



Improving the Application Process and the GI Match

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Overview

- 2006 GI Fellowship Match

 - Lessons learned

- 2007 Application Process

 - ERAS

 - NRMP/SMS

- Why the Match will continue to work for GI

2006 Match Programs

- 153 Eligible fellowships
- 121 Fellowships participated
 - 134 Different programs
- 79% of eligible fellowships participated

2006 Match Total Applicants

- ☞ Total matched - 276
- ☞ Total unmatched - 456
- ☞ Total applicants - 732

2006 Match Filled Positions

- ➡ Clinical - 191/192 filled
- ➡ Clinical investigator - 37/40 filled
- ➡ Basic science - 11/13 filled
- ➡ Research - 37/38 filled
- ➡ Total - 276/283 filled

2006 Match Unmatched applicants

- Unmatched applicants
 - Clinical - 291
 - Clinical investigator - 74
 - Basic science - 33
 - Research - 58
- Total unmatched applicants - 456

Matched Applicant Statistics

	Number	% of Matched Applicants
US Grad	185	67
US Foreign	20	7
Osteopathic	14	5
Foreign	54	20
Fifth Pathway	1	0
Canadian	2	1

Match Satisfaction

- On-line post match survey
 - Summer 2006
 - 83% satisfied-very satisfied with how their program matched
 - 96% participate again this year

Lessons Learned

- ☞ Do NOT assign responsibility for entering the ROL to an administrative assistant
- ☞ Not sufficiently ranking enough applicants
- ☞ Misunderstanding the Match Quota

Not Sufficiently Ranking Enough Applicants

- Rank as many applicants as you determine are qualified to train at your program
- Different tracks
 - Clinical
 - Clinical Investigator Research
 - Basic Science Research
 - Research

Misunderstanding the Match Quota

- Match Quota refers to the number of positions you are entering into the match
 - The number of positions that you want the NRMP to fill for your program for that year
- It does not mean the total number of positions in your fellowship

2007 Application Process

ERAS

May 15, 2006	Register with ERAS
July 1, 2006	ERAS post office opens to applicants
Nov 15, 2006	Applicants may electronically apply
Dec 1, 2006	Programs can access ERAS
May 31, 2007	ERAS post office closes

Lessons Being Learned from ERAS

- Windows compatible only (not MAC)
- No differentiation of tracks on application
- Same residency listed by different names, e.g., The XX vs XX
 - Difficult to sort applicants by "residency program"

ERAS 2008 Registration Season

- ☞ Register by Friday, April 27, 2007 for July 2009 GI fellow start date
- ☞ <https://services.aamc.org/eras/erasaccount/>
- ☞ Eight character log-in ID and password needed
- ☞ Help Desk - 202.828.0413

NRMP/SMS 2007

Dec 15, 2006	Enrollment info
Jan 3, 2007	On-line registration
Jan-April 2007	Interview applicants
April 11, 2007	Match ROL opens
May 23, 2007	Match Quota Deadline
June 6, 2007	Match ROL Certifications due
June 20, 2007	Match Day!

NRMP/SMS 2007

- ☞ You must activate your program in order to appear in the Directory of Programs (oops!)
- ☞ As of Friday -
 - ☞ 64 programs for 147 positions
- ☞ Overall (all fellowships)
 - ☞ 385 activated
 - ☞ 408 inactive
- ☞ Only 3 emails-we're doing well!

Tracks

- Clinical track
- Clinical Investigator Research Track
- Basic Science Research Track
- Research Track

ROL/Reversion Process

- ☞ Programs submit an ROL for each track to which they wish to appoint fellows
- ☞ “Reversion” of positions or donating positions from one track to another



Why the Match Will
Continue to Work for GI
Fellowships
and Generational Ethics

What are the Effects of a Match?

