

Career Assessment

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I have been a part of the Department of Economics at the University of Miami as an Assistant Professor for 2.5 years and I believe that it has been a productive time period. My research focuses on three different areas of economics. My latest work is on optimal design of insurance contracts. In a joint paper with Dr. Brennan Platt, who is an assistant professor at the Brigham Young University, we analyze characteristics of contracts where insurance alters an insured person's incentive to search for lower service prices in the market. We are currently working on alternative applications of this model to the design of unemployment insurance systems. My other work focuses on the links between government's fiscal policy (tax policy, pension systems, and welfare payments), immigration policy, and population aging in developed nations. In particular, I concentrate on the German case to evaluate the welfare, demographic, and fiscal impacts of increased immigration inflows into Germany, where the current pay-as-you-go social security system is under extreme pressure due to a rapidly aging population. Finally, I have worked on cooperative bargaining theory and dynamic manipulations of widely used bargaining solutions in the literature.

To analyze questions that are motivated by facts in micro or macro data, I use general equilibrium methodology where interactions of individuals, firms, and governments determine the outcome in a sample economy that is designed to imitate main features of the real world.

Below, I will provide a brief discussion of my completed papers as well as research in progress. My working papers are available for downloads at: <http://moya.bus.miami.edu/~nakin/Research.html>.

Working Papers

I will start with my latest work on price formation in markets where insurance reduces consumers' incentives to search for lower-priced services. This work is joint with Brennan C. Platt. It is under review at the *Journal of Economic Theory*.

Abstract:

We characterize optimal contracts for insurance coverage of a service whose price may vary across service providers. Households must engage in costly search to learn the price of a particular service firm, and the presence of insurance reduces incentive to search. There is a continuum of ex-ante identical consumers and firms. Search is simultaneous as in Burdett and Judd (1983). We construct a general equilibrium model where the interaction of the insurer, consumers, and service firms endogenously determine the distribution of service prices and the intensity of search. We find that when the insurance firm is a monopolist, the equilibrium contract results in full insurance and no price dispersion among service firms. A perfectly contestable insurance market results in a contract with partial insurance coverage at a competitive premium and significant price dispersion; moreover, the contract maximizes household ex-ante utility. Reductions in search effort not only directly decrease the likelihood of the household finding a low price, but indirectly weaken price competition among service firms. We find that the indirect effect is far more important than the direct effect, responsible for at least 89% of the cost of moral hazard in search.

This paper is important for three reasons. The first reason is that, it is the only paper in the literature that considers moral hazard in consumer search in a general equilibrium model where insurance

contracts are offered by insurance firms optimally (i.e., in a profit-maximizing way). Previous models (Dionne '81, '84) analyzed the negative incentive effect of insurance on search behavior and hence on expected service prices in partial equilibrium frameworks where the coinsurance rate is taken as exogenous and the distribution of prices is fixed regardless of the number of quotes requested by households. Thus, they neglected a crucial (and, as we show, larger) component of the story: the endogenous response of firms to household search. The second reason is that, our framework is applicable to many markets where insurance plays a prominent role, such as unemployment insurance or car insurance provision. In our paper, we apply our theory to data on the Prescription Drug Market, using the US Medical Expenditure Panel Data. Prescription drugs are a natural choice for us, as the good is homogenous within a brand name and dose; also the data shows substantial price dispersion for a given drug. The theoretical price distribution we get from the model matches the data pretty closely. Our calculations show that when consumers pay a lower proportion of the drug price out of their pocket, they search less, leading to higher drug prices as competition among service providers is reduced. Finally, this research has led to two ongoing projects that I will talk about at the end of this career assessment. Both are on the optimal provision of unemployment benefits where an individual's incentive to search for jobs is influenced by the terms of the unemployment benefit contracts (duration and reimbursement rate). We presented our work in many professional meetings, including the Society For Economic Design Meetings (University of Michigan, Ann Arbor), Econometric Society Summer Meetings (Carnegie Mellon University), Bosphorus Winter Workshop in Economics (Koc University, Istanbul), University of Miami, and Florida Atlantic University.

I will now discuss my paper on demographic transformations and the role of immigration policy in dealing with the fiscal problems that aging creates. The title of the paper is "Immigration Policies and the Social Security System in Germany." It is currently under review at the *European Economic Review*.

