Empirical Essays in Labor Economics

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Zusammenfassung

Die in dieser Arbeit dargestellten Studien berühren eine große Bandbreite von Themen in der Arbeitsökonomik, Bildungsökonomik und Entwicklungsökonomik, wobei ein gemeinsamer Nenner der Schwerpunkt auf die Lösung von Problemen statistischer Endogenität im Rahmen der jeweiligen empirischen Forschungsfrage darstellt. Kapitel 2 verwendet ein *Regression Discontinuity Design*, um den Effekt einer Rentenkürzung auf das Arbeitsangebot anhand von Rentendaten niedrigqualifizierter Deutscher zu bestimmen. Kapitel 3 bis 5 wenden sich Fragen in Bezug auf Bildung und Arbeitsangebot in Entwicklungsländern zu.

Um den Effekt starker Rentenkürzungen auf das Arbeitsangebot zu schätzen, nutzt die Analyse in Kapitel 2 drei Natürliche Experimente aus, bei denen solche Rentenkürzungen eine Gruppe überwiegend geringqualifizierter deutscher Spätaussiedler betraf. In zwei dieser Natürlichen Expermiente wurde die Rente um 8 bis 16 Prozent gekürzt, jedoch zeigen die *Regression Discontinuity*-Schätzungen keine statistisch signifikante Verzögerung des Renteneintritts. Dieses Ergebnis kann nicht dadurch erklärt werden, dass die Rentenkürzung eine selektive Erhöhung Mortalität verursacht hätte. In einem dritten Natürlichen Experiment hatten Arbeitnehmer starke Anreize, einer Rentenkürzung durch vorgezogenen Renteneintritt auszuweichen. Die Analyse zeigt jedoch, dass es auch hier keinen signifikanten Effekt auf den Renteneintrittszeitpunkt gab. In der Gesamtbetrachtung sind diese Ergebnisse konsistent mit der Interpretation, dass es für niedrigqualifizierte ältere Deutsche angesichts eines im Verhältnis zum Rentenniveau relativ geringen Marktlohnes optimal ist, so früh, wie es institutionelle Rahmenbedingungen erlauben, in Rente zu gehen.

Kapitel 3 wendet sich der Analyse von Daten aus einem Entwicklungsland zu. Es beschreibt eine Haushaltsbefragung, in die die gesamte Bevölkerung einer togoischen Gemeinde in den Jahren 2008 und 2011 einbezogen wurde, wobei individuelle Beobachtungen zwischen den beiden Befragungswellen verknüpft wurden. Die hauptsächliche Motivation für die Erhebung dieser Daten war es, die Auswirkungen eines Vorschulprojektes evaluieren zu können, welches zwischen den beiden Erhebungswellen in der untersuchten Gemeinde begann. Ein Teil dieser Evaluation, der sich mit den kurzfristigen Effekten auf das Arbeitsangebot von Frauen befasst, wird in Kapitel 4 dargestellt.

In Kapitel 3 werden die Besonderheiten in der Durchführung der Haushaltsbefragung diskutiert und einzelne Befragungsmodule motiviert und erläutert. Ein Schwerpunkt liegt hierbei auf den Alleinstellungsmerkmalen des entstandenen Datensatzes, insbesondere hinsichtlich der gewonnen Maße für Zeitnutzung, Einkommensquellen und kongitive Fähigkeiten der Befragten. Zwar war die Wahl der Befragungsinhalte getrieben durch den Zweck, das Vorschulprojekt zu evaluieren, doch das Kapitel verdeutlicht auch die inhaltliche Bandbreite der entstandenen Haushaltsdaten, die entsprechend Möglichkeiten für weiterführende Forschung bietet.

Auf Basis der in Kapitel 3 beschriebenen Daten behandelt Kapitel 4 die Evaluation des Vorschulprojekts, das in der untersuchten Gemeinde im Jahr 2010 begann. Zunächst wird in einer detaillierten deskreptiven Analyse gezeigt, dass (an Stelle alternativer Maße der Betreuungssituation) insbesondere ein Indikator dafür, ob *alle* Kinder unter sechs Jahren einer Mutter (d.h. Kinder, die noch nicht im Grundschulalter sind) institutionell betreut werden, relevant ist für die Stundenzahl, die eine Mutter mit Kinderbetreuung verbringt. Zugleich zeigt sich, dass eine solche vollständige institutionelle Betreuung junger Kinder nur sehr schwach mit der Arbeitszeit der betroffenen Mütter zusammenhängt.

