



Title	Essays on Human Capital Investment through Education and Job Training
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論文内容の要旨

氏名(阿部眞子)	
論文題名	Essays on Human Capital Investment through Education and Job Training (教育と職業訓練を通じた人的資本投資に関する論文)
論文内容の要旨	
<p>This thesis presents the effect of human capital investment on students' and job seekers' outcomes through education and job training. The thesis is organized as follows.</p> <p>Chapter 2 focuses on human capital investment in public schools. Specifically, it examines the long-term effects of English classes in elementary schools on listening and reading scores in English. Before 2020, when English classes became mandatory in Japanese elementary schools, there was a debate about the effectiveness of early foreign language education, but statistical evidence remains scarce. Since no official Japanese dataset combines students' objective English scores with their exposure to English education, this chapter relies on an original survey targeting highly ranked university students, which includes scores of the National Center Test for University Admissions (Center Test), information on whether students received English classes in elementary school, and individual and household's characteristics. Controlling for these characteristics, the analysis finds that English classes in elementary school significantly improve English listening scores by 0.339 standard deviations at the time of high school graduation. Since English scores are expected to be positively correlated with the probability of entering university, the estimates are likely to be underestimated, representing a lower bound. These findings are consistent with linguistic studies suggesting that skills related to sound perception develop at an early age. Furthermore, this chapter explores the mechanisms and suggests that the effects are not driven by increased motivation but by the enhancement of English skills.</p> <p>Chapter 3 also focuses on human capital investment in public schools. It examines the impact of introducing a calculation class on the academic scores of elementary school students. The calculation class is characterized by instruction using an abacus (<i>soroban</i> in Japanese), a traditional calculation tool in Asia, and teaching by abacus instructors. The calculation class was introduced with time lags across schools and birth cohorts, which allows us to exploit the difference-in-differences strategy. Using administrative data from Amagasaki City in Japan, we find that the calculation class increases mathematics and Japanese scores by 0.145 and 0.0874 standard deviations, respectively. To explore possible mechanisms, we investigate the impact of the calculation class on students' non-cognitive skills, academic behaviors at home, and the classroom environment. The results indicate that the calculation class improves non-cognitive skills, such as grit and motivation for studying. Furthermore, we find heterogeneous effects across gender, socioeconomic status (SES), and previous academic scores. Our estimation results show that the calculation class has a larger impact on the mathematics scores of female students, students from low-SES families, and previously low-performing students. Finally, we explore the long-term effects and find that, for female students, the impact tends to persist for one year after the class ends, but after that, the effects fade out.</p> <p>Chapter 4 focuses on human capital investment by households. It investigates the effect of cram school attendance on the academic scores of elementary and junior high school students using propensity score matching. The analysis uses administrative data that includes information on cram school attendance and academic scores. The results show that attending a cram school improves academic scores. Specifically, cram school attendance increases standardized test scores in arithmetic or mathematics by 0.21 standard deviations for 1st to 3rd-grade elementary school students, 0.31 for 4th to 6th graders, and 0.29 for 1st and 2nd-grade junior high school students. For the Japanese language, scores for 4th to 6th graders increased by 0.24 standard deviations, but no statistically significant effects were observed for 1st to 3rd-grade elementary school students or</p>	

junior high school students. Additionally, cram school attendance increased the English scores of junior high school students by 0.3 standard deviations. One reason cram school attendance improves academic scores is the increase in study time both on weekdays and weekends. To comprehensively examine the impact of cram school attendance, this chapter also analyzes whether it negatively affects non-cognitive skills, school engagement, or health, which are indicators other than academic scores. The results suggest that attending a cram school does not negatively impact these non-academic indicators. Rather, for 4th-grade elementary school students and older, cram school attendance improves non-cognitive skills such as grit, self-esteem, and concentration when studying. In order to explore the heterogeneity of cram school effects, estimation was conducted after the sample was divided into groups with high and low propensity scores. The results show that for 4th to 6th-grade elementary school students, larger estimated effects tend to be observed in the group with higher propensity scores. Conversely, for junior high school students, larger estimated effects tend to be observed in the group with lower propensity scores. No significant differences were observed between the groups for 1st to 3rd-grade elementary school students.

Chapter 5 focuses on job training for job seekers. This chapter examines the effect of internships at a real company on the job-related skills of unemployed individuals with mental disabilities. The analysis uses data combining registration data (a panel of job seekers) from a private employment support organization and survey results targeting their offices. Using the Instrumental Variable method, the chapter finds that internships raise job-related skills or self-confidence or demonstrate at least the same skills and confidence as before. In particular, the results reveal that skills for addressing difficulties in speed and accuracy at work, preparation for job seeking, and understanding tasks are raised or show at least the same skills and confidence as before.

