

The Gastroenterology Fellowship Match: How It Failed and Why It Could Succeed Once Again

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The market for gastroenterology (GI) fellows adopted a centralized Match in 1986, and abandoned it in the late 1990s. We discuss why the Match initially was adopted, how and why it broke down, what differences this has made in the market for fellows, and what would be needed to restart the Match successfully. We assess the effects of the Match by comparing the GI fellows market now with when the Match was operating, and with the fellowship markets for internal medicine subspecialties that continue to use a Match. The breakdown of a well-functioning Match is rare, but may be caused by unusual shifts in market conditions, such as those experienced by gastroenterology in the late 1990s. The problems the gastroenterology Match originally was designed to solve re-emerged with the demise of the Match. The market has become more local and less national, than when there was a Match in place, and program recruitment of fellows occurs earlier and is more dispersed in time than internal medicine subspecialties that continue to use a Match. There is no evidence that the demise of the Match has had any effect on wages. The evidence strongly suggests that the Match could be reintroduced successfully, which would increase the mobility of potential GI fellows, allow potential fellows to compete for the widest range of programs, and allow programs to compete for the widest range of fellows.

From 1986 through the late 1990s, the market for gastroenterology (GI) fellows was organized through the Medical Specialties Matching Program (MSMP). There presently is some debate in the profession concerning whether it would be desirable to reinstate a Match.^{1–3} To help inform this debate, we discuss here (1) why the Match was adopted in the first place; (2) how and why the Match broke down; (3) what effect the Match had on the market for fellows, and what has happened since the demise of the Match; and (4) what would be needed to restart the Match successfully. The problems the gastroenterology Match originally was designed to solve are related closely to similar problems in many other markets, including the general market for residents, orga-

nized by the National Resident Matching Program (NRMP). These problems are discussed.

Early and Exploding Offers

A common feature of entry-level professional labor markets is that employment begins only after the attainment of some professional qualification, although applicants may be hired for such a position in advance. At some point in the history of many such labor markets, hiring decisions begin to be made earlier and earlier, and employment agreements come to be made quite far in advance before actual employment starts, with different employers hiring at different times. A market undergoing this process is sometimes said to be unraveling. The market for medical interns experienced unraveling in the 1940s,⁴ and, for example, 2 markets that very recently have been experiencing this kind of unraveling are the market for law clerks for Federal appellate judges,⁵ in which offers recently have been made almost 2 years in advance of employment, and the market for college admissions,⁶ in which elite colleges admit a high percentage of their entering classes through early decision programs that require applicants to commit in advance to one college that they will accept its offer if they are admitted early. Roth and Xing⁷ describe several dozen such markets and submarkets.

Unraveling is typically a dynamic process, so that offers are made earlier and earlier from year to year, often as exploding or short-fuse offers.⁸ An applicant has to accept or reject such an offer before she can gather all (or sometimes any) other offers she might receive. Employers who leave offers open for even a little time, and eventually are rejected, often will find that their next choices already have accepted offers elsewhere. Therefore, employers have an incentive to make exploding offers them-

Abbreviations used in this paper: GI, gastrointestinal; MSMP, Medical Specialties Matching Program; NRMP, National Resident Matching Program.

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Table 1. Stable Centralized Matching Mechanisms

Market	Successful (still in use)
NRMP (>40 specialty markets and submarkets for first-year postgraduate positions, and 15 for second-year positions)	Yes (new design in 1998)
Regional medical markets in Britain (Edinburgh 1969 and Cardiff)	Yes
Specialty Matching Services (SMS) (>30 subspecialty markets and submarkets for advanced medical residencies and fellowships)	Yes (except Gastroenterology since 2000)
Canadian lawyers: articling positions (Ontario since 1986, BC since 1987, Alberta since 1993)	Yes (except British Columbia since 1996 and Ontario since 2002)
Dental residencies (5 specialties)	Yes (except for periodontists since 1997 and prosthodontists since 2000)
Osteopaths (>1994)	Yes
Pharmacists	Yes
Reform rabbis (first used in 1997–1998)	Yes
Clinical psychologists (first used in 1999)	Yes

selves, and the trend toward exploding offers becomes self-reinforcing.

