

Changes in the operating performance and efficiency of MOHFW facilities in Bangladesh during 1997-2010, and the implications for financing expansions in coverage of MNCH services

ADB RETA-6515: IMPACT OF MATERNAL AND CHILD HEALTH PRIVATE EXPENDITURE ON POVERTY AND INEQUITY

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AusAID/ADB/HEU MOHFW Bangladesh RETA-Partnership



Research components

- ① Patient Exit Survey (PES) 2011
- ② Bangladesh Facility Efficiency Survey (FES) 2011
- ③ Analysis of MNCH costs and financing

Bangladesh Facility Efficiency Study (FES) 1998



Key Findings

- High occupancy rates in secondary and tertiary level facilities
 - Under-supply of hospital services key problem, not over-supply
- Fixed budget norms
 - Unit costs largely a function of patient demand
- District/General Hosps more cost-efficient than UHCs owing to economies of scale
 - Staffing ratios at UHCs too high
 - Bed size of 100-150 most efficient
- Unit costs and inefficiencies in public sector too high to make universal coverage affordable

Bangladesh Facility Efficiency Study (FES) 2011

- **Organization**

- Collaboration between Institute for Health Policy (IHP) and MOHFW Health Economics Unit (HEU)
- Field work by Data International
- Design and analysis by IHP researchers and consultants
- Funding by ADB RETA-6515 Project

- **Objectives**

- To analyze costs and efficiencies in MOHFW facilities
- To analyze changes in efficiency and costs from 1997 to 2010
- To estimate facility expenditures on MNCH delivery
- To assess impact of Demand-Side Financing (DFS) Scheme on maternal healthcare use and costs
- To produce national cost reference data set

FES 2011 Methodology 1

Sampling design

- Nationwide survey (N=135), stratified by divisions and facility types
- Overlap with:
 - FES 1998 sample
 - MOHFW HEU Inpatient and Outpatient Morbidity Surveys 2009
- Added oversample of DSF Scheme facilities

Survey sample

Facility type	Number	Sample	%
Medical college hospitals	14	7	50.0
Specialized/infectious disease hospitals	28	10	35.7
District/general hospitals	62	22	35.5
Upazila health complexes	422	71	16.8
Union subcentres	1312	10	0.8
MCWCs	97	10	10.3
Others	66	5	7.6

FES 2011 Methodology 2

Data collection

- Survey instrument adapted from MOHFW HEU FES 1998
- Data collected for previous year (FY 2010)
- Modules
 - Service outputs – admissions, outpatients, operations, tests, etc.
 - Staffing
 - Equipment
 - Staff time allocation to patient activities
 - Allocation of medicines to patient departments
 - Budget – revenues and expenditures (2 years)

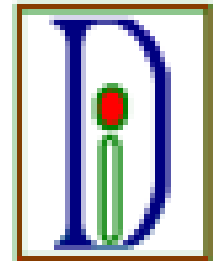


Field work

- March – July 2011 by Data International

Analysis

- Cost analysis using step-down costing methodology



Key Operating Characteristics, Selected Facility Types, FES 2011

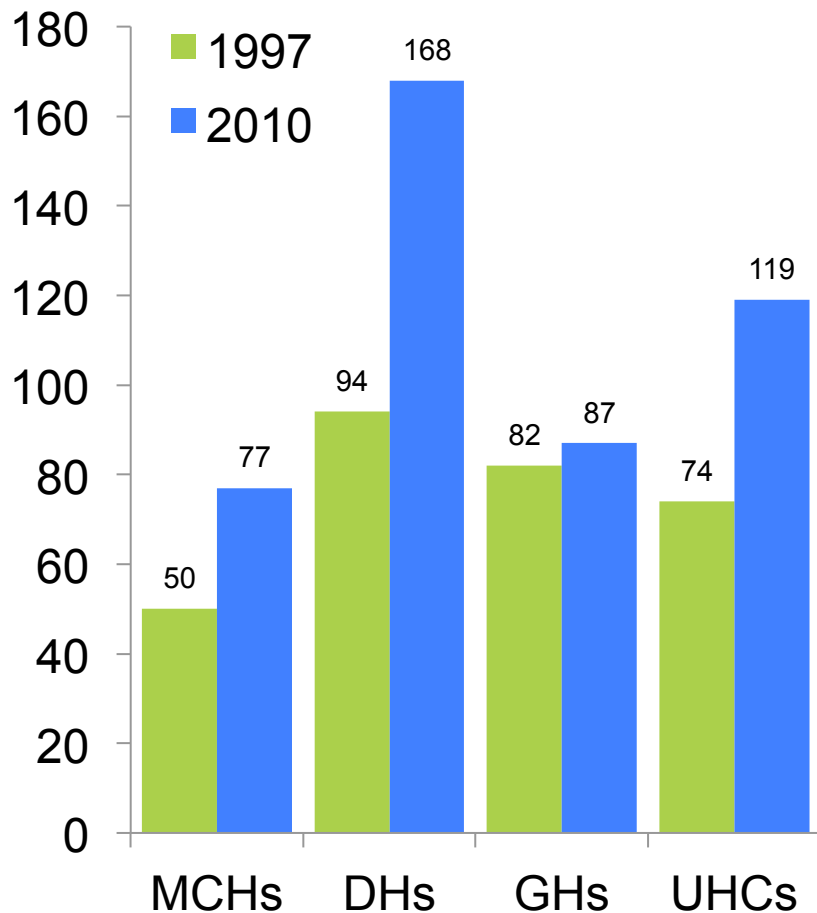
Facility type	Beds	Doctors	Inpatients	Outpatients	Recurrent costs
Medical college hospitals	669	175	52,320	289,383	Tk 200 million
General hospitals	175	24	13,003	231,246	Tk 64 million
District hospitals	125	19	18,651	136,745	Tk 30 million
UHCs	37	8	5,061	96,754	Tk 20 million