Abstract:

I evaluate the effects of exogenous changes in immigration policy on individual welfare by constructing a heterogeneous agent overlapping generations model with agents differing in age, origin, and skills. Calibrating the model to Germany, I match the main features of the social security and tax systems, and account for differences in inter-generational transmission of skills and fertility between immigrants and natives. I find that a prohibition on immigration reduces welfare for the natives, whereas a policy that allows an annual inflow equal to 0.4 percent of the population increases welfare for all agents on the new balanced growth path (by 0.1 to 2.8 percent depending on the type of the agent). The key is the interaction between the social security system, taxes, and equilibrium prices: immigration reduces wages, but generates a rise in the rental rate of capital and in the number of workers per retiree, which allows for higher pension benefits and a lower consumption tax rate.

This paper is built-on a simple question: which immigrant inflows, depending on the skill level, would benefit welfare and the social security system in Germany? Germany is a natural choice for this question as it has historically been the major destination for immigrants in Europe and it provides rich micro-data on immigrants and natives that is necessary to identify main characteristics of the two groups, such as differences in skills and fertility. Moreover, Germany is one of the most prominent cases of aging: the ratio of the population aged 65 and older to those aged 15 to 65 (the dependency ratio) is estimated to increase from 28 percent to 50 percent in the next 45 years. Another factor that makes this economy an interesting one to study is the recent changes in tax and social security policies in response to aging. First, marginal tax rates on labor income were reduced dramatically to increase the supply of labor (the top and bottom rates fell by 11 percent). Contemporaneously, immigration policy was reformed to favor inflow of high-skilled workers. Finally, the pension benefit formula was modified to include a sustainability factor, which reduces payments to retirees when the dependency ratio increases.

This study is extremely relevant for many industrialized nations that are experiencing negative population growth rates due to low fertility rates and increased life spans which lead to overburdened

social security systems. Among the many proposed solutions to sustainable social security design are increase in payroll and income taxes, decrease in retirement/welfare benefits, and increased immigration. Many researchers have claimed that increased immigration would reduce welfare for the natives based on two arguments. First, their wages would go down as a result of increased supply of labor. Second, immigrant workers and their families consume welfare benefits and other public services that otherwise would be consumed by the native population in the economy. In this paper, one of the stark results is that both low- or high-skilled can improve welfare on the order of 3-5% by raising the return to capital (as a result of increased demand for capital), by raising tax revenue, and by reducing the retiree-worker ratio. This work is most closely related to Storesletten (2000) which measures the size of immigrant inflows that are needed to balance the US government budget in the long run. Hence, his concern is not the welfare of individuals or the social security system; but a balanced budget constraint for the government. Therefore, he doesn't model the taxation system or the social security system in detail. In particular, he uses average taxes rather than marginal, and the social security system just replaces a given percentage of life-time earnings.

I presented my paper in many locations including the Federal Reserve Bank of Minneapolis, University of Minnesota, University of London, University of Miami, the University of Minnesota Population Center, International Monetary Fund, Econometric Society Summer Meetings in Duke University, and IZA (Institute for the Study of Labor Markets, Bonn, Germany; in collaboration with the University of Bonn).

Next, I would like to talk about my paper on the manipulability of the Kalai-Smorodinsky solution, which is one of the most commonly applied bargaining solutions in the literature. The title of the paper is "The Kalai-Smorodinsky Bargaining Solution Manipulated via Pre-donations is Concessionary." It is currently under review in *Social Choice and Welfare*.

Abstract:

This study examines the manipulability of simple n -person bargaining problems by pre-donations where the Kalai-Smorodinsky (KS) solution is operant. We extend previous results on the manipulation of two-person bargaining problems to the n -person case and show that in a world where a pre-bargaining stage is instituted in which the bargainers are allowed to sign contracts that alter the bargaining set, agents with greater ideal payoffs transform the bargaining set into one on which KS distributes payoffs in accordance with the Concessionary Division Rule of disputed property. The resulting payoff distribution is efficient in that every individual is strictly better-off relative to the original payoff allocation.

