The Effects of Loan Forgiveness on Teacher Retention: Florida’s Critical Teacher Shortage Program

Tim Sass
Dept. of Economics
Georgia State University

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The “Teacher Shortage” Problem

- Fixed wages
  - Most school districts still primarily adhere to fixed salary schedules
    - Pay determined by educational attainment and years of experience
    - Little/no variation across grade levels or subject areas
    - Little/no variation across schools within a district

- Varying Supply
  - Across subject areas
    - Lower supply the more difficult to obtain requisite skills/credentials and the better the demand for skills in other occupations
      - Math, science, special education, foreign languages
  - Across schools
    - The worse the perceived working conditions, the lower the supply
      - Teachers tend to flee schools with high proportions of students with behavior problems, students from low-income families, students of color, low-achieving students

- Shortages will vary by subject area and by school type
Percentage of New Hires Who are Not Certified in a Given Subject by Year in Florida, 1998/99 – 2007/08

Policy Responses to Teacher Shortages

- **Increase Supply**
  - Loosen Hiring Requirements
    - "Emergency" teaching certificates
    - Alternative certification

- **Reduce Demand**
  - Increase class sizes
  - Restrict course offerings
  - Promote use of online education

- **Allow Variable Compensation**
  - Loan Forgiveness
  - Bonuses
  - Differential Pay
Florida’s Critical Teacher Shortage Program

- Loan Forgiveness
  - Must teach and be certified in a designated shortage area to qualify
  - Maximum of $2500 per year for undergraduate loans and $5000 per year for graduate loans
  - Could receive payments for two years if graduate loan and four years if undergraduate loan with a $10,000 maximum total disbursement
  - Annual renewal contingent on continuing to teach and be certified in a critical-shortage area
Florida’s Critical Teacher Shortage Program

- **Bonuses**
  - Occurred in a single year (1999/00)

- **Criteria**
  - Taught and been certified in foreign languages, science, math or special ed./gifted
  - Full or part-time middle or high school teacher
  - Received a favorable performance evaluation
  - Agree to continue teaching in one of the designated subjects the following year (2000/01)

- **Bonus capped at $1,200 per teacher**
Florida’s Critical Teacher Shortage Program

- Program Details
  - Established in 1984; payments began in 1986/87
  - Terminated in Spring 2011
    - Last disbursements in 2009/10
  - Designated shortage areas changed over time
  - Annual disbursements varied with legislative appropriation and number of applicants
Number of Teachers Receiving Tuition Reimbursement and Loan Forgiveness Payments by Year

- Number of Loan Forgiveness Recipients
- Number of Initial Loan Forgiveness Recipients
Average Payment per Recipient in Loan Forgiveness Program by Year

Average Loan Forgiveness Payout

- Average Loan Forgiveness Payout


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## Designated Critical Teacher Shortage Areas, 1984/85-2009/10

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Note: Eligible teachers are those who were certified and taught in a critical need area in the same year. Means of time varying variables are computed across all years in which a teacher is observed teaching.
Methods

- Effects of Policies on Teacher Retention
  - Compare difference in covered and non-covered periods between eligible and ineligible teachers (“Difference in Differences”)
  - Compare difference in bonus year and other years between teachers in covered and non-covered subjects and between middle/high school and elementary school teachers (“Triple Difference”)

- Effects of Policies on Teacher Quality
  - Compare distribution of value-added in math for recipients/non-recipients and movers/stayers
Percentage Change in Probability of Leaving Public School Teaching as a Result of Loan Forgiveness Program

Note: Shaded boxes indicate significance at 95 percent confidence level
Percentage Change in Probability of Leaving Public School Teaching as a Result of Loan Forgiveness Program – High and Low Payouts

Note: Shaded boxes indicate significance at 95 percent confidence level.
Results – Loan Forgiveness vs. Bonuses
Percentage Change in Exit Rates

Note: Shaded boxes indicate significance at 95 percent confidence level.
Results – Effects on Teacher Quality

Kernel Density Plot of Math Value-Added Distribution by Loan Forgiveness Receipt – Middle and High School Math Teachers

- Loan Forgiveness Recipients--Ever Certified and Taught
- Non-participants--Ever Certified and Taught
- Non-participants--Taught, Never Certified
Results – Effects on Teacher Quality
Kernel Density Plot of Math Value-Added Distribution by Loan Forgiveness Receipt – Special Education Teachers
Cost Effectiveness

- Loan forgiveness reduces teacher attrition which in turn increases experience and enhances teacher productivity
  - Weighted average reduction in attrition from loan forgiveness is 6.3 percent
- Can translate change in teacher experience into impact on student test scores and ultimately present value of higher earnings in long run for students
  - Gain per student per grade is $21 to $49 for teacher loan forgiveness
  - Single-year per-teacher benefit for loan forgiveness is $2100-$4900 per teacher
  - Benefits exceed average payouts of $3000 per teacher (during the high-payout period) for loan forgiveness
Conclusions

▪ Impacts on Teacher Attrition
  ▪ Loan Forgiveness Program Did Reduce Attrition of Teachers in High-Need Areas
    ▪ Stronger effects when payouts are higher
  ▪ (Short term) Reduction in Attrition from Bonuses Even Higher
Conclusions

▪ Quality Effects
  ▪ Loan forgiveness recipients of equal quality to other certified teachers, but higher quality than non-recipients who never become certified

▪ Policy Implications
  ▪ Educational subsidies, particularly loan forgiveness can be effective at promoting retention, though requisite payments higher for special education
  ▪ Direct payments (bonuses) more effective than loan forgiveness payments of equal magnitude (at least in the short run)