Note: USD 1 = Tk 61

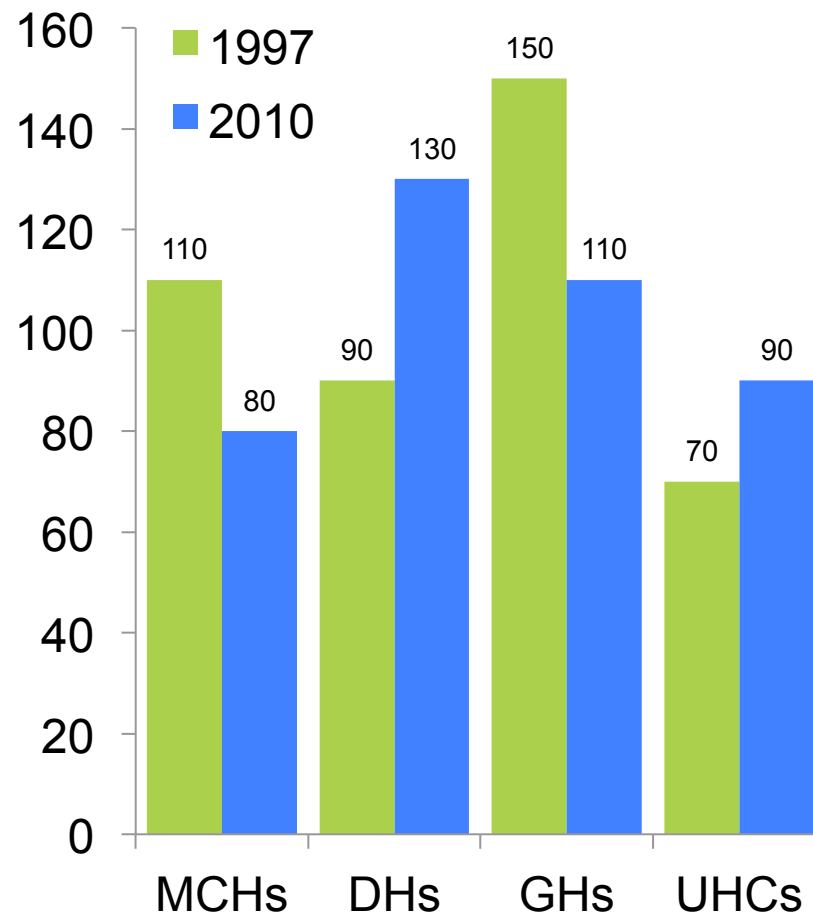
Source: FES 2011

Changes in inpatient throughput 1997-2010

Bed Turnover Rate

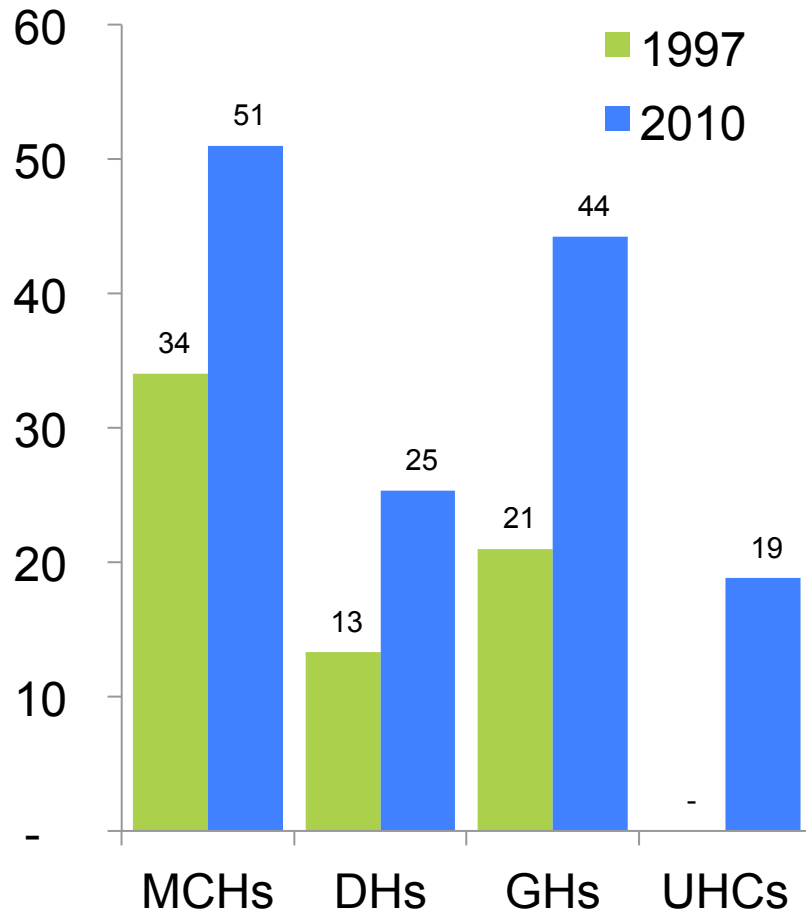


