

Title: School Choice with General Constraints: A Market Design Approach for the Nursery School Waiting List Problem in Japan¹

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Abstract: In Japan, many children are waiting for a place at publicly certified nursery schools, which are schools or day care centers for children aged 0 to 5 whose parent(s) cannot care for their children full-time at home. This problem is called the nursery school waiting list problem. In this study, we theoretically address this problem.

The mechanism in this study is also based on the literature on school choice. In a typical model of school choice, each school has a simple quota constraint, implying that any student can enter a school as long as the number of students in the school is less than its quota. However, even if some children aged 5 can enter a nursery school, a child aged below 1 may not be able to enter the school. This implies that, contrary to the assumption of most previous papers on school choice, it may be infeasible to replace one child with another child if their ages differ. Therefore, we consider the general feasibility constraint of a school. That is, in our model, each student belongs to a grade; and two students belonging to the same grade are symmetric, whereas those belonging to different grades can be asymmetric with respect to the feasibility constraint of a school.

We introduce five requirements of a matching and a polynomial-time algorithm to derive a matching satisfying them. Since the algorithm is inspired by the nursery school system of Yokohama city, we introduce the system and compare it with the algorithm of this study.

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Keywords: Matching; Market design; School choice; Polynomial-time algorithm; Nursery school waiting list problem

¹If you want the full paper, please visit the website at <https://kaiyodai.academia.edu/YasunoriOkumura>.

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