

## 学位論文及び審査結果の要旨

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学位の種類	博士（経済学）		
学位記番号	国府博甲第 89 号		
学位授与年月日	令和 5 年 9 月 15 日		
学位授与の根拠	学位規則（昭和 28 年 4 月 1 日文部省令第 9 号）第 4 条第 1 項及び横浜国立大学学位規則第 5 条第 1 項		
研究科(学府)・専攻名	国際社会科学府経済学専攻		
学位論文題目	Essays on impacts of compulsory education, family size and public health insurance for the poor in Vietnam 〔ベトナムにおける義務教育、家族規模、貧困者に対する公的健康保険の影響に関する論考〕		
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### 論文の要旨

Vietnam is a developing country with a population of 97.4 million people and a GDP per capita of 3,756 US dollars. The Vietnamese government considers human capital a key driver for socioeconomic development and income improvement. This dissertation focuses on three topics related to education and health policies which significantly impact the nation's human capital.

The first chapter evaluates the impact of number of children on children's educational attainment in Vietnam. This topic is important to Vietnam which has been implementing two-child policy for more than three decades. To deal with the problem of omitted variables in estimation, my study uses two commonly used instruments which are twin and same sex births. It utilizes the data from the 2009 Vietnam Population and Housing Census and employs the twin birth instrument, following the study by Mont et al. (2020). While the latter finds that having more children reduces the school enrollment rate of the first-born child by 1.6 percentage points, my results show the sensitivity of twin birth instrument estimates to sample selection criteria, control variables, and measures of children's education. Specifically, when consider the impact on the oldest child, Mont et al. (2020)'s sample selection criteria are: (i) families with two or more children, (ii) the oldest child from 6 to 18 years old, (iii) all children are currently living with their mother, (iv) oldest mothers are 49 years old, and (iv) families with single fathers are excluded. The estimate changes from -1.6 to -1.4 percentage points when I include the sample of families with two or three children instead of families

with two or more children, 0.9 percentage points when I include families with only parents and children and to -1.00 percentage points when parental income is controlled for. In addition, to account for the sample selection problem, I include younger mothers and the estimate varies to -1.45 percentage points. I also redefine the educational outcomes of children to avoid the problem of the right censoring, then only the estimated coefficient of family size on high school enrollment is significant at -7.6 percentage points. Besides, the paper finds that the same-sex instrument is correlated with the geographical location of families. Generally, it suggests that there is a trade-off between children's quantity and quality. These results urge the Vietnamese government to carefully evaluate the total impacts of fertility control policies. Those evidences are necessary for the government to determine whether or not it should relax the two-child policy which has been implementing in Vietnam for more than three decades. Besides, it recommends that when using instrument variables, scholars should check for the possible violations of the assumptions for IV.

The second chapter examines the effect of compulsory primary education law (CPEL) on dropout of children in Vietnam. This study uses the 1999 Vietnam Population and Housing Census and survival analysis to account for the right-censoring problem in the educational outcomes of children. The study found that CPEL reduces the dropout rate of children by 12%. However, the effect is minor, especially when compared to the impact of family income and parents' education. This finding is similar to those of other studies, suggesting that besides CPEL, other family income support and parent-oriented policies are crucial to improving children's educational attainment.

The third chapter estimates the impact of free health insurance targeting the poor (FHIP) on individuals' and households' healthcare utilization and out-of-pocket expenditures (OOPE) in Vietnam. Due to a policy change in the poverty classification of Vietnam in 2016, all factors systematically affecting the poverty status of households are available in the rich and recent 2018 Vietnam Household Living Standards Survey (VHLSS). The thesis used propensity score matching (PSM) to evaluate the causal effects of the FHIP on the health-related outcomes of individuals and households. Hereafter, significant estimates are marked with asterisks. Generally, the study finds that FHIP increased the number of outpatient and inpatient visits of individuals by 0.10 and 0.05\*, respectively, and of households by 1.26\* and 0.25\*, respectively. Furthermore, the effects are heterogeneous among subsamples of individuals and households with different propensity scores to be treated as poor. The targeted group has the highest propensity score to be treated as the poor. For this group, FHIP reduced the use of outpatient and inpatient services among individuals by 0.09 and 0.05, respectively, and among households by 0.47 and 0.20, respectively. The non-targeted group has a propensity score between 0.5 and 0.6. For this group, FHIP increased the use of outpatient and inpatient services among individuals by 0.48 and 0.32, respectively, and among households by 2.78\* and 1.12, respectively. Similarly, it increased the inpatient OOPE of households by 618,000 VND or 1% of the annual average income of

Vietnamese people in 2018. While the inpatient OOPe for the targeted group of households increased by 272,000 VND, it decreased by 80,000\* VND for the non-targeted group. Further studies should seek to understand the reasons behind heterogeneous impacts of FHIP so that the government can design better health policies towards the poor.

#### 審査結果の要旨

第1章「Impact of family size on the educational attainment of children in Vietnam」は、ベトナムにおけるこどもの数と質（教育）との間の「QQ トレードオフ」を詳細に実証分析している。こどもの数に影響する分析者には観察できない要因がこどもの質にも影響することが QQ トレードオフの識別を困難にする。ベトナムの Vietnam Population and Housing Census 2009 の個票データを用い、文献でよく用いられる、こどもの数の2つの操作変数（双子の出産、最初の2子が同性）の除外制約、Mont et al.(2020)が用いたサンプルセレクション条件、アウトカム変数の定義、コントロール変数が分析結果に及ぼす影響を詳細に実証分析している。

第2章「Impact of compulsory primary education on educational attainment of children in Vietnam」は、ベトナムにおける小学校教育の義務化が小学校からの児童の中退率に与えた因果効果を推定している。ベトナムでは児童が6歳になる西暦年に小学校へ入学する。義務化の対象となる前の1984年12月生まれの児童をコントロールグループ、義務化の対象となった1985年1月生まれの児童をトリートメントグループとし、ベトナムの Vietnam Population and Housing Census 1999 の個票データを用い、まずバランスチェックを行い、比較可能であることを確認している。入学から中退までの duration のハザードモデルを推定し、義務教育化には中退ハザード率を12%低くする統計的に有為な効果があることを明らかにしている。親の学歴、住居の環境、宗教、地域といった属性の方が義務教育化よりも遥かに大きな効果を持つことも明らかにしており、教育達成には、義務教育化だけではなく、住環境を整備することが有効である可能性を示唆している。

第3章「Impact of public health insurance for the poor」は、ベトナムの貧困状態にある個人を対象とする公的健康保険の供与が彼らとその家族の医療サービスの利用に与えた因果効果を推定している。行政が個人を貧困状態にあるか否かを判断するのに用いた、個人の多くの属性を網羅した VHLSS2018 からの個票データを用いている。傾向スコア・マッチング推定法により、公的健康保険は、入院の回数を0.05回増やす統計的に有為な因果効果を持つが、外来の回数、外来の医療費の自己負担額、入院の医療費の自己負担額に対する正の効果は統計的に有為ではないことを示している。政策ターゲットとなっていない貧困スコアの低いグループで外来の回数を回増やす効果を持つこと、家族に対する効果が個人に対する効果と似ていることも明らかにしている。

以上のことから、本論文審査委員一同は、本学府の博士号審査基準②に照らして、DANG THI THANH BINH 氏の学位請求論文「Essays on impacts of compulsory education, family size and public health insurance for the poor in Vietnam」が博士（経済学）の学位を授与するに値するものとして、判断する。