Effects of a match

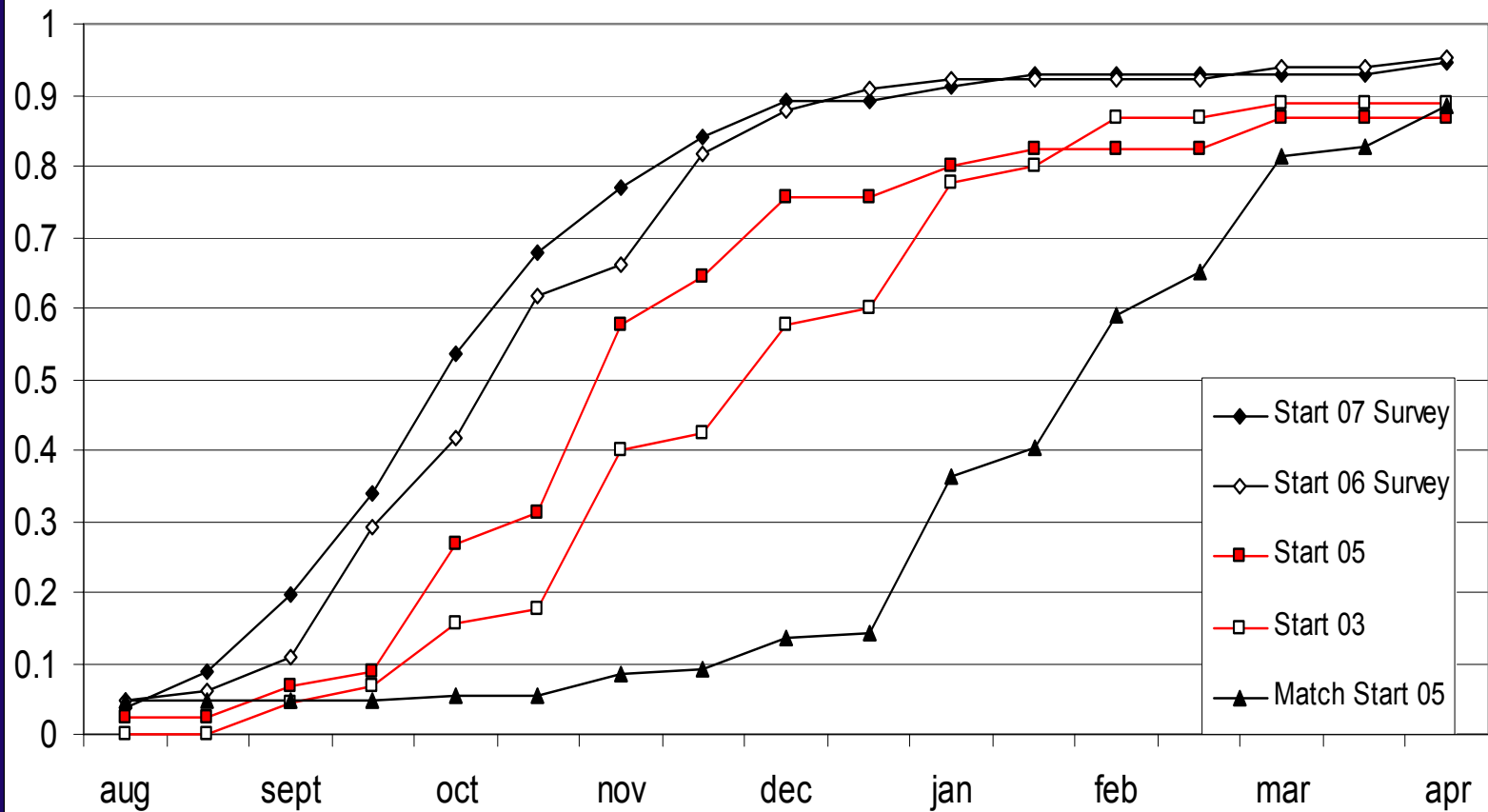
- ☞ Timing of interviews
- ☞ Dispersion of interviews
- ☞ Mobility of residents

Niederle and Roth - JAMA, Gastroenterology 2003-2004

Niederle, Proctor, Roth - Gastroenterology 2006

Timing of Interviews

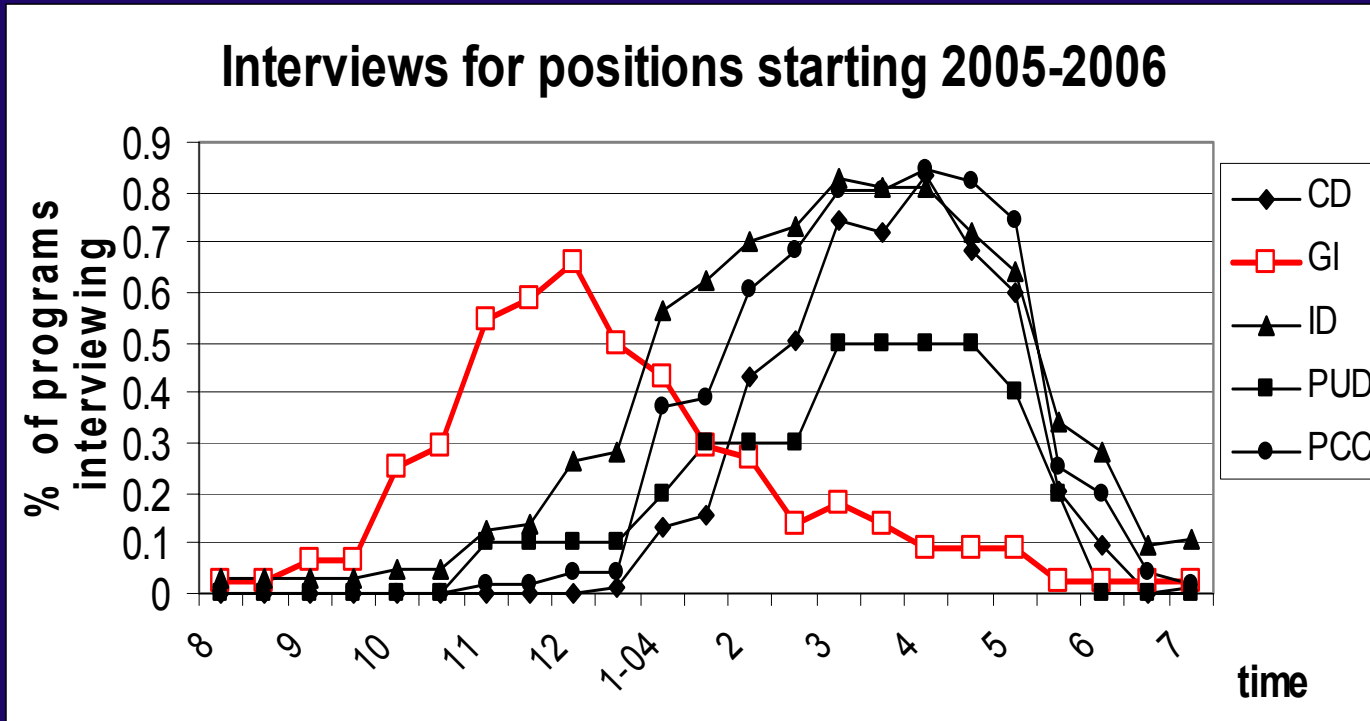
Proportion of hospitals that started interviewing



