Arbitration and Negotiated Prices: Evidence from Insurer–Doctor Disputes

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Abstract

In many markets, disagreements are settled using arbitration. We examine this understudied form of dispute resolution in the context of the one of largest arbitration systems, the No Surprises Act, a 2022 federal law which resolves payment disputes between insurers and providers for surprise, out-of-network medical bills. We estimate a structural model of arbitrator preferences using public data from hundreds of thousands of disputes and provide economic interpretations of behavior in arbitration. Finally, we evaluate how the design of the arbitration system impacts important outcomes in the employer-sponsored health insurance market, namely negotiated rates and health plan network structure.

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1 Introduction

Arbitration is used in a wide variety of economic settings, such as terms of service for cell phones, baseball players' contracts, international trade disputes, and child custody battles in family court. Arbitration, historically used in labor disputes, has grown rapidly in importance despite the decline in unions.[1] For example, 56.2% of non-union private sector employees are subject to mandatory arbitration in the US, a large increase from the approximately 2% of workers that were subject to this practice in the early 1990s.[2] Despite this prominence, little is known about the underlying mechanics of arbitration and the factors that influence arbitrator's decisions. A key barrier to understanding these aspects of arbitration is that, by nature, most arbitration processes are sealed. In most cases, both the "winner" of arbitration decisions and the terms of the arbitration settlement are shielded from public view. Even within arbitration, multiple variants such as conventional arbitration and final-offer arbitration provide an added layer of complexity of analysis.

Often, relying on alternative dispute resolution is motivated by incomplete contracts and externalities. As pointed out long ago (e.g., Williamson 1975), when the set of possible occurrences is very large, arbitration allows for writing incomplete contracts *ex-ante* but limits opportunistic behavior such as holdup *ex-post*. Arbitrators can also mitigate externalities by preventing an external third party from being harmed, such as a protecting the interests of a child from their feuding parents or holding a patient harmless from a surprise medical bill when there was no negotiated contract between the insurer and the provider. The latter is the context for this paper.

In this paper, we study the No Surprises Act (NSA), a federal law passed in 2020 and implemented in 2022 that adds consumer protections against "surprise" bills from medical providers. To resolve contractual disputes between providers and health insurers that underlie surprise bills, the NSA instituted the largest final-offer arbitration system that we are aware of. In the United States, surprise medical bills are a frequent occurrence for patients and occur when a patient goes to an in-network hospital, is treated by an in-network pri-

[1] https://files.consumerfinance.gov/f/201503_cfpb_arbitration-study-report-to-congress-2015.pdf
[2] https://files.epi.org/pdf/144131.pdf

mary surgeon, and yet an ancillary provider such as radiologist or emergency room doctor treats them, but is not a member of their insurance plan. The patient is then responsible for a higher out-of-network bill from the ancillary provider. Surprise bills arise because of how contracting works in healthcare. Bilateral negotiation between payers (insurers) and providers (doctors) means that it is possible that providers and the hospitals in which they do their work can come to separate contracts where the hospital is in-network and the provider is not. These surprise billing situations occur frequently: about 20% of inpatient admissions that originate in the emergency department lead to a surprise bill (Cooper and Scott Morton 2016; Garmon and Chartock 2017) Consumer protections from surprise bills were addressed through previous state laws and eventually the No Surprises Act, which held patients only responsible for in-network cost sharing but not for the out-of-network portion of their bill and instituted arbitration between insurers and doctors to settle the price for care after the care was delivered.

Since its implementation, the NSA has seen over 1.9 million disputes. Government projections anticipated only approximately 20,000 arbitration cases per year.[3] In just its first two years, the NSA accounts for $5 billion in total costs (Hoadley and Watts 2025). Previous summaries of these cases have noted the large share of cases won by providers. In our analysis of NSA arbitration data, we find that 84% percent of cases are won by providers. While these statistics charachterize how the NSA market has initially operated, the underlying mechanics behind the large discrepancy between win rates and outcomes is not well understood.

We leverage the context of the NSA to examine how arbitration decisions are made. To better understand the effect of arbitration on health care prices and network membership, we start by specifying a model of arbitration inspired by the rules of the No Surprises Act. We next take this model to data on NSA arbitration disputes. These data contain detailed information on many elements of NSA disputes. For each dispute, we observe the offers made by both parties (i.e., providers and insurers), the party initiating the dispute, the underlying medical procedure at issue, and both the case "winner", and because decisions

[3]https://www.hfma.org/payment-reimbursement-and-managed-care/no-surprises-act-arbitration-has-been-a-bonanza-for-a-few-provider-groups/

are final offer, the winning payment rate. We also recover, where possible, the arbitration firm that hears and decides the case. Importantly, these data include the "qualified payment amount," which as described later, is designed to serve as a payment benchmark and equate to a payer's median in-network rate for each service and geographic market.

To characterize how NSA arbitration rates compare to contracted rates, we use recently-released "Transparency-in-Coverage" (TiC) data that contain the universe of each insurer's negotiated rates. We find that the submitted QPA rates closely match our calculated median in-network rates. Yet, the awarded NSA rates are far higher than negotiated in-network rates.

To understand these dynamics, we apply these data to a model to estimate the parameters of the preferences of arbitrators, recovering estimates of parameters that inform what arbitrators might chose given any two offers from insurers and doctors, and then finally we investigate hypotheses for why the baseline model does a poor job explaining the final-offer outcomes (unlike Ashenfelter, Bloom, and Dahl 2013, where the baseline model fits well).

We then refine the model to account for inducement behavior on the part of the arbitrators. Specifically, we expand the objective function of the arbitrator to account for the fee-for-service nature of the arbitration proceedings and explain why this introduces problematic incentives from the prospective of a social planner. Our refined model explains some of the main public criticisms from the first two years of the No Surprises Act, namely that there are high win rates for providers concurrently with high amounts of adjudicated wages in arbitration. We discuss, as well, the role of rent-seeking consultants or other expert agents and why risk aversion alone is unlikely to explain the uneven win rates. Finally, we attempt to offer constructive advice to policy makers with respect to mechanism design under both regulatory and political constraints.