Anschließend wird untersucht, ob dieses Ergebnis Bestand hat, wenn die empirische Analyse die Probleme statistischer Endogenität stärker berücksichtigt. Hierfür werden die Haushaltsdaten zusammengeführt mit Informationen über ein Soziales Experiment, durch welches die Zulassung zur neu in der untersuchten Gemeinde errichteten Vorschule per Zufall bestimmt wurde. Zwar gab es im beobachteten Einschulungsverhalten starke Abweichungen von diesem randomisierten Zulassungsprozess, dennoch erzeugte für Mütter von Kindern, die für die Zulassung zur ersten Vorschulklasse angemeldet wurden, das Soziale Experiment Variation in der Wahrscheinlichkeit, dass alle jungen Kinder einer Mutter institutionell betreut werden. Unter Ausnutzung dieser Variation wird der Effekt einer solchen vollständigen institutionellen Betreuung auf die Zeitnutzung der Mütter in einem Instrumental-Variablen-Modell geschätzt. Zwar sind die geschätzten Effekte insbesondere auf Grund der geringen Stichprobengröße nicht statistisch signifikant, doch die Konsistenz der geschätzten Koeffizienten über viele verschiedene Spezifikationen und Modellvariationen hinweg legt eine Bestätigung des vorangehend deskriptiv gewonnen Ergebnisses nahe: insitutionelle Betreuung von Vorschulkindern

verringert die Betreuungsbelastung der Mütter, hierdurch steigt ihre Arbeitszeit aber nicht in einem vergleichbaren Maß.

Kapitel 5 wendet sich einem besonderen Phänomen in Grundschulen in Entwicklunsländern zu, das sich auch in der untersuchten togoischen Gemeinde wiederspiegelt: 20 Prozent der Schüler aller Grundschulklassen wiederholen in einem laufenden Schuljahr eine Jahrgangsstufe. Das Kapitel befasst sich mit den Konsequenzen einer so hohen Zahl von Nicht-Versetzungen. Insbesondere geht es um die Frage, ob hierdurch *Peer Effekte* erzeugt werden, dass also Mitschüler eine schlechtere schulische Leistung erbringen, wenn sie gemeinsam mit vielen Wiederholern unterrichtet werden. Die für diese Analyse verwendeten Daten basieren auf den Aufzeichnungen der Grundschulen zu den Trimester-Punktezahlen der Grundschüler aller vier Grundschulen der Gemeinde. Anhand dieser Daten ließ sich feststellen, dass es hinsichtlich des Anteils wiederholender Schüler eine große Variation auch innerhalb von Schulen gibt. Vor dem Hintergrund der stark durch eine leistungsbasierte Regel geprägten Versetzungsentscheidung lässt sich transparent darstellen, welche Faktoren diese Variation im Wiederholer-Anteil einer Klasse erzeugen können. Darauf aufbauend wird argumentiert, dass die empirischen Modelle, die für Schul-*Fixed Effects* sowie für vorangehende individuelle Punktezahlen kontrollieren, den *Peer Effekt* des Wiederholer-Anteils identifizieren. Die Ergebnisse zeigen, dass die Erhöhung des Wiederholer-Anteils in einer Klasse um eine Standardabweichung die individuelle Punktezahl von Schülern um durchschnittlich 13 Prozent einer Standardabweichung verringert.

Schlagwörter: Arbeitsökonomik, Bildungsökonomik, Entwicklungsökonomik

Abstract

This thesis covers diverse topics in the fields of labor economics, education economics and development economics which share an emphasis on solving issues of statistical endogeneity associated with the respective empirical research questions. While the analysis in chapter 2 uses a regression discontinuity design to study the impact of pension reductions on labor supply using data from low-skilled workers in Germany, chapters 3 through 5 turn to issues of education and labor supply in developing countries.

To estimate the effects of large cuts in pensions on labor force participation, the analysis in chapter 2 exploits three natural experiments in which such cuts affected a group of mostly low-skilled repatriated ethnic German workers. In two of these natural experiments, the pension rate was cut by between 8 and 16 percent, yet, according to regression discontinuity estimates, there was no significant delay in retirement. The results cannot be explained by selection bias due to increased mortality in response to the reforms. In the third natural experiment, the workers were given an incentive to avoid a pension cut by retiring earlier, but the analysis demonstrates that there was no significant effect for earlier retirement. All these results are consistent with low-skilled workers in Germany being frozen in a corner-solution equilibrium in which the optimal choice is to retire as early as possible.

Chapter 3 turns to the analysis of data from developing countries. It describes a unique household survey of the full population of a Togolese community conducted in 2008 and in 2011, linking individual observations from both survey waves. The main motivation for collecting the data was to evaluate the impact of a preschool program which started in the studied community in between the survey waves. Part of that evaluation, regarding the short-run impact on female labor supply, is discussed in chapter 4. Chapter 3 discusses particularities of the survey implementation, and it motivates and explains the survey's modules. Emphasis is laid on the uniqueness and quality of its sections concerning the measurement of time use, income sources, and cognitive skills. While the choice of topics covered by the survey has been dictated largely by its original purpose of allowing the evaluation of a preschool project, the chapter illustrates the richness of the data, leaving opportunities for future research.

