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Strategic Bargaining in Search Models: An Overview

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Abstract

This paper provides a survey on strategic bargaining in decentralized markets with search frictions. We review how alternating-offers bargaining, renegotiation risks, and participation constraints shape outcomes in both random and directed search environments. We discuss implications for labor, product, and credit markets, with particular attention to cases where posted terms do not fully determine final outcomes.

1 Random Search with Strategic Bargaining

The foundational model for strategic bargaining in frictional markets is developed in Mortensen and Wright (2002). In their framework, agents are randomly matched in a decentralized market and engage in Rubinstein-style alternating-offers bargaining over the surplus from trade. Even when agents are ex ante identical and the match surplus is deterministic, equilibrium involves price dispersion and delay. These features arise endogenously from the interaction between bargaining incentives and the stochastic matching process. Agents weigh the benefits of accepting the current offer against the expected value of re-entering the market and initiating a new match, which gives rise to heterogeneous outcomes despite symmetric fundamentals.

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Earlier theoretical work by Binmore et al. (1986) and Wolinsky (1986) demonstrates that market structure has a first-order effect on bargaining outcomes. In the presence of search frictions, agents' outside options are no longer determined by a competitive benchmark but depend on the underlying matching technology and the equilibrium behavior of other agents. As a result, even small frictions can produce non-trivial deviations from competitive pricing, including strategic delay and inefficient trades.

Several refinements to this framework have expanded its scope and tractability. Satterthwaite and Shneyerov (2007) study continuous-time random matching with strategic bargaining, deriving closed-form solutions for the distribution of transaction prices. Their results show that price dispersion arises not from heterogeneity in preferences or technologies, but from the stochastic structure of meetings and bargaining dynamics.

Yashiv (2000) incorporates endogenous job separations into a random search model with bargaining. He shows how the process of wage formation, when determined through strategic negotiation, feeds back into aggregate labor market dynamics. The structure of wage offers affects separation probabilities, and the possibility of delay in reaching agreement introduces inefficiencies that would not arise under frictionless conditions.

A key extension is developed by Shimer (2006), who introduces on-the-job search into a model with alternating-offers bargaining. In this environment, employed workers may receive outside offers while negotiating or after accepting a job, and the wage they ultimately obtain reflects not only the current match surplus but also their evolving outside options. The model helps explain observed wage dispersion and job ladder effects, and it shows that bargaining outcomes are sensitive to the timing and structure of offer arrivals.

Several papers have built on this insight. Cahuc et al. (2006) estimate a structural model that integrates on-the-job search with strategic wage bargaining. They find that the observed patterns of job-to-job transitions and wage growth can be rationalized by allowing for endogenous re-negotiation within the firm-worker relationship. Cai (2020) studies the efficiency implications of wage bargaining in the presence of on-the-job search, highlighting that even in symmetric environments, bargaining frictions can generate inefficient job mobility and misallocation. Gottfries (2017) introduces the possibility of renegotiation in models with strategic bargaining, showing that this can lead to multiplicity of equilibria and non-monotonic wage dynamics.

Together, these contributions demonstrate that random search environments, when paired with strategic bargaining, can generate empirically relevant features such as delay, turnover, and wage or price dispersion, even in the absence of heterogeneity in preferences or technology. The negotiation process cannot be separated from the matching environment, as search frictions directly shape bargaining power and thus influence participation decisions, surplus division, and overall market efficiency.

2 Directed Search and Strategic Bargaining

In models with directed search, agents observe posted contract terms and choose where to apply or search based on anticipated queue lengths and payoffs. Unlike random search, where matches form stochastically, directed search allows for endogenous sorting based on observable features of offers. While the posting of contract terms might suggest commitment, many models incorporate ex post bargaining, especially when offers are non-binding or preferences over bargaining vary.

Guerrieri et al. (2010) develop a model in which firms post wage offers to guide worker applications, but the final terms are determined through an alternating-offers bargaining process once a match is formed. The posted wage acts as a starting point in negotiation, and workers form expectations about queue lengths and eventual payoffs before deciding where to apply. This structure creates a hybrid between wage posting and bilateral bargaining, and the resulting equilibrium captures both the sorting features of directed search and the delay and surplus division of strategic negotiation. Menzio (2007) introduces a partially directed search framework, where firms send nonbinding messages rather than enforceable contracts. Workers use these messages to infer expected match outcomes and then direct their search accordingly. After matching, agents bargain over the terms of trade via an alternating-offers process. The model shows how strategic communication and bargaining interact to determine match quality, queue composition, and wage dispersion. Sorting and negotiation are jointly determined, and efficiency outcomes depend on how effectively firms can influence applications through cheap talk.