Start 06 Survey - 60% of programs started their interviews in October 2004

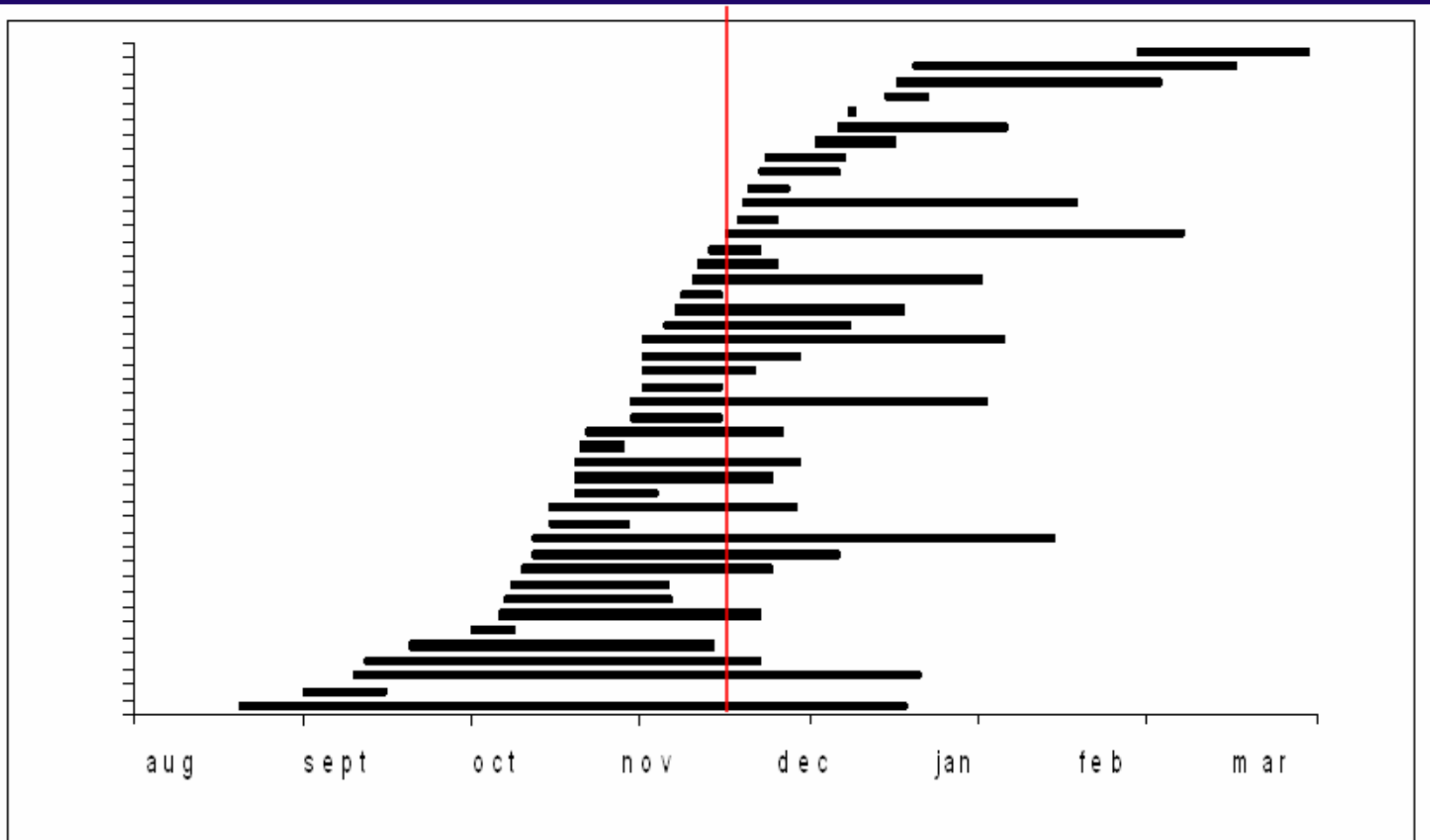
Start 07 Survey - 75% of programs - interviewing in October 2005 (without a match)

