

# **Does Fiscal Policy Reduce Unemployment? Evidence from Pork-Barrel Spending\***

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## **Abstract**

Studies of the effect of government spending on unemployment are potentially confounded by reverse causality. To address the endogeneity problem, we exploit variation in a pork-barrel road-building program, and find that higher government expenditure on road-building substantially reduces local unemployment.

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## **Introduction**

There remains considerable disagreement among economists as to the impact of fiscal policy on economic activity and employment. Since counter-cyclical fiscal policies are often implemented in response to weak economic conditions, it is difficult to identify their causal impact. One approach is to identify particular episodes or events that are arguably exogenous to current economic conditions (Edelberg, Eichenbaum and Fisher, 1999; Burnside, Eichenbaum and Fisher, 2000). This often boils down to instrumenting government expenditure with war-related changes in defense spending; a strategy that may produce unreliable estimates if wars have a direct impact on business confidence. Blanchard and Perotti (2002) and Perotti (2007) use a more structural approach, constructing measures of cyclically adjusted fiscal shocks, which by construction are exogenous to current economic activity.

This paper takes this literature as a jumping-off point, focusing on how changes in federally allocated infrastructure grants affect local economic activity. Infrastructure spending programs have received a high degree of attention in terms of their potential for stimulating overall economic activity, and in particular for creating jobs (Kenyon, 1997). In the absence of broader measures of economic activity at the local level, we focus on unemployment rates.

As with the macroeconomic studies, estimating the impact of a spending shock on the local labor market requires identification of an exogenous shock to spending. We use information on the political process to identify exogenous “pork barrel” spending shocks, which are targeted on the basis of political factors, rather than current or anticipated economic conditions.

In a similar spirit, Levitt and Poterba (1999) examine the relationship between a state's representation in the US congress and growth in per capita personal income. They find some evidence that jurisdictions represented by politically powerful politicians experience faster economic growth, but they were unable to find a similar relationship between political power and the distribution of federal funds or other policies, leaving them with little to say about the mechanisms by which local political power might affect growth.

### **Empirical strategy**

In an analysis of targeted expenditure programs implemented during the 2001-04 Australian election cycle, Leigh (2008) found clear evidence of pork-barrelling, particularly in the Roads to Recovery program.<sup>1</sup> This program commenced in January 2001, providing funding to local councils to construct, upgrade or maintain roads. Around 60 percent of the work done by rural, and 40 percent of the work done by urban councils was carried out either by municipal employees or local contractors (DOTARS/ALGA, 2003). A condition of receipt was that local councils did not reduce their own spending on roads (some councils used it to leverage small amounts of additional funding from state governments, but this was rare: DOTARS/ALGA, 2003). Leigh (2008) tabulated \$1.1 billion of funding allocated between January 2001 and June 2005, which comprised approximately 4 percent of the total expenditure on roads during this period (BITRE, 2006).

While road safety improvement was considered to be the key benefit of the program, the second most-cited benefit of the funding was improved local economic activity. It is

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<sup>1</sup> The elections were held on 10 November 2001 and 9 October 2004.

important, then, to deal with the problem that allocations of funds are in part determined by local economic conditions. It is here that political factors involved in the allocation play an important role in our analysis.

Leigh (2008) found clear evidence that Roads to Recovery funding was more generous for districts held by the governing Liberal-National Coalition. Controlling for a quadratic in population density, National Party districts received \$6.8 million more funding, while Liberal Party districts received \$2.7 million more in funding (across all 150 districts, the mean allocation was \$7.8 million). This funding does not appear to have been allocated towards marginal districts; if anything, it was more generous for safer districts.

In this paper, we combine road funding data with local area unemployment rates.<sup>2</sup> At an election district level, unemployment figures are derived by the Australian Parliamentary Library from *Small Area Labour Market Data* (based on 2006 election boundaries). To minimize measurement error and seasonal effects, we average data over the calendar year.

Our dependent variable is the change in unemployment from 2001 to 2004, which has a mean of -1.0 and a standard deviation of 1.3. In 2001, unemployment averaged 6.9 percent across all districts, with a maximum of 13.5 percent. Because sparsely populated areas might have merited more road funding, we control for a quadratic in population density in all specifications (our results are robust to adding higher-order terms).

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<sup>2</sup> Unemployment is the only economic variable for which we have annual data at an election district level. Other variables (including the employment rate) are only available for electorates in census years.