Efforts to halt unraveling simply by imposing uniform appointment dates mostly have been unsuccessful. Some markets have reorganized themselves around a centralized clearinghouse, often in the form of a Match. Not all Matches have been successful, some have failed to halt unraveling and promptly have been abandoned.

For example, different regions of the British National Health Service adopted different kinds of Matches in the late 1960s and early 1970s, some of which succeeded and some of which failed.^{9,10}

A common reason for the failure of a Match is that it produces outcomes that are unstable in the sense that there can be firms and workers who are not matched to one another but who mutually would prefer to be. In contrast, Matches that produce stable outcomes, such as the NRMP,^{11,12} generally are successful once they get underway. Table 1 lists some stable Matches (left column). It is rare for a stable Match to be abandoned once it has operated successfully for a few years. However, gastroenterology is not the only such Match to fail after some years of successful operation. Table 1 lists the few failures that we know of (right column).

Brief History of the Gastroenterology Match

The market for GI fellowship positions also suffered from the unraveling of appointment dates, and attempted a number of solutions before adopting a centralized Match. For example, Dr. David Brenner, then Chair of the American Gastroenterological Association's Manpower and Training Committee, quoted in Gerson,¹³ described that period as follows: "Before the Match, an approach of setting guidelines for interviewing candidates and negotiating positions was tried, and it was unsuccessful. Some applicants and programs received calls asking them for decisions 3 months before the deadline. Since it was only a recommended policy, di-

rectors say, it was terribly abused, which is why the training directors developed the Match. Many felt that there was a chaotic atmosphere."

In 1986, the MSMP was initiated to establish a uniform appointment date for internal medicine fellowship positions that would permit applicants to complete at least 2 years of their residency before making a decision as to which subspecialty to pursue. The fellowship Match was conducted a year in advance, that is, after 2 years of internal medicine residency, and 1 year before employment would begin.¹⁴ The MSMP uses the same match algorithm as the NRMP, presently the Roth-Peranson algorithm.^{15,16}

The Match operated well, with most nonmilitary programs and positions participating. More than 90% of positions that entered the Match were filled through it. However, in the late 1990s, participation rates rapidly collapsed, and the Match was formally abandoned in 2000.

The Collapse of the Match

These events seem to have been set in motion in 1993–1994, when, in the midst of general discussions of health care reform, gastroenterology subjected itself to a manpower analysis. The resulting study was published in 1996.¹⁷ Its main conclusions were that the U.S. health care system and gastroenterologists would benefit from a reduction in GI fellowship programs. The Gastroenterology Leadership Council endorsed a goal of a 25%–50% decrease in the number of GI fellows over 5 years. Furthermore, an additional year of training was mandated: starting in the summer of 1996, 3 years of training were required to be board eligible, instead of 2 years.

Therefore, in 1996 the supply of GI fellowships was reduced sharply, and the time needed to become a gastroenterologist was increased by 1 year (although some 3-year GI fellowship programs already had existed before 1996).

Table 2. Participation in the Gastroenterology Match

Yr	Positions advertised	Percent withdrawn	Positions in Match	Percent matched	Number of programs	Number of applicants	Applicants per position in Match
1992	—	—	377	96.6	160	658	1.75
1993	374	-6.7	399	94	173	642	1.6
1994	—	—	369	93	169	591	1.6
1995	351	4	337	88.7	171	433	1.3
1996	313	4.8	298	74.8	164	277	0.9
1997	254	16.1	213	85	128	240	1.1
1998	178	44.3	99	77.8	60	148	1.5
1999	35	60	14	—	11	—	—

NOTE. For each year, positions advertised is the number of positions whose availability in the Match was announced in late March. Until late May, the programs may add or withdraw positions (percent withdrawn), which leaves the final number of positions in the Match (positions in Match). Percent matched is the percentage of positions in the Match that are filled by the Match. Number of applicants is the total number of applicants who listed at least one GI program in their rank order list.

However, this announced (and hence expected) reduction in supply triggered an even larger decrease in the number of residents who applied for GI fellowship positions. This seems to have been the start of the demise of the Match. In 1996, for the first time, and despite the decrease in the number of positions offered, there were fewer applicants for GI fellowship positions than there were positions offered in the Match. This resulted in a record low fill rate: only 74.8% of the positions in the Match were filled through the Match in that year.

