

令和 5 年 6 月 19 日現在

機関番号：12601

研究種目：基盤研究(C) (一般)

研究期間：2019～2022

課題番号：19K01670

研究課題名(和文) Population Aging, End-of-Life Medical Cost and Health Insurance Coverage Scheme

研究課題名(英文) Population Aging, End-of-Life Medical Cost and Health Insurance Coverage Scheme

研究代表者

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交付決定額(研究期間全体)：(直接経費) 3,300,000円

研究成果の概要(和文)：トップ フィールド ジャーナル (Journal of Labor Economics) に 1 つの査読済み論文を発表し、いくつかの国際会議に出席し、著名な研究機関からプレゼンテーションの招待を受けました。ネットワーク効果はすべてではなく一部のパターンを説明するため、知識メカニズムが役割を果たすことがわかりました。知識の乏しい医師患者にとって、ネットワークを持つことは知識を減らすことと同じです。質の高い研究ネットワークである IZA ワーキング ペーパー シリーズが、私たちの論文を認めてくれました。この研究助成により、これらの研究成果が可能になりました。

研究成果の学術的意義や社会的意義

Our research achievements are significant: (1) We published our main results in the best field journal in labor economics. (2) We presented our findings at the two of the most prestigious international conferences in social science: Econometric Society and American Economic Association Meeting.

研究成果の概要(英文)：We published one peer-reviewed paper in the top field journal (Journal of Labor Economics) using this research grant. Furthermore, we attended several international conferences and got invited by prestigious institutes for presentations. We found that over-use and under-use coexist in end-stage cancer treatments, with no survival benefits. Physician-patients use less surgery, radiation, or checkups but more targeted therapy and drugs; they enjoy higher survival and spend less on coinsurance. Knowledge mechanisms play a role because the network effect explains some, but not all, patterns. For less informed physician-patients, possessing a network is equivalent to reducing knowledge. The IZA (the Institute of Labor Economics) working paper series, a high-quality research network, has recognized our paper. This study uses unique administrative data from Taiwan's National Health Insurance database. This research grant has made these research achievements possible.

研究分野：Labor Economics, Health Economics

キーワード：Information Social tie Network Matching

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1 . 研究開始当初の背景

The initial motivation of this research project was to investigate how end-of-life medical costs have contributed to rising medical spending and by what factors are the main drivers for the inequality in medical spending. We hoped to extend our previous research paper published in *Health Affairs*.

A growing body of literature in labor economics has been devoted to examining whether complete information or robust social ties can solve agency problems. Health economists join this empirical investigation by randomizing doctors' races and vaccine incentives for patients or exploiting the exogenous variation of OBGYN doctors' rotating call schedules in doctor-patient clinical relationships. Their findings show that communication and patients' trust in physicians strongly affects their demand for preventive care or a Cesarean section. Both studies addressed unobserved doctor quality and the problem of patient selection using compelling research designs.

Besides experimental or quasi-experimental designs, observational studies have examined whether physician-mothers are more or less likely than non-physician-mothers to undergo a Cesarean section with mixed results. Grytten et al. (2011) found that physician-mothers received a Cesarean section more often, due to a closer relationship or better communication with their attending doctor. Conversely, Chou et al. (2006) and Johnson and Rehavi (2016) found that physician-mothers are less likely to undergo a Cesarean section, maybe because they know about the potential complications or side effects. Irrespective of underuse due to weak social ties or overuse due to asymmetric information, the relational and informational disadvantages are empirically inseparable, relying merely on one medical specialty.

2 . 研究の目的

Our original objective was to understand the causes and consequences of changes in medical expenditure throughout the rapid aging process. Through this period of Kakenhi support, we increasingly narrowly aimed to understand the role of physician/supply-driven factors in the rising trend in medical expenditure.

We investigate the importance of the relational and informational influences on healthcare agency issues by studying Taiwanese inpatient doctors with a range of first/main specialties who have attended about 0.4 million patients with advanced cancer since 2004, including hundreds of physician-patients. These specialists must regularly attend Taiwan Oncology Society (TOS) conferences and training courses to maintain their oncology subspecialty licenses. We exploit the TOS's taxonomy to identify the professional ties between each physician-patient and attending doctor. Meanwhile, we quantify each physician-patient's medical knowledge of the diagnosed cancer by calculating the cancer caseload given their specialty and hospital department. By

matching physician-patients with different specialties treated by the same doctor, we distinguish the effects of relational advantage (due to stronger professional ties) and informational advantage (due to being more informed).

3 . 研究の方法

We used the physician-treating-physician framework to investigate the role of information asymmetry between a patient and an attending doctor. We use the medical specialties of physician-patients with advanced cancer to study the role of knowledge versus networks in treatment choices and patient survival by matching comparable patients with doctors and admission periods to control unobserved doctor quality.

Because of a lack of experimental variation, we address unobserved physician quality and patient selection issues using Abadie and Imbens (2006, 2011)'s nearest-neighbor matching method, which facilitates complex interactions among covariates without linearity assumptions. Our approach exploits the within-doctor-hospital variation across patients treated during the same period, matched by factors such as gender, cancer sites, income levels, and previous inpatient costs. This strategy enables us to minimize the bias from high-quality doctors being more likely to attend physician-patients.