Dispersion of Interviews



Percentage of programs interviewing at any point in time

Dates during which GI fellowship programs were making offers. Each program is represented by one of the horizontal lines, indicating the (maximal) dates during which it could have had outstanding offers (2005 survey data, n=44). As of November 15, 2004, 11 (27%) programs had already finished making offers, 12 (25%) had not yet started, and 21 (48%) were in the midst.



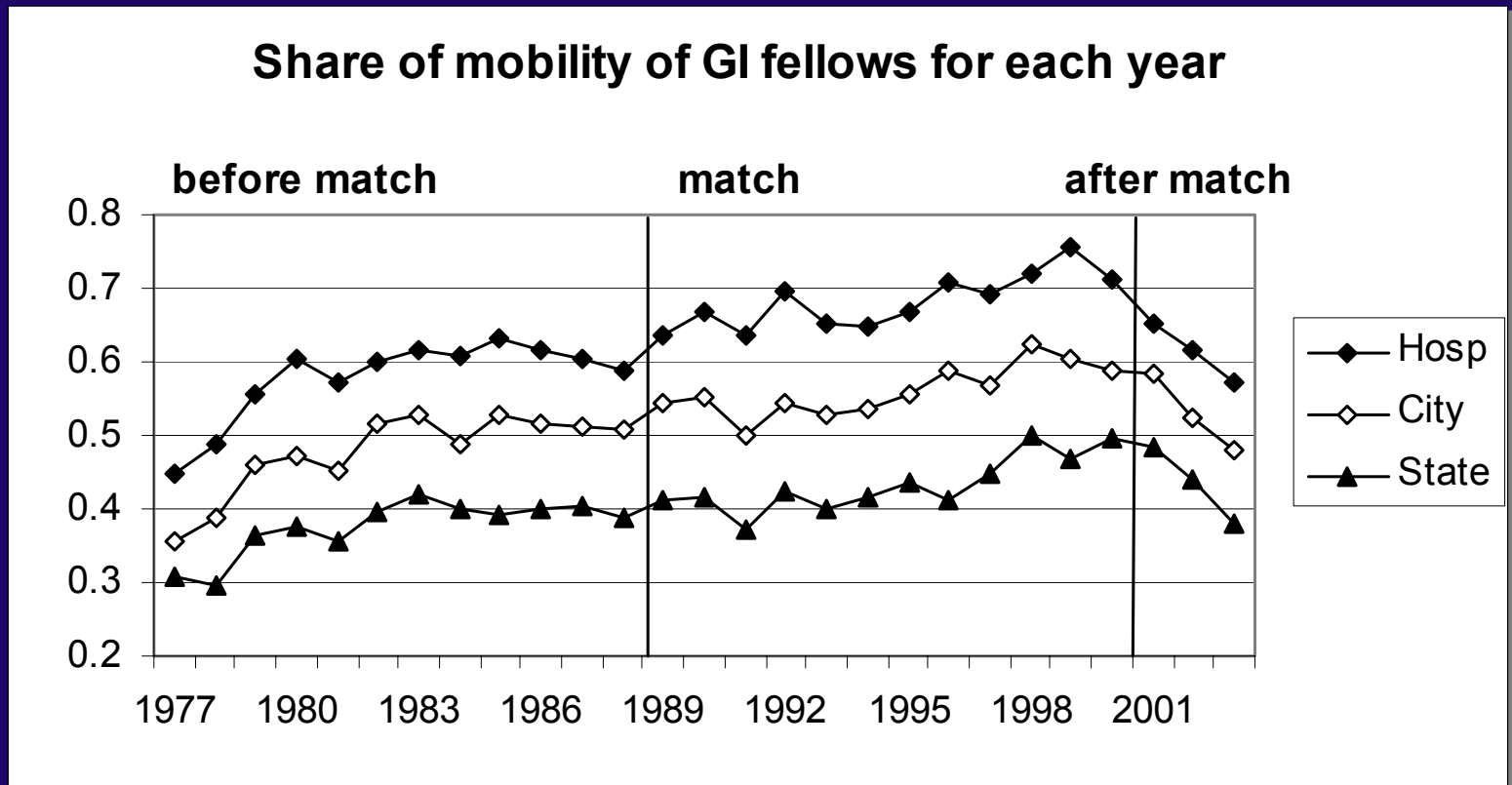
Effects of a Match on Mobility

Does a centralized match (versus a market with early, exploding offers) affect the final outcome?