The next year, 1997, saw a sharp decrease in the percentage of positions in the Match. Table 2¹⁸ describes how withdrawal of positions from the Match (because programs and applicants reached agreements outside of the Match) preceded the formal demise of that Match. Withdrawals went from about 5% in 1996, to 16% in 1997, to 44% in 1998, and to 60% in 1999, in each case followed by a sharp decrease the following year in the number of positions even advertised in the Match, and after 1999 the Match was abandoned formally, already having become moribund because almost all positions were filled outside of the Match. Dr. David Brenner, quoted in Gerson,¹³ described that demise in part as follows: "Many applicants and a large percentage of the fellowship programs stopped using the Match, which made choices more difficult for the remaining applicants and programs and created a vicious circle. Many training directors were very disappointed a few years ago when they didn't fill their slots because the applicants they thought were interested accepted positions before the Match."

If a simple shift in supply or demand were enough to cause a Match to collapse once it had become established successfully, many other markets, including other internal medicine subspecialties, also would have failed Matches because these shifts turn out to be not so rare. What was unusual about the change that the gastroenterology Match experienced in 1996 was that it tempo-

rarily reversed the traditional excess supply of applicants (in Table 2, the ratio of applicants to positions in the Matches decreased below 1 in 1996). None of the other internal medicine subspecialty Matches (cardiovascular disease, pulmonary disease, and infectious disease) experienced such a shift, and infectious disease successfully operates a Match in which there are persistently fewer applicants than positions.

From 1990 to 1998 the ratio of applicants to positions offered in the cardiovascular Match varied from a high of 1.6 to a low of 1.3. For pulmonary disease those ratios varied from a high of 1.5 to a low of 1.1, and for infectious disease (1994–1998) those ratios varied from a low of 0.68 to a high of 0.92. Thus, unlike in the gastroenterology market, the short side of these markets did not change, although in infectious diseases the applicants were in short supply, and in the other Matches the positions were in short supply.

There are limits to the confidence with which one can draw conclusions simply by studying the circumstances in which rare events occur (such as the collapse of a stable Match). Therefore, one way in which economists study questions such as these is by creating small artificial markets in the laboratory, and subjecting them to controlled changes in supply and demand. McKinney et al.¹⁹ found in the laboratory that anticipated shifts in supply and demand, visible to both sides of the market, did not cause decreases in Match participation of anywhere near the magnitude caused by unanticipated shocks.

Consequences of the Loss of the Match

Once the Match broke down, and the commitment to uniform late appointment dates vanished, the market for GI fellows once again started to look as it did before the Match. Since the demise of the Match, offers and interviews have become earlier and more dispersed,

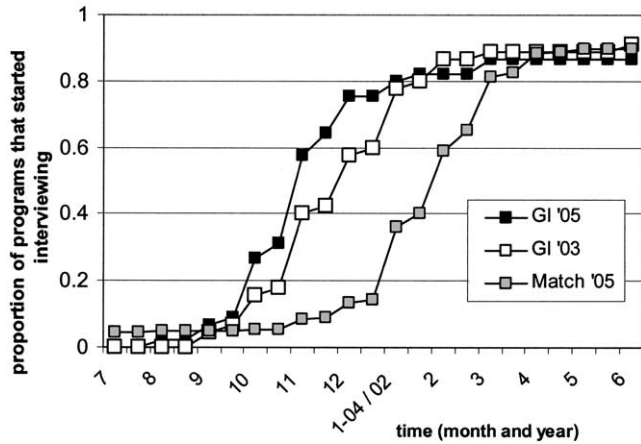


Figure 1. Cumulative distribution of start dates of announced interview periods. For each 2-week date, the proportion of hospitals that started their interview period before that date, for gastroenterology fellowships starting in 2005 (■, GI '05), in 2003 (□, GI '03), and all fellowships that use the Match (□, Match '05): cardiovascular disease, infectious disease, pulmonary disease, and pulmonary disease and critical care.

and fellows have become more likely to stay where they performed their residency. Stipends have not diverged from other specialty stipends, whether or not they use the Match. Each of these are reviewed in the following paragraphs.

