Power of Incentives, Individual Motivation, and Local Officials Interest in Inter-local Collaboration:

A Survey Experiment

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- High/Low-Powered Incentives (Frant, 1996)
  - ▶ The extent to which motivates party/people to work for better performance (e.g., cost savings, better gains from trade, efficiency, etc)

  1. High-Powered Incentives
     - ▶ party/individual get direct benefit for their personal use from every transaction
       (e.g., personal monetary benefit from trades, reelection for politicians)

  2. Low-Powered Incentives
     - ▶ party/individual get indirect benefit from transactions
       (e.g., promotion)

Overview

- What is high powered incentives in government?

  1. Williamson's transaction cost economics (1985)
     - No high-powered incentives in public sector (Frant, 1996)

  2. Frant's suggestion: Extension of the definition of a high-powered incentive in political sphere(1996)
     - Reelection is high-powered incentive in political sphere

  3. This study's suggestion (2016): More Extension of the definition of a high-powered incentive in administrative sphere
     - Introduction of diverse performance evaluation methods and market-like incentive systems through NPM movement
     - Current performance-based financial incentives in government can be considered high-powered incentives

Overview

- Intrinsic/Extrinsic Motivation
  - Extrinsic Motivation: a desire to gain a reward or avoid an adverse outcome
    - Studying because you want to get a good grade
    - Studying because you want to win awards/scholarship
    - Studying because you want to get a job
    - Studing because you want to get married
    - Studing because...
  - Intrinsic Motivation: an internal desire to participate in an activity for its own sake.
    - Doing sport because you find the activity enjoyable
    - Reading a book becuase you find it fun and exciting
    - playing a game because you feel excited

- PSM
  - individual's predisposition to respond to motives grounded primarily or uniquely in public institutions (Perry and Wise 1990)
  - fall into three categories: rational, norm-based, and affective

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Common belief

- Utilitarian incentives would not function effectively for the civil servants with high levels of public service motivation (Perry 2010)

- Lower-powered incentives or nonpecuniary rewards would be optimal in public sector (Francois 2008)

- Intrinsic motivation or PSM would be crowded out when financial incentives are provided (Deci 1981, 1999; Georgellis 2011)

Research Question

- Do high/low-powered incentives indeed motivate local officials to learn from successful inter-local collaboration cases?

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- Does low-powered incentive really work better in making local officials interested in successful collaboration relative to high-powered incentive?

- Is the effect of high/low-powered incentives conditional on individual-level motivations (Intrinsic/Extrinsic Motivation & PSM)?: How institutional predictions could be realized differently depending on individual characteristics?

Hypothesis

1. Power of Incentive Hypotheses
   - H_1 : Both high and low-powered incentives would be effective to attract local officials relative to when there is no incentive.
   - H_{1-1}: High-powered incentives would be more effective to attract local officials relative to the low-powered.

2. Intrinsic/Extrinsic Hypotheses
   - H_2 : Local official with higher intrinsic motivation would be more interested in learning successful collaboration cases.
   - H_{2-1}: Local official with higher extrinsic motivation would be more interested in learning successful collaboration cases when there is a high-powered incentive.

3. PSM Hypotheses
   - H_3 : Local official with higher PSM would be more interested in learning successful collaboration cases
   - H_{3-1}: Local official with higher PSM would be indifferent between high-powered and low-powered incentives.

Data & Method

- 2015 Recycling Survey Data
- Online & Paper survey
- 48.42% response rate (184 out of 380 cities)
- Three types of surveys
  - Only one survey question is different across the three types
- Each type of surveys has been randomly assigned to respondents
- Method
  - EFA and CFA to construct factor scores of PSM and intrinsic/extrinsic motivation
  - Logit regression analysis

Experimental Question

- Recently, many city governments have confronted environmental problems related to green gas emissions, change, and recycling. In some cases, city officials decided to work together with neighboring governments to more effectively address the challenges

  Would you want to learn more about the details of inter-governmental cooperation to see how it might work in your area?

