Incentives, information, and ideals: the use of economic theory to evaluate educational accountability policies

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Why Accountability

- It is not going away!
- Accountability policies have elicited intended and unintended student and educator outcomes
- These policies interact with many aspects of education (e.g., instruction, administration, governance, special education)
- Even after three decades of research and experience, there are many unanswered questions

Standards Based Reform Movement and Accountability

Accountability policies are a subset of the larger Systemic or Standards Based Reform movement (Clune, 1993 ; Hamilton, Stecher, Yuan, 2008; O'day & Smith, 1993; Smith & O'day, 1991):

- Clear academic expectations
- Alignment of key state education policies
- Use of Assessments to measure student outcomes
- Decentralization/local control over resources, curriculum, and instruction
- Technical assistance for failing schools and districts
- Use of **accountability policies** to reward and sanction high/low performing schools

Theory of Action Behind Accountability Policies

Education

- The combination of the six tenants of SBRs will lead to improved overall achievement, reduced achievement gaps, and a more equitable education system

Economics

- Agency Theory: Use of incentives and contracts to solve the principal-agent problem
  - (Gibbons, 1998; Holmstrom & Milgrom, 1991; Prendergast, 1999; Stein, 1988)
- Experiential Goods literature: Public education is inherently an experiential good
  - (Figlio & Kenny, 2009; Filgio & Lucas; Mathios, 2000; Reinstein & Snyder, 2005)

Have Accountability Policies Impacted Student Achievement?

- Extant research shows that accountability policies may increase student achievement on low- and high-stakes testing
  - (Carnoy & Loeb, 2002; Chaing, 2009; Dee, & Jacob, 2011; Hanushek & Raymond, 2005; Rockoff & Turner, 2008; Rouse, Hannaway, Goldhaber, & Figlio, 2007; Winters, Trivitt, & Greene, 2010)
- The results are often robust across locations and levels (e.g., district, state, nation)
  - (Figlio & Loeb, 2011)
- Growing evidence that the positive effects are possibly driven by instructional and operational changes in schools
  - (Chaing, 2009; Koretz, et. al, 2006; Rouse, Hannaway, Goldhaber, & Figlio, 2007)

Maladaptive Reasons for the Increases in Student Achievement

- Concerns that positive effects are possibly due to "gaming the system" and maladaptive teacher and administrator behavior:
  - Cheating
    - (Jacob & Levitt, 2003)
  - Reclassifying
    - (Cullen & Reback, 2006; Figlio & Getzler, 2002; Figlio & Loeb, 2011)
  - Teaching to the test or "bubble students"
    - (Booher-Jennings, 2005; Reback, 2008; Neal & Schanzenbach, 2010)
- Much of the maladaptive responses found in the empirical literature can be explained by economic research on information disclosure, incentives, and contracts
  - (Baker, 1992; Gibbons, 1998; Holstrom & Milgrom, 1991)

Key Assumptions of Accountability Policies

1. The measures used to hold schools accountable capture the knowledge and skills that stakeholders expect students to acquire in school
2. These measures are a reliable, valid, and transparent indicator of school performance
3. Educators have the knowledge and capacity to use the data generated from these policies to inform their instructional and operational practices
4. The rewards and sanctions will incentivize educators to change the quality of their instruction and in turn improve students' achievement

Assumption 1: Accountability Policies Measure Important Outcomes

- Accountability policies implemented to date typically rely on objective measures of school performance
- Stakeholders appear to respond to the performance data generated from accountability policies, and the quality of the data matters
  - Satisfaction
    - (Charbonneau and Van Ryzin 2011; Clinton and Grissom ; Jacobsen, Snyder, and Saultz 2012)
  - Housing market
    - (Black 1999; Black and Machin 2011; Brunner and Sonstelie 2003; Figlio and Lucas 2004; Downes and Zabel 2002; Figlio and Lucas 2004)
  - Donations
    - (Filgio and Kenny, 2009)
- Limited evidence, however, that parents and students respond to measures of school performance in ways that will change school practices

Assumption 2: Measures are Valid, Reliable, and Transparent

- The choice of how to measure school performance has a direct impact on the educators' behaviors
- Extant research documents measurement issues related to the modal implementation of accountability policies:
  - Sampling variation
  - Measurement error
  - Omitted variable bias
  - Multi-dimensionality
- These issues not only impact the reliability and validity of the measures, but they also have a direct impact on the incentive structure within accountability systems

Assumption 3: Educators have the Knowledge and Capacity to Respond

- Accountability policies assume that educators have the knowledge and capacity to respond to the generated data
- There are a number of constraints that hinder the ability of these policies to elicit behavioral responses
  - Limited information on input efficiency
    - (Figlio and Loeb, 2011; Ladd and Loeb, 2011; Ladd and Walsh, 2002)
  - Local control of instruction and finances
    - (Figlio, 2003; Loeb and Strunk 2007)
  - Alignment between assessments and standards
    - (Polikoff, Porter, and Smithson 2011; Rothman 2004)
  - Collective bargaining agreements
    - (Strunk and McEachin, 2011)

Assumption 4: Educators will Productively Respond to Incentives

- Accountability systems usually rely on a set of inducements and/or sanctions to change educators' behavior to improve student outcomes
  - (McDonnell and Elmore 1987; O'day and Smith, 1993)
- When the first three assumptions break down, the incentives often lead educators to respond in maladaptive ways
- These maladaptive responses are not unique to education
- For example, there is a well document case of "multi-tasking" in the principal-agent literature
  - (Gibbons 1998; Baker 1992, 2000; Holmstrom and Milgrom 1991, 1994; Milgrom 1988; Milgrom and Roberts 1988)

Assumption 4: Examples outside of Education

- The use of simple objective measures of organizational performance can lead to a narrowed organizational response
  - Surgeons avoiding very sick patients
    - (Epstein, 2006)
  - Use of letter grades to evaluate nursing homes
    - (Lu, 2012)
  - Selection of applications into job training programs
    - (Courty and Marschke, 1997; Heckman, Heinrich, and Smith, 2002)
  - Length of programmers' code
    - (Prendergast, 1999)
- Strong incentives for managers can lead to a cream-skimming phenomenon
  - (Bandiera et al, 2007)
- Mangers "career-concerns" may incentivize them to misrepresent their organization's performance
  - (Holmstrom and Costa, 1986)

Concluding Thoughts

- There is still a lot to learn about the design and implementation of school-level accountability policies
- Research outside of education can be quite useful in the design of school-level performance measures and incentives within accountability policies
- The current literature paints a very complex picture and explicates a direct relationship between the design of accountability policies and the behavioral responses elicited
- There is a significant lag between the empirical literature and the designs of the most recent accountability policies
  - E.g., the U.S. Federal ESEA Waiver program