For each set of controls, we estimate an OLS and an instrumental variables model (Table 1). The first column shows the relationship between the change in unemployment and the log of Roads to Recovery spending. The second column shows the same regression, but with road spending instrumented with indicator variables denoting that the district was held by the Liberal Party or the National Party in 2001. Columns 3 and 4 repeat the OLS and IV specifications, adding three additional controls: log average taxable income in fiscal year 2000-01, the 2001 unemployment rate, and the change in unemployment over the previous election cycle (1998-2001).

**Table 1: Does pork-barrel road expenditure reduce joblessness?**  
*Dependent variable is the change in the unemployment rate from 2001 to 2004*

	Basic		Additional Controls	
	[1] OLS	[2] IV	[3] OLS	[4] IV
Log (Roads to Recovery spending)	-0.364** [0.169]	-0.948** [0.453]	-0.361*** [0.137]	-1.255*** [0.347]
Population density	0.699* [0.400]	1.509** [0.698]	0.577** [0.265]	1.665*** [0.479]
Population density <sup>2</sup>	-0.063 [0.039]	-0.135** [0.064]	-0.041 [0.027]	-0.135*** [0.044]
Unemployment rate in 2001			-0.423*** [0.037]	-0.452*** [0.042]
Change in unemployment rate from 1998 to 2001			-1.213*** [0.437]	-2.978*** [0.894]
Log mean taxable income			-0.358*** [0.072]	-0.400*** [0.070]
Observations	150	150	150	150
R <sup>2</sup>	0.03	0.35	0.58	0.65
F-test on excluded instruments		12.76 P<0.01		15.62 P<0.0001

Notes: Standard errors in brackets. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. R<sup>2</sup> is the uncentered R<sup>2</sup> in the IV specifications. The dependent variable is scaled in percentage points (e.g. a 1 percentage point rise in unemployment is +1, not +0.01). Roads spending is total Roads to Recovery spending over the 2001-04 election cycle. Population density is km<sup>2</sup> per person (we invert the usual measure to make the coefficients more readily interpretable). Excluded instruments in columns 2 and 4 are indicators for whether the district was held by the Liberal Party or the National Party after the 2001 election.

In the OLS specification in column 1, the coefficient on log road spending is -0.4, indicating that a 10 percent increase in expenditure is associated with a 0.04 percentage point decrease

in the unemployment rate. In the IV specification in column 2, the first stage is strongly significant, with an F-statistic of 12.76. Using only variation in road spending that comes directly from partisanship, we estimate a coefficient that is over twice as large, suggesting that a 10 percent increase in Roads to Recovery spending leads to a 0.09 percentage point decrease in the unemployment rate. The specifications with additional controls show a similar pattern, with coefficients of -0.4 in the OLS specification (column 3) and -1.2 in the IV specification (column 4).

As a robustness check, we also estimate a placebo regression, with the dependent variable being the change in unemployment from 1998 to 2000 (ie. prior to the commencement of the program in January 2001). We find no significant association between Roads to Recovery funding and the prior trend in unemployment in a district (results available on request).

How do these coefficients accord with reasonable estimates of job-creation costs? With an average labor force of about 65,000 in each district, a 0.04 to 0.12 percentage point fall in the unemployment rate corresponds to an additional 26 to 78 jobs. At the mean, a 10 percent increase in Roads to Recovery spending is approximately \$800,000 over three years. This suggests that Roads to Recovery created additional jobs at a cost of \$10,000 to \$31,000 per job over a three-year period. Given that the average full-time wage was around \$50,000, this is consistent with substantial local-area multiplier effects.

However, other explanations are also possible. It could be that improving road infrastructure has an indirect impact on boosting economic activity, perhaps by reducing transport costs for local businesses. It may also be that our results are driven by other forms of pork-barrel

spending that were directed towards Liberal-National districts (though controlling for three other pork programs that we are able to observe has very little impact on our results).<sup>3</sup>

## **Conclusion**

Using variation in road expenditure that is driven by partisanship, we are able to estimate plausible causal impacts of local area expenditure on unemployment. Although the available data do not permit us to directly estimate a multiplier, the impacts on unemployment are consistent with large spillover effects from this particular form of fiscal stimulus.

In extrapolating from our results to a national-level program, two factors should be borne in mind. First, if residents move to take up jobs, this is more likely to attenuate effects of a local-area program than a national program (since internal migration is easier than international migration). Second, to the extent that part of the effect of fiscal stimulus is undone because taxpayers anticipate future tax rises (the theory of Ricardian equivalence), this is more likely to apply to a national spending program than to a local spending program. These two factors have opposite predictions – the first implying that our results might understate the impact of a national program, and the second suggesting the reverse.

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<sup>3</sup> Controlling for total spending on the three other pork programs analyzed in Leigh (2008) makes no substantive difference to our results. However, it is possible that there were additional pork programs which affected unemployment.

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