This paper contributes to four distinct literatures. First, we contribute to the literature on the connection between high health care costs and the corporatization of healthcare (Atul Gupta, Howell, Yannelis, and Abhinav Gupta 2024; Lin, Munnich, Richards, Whaley, and Zhao 2022; Gandhi and Olenski 2024; Atul Gupta, La Forgia, and Sacarny 2024; Diwan, Eliason, League, Leder-Luis, McDevitt, and Roberts 2025; Singh, Radhakrishnan, Adler,

and Whaley 2025). Second, we contribute to the literature on network formation, bargaining, and how negotiated rates are set (Gowrisankaran, Nevo, and Town 2015; Ho and Lee 2017). In particular, we are most closely related to a study about non-zero disagreement payoffs in this bargaining context; our paper provides a microfoundation for these non-zero diagreement payoffs (Prager and Tilipman 2025). Third, we contribute to a growing literature on the intersection of health care, labor markets, and rising use of artificial intelligence, as the surprise billing providers such as radiologists operate business models severly impacted by the growth of A.I. (Dranove and Garthwaite 2022; Gottlieb, Polyakova, Rinz, Shiplett, and Udalova 2023; Acemoglu, Autor, Hazell, and Restrepo 2022). Finally, we reawaken a dead labor and law & economics literature about final-offer arbitration (Farber 1980; Ashenfelter and Bloom 1984; Gibbons 1988) that since the decline in union membership has been understudied, with the exception of a recent paper which extends Gibbons' model to empirical study but relies on thirty year old data and has limited application to our empirical context given what we find is occurring with arbitrators (Kong, Silveira, and Tang 2025).

Our paper proceeds as follows. Section II introduces our baseline model. Section III discusses the data, Section IV shows the results, Section V addresses mechanisms, and Section VI concludes.

2 Baseline Model

We start out by introducing a model of the game of final offer arbitration aligning with the standard model in the literature (e.g., Farber 1980, Ashenfelter and Bloom 1984) before later expanding upon the arbitrator's objective function in Section V. This final-offer arbitration game has three actors: an insurer, a provider, and an arbitrator, indexed by i, p, and a, respectively. We use the notation w (wage) to refer to the reimbursement paid from the insurer to the provider as most if not all other arbitration papers study wage disputes such as what occurs between municipalities and fire and police departments (where arbitration is used because fire and police departments are legally forbidden from using strikes). In the

model, insures and providers offer w_i and w_p, respectively, to the arbitrator.[4]

2.1 Arbitrator's Utility Function & Timing

The timing of the game is as follows: First, the insurer and provider simultaneously offer w_i and w_p to the arbitrator, who then chooses one of the two offers, w, based on his preferred outcome w_a. The arbitrator's utility function is modeled as a quadratic loss from the distance between their preferred outcome and what is eventually chosen, $U_a = -(w_a - w)^2$, which leads to a simple decision rule where the arbitrator picks the offer $w \in [w_i, w_p]$ closer to w_a; in other words, the arbitrator will pick the insurer's offer if w_a is less than the average of the offers, $w_a \leq (w_i + w_p)/2$, or if w_a is less than halfway between the offers.

2.2 Information Structure

We follow the literature and assume that the arbitrator knows directly his preferred outcome w_a conditional on the observable facts of the case, but the parties only know the arbitrator's preferences up to a distribution. Perhaps the parties have a sense of what the arbitrator will do but the arbitrator has uncertainty from case to case ("wakes up on the wrong side of the bed"). Parties understand this uncertainty as a random variable with CDF $F(w_a)$ and pdf $f(w_a)$. The probability that the insurer's offer is chosen is $F(w_a)$, and because the arbitrator must choose either one or the other, the probability of the provider being chosen is simply $1 - F(w_a)$.

$$Pr(insurer\ win) = Pr(w_a \leq \frac{w_i + w_p}{2}) = F(w_a) \tag{1}$$

2.3 Strategies & Equilibrium

Naturally, insurers want to minimize their payment (conditional on the provider making his optimal offer), and the provider wants to maximize this payment (again, conditional on the insurer's best response). A pair of offers (w_i^*, w_p^*) is a Nash equilibrium if w_i^* and w_p^* solve,

[4] In theory, both parties can initiate an arbitration, although in practice, the providers initiate more frequently. This will become relevant later when we introduce arbitrator inducement.

respectively:

$$\min_{w_i} \quad w_i \cdot F\left(\frac{w_i + w_p^*}{2}\right) + w_p^* \cdot \left[1 - F\left(\frac{w_i + w_p^*}{2}\right)\right] \tag{2}$$

$$\max_{w_p} \quad w_i^* \cdot F\left(\frac{w_i^* + w_p}{2}\right) + w_p \cdot \left[1 - F\left(\frac{w_i^* + w_p}{2}\right)\right] \tag{3}$$

Solving via first order conditions:

$$F\left(\frac{w_i^* + w_p^*}{2}\right) = \frac{1}{2} \tag{4}$$

$$\frac{1}{f\left(\frac{w_i^* + w_p^*}{2}\right)} = (w_p^* - w_i^*) \tag{5}$$

In equilibrium, the median of the arbitrator's preferred distribution is at the average of the offers and the offer gap gets bigger as the distribution gets more spread out (the reciprocal of the density function is larger). The incentives in this game are thus quite similar to a sealed-bit, first-price auction: a lower bid saves the bidder money but reduces the probability of the bid winning. In the arbitration context, a provider will trade off offering slightly higher (and earning more if they win) with reducing their probability that their offer is selected. The insurer has a symmetric and opposite incentive to bid low but not so low that the arbitrator thinks they are being greedy and the other party prevails.

