

What Influences Medical Student & Resident Choices?

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Shortage of Doctors an Obstacle to Obama Goals

“We don’t have enough doctors in primary care or in any specialty.” Representative Shelley Berkley (D-NV)

“The work force shortage is reaching crisis proportions.” Orrin Hatch (R-UT)

“We’re not producing enough primary care physicians. The costs of medical education are so high that people feel that they’ve got to specialize.” Barack Obama

Pear, Robert. “Shortage of Doctors an Obstacle to Obama Goals” *New York Times*, 26 Apr. 2009: A1



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Primary Care Workforce - 2008

- 98,328 FPs/GPs (1 for every 3,132 persons)
- 92,917 Internists (1 per 2,508 adults)
- 49,171 General Peds (1 for 1,523 children and adolescents)
- 240,416 PCPs (1 for every 1,281 persons)

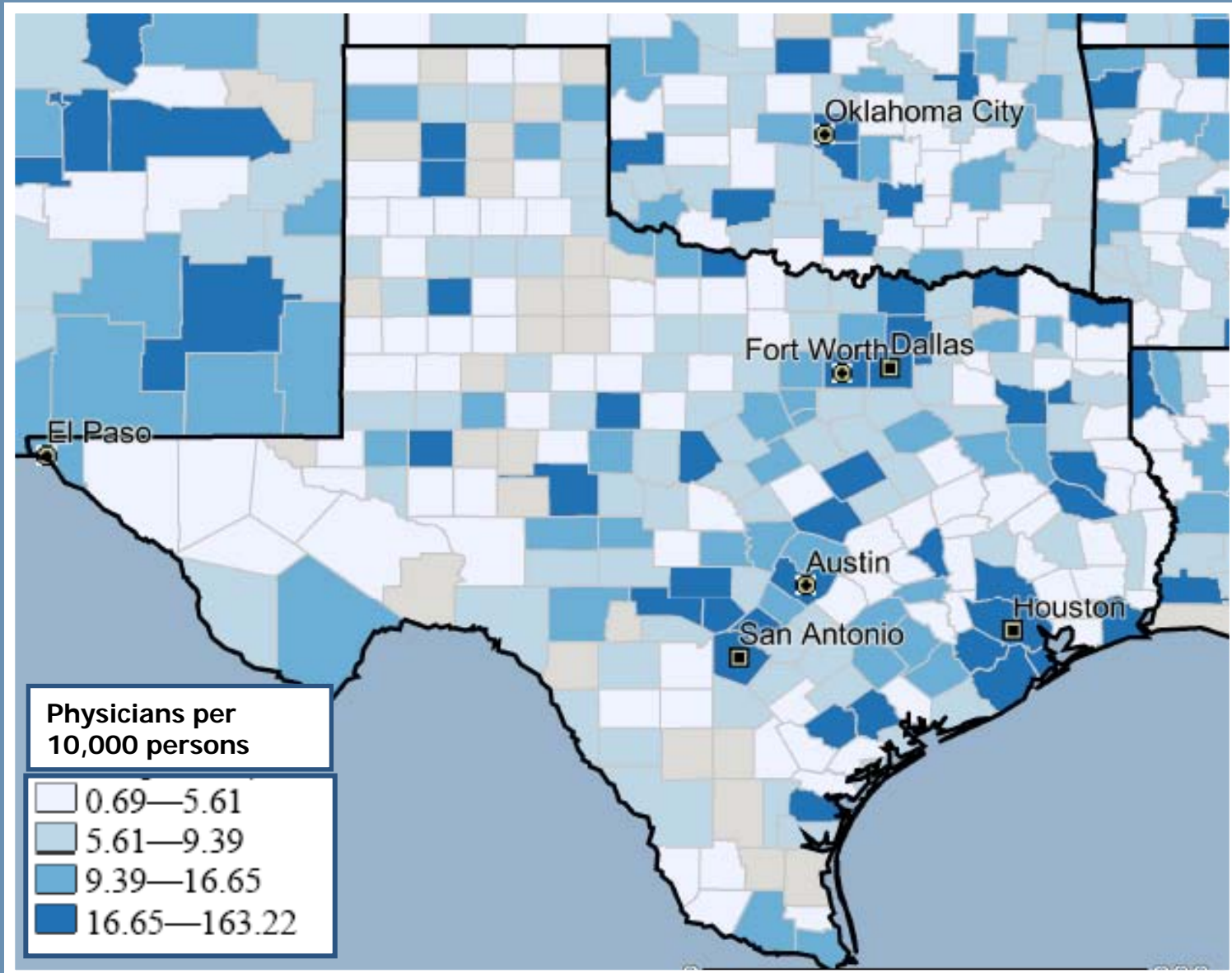


Is there a Primary Care Shortage?