Unraveling: Early and Dispersed Interviews and Offers

Interviews and offers (often exploding offers) started to be made earlier than when the Match was in place, so that gastroenterology now interviews well before internal medicine subspecialties that continue to use a Match.^{1,2,20}

There is continued unraveling, even in the past 2 years. We use the general information provided on FREIDA online (<http://www.ama-assn.org/ama/pub/category/2997.html>) by programs for each of the internal medicine subspecialties. We accessed FREIDA in 2003 to retrieve data concerning fellowship positions in internal medicine subspecialties starting in 2005, and in the spring of 2002 concerning GI fellowship positions starting in 2003. We used data from programs whose end date of the interview occurred after the application period. The number of data points we have for the start date of the interview period (end date in parentheses) for positions starting in 2005 is 45 (44) of the 155 GI programs, of the Match specialties we have 83 of the 174 cardiovascular disease programs, 64 of the 139 infectious disease programs, 10 of the 30 pulmonary disease programs, and 52 of the 122 pulmonary disease and critical care programs.

Figure 1 shows the cumulative distributions of the dates at which GI fellowship programs and internal medicine programs that use a Match begin their interviews. We coded programs that start their interview for each month, for example, from December 23rd through January 6th, as starting to interview in January, and those that start between January 7th to January 22nd as mid-January. This way, programs that start interviewing on the last day of a month or the first day of the next month (both common dates) are coded as starting to interview at the same time.

Figure 1 shows that these dates have moved even earlier for fellowships beginning in 2005 than for fellowships that began in 2003. Gastroenterology is not (yet) the nonmatch subspecialty with the earliest interviews (nephrology interviews peak about a month earlier for 2005 positions). Therefore, there is no reason to believe that the trend of earlier interviews and offers will stop where it is now.

On FREIDA, 29 GI programs have start (and end) dates of their announced interview period for fellowships beginning in both 2003 and 2005. Of those, 3 hospitals seem to move a year later and 3 a year earlier than before. Of the remaining 23 programs, on average, the programs start interviewing 2 weeks earlier for positions starting in 2005 than for positions starting in 2003. The difference is significant ($P < 0.04$ using a Wilcoxon matched-pairs signed-rank test).

Figure 2 shows that not only have interviews in gastroenterology started to occur earlier than in subspecialties that use a Match, they also have become more dispersed in time. Figure 2 graphs, for each half month, the percentage of programs that are interviewing at that time (as announced in FREIDA). When a program is finishing interviews in a given 2-week period, we code

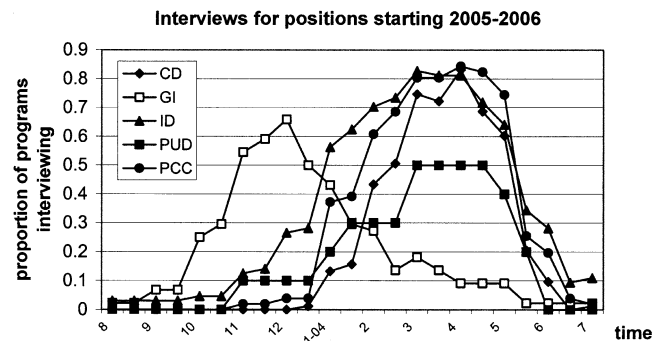


Figure 2. The proportion of programs that are interviewing for each 2-week period. For each 2-week date, the proportion of programs that announced to interview during that time, for GI (□), and the 4 internal medicine subspecialties that use a Match: cardiovascular disease (◆, CD), infectious disease (▲, ID), pulmonary disease (■, PUD), and pulmonary disease and critical care (●, PCC).

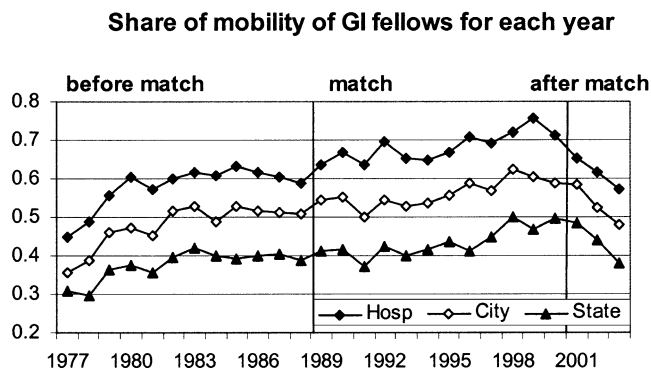


Figure 3. The vertical lines indicate the beginning and the end of the use of the centralized Match, measured in year of fellowship completion. ◆, Hospital; ◇, city; ▲, state. Reprinted with permission.¹⁸

that program as still interviewing in this 2-week period, but not in the next one.