2.4 Estimation

For estimation, we follow existing literature and assume the arbitrator's preferred settlement is a random variable distributed $x \sim N(\mu, \sigma)$. Nash Equilibrium offers are then:

$$w_i^* = \mu - \sqrt{\frac{\pi\sigma^2}{2}}, \qquad w_p^* = \mu + \sqrt{\frac{\pi\sigma^2}{2}}$$

As first shown by Ashenfelter and Bloom 1984, the parameters that govern the distribution of arbitrator's preferences can be recovered from a probit regression corresponding to Equation (1), where the outcome variable is a binary dependent indicator of whether the insurer won. The coefficient on the regressor of average wage offer, $(w_i+w_p)/2$, provides an estimate of $1/\sigma$

and the coefficient on the constant term provides an estimate of μ/σ, with publicly available facts of the case also potentially shifting the outcome. In our empirical work, we control for a variety of case-specific fixed factors like location of the dispute and insurer and provider fixed effects; this is consistent in other papers that study arbitration (e.g., Ashenfelter, Bloom, and Dahl 2013). We estimate the probit model using maximum likelihood.

It may be useful to provide some intuition for our estimation procedure: suppose that the insurer offers $100 and the provider offers $120, and the provider is chosen by the arbitrator. In another case, the insurer offers the same $100, but the provider instead raises his offer by a dollar to $121. When he does this, suppose the provider then loses. This provides information that somewhere between $120 and $121, the arbitrator believes that the provider has gotten too greedy, and the arbitrator switches from awarding in favor of the provider to awarding against them. With data on a series of final offers and an indicator of who was selected, we can trace out the distribution of the arbitrators preferences with the help of assuming a fuctional form. In the next section, we describe the data on final offers and outcomes that we use to estimate the model.

3 Data

3.1 Background & History of Surprise Bills and Arbitration

So-called "surprise" bills occur when a patient receives medical services that are seemingly covered by insurance (e.g., in-network), but a component of the service is out-of-network and thus not covered by insurance. A number of widely-read media reports led to concerns in state legislatures that some providers and groups were intentionally not participating in insurer networks and instead exploiting surprise bills to increase revenues, and research suggested this was likely (Cooper, Scott Morton, and Shekita 2020). Several private-equity backed provider groups had prominent reports written about them at this time. These stories and concerns led to state action to limit patient exposure to suspire bills.

Initial surprise bill protections were state-led. To resolve payment disputes between insurers and providers, state policies ranged from formulaic payment rates (e.g., California's

policy of tying payment to an insurer's median in-network rate) to arbitration-based models to a suggestion raised Connecticut that it should simply be illegal to send surprise bills to patients but no payment standard should be set up, leaving hospitals and doctors to arrange contracts internally through side payments, a form of *ex-post* bargaining discussed favorably by Grossman and Hart 1986. A key limitation of the state policies is that they do not apply to self-funded employer plans.[5]

In response to the limitation that state laws did not protect self-funded plan beneficiaries[6] and to extend surprise bill protections to other states, Congress passed the No Surprises Act during the first Trump administration. The NSA has two important components. First, patients are no longer subject to surprise bills. The second major component is about determining insurer prices. Because these services are outside of an insurer's network, there is not a negotiated price between the two parties–providers and insurance companies. Naturally, providers wish for higher payment rates than insurers are willing to offer. If the two parties could agree upon rates, they would have agreed to a negotiated contract and the providers would be in-network.

To resolve these disputes, the NSA established an arbitration process modeled after exiting state policies. In NSA arbitration, either providers or insurers can bring a claim to resolve a balance bill dispute using "baseball-style" arbitration.[7] Importantly, NSA arbitration is "final offer" arbitration and parties are not able to adjust their bids. The arbitrator selects a single winning bid from either offer.

4 No Surprises Act Data

We use publicly available CMS arbitration data from over a million disputes between 2023 (the start of the law) and the end of 2024. The data elements include (a) final offers from both parties (i.e., providers and insurers), (b) which party prevailed, (c) payer name, (d)

[5] https://www.healthaffairs.org/content/forefront/analyzing-new-bipartisan-federal-legislation-limiting-surprise-medical-bills

[6] In the US, self-funded plans are exempt from state regulations and are regulated by the federal government.

[7] This is frequently called baseball-style arbitration as it is used in salary disputes between major league baseball players and the teams they play for.

provider name, (e) CPT, and (d) location (MSA). We make a few restrictions, such as not including default judgments (where one party wins because another does not submit required paperwork) and throwing out early quarters of the data where court cases pause and started arbitration, rendering our confidence in that data lower.[8]. In some analyses, we also restrict to the largest insuers and providers by number of disputes and to the top 3 CPTs to focus on the most frequent users of arbitration. The top CPT codes are all for emergency room care and we focus on these codes (although our results are robust to looking at all CPTs, as well).

In the CMS public files, the dollar amounts of each dispute are held in different files than the payer and provider information and (with limited exception) they cannot be merged. However, we can still back out levels of payment without due to an element of the law called the Qualifying Payment Amount (QPA). The No Surprises Act legally requires arbitrators to consider several factors when choosing between offers. These include provider quality, experience, and teaching status, market share of each party, a prohibition on considering Medicare rates and considering provider charges, and the qualifying payment amount (QPA). This amount is an insurer-specific median of contracted rates for a service, insurance type, and geography in 2019, adjusted for inflation. We report the offer amounts relative to the QPA in our analysis.

The top providers in arbitration are TeamHealth, SCP Health, and Envision. Many of the frequent users of the IDR process are private equity backed Emergency Room staffing firms with large shares of business in out-of-network billing prior to the No Surprises Act who had lots of leverage prior to the law's passage (Biener, Chartock, Garmon, and Trish 2021; Cooper, Scott Morton, and Shekita 2020).

4.1 Other Sources of Data

We augment our primary data source with actual negotiated prices data released starting in 2022 under the Transparency-in-Coverage rule. This rule mandated that all payers post their negotiated price for each Provider–Procedure–Plan. We use these prices to compare

[8] *TMA* decision footnote here.

arbitration outcomes to negotiated rates nationally.