Bed Occupancy Rate (%)

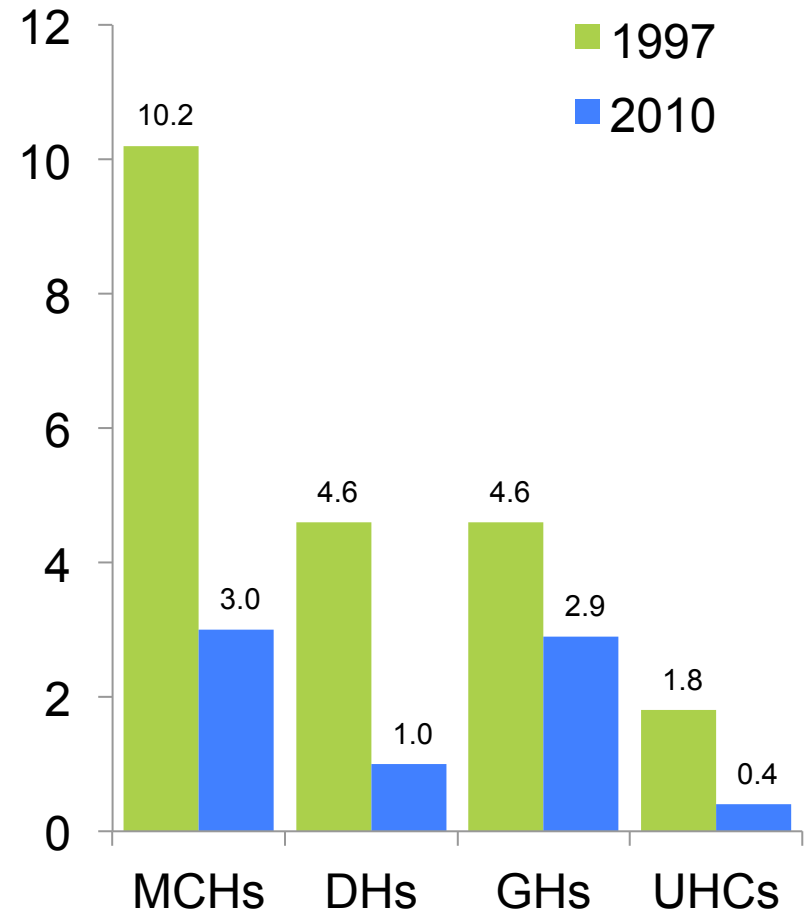


Changes in service intensity and outcomes 1997-2010

C-Section Rate (%)

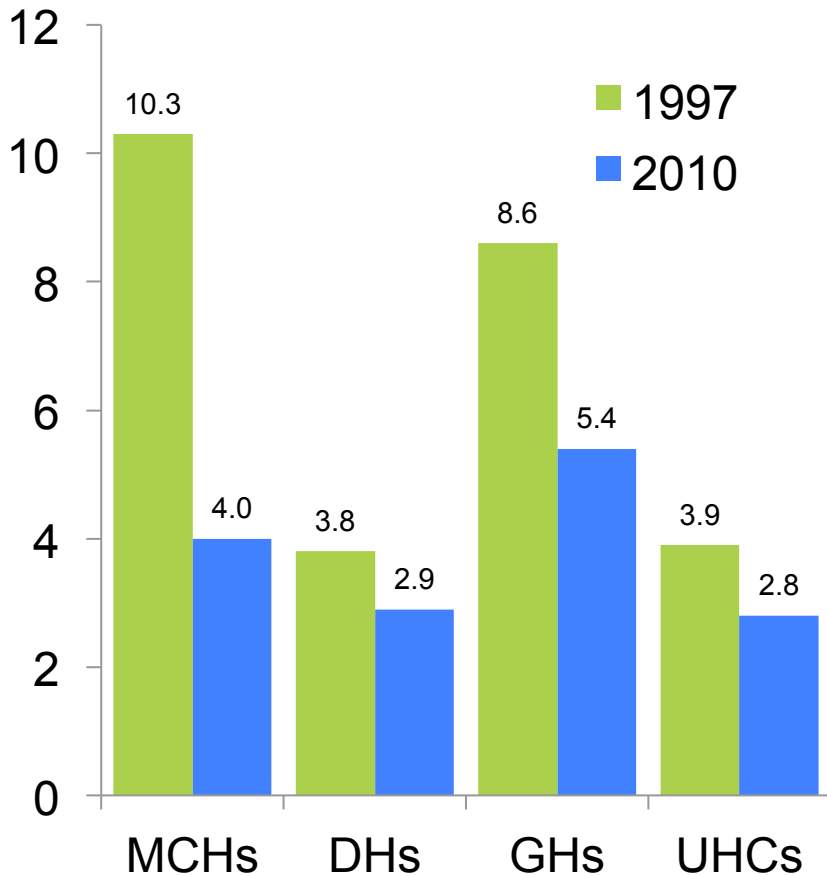


Case Fatality Rate (%)