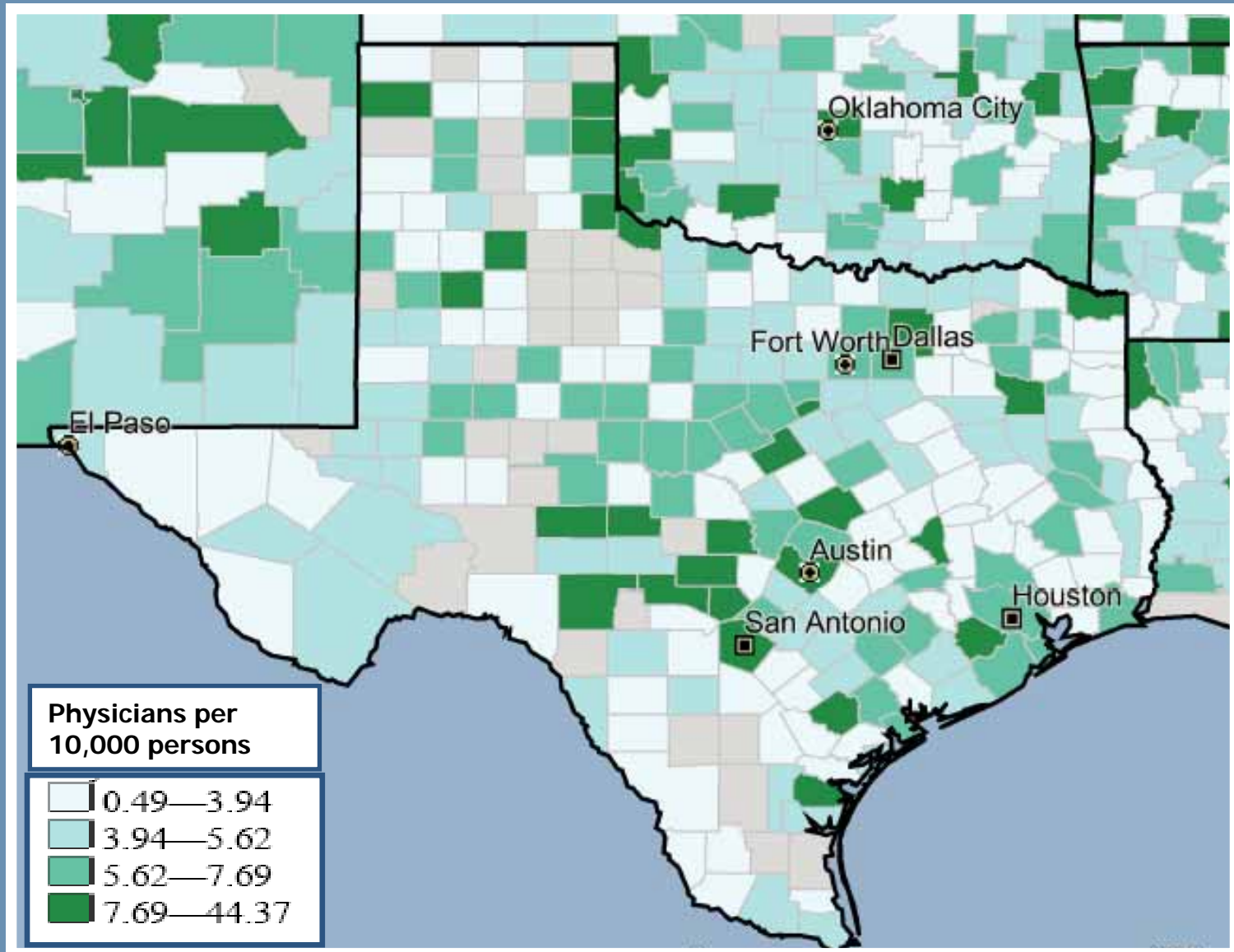
- Currently a problem of distribution
 - Still concentrated in desirable areas
 - Relative shortage in underserved and rural areas
 - True for physicians, NPs and PAs



All Specialties - 2007



Primary Care Physicians - 2007



Horizon Problem

- Decline in US student interest
- Increased interest in specialization
- Increased reliance on IMGs
- Contraction of training programs