Finally, we leverage Final Offer Arbitration data similar to the CMS data file mentioned above but that comes from the New York State Department of Financial Services, which administered a state-level version of arbitration with similar rules to the No Surprises Act yet instructed arbitrators to use the 80th percentile of charges as a benchmark when reaching rulings. This data was collected via a Freedom of Information Act request. We use this data to identify arbitrators who participated in both the New York state-level law and the federal law, matching on year and arbitrator fees.[9]

4.2 Summary Statistics

Arbitrators are awarding providers wages that are higher than what insurers are paying for the same care under in-network contracts. Figure 1 plots the 25th, 50th, 75th, and 90th percentile of arbitration awards from the CMS data relative to the distribution of negotiated rates from Transparency-in-Coverage data, focusing on one representative service, an emergency room visit of mid-level severity (CPT 99284), the most common service code disputed under the No Surprises Act. Nearly all of the negotiated rates are lower than the 25th percentile of the arbitration decisions (only 4% are higher), and the median award is higher than only 1.5% of all negotiated rates. Superimposed on this graph is also the QPA amount from the CMS data, which is slightly below the median negotiated rate.

Table 1, Panel A shows that providers win frequently in arbitration. In our main sample, 84% of arbitration disputes are won by providers. In Table 1 Panel B, we show offers from providers are at the median 2.97 times the QPA.[10] These results are consistent with other descriptive papers (e.g., Adler and Fiedler 2024).

[9] We thank Haizhen Lin for this suggestion.

[10] Slight differences between this and figure 1 relate to Figure 1 coming from CMS's dollar file dataset and Table 1 from the relative-to-QPA dataset.

5 Results

In Figure 2 we show a scatterplot of the relationship between offers of the insurer (x-axis) and offers of the provider (y-axis). This scatterplot is shown for the most frequent pairing of disputants, the UnitedHealthCare vs. TeamHealth dyad. One first notices that all the data is above the 45° line; this is by construction. If the final offer of the provider was lower than the final offer of the insurer, they should agree to settle without spending resources on arbitrator fees.[11] A primary objective of this figure is to highlight that offers from a given party (insurer or provider) are equilibrium objects: a higher offer from one party impacts the other side's offer. Displaying these together shows this relationship and the tradeoff on the margin between additional risk of losing and more income earned from an aggressive final offer. Except for Kong, Silveira, and Tang 2025, who analyze final offer arbitration data from 1978-1995, we are not aware of other studies that present final offers as equilibrium objects. This is particularly important in relation to empirical work on the No Surprises Act, such as Adler and Fiedler 2024, who do not model the best response of the payer when the provider is playing their optimal bid and vise versa (Nash Equilibrium).

This figure also demonstrates that frequently insurers bid zero or one time the QPA. This behavior could be rationalized purely by the baseline model—for example, if the insurer thought the arbitrator had preferences of 2x QPA and the provider bid anything more than 4x QPA, it is rational for the insurer to bid zero. However, as we discuss in the concluding section, we believe it is more likely that insurers are protesting what they perceive are problems with the implementation of the law; lawsuits about non-payment proliferate.

Next, we show results from our baseline structural model. Our regressions show high estimates of the center of the arbitrator's preferred distribution of arbitration award relative to QPA as well as a wide spread around that award. Our primary specification restricts to Q3 of 2023, the first quarter where arbitration regularly occured with no major administrative pauses, and finds a mean of 10.9 and a standard deviation of 7.1 times the QPA (Table 3, column 1). [12] We view these estimates with a grain of salt: the Farber model of final offer

[11] In making this figure, we drop a small number of off-equilibrium offers where this inequality does not hold.

[12] Other specifications show very similar estimates when excluding fixed effects for different emergency

arbitration on which we base our structural estimates suggests that under symmetric risk aversion, it is equally as likely for either side to win (see Mas 2006); given the lopsided win rate in our dataset, we acknowledge that estimates of μ and σ are made based on support in the data mostly from the left tail of the estimated distribution. Rather than concluding that the arbitrators estimates for an ideal outcome of arbitration are actually ten times as high as the negotiated rate, we instead explore and rule out some alternative hypotheses of this lopsided win rate coupled with high arbitration awards in the next section and introduce a model of arbitrator inducement.

6 Mechanisms

Both our descriptive statistics and our regressions provide suggestive evidence that arbitrators seem uninterested in picking settlement results close to the median negotiated rates or the QPA. In this section, we offer an alternative model as to why this might be the case.

6.1 Differences in Risk Aversion

One explanation for the lopsided provider win rate is asymmetric risk aversion between insurers and doctors. For example, if providers were very risk averse and didn't want to lose, they would lower thier offers in order to garner additional wins. We do not think this is the likely explanation. In order to observe win rates that are as lopsided as we observe, the parties would need unreasonable risk aversion parameters. Ashenfelter, Bloom, and Dahl 2013 model CARA utility of parties in final-offer arbitration and adapting their model suggests that we would need parameters not found in usual studies. Furthermore, we see no obvious reasons that the large, private equity backed emergency room staffing firms that are the largest drivers of the lopsided win rate would be risk averse. They have large access to capital and are run by aggressive management entities. Instead of differences in risk aversion between providers and insurers, we next explore another hypothesis.

CPT codes and an indicator for whether the case was batched, or rolled up surprise bill disputes for the same code X provider X insurer.

6.2 Arbitrator Incentives to Induce More Cases

Given arbitration entities (IDREs) are for-profit organizations, it is reasonable to assume that an arbitrator is concerned with both getting a "fair" outcome of the dispute but also with maximizing revenue through inducing more cases. In the No Surprises Act the arbitrator earns a fee of approximately $240-$840 for single determinations and $269-$1173 for batched determinations.[13] This is analogous to a fee-for-service contract which creates a financial incentive for arbitrators to hear more cases. We model this explicitly.

To understand this more clearly, we assume a monopolist representative arbitrator (just like in Section II) with a utility function that is a weighted average between altruism (getting the outcome of the case "right") and earning additional revenue through inducement of cases. We parametrize the utility function where w is the selected wage, x is the ideal outcome, f is the fee charged by the arbitrator, n is the number of cases the arbitrator gets by:

$$U = -\alpha(x-w)^2 + (1-\alpha)fn, \qquad \text{where } n = k(w-x).$$

Here, k parametrizes the strength of the inducement effect – as the arbitrator selects wages higher than what is idea, more providers take advantage of that wedge and submit more cases, thus increasing both n and their revenue, which is just count n times the fee f.

