receive federal transportation grants and state transportation grants.
 - E2b: Cities receive federal transportation grants and state transportation grants.
 - E2c: Townships receive state transportation grants. These data are collected from the Office of State Auditor.

- The third component is federal and state grants for public transit systems. These data are collected from the National Transit Database.
 - E3a: Grants for urban transit systems are allocated to the transportation district where the counties are located in.
 - E3b: Grants for rural transit systems are allocated by their primary service counties.

The Metro district accounts for about 47% of trunk highway expenditures, about 35% of federal and state grants for local roads, and about 88% of transit expenditures. Overall, the Metro district accounts for about 51% of federal and state transportation expenditures in the whole state.

3. The Expenditure-Ratio Ratio

We define the Expenditure-Revenue Ratio (ER-Ratio) as a district's expenditure share divided by its revenue share in federal and state transportation funding. If ER-ratio is higher than 1, a district's share in federal and state transportation expenditure is higher than its share in federal and state transportation revenue. That means the district receives more than it contributes. If ER-ratio is lower than 1, a district receives less than it contributes.

The Metro district's ER-Ratio is 1.06. That is, the district's share of transportation expenditures is slightly higher than its share in transportation revenues. Among eight districts, we expect to see higher and lower ratios. Three districts have ratios that are statistically deviated from the mean. District 2 and District 1 appear to receive more than they contribute, probably due to much lower population density in these counties. District 3 appears to receive less than they contribute. This probably occurs because this district has a combination of high traffic volumes and hence high contribution of fuel taxes together with a low level of transit expenditures.

4. Conclusions

To sum up, for the five-year period between 2009 and 2013, we find that the Metro district contributes about 48% of federal and state transportation revenues and receives about 51% federal and state transportation expenditures. These metro counties accounts for about 88% of transit expenditures, but they contribute more expenditures to roads and they receive from road expenditures.

District 2 and District 1 receive more than they contribute to federal and state transportation funding, mainly because they receive higher share of road expenditures than they contribute to road revenues. District 3 contributes more than it receives from federal and state transportation funding.

Appendix 1: Redistribution of Federal and State Roadway Funding

An alternative way of analysis is to consider only roadway expenditures and corresponding revenue sources. This approach is less comprehensive than what we use in the report, because roadway expenditures are only part of total transportation expenditures.

The modified revenue share would include all state designated transportation revenue sources, but only part of federal fuel tax revenues – we include Minnesota’s contribute to the highway account in Federal Highway Administration (R1a) but not the revenues to the transit account (R1b). The modified expenditure share would include state trunk highway expenditures and federal and state transportation grants for local roads, but not federal and state grants for transit.

As far as roadway funding is concerned, the Metro district’s ER-ratio drops to 0.75. That is, these metro counties contribute more to than they receive from roadway funding. District 2 and District 1 have even higher ER-ratios, at 1.83 and 1.58, respectively, both statistically deviated from the mean. They receive a lot more from than they contribute to roadway funding.

Appendix 2: Redistribution of Total Transportation Funding

In another alternative way of analysis, we not only include federal and state transportation funding, but also add local efforts for transportation. This is not our preferred approach, because only federal and state transportation funding would have redistributive effects, while local efforts for transportation are used within their own jurisdictions.

The modified revenue share includes not only federal and state transportation revenue sources, but also local efforts for roads and public transit. The modified expenditure share includes not only federal and state transportation expenditures, but also the same local efforts.

For each county, local efforts for roads are calculated as the difference between total local road expenditures (the county including all cities and townships within the county) and all federal and state transportation grants to the county (including all cities and townships within) to support local roads. The data are collected from the State Office of Auditor. The amounts would include some property tax revenues but also other general or specific local revenue sources used for local roads.

- L1: County efforts, the difference between total transportation expenditures of a county government and federal and state government grants that the county receives.
- L2: City efforts, the difference between total transportation expenditures of a city government and federal and state government grants that the city receives, aggregated to the whole county.
- L3: Township efforts, the difference between total transportation expenditures of a township government and federal and state government grants that the township receives, aggregated to the whole county.

Regarding public transit, local efforts are calculated as fare revenues and other local contributions for both operation and capital outlays. The data are collected from National Transit Database.

- L4: Fare revenues for public transit collected within a county.
- L5: Other local contributions to public transit within a county.

Since local efforts do not have redistributive effect, as is expected, this analysis would yield results similar in the report that include only federal and state transportation grants with redistributive effects. The Metro district's ER-ratio is 1.01, only marginally higher than 1. District 2 and district 1 receive more than they contribute. District 3 appears to contribute more than it receives.

Appendix 3: Roadway funding structure

This analysis shows roadway funding structure in Minnesota, in particular, the extent to which highway and local roads are funded through federal and state transportation special revenues or through local efforts in each county.

As shown in the transportation funding redistribution analysis, federal and state transportation special revenues may be allocated to each county in two ways. The first is state trunk highway expenditures directly administration by the MnDOT.

- E1a: The statewide construction costs have been allocated by MnDOT to the counties based on road segments.
- E1b: We allocate the statewide maintenance costs based on each county's share of construction costs in the whole state.

The second component is federal and state transportation grants to support local roads.

- E2a: Counties receive federal transportation grants and state transportation grants.
- E2b: Cities receive federal transportation grants and state transportation grants.
- E2c: Townships receive state transportation grants. These data are collected from the Office of State Auditor.

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- L1: County efforts, the difference between total transportation expenditures of a county government and federal and state government grants that the county receives.
- L2: City efforts, the difference between total transportation expenditures of a city government and federal and state government grants that the city receives, aggregated to the whole county.
- L3: Township efforts, the difference between total transportation expenditures of a township government and federal and state government grants that the township receives, aggregated to the whole county.

During the 2009-2014 period, federal and state special revenues account about 53% of total transportation funding in Minnesota, while local efforts account for about 47%. Since about one third of federal and state transportation special revenue are from fuel taxes, fuel taxes account for about 18%, much lower than the share for local efforts. For state fuel tax revenues alone, the share is about 10%.

Metro counties are shown to have a higher reliance on local efforts, which account for about 58% of total roadway expenditures in these 8 counties.

Appendix 4: Transit funding structure

This analysis shows transit funding structure in Minnesota, in particular, the extent to which urban and rural transit systems are funded through federal and state transportation special revenues, through fare revenues, or through other local efforts in each county.

Data about federal and state grants for public transit systems are collected from the National Transit Database:

- E3a: Grants for urban transit systems are allocated to the transportation district where the counties are located in.
- E3b: Grants for rural transit systems are allocate by their primary service counties.

Data about fare revenues and other local contributions for both operation and capital outlays. They are collected from National Transit Database:

- L4: Fare revenues for public transit collected within a county.
- L5: Other local contributions to public transit within a county.

The analysis shows that about 57% of public transit expenditures in Minnesota come from federal and state special revenues. Fare revenue accounts for about 12%, while other local efforts account for about 31%. The overall pattern is mostly driven by the Metro counties, which account for more than 90% of total public transit spending in Minnesota.