  ☑ Yes (We will send an email with a link to relevant external websites)
  ☐ No

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▶ Without (A) nor (B) → Control
▶ With only (A) → Low-power treatment
▶ With only (B) → High-power treatment

Factor scores: Intrinsic/Extrinsic Motivation

- EFA
- Fit Statistic
  - 8 survey questions from previous studies
    - job Security (extrinsic)
    - the organization's pension or retirement plan (extrinsic)
    - medical and insurance benefit (extrinsic)
    - family friendly policies (extrinsic)
    - overall quality and reputation of this organization (intrinsic)
    - desire for increased responsibility (intrinsic)
    - ability to serve the public and the public interest (intrinsic)
    - opportunity for advancement within the organization's hierarchy (intrinsic)
  - 2 factors (Eigenvalue > 1)
  - orthogonal varimax rotation
  - Same result as the previous literature said

# Factor scores: PSM

- CFA (Perry, 1996)
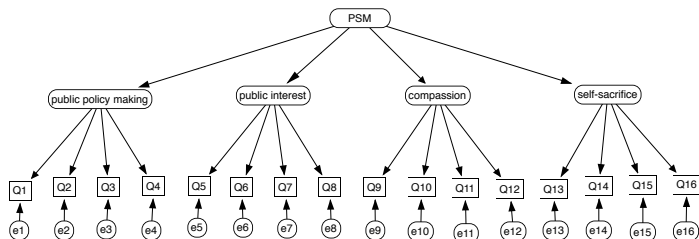
- Fit Statistic
  - ► 16 survey questions are used
  - ► RMSEA: 0.130, CFI: 0.871, TLI: 0.830, SRMR: 0.083
  - ► Not so much great fit but this study use the model to get PSM factor score

Variables

- Dependent variable:
  - ▶ Binary responses in experiment question (yes:1, No:0)

- Independent variable
  - ▶ Low-powered incentive: Type(A) survey (yes:1, No:0)
  - ▶ High-powered incentive: Type(B) survey (yes:1, No:0)
  - ▶ Intrinsic/Extrinsic Motivation: Factor scores (EFA using 8 questions)
  - ▶ PSM: Predicted value of PSM (CFA using 16 questions)

- Control variable
  - ▶ age (open question)
  - ▶ white (white:1, non-white:0)
  - ▶ education level (less than high, high, Associate, BA, MA, PhD)
  - ▶ Not appointed or elected (0 or 1)
  - ▶ Satisfaction with collaboration (1 to 10)
 - ▶ Female (yes=0, No=1)

Result

- Basic Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
"yes"	152	0.50	0.50	0	1
Low-power treatment	149	0.44	0.50	0	1
High-power treatment	149	0.21	0.41	0	1
staff	133	0.68	0.47	0	1
female	139	0.41	0.49	0	1
age	133	52.54	10.17	26	77
white	133	0.86	0.34	0	1
education	136	3.31	1.17	2	6
Extrinsic motivation	128	0.00	1.00	-2.65	1.45
Intrinsic motivation	128	0.00	1.00	-3.17	1.61
PSM	121	0.00	1.07	-3.33	2.60

Result

- How many "yes" in each treatment/control?

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YES (%)
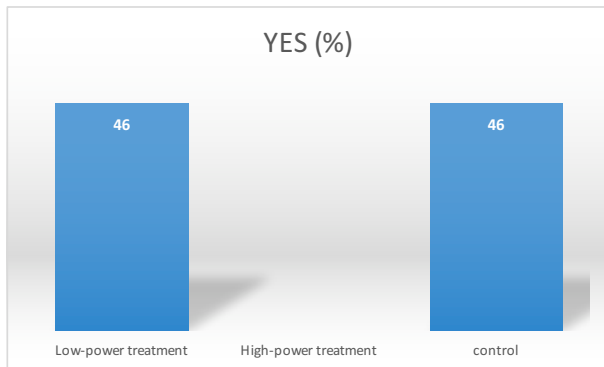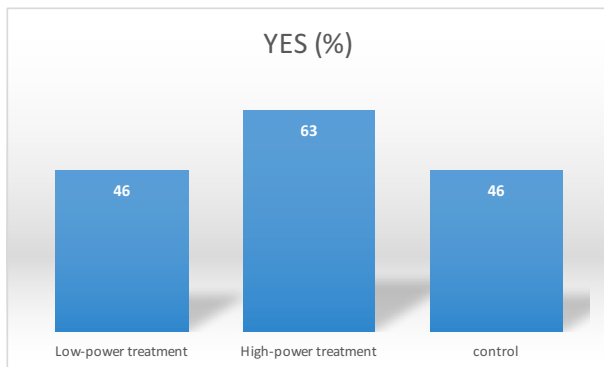
	No	Yes	Total	(Yes)%
Low-power treatment	35	30	65	**46%**
High-power treatment	12	20	32	**63%**
Control	28	24	52	**46%**
Total	75	74	149	**50%**