The entire thesis shows that human capital investment, particularly education and job training, affects educational outcomes and job-related skills. Specifically, education in schools, that is, investment by the public, improves students' scores. Also, education provided by private, meaning investment by households, increases students' scores. Regarding job training, investment in government-subsidized private institutions fosters the development of job-related skills. Human capital investment promotes skill acquisition among individuals and has the potential to enhance social productivity as a whole. Furthermore, this thesis supports the validity of promoting human capital investment through public policy.

論文審査の結果の要旨及び担当者

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論文審査の結果の要旨

【論文内容の要旨】

本博士号請求論文は、人的資本投資が、教育および職業訓練を通じて、学生や求職者の認知能力や非認知能力、就業成果に与える影響を明らかにするものである。

第2章では、公立学校における人的資本投資に着目し、小学校での英語授業が、高校終了時の英語力に及ぼす長期的な影響を考察する。日本の小学校で英語の授業が必修化された2020年以前について、英語教育の効果を検証した統計的な証拠は、早期外国語教育の有効性に関する記述的な議論を除いて存在していない。本章では、大学入学者を対象とした独自調査を行い、小学校での英語の学びの効果を検証する。本人や家族の属性の差による影響を取り除いた分析の結果、小学校での英語授業は、高校卒業時の英語リスニングスコアを0.339標準偏差分向上させることができた。様々な追加検証を行っても結果は変わらない。また、効果は英語のスキル向上によるものであり、単なる学習意欲の増加によるものではないことが確認される。小学校での英語教育は日本人の英語力を高めると言える。この結果は、小学校での英語授業の必修化を定めた2020年の教育改革を支持するものである。

第3章も公立学校における人的資本投資を扱う。ここでは、小学校における計算授業の導入が学業成績に与える影響を分析する。計算授業の特徴は、アジアの伝統的な計算ツールであるそろばんを用いた指導、およびそろばん指導者による授業である。計算授業の導入は、学校および学年ごとに時間差を伴って行われたため、この時間差を利用し、差分の差分法を適用する。尼崎市の行政データを用いた分析の結果、計算授業は数学スコアを0.145標準偏差、日本語スコアを0.0874標準偏差向上させることができた。また、性別、社会経済的地位 (SES) 、および以前の学力による異質な効果を分析したところ、特に女子生徒、低SES家庭の生徒、および学力の低かった生徒に対して、計算授業が数学の成績を大きく向上させることができた。

第4章では、家庭による教育投資に焦点を当てる。ここでは、学習塾への通塾が小学生および中学生の学業成績に与える影響を、傾向スコアマッチング法を用いて分析する。3章と同じ行政データを用いた分析の結果、学習塾への通塾は学業成績を向上させることができた。具体的には、算数または数学の標準化スコアは、小学校1~3年生で0.21標準偏差、小学校4~6年生で0.31標準偏差、中学1~2年生で0.29標準偏差向上することがわかる。また、通塾は、中学生の英語スコアも0.3標準偏差向上させる。学習塾が学業成績を向上させる要因には、平日および週末の学習時間の増加が考えられる。一方で、学習塾通いが非認知能力、学校への関与、健康といった学業成績以外の指標に負の影響を及ぼすことは確認されない。通塾は子供の非認知能力を下げることなく認知能力を高める効果を持つ。

第5章では、求職者の職業訓練に焦点を当てる。ここでは、民間の就労支援機関の登録データ (求職者のパネル調査) と、支援機関を対象とした調査を統合したデータを構築し、求職中に体験する企業でのインターンシップが、精神障害を持つ求職者の職務関連スキルに与える影響を分析する。操作変数法を用いた分析の結果、インターンシップは、職務関連スキルや自信を向上させる、あるいは少なくとも以前と同じ水準を維持する効果があることがわかる。特に、業務におけるスピードや正確性への対応能力、求職活動の準備、業務理解の向上に寄与する。

【審査結果の要旨】

日本において教育投資の長期的効果を統計分析した研究は数が限られている。本論文は、個人調査や自治体の行政データ、就職支援機関の登録データを用いることで、教育投資の因果効果の存在を明らかにした。実際の政策効果を検証した点でも価値は高い。審査委員会は一致して提出論文が博士の学位を授与するに値すると認定した。