Anecdotal evidence that unraveled markets rely heavily on networks, e.g., own institution, to hire candidates

- ➡ Offers can be generated quicker inside the network, to counter looming exploding offers
- ➡ Applicants in a network may be more reliable to honor agreements (or easier to be coerced into honoring them)
- ➡ By accepting an early offer, loss of a good position may be more severe for applicants outside of the network

Effects of a Match-Mobility



With a match, fellows are more mobile

More diverse training experience

More invigorating for programs

Effect is more pronounced for large hospitals

The same physicians do not show similar patterns in mobility when moving from medical school to IM residency (with a match)

Roth, Niederle JAMA 2003

The Collapse of the GI Match

Decrease in *Supply* of Positions

- Gastroenterology 1993-1994 - midst of health care reform
- Manpower Analysis (Meyer, et al, JAMA 1996)
 - US healthcare system, and gastroenterologists, would benefit from a reduction in GI fellows
 - 25-50% reduction of GI fellows (over the next 5 years) endorsed as goal by GI leadership council
- Summer 1996 - 3 years of GI fellowship required for board certification eligibility
- All leading to a decrease in *supply* of positions

The Collapse of the GI Match

Decrease in *Demand* for Positions

- ☞ The announced (and expected) reduction in supply triggered an even larger reduction in the number of applicants to GI fellowships
- ☞ 1996 – fewer applicants for positions than positions offered in the match
- ☞ Therefore, decrease in *demand* for positions

Decline in GI Match Participation

Year	Percent withdrawn	Posts in Match	Percent Matched	Applicants per Position
'92	--	377	96.6	1.75
'93	6.7	399	94	1.6
'94	--	369	93	1.6
'95	4	337	88.7	1.3
'96	4.8	298	74.8	0.9
'97	16.1	213	85	1.1
'98	44.3	99	77.8	1.5
'99	60	14	--	--

Within 4 years the Match collapsed
1998-Match was effectively not used
2000-Match was not offered anymore

Shortages – Perceived or Real

- Fewer applicants than positions (demand shortage)
- Fewer “high quality” applicants to fill the “high quality” positions
- Perceived shortages can be on either side (workers and firms - applicants and fellowship positions)
- Perceptions among participants – never enough “high quality” opportunities on the other side of the market

Why did the Match Fail?

- A match cannot work when there are less applicants than positions
 - Several centralized matches work well even with a shortage of applicants
 - There may not be enough “high quality” applicants to fill “high quality” positions
- The GI Match failed because there was a sudden shortage (shock) of applicants, but recovery could have occurred
 - Shock that reduced the demand for positions below supply
- The GI match failed because, when this shock occurred, fellowship programs were aware of it, but applicants were not
 - Programs could update their hiring practices when they saw how many applications they received, whereas applicants were in the dark

How to Sort Among These Hypotheses?

- ☞ Each of them is consistent with the historical data
- ☞ No other IM subspecialty has ever suffered from a change in market conditions that proved so disruptive to the GI Match
- ☞ Since stable match failures are rare, there isn't a good possibility of a cross-market comparison
- ☞ In the laboratory, a market can be shocked in different ways to try to make a stable matching mechanism fail

