출장복명서

# NHESG 2017 학술대회 발표 및 토론

2017. 8

출장자: 오영호

□ **출장목적**

- 핀란드 헬싱키에서 개최된 NHESG 2017 학술대회에 참석하여 연구논문 발표와 토론 및 간호인력 수급의 최근 연구동향 파악과 연구결과 자료수집

□ **출장지: 프랑스 및 핀란드**

□ **출장기간: 2017. 8. 21~ 2017. 8. 27(5박 7일)**

□ **참석기관:** 북유럽 보건경제학회(NHESG), 핀란드 보건사회경제센터, 프랑스 병원협회

□ **주요일정 및 학회개요**

○ **학술대회 개최장소 : 핀란드 헬싱키**

- NHESG 2017 학술대회의 주요 발표내용: 핀란드의 헬싱키에서 35차 NHESG 학술대회가 개최됨.

- 학술대회의 주요 주제는 다음과 같음: 1) Production of health and health care; 2) Demand for health and health care; 3) Financing of health care; 4) Measurement of health; health behaviors and policy interventions; 5) Efficiency and distributional aspects of health; 6) Health care system and organization; 7) Economic incentives in health care; 8) Economics of social and long term health care; and 9) General survey articles.

## □ 학술일정 및 프로그램

**38th Nordic Health Economists' Study Group (NHESG) meeting in Helsinki 23rd-25th August 2017**

| Wednesday 23rd August | | | | | |
|---|---|---|---|---|---|
| 12 noon | Registration open and lunch is served at the National Institute for Health and Welfare | | | | |
| 1:00pm | Sali 1-3 | | | | |
| | **Opening words by** Timo T.Seppälä and Unto Häkkinen | | | | |
| 1:15pm | ***Key note speech by professor Jonas Schreyögg: Reforms in hospital care and its impact on performance*** | | | | |
| 2:15pm | *Coffee break* | | | | |
| 2:30pm - 3:10pm | | Sali 1 | Sali 2 | Sali 3 | Metodi 1&2 |
| | Chair | Oddvar Kaarboe | Timo T. Seppälä | Marie Kruse | Attakrit Leckcivilize |
| | Paper | Häkkinen: Performance comparison of hip fracture pathways in two metropolitan areas - does integration matter? | Birgirsdottir: The Great Recession in Iceland: A natural experiment to explore the impact of a macroeconomic downturn on the risk of a cardiovascular event | (Heckley) Fischer: Does increased schooling improve and equalise health? | Soppi: Growth of Diabetes Drug Expenditure Decomposed - a Nationwide Analysis, Finland, 2003-2015 |
| | Discussant | Øystein Døhl | Maria Vaalavuo | Mikko Nurminen | Si Wei |
| 3:10pm - 3:50pm | Paper | Moger: Effects of municipal care and early follow-up on readmissions and mortality for stroke patients | Dev: Health, Inequality and Income in High & Low Income Countries: Simultaneous Model Approach | Heckley: Could easier access to university improve health and reduce health inequalities? | Hyttinen: Patient-and Health Care Supply Related Predictors of Initiation of Potentially Inappropriate Medications in Community-Dwelling Older Adults in Finland |
| | Discussant | Mikko Peltola | Kristin Birgirsdottir | Lien Nguyen | Margareta Dackehag |
| 3:50pm | *Coffee break* | | | | |
| 4:10pm - 4:50pm | | Sali 1 | Sali 2 | Sali 3 | |
| | Chair | Lise Desireé Andreasen | Suvi Mäklin | Margareta Dackehag | |
| | Paper | Kortelainen: Break-Ups of Municipal Health Centre Federations: Effects on Cost, Efficiency and Quality of Services | Ellegård: P4P for compliance with hypertension drug treatment guidelines: effects and public-private heterogeneity in Sweden | Grepperud: P4P schemes: should optimal prices vary across system variables and clinical variables? | |
| | Discussant | Oddvar Kaarboe | Kjartan Sarheim Anthun | Eila Kankaanpää | |
| 7pm | *Welcome reception at Musiikkitalo* | | | | |