Changes in inpatient throughput, 1997-2010

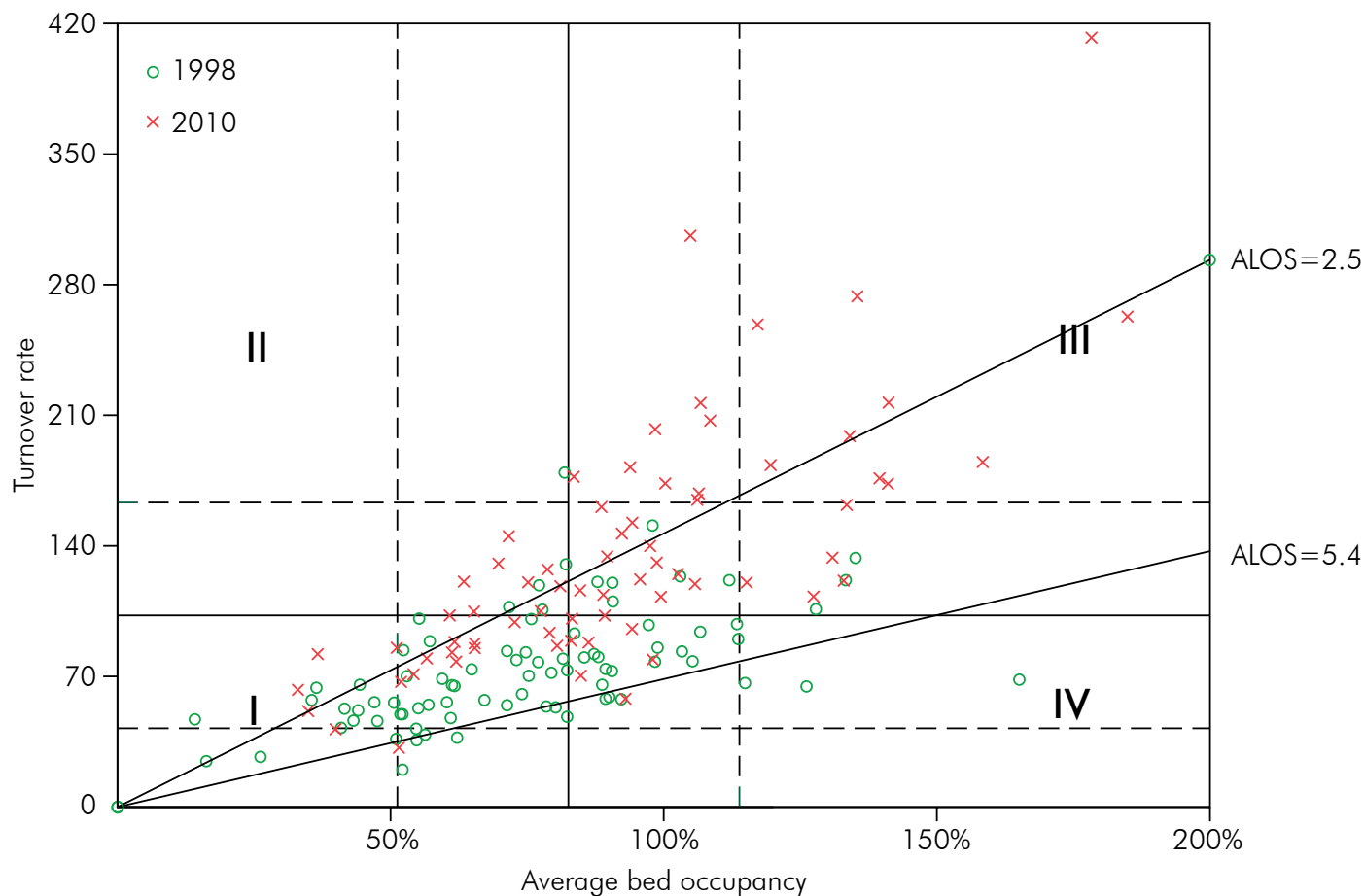
Average length of stay (days)



- Result of increased patient throughput
 - Declining ALOS across all facilities since 1997 (MCHs 10 > 4 days)
- No evidence of declining quality in treatment
 - Reductions in case fatality rates
 - Improvement in diagnostics
- High levels of patient throughput at all levels in MOHFW delivery system
 - Bed occupancy rates ~80 - >100% in main facilities

