

Teacher transfer in public schools

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The Right to Education Act in India, 2009 was enacted to improve access to schooling for all children in India. To address the regional disparities in pupil-teacher ratios (PTR's) in public schools in a state, the act called for direct transfers of teachers where possible to ensure that all schools meet the minimum teacher requirement. Here the government's objective is to achieve regional balance in the quality of education in public schools in a state. One constraint on redistribution policies is that transfers must be voluntary, so that the transfer policy must be individually rational. The salaries of the public school teachers are fixed and independent of their posting. In this paper, we investigate the possibility of designing a transfer policy that satisfies individual rationality constraints while achieving distributional/fairness objectives and is incentive-compatible.

There is a set of teachers and a set of schools. Each teacher belongs to a single school. We assume for simplicity that each school has a fixed number of students. Given a mandate on minimum teacher-student ratio, an initial distribution may leave some schools with a surplus number of teachers while some may run deficits. Using this minimum teacher-student ratio, we can partition the set of schools into surplus and deficit schools. We assume that there are teachers in the surplus schools who are willing to transfer to deficit schools. However these teachers have a preference over the deficit schools they would like to be transferred to: in

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particular, we assume that each teacher partitions the set of deficit schools into acceptable and non-acceptable sets. A teacher with a non-empty acceptable set of deficit schools has a “trichotomous ” preference where the top indifference class consists of the deficit schools she finds acceptable, the second indifference class is the surplus school that she is currently posted at and the third class is the set of non-acceptable surplus schools.

The objective is to transfer teachers from surplus schools to deficit schools such that no surplus school becomes a deficit school after the transfer and no deficit school becomes a surplus school after the transfer. In addition to this feasibility constraint, the teacher policy scheme must satisfy the following criteria.

1. **Individual Rationality**, i.e no teacher can be transferred to a non-acceptable school.
2. **Maximality**, i.e. no other feasible transfer policy should be able to transfer a larger number of teachers.
3. **Lex-Optimality**. We begin with an initial deficit vector and arrange it in decreasing order. Any feasible teacher transfer scheme will induce a post-transfer deficit vector. We will compare the initial deficit vector α to the post-transfer vector β in the following way. Both vectors are arranged from the highest deficit to the lowest one. Also note that both vectors have the same length k (equal to the number of deficit schools). We say the post transfer vector β **lex-dominates** the initial vector α if there exists an integer $1 \leq r \leq k$ such that all components upto r are the same in both vectors and the r th component in β is lower than the r th component in α . A transfer policy is lex-optimal if the resulting deficit vector lex-dominates all feasible vectors.
4. **Strategy-proofness** No teacher can do strictly better by misrepresenting her preferences, i.e by being strategic over her partition of deficit schools into acceptable and no-acceptable sets.

Our main result is that all four objectives are compatible.