

## Appendix

### Supplemental Exhibits:

#### EXHIBIT A1 (table)

Caption: [Changes to yes/no questions about debt from 2010-2018]

Source/Notes: SOURCE [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) from the Association of American Medical Colleges]

#### EXHIBIT A2 (table)

Caption: [Changes to fill-in-the-blank questions about debt from 2010-2018]

Source/Notes: SOURCE [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) from the Association of American Medical Colleges]

#### EXHIBIT A3 (table)

Caption: [Overall Survey Non-Response Rates by Race/Ethnicity]

Source/Notes: SOURCE [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) from the Association of American Medical Colleges]

#### EXHIBIT A4 (table)

Caption: [Debt Question Non-Response Rates by race/ethnicity]

Source/Notes: SOURCE [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) from the Association of American Medical Colleges]

#### EXHIBIT A5 (figure)

Caption: [Percent of Postgraduate Residents with Debt by Type of Debt and Race/Ethnicity, including consumer debt with mortgages included]

Source/Notes: SOURCE [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) from the Association of American Medical Colleges] NOTES [aQuestion not including mortgage was asked of 42% of the sample, those who completed GQ prior to 2015; bQuestion including mortgage was asked of 58% of the sample, those who completed GQ in 2015 or later; c \*\*\* indicates *P* value of <0.001 for overall Chi-Square test of difference across groups]

#### EXHIBIT A6 (table)

Caption: [Association of Race/Ethnicity and All Types of Debt Adjusted for Demographics and Residency Program Characteristics]

Source/Notes: [Authors' Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ) and the Graduate Medical Education (GME) Track from the Association of American Medical Colleges] NOTES [aQuestion not including mortgage was asked of 42% of the sample, those who completed GQ prior to 2015; bQuestion including mortgage was asked of 58% of the sample, those who completed GQ in 2015 or later; cIncludes residents active in all surgical specialties including General Surgery, Colon and Rectal Surgery, Neurological Surgery, Orthopaedic Surgery, Otolaryngology, Ophthalmology, Plastic Surgery, Thoracic Surgery, Urology, and Vascular Surgery]

EXHIBIT A7 (figure)

Caption: [Percent of Postgraduate Residents without Debt by Specialty, stratified by race/ethnicity]

Source/Notes: [Authors’ analysis of trainee data from the Medical School Graduation Questionnaire and the Graduate Medical Education Track Resident Survey, both administered by the Association of American Medical Colleges.] NOTE [Differences in debt prevalence by specialty differed by race and ethnicity ( $p < 0.001$ ).]

EXHIBIT A8 (table)

Caption: [Median amount of Debt, principal only, by Type of Debt and Race in U.S. Dollars]

Source/Notes: [Authors’ Analysis of Trainee Data from the Medical Student Graduation Questionnaire (GQ)] NOTES [<sup>a</sup>Only includes those who responded that they had debt of that type; <sup>b</sup>Question not including mortgage was asked of 42% of the sample: those who completed GQ prior to 2015; <sup>c</sup>Question including mortgage was asked of 58% of the sample: those who completed GQ in 2015 or later; <sup>d\*\*\*</sup>indicates P-value  $< 0.001$  for Kruskal-Wallis test of difference in median across group]

**Exhibit A1: Changes to yes/no questions about debt from 2010-2018**

	Pre-medical education loans	Medical education loans	Non-educational consumer debt
2010 and earlier	“Do you still owe \$1000 or more on your premedical/college educational loans?”	“Do you have medical school educational loans? (including loan service commitments)”	“Do you have any non-educational, consumer debt worth \$500 or more? (This includes car loans, residency search loans, or other consumer debt.) Please note: this does not include home mortgages.”
2011-2014	No change.	“Do you still owe \$1000 or more on your medical school educational loans? (including loan service commitments)”	No change.
2015-2017	“Do you have any outstanding educational loans for your college/pre-medical education?”	“Do you have any outstanding educational loans (including loan service	“Do you have any non-educational, consumer debt that you are legally required to repay?”

		commitments) for your medical school education?"	(This includes credit card debt, car loans, home mortgages, residency and relocation loans, or other consumer debt.)"
2018 and later	"Do you have any outstanding education loans for your college/premedical education?"	"Do you have any outstanding education loans (including loan service commitments) for your medical school education?"	No change.