| Thursday 24th August | | | | | |
|---|---|---|---|---|---|
| | | Sali 1 | Sali 2 | Sali 3 | Metodi 1&2 |
| | Chair | van der Pol Marjon | Ismo Linnosmaa | Unto Häkkinen | Kjær Trine |
| 9:00am - 9:40am | Paper | Aas: Cost-effectiveness of screening for colorectal cancer: Does the cost-effectiveness vary among subgroups? | Pedersen: Can external interventions crown out intrinsic motivation? A randomized field experiment on mandatory accreditation of general practice in Denmark | Bjornelv: The use of health care services at the end-of-life: a descriptive registry study of the total utilization of health | Pitkänen: Does experience influence choice of provider? Evidence from Finnish medical rehabilitation |
| | Discussant | Booth Neill | Lina Maria Ellegård | Leena Forma | Lauridsen Jørgen T |
| 9:40am - 10:20pm | Paper | Halsteinli: The cost-effectiveness of home-based exercise program four months after hip fracture | Leckcivilize: The effects of own and partner's retirement on health behaviour, health and well-being: Evidence from the English Longitudinal Study of Ageing | Edwards: Associations between body mass index (BMI) and healthcare utilization | Hiltunen: The effect of market structure on technological diffusion and prices in the private markets for MRI |
| | Discussant | Virva Hyttinen | Jonas Minet Kinge | Marie Kruse | Tor Iversen |
| 10:20am | *Coffee break* | | | | |
| | | Sali 1 | Sali 2 | Sali 3 | Metodi 1&2 |
| | Chair | Grepperud Sverre | Olsen Jan Abel | Kristin Birgirsdottir | Lauri Sääksvuori |
| 10:40pm - 11:20pm | Paper | Booth: 'Alternative facts' and opportunity costs in health-economic evaluation | Vaalavuo: The unequal impact of ill-health - The impact of breast cancer on work career and earnings among Finnish women | Hastrup: Cost of pathways to care in first-episode psychosis in Denmark : A nationwide registerbased study | Mendez: Competition in the market for medical specialists |
| | Discussant | Christoph Rheinberger | Karin Dam Petersen | Vidar Halsteinli | Riina Hiltunen |
| 11:20am - 12:00pm | Paper | Herrera- Aurajo: Valuing non-fatal health risks: theory and empirical evidence | Kruse: Return to work after acquired brain damage | Karvonen: Register-based incidence, healthcare service use and costs related to hepatitis B in Finland | (Böckerman) Nurminen: Reality Check: The Effect of Health IT Adoption on Prescription Drug Abuse |
| | Discussant | Trine Kjaer | Marjon van der Pol | Christina Edwards | Susan Mendez |
| 12:00 | *Lunch* | | | | |

| Thursday 24th August - afternoon | | | | |
|---|---|---|---|---|
| | | Sali 1 | Sali 2 | Sali 3 |
| | Chair | Karin Dam Pedersen | Jan Abel Olsen | Tor Iversen |
| 1:00pm - 1:40pm | Paper | Andreasen: Preferences for QALYs in end-of-life - an empirical study | Sääksvuori: From the Cesarean section to the labor market: Mode of birth delivery and young adult outcomes | Moger: Higher mortality among ACS patients in Finland than in Norway |
| | Discussant | Gudrun Bjornelv | Martin Fischer | Virpi Kuvaja-Kölner |
| 1:40pm - 2:20pm | Paper | Nguyen: Eliciting preferences for social care outcomes in Finland using the best-worst scaling approach | Brown: Is blood thicker than water? Comparing the correlation in risk preferences between biological and adopted offspring... | Rudolfsen: To which extent can variation in spine surgery rates be explained by variations in needs? |
| | Discussant | Line Bjornskov Pedersen | Lauri Sääksvuori | Antti Malmivaara |
| 2:20pm | *Coffee break* | | | |
| | | Sali 1 | Sali 2 | Sali 3 |
| | Chair | Eila Kankaanpää | Mika Kortelainen | Gudrun Bjornelv |
| 2:40pm - 3:20pm | Paper | Petersen: Measuring hrqol in adolescent populations | Lauridsen: Can we learn to live longer? | Iversen: Comparison of hospital treatment costs between Finland and Norway for patients with acute myocardial infarction |
| | Discussant | Lise Andreasen | Gawain Heckley | Tanja Karvonen |
| 3:20pm - 4:00pm | Paper | Linnosmaa: Good health, better social care related qol? | Kinge: Income and health expenditures in Norway: an instrumental variable approach | Forma: The place of death among old people in Finland and in Norway - what is the role of long-term care? |
| | Discussant | Jan Abel Olsen | Youngho Oh | Eline Aas |
| 7pm | *Conference dinner at Uunisaari* | | | |