The Environment

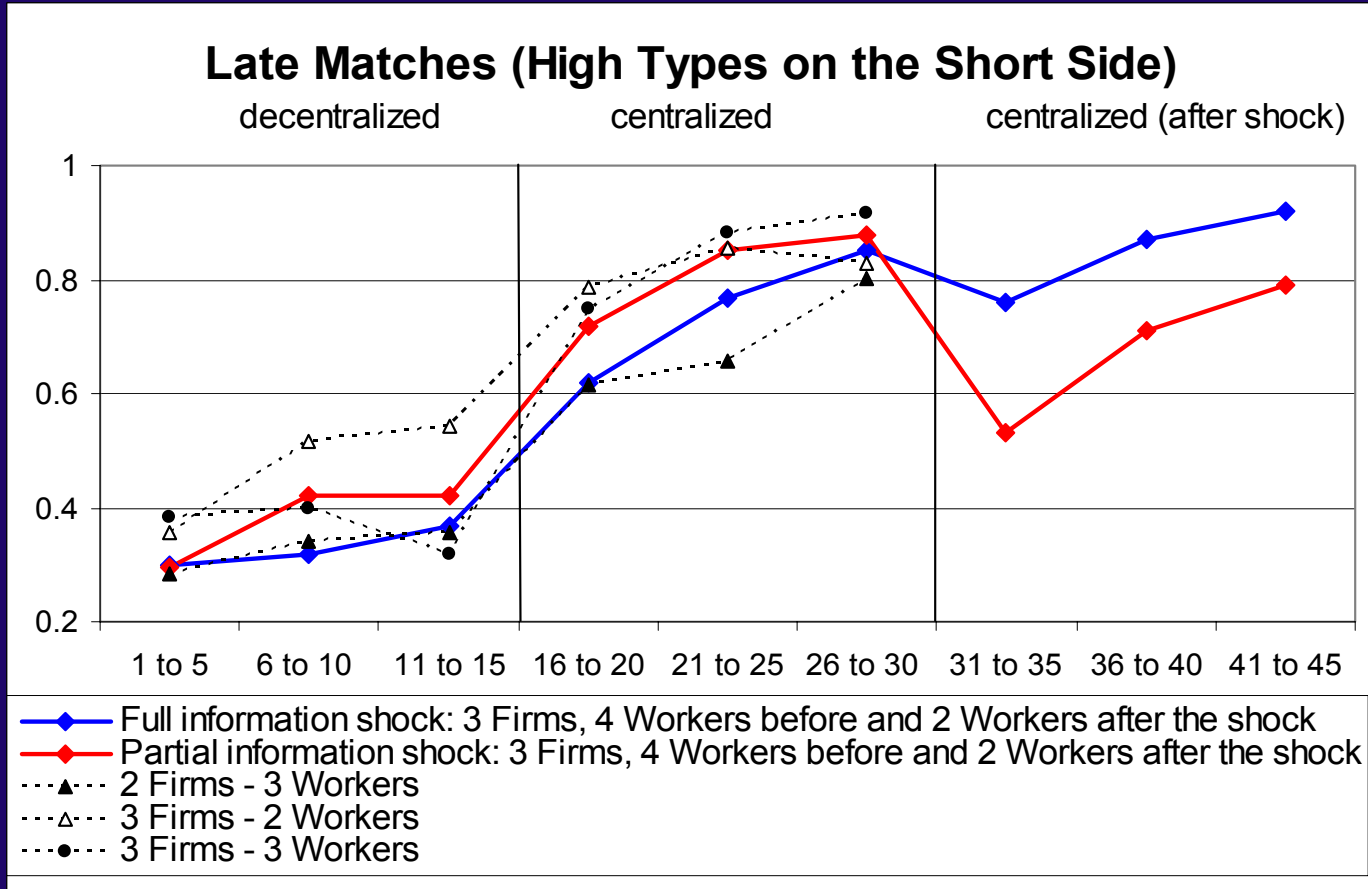
- 2 types of firms and workers - "high" and "low" quality
 - Always 3 "low" quality firms and 3 "low" quality workers
 - "High" type firms and workers are varied
- Matching to a high type is worth 150 points +/- private value (0-10 points)
- Matching to a low type is worth 50 points +/- private value (0-10 points)
- There are three periods in which to match: -2, -1, 0
- Your payoff is the value of your match, minus 20 points if made in period -2, minus 10 points if made in period -1
- Subjects know other subject's types, but not their private values
- Subjects receive \$0.008 for each point + \$10

Market

☞ *Decentralized match*

- ☞ Firms may make one offer in any period, e.g., -2 , -1 , or 0 , if they are not already matched
- ☞ Workers may accept at most one offer per market
- ☞ Each participant learns only of his own offers and responses until the end of period 0
- ☞ Worker who receives several offers, sees them only one at a time, in random order (exploding offers)
- ☞ Maximum number of high-high matches