**Exhibit A2: Changes to fill-in-the-blank questions about debt from 2010-2018**

	Pre-medical education loans	Medical education loans	Non-educational consumer debt
2010 and earlier	"Enter the amount you owe on your premedical/college educational loans. Principal amount borrowed (do not include interest)."	"Enter the amount you owe on your medical educational loans. Principal amount borrowed (do not include interest)."	"Please enter in the total amount of non-educational, consumer debt that you are legally required to repay. Note: do not include home mortgage debt."
2011-2014	<b>no change</b>	<b>no change</b>	<b>no change</b>
2015-2017	<b>no change</b>	<b>no change</b>	"Please list the amount of your non-educational, consumer debt for each category listed below. Total amount."
2018 and later	"Enter the amount you owe on your premedical/college education loans. Principal amount borrowed (do not include interest)."	"Enter the amount you owe on your medical education loans. Principal amount borrowed (do not include interest)."	<b>no change</b>

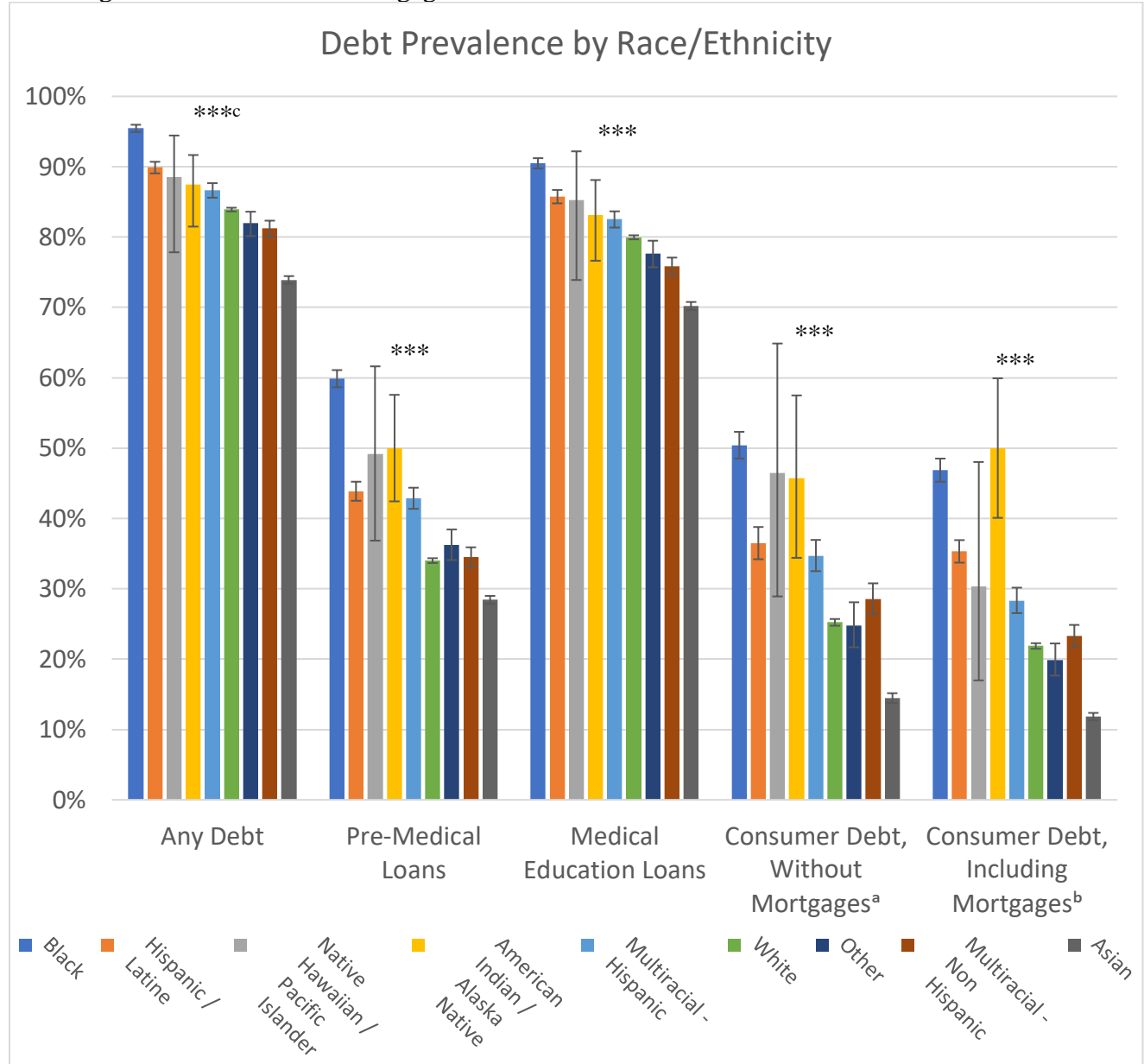
Exhibit A3: Overall Survey Non-Response Rates by Race/Ethnicity

