

# Private Health Sector Assessment in Ghana





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# Foreword

**M**y government is fully committed to public-private partnerships in health in Ghana. We believe that such arrangements often make sense and can provide expertise and capital beyond what governments alone can do.

When we took office, we promised a new era of innovation and creativity in delivering public infrastructure and services in Ghana. We wanted to focus on service delivery, accountability, sound fiscal and risk management, value for money, competition, and transparency.

We wanted to implement more efficient and effective approaches to how services and infrastructure are provided in support of health care, education, transportation, and other priority programs. It is against this background that I welcome the work that led to this publication and express my sincere appreciation for the work done so far. I am very privileged for this opportunity to also share a few thoughts with you.

It is well known in many parts of the world that private sector participation in health encourages innovation and creative thought while allowing us to address service and fiscal challenges. As a government, we are committed to building a strong infrastructure in Ghana and believe that one way to infuse the system with expertise and capital is to pursue these partnerships.

There is no question that excellent synergy can be forged between the public and private sectors by recognizing and drawing upon the expertise and legitimate objectives of both parties. They present an opportunity for maintaining and building on our vital infrastructure and by so doing, stimulate further economic growth.

Private-public partnerships also allow us to manage the risks associated with providing infrastructure. But we must also note that a successful public-private partnership has to show how private sector participation contributes to the public good. If we cannot show benefits to the public good resulting from private sector participation, then the partnership is not destined for success. To show the benefits then, we need the ability to effectively and logically evaluate opportunities and create an environment for managing and coordinating the engagement.

There are many examples of successful public-private partnerships. And I believe that as part of this study we have had the opportunity to examine as many as we can even in Ghana.

We have arrived at these conclusions and recommendations based on the principle that the health sector must be in the position to deliver better service to the public in a more cost-effective and timely way, with less risk to the taxpayers.

Let me also note that a public-private partnership does not mean that political responsibility has been passed along to the private sector. Indeed the opposite is true. Engaging in these partnerships often makes the political accountability more important, because government still has to answer to the public.

We want businesses to contribute to providing innovative, efficient cost-effective service delivery and help restore sound fiscal management in the health sector. Currently, government typically takes all the risks. We would like to make sure that the risk is shared with the private sector because the private sector manages some risks better than the government.

The increased competition that is part of the private sector involvement in health can also foster greater creativity, greater innovation, broader options, and more cost efficiencies. In the health sector, we have some very good examples in this area.

The increased access to laboratory services and the vibrant pharmacy departments in our major hospitals are all examples of how private participation can improve service.

But such engagements, as I have already indicated, must be within a strict coordinating framework. I will therefore request that you focus a lot of your time in ensuring that such arrangements are put in place.

It is said that the health care system in many countries is more resistant to change than any other sector. I do not know how true this is in Ghana but I can assure you that for the few days I have been here I am inclined to believe that it is true.

But we must not forget that health care consumes a huge portion of our national budget. And most of this amount goes into servicing the wage bill. In order to achieve the kind of service we are dreaming of, it is critical that we utilize the strengths of the private sector as well as the public sector.

I know that there are a lot of controversies in the public-private partnership approach. I believe that we undertook this in-depth study to understand these issues as they apply to Ghana and to learn from the successes of others. I want to see this study as the turning point in the adoption of the concept of a public-private partnership in health. I really want to see us move forward.

On this note, I encourage you to be critical about the recommendations provided and ensure that the final list leads to actions and achievable results within the next three to four years. It is only by doing this that we can build on the partnership quickly and influence our health indices early enough.

Rojo Mettle-Nunoo  
Deputy Minister of Health, Ghana  
Coconut Grove Hotel  
Accra  
Republic of Ghana  
March 22, 2011

# Preface

The private health sector in Ghana is a large and important actor in the market for health-related goods and services. However, little has been documented concerning the size and configuration of private providers and their contribution to health sector outcomes. With better information about the size, scope, distribution, and constraints of private actors, Ghana's public policy makers could engage more effectively with the private sector. Through dialogue and the use of regulatory mechanisms and other tools, public policy could influence the practices and development of the private role in health so that it better serves national health goals and objectives.

With funding from the joint International Finance Corporation–World Bank Health in Africa Initiative, the government of Ghana commissioned a research team to conduct an assessment of the private health sector. Results for Development Institute, the lead implementer of the assessment, worked in close partnership with the Center for Health and Social Services, Bitrán & Asociados, and the African Center for Economic Transformation to carry out the assessment. The scope of work involved determining the role currently played by the private health sector, diagnosing the nature and effectiveness of the interface between the public and private sectors, engaging in policy dialogue with stakeholders, and developing recommendations for reform aimed at improving public-private engagement.

## Methods

The research team employed a supply and demand approach to identify market, policy, and institutional failures or weaknesses that could be addressed through policy change and action. Demand information revealed how consumers see private providers and their potential; supply information enabled a better understanding of the role currently played by private actors and the constraints and barriers they face to doing more and doing better; and the institutional information showed where institutions are facilitating, hindering, shaping, or failing to shape adequately private participation.

