Assessing the Impacts of Transaction Costs and Rapid Growth on Local Government Service Provision and Delivery Arrangement Choices in North Dakota

Andy Hultquist*, Dana Michael Harsell*, Robert S. Wood* & David T. Flynn**
*Department of Political Science **Department of Economics / University of North Dakota

Introduction

- Service provision as a core function of local governments
  - Entails not only the question of whether to provide services, but also how to provide them – the 'may or buy' decision
- Contracting out for service provision remains a popular option for local governments
  - Motivated by considerations of efficiency, economies of scale, other cost savings, increased private sector innovation
  - However, contracting may not work in all environments and for all services (e.g. Sclar, 2000) or may sacrifice essential public character of those services (Milward & Provan, 2000)
  - Substantial literature exists describing the factors that lead governments to contract out, and what motivates their choice among service delivery modes (different types of vendors) when they do

Methods

- Multinomial Logit with Clustered Standard Errors
  - Expresses probability of providing a service through a given mode relative to a base mode of provision (internal production)
- Dependent Variable: Mode of Service Delivery
  - Four Possible Modes of Service Delivery:
    - Internal Provision by Government (reference mode)
    - Contract with Other $_{\text{Governments}}$
    - Contract with Private Sector Entity (For-profit firm or nonprofit)
    - Joint Contracting (two or more modes)

Independent Variables:

- Service Characteristics
  - Asset Specificity
  - Service Measurability
- Local Community/Market Characteristics
  - Population, 2013
  - Metropolitan/Micropolitan Area (dummy)
  - Per Capita Income
  - County (dummy)
- Measures of Local Growth
  - Population Growth, 2009-2013 (percent)
  - County Employment related to Oil, Gas Extraction (percent)

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Asset Specificity	3.06	0.63	1.75	4.17
Service Measurability	2.67	0.71	1.53	4.29
Metropolitan/Micropolitan Area	0.11	0.32	0	1
Population (2013)	5,419.39	14,916.20	94	108,371
Per Capita Income (2013, $thousand)	27.17	5.26	11.29	43.82
County	0.28	0.68	0	1
Population Growth (percent, 2009-13)	5.36	18.30	-46.29	62.40
Pct. Oil/Gas Employment (county level, 2012)	0.049	0.10	0.00	0.74
n=3015				

Table 3: Multinomial Logit Regression Results, Influences on the Probability of Local Public Service Production Mode Choice Relative to Probability of Internal Production (Natural log of probability)

	Internal Production versus Contract with Other Governments	Internal Production versus Contract with Private/Nonprofit	Internal Production versus Joint Contracting
Service Characteristics			
Asset Specificity	**4.372***** (0.954)	0.843 (0.940)	**5.735***** (2.108)
Asset Specificity^2	**-0.610***** (0.164)	-0.018 (0.154)	**-0.971**** (0.385)
Service Measurability	0.268 (0.437)	**-1.579***** (0.190)	1.499 (1.085)
Service Measurability^2	0.014 (0.078)	**0.286***** (0.055)	**-0.377*** (0.209)
Local Community/Market Characteristics			
Metropolitan/Micropolitan Area	-0.560 (0.358)	-0.575 (0.370)	**-0.963*** **(0.517)**
Population (2013)	-2.862 E-04 (2.363 E-04)	**-4.523 E-4**** (2.092 E-4)	-1.632 E-4 (2.128 E-4)
Population^2	7.69 E-10 (2.43 E-8)	2.44 E-8 (1.62 E-8)	1.10 E-8 (1.66 E-8)
Metropolitan/Micropolitan Area * Population	2.377 E-4 (1.168 E-4	**3.846 E-4*** (2.036 E-4)	2.305 E-4 (2.068 E-4)
Metropolitan/Micropolitan Area * Population^2	-5.84 E-10 (2.43 E-8)	-2.39 E-8 (1.62 E-8)	-1.16 E-8 (1.65 E-8)
Per Capita Income (2013, $thousand)	**0.230**** (0.117)	0.037 (0.128)	0.160 (0.158)
Per Capita Income^2	**-3.63 E-3*** (1.96 E-3)	-6.82 E-4 (2.23 E-3)	-2.85 E-3 (2.83 E-3)
County	0.183 (0.359)	0.205 (0.511)	-0.003 (0.528)
Measures of Local Growth			
Population Growth (percent, 2009-13)	0.010 (0.008)	**0.015*** (0.008)	0.001 (0.009)
Population Growth^2	-4.61 E-5 (1.77 E-4)	-2.308 E-4 (1.673 E-4)	-1.275 E-4 (2.173 E-4)
Pct. Oil/Gas Employment (county level, 2012)	-0.163 (1.217)	**-2.232*** (1.270)	1.008 (1.269)
Constant	-12.948	-1.667	-14.030
Pseudo- R^2	0.076		
Likelihood Ratio Test	0.000***		
N (observations)	3015		
N (local government clusters)	109		

Notes:
**** p < .10 ** p < .05 *** p < .01***
Standard Errors in Parentheses

Findings

- Significant factors influencing probability of contracting with other governments (relative to internal production)
  - Asset specificity (+)
  - Asset Specificity^2 (-)
  - Per Capita Income (+)
  - Per Capita Income^2 (-)

•Significant factors influencing probability of contracting with private providers (relative to in-house production)
  - –Service measurability (-)
  - –Service Measurability^2 (+)
  - –Population (-)
  - –Population/Urban interaction (+)
  - –Population Growth (+)
  - –Percent Oil/Gas Employment (-)

•Significant factors influencing probability of joint contracting (relative to internal production)
  - –Asset specificity (+)
  - –Asset Specificity^2 (-)
  - –Service Measurability^2 (-)
  - –Urban area (-)

Conclusions

- When choosing whether to contract/who to contract with, North Dakota governments behave similarly to other, larger governments in some respects
  - Service characteristics, associated transaction costs have a significant effect
- Differences in findings when compared to other research make sense when considering size, rurality of North Dakota communities
  - Lack of consistent response to market factors may reflect the fact that **NO** North Dakota market is large enough to be considered 'well functioning,' competitive with respect to public service vendors
  - Findings suggest size, capacity, rurality of North Dakota governments may prevent contracting out, contracting to certain types of vendors is an unrealistic or unavailable option under some conditions
  - Few effects associated with growth, but may reflect communities taking advantage of available resources, or even their attitudes and expectations towards the permanence of the oil boom, future levels of demand

UNIVERSITY OF NORTH DAKOTA