Large improvements in ALOS/Turnover – Upazila Health Complexes 1997-2010

Figure 1: Changes in Inpatient Performance, Upazila Health Facilities, 1997–2010



ALOS = average length of stay

Cost Efficiency

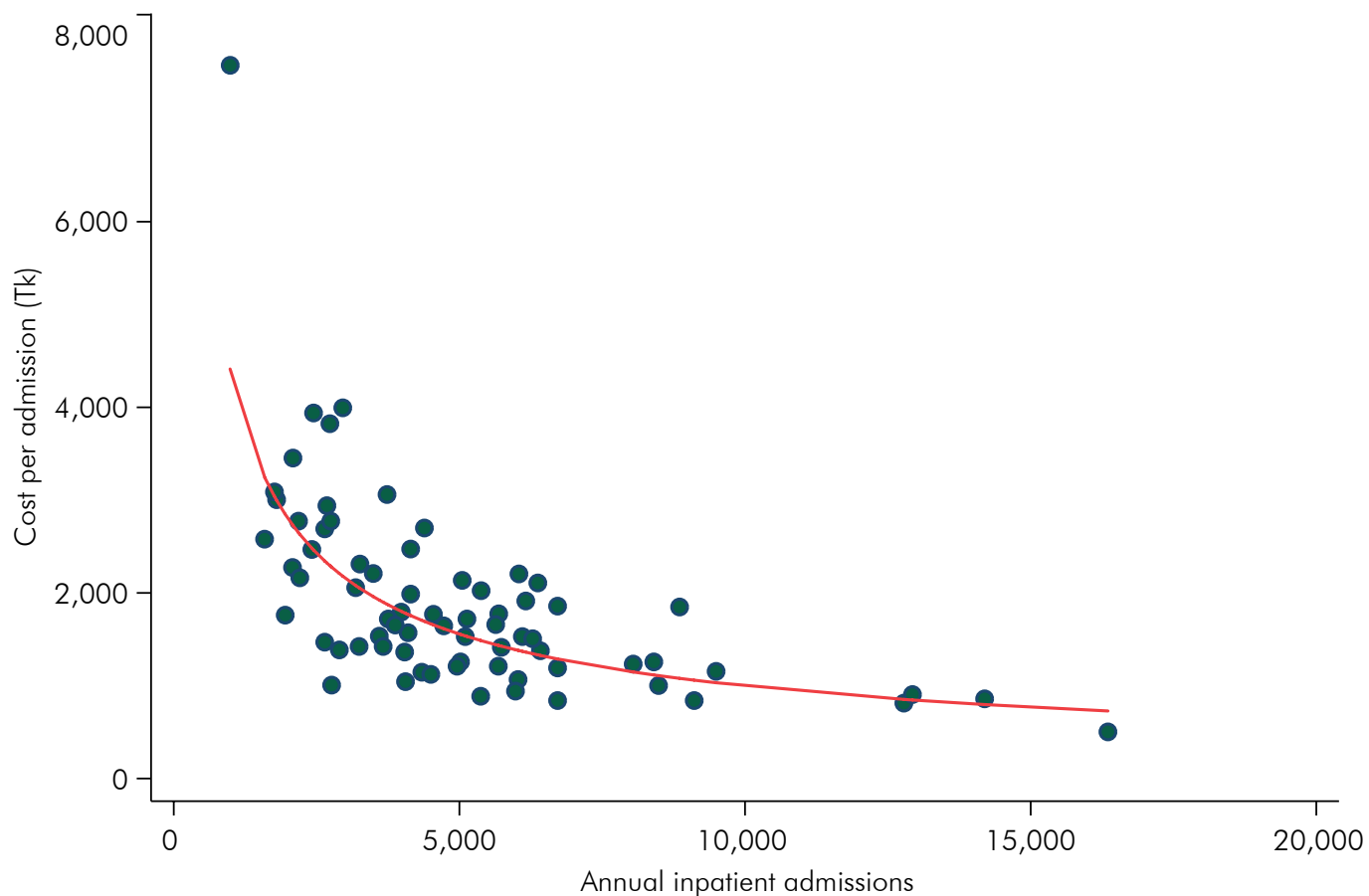
– Unit costs for patient services (Taka), FY 2010

	Inpatient admissions	Outpatient visits
Medical College Hospitals	3,812	132
General Hospitals	4,396	98
District Hospitals	1,194	77
UHCs	1,962	79
MCWCs	932	47