Solving for the optimal wage,

$$w^* = x + \frac{(1-\alpha)fk}{2\alpha}$$

It is simple to see that the optimal wage selected by the arbitrator w^* is decreasing in alpha (as more weight is put on getting a reasonable answer) and increasing in both the fee, f, and the sway or inducement ability of the arbitrators to cause more cases, k. This comparative statics framework provides intuition for what may be driving high selected arbitration results.

In the data, nearly all of the cases are initiated by providers. And the sum of fees earned

[13] https://www.cms.gov/newsroom/fact-sheets/federal-independent-dispute-resolution-idr-process-administrative-fee-and-certified-idr-entity-fee

by arbitrators is $1.1 billion over the course of our study. It is within reason to suspect that arbitrators are inducing more cases by ruling generously for providers. There is a long literature on fee-for-service incentives, of which this model fits squarely into.

We also compare provider win rates in New York State and provider win rates in the NSA seperately for two out of the three arbitrators who conducted arbitration disputes both in New York State prior to the passage of the NSA as well as under the NSA using Freedom-of-Information records from New York State. (The third arbitrator who worked in NY State does not seem to be involved in NSA disputes.) In New York prior to the NSA, there was a law requiring the arbitrators to consider the eightieth percentile of billed charges—a number higher than the QPA. When these same two arbitrators resolve disputes under the NSA, they select the provider's offer far more frequently than the other arbitrators, perhaps because they have experience with high provider reimbursement already. These two firms choose the provider 96% of the time (in over 43,000 disputes), well higher than the baseline provider win rate of 84%.

6.3 Provider Exposure to NSA Services

Finally, we show that providers who are more exposed to the services most frequently disputed under the NSA are also the providers who bring the most cases. Figure 3 shows a binned scatterplot and the positive relationship between the percentage of a practice NPI's total revenue that comes from the top 20 CPT codes that are disputed under IDR and the number of cases they bring. We calculate share of revenue coming from total allowed amounts and allowed amounts for the top 20 CPT codes using the Medicare Part B Carrier Data from 2022. Although this is only suggestive and not causal, this provides an interpretation that the providers who are more exposed to arbitration-related services have a higher propensity to engage with IDR. In the Appendix, we show this is true for facility as well as individual NPIs, and for win rate shares as well as count of total cases. Finally, we also show in the Appendix that the win rate for HCA, a large hospital chain where most of their business is not related to surprise billing, the win rate is nearly 50%, as opposed to the lopsided provider win rates in the aggregate data. This is suggestive that the providers

most exposed to arbitration's effect on revenue are also engaging in the system most often.

7 Conclusion

In this paper, we find that the arbitration system of the No Surprises Act leads to high awards for providers and high provider win rates, and we explain this with a microfounded model of arbitrator behavior. We introduce economic incentives by both parties that may lead to the observed outcomes and estimate models of arbitrator preferences.

Stepping back, we note that as hypothesized in an earlier paper (Ashenfelter, Bloom, and Dahl 2013), we see asymmetric use of expert agents in arbitration with providers using consultants more frequently. Nutex Health, one of the revenue cycle management consultants, reported in a recent 10-K that their total revenue was "driven by their successful participation in arbitration through the Independent Dispute Resolution Process of the No Surprises Act". [14] Secondly, we would expect that firms with more at stake because most of their business is tied up in NSA services (the providers) would submit more paperwork and documentation than insurers to arbitrators. This has been confirmed in conversations with administrators at CMS's CCIIO–providers are "flooding the zone" (personal communication) with paperwork that insurers are simply not submitting, and they are far more frequently the initiating party of the dispute.

There are a few policy suggestions that we consider to ameliorate concens that the NSA is leading to health care price inflation. The first is we suggest that arbitrators consider Transparency-in-Coverage data as an additional discretionary factor when arriving at dispute conclusions. Price transparency data (which we use in Figure 1) is free and available to any arbitrator, and allows the arbitrator to develop a sense of the distribution of real negotiated prices for the same set of services in the same geography, allowing an arbitrator to sidestep any potential controversy surrounding the QPA and its method of calculation. It also does not require access to or the existence of a state All Payer Claims Dataset and use of price transparency data is permitted under the 2020 No Surprises Act law and does

[14] https://earningscall.biz/e/nasdaq/s/nutx/y/2024/q/q4

not require new rulemaking. It is also similar to what Washington State uses for their state-level arbitration system. Washington relies on an extract of their All Payer Claims Dataset (which looks similar in many ways to data on prices found in TiC) and that WA had less than 150 arbitration cases per year prior to the NSAs passage. This suggests that use of price transparency data can lower the incidence of costly arbitration disputes and potential healthcare waste.

Another policy suggestion we urge regulators to consider is holding a scoring auction for arbitrator procurement. In light of our model and suggestive evidence of the incentives for arbitrators to induce more cases, CMS (which has the power to design an arbitrator certification system under the NSA law) could design a scoring auction that explicitly certifies arbitrators for a limited time with reaccreditation based on factors such as use of price distribution data and speed of resolving cases (another much maligned factor of the NSA). If the arbitrators were unable to meet certain policy objectives, they could run the risk of scoring low and not being selected to hear disputes. It seems arbitrator competition has been less than fully effective.

Arbitration incorporates the theoretical benefit of forcing one party to internalize the other party's bidding decision when forming their own bid. Harnessing market dynamics when there was no negotiated agreement to begin with captures the spirit of incomplete contracts *ex-ante* while limiting holdup *ex-post*. However, arbitration as currently implemented results in high payouts to providers and potentially greater payments than they earned prior to the No Surprises Act when they could simply balance bill patients directly. Frequent public dissatisfaction with arbitration is a symptom of a regulatory problem not a mechanism design flaw.

One can also view arbitration as an insurance system itself: patients are fully insured from out-of-network surprise bills, but at a loading cost of the increase in price caused by upward pressure on prices. The arbitration procedure induced a welfare tradeoff in that now, patients no longer get surprise bills yet the negotiated prices that every enrollee faces may be higher due to increased leverage in negotiations coming from a high outside option of using arbitration relative to negotiating an in-network rate. More research is needed

to further understand this welfare tradeoff and we anticipate learning more when data on network membership and prices becomes available.