Student Interest

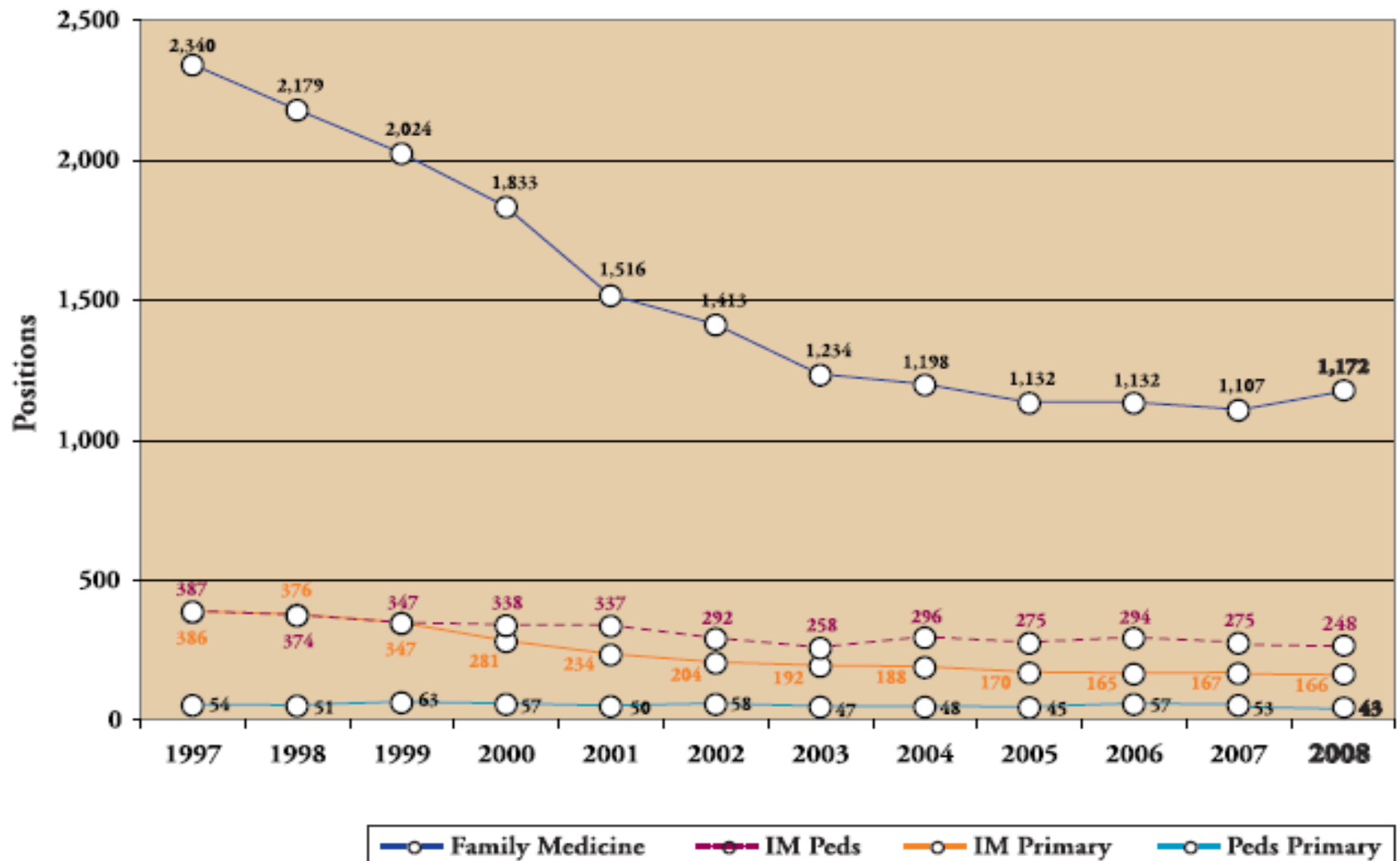
■ General Internal Medicine	2.0%
■ Med/Peds	2.7%
■ Family Medicine	4.9%
■ General Pediatrics	11.7%
■ Total:	21.3%

K. E. Hauer et al. Choices Regarding Internal Medicine Factors Associated With Medical Students' Career *JAMA*. 2008;300(10):1154-1164



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Comparison of Primary Care Positions Filled with U.S. Seniors in **March** 1997 – 2008





Specialty and Geographic Distribution of the Physician Workforce:

What Influences Medical Student & Resident Choices?

Funded by the Josiah Macy, Jr. Foundation



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What we know about Medical Student and Resident Choices



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Past research

- Student-related factors
- Curriculum factors
- Institutional factors
- Debt
- Market factors



Student Factors

- Rural born -- Primary care, rural
- Urban underserved -- Inner city
- Minority -- Minority pop.
- Service values -- Service careers



Curriculum

- Exposure to, preparation for underserved practice
 - Underserved practice
- Relevant Mentoring
 - Primary care, rural, underserved



Effects of Debt

- Research shows mixed results
 - Fear of high debt keeps some lower socioeconomic and minority students from applying to medical school
 - *More* debt increased students intentions to serve underserved
 - *More* debt associated with FM and Peds taking Medicaid/uninsured