<b>Race/Ethnicity</b>	<b>Non-Response Rate</b>
American Indian/Alaska Native	25.8%
Asian	22.4%
Black	26.6%
Hispanic	22.5%
Multiracial (Hispanic)	20.8%
Multiracial (non-Hispanic)	19.0%
Native Hawaiian/Pacific Islander	16.9%
White	16.1%
Other	25.6%

Exhibit A4: Debt Question Non-Response Rates by Race/Ethnicity

<b>Race/Ethnicity</b>	<b>Non-Response Rate</b>
American Indian/Alaska Native	9.2%
Asian	9.7%
Black	13.2%
Hispanic	8.9%
Multiracial (Hispanic)	8.4%
Multiracial (non-Hispanic)	8.2%
Native Hawaiian/Pacific Islander	11.6%
White	6.8%
Other	10.2%

Exhibit A5: Percent of Postgraduate Residents with Debt by Type of Debt and Race/Ethnicity, including consumer debt with mortgages included



<sup>a</sup>Question not including mortgage was asked of 42% of the sample, those who completed GQ prior to 2015

<sup>b</sup>Question including mortgage was asked of 58% of the sample, those who completed GQ in 2015 or later

<sup>c</sup> \*\*\* indicates *P* value of <0.001 for overall Chi-Square test of difference across groups

Exhibit A6: Association of Race/Ethnicity and All Types of Debt Adjusted for Demographics and Residency Program Characteristics

Characteristic	Any Debt N=120,573	Confidence Interval	Premedical Education Loans N=120,423	Confidence Interval	Medical Education Loans N=120,207	Confidence Interval	Noneducational Consumer Debt (without mortgages) <sup>a</sup> N=49,967	Confidence Interval	Noneducational Consumer Debt (with mortgages) <sup>b</sup> N=69,977	Confidence Interval
<b>Race/Ethnicity</b>										
American Indian/Alaska Native	1.17	0.73-1.85	1.73	1.27-2.36	1.19	0.79-1.79	1.83	1.13-2.97	3.06	2.01-4.67
Asian	0.62	0.60-0.64	0.85	0.82-0.88	0.64	0.62-0.66	0.58	0.54-0.62	0.57	0.54-0.61
Black	4.27	3.77-4.83	2.91	2.76-3.07	2.46	2.26-2.69	3.09	2.85-3.36	3.20	2.97-3.44
Hispanic	1.87	1.70-2.06	1.59	1.50-1.69	1.66	1.53-1.80	1.74	1.56-1.93	1.98	1.84-2.14
Multiracial (Hispanic)	1.27	1.16-1.39	1.49	1.39-1.58	1.21	1.11-1.31	1.57	1.42-1.75	1.41	1.29-1.56
Multiracial (non-Hispanic)	0.87	0.80-0.94	1.03	0.97-1.10	0.83	0.77-0.89	1.16	1.04-1.30	1.10	1.0-1.20
Native Hawaiian/Pacific Islander	1.39	0.63-3.07	1.77	1.06-2.94	1.42	0.69-2.90	2.21	1.03-4.74	1.41	0.65-3.07
White	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference
Other	0.96	0.85-1.09	1.15	1.05-1.27	0.95	0.85-1.06	1.05	0.88-1.25	0.98	0.84-1.14
<b>Gender</b>										
Female	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference
Male	1.04	1.01-1.08	1.03	1.00-1.05	1.01	0.98-1.04	0.99	0.94-1.03	0.91	0.87-0.94
<b>Age (years)</b>										
<24	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference

