

**The Economic Impact of Research at the University of North Dakota: Fiscal Year 2004**

The University of North Dakota received 83 million dollars of awards for sponsored programs with research expenditures totaling 82.5 million dollars in fiscal year 2004. These expenditures generated economic output, employment and tax revenues in Grand Forks County, the State of North Dakota and the North Central Region. Employing input-output analysis one is able to estimate the total effects that research activity at UND has generated in these areas. The results confirm the role that research at the university plays as a source of economic development and as an engine of growth in the region.

Report commissioned by the Office of the Vice President for Research

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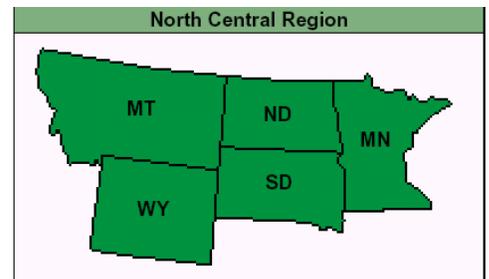
The economic impacts reported in this study represent the total economic impacts of research activity stemming from grants and contracts received during fiscal year 2004. The total impact is the sum of three components; the direct effect, the indirect effect and the induced effect. Because of the interdependence of the economy, changes in the economic activity in one sector will ripple into other sectors as well. The direct effect is initial expenditures on research. The indirect effect arises as a result of the purchases made from other sectors in the economy stemming from the research activities (the direct effect). The induced effect is the result of expenditures made by households whose income is generated by direct and indirect effects.

When a university professor receives a grant, this can generate summer salary for the professor, as well as the hiring of research assistants and support staff. These types of expenditures are part of the direct effect. The purchase of equipment, such as office furniture, and supplies stemming from the grant creates output in supporting industries. This response is known as the indirect effect.

As demand increases (directly and indirectly) in the affected industries, the income of the employees in these industries rises as well. This rise in income is subsequently spent on goods and services from a variety of other sectors; and the resultant increase in demand occurring in these sectors generates the third component of the economic impact, the induced effect.

Thus, the direct effects can be thought of as the stone that is tossed into the pond and the ripples generated by the stone's impact are analogous to the indirect and induced effects. Consequently, the economic stimulus resulting from research at UND spreads throughout the economy, impacting virtually every sector.

The economic impact of research spending at UND was analyzed separately for three regions: Grand Forks County, North Dakota, and the North Central Region consisting of North Dakota, South Dakota, Minnesota, Wyoming, and Montana.



## The Economic Impact of UND Research on Output and Employment

### Grand Forks County

The total economic impact of UND research in Grand Forks County is presented in blue in Figures 1 and 2 and in Table 1. Figure 1 presents the impact on economic output while Figure 2 presents the impact on employment. UND research generated over 120 million dollars of total output and 1,262 jobs across Grand Forks County.

Of the ten sectors, the services sector, which includes the University of North Dakota, had the largest impact at 100.6 million dollars and 1000 jobs. Finance, Insurance and Real Estate had the second highest impact at 8.1 million dollars of output and 41 jobs. The mining sector, the smallest sector in terms of output and employment in the county, was the least affected.

### North Dakota

The overall economic impact on the state of North Dakota is also reported in red in Figures 1 and 2 and in Table 1. The impacts are higher than those for Grand Forks County because of the larger study area. UND research activity generated an additional 168 jobs and 11.5 million dollars of economic activity outside of Grand Forks County but inside the rest of the state. These results confirm the economic importance of research at UND both to the local economy and to the overall economy of the state of North Dakota.

### North Central Region

Table 1 and Figures 1 and 2 also display in green the economic impact of UND research activity on the entire North Central Region consisting of the following states: North Dakota, South Dakota, Minnesota, Wyoming, and Montana. These results are larger than those solely for North Dakota because of leakages from North Dakota into the other states in this region. UND research generated over 31 million dollars of economic output and 200 jobs beyond the borders of North Dakota but still within the North Central Region.

Table 1 includes a summary of regional impact data and shows that research at UND is a powerful engine of economic growth and development with far reaching effects that generate jobs and increased economic output for the entire North Central Region.

Figure 1: Economic Impact of UND Research on Output

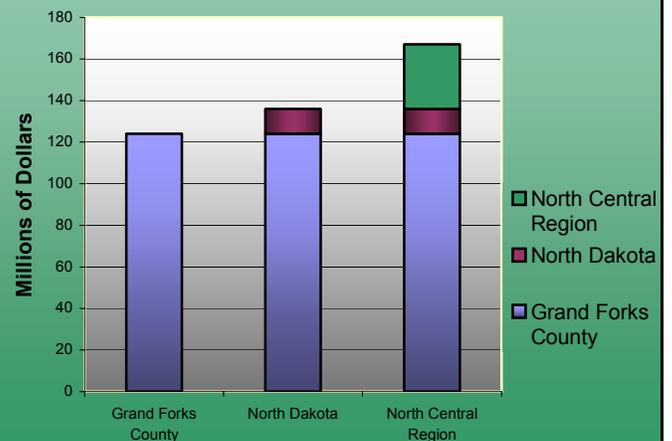
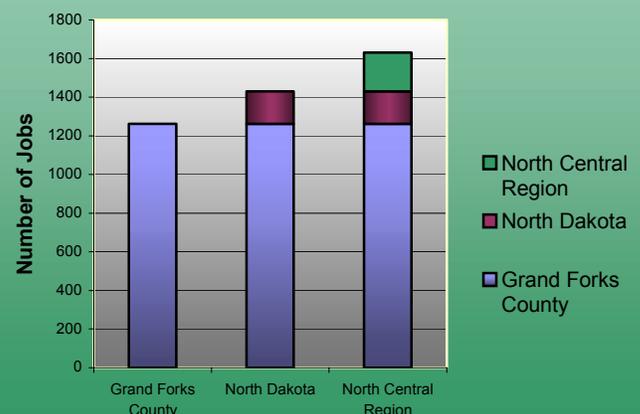