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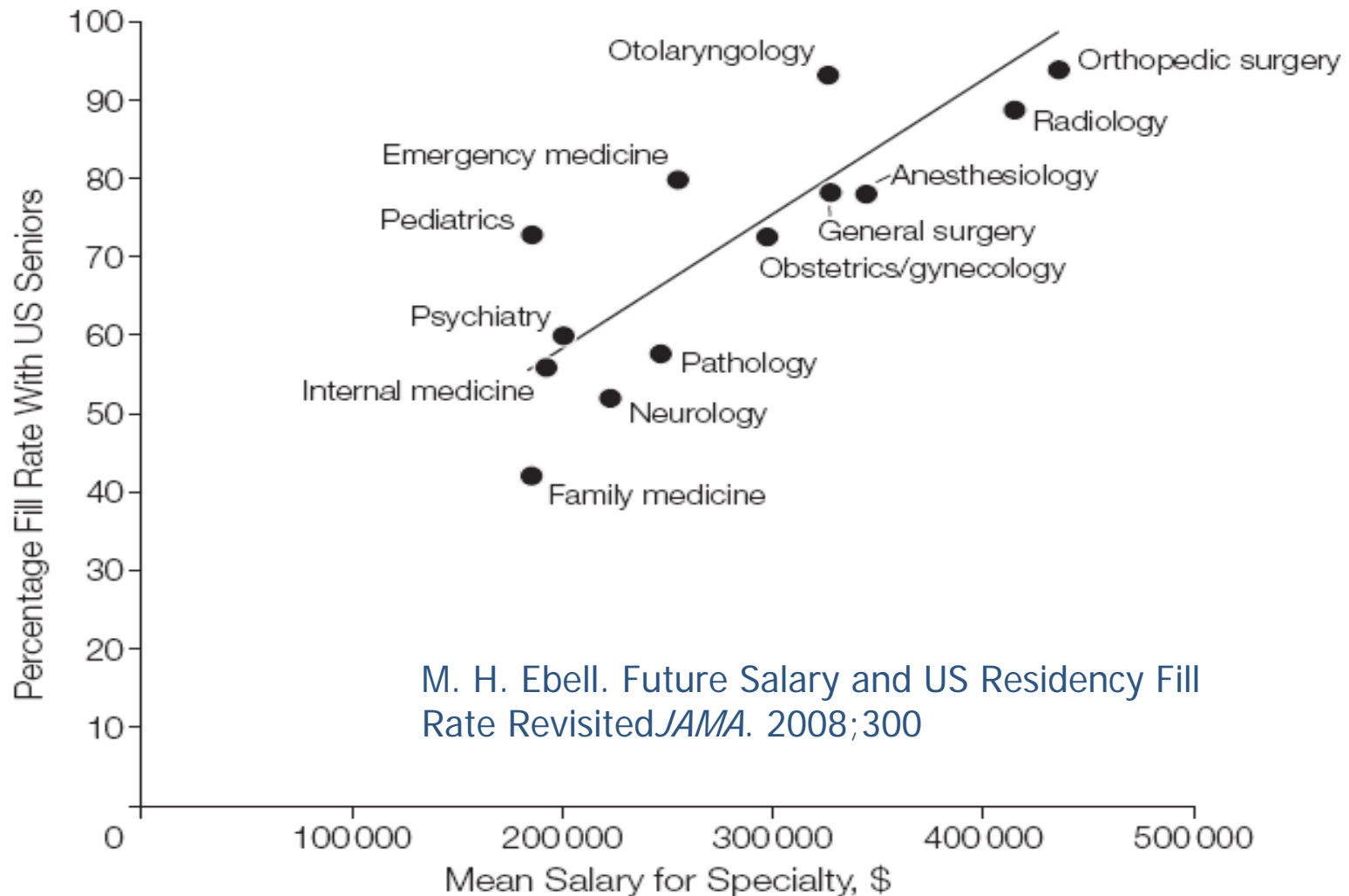
Loan Repayment

- National Health Service Corps and State Loan repayment
 - more likely underserved
- But NHS Corps docs less likely to stay



Income Gap

Figure. Percentage of Positions Filled With US Seniors vs Mean Overall Income By Specialty



Institutional factors

- Public > Private for primary care
- Title VII funding associated with more primary care, rural, underserved careers
- Rural school = rural doctors
- Presence of a Family Medicine Dept +
- Rural rotation +/-, but longitudinal experience +



What we wanted to know

- Was level of debt predictive of:
 - Specialty choice
 - Practice location
- What were effects of Title VII?
 - How—difference in quality or presence of curriculum?
- How do income and ROI affect choice?



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What we wanted to know

- How do the following affect choice?
 - Type or location of medical school
 - Quality or presence of primary care, underserved experiences
 - Student interest at graduation in service career
 - Other factors



Outcomes

- Primary Care
- Family Medicine
- Rural
- National Health Service Corps
- FQHC, RHC
- Shortage/Underserved Area



How we did it

- Medical student Graduate Questionnaires
 - 1978 – 2004 (AAMC)
- AMA Masterfile (specialty, where practicing)
- Medicare claims for community health centers (FQHC, RHC; 2001-2005)
- NHSC and Title VII data 1978 - 2004



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Limitations

- Wanted student characteristics at entry
 - Family income, parent professional status, career interests
- Did not have Osteopathic data
- Did not get a good match on residency type
- Pediatricians bill Medicare infrequently