Note: USD 1 = Tk 61

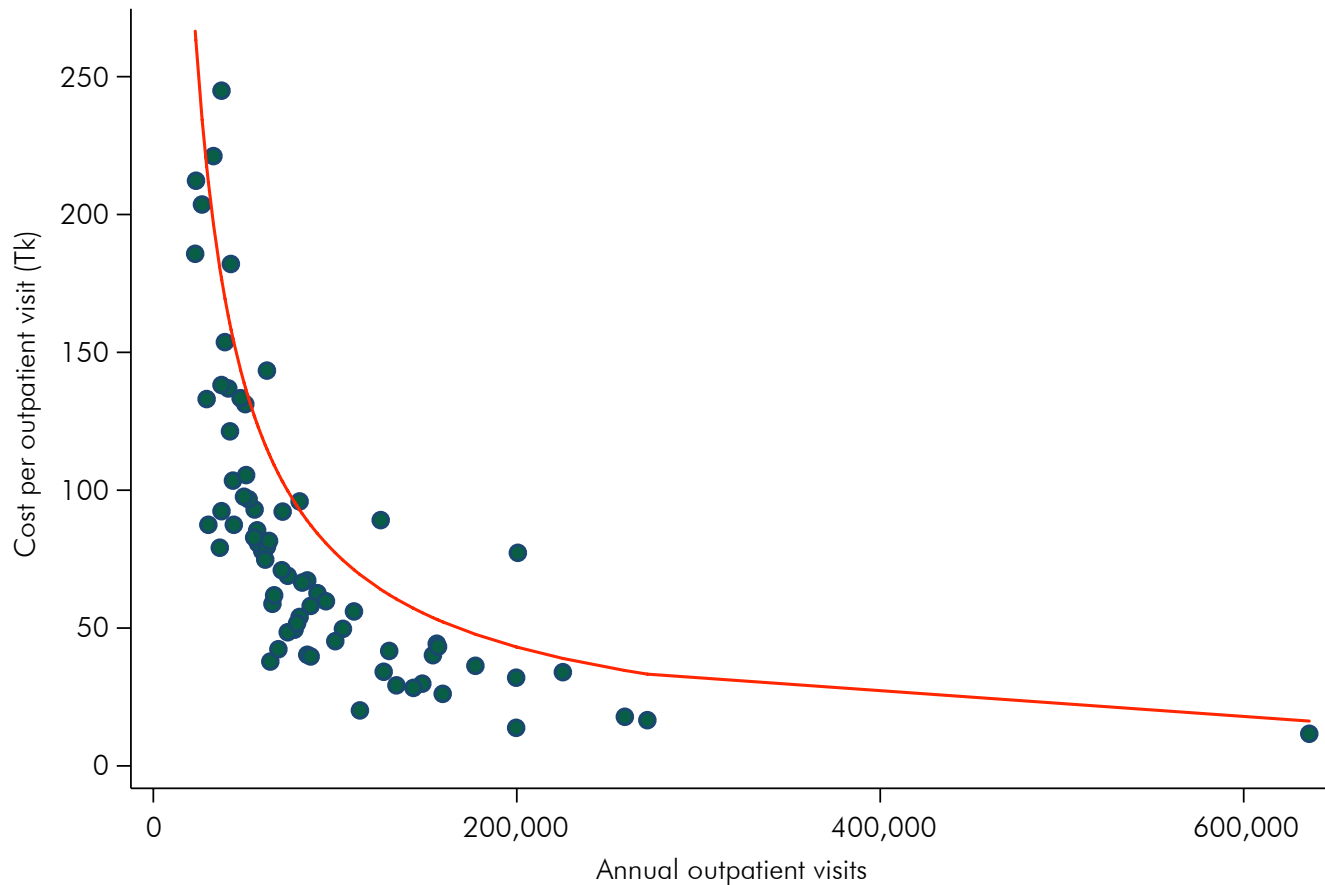
Impact of increased demand on inpatient unit costs, UHCs 2010

Figure 2: Relationship between Inpatient Unit Costs and Admission Rates, Upazila Health Complexes, 2010



Impact of increased demand on outpatient unit costs, UHCs 2010

Figure 3: Relationship between Outpatient Unit Costs and Outpatient Visits, Upazila Health Complexes, 2010



Changes in costs and efficiencies, UHCs 1998-2010

Indicators	1997	2010
<i>Inputs</i>		
Total recurrent expenditures (Taka million)	6.28	18.23
Medicines expenditures (Taka million)	0.27	2.0
Hospital beds	31.7	34.8
Doctors	4.3	6.2
Nurses	6.3	9.5
<i>Outputs</i>		
Admissions/year	2,347	4,043
Outpatients/year	50,228	81,431
<i>Inpatient efficiency indicators</i>		
Bed-turnover rate (annual)	74	119
Bed occupancy rate (%)	75	90
ALOS (days)	3.9	2.8
<i>Unit costs</i>		
Admissions (Taka)	1,938	1,962
Outpatients (Taka)	63	79

Note: Estimates for 1997 from FES 1998 study, and for 2010 from FES 2011. Statistics are weighted means.