The idea behind the paper is intuitive and is built on a large literature where manipulations of equilibrium outcomes are analyzed. The most well-known manipulation mechanism is misrepresentation of utility functions by agents in an exchange economy with a competitive allocation: in order to achieve a better outcome for himself, an agent can behave as if his utility function is different than the true one (Hurwicz 1972). Another well known mechanism is manipulation via hiding, transfer, or destruction of endowments. Some applications of this are Postlewaite (1979) to resource reallocation mechanisms, Sertel (1992) to the two-person Nash bargaining solution, Sertel (1994) to Lindahl Equilibria, Sertel and Sanver (2002) to the men- or women-optimal matching rule, and Atlamaz and Klaus (2007) to exchange markets with indivisible goods.

In our framework, there is a property whose value can be monetarily evaluated. Many individuals have claims on it and each values the item differently. The problem is to allocate the available value among the claimants. The property may be divisible or indivisible. In the former case, we can allocate pieces of it; if not, one of the individuals can have it all and then monetarily compensate the others. We alternatively interpret this division problem as a bargaining problem, which describes possible non-negative monetary payoff pairs for the bargainers. In a bargaining problem, there is a threat (or a disagreement) point that summarizes the payoff to each bargainer in case of a breakdown of negotiations and a bargaining set that shows all possible payoffs that can be achieved. We examine the behavior of the

n -person KS solution under sequential pre-donations. We define a pre-donation as a monetary transfer of a bargainer's would-be payoffs to others before the final bargain is reached in a pre-bargaining stage. We limit our attention to simple bargaining problems, where the threat point is fixed at the origin and the set of Pareto Optimal points defines a linear relationship among the possible payoffs.

We show that, when bargainers with higher valuations (or ideal payoffs) are allowed to sequentially sign contracts to transfer shares of their future payoffs to others with lower valuations, the payoffs under KS applied to the altered bargaining set coincide with those of the Concessionary Division Rule. For example, in the two-person case where the valuation of the bargainers are 1 and α , with $\alpha \geq 1$, this division rule concedes his ideal payoff 1 to the bargainer with lower valuation and pays $\alpha - 1$ to the other, unless $\alpha < 2$, in which case α is shared equally. Therefore, for $\alpha > 2$ manipulation by agent two leads to a payoff of 1 to agent one and $\alpha - 1$ to agent two, which strictly dominates the KS allocation of $1/2$ to agent one and $\alpha/2$ to agent two. Hence, pre-donations lead to an efficient outcome in which agents are strictly better-off under the new payoff allocation relative to the original one as long as valuations of bargainers are high enough. In particular, we find that in an n -person simple bargaining problem pre-donations lead to a strictly better outcome for all agents when $\alpha_{i+1} = \alpha_i(n - i + 1)$ for $i = 1, \dots, n$ where α_i is the valuation of bargainer i .

In our environment there is perfect information. The valuations of the individuals, the bargaining set, and the bargaining solution are all common knowledge. Therefore, given this information, individuals can calculate their would-be payoffs and if an individual finds it in his interest to change the set of possible payoffs without hurting others, he will do so by promising monetary transfers out of his would-be payoffs.

Research in Progress

All of these projects are preliminary. I expect to complete them by the end of 2009.

Title: Optimal Unemployment Benefits: Revealing Offers (with Brennan C. Platt)

Preliminary Abstract:

Under the current unemployment insurance system in the United States, unemployed persons do not have to reveal any job offers that they receive. As long as they stay unemployed, they are covered to the full extent of insurance. However, this pushes individuals to turn down jobs because they hope to find a better one in the near future, extending the duration of unemployment. Therefore, in an environment where the insurer cannot observe the agent's search effort, lack of truthful revelation aggravates the information problem. In particular, the insurer cannot distinguish between an unemployed agent who is actually searching rather intensely for a job, getting offers while doing so, but rejecting them as he draws low wage observations (relative to the reservation wage) and another agent who simply is not searching enough. In this paper we set up a dynamic general equilibrium model to characterize the optimal unemployment insurance contract where unemployed agents voluntarily and truthfully reveal any job offers they receive, signaling the intensity of their search.