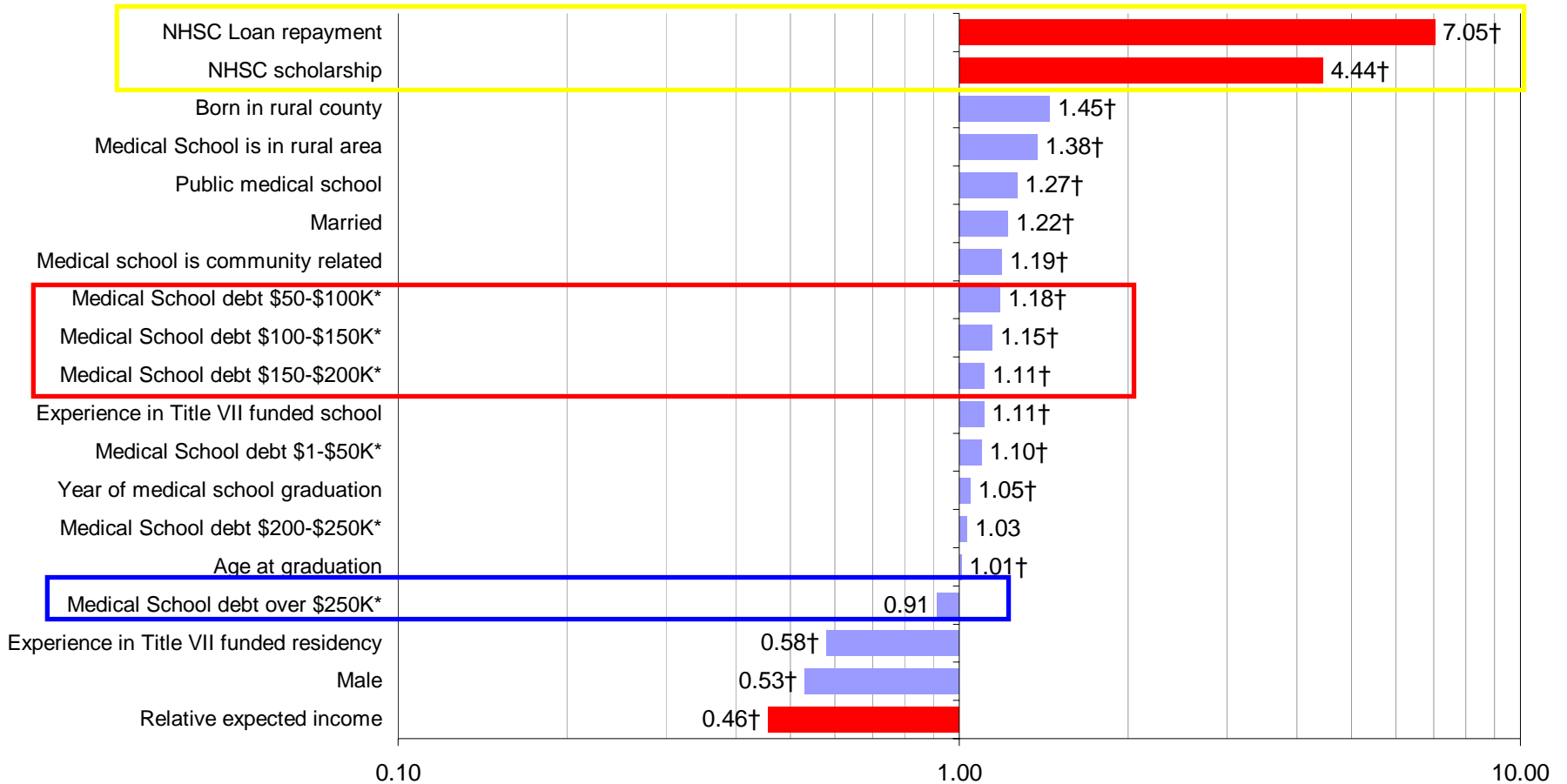


What we found

- Debt had a curious effect
 - No debt -- less likely PC, rural, underserved
 - Middle debt (up to \$150k) – more likely
 - High debt -- likelihood declines
- Students who trade debt for service (NHSC) are 2-7 x more likely to choose study outcomes



Figure 2. Relative Likelihood of Choosing a Primary Care Career (Odds Ratios)



Interpreting the display: The odds that someone in the NHSC Loan Repayment program (top bar) will make a career of primary care medicine are 7.05 times as great as the odds of someone not in the program.

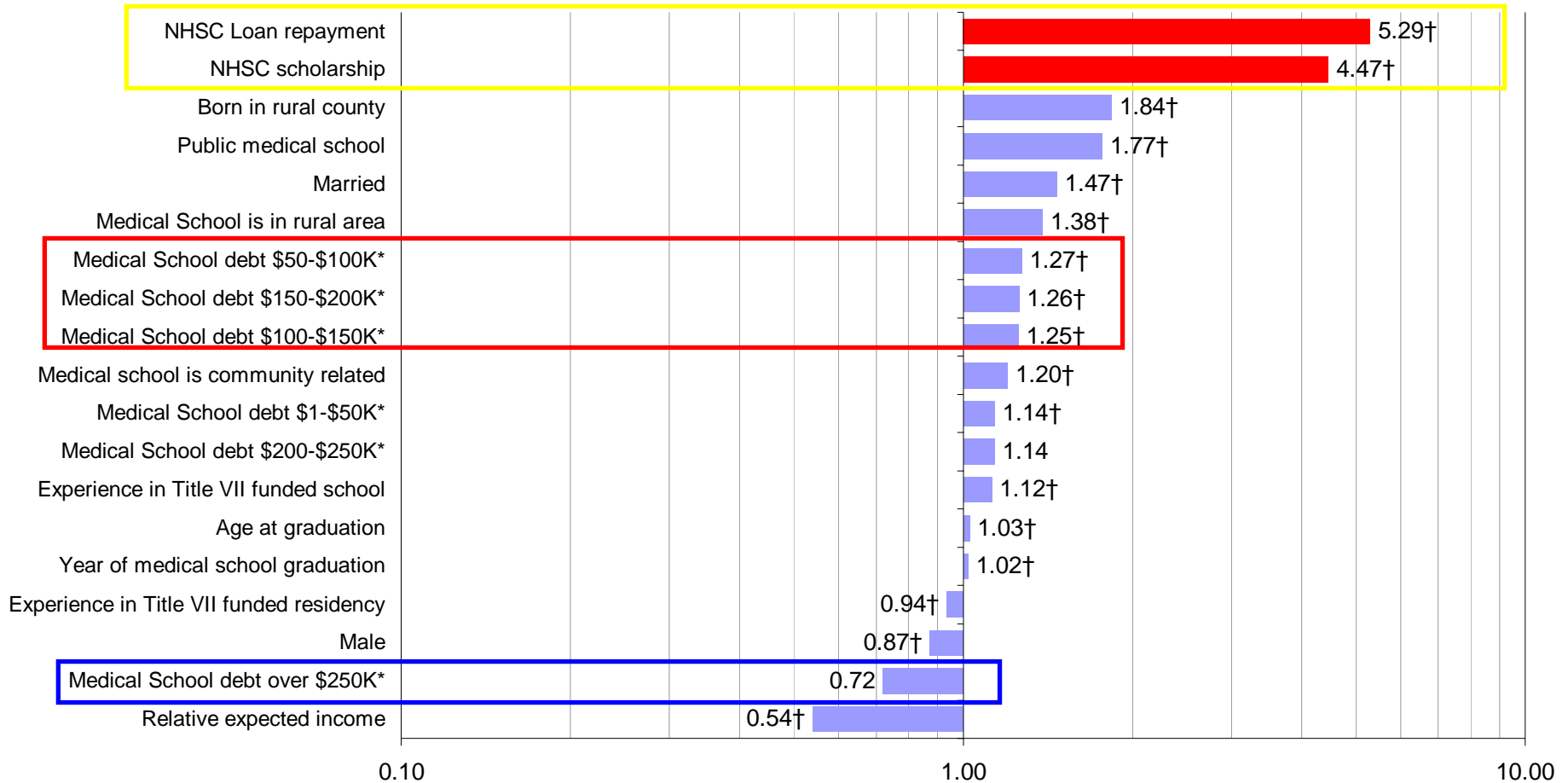
† Statistically Significant (Confidence interval do not cross 1.0)