This approach has been extended in several directions. Menzio and Shi (2010) incorporate stochastic on-the-job search into a directed search environment and characterize block recursive equilibria, which allow for tractable dynamic analysis of policy rules and wagesetting behavior. Jacquet and Tan (2012) study wage-vacancy contracts under coordination frictions, where firms announce not only wages but also the number of vacancies, and workers face uncertainty about congestion. Their model allows for strategic bargaining within matches and identifies conditions under which multiple equilibria can arise. Galenianos et al. (2011) investigate how deviations from perfect competition emerge in directed search settings when agents have market power. The presence of strategic bargaining leads to inefficiencies even when search is fully directed, as firms exploit their ability to influence surplus division once matches occur.

More recently, Wu (2019) introduces rational inattention into a partially directed search model with bargaining. Workers face cognitive costs in processing offer information, and their limited attention affects both the application decision and the bargaining process. Wage dispersion arises not only from the structure of search and negotiation but also from differences in information processing and salience. The model links behavioral frictions to equilibrium outcomes in a setting where both sorting and surplus division are endogenous.

Directed search environments with strategic bargaining capture important features of decentralized markets in which agents sort before matching but still engage in negotiation after contact. These models show that observable terms of trade do not eliminate delay, inefficiency, or surplus heterogeneity. Instead, they shift the strategic considerations from the match formation stage to the bargaining phase, where agents' expectations, constraints, and flexibility jointly determine final outcomes.

3 Renegotiation, Commitment, and Pricing Mechanisms

Strategic bargaining also plays a central role in models of pricing and allocation beyond labor markets. In many product and financial markets, sellers post prices to attract buyers, but the final terms of trade may still be determined through bargaining. This distinction between posted offers and actual outcomes is particularly relevant when search frictions prevent full commitment to pre-announced terms.

Camera and Selcuk (2009) examine such a setting, where sellers post prices in a market with search frictions and limited inventory. Although buyers observe these prices, sellers cannot commit to them once a match occurs. The final price is determined through postmatch bargaining, and equilibrium involves price dispersion and endogenous delay. The model shows that posted prices, even when public and non-discriminatory, may not be binding in environments where negotiation is expected.

Stacey (2019) extends this logic by allowing buyers to renegotiate upon arrival at a posted-price firm. The potential for ex post bargaining alters both application behavior and pricing strategies, generating dispersion even when price offers are visible. Similarly, Gill and Thanassoulis (2016) model price posting with stochastic discounts, which act as a form of bargaining power redistribution. Firms use discounts strategically to attract buyers, leading to heterogeneous effective prices.

Gomis-Porqueras et al. (2018) apply these ideas to labor markets, where firms post wages but anticipate renegotiation once workers arrive. Ex post opportunism affects firms' incentive to post high wages, and equilibrium wage dispersion arises as a result. The presence of strategic bargaining within matches alters the effective value of posted contracts, making the initial offers informative but not determinative of final outcomes.

Selcuk and Gokpinar (2018) study a market with budget-constrained buyers, in which sellers choose between fixed pricing and a flexible lottery-based mechanism. The lottery allocates the right to trade, but the transaction price is determined through bargaining. The presence of search frictions, combined with buyers' aversion or attraction to bargaining, determines which mechanism is adopted in equilibrium. When buyers dislike haggling, fixed pricing emerges as the unique outcome; when buyers differ in their preferences, both mechanisms coexist. The model highlights the joint role of search, bargaining, and commitment in shaping participation, surplus division, and the structure of price dispersion.

Further contributions include Camera and Kim (2016), who introduce time dynamics into directed search with bargaining and show how inventory evolution influences price paths. Watanabe (2020) studies middlemen in search markets, where intermediaries affect both match formation and bargaining outcomes. Gallin and Verbrugge (2019) apply similar bargaining frameworks to the housing rental market, explaining rent rigidity as a result of frictions and strategic landlord-tenant interaction. Goldberg and Tille (2013) explore international trade environments in which invoicing currency and pricing terms are determined through bargaining, shaped by matching frictions and buyer-seller asymmetries.

These models demonstrate that even when offers are observable and matching is guided by prices, the final terms of trade are often governed by negotiation. Search frictions undermine commitment and introduce a bargaining stage that is essential to understanding surplus division, entry behavior, and pricing heterogeneity.

4 Conclusion

Strategic bargaining in search models offers a unified framework for analyzing decentralized exchange in markets where matching is frictional and contract terms are not fixed in advance. Across both random and directed search settings, bargaining protocols determine how surplus is divided, whether trade is delayed, and how agents sort into submarkets. The endogenous nature of outside options in search environments ensures that negotiation outcomes are jointly determined with participation, pricing, and entry.

The literature has evolved from early theoretical insights on alternating-offers games under search frictions to a wide array of applications, including labor markets with on-the-job search, product markets with renegotiable prices, housing with landlord-tenant bargaining, and international trade with endogenous invoicing. Across these settings, the same logic applies: search frictions distort commitment, which in turn gives rise to strategic negotiation and inefficiencies in surplus allocation.

By integrating bargaining into search theory, these models explain not only why price and wage dispersion persist, but also how commitment problems, renegotiation, and delay affect broader outcomes such as participation, inequality, and welfare. The resulting framework is versatile and continues to generate insights across applied domains, offering a robust platform for future theoretical and empirical work.

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