Notice that in contrast to the subspecialties that use a Match, there is never a time at which more than 70% of GI programs are interviewing, and there are long periods when only between 10% and 30% are interviewing. This dispersion of interviews means that even when offers are not extremely short exploding offers, prospective fellows cannot simultaneously contemplate many different positions because by the time later-interviewing programs have entered the market, earlier ones already have finished. Indeed, although we do not show the ending dates of interviews in Figures 1 and 2, on the date by which more than 80% of programs had begun their interviews (which for positions starting in 2005 occurred by the first week of January 2004), more than 50% of programs had finished their interviews. Note that Figure 2 understates the difference between GI and subspecialties that continue to use the Match because when the Match is used, all offers are made simultaneously after all interviews are conducted.

Since the demise of the Match, potential fellows have faced both earlier and more dispersed offers than applicants in Match subspecialties. Next we consider how this difference in the interviewing and offering process affects the outcome of the Match, namely, which applicants end up in which programs.

Mobility

Figure 3¹⁸ shows that, during the years in which the Match operated, GI fellows were much more mobile (i.e., more likely to move to a different hospital, a different city, or a different state for their GI fellowship than where they had completed their residency) than before or since. We purchased from the American Medical Association (via Medical Marketing Service, Inc., Wood Dale, IL) a dataset of all living physicians who

have completed, or are currently completing, a GI fellowship, are board-certified gastroenterologists, or claim gastroenterology as a specialty. The data contain the years in which each physician graduated from medical school and finished each residency; the specialty of the residency; and the name, city, and state of the institutions where the medical studies and residencies were performed. A total of 9180 fellows of the 15,187 entries completed a residency in the United States and, subsequently, a GI fellowship in the United States after 1977, in 433 different hospital codes coming from 680 places.

Before the Match, and since the collapse of the Match, fellows are much more likely to perform their GI fellowship at the same hospital at which they performed their internal medicine residency. There is a statistically significant increase in mobility with the introduction of the Match, and for the hospital and the city level there is a significant decrease in mobility since the demise of the Match compared with the 6 years when the Match was well established (Mann–Whitney tests with the proportion of mobility in each year as data points¹⁸). In our previous study,²¹ we also controlled for various other possible impacts, such as the fact that because of the consolidation of hospitals, many hospitals may have changed their name, introducing a spurious mobility at the hospital level. To control for this source of bias we eliminated for each hospital the first 3 years of observation (and hence eliminated fellows who may have finished their internal medicine residency in the same hospital when it had a different name). The proportion of GI fellows who finished their GI fellowship 3 years after their previous residency was always at least 70%. The results do not change qualitatively.

Furthermore, we divided our sample into large and small GI fellowship programs. We found that larger programs hired a smaller proportion of local fellows than small hospitals (at the hospital, city, and state level). Furthermore, the effects of the Match are larger and more significant for large programs than for small ones. To determine the size, we considered for each program the average number of fellows for all the years in our data. The average number of positions per year was 1.79, the median was 1.53. We first divided our sample into programs of size smaller or larger than the median. The programs smaller than median size had less than 20% of the fellows. We also divided our sample into the 100 largest programs, which had about 50% of the fellows, and the remaining smaller programs.

Stipends

Table 3 shows the average wages of fellows for each internal medicine subspecialty. We used the data

Table 3. Average Wages of Fellows for Each Internal Medicine Subspecialty

Specialty	Match	Number of programs	Mean wage	SD	Minimum wage	Maximum wage
PUD	MSMP	26	45,418	5,859	37,185	58,536
CCM	No	31	43,460	3,376	36,966	50,422
IMG	No	90	43,266	4,989	28,200	58,536
HEM	No	17	42,952	4,739	36,000	51,853
ON	No	24	42,650	4,922	28,200	51,853
HO	No	110	42,526	4,415	32,000	58,328
NEP	No	118	42,426	4,357	30,733	58,328
ID	MSMP	124	42,352	4,863	30,000	58,328
CD	MSMP	153	42,288	4,246	26,749	54,450
PCC	MSMP	111	41,973	4,268	26,916	53,463
GE	No	142	41,800	4,638	26,000	58,328
END	No	103	41,656	4,000	33,700	53,463
ISM	No	2	41,390	1,259	40,500	42,280
RHU	No	97	41,182	4,743	28,824	58,328