Red bars identify odds ratios > 2.0 or < 0.5, indicating particularly strong positive or negative associations.

* Reference variable: no debt

See Appendix B, Table B1 for full logistic regression outputs and goodness-of-fit statistics.

Figure 3. Relative Likelihood of Choosing a Family Medicine Career (Odds Ratios)



Interpreting the display: The odds that someone in the NHSC Loan Repayment program (top bar) will make a career of family medicine are 5.29 times as great as the odds of someone not in the program.

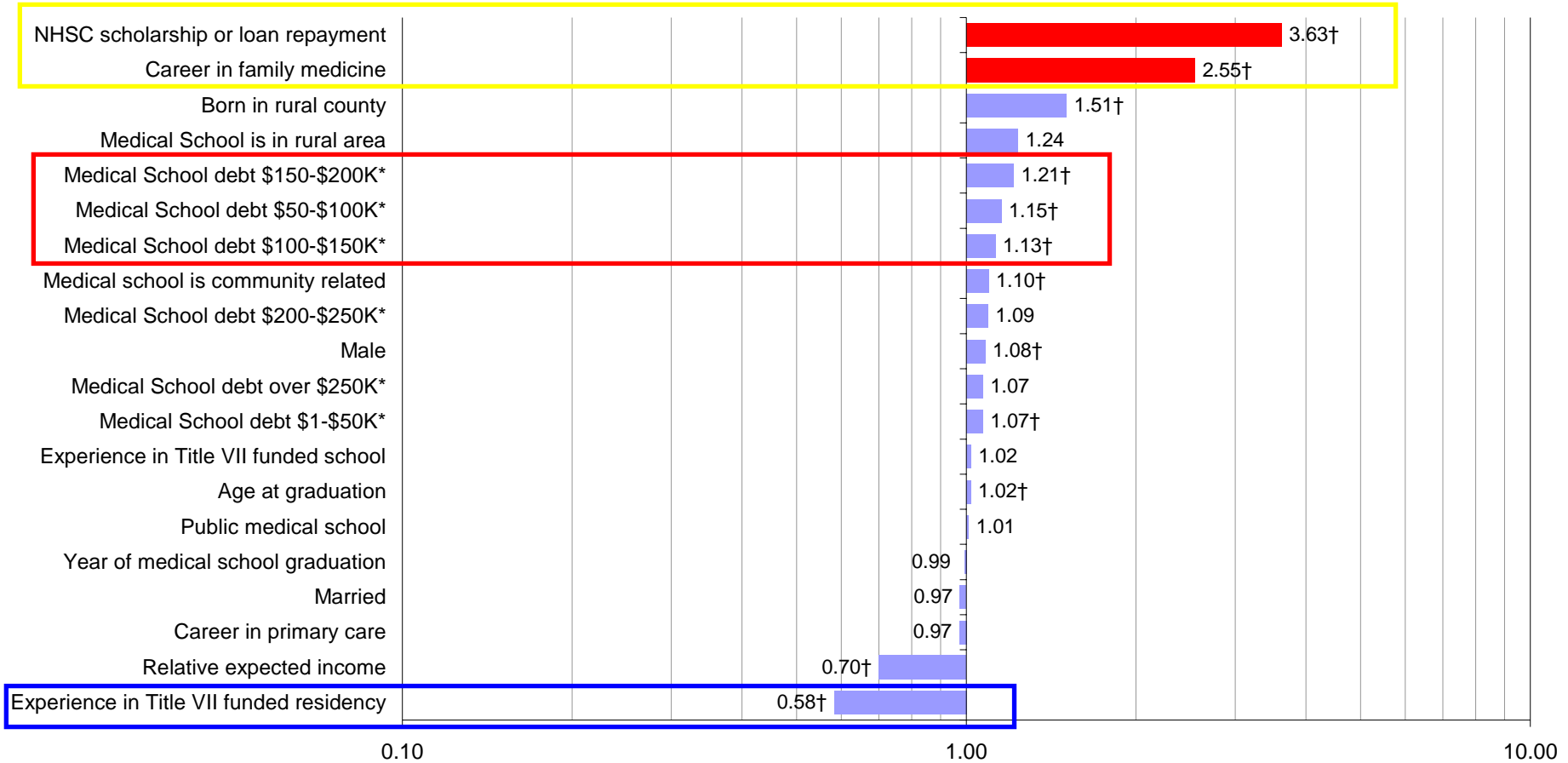
† Statistically Significant (Confidence interval did not cross 1.0)

Red bars identify odds ratios > 2.0 or < 0.5, indicating particularly strong positive or negative associations.