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8 Tables and Figures

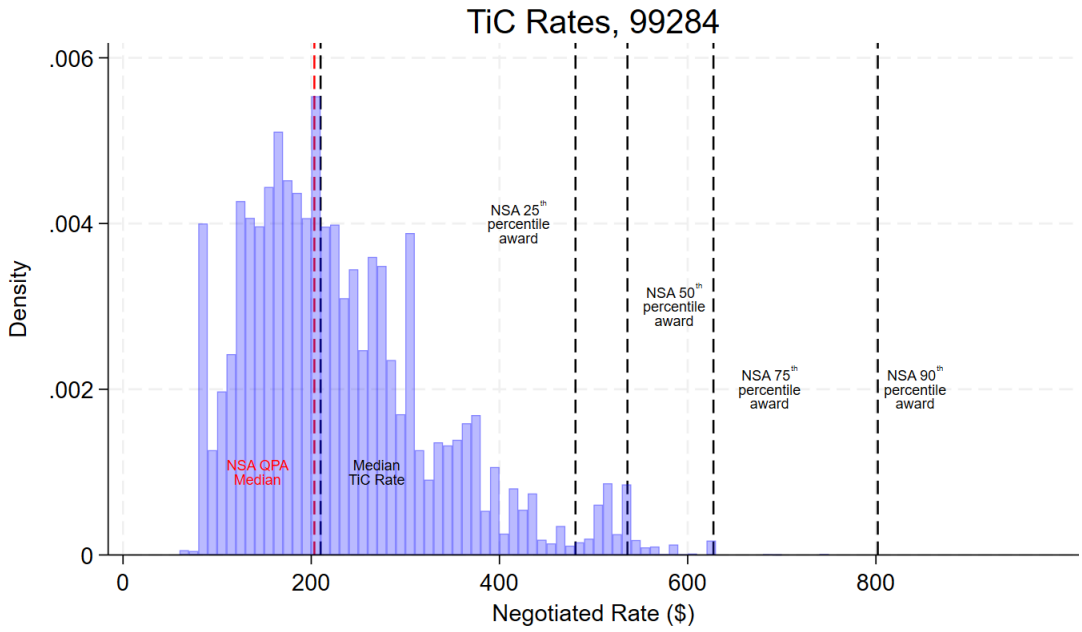


Figure 1

Outcome	Frequency	Percent
Insurer Win	88,641	15.82%
Providers Win	471,835	84.18%
Total	560,476	

25th	Median	75th	Mean	SD
2.02	2.97	4.09	3.30	1.69
N=	560476			

Table 1: Provider Win Rates and Winning Provider Offers (relative to QPA)

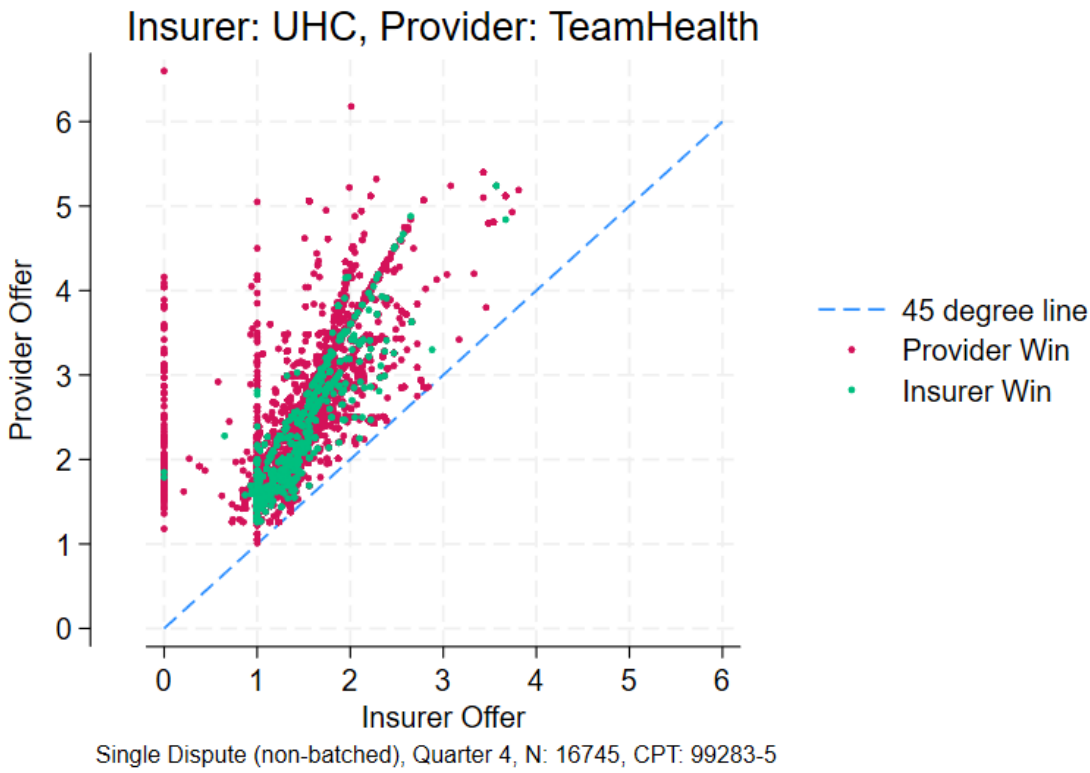

Insurer: UHC, Provider: TeamHealth
Provider Offer
0
1
2
3
4
5
6
Insurer Offer
0
1
2
3
4
5
6
45 degree line
Provider Win
Insurer Win
Single Dispute (non-batched), Quarter 4, N: 16745, CPT: 99283-5

Figure 2

Table 2: Maximum Likelihood Estimator (Probit on Insurer Victory)

	(1) inswin	(2) inswin	(3) inswin
inswin			
wage avg.	0.103***	0.112***	0.111***
	(0.0216)	(0.0195)	(0.0195)
constant	-1.099***	-1.223***	-1.357***
	(0.199)	(0.189)	(0.187)
Insurer & Prov FEs	Yes	Yes	Yes
Location FEs	Yes	Yes	Yes
CPT FEs	Yes	Yes	No
Batched?	Yes	No	No
μ	10.7	10.9	12.2
σ	9.7	8.9	9.0
Pseudo R-squared	0.344	0.340	0.338
Observations	23,536	24,891	24,891