PUD, pulmonary disease; CCM, critical care medicine; IMG, geriatric medicine; HEM, hematology; ON, oncology; HO, hematology and oncology; NEP, nephrology; ID, infectious disease; CD, cardiovascular disease; PCC, pulmonary disease and critical care medicine; GE, gastroenterology; END, endocrinology; ISM, internal sports medicine; RHU, rheumatology.

from the Graduate Medical Education Library 2003–2004.²² We used all internal medicine subspecialties that required 3 years of prior residency, and all nonmilitary programs that recorded a positive wage, excluding Puerto Rico.

The following simple regression using wage data from each hospital for each internal medicine specialty confirms that wages do not differ between specialties that use a Match and those that do not. By using all 1148 wage data for 2003, the regression $wage = constant + \beta_1\delta(MATCH) + \epsilon$ with $\delta(MATCH) = 1$ if the specialty used the MSMP Match and 0 otherwise, yielded a constant of \$42,210.76 (with a standard error of 168.04 and a *P* value of 0.00) and a Match effect of \$208.33 (standard error 279.82, *P* = 0.457) on wages. That is, in this test the effect of a Match on wages was not statistically significant. A similar result was obtained when we used the data from the Graduate Medical Education Library 2002–2003.^{23–25}

The wages for GI fellows, although somewhat on the low side, are not significantly different (at any conventional level of significance: lowest is 0.16) from either the specialties that participate in a Match, or the specialties that do not.

The failure to find a significant effect of the Match on wages might be driven by the fact that different specialties are distributed differently across hospitals. Specialties that use the Match have a larger average number of fellowship programs than those that do not, and hence are represented at more hospitals. Therefore, it is possible that a difference in wages owing to a Match might be masked by differences in wages across different hospitals. We therefore want to determine whether, within hospitals, wages for specialties that use the Match are different than wages for specialties that do not, and whether the

wages for GI fellows differ from those of specialties that use the Match and those that do not.

In the next regression, we include a dummy variable for each hospital (hence, we have a vector of dummies β_2), so that MATCH represents all the variations in wages within hospitals for specialties that use the MSMP and those that do not (i.e., $\delta [MATCH] = 1$ if the specialty uses the MSMP Match, and 0 otherwise).

There are 201 different hospitals, of which 165 have both Match specialties and specialties that do not use the Match. We used the following equation: $Wage = constant + \beta_1\delta(Match) + \beta_2\delta(hospital) + \epsilon$.

For the constant, the value was \$42,650 (with a standard error of 2372.30, and a *P* value of 0.00). The value of β_1 , was \$343.86 (with a standard error of 152.60 and *P* = 0.024). The adjusted *R*² of the regression was 0.73. We had 1148 observations overall. That is, within hospitals, the wages of fellows whose specialty used a Match were higher than those that did not use a Match, but the differences were not economically relevant. The differences were on the order of 1% of the salary.

Comparing the wage differences within hospitals of GI fellows (Table 4) with fellows who used a Match yielded: $Wage = constant + \beta_1\delta(GE) + \beta_2\delta(hospital) + \epsilon$.

Comparing the wage differences within hospitals of GI fellows (Table 5) to fellows who did not use a Match yielded: $Wage = constant + \beta_1\delta(GE) + \beta_2\delta(hospital) + \epsilon$.

Table 4. Comparing Wage Differences of GI Fellows to Fellows Who Used a Match

Coefficient	Value	Standard error	<i>P</i> value
2004 Constant	43386	2287.486	0.000
2004 β_1	-912.3139	235.2075	0.000

Table 5. Comparing Wage Difference Within Hospitals of GI Fellows to Fellows Without a Match

Coefficient	Value	Standard error	P value
2004 Constant	42.650	2484.47	0.000
2004 β_1	-620.36	248.39	0.013

That is, within hospitals, GI fellows earn somewhat less than both the average fellow who is in a specialty that has a Match, and the average fellow who is in a specialty without a Match. By using Graduate Medical Education Library 2002–2003 data, the wage difference for GI fellows (the β_1 coefficient) is \$268.64, and the difference is not significant. In any case the economic differences are, however, very small, no more than 2% of the wage.