* Reference variable: no debt

See Appendix B, Table B2 for full logistic regression outputs and goodness-of-fit statistics.

Figure 5. Relative Likelihood of Practice in a Federally Qualified or Rural Health Center (Odds Ratios)



Interpreting the display: The odds that someone participating in the NHSC scholarship or loan repayment program (top bar) will practice in a federally qualified rural health center are 3.63 times as great as the odds of someone not participating in the program.

† Statistically Significant (Confidence interval do not cross 1.0)

Red bars identify odds ratios > 2.0 or < 0.5, indicating particularly strong positive or negative associations.

* Reference variable: no debt

See Appendix B, Table B4 for full logistic regression outputs and goodness-of-fit statistics.

Income Gap

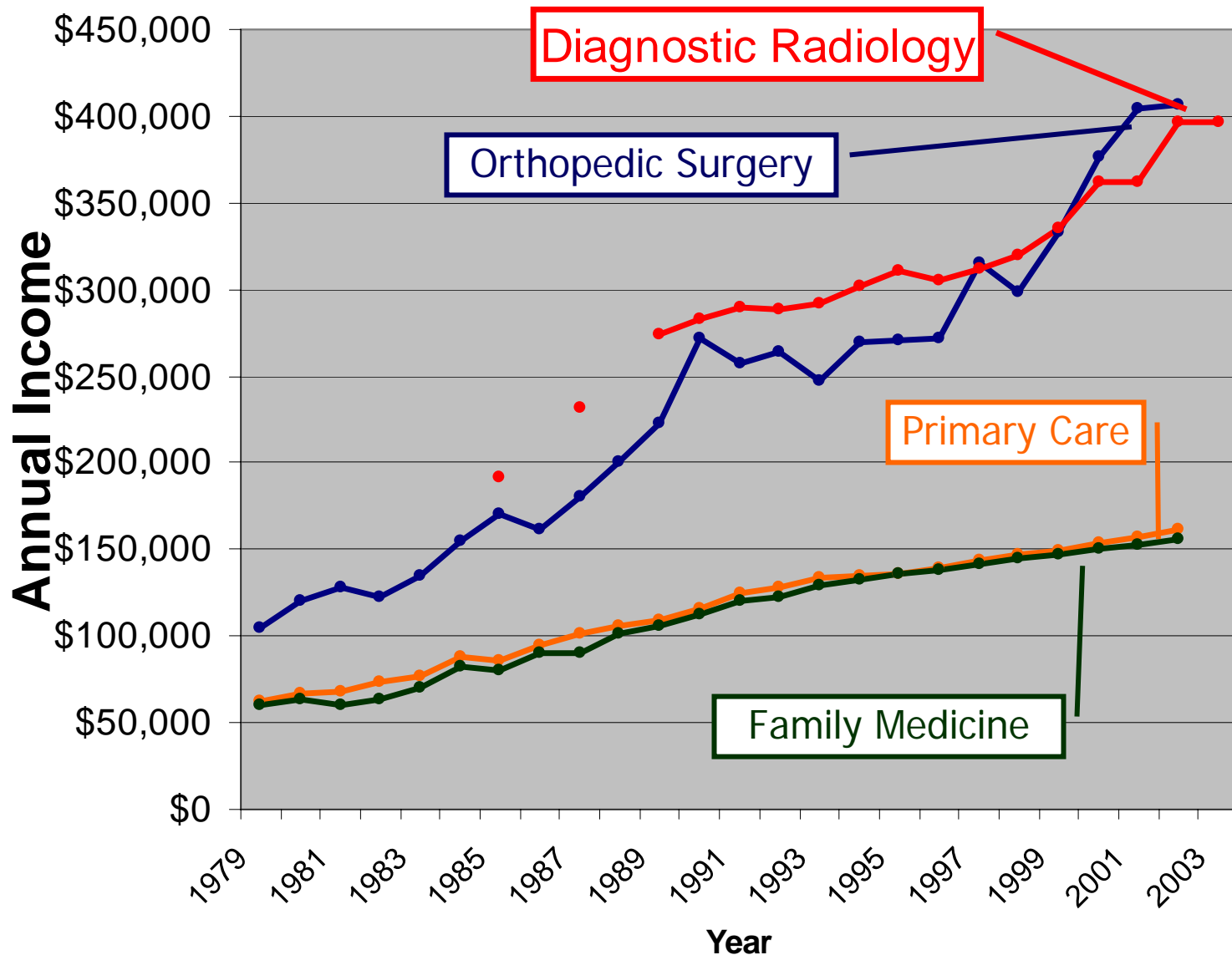
- 167% Income gap -- \$150k vs. \$400k
 - Primary care vs. Radiology (high end)
- ROI Gap :
 - Net Present Value - \$29.58/hr vs. \$78.45/hr
 - Primary Care vs. median income of subspecialists
 - >\$3.5 million difference over career