| Friday 25th August | | | | |
|---|---|---|---|---|
| | | Sali 1 | Sali 2 | Sali 3 |
| | Chair | Jonas Minet Kinge | Mendez Susan | Maria Vaalavo |
| 9:00am - 9:40am | Paper | Anthun: Hospital reimbursement price effect in a comparative perspective: The effect of DRG price changes in Denmark and Norway | Kaarboe: GPs, contracts and inequalities | Youngho Oh: The Effect of Specialist's Income on the Application of the Residency Program |
| | Discussant | Kati Koskinen | Ismo Linnosmaa | Hennamari Mikkola |
| 9:40am - 10:20am | Paper | Hokkanen: The effect of reference price corridor on pharmaceutical pricing in Finland | Dackehag: How does competition impact public primary care providers' prescription of addictive drugs? | Si: PUBLIC HEALTH INSURANCE AND THE LABOR MARKET: Evidence from China's Urban Resident Basic Medical Insurance |
| | Discussant | Attakrit Leckvizilice | Aarni Soppi | Visa Pitkänen |
| 10:20am | *Coffee break* | | | |
| 10:40am - 11:40am | Sali 1-3 | | | |
| | ***Key note speech by professor Otto Toivanen (Topic to be announced)*** | | | |
| 11:40am - 12:00am | **Closing words and details of NHESG2018** | | | |
| 12:00 | *Business meeting* | | | |
| 12:30pm | Lunch | | | |

□ 발표 주요논문

## Abstracts

□ 발표논문: 25일 (오전 첫 번째 세션)

# The Effect of Specialist's Income on the Application of the Residency Program

Youngho Oh
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## 1. Introduction

In Korea, there is a controversy over the imbalance of supply and demand of medical specialists due to their preference of certain type of specialties. The imbalance in application appears throughout different medical fields, with the field of psychiatry showing the highest application rate as 1.5 times more medical students applied for the field than the admission quota, whereas no one applied for the field of tuberculosis. The medical specialist occupancy rate, which is affected by the application rate, also shows a similar imbalance. There are 11 fields of specialization that show medical specialist utilization rate of 90% or less, and the rates for the fields of thoracic surgery and urology are even lower at around 40%.

To improve the imbalance in application for different fields of specialization, which directly leads to the imbalance in supply and demand of medical specialists, policy measures such as government subsidy for unpopular fields, and reduction of the quota for interns and residents in relevant fields were being implemented. However, the imbalance in application and shortage of specialists in certain fields have not been improved significantly. Rather, the imbalance between some fields that show high rates of application and placement while those with low rates have further widened. Concerning the imbalance in the preferred fields of application for last five years, the imbalance index of specialized fields that have shortage of applicants (applying the concept of dispersion) increased from 32 in 2008 to 34 in 2012, and the imbalance index of the medical specialist assignment occupancy rate also rose slightly from 31 to 32, indicating that the imbalance in application is being sustained.

Therefore, it is expected that the mere changes in the subsidy amount for interns/residents and overall quota of medical specialists will not solve the problem. In this regard, the study attempts to estimate the impact of the income of medical specialists and related variables, which are pointed out as the reasons behind the imbalance in application for different fields of specialization, and to present the basic data that can be used in developing the policy for achieving the balance in supply and demand of medical specialists in the long run.

## 2. Research Methods

The human capital approach was used for the study. According to this theory, potential workers consider benefits (potential monetary earnings and non-pecuniary return) in choosing their occupations.

The analysis unit of the study is not individual medical specialists or their personal characteristics but the fields of specialization, or groups, and the inherent characteristics of each field. This is because the imbalance in application for medical specialists is fundamentally based on the inherent differences between varied fields of specialization, such as the expected income after becoming medical specialists, the level of difficulty of medical specialist training and medical consultation as well as working conditions, rather than the characteristics of individual specialists. Occupancy rate model of specialists was applied by the panel data of 26 major fields in available duration(2001~2013).

Concerning the source materials of the study, the statistics on the income of medical specialists in different fields of specialization (2001~2013) were obtained from the National Health Insurance Service, whereas the statistics on the amounts of health insurance benefits in different fields of specialization, the weighted relative value points in different fields and the amounts of medical service usage (2008~2013) were obtained from the Health Insurance Review and Assessment Service. Data related to the difficulty of training and medical consultation/treatment

by medical specialists was collected through a questionnaire survey of 26 societies of different fields of specialization via mail.

