Multiple Tasks and Multiple Rewards: Evidence on Performance Incentives from Health Programs in China

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Sector(s): Health, Social Protection

Sample: 170 rural primary schools

Target group: Primary schools

Outcome of interest: Anemia

Intervention type: Cash transfers Incentives

AEA RCT registration number: AEARCTR-0001469

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In many developing countries, absenteeism, lack of accountability, and corruption among public employees prevent the effective distribution of public services. Researchers examined how performance incentives and increased resources for school principals affected the implementation of a school-based nutrition program targeting anemia in rural China. Large incentives and large block grants individually led to significant reductions in anemia, but when schools received a large block grant, there was no additional effect from adding large incentives.

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Governments commonly provide goods and services such as fire protection, road maintenance, education, and health services for the benefit of the general public. However, in many developing countries, these goods and services are undersupplied, possibly due to high rates of absenteeism, lack of accountability, and corruption among staff. One potential solution is to tie public sector employees' pay to their performance.

However, the successful delivery of public services does not depend only on the actions of front-line staff: Public-sector managers must also direct the necessary funds and energy to implement programs. Understanding what motivates managers to care about achieving target program outcomes may encourage more effective and innovative service delivery among public sector employees.

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In poor areas of western China, around 30 percent of primary school-aged children suffer from iron deficiency anemia, which can cause severe fatigue, impair cognitive development, and weaken the immune system. Iron deficiency can be treated easily

through fortified staple foods, like flour and soy sauce, or through supplemental vitamins. Although effectively distributing these goods through the public sector remains a challenge, evidence suggests that school-based nutrition programs are among the most cost-effective ways of delivering health and nutrition services to children in developing countries. In China, where primary school attendance is nearly universal, primary school-based nutrition programs may be particularly effective.



Child receives nutritional supplement in a school in China

Photo Credit: Grant Miller | Stanford University

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Researchers partnered with the provincial governments of Qinghai, Gansu, and Shaanxi in Western China to test the effect of providing incentives and additional resources to managers on the implementation of a school-based nutrition program. The 170 schools in the study were randomly divided into three groups, with the principal of each school receiving a small incentive, a large incentive, or no incentive for reducing anemia prevalence in their schools.

- *Small performance incentives*: In 40 schools, principals received 12.5 Chinese yuan (US$2) for each student who was anemic at the start of the intervention and no longer anemic at the end.

- *Large performance incentives*: In 65 schools, principals received a larger incentive of 125 yuan (US$20) for each student who was anemic at the start of the intervention and no longer anemic at the end. Under this incentive structure, it was feasible for principals in this group to earn incentives equivalent to two additional months of salary.

- *Comparison group*: In 65 schools, principals did not receive any incentive to reduce anemia.

Across each of the three incentive groups, all schools were randomly assigned to receive one of two block grants in order to examine the effect of different amounts of resources on the prevalence of anemia. Although these funds were given in the context of the nutrition program, principals were free to reallocate them to other school functions, and receiving these funds did not depend on reducing anemia prevalence.

- *Small block grant*: Half of the schools in each incentive group received a small grant of 0.3 yuan (US$0.05) per student per day, enough to purchase daily iron supplements for each student. On average, small grant schools received a total of 7,452 yuan (US$1,183).

- *Large block grant*: The remaining schools received a larger grant of 0.7 yuan (US$0.11) per student per day, which allowed principals to purchase food in addition to supplements or to otherwise increase outreach. Large grant schools received an average of 17,388 yuan (US$2,760).

Combining the three types of performance incentives and two types of block grants resulted in six different treatment groups, each receiving a different mix of incentives and resources. School principals in all treatment groups received training on iron deficiency anemia before learning what incentives or grants they would receive. The trainings included information about the prevalence and causes of anemia, the consequences of anemia, and nutritional approaches to reduce anemia.

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Individually, large incentives and large block grants led to significant reductions in anemia, but providing large incentives to principals whose schools also received large block grants had no additional effect on the anemia rate. These results suggest that either approach, incentivizing managers or providing more resources, could encourage managers to implement long-term programs.

Incentives: Under the small block grant, providing large incentives to school principals was effective at reducing anemia. Large incentives of 125 yuan (US$20) reduced anemia prevalence by 13.8 percentage points from an average of 36 percent among schools who received no incentives and small block grants. Children in schools receiving large performance incentives also consumed more meat and vegetables at home, suggesting that the incentives encouraged principals to engage families to improve children's diets. Smaller incentives, however, did not lead to any significant reduction in anemia.

Block grants: Increasing the amount of resources available for the program also led to sizeable reductions in anemia. Increasing the block grant from 0.3 yuan (US$0.05) to 0.7 yuan (US$0.11) per student reduced anemia rates by 14.5 percentage points from an average of 36 percent among schools who received no incentives and small block grants. This suggests that principals were motivated to allocate resources to the nutrition program, even without explicit incentives to do so. Children in these schools reported consuming more fruits and vegetables at school, as well as more meat and vegetables at home, suggesting that principals both spent more on school food and encouraged families to improve their children's diets.

Incentives and block grants in combination: While large incentives and large block grants led to significant reductions in anemia individually, they were less effective in combination. There was no added benefit from offering higher incentives to principals at schools already receiving large block grants.

Luo, Renfu, Grant Miller, Scott Rozelle, Sean Sylvia, and Marcos Vera-Hernández. “Can Bureaucrats Really be Paid like CEOs? School Administrator Incentives for Anemia Reduction in Rural China." NBER Working Paper No. 21302, June 2015.