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Progress of the Physician Payment Gap



Income Gap

- Income gap – cuts likelihood of choosing Primary Care **in half**



Other Factors

- Rural birth – 2.4 x rural practice
1.8 x Family medicine
- Public Medical School
1.8 x FM and Rural
- Interest in Serving Underserved
3 x an FQHC
4 x Rural Health Center
- Inner City, Rural and Primary Care
Clerkships and Electives Matter



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Other student characteristics

- Men half as likely to choose primary care (only 13% less likely FM)
- Women half as likely to go rural
- Married people 50% more likely FM



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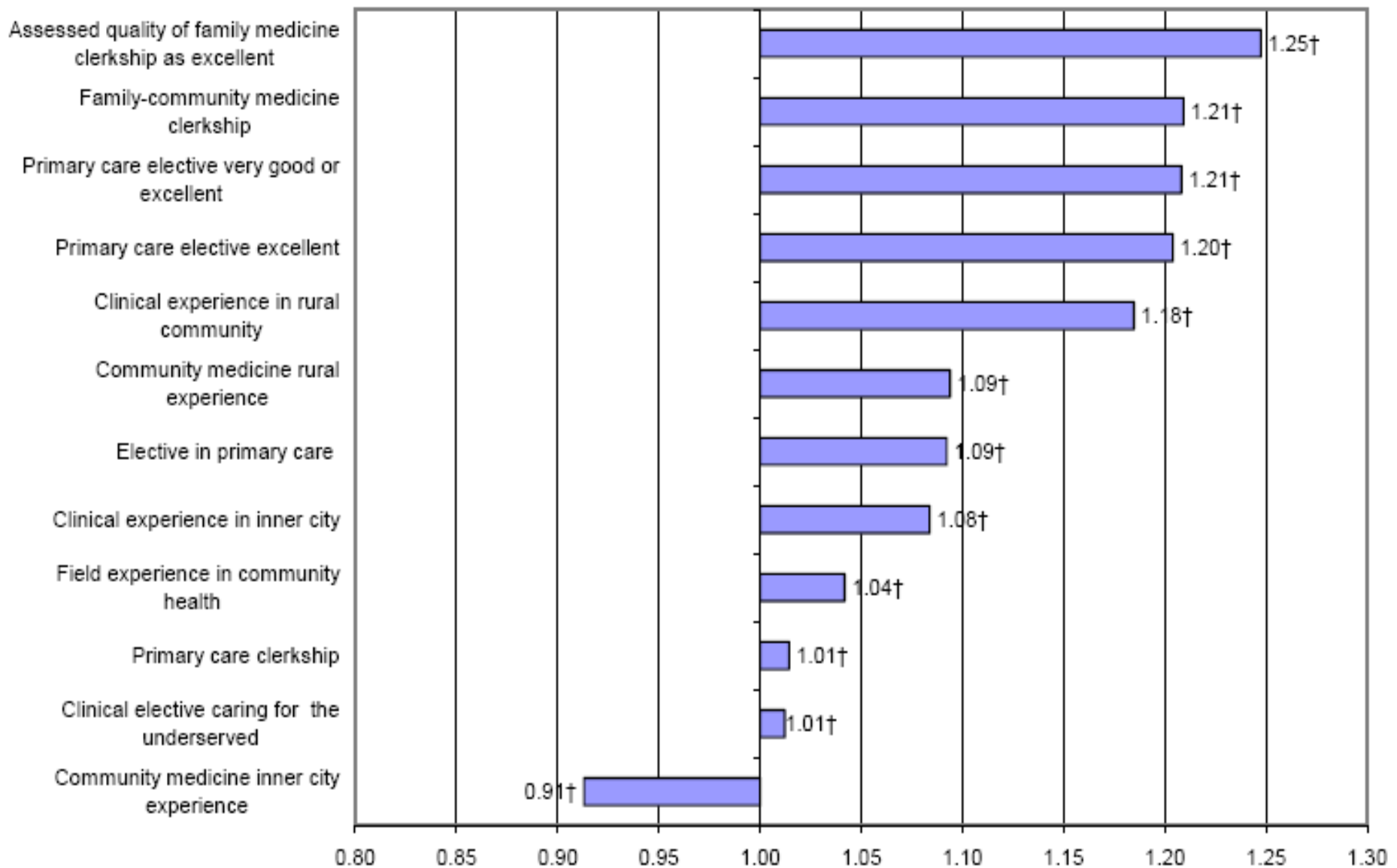
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Title VII

- Significantly increased perceived quality of primary care clerkships, electives
- Increased likelihood of FM and rural electives
- Title VII interacted/enhanced effects of debt and scholarships
- School exposure increased specialty choice, residency exposure increased NHSC



Figure 11. Relative Likelihood of Association Between Various Medical School Experiences and Exposure to Programs Funded by Title VII (Relative Risk Estimates)



Medical Schools can choose and train
students to produce

- More Primary Care
- More Rural Access
- More Access for Underserved

Despite the Market



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Recommendations

- More debt for service
- Decrease disparities in physician income
- Change admissions: students more likely to choose primary care, rural practice, and care of the underserved
- Shift training: community, rural and underserved settings



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Recommendations

- Support primary care Departments & Residencies--teaching, mentoring
- Reauthorize and revitalize Title VII
- Study how to make rural areas more likely practice options, especially for women
- New Medical schools: public and rural



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