Percentages of High Matches Made in Period 0

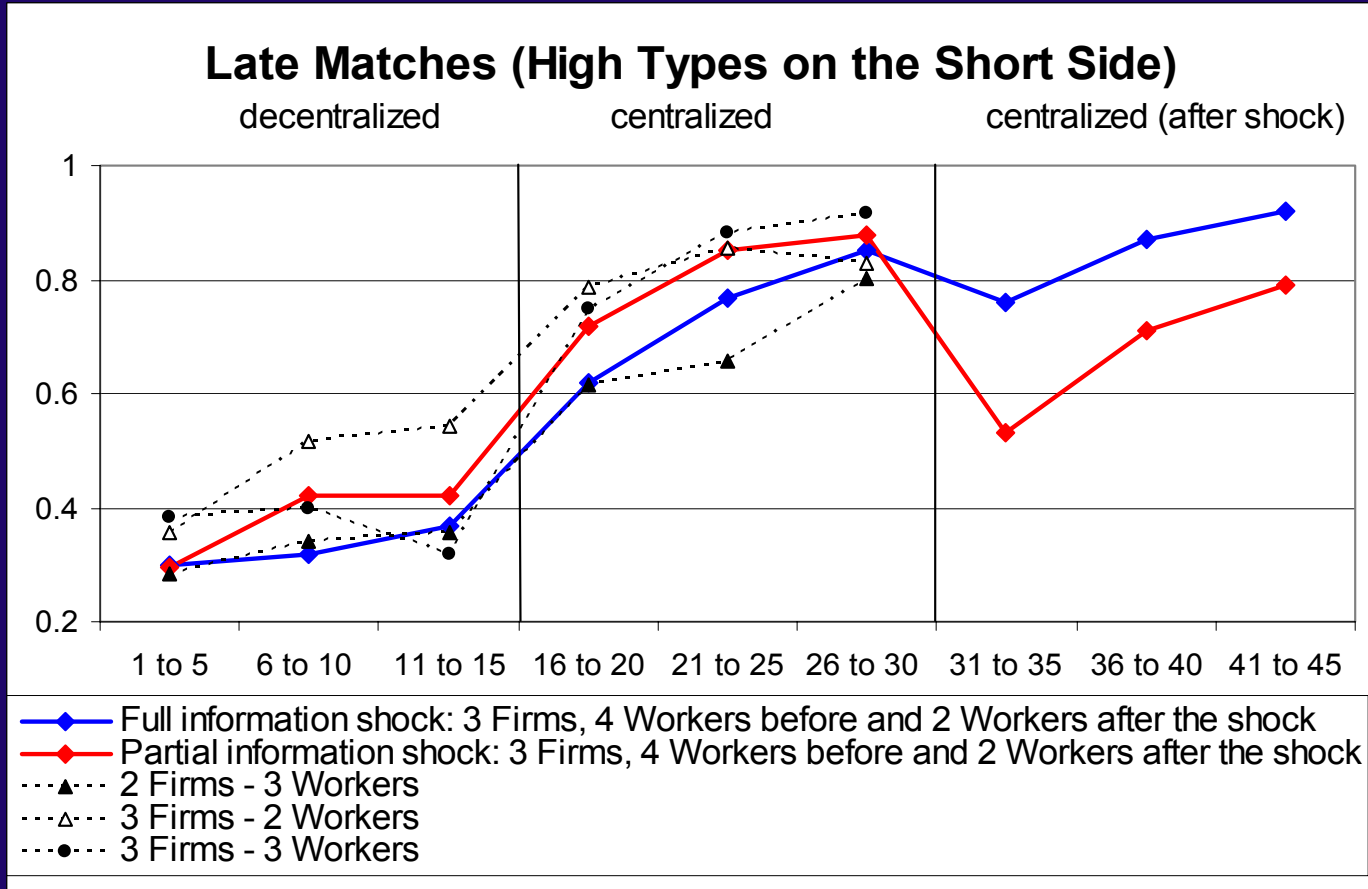


👉 Simple demand/supply imbalances have no effect

Market

- After 15 decentralized games, a centralized matching technology is introduced for period 0
- Periods -2 and -1 were organized as before
- *Centralized match*
 - Participants who are still unmatched at period 0 submit rank order preference lists, and are matched by a centralized (stable) matching algorithm
 - 15 centralized games are played

