

**CHARLES UNIVERSITY IN PRAGUE**

Faculty of Science

Department of Demography and Geodemography

**MASTER THESIS**

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**FORECAST OF THE PRE-SCHOOL EDUCATION  
NEEDS IN ASTANA UNTIL 2030**

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In Prague

Marlen Sikhayev

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## Forecast of the pre-school education needs in Astana until 2030

### Abstract

This thesis aims to analyze future preschool education needs in Astana city. The low coverage of children by preschool education (a small number of preschool education institutions) initially lays the foundation of inequality elements and contradicts with the basic principles of the State education policy aimed at accessibility of education for the citizens of the country. As a consequence of insufficient governmental financing, the cost of children maintenance increased and it became the reason of unavailability of kindergarten service for separate groups of people. Consequently, the future preschool needs in Astana until 2030 is of particular interest. The thesis addresses issue of future population development dynamics in new capital city. This aim achieved with the help of forecasting techniques applied for Astana population until 2030. The thesis aimed to present the picture of how the trends (mortality, fertility and migration) are developing and how they will affect on the preschool needs in the future.

**Keywords:** Astana, Kazakhstan, preschool needs, probability of dying, contributions to changes in life expectancy at birth, age specific fertility rate, gross reproduction rate, net reproduction rate, forecasting, cohort-component model, future population structure

### Абстракт

Данная работа нацелена на анализ будущего спроса в дошкольном образовании в г. Астане. Низкий охват детей в учреждениях дошкольного образования (низкое количество институтов дошкольного образования) приводит к созданию неравенства элементов и противоречий с базовыми принципами Государственной политики в сфере образования направленной на повышение доступности образования для всех граждан страны. Результатом недостаточных государственных финансовых вливаний в данную сферу является удорожание стоимости учреждений дошкольного образования, что в свою очередь приводит к недоступности учреждений дошкольного образования для отдельных групп населения. Таким образом, изучение будущих нужд в учреждениях дошкольных образований в Астане до 2030 года является важным на сегодняшний день. Работа охватывает проблему будущего состояния населения и динамики развития населения в новой столице. Эта цель была достигнута с помощью расчета прогноза населения, которая была применена для города Астана до 2030 года. Кроме того, работа нацелена на презентацию картины как тренды (смертность, рождаемость и миграция) будут развиваться, и как они будут влиять на спрос учреждений дошкольного образования в будущем.

**Ключевые слова:** Астана, Казахстан, спрос на учреждения дошкольного образования, вероятность умереть, взносы в продолжительности жизни от рождения, возрастной коэффициент рождаемости, брутто-коэффициент воспроизводства, нетто-коэффициент воспроизводства, прогноз, когортно-компонентная модель, будущая структура населения