To summarize, the demise of the Match has had substantial effects on the timing of the market for GI fellows and on their mobility. However, wages of GI fellows have not diverged substantially from those of fellows in other internal medicine subspecialties, including those that continue to use the Match.

Reinstating the Match

All the evidence suggests that the GI Match collapsed because of a rare event, starting from the large unexpected shock the market experienced in 1996. Matches in other markets and subspecialties readily survived the ordinary shifts in supply and demand that occurred from year to year, and there is every reason to expect that the GI Match, if restarted, could succeed in organizing the market once again, as it did for a decade starting in 1986.

Two questions that gastroenterologists must address are as follows: (1) is it desirable to restart the Match? and, if so, (2) what needs to be done for the Match to be restarted successfully?

We have attempted to answer the first question by considering how the absence of the Match has changed the market for GI fellows. During the years the Match was in place there was a national market in which fellowship programs and potential fellows participated. Since the demise of the Match, that market has broken down into a series of more-localized, less-coordinated markets, dispersed in time and space.

There are other costs associated with unraveling, apart from mismatching and reduced mobility. In markets in which contracts are made far in advance of employment, some applicants typically fail to fulfill their obligation when the time comes to begin employment. Early contracts also affect who is willing to enter the market. Internal medicine residents who are unwilling to commit to a subspecialty so early may decline to consider gastroenterology. Indeed, a survey of internal medicine residents indicated that two thirds of residents felt that they were not ready to make a decision to commit to a subspecialty fellowship in their second year and would prefer to delay that decision until their third year (AGA 2001). Gorelick²⁶ discussed some of these issues as they apply to gastroenterology.

To answer the second question, we already have noted that the prospects for a GI Match to be successful, once successfully restarted, appear to be excellent. But how to make the transition from the present unraveled, dispersed, localized market to a Match is a different question. To address this, it is helpful to consider the early history of the GI Match, and also the experience of the other internal medicine subspecialties, at the time that the MSMP Match first was instituted. Some of the subspecialties that tried to use the Match succeeded, and some did not. Infectious disease failed to coordinate a Match in 1986, however, they tried again in 1994 and succeeded. We can use the initial history of participation in these Matches to get an idea of what makes for a successful transition.

Although there are many factors that must go into a successful transition to a Match, one that stands out is the degree of participation of the fellowship programs. A full investigation of which factors contribute to a Match's initial success also would include many more indicators, such as participation rates of potential fellows, fill rates, and so forth, not to mention a fuller analysis of what was going on in each market before the Match. Table 6 shows the early history of the MSMP Matches. It appears that 1987 and 1988 were the first years for which participation data are available, although some initial Matches apparently were conducted in 1986. Table 6 lists the specialties in decreasing order of their participation rates. The 3 specialties that continued to use the Match were

Table 6. Early Match Data: Percentage of Nonmilitary Programs Participating in the NRMP

Year	GI	CD	PUD	RHU	NEP	ID	END	HEM
1987	94.7	92.7	92.6	82.8	77.1	75	74.3	51
1988	90.4	85.4	88.2	5.3	10.9	5.5	7.4	5

NOTE. Bold indicates continued use of Match. GI, gastroenterology; CD, cardiovascular disease; PUD, pulmonary disease; RHU, rheumatology; NEP, nephrology; ID, infectious disease; END, endocrinology; HEM, hematology.

the 3 with the highest participation rates. The other 5 subspecialties that attempted to use a Match had lower initial participation rates, and failed virtually immediately, as shown by their sharply decreased participation rates in 1988. Effective July 1, 2001, the NRMP required the sponsoring organization to sign an "NRMP Program Directors Annual Participation Agreement" annually, committing active participation of at least 75% of the eligible programs and a minimum of 75% of all available positions in the specialty for a given year. Subsequent failure to register 75% of programs and/or positions in a given year jeopardizes the management of future matches by the NRMP.

Because high initial participation rates are important if the Match is to be restarted successfully, some consideration about whether all fellowships should be treated in the same way may be worthwhile. There are indications that, even when the Match was running successfully, a minority of applicants primarily interested in research careers forged ties directly with leading researchers and made less use of the Match than those looking forward to more standard clinical careers. If these or other career paths in gastroenterology are sufficiently distinct, it might make sense to formally designate multiple types of fellowship positions, and consider how best to organize 2 related but perhaps largely separate markets. But it appears that a successful restart of a Match, whether for 1 market or 2, will need substantial buy-in from the relevant program directors, and therefore prior discussion of who will participate, and what kind of positions will be included, is important.

