

# Estimating the Marginal Cost of Financing Physician Training in the US

Martey S. Dodoo, PhD,

*Senior Economist*

The Robert Graham Center

*(Policy studies in Primary Care and Family Medicine)*

Washington, DC.



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# Why is this necessary?

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- Current debate on:
  - whether to expand physician workforce
  - how to finance it
- Do you know how much you need to train one more physician through your program?
- If you don't know, how can you:
  - **Maintain program financial viability?**
  - **Advocate for necessary financial support?**
- Credible marginal cost estimates are critical to obtaining funding for program expansion



# Background

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## 4 ways to think about the dollar costs:

- Student costs
- Institution costs
- Taxpayer costs (local, city, regional, State, Fed)
- Societal costs

## Our Objectives:

- Estimate taxpayer costs of physician training → financial support advocacy
- Use simple but credible methods to estimate the marginal cost to taxpayers

## Based on:

- Average Variable Cost that is Proportional to output = Marginal cost



# Data Sources

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- **Medical School Funding**
  - Total Cost Dollars:
    - From AAMC Annual Financial Tables (LCME part 1A)
    - From AACOM - annual statistical reports
  - Total Enrollment Numbers:
    - From AAMC Data Warehouse
    - From AACOM annual statistical reports
- **GME – Residency program funding**
  - Total Cost Dollars :
    - From Medicare Cost Reports
    - From Nat. Conf. of State Legislature - Henderson's surveys ('01-'02 & '04-'05)
  - Total Resident Numbers:
    - From Annual reports and other data reports of ACGME



# Methods

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Illustrate with Medical School (MD) costs:

- Total **taxpayer dollar costs** = medical school **revenue from taxpayers**
- Selected revenue items **proportional** to student output (critical to the method):
  1. *Hospitals/Med School programs*
  2. *Government Appropriations (2 items)*
  3. *Tuition and Fees*
  4. *Administrative/Indirect costs (2 items)*(As % total revenue: Public MS=35% ; Private MS=25%)



# Methods

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For example: – for all MD schools 2004-2005:

<b>Revenue items:</b>	<b>Cost (\$m)</b>
Hospitals/Medical School Programs	\$8,090
Government Appropriations (2 items)	\$4,053
Tuition and Fees	\$2,107
Indirect Federal Grants (2 items)	\$4,698
<b>Subtotal (in \$ millions)</b>	<b>\$18,948</b>
Student Enrollment	68,008
<b>Cost per student</b>	<b>\$278,614</b>



# Methods

For example: for all DO schools – for FY 2004-2005:

<b>Revenue items:</b>	<b>Cost (\$m)</b>
Program costs (2 items)	\$378.0
Government Appropriations (3 items)	\$356.6
Tuition and Fees	\$150.6
Grants and Contracts (3 items)	\$68.6
<b>Subtotal (in \$ millions)</b>	<b>\$851.7</b>
Total Student Enrollment	<b>11,857</b>
1 <sup>st</sup> & 2 <sup>nd</sup> Year Enrollment (est.)	6,500
<b>Cost per student (using all enrollment)</b>	<b>\$80,442</b>
<b>Cost per student (using 1<sup>st</sup> &amp; 2<sup>nd</sup> year #s)</b>	<b>\$146,738</b>



# Results

Nation-wide Medical Schools: FY 2001 - 2005: Cost per student

	MD Schools		DO schools	
	Public School	Private School	Using total enrollment	Using estimated Yr 1&2 #s
<b>2000-01</b>	\$225,493	\$227,229	\$70,260	\$132,751
<b>2001-02</b>	\$240,210	\$242,707	\$73,957	\$142,783
<b>2002-03</b>	\$247,049	\$260,696	\$76,102	\$145,000
<b>2003-04</b>	\$264,862	\$282,162	\$71,831	\$131,031
<b>2004-05</b>	\$277,811	\$287,532	n/a	n/a
<b>Average</b>	<b>\$251,085</b>	<b>\$260,065</b>	<b>\$75,159</b>	<b>\$137,891</b>



# Methods

For all GME residency programs for example – for FY 2004-2005:

Total resident positions	101,810
Pediatrics resident positions	7,876
GME costs (\$m)	\$6,944
Medicare IME payments (\$m)	\$4,053
Medicare DME payments (\$m)	\$1,951
GME payments (\$m)	\$6,004
Medicaid GME payments (\$m)	\$3,180
<b>GME Cost per resident</b>	<b>\$68,205</b>
<b>Medicare GME Payment per resident*</b>	<b>\$63,917</b>
<b>Medicaid GME Payment per resident</b>	<b>\$31,235</b>



# Results

Nation-wide GME residency costs from FY 2001 to FY 2005:

	<b>Per resident costs and payments</b>		
	<b>GME costs</b>	<b>Medicaid GME payments</b>	<b>Medicare GME payments*</b>
<b>2000-01</b>	\$85,858	\$24,508	\$81,258
<b>2001-02</b>	\$92,219	\$26,811	\$84,746
<b>2002-03</b>	\$94,614	\$28,363	\$82,058
<b>2003-04</b>	\$96,730	\$29,814	\$87,744
<b>2004-05</b>	\$68,205	\$31,235	\$63,917
<b>Average</b>	<b>\$87,414</b>	<b>\$28,179</b>	<b>\$79,845</b>

Note: \* Excludes pediatrics residents



# Alternative methods

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- Regression technique:
  - Relation between total costs and enrollment
  - Need to control for intervening variables
  - Used to estimate marginal costs
  - Interpretation difficulties
- Incremental cost method:
  - Directly estimates marginal cost attributed to changes in enrollment at single institution or its sub-unit
  - Complicated by joint production, separating other factors etc.



# Limitations of our method:

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## Medical School estimates:

- Identifying variable costs and proportional variable costs in financial records may be judgmental.

## GME estimates:

- The State and Medicaid GME payments are estimates and extrapolations of those estimates from NCSL surveys
- Data for different geographic regions - may not be reported consistently



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# Thanks

[mdodoo@aafp.org](mailto:mdodoo@aafp.org)