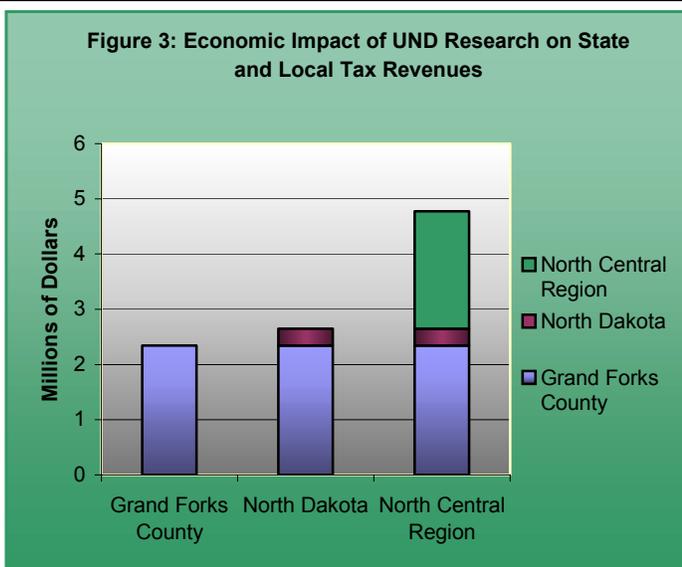
Figure 2: Economic Impact of UND Research on Employment



## The Economic Impact of UND Research on Local, State, and Federal Taxes

### State and Local Tax Revenues

Economic activity generated by research activity also results in a significant impact on state and local tax revenues. Figure 3 and Table 1 display economic impact of research on state and local tax revenues in three areas: Grand Forks County, North Dakota, and the North Central Region.

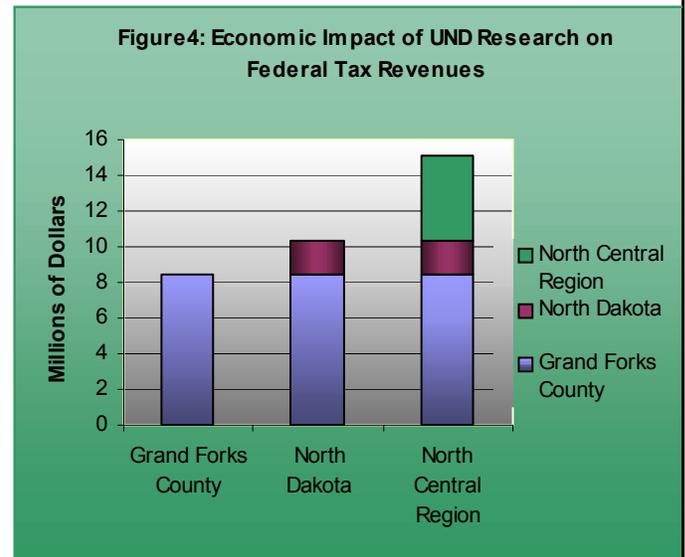


The Grand Forks County, state, and local tax revenues of over 2.3 million dollars spawned from the research activity at UND greatly exceeds the \$600,000 of seed money the City of Grand Forks has provided in the past 5 years to help stimulate research activity at the university. As the level of research continues to rise toward the 100 million dollar target level set in the current UND strategic plan, the benefits in tax revenues generated will continue to accrue to the City of Grand Forks. State and local tax revenues created from UND research also have significant impacts on the State of North Dakota and the entire North Central Region.

### Federal Tax Revenues

UND's research has also had significant effects on federal tax revenues. Figure 4 and Table 1 show these effects on the county, state, and regional levels.

Federal tax revenues spawned from UND research ranged from approximately 8.5 million dollars on the county level to over 15 million dollars on the regional level.



### Conclusion

The University of North Dakota is an economic powerhouse contributing to growth and economic development in Grand Forks, North Dakota, and the entire North Central Region. Research at the university is an essential component of this engine, increasing the scope and size of the economic impact of the university. Not only does increased research activity generate benefits to the university in and of itself, but the expenditures stemming directly from this research activity generate much needed jobs, income, and tax revenues to local, state and federal governments. Nurturing and fostering the continued growth of research at UND will only increase the level of economic impact in the future, thereby benefiting the university, the students, the citizens, and the governments of the region.

Table 1: Impact Summary (Fiscal Year 2004)	UND Research Impact	
	Output (2004 dollars)	Number of Jobs
Grand Forks County	\$123,861,020	1,262
North Dakota	\$11,490,229	168
North Central Region	\$31,386,002	200
Total	\$166,737,251	1,630
	State and Local Tax Revenue	Federal Tax Revenue
Grand Forks County	\$2,346,152	\$8,489,354
North Dakota	\$301,282	\$1,892,988
North Central Region	\$2,127,639	\$4,744,284
Total	\$4,775,073	\$15,126,626

## University of North Dakota's Research Administration



Peter Alfonso, Ph.D., has been Vice President for Research at the University of North Dakota since 2002. The mission of the Office of the Vice President for Research is to serve the broad research community of the University of North Dakota, a community that is instrumental in meeting the strategic aims of the University. Research administration is centered in five offices; namely, the Office of the Vice President for Research; Grants and Contracts Administration; Research Development and Compliance; Technology Transfer and Commercialization; and ND EPSCoR. In fiscal year 2004, a total of \$83 million in awards was received for sponsored research activities and research expenditures totaled \$82.5 million.



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