The Antitrust Suit Against the NRMP

In May of 2002, over a dozen law firms joined together to file a class action lawsuit against the resident Match on behalf of 3 former residents.²⁷ The suit seeks to represent the class of all former residents against several medical organizations, including the NRMP, and against the class of all hospitals that employ residents. The legal theory of the complaint is discussed by Miller and Greaney²⁸ and Chae.²⁹ The underlying economic claim is that the NRMP restrains competition for residents, and suppresses their wages.

The experience of GI fellows and fellowship programs since the demise of the gastroenterology Match thus has the potential to shed light on the economic hypothesis underlying the lawsuit. The claim being put forward in the lawsuit is that the abolition of the Match should have increased competition for fellows, increased fellowship wages, and improved the prospects of potential fellows.

Instead, since the demise of the gastroenterology Match, something close to the opposite has happened. Hiring for GI fellowships has grown more fragmented, GI wages have not become higher than those in subspecialties that continue to use the Match, and there is every indication that prospective fellows were better served by the Match than by the present unraveled market.

Although the court case has been making slow progress (pretrial conferences were not scheduled to begin until March of 2006), there has been recent action in Congress, and on April 10, 2004, President Bush signed into law, as an addendum to the Pension Funding Equity Act of 2004, a section that states in part (<http://edworkforce.house.gov/issues/108th/workforce/pension/pensionconfrpt.pdf> p45-46):

It is the purpose of this section to:

(A) confirm that the antitrust laws do not prohibit sponsoring, conducting, or participating in a graduate medical education residency matching program, or agreeing to do so; and

(B) ensure that those who sponsor, conduct, or participate in such matching programs are not subjected to the burden and expense of defending against litigation that challenges such matching programs under the antitrust laws.

However, the AGA Policy Update of April 21, 2004, noted that the legislative activity may not be finished (<http://www.gastro.org/pubPolicy/policyUpdate04/April-21-04.html>):

Opponents of the legislation are attempting to counter the new statute. Sen. Jeff Bingaman, D-NM, has reserved the opportunity to introduce an amendment to foreign tax legislation that the Senate is scheduled to consider this week. While the precise content of the Bingaman amendment is not yet known, it will likely attempt to eliminate or weaken the protection achieved last week for the Match program.

Thus, it appears as of this writing, that the legal status of the Match has been clarified substantially, although the legal challenge may not yet be ended. It does appear, however, that consideration of whether to restart a gastroenterology Match can once again begin to focus on the underlying economic issues, namely, how well are fellows and fellowship programs served by the current organization of the market, as compared with when the Match was in operation.

Concluding Remarks

Since the demise of the GI fellowship Match the market has operated earlier, become more dispersed in time, and is more localized. Although this obviously

works to the disadvantage of many fellows and programs, the question of whether to reinstate the Match would not be contentious if it were not for the fact that at least some programs and fellows may feel that they profit from the current situation. GI fellows Bauer, Fackler, Kongara, Matteoni, Shen, and Vaezi²⁰ commented in 1999 on the effects of the loss of the Match. "Of recent concern is the deterioration of the Match process for candidates applying for fellowship positions over the past 2 years. Our junior colleagues are concerned that they may not be able to wait safely to interview with the institution of their choice while a position is offered elsewhere early in the decision process. The absence of the Match benefits the programs a great deal more than their applicants."

For example, programs that had difficulty attracting fellows from other hospitals even when the Match was in place may benefit from the fact that their best local residents now find it more difficult to move elsewhere.²

But the profession of gastroenterology is, in the long term, populated by those who begin their careers as fellows. The institutions by which the profession chooses to organize itself and its markets will have to weather the fluctuations of supply and demand, and compete with other subspecialties for the best and the brightest,^{30,31} over the long term. To an outside observer, it therefore appears likely that the profession of gastroenterology will thrive best in the long term with a Match in place, which would allow potential fellows to compete for the widest range of programs, and the programs to compete for the widest range of fellows, including those potential fellows who might otherwise be tempted to choose alternative careers.

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