24-26	2.25	1.84-2.74	1.24	1.0-1.54	2.11	1.74-2.57	2.34	1.39-3.93	2.29	1.35-3.90
27-29	2.84	2.33-3.47	1.66	1.34-2.07	2.56	2.10-3.11	3.79	2.25-6.37	3.93	2.31-6.68
30-32	2.98	2.43-3.64	2.53	2.03-3.14	1.92	1.58-2.34	6.50	3.86-10.97	8.06	4.73-13.72
33+	4.50	3.63-5.56	3.20	2.56-3.99	2.55	2.08-3.12	9.28	5.49-15.71	15.30	8.96-26.11
<b>Graduation Year</b>										
2013 or earlier	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference
2014-2016	0.69	0.67-0.72	0.90	0.88-0.93	0.67	0.64-0.69	0.85	0.81-0.89		
2017 or later	0.50	0.48-0.52	0.83	0.80-0.85	0.48	0.46-0.50			0.85	0.82-0.88
<b>Specialty</b>										
Emergency Medicine	0.78	0.72-0.85	0.90	0.85-0.96	0.81	0.75-0.88	0.97	0.87-1.08	0.96	0.88-1.04
Family Medicine	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference
Internal Medicine	0.52	0.49-0.56	0.74	0.71-0.78	0.58	0.54-0.61	0.70	0.64-0.77	0.69	0.64-0.74
Pediatrics	0.69	0.63-0.74	0.82	0.77-0.86	0.72	0.67-0.78	0.73	0.65-0.81	0.75	0.70-0.82
Surgery	0.62	0.58-0.67	0.83	0.79-0.87	0.65	0.61-0.69	1.03	0.94-1.12	0.90	0.83-0.96
Other	0.60	0.56-0.64	0.81	0.77-0.85	0.63	0.59-0.67	0.89	0.82-0.96	0.82	0.77-0.88
<b>Region</b>										
Central	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference	1.0	Reference
Northeast	0.74	0.71-0.77	0.91	0.88-0.94	0.77	0.74-0.80	0.81	0.76-0.86	0.75	0.71-0.79
South	0.83	0.80-0.87	0.78	0.76-0.81	0.81	0.78-0.85	1.09	1.03-1.15	1.15	1.09-1.21
West	0.80	0.76-0.84	0.79	0.76-0.82	0.79	0.76-0.83	0.98	0.91-1.04	0.93	0.88-0.98