Changes in costs and efficiencies, UHCs

– Reductions in constant and relative costs of 40% and 65%

Table 21: Changes in Budgets and Unit Costs of Patient Services in Real Terms, Upazila Health Complexes, 1997–2010

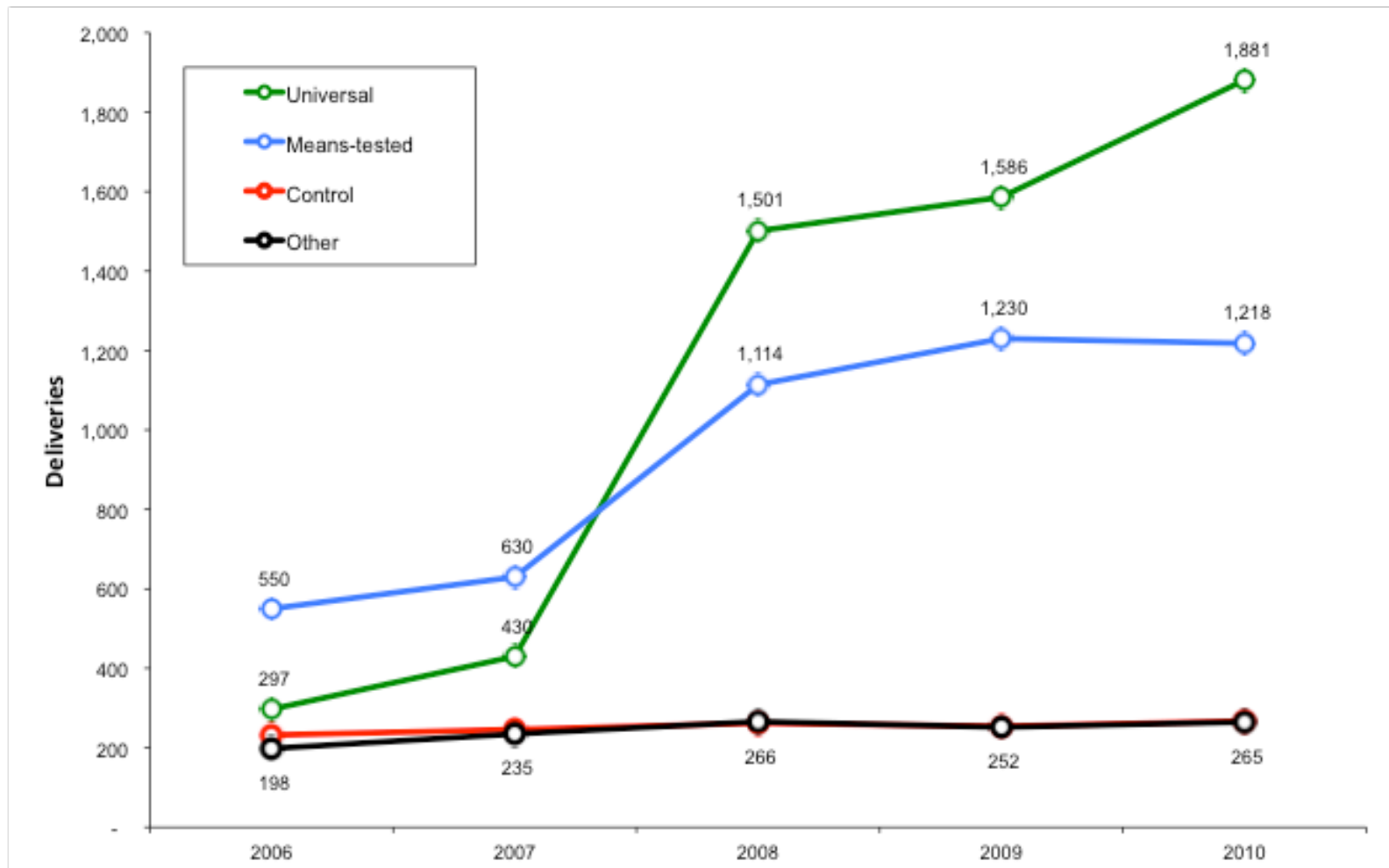
Indicators	1997	2010
Nominal Taka		
Total recurrent expenditures (Tk million)	6.28	18.23
Cost per admission (Tk)	1,938	1,962
Cost per outpatient visit (Tk)	63	79
Constant 2010 Taka		
Total recurrent expenditures (Tk million)	11.71	18.23
Cost per admission (Tk)	3,617	1,962
Cost per outpatient visit (Tk)	118	79
Deflated Using GDP per Capita		
Total recurrent expenditures (Tk million)	21.14	18.23
Cost per admission (Tk)	6,525	1,962
Cost per outpatient visit (Tk)	212	79

GDP = gross domestic product

Note: Constant 2010 Taka estimates derived using GDP deflator from World Bank (<http://data.worldbank.org/indicator/NY.GDP.DEFL.ZS>). GDP per capita in nominal taka used to deflate lowest three rows derived from World Bank WDI Online data on GDP and population.

