

**From:** Ata, Barış [Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)  
**Subject:** Re: Judge Shopping  
**Date:** January 16, 2021 at 6:30 PM  
**To:** Nasser Barjesteh [nasser.barjesteh@rotman.utoronto.ca](mailto:nasser.barjesteh@rotman.utoronto.ca)  
**Cc:** Lawrence Wein [lwein@stanford.edu](mailto:lwein@stanford.edu)

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**EXTERNAL EMAIL:**

Thanks Nasser. Regarding your question, perhaps it is less of an issue for the 1<sup>st</sup> approach. Also, while the effect you mention may be there for EM it is hard to know its magnitude. This highlights the importance of trying all 3 approaches. It also points to the need to do careful sensitivity analysis. If you have other ideas, we should explore those too, of course.

Best,  
Baris

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**From:** Nasser Barjesteh <[nasser.barjesteh@rotman.utoronto.ca](mailto:nasser.barjesteh@rotman.utoronto.ca)>  
**Date:** Saturday, January 16, 2021 at 12:50 PM  
**To:** "Ata, Barış" <[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)>  
**Cc:** Lawrence Wein <[lwein@stanford.edu](mailto:lwein@stanford.edu)>  
**Subject:** Re: Judge Shopping

Hi Baris,

I added a few small items (in blue) to your meeting minutes.

Also, I have a question about the proposed estimation procedure: It seems like an implicit assumption in this document is that plea demand (across different days and judges) is identically distributed. Doesn't this conflict with the judge shopping story (where some judges may be more popular than others)?

Best wishes,  
Nasser

On Jan 15, 2021, at 2:13 PM, Ata, Barış <[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)> wrote:

**EXTERNAL EMAIL:**

Hi Larry,

Just saw this. It will be good to catch up quickly on 1 and 2 if you are still available. Will send a zoom link shortly.

Thanks,  
Baris

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**From:** Lawrence Wein <[lwein@stanford.edu](mailto:lwein@stanford.edu)>  
**Date:** Friday, January 15, 2021 at 12:52 PM  
**To:** "Ata, Barış" <[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)>, Nasser Barjesteh <[nasser.barjesteh@rotman.utoronto.ca](mailto:nasser.barjesteh@rotman.utoronto.ca)>, Lawrence Wein <[lwein@stanford.edu](mailto:lwein@stanford.edu)>  
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Hi,

1. Capacity estimation: Although I had originally proposed deterministic D, that doesn't make a whole lot of sense. So your EM approaches seem good. I guess it makes sense to try all 3 approaches.

2. Visibility: In the standard (ie, with rotation) judge-shopping scenario, having  $v < r$  doesn't make a lot of sense: we will give the defendants a chance to shop, but don't let them see what they are shopping for. So I think  $v = \text{infinity}$  is good for the standard setting. But there is currently no judge rotation in the US. But an alternative scenario is a city, where there are multiple judges always working (unless they are on vacation). There is no judge rotation. There is no visibility ( $v=0$ ). We give defendants  $r$  chances. Basically, they choose the first week (which minimizes delay costs) - if they like the judge, then they keep them, and if they don't like them then they get to try again the next week (California has  $r=2$ ). So if there are 5 judges, you get a 20% chance each week of getting one of these judges (makes sense to have replacement). This seems like a straightforward optimal stopping problem. So perhaps we can focus on the  $v = \text{infinity}$  for now, and then look at the setting  $v=0$  later (again, this  $v=0$  scenario may be more practical).

3. Sounds good.

Let me know if you want to talk through point 2 on zoom. I am available 1-2 CT today.

Best,  
Larry

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On Thu, Jan 14, 2021 at 5:17 PM Ata, Barış  
<[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)> wrote:

Dear Larry,

I hope you're well. Attached are my notes from our meeting. If I missed anything please let me know. I wanted to revisit 3 points in particular:

1. Capacity Estimation. Although I couldn't quite see how to use the paper you sent, you were right, of course, that EM could work in

this setting. I tried to spell out its details under two different distributional assumptions. Details are in the handwritten attached note.

I recall thinking about MLE type estimation earlier but ran into identification issues. I don't see any such issues with the EM approach. But, I also proposed a different adhoc method in the handwritten note.