The specific analyses conducted included the following:

- Secondary analysis of nationally representative household surveys in Ghana
- Mapping of the private health sector and short-form questionnaire with all formal health service providers—public and private—in Ghana
- Focus group discussions with a subset of private providers in the mapping sample
- Patient exit polls at a subset of facilities in the mapping sample
- Population focus groups with women and men in the mapped districts
- National-level key informant interviews.

Three stakeholder engagement workshops throughout the assessment provided the forums for discussion on research design, debate and processing of specific analyses, and formulation of recommended interventions.

## Key Findings

The following summarizes some of the key issues identified by the study and suggested action for improving the contribution by the private sector in Ghana to achieving the broader national health goals

### *Issues*

The study identified several key impediments that currently prevent the private health sector from contributing as much as it potentially could to improved access to health-related goods and services. They include

- Poor investment climate, leading to a lack of access to finance and expertise for growth and expansion
- Unfavorable business environment with policies and regulations that often impede further development of the private sector
- Fragmentation and informality at lower levels of care with poor governance, weak financial management and reporting, lack of professional business processes and no information systems
- Lack of enforced and enforceable quality standards
- Insufficient supply of skilled health care workers
- Incomplete coverage under risk pooling especially among lower-income populations despite rapid expansion of health insurance coverage and other mechanisms intended to protect people against financial impoverishment at the time of illness and to secure sustainable financing for health care providers.

More specifically, the study identified the following issues and role of the government in dealing with the private health sector in Ghana:

### SUPPLY

- Self-financed private (SFP) providers are major suppliers of all forms of care except hospital care—and even for hospital care they represent 20 percent of beds in the five urban districts studied by this Assessment.
- SFP and government (Ghana Health Service) providers are concentrated in urban areas, whereas Christian Health Association of Ghana (CHAG) providers and chemical sellers are concentrated in rural and urban-poor areas.
- Chemical sellers, by their number and geographical location, appear to represent the greatest and most accessible source of services in rural and urban-poor areas.
- Human resources for health are concentrated in urban areas in both SFP and Ghana Health Service (GHS) hospitals—but especially in the case of government hospitals.

### DEMAND

Private providers produce more than half of all services used by Ghanaian consumers and the share of services provided by the private sector appears to be growing. SFP providers make up the biggest share of the privately provided services.

- Users of all types, across socioeconomic status, geography, and sex, choose private providers for a substantial portion of their use of health services—in all cases, around 50 percent of their use of services.

- Access to care is increasing, with 64 percent of those having an illness obtaining care in 2005–06, compared with 44 percent in 1999.
- National Health Insurance Scheme (NHIS) coverage appears to encourage consumers to use GHS services relative to privately provided services, but this may be related to the incomplete accreditation of SFP providers.
- Consumers continue to spend money out-of-pocket despite NHIS coverage, and they do so at GHS, CHAG, and SFP providers. NHIS coverage has increased the frequency with which consumers pay nothing at all. However, it has not changed the amount of out-of-pocket spend in those cases when it is still required.
- Consumers say that they choose SFP providers for quality services, customer service, and short waits; they choose GHS providers for quality services, low prices, and availability of doctors; and they choose CHAG providers for quality services, courteous service, and availability of doctors.

#### *Other Important Factors Affecting the Health Market*

- SFP providers overall are favorable to NHIS because it puts purchasing power in the hands of many middle- and lower-socioeconomic status consumers, allowing them to use accredited SFP providers. However, there are many frustrations with NHIS: reimbursements suffer long delays, accreditation of SFP providers is incomplete, and the tariffs paid in many cases are considered too low.
- SFP providers report few constraints from regulation and taxation, although some frustrations with underregulation are noted.
- SFP providers report that their greatest constraints are access to credit and their own weak management skills, which contribute to their inability to access credit. Small to medium-size SFP providers rarely use bank loans and even more rarely benefit from equity investments.
- Input supply markets are imperfect, with few suppliers of medical equipment and a fragmented pharmaceutical market, but private providers do not see input supplies as a major constraint.
- There is no particular advantage concerning structural indicators of quality among GHS, CHAG, and SFP providers. Additionally, most patients interviewed on exit from all types of providers are satisfied with the quality of care and would go back to the same provider again.

#### *Opportunities and Challenges*

- The public-private partnership between the Ministry of Health (MOH) and CHAG is unique in Sub-Saharan Africa and works well, allowing CHAG to act as an extension of the government, particularly in underserved rural areas.
- There has been a specific Private Health Sector Policy (PHSP) since 2003, and many of the identified issues and proposed strategies are still relevant. However, the bulk of the agenda for action remains unimplemented.
- Private supply of services offers many choices to urban populations. However, rural areas are underserved by both SFP and GHS providers.
- Lack of business and financial skills, relatively high real interest rates, short repayment periods, substantial collateral requirements, and what are perceived

to be burdensome application procedures restrict the use of bank loans for investment to expand private providers of all types and sizes.

- MOH regulatory council and board criteria and standards for the opening of private facilities are applied and respected by private actors. However, they have insufficient resources to conduct ongoing supervision and monitoring of private actors.
- Each health profession and provider group has formed a professional association. However, these associations contribute little to monitoring and ensuring quality of care or to the development of their members' business and financial skills.

### **Options for Action**

In response to these identified problems, the government of Ghana and various stakeholders may want to explore the following policy measures that would improve the private health sector's contribution to broader sectoral goals