The timing of our model is as follows: unemployed workers choose a search intensity, which determines the probability of receiving a random job offer. Then, the period uncertainty is resolved—that is, the unemployed worker is informed if he got a job offer, and if so, draws randomly from an exogenous wage distribution. The worker then decides whether to (a) accept the wage, which he will receive every period from tomorrow on, (b) decline the wage and voluntarily disclose the offer to the unemployment agency, or (c) decline the offer and pretend that it was not received at all. Worker either receives his first post tax wage or his unemployment benefit and eats it. We assume no borrowing or saving is possible. The next period then begins, discounted by a factor.

We characterize the planner's problem in terms of the current promised utility, current benefits level, and future promised utility.¹ The planner's objective is to minimize the cost of providing the insurance subject to a promise keeping constraint and incentive compatibility constraints. In equilibrium, we require that this cost of providing a promised utility is equal to zero so that a person's unemployment insurance is fully financed by his future taxes.

Title: Costly Search, Unemployment benefits, and the Wage Distribution

Preliminary Abstract:

In this project, we analyze equilibrium wage distribution in a market where the generosity of unemployment benefits and costly search distort the intensity of an unemployed agent's effort to find a job. In our environment an unemployment contract consists of a tax rate that the agent pays when he is employed and a benefit that he receives when he is unemployed. Benefits are a fixed fraction of the pre-unemployment wage earned by the agent. There is a continuum of firms and workers. All firms and all workers are ex-ante identical. Whenever unemployed, an agent participates in a costly search for jobs and simultaneously draws wage observations from a distribution that is determined in equilibrium. He then accepts the highest among them. Our intuition is that as unemployment insurance coverage gets more generous (when insurance reimburses a bigger percentage of the pre-unemployment wage), not only the unemployed will draw fewer observations from the wage distribution, but also firms will feel free to reduce wage offers as they realize that their chances of being undercut by another firm is lower. Hence, the wage distribution will concentrate on the left tail. This theory might have the potential to explain the longer spells of unemployment and lower wages (for workers of the same education level) in Europe relative to the U.S.

The innovation of this work over the existing research (Hopenhayn and Nicolini 1997, Shimer and Werning 2003, 2007) would be the analysis of optimal unemployment insurance contract in a market where there is an endogenous wage distribution as a result of costly job search where firms and workers are ex-ante identical.

Title: Optimal Immigration Policy

Preliminary Abstract:

Output maximization in an economy is a goal for a benevolent government. Since unemployment beyond the natural rate reduces the economy's potential output, one objective for the government is to maximize employment. However, sometimes job openings cannot be filled by the native population in the country for two reasons. First, the position might be offering a very low-wage with long working hours, as would be the case in field related work in agriculture or janitorial work. Second, even though the position comes with a good pay, it might require extremely high abilities that the natives do not have. In both of these cases, the vacancy has to be filled by an immigrant. However, all industrialized nations have laws that constrict immigrant inflows. In this paper, I aim to endogenously determine the immigrant inflows, depending on age and education level, that would maximize output in an overlapping generations economy. I would like to calibrate the model to two industrialized nations: the US and Germany. I believe this choice of countries will give me a chance to compare outcomes of two very different immigration policies. Germany is moving towards a very restrictive policy which is designed to attract very high-educated workers, but not the low-skilled, even though the latter will be much needed as demographic

¹ We are limiting our contract in one sense, because we don't track the whole history of job offers. That is, if two different histories resulted in promising the same discounted utility at one point, they will proceed identically thereafter. However, we believe we can prove that this is without loss of generality, because of the independence of the distribution from one period to the next.

imbalance increases the need for their services, especially in the health care sector. Therefore, I expect the results to be more pronounced for Germany.

My approach is to model a single country where the objective is output maximization, assuming that there is a high enough supply of immigrants who can fill the vacancies at any time. In other words, I assume that when the United States opens its doors to foreign nationals, any available jobs will be taken by the newcomers. This is different from another excellent paper in the literature by Benhabib and Jovanovic (2008), where the objective is to maximize welfare in the world which is measured by a weighted sum of average utilities of the citizen's of the world. They find that the observed migrant flows in the world are far behind the levels that would be welfare maximizing. I expect to find a similar result for Germany.

References²

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² This is just a brief list of papers that are mentioned in this document. A full list of related research for the topics I discuss here can be found in my working papers.