Making use of the data described in chapter 3, chapter 4 discusses the evaluation

of the preschool program which started in the studied community in 2010. First, in a thorough descriptive analysis, it is shown that among measures of enrollment, an indicator for whether a mother's children younger than six years are *all* enrolled in either preschool or primary school (which I call "full enrollment") is particularly relevant to the number of hours these women spend with child care. Apparently, child care responsibilities are high on average as soon as at least one young child remains at home, and conditional on at least one child staying at home, other variables capturing the number of children and their enrollment status are not associated with the mother's time use. Furthermore, the descriptive analysis shows that the strong relationship between full enrollment and hours of child care is not mirrored by a comparable association between full enrollment and hours of work.

In order to substantiate this result, endogeneity concerns need to be taken into account. Accordingly, household data are combined with information on a social experiment, where the access to a newly constructed preschool in the studied community had been randomized. Even though compliance with randomization was poor, having a child admitted to the first grade of preschool significantly increases a mother's likelihood of full enrollment. This relationship is, apparently, partly due to the randomization affecting *primary* school enrollment. In the studied community, primary schools accept some children who would be considered too young in light of the regular school entry age, so they constitute an alternative institution providing daycare for children. Exploiting the variation in full enrollment induced by the randomization of access to first grade of preschool, I estimate instrumental variables models of time use. Although, due to the small sample size, estimated effects are generally not statistically significant, results from a wide range of different model specifications suggest a clear pattern: full enrollment reduces the time mothers spend caring for young children by at least three to four hours. However, confirming the descriptive results, this effect is not accompanied by any noticeable change in time use related to work. Since this result is in line with OLS results for the full population of mothers of young children (including those not participating in the preschool admission procedure), I argue that the lack of a response in labor supply cannot be attributed solely to the short time frame of the evaluation or to the selectivity of the sample of participants. A full evaluation of the benefits of an expansion of publicly provided preschool education in developing countries would,

however, have to take into account the direct benefits of such programs on participating children.

As described in chapter 4, primary schools in the studied community accept some children of preschool age. This leads to strong heterogeneity of students in the first grades of primary school with respect to age and, consequently, school readiness. In fact, this may be one of the reasons for so many primary school students failing test score targets, and, accordingly, having to repeat a grade: on average, in the community's primary schools, more then 20 percent of students in each class are retained instead of being promoted to the next grade. Chapter 5 investigates the consequences of such a high incidence of grade repetitions. More specifically, it addresses the potential peer effects which may result from being exposed to many repeaters.

The data used to estimate the peer effects of grade retention in chapter 5 are administrative records of individual student trimester exam scores obtained from all four primary schools in the studied community. They reveal that there is very strong within-school variation in the share of repeating classmates. Given that within schools, there is only one class per grade in each school year, and in light of a merit-based retention rule which explains a large share of repetitions, the sources of variation in the share of repeaters per class are rather transparent. The identifying assumption for the models estimated in this chapter is that the share of repeaters per class is exogenous in regression models of individual exam scores in third trimester when controlling for first trimester scores, school dummies, and individual repeater status. The results indicate that a one standard deviation increase in the share of repeaters per class reduces individual test scores by 13 percent of a standard deviation. As various modifications of the model specification demonstrate, the result is robust to changes in the source of variation in the share of repeaters per class.

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Chapter 1

Introduction

Much of the empirical research in labor economics centers on solving issues of statistical endogeneity. The types of problems that occur (e.g. unobserved heterogeneity) and the methods employed to solve them are rather universal. The diversity of topics covered in this thesis illustrates this notion. While the analysis in chapter 2 uses a regression discontinuity design to study the impact of pension reductions on labor supply using data from low-skilled workers in Germany, chapters 3 through 5 turn to issues of education and labor supply in developing countries.

To estimate the effects of large cuts in pensions on labor force participation, the analysis in chapter 2 exploits three natural experiments in which such cuts affected a group of mostly low-skilled repatriated ethnic German workers. In two of these natural experiments, the pension rate was cut by between 8 and 16 percent, yet, according to regression discontinuity estimates, there was no significant delay in retirement. The results cannot be explained by selection bias due to increased mortality in response to the reforms. In the third natural experiment, the workers were given an incentive to avoid a pension cut by retiring earlier, but the analysis demonstrates that there was no significant effect for earlier retirement. All these results are consistent with low-skilled workers in Germany being frozen in a corner-solution equilibrium in which the optimal choice is to retire as early as possible.

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vidual test scores by 13 percent of a standard deviation. As various modifications of the model specification demonstrate, the result is robust to changes in the source of variation in the share of repeaters per class.