2. Infinite visibility. This assumption simplifies the simulation significantly. When we were making that assumption, however, I was not aware that  $r$  is large in practice and thought  $r$  and  $v$  kind of have similar effects on the defendant's behavior (so does  $d$ ). If you feel we should allow a finite  $v$  and consider an optimal stopping type problem for the defendant, I will be happy to try that again. I spent some time today but didn't see a good way to do it yet. Can's approach does not seem computationally easy as she acknowledges. At the same time, if you feel  $v = \text{infinity}$  is ok, then we are probably set to go after re-estimating  $\mu_p$ .
3. Treating trial times as exogenous. This really simplifies things and seem well justified given the separation of time scales. There is a little detail though: when a defendant arrives and picks a judge, there is a chance that he may go for a trial. With the exogenous trial times assumption, I propose just "ejecting" those from the system. This should be reasonable for the current judge schedule. However, if for some reason there are significant changes to the number of trials as we try different judge schedules we may want to revisit this.

I will be happy to discuss these tomorrow (Friday, 11-noon, or 1-2 pm CT). I am also available Tuesday at 11 am CT, or Monday before noon.

Nasser: If you have additional notes from the meeting, please add them to the minutes. Also, it will be great if you could check my derivations for errors/typos. Thanks!

Best,  
Baris

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**From:** Lawrence Wein <[lwein@stanford.edu](mailto:lwein@stanford.edu)>  
**Date:** Tuesday, January 12, 2021 at 2:12 PM  
**To:** "Ata, Baris" <[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)>  
**Subject:** Re: Judge Shopping

Good luck with your class.

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On Tue, Jan 12, 2021 at 12:09 PM Ata, Barış  
<[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)> wrote:

Hi Larry,

It was great seeing you as well. Thanks for sending this reference.  
Let me study it and I will report back. If this helps us estimate  $\mu_p$   
better, it will be terrific! Thanks so much.

Tomorrow is first day of MBA teaching, so I will probably touch base  
on Thursday.

Best,  
Baris

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Baris Ata  
Chookaszian Family Professor  
Booth School of Business  
University of Chicago

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**From:** Lawrence Wein <[lwein@stanford.edu](mailto:lwein@stanford.edu)>  
**Date:** Tuesday, January 12, 2021 at 1:53 PM  
**To:** "Ata, Barış" <[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)>  
**Cc:** Nasser Barjesteh <[nasser.barjesteh@rotman.utoronto.ca](mailto:nasser.barjesteh@rotman.utoronto.ca)>  
**Subject:** Re: Judge Shopping

Great to see you both today. A few thoughts:

1. In Section 4.4.1, perhaps we can assume  $D_{t^j}$  equals an unknown  $D$  for all  $t$  and  $j$ , and use EM or K-M to jointly estimate  $\mu_p$  and  $D$ . I think this has been done at least in a Tobit setting (attached).
2. There is another key parameter that we will want to see its impact on the performance measures, and that is overall capacity. As capacity gets near 1, there will be less flexibility to shop.

Larry

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On Sat, Dec 26, 2020 at 2:32 PM Ata, Barış  
<[Baris.Ata@chicagobooth.edu](mailto:Baris.Ata@chicagobooth.edu)> wrote:

Dear Larry,

I hope this finds you well and that you are enjoying the holiday season. I am writing to provide an update on the Judge Shopping project, but first of all thank you again for giving us a chance to work on this very interesting topic. Attached are 6 files:

1. The main document "JS Data Analysis and Model Proposal.pdf"
2. Two excel files that support this analysis and are referred to in the main document.
3. The other 3 files are the emails you forwarded to me that reflect exchanges between you, Can and Hester.

The main document provides an analysis of the two data files: Sentencing File and Master Calendar. We tried to squeeze as much information from these files as humanly possible, please see the first 2 sections of the document. Section 3 discusses how we linked the two files. It appears that judge numbers correspond to the alphabetical ordering of judge names, which we verified in two ways. Section 4 proposes an approach that builds on the 3-agent model that you and Can developed. We tried to connect this model to the data as much as possible and would love your feedback on the whole document, but especially on Section 4. To be more specific, we'd love to hear your thoughts on Section 4.4 (capacity estimation) and thereafter.

As you read this document, if you'd like chat about anything, please let me know. I'll be happy to chat and should be available most hours of most days.

Best,  
Baris

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