Percentages of High Matches Made in Period 0

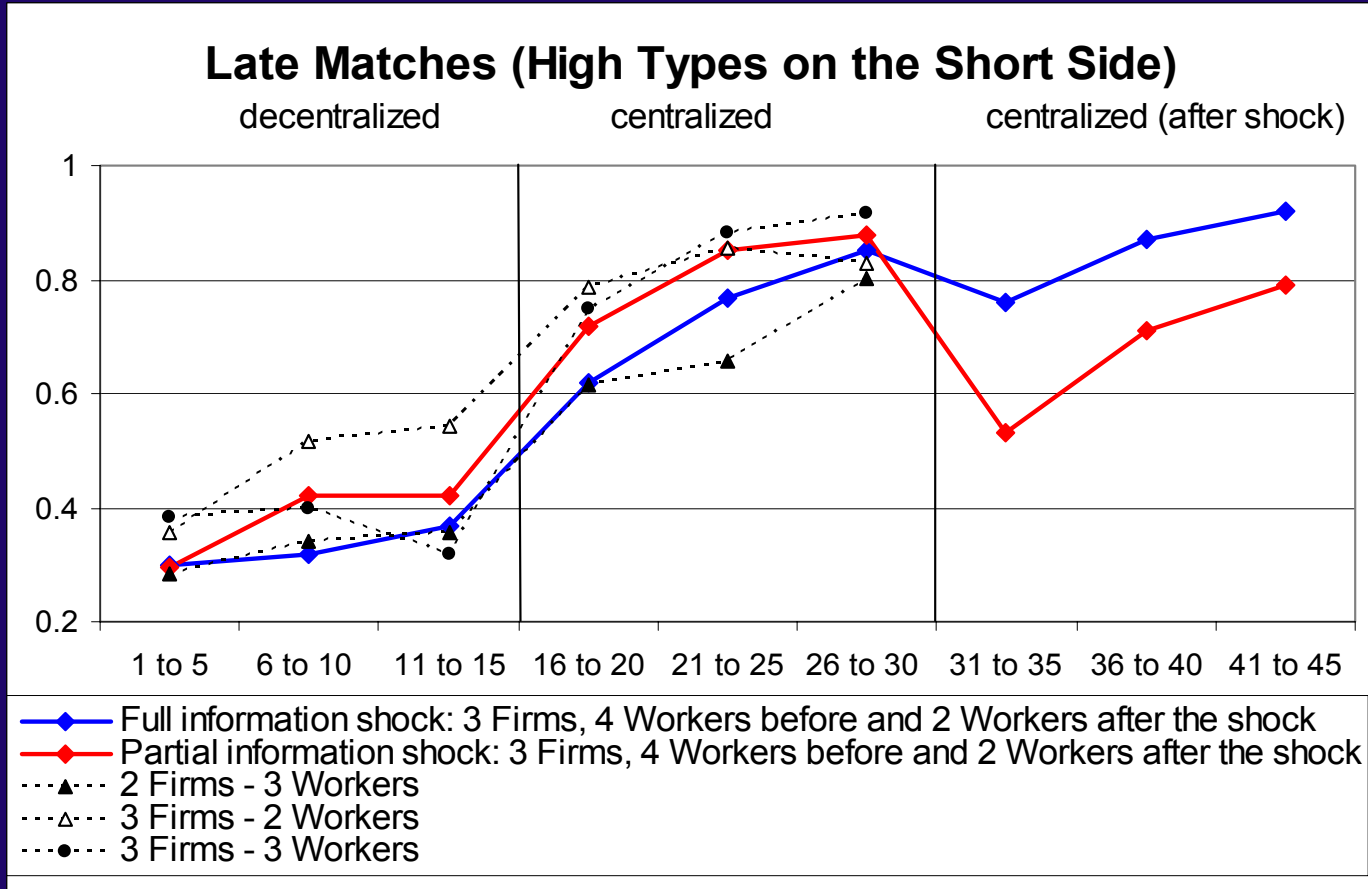


- ☞ Centralized matching improves efficiency – higher total payoffs ($p < 0.01$)
- ☞ Simple demand/supply imbalances still have no effect

Shock Treatments

- 3 high type firms and 4 high type workers (excess supply of workers)
- Single shock (#31)
 - 3 high type firms and 2 high type workers (short supply of workers) for #31-45
 - Centralized match is still available, if they wait
- Full information disclosed
- Partial information disclosed
 - Workers not informed
 - Firms are the only ones who can see the shock at the start of the market, e.g., informational advantage to the firms
 - Workers only find out when early matches are made

Percentages of High Matches Made in Period 0



- Shocks disturb the match, especially when applicants are not aware of the shock - unraveling occurs

After the shock, firms (3 firms, 2 workers) start making more early offers to workers

Workers -

- ☞ Before the shock - high type workers eagerly accept early (-1) high offers
- ☞ After the shock - firms are in excess supply, workers should have no big incentive to accept early offers
 - ☞ Full information - workers accept early offers with much lower propensity
 - ☞ Partial information - workers unaware of shock and accept offers earlier (55% vs 32 %, partial vs full; $p=0.0373$)

It is the ability of applicants to reject early offers that prevents unraveling

No other specialty experienced such shocks

Cardiology - from 1990 to 1998 the ratio of applicants to positions offered varied from a high of 1.6 to a low of 1.3

Pulmonary - ratios varied from a high of 1.5 to a low of 1.1

Infectious Diseases (from 1994 to 1998) - ratios vary from a low of .68 to a high of .92

Conclusions

- ☞ The GI match collapsed because program directors knew about the sharp decline in applicants while applicants were unaware (partial information)
- ☞ In the future, if there is a decline in applicants again, then full information disclosure would prevent another failed match



**Council of
Graduate Schools**

**Resolution Regarding Graduate
Scholars, Fellows,
Trainees, and Assistants**

☞ **“Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15.”**

GI Resolution Adapted to Current NRMP Policies

- ☞ Eligibility for the Match and Participation in the Match: All fellowship positions and applicants are strongly encouraged to participate in the Match. Offers prior to, or outside of, the Match, whether made by a program participating in the Match or otherwise, are a violation of this resolution and are not condoned. All applicants are eligible to participate in the matching process by registering for the Match to interview and consider match-participating programs; however, an applicant who accepts a position prior to, or outside of, the Match must either resign that position if he/she wishes to submit a rank order list of programs or withdraw from the Match prior to the rank order list certification deadline. In other words, an applicant may submit a rank order list of programs as long as he/she does not hold any other positions outside of the Match at the time of the rank order list certification deadline, which is the first week in June. No program may withdraw a position after the quota change deadline in order to offer that position outside the matching process. Any agreement reached through the Match is contractually binding.
- ☞ Applicants who receive several offers prior to, or outside of the Match, to which they are persuaded to reply before the rank order list certification deadline can at any time accept the one they prefer and should contact the programs whose offers they reject, whether they have accepted them beforehand or were simply considering the offer.

In the Future

- ☞ If there happens to be a decline in demand for positions, e.g., fewer applicants, we need to be honest with ourselves and the applicants and publicize this decrease in demand.

My Personal Thoughts

- ➡ Applicants will continue to keep us honest
- ➡ Applicants are used to ERAS and used to the Match
- ➡ They have wised up as to what happens without a Match
- ➡ We all need to be honest with each other and ourselves
- ➡ Generational ethics
- ➡ "It's the right thing to do"

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