## 3. Results

First of all, it was appeared that income of specialists has effects to occupancy rate. Occupancy rate of specialists varies depending on the income of specialists, and it was projected that the rate increases as the income gets lager. Above all, effect of medical specialist income in different fields of specialization on the occupancy rate of medical specialists was shown to be greater in supporting fields or minor fields of specialization than in that of major. According to the fixed effects model in Model 1, an increase of 1,000,000 won in monthly income is required to raise the occupancy rate of medical specialists by 1.2% point. This can be recognized through income elasticity as well. The income elasticity of the medical specialist was between 0.0377 and 0.09152, which is extremely low. Based on the result, it was estimated that a 1% increase in income led to the increase in the medical specialist occupancy rate of between 0.0377% and 0.09152%.

Second, the existence of medical specialist training subsidy, one of the variables that represent group effects of specific fields of specialization, appeared to affect the occupancy rate of medical specialists. According to the estimation based on the model that did not differentiate between different levels of medical specialist income, the occupancy rate of medical specialists in fields which are not favored by applicants for medical specialists and are thus targets of medical specialist training subsidy appear to have increased by 6.37% point.

Third, the difficulty of training and medical treatment/consultation, one of the variables that represent the characteristics of different fields of specialization, appears to affect the occupancy rate of medical specialists greatly. This means that medical fields that accompany difficult training process and high level of difficulty in medical treatment/consultation suffered from the reduction of the medical specialist occupancy rate. When the score for training and treatment/consultation increased by 1 point, the occupancy rate was estimated to drop by

10.523% point.

Fourth, the increase/decrease ratio of medical specialists, which was categorized as a variable that shows the characteristics of different fields of specialization, appeared to have an impact on the occupancy rate of medical specialists. In general, the occupancy rate decreased by 0.135% point when the quota of medical specialists was raised by 1%. It is seen to indicate the necessity to determine the appropriateness of the medical specialist quota and adjust it in order to enhance the medical specialist utilization rate.

## 4. Discussion

The concentration of application in certain fields of specialization that leads to the imbalance in medical specialist occupancy rate can be partly explained by models based on the medical specialist income, job stability and characteristics of each field, and is partly attributed to unique characteristics of different fields that are not explained by these models. Therefore, it is necessary to advance into the direction of improving the inequity of group effects of different fields. Meanwhile, there needs to be the precondition that the medical specialist quota of each field is appropriate. In this relation, it is necessary to consider the appropriateness of the medical specialist quota in fields of specialization with low occupancy rate that are problematic.

There are policy means to improve the occupancy rate by adding a certain percentage to the health insurance fees or using policy variables to standardize the preference index of fields which have preference index − calculated based on group specific effect of each field − lower than 1 and have been proven to have appropriate medical specialist quota. Concerning policy means for reducing the influence of group specific effects of different fields, policy variables including the income variable, the issue of the difficulty of training and treatment/consultation as well as the adjustment of the medical specialist quota can be applied.

Also, the means of stabilizing legal employment can be considered for the purpose of enhancing job stability according to the characteristics of different fields of specialization. In order to raise the medical specialists' income, health insurance fees have to be increased. However, as the elasticity of health insurance fees in relation to income is low, this measure is expected to have limitation in increasing medical specialist income through health insurance fees. Another way to increase the income is to control the number of medical specialists on an appropriate scale. If there are too many medical specialists, income per medical specialist would dwindle due to the limitation in the overall amount of medical service usage.

## □ 토론논문: 24일 (오후 세션)

### 29. Kinge: Income and health expenditures in Norway: an instrumental variable approach

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1 Norwegian Institute of Public Health
2 Department of Health Management and Health Economics, University of Oslo
3 Norwegian Social Research at Oslo and Akershus University College

Abstract : This study investigates the impact of aggregate income on aggregate health expenditures in Norway using data from 428 municipalities from 2001-2015. Our objective is to provide causal estimates. The analysis is carried out using panel data methods to control for time-invariant effects and instrumental variables to account for any time-varying effects. The instrument is based on a heterogeneous effect of oil prices across different parts of Norway depending on the oil dependency in the local economy. Our main result is an income elasticity of 1, i.e. the income elasticity is unit elastic. This suggests that local health expenditures increase with increasing income and that local income fluctuations are a driver of geographic variations in health care expenditures.