Standard errors in parentheses

Note: Q3 Data only.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

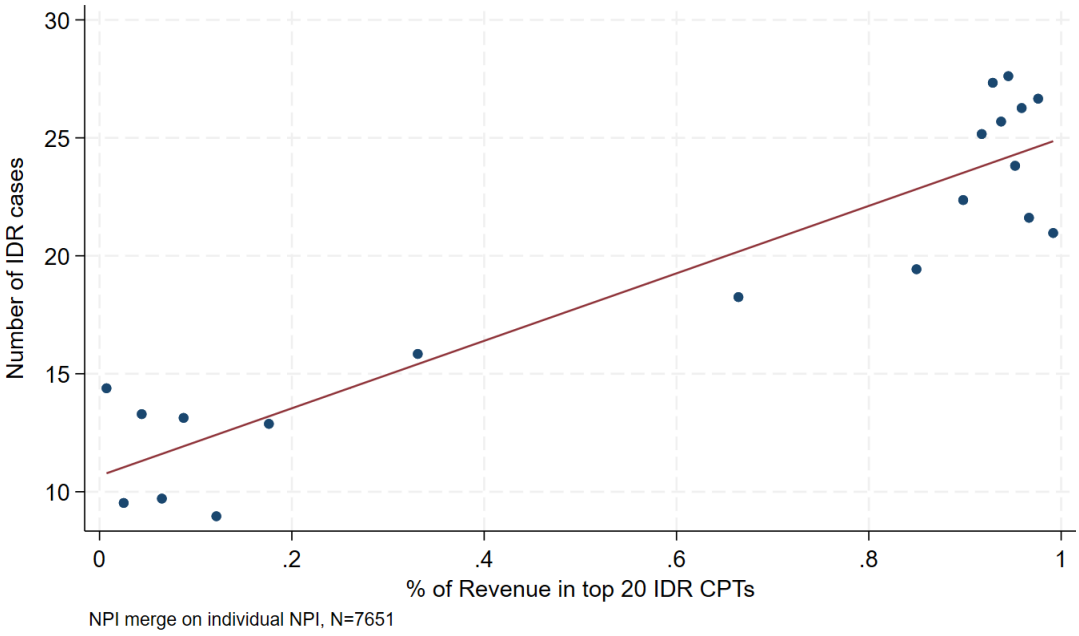
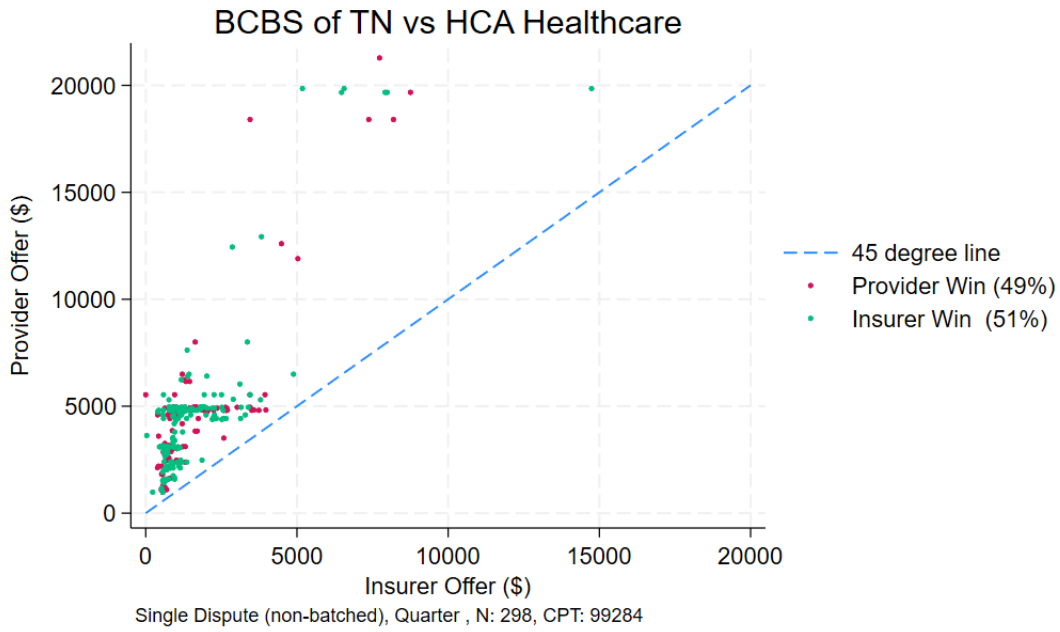
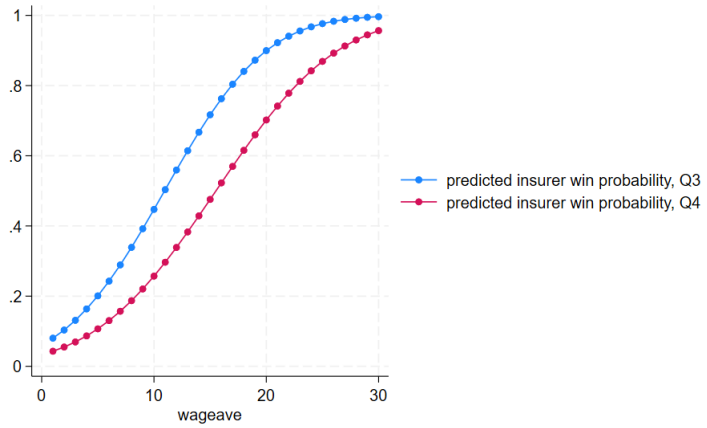