4 . 研究成果

We find that physician-patients are less likely to have surgery, radiation, or checkups and more likely to receive targeted therapy, spend more on drugs, enjoy a higher survival rate, and spend less on coinsurance than non-physician-patients. Knowledge mechanisms play a crucial role because the network effect explains some, but not all, patterns. For less informed physician-patients, possessing a network is equivalent to reducing medical knowledge. The results show that physician-patients require less intensive care and receive more medication, more targeted therapy, and fewer checkups, all of which cost less and improve survival.

Physician-patients have clinical knowledge and professional connections, which potentially contribute to better care and higher survival rates than non-physician-patients. We extended the matching method to evaluate the importance of relational and informational advantages by exploiting various medical specialties among physician-patients and their attending doctors. Physician-patients who possess neither advantage induce the attending doctor to prescribe different treatments (e.g., less surgery, more medication, and fewer tests), which do not prolong their lives relative to non-physician-patients. In data restricted to physician-patients, a stronger doctor-patient relationship induces more intensive care and improves long-term survival, consistent with the average physician-patient effect. Nevertheless, neither physician status nor professional tie explains why average physician-patients tend to replace radiation with targeted

therapies and enjoy a better short-term survival rate. This leaves the informational mechanism as the leading explanation for the result.

To confirm, we estimated the value of a professional tie relative to medical knowledge using more restrictive models. A professional connection equates to a knowledge reduction if physician-patients are less informed, and this tends to lower their chance of survival as they receive treatment different from that prescribed to specialist patients who possess relevant medical knowledge and experience of their diagnosed cancer.

The revealed mechanisms are consistent with a framework in which doctors can induce demand to benefit their self-interest. A stronger patient-doctor bond builds trust, which the latter may exploit to induce demand if patients are less informed, as posited by the classic doctor-driven demand hypothesis.

These findings offer lessons for the labor markets of expert services (e.g., real estate agencies, used car dealerships, and initial public offering underwriting). The key to resolving agency problems is to close the information gap between principals and agents. Professional connections intensify agency issues if consumers are less informed. Better information increases the chance of belonging to a network, which generates more information. Professional ties can only benefit expert consumers in the long term when networking provides insider information. Relational advantages alone cannot eliminate conflicting interests.

The Journal of Labor Economics, the best field journal, has accepted this work.

5. 主な発表論文等

〔雑誌論文〕 計1件（うち査読付論文 1件/うち国際共著 1件/うちオープンアクセス 1件）

1. 著者名 Stacey Chen, Jennjou Chen, Hongwei Chuang, and Tzu-Hsin Lin	4. 巻 1
2. 論文標題 Physicians Treating Physicians: Relational and Informational Advantages in Treatment and Survival	5. 発行年 2025年
3. 雑誌名 Journal of Economics	6. 最初と最後の頁 1-50
掲載論文のDOI（デジタルオブジェクト識別子） 10.1086/725596	査読の有無 有
オープンアクセス オープンアクセスとしている（また、その予定である）	国際共著 該当する

〔学会発表〕 計6件（うち招待講演 2件/うち国際学会 4件）

1. 発表者名 Stacey H. Chen
2. 発表標題 Physicians treating physicians: Relational and Informational Advantages in Treatment Choice and Patient Survivals
3. 学会等名 Melbourne Institute（招待講演）
4. 発表年 2021年

1. 発表者名 Stacey H. Chen
2. 発表標題 Physicians treating physicians: Relational and Informational Advantages in Treatment Choice and Patient Survivals
3. 学会等名 Applied Economics Workshop（国際学会）
4. 発表年 2021年

1. 発表者名 Stacey Chen
2. 発表標題 Physicians Treating Physicians: The Relational Advantages of Treatment and Survival
3. 学会等名 Econometric Society（国際学会）
4. 発表年 2020年

1. 発表者名 Stacey Chen
2. 発表標題 STEM Women in the Shadow? University Opening and Informal Employment in Thailand
3. 学会等名 Applied Economics Workshop (招待講演)
4. 発表年 2020年

1. 発表者名 Stacey Chen
2. 発表標題 Physicians treating physicians: The relational advantage of treatment choice
3. 学会等名 The 2020 American Economic Association Annual Meeting (国際学会)
4. 発表年 2020年

1. 発表者名 R.E. Ayibor (Coauthor)
2. 発表標題 Estimating the Effect of Maternal Education on Child Health Using Data from 20 African Countries
3. 学会等名 Africa Meeting of the Econometric Society (国際学会)
4. 発表年 2019年

〔図書〕 計0件

〔産業財産権〕

〔その他〕

Physicians Treating Physicians https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3816422 Joint International Research (Kakenhi JP19K01670) http://www.pp.u-tokyo.ac.jp/en/faculty/chen-stacey/

6. 研究組織

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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計1件

国際研究集会 Applied Economic Workshop	開催年 2020年～2023年
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8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関			
Taiwan, ROC	National Chengchi University	National Taiwan University Hospital	Ministry of Health and Welfare	他3機関