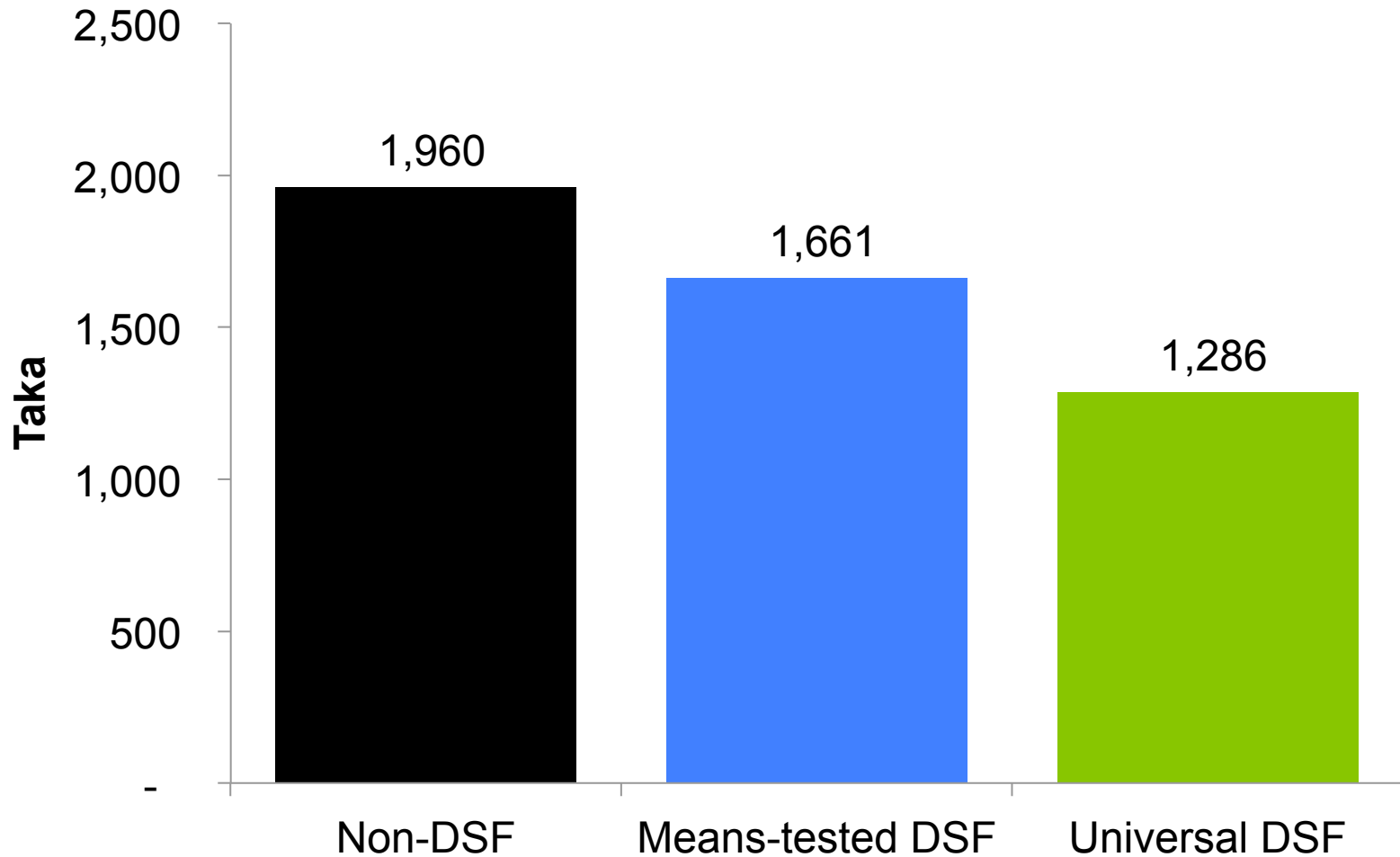
Impact of DSF schemes on cost efficiency

- Large increases in childbirth deliveries at maternal voucher facilities, but greatest in universal scheme



Impact of DSF schemes on cost efficiency

– DSF schemes associated with lower inpatient admission unit costs (Taka)



Impact of DSF schemes on cost efficiency

– Lower unit costs in DSF schemes driven largely by higher patient demand

Table 24: Differences in Cost Levels and Unit Costs between Demand-Side Financing and Non-Demand-Side Financing Upazila Health Complexes

Indicator	Non-DSF	Means-Tested DSF	Universal DSF
Hospital beds	34	42	37
Total recurrent expenditures (Tk million)	17.6	22.4	21.3
Medicines expenditure (Tk million)	2.59	2.17	2.48
Medicines expenditures as share of budget (%)	14.7	9.7	11.7
Total recurrent expenditures per bed (Tk)	540,600	555,855	589,119
Medicines expenditure per bed (Tk)	38,636	26,075	36,073
Cost per admission (Tk)	1,960	1,661	1,286
Cost per outpatient visit (Tk)	79	100	60

DSF = demand-side financing.

Note: Statistics are mean values for facilities in survey sample.

FES 2011 Main Findings

- High and more optimal levels of patient throughput at all levels in MOHFW delivery system
 - Bed occupancy rates ~80 - >100% in main facilities
 - Reduction in efficiency variations between facilities
 - Better distribution of patient demand across facilities than in 1998
- Result of increased patient throughput
 - Declining ALOS across all facilities since 1997 (MCHs 10 > 4 days)
 - Evidence indicates that quality and technical intensity increased, but large increase in Caesarian Section Rates (18-50%)
- Reductions in real unit costs of service delivery
 - Expansions in public sector service delivery in Bangladesh during 1997–2010 funded mainly through efficiency gains
 - DSF schemes increase cost-efficiency by increasing patient turnover