Figure 3

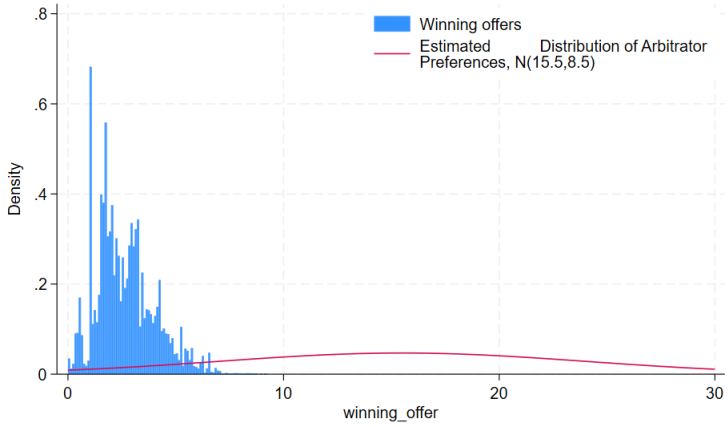
9 Appendix Tables & Figures



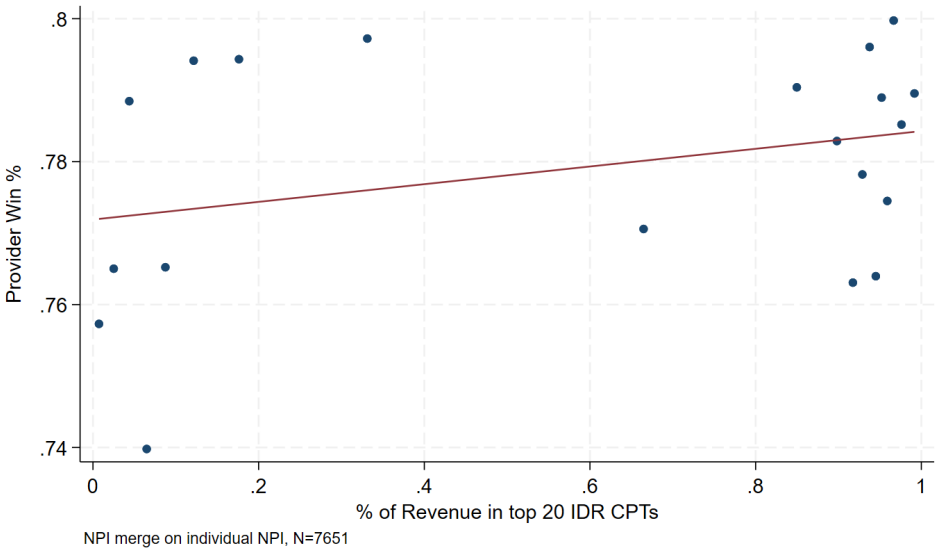
Appendix Figure 1: HCA vs BCBS of TN arbitration scatterplot



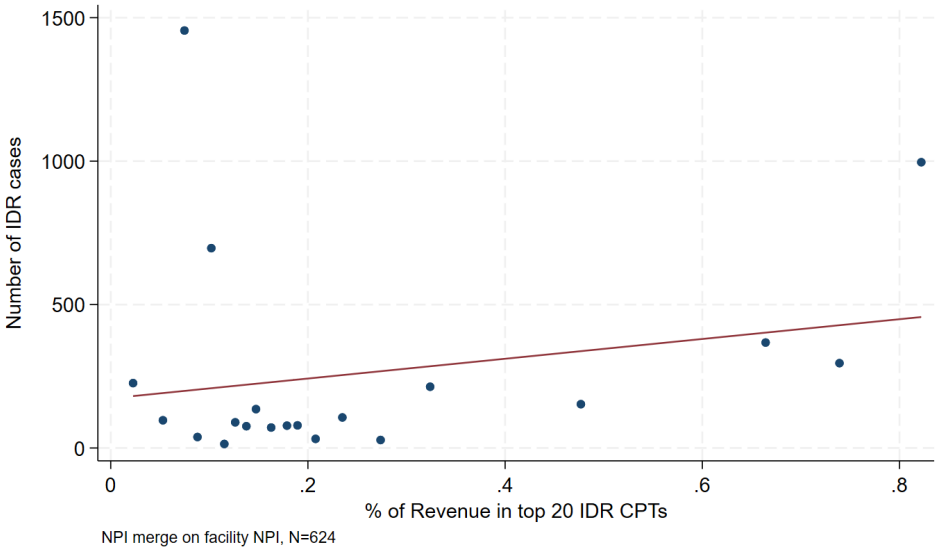
Appendix Figure 2: Estimated CDF of arbitrator preferences Q3 and Q4 of 2023



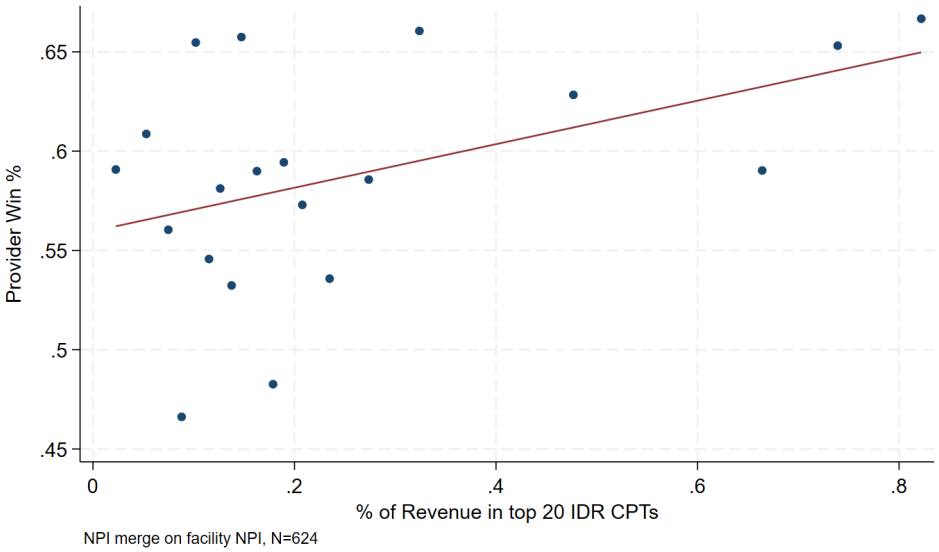
Appendix Figure 3: Estimated Density Function of Arbitraor Preferences



Appendix Figure 4



Appendix Figure 5



Appendix Figure 6