- Logit regression

|	Model 1			Model 2			Model 3		
	estimate	se	P-value	estimate	se	P-value	estimate	se	P-value
High-powered incentive	3.17***	1.17	0.01	5.09***	1.82	0.01	3.76***	1.18	0.01
Low-powered incentive	0.31	0.65	0.62	0.61	0.68	0.37	0.65	0.65	0.32
PSM	1.10***	0.40	0.01	2.28**	0.66	0.01	1.36***	0.42	0.01
PSM*High-power				0.31	0.98	0.75			
PSM*Low-power				-1.68**	0.69	0.02			
Extrinsic Motivation	0.18	0.26	0.50	0.38	0.33	0.25	0.93	0.28	0.23
Intrinsic Motivation	-0.34	0.30	0.90	-0.03	0.32	0.92	0.13	0.13	0.13
Intrinsic*High-power							-1.26	0.93	0.18
Intrinsic*Low-power							-1.58**	0.69	0.02
Female	-0.39	0.60	0.51	-0.56	0.67	0.41	-0.56	0.70	0.42
Age	0.03	0.04	0.50	0.03	0.04	0.48	0.03	0.03	0.40
White	-0.99	1.17	0.40	-0.86	0.98	0.38	-0.94	1.09	0.39
education	0.73*	0.31	0.02	0.77*	0.32	0.02	0.80*	0.32	0.01
Collaboration Satisfaction	0.12	0.12	0.30	0.13	0.14	0.37	0.14	0.13	0.30
Not elected/appointed	0.10	0.87	0.90	-0.19	0.89	0.83	0.13	0.85	0.88
Constant	-3.77	3.43	0.27	-4.04	3.34	0.23	-4.57	-1.42	0.16
	N=79			N=79			N=79		

Result
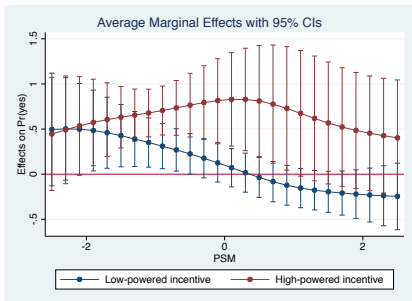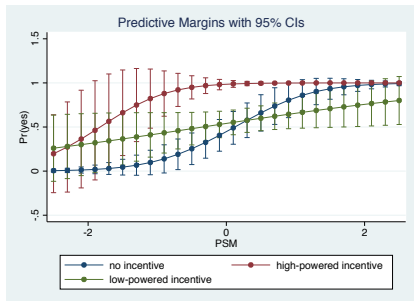
Figure: Predicted prob across PSM

Figure: Marginal effects of PSM

- The predicted probability for high-powered incentive is always high than when their is no incentive while low-powered not (left Fig)
- The positive marginal effect of high-power incentive decreases as the PSM increases, but low-powered incentive change its sign of marginal effect (Right Fig)
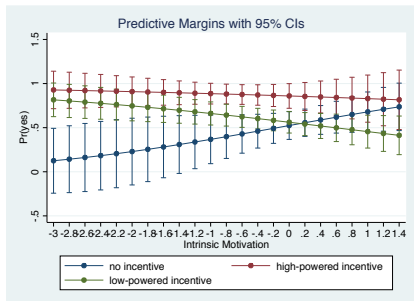
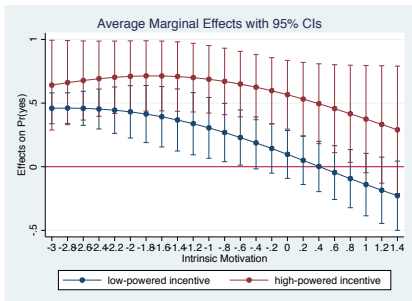# Result

Figure: Predicted prob across IM

Figure: Marginal effects of IM

- The predicted willingness to learn is always high in high-powered incentive while crowding out is found in low-powered incentive case as intrinsic motivation increases (Left Fig)
- The marginal effect of intrinsic motivation is always positive in high-powered incentive case, while it changes signs in low-powered incentive case as intrinsic motivation increases (Right Fig)

- High-powered incentives motivate local officials but this study could not find statistical evidence low-powered incentive is effective too.
  - ▶ High-powered incentives is more powerful relative to the low-powered and no-incentive

- Intrinsic motivation and PSM would increase the probability of local officials' interests in learning successful collaboration cases

- Local officials with high level of PSM would be indifferent between/among high-powered incentive, low-powered incentive, and even no extrinsic incentive.

- Low-powered incentives crowds out intrinsic and public service motivation, while high-powered incentives does not
  $\rightarrow$ *Payenoughordon'tpayatall* (Gneezy and Rustichini 2000)

Conclusion

- High-powered incentive would be more powerful in administrative sphere

- Crowding out effect would be more likely realized when incentive is not powerful enough

- The effects of incentives would be different conditional on individual characteristics (i.e.,PSM, Int/extrinsic Motivation)

$\rightarrow$ Institutional approaches in PA need to more consider behavioral aspects at individual level for better theoretical prediction

Thank you