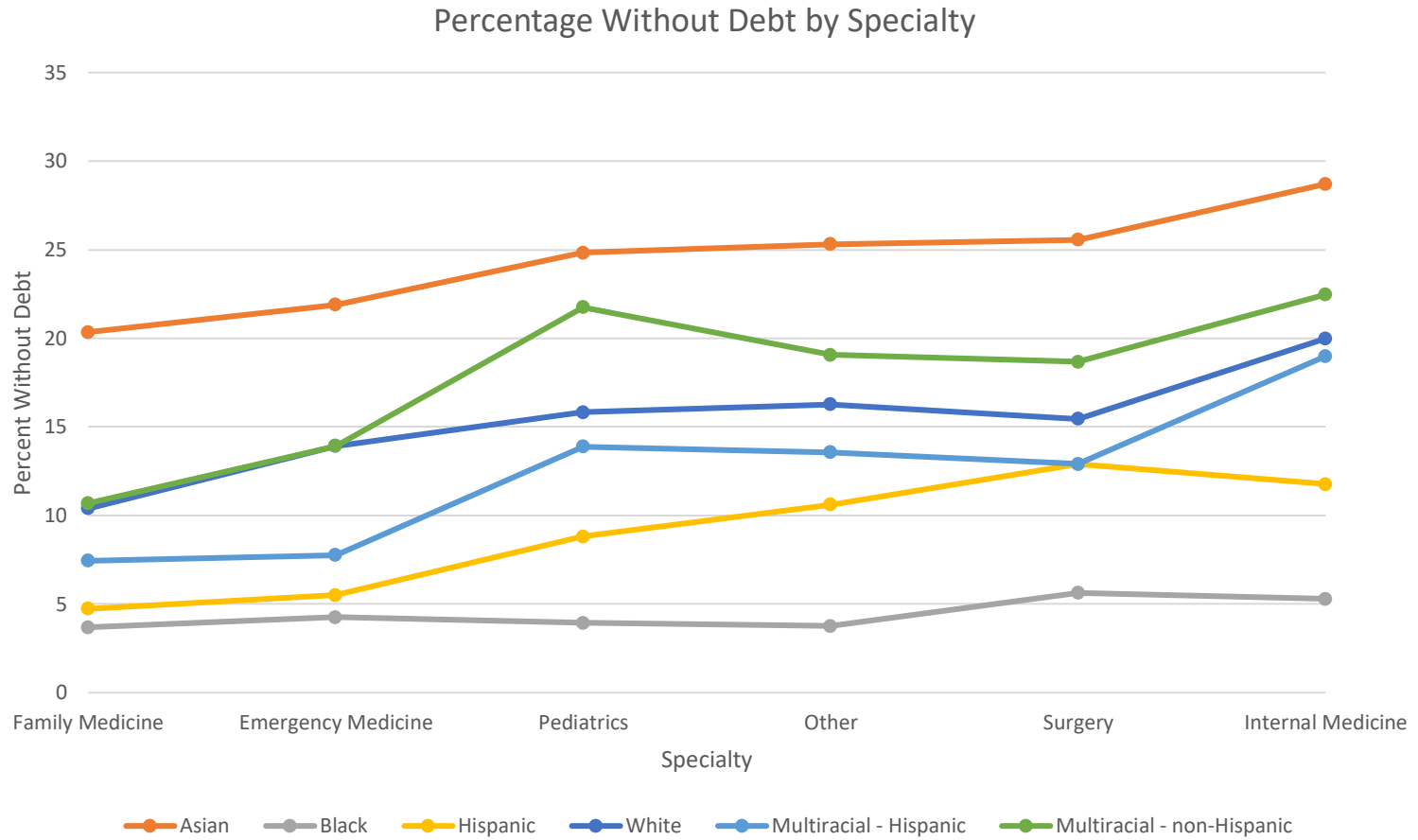


<sup>a</sup>Question not including mortgage was asked of 42% of the sample, those who completed GQ prior to 2015

<sup>b</sup>Question including mortgage was asked of 58% of the sample, those who completed GQ in 2015 or later

<sup>c</sup>Includes residents active in all surgical specialties including General Surgery, Colon and Rectal Surgery, Neurological Surgery, Orthopaedic Surgery, Otolaryngology, Ophthalmology, Plastic Surgery, Thoracic Surgery, Urology, and Vascular Surgery

Exhibit A7: Percent of Postgraduate Residents without Debt by Specialty, stratified by race/ethnicity



**Exhibit A8: Median amount of Debt, principal only, by Type of Debt and Race in U.S. Dollars**

Type of Debt <sup>a</sup>	Median amount of debt in U.S. Dollars, \$											
	American Indian/ Alaska Native	Interquartile Range	Asian	Interquartile Range	Black	Interquartile Range	Hispanic	Interquartile Range	Native Hawaiian/ Pacific Islander	Interquartile Range	White	Interquartile Range
<b>Pre-Medical Education Loans<sup>***d</sup></b> N=40,402	17,000	10,000-32,500	20,000	10,000-50,000	25,000	12,000-50,000	20,000	10,000-45,000	20,000	13,000-50,000	20,000	12,000-40,000
<b>Medical Education Loans<sup>***</sup></b> N=91,908	160,000	83,000-200,000	160,000	88,000-200,000	180,000	120,000-250,000	170,000	110,000-220,000	200,000	130,000-270,000	180,000	120,000-230,000
<b>Non-Educational Consumer Debt (Mortgages excluded)<sup>b***</sup></b> N=12,233	9,000	4,000-15,000	7,000	3,000-15,000	9,000	4,000-15,000	9,000	5,000-15,000	10,000	6,000-15,000	10,000	4,500-16,000
<b>Non-Educational Consumer Debt (Mortgages included)<sup>c***</sup></b> N=14,644	14,500	7,500-36,000	10,000	3,000-22,000	10,000	4,000-20,500	10,000	4,000-20,000	17,500	8,400-30,000	15,000	5,000-56,200

Type of Debt <sup>a</sup>	Median amount of debt in U.S. Dollars, \$					
	Multiracial – Hispanic	Interquartile Range	Multiracial – non-Hispanic	Interquartile Range	Other	Interquartile Range
<b>Pre-Medical Education Loans<sup>***d</sup></b> N=40,402	24,250	12,000-50,000	20,000	12,000-50,000	25,000	13,000-50,000
<b>Medical Education Loans<sup>***</sup></b> N=91,908	175,000	110,000-230,000	178,000	110,000-230,000	170,000	110,000-230,000
<b>Non-Educational Consumer Debt (Mortgages excluded)<sup>b***</sup></b> N=12,233	6,500	4,000-17,000	8,500	5,000-15,000	10,000	3,500-15,000
<b>Non-Educational Consumer Debt (Mortgages included)<sup>c***</sup></b> N=14,644	10,000	4,300-22,000	10,000	5,000-33,000	10,000	4,000-28,000

<sup>a</sup>Only includes those who responded that they had debt of that type

<sup>b</sup>Question not including mortgage was asked of 42% of the sample: those who completed GQ prior to 2015

<sup>c</sup>Question including mortgage was asked of 58% of the sample: those who completed GQ in 2015 or later

<sup>d\*\*\*</sup> indicates P-value <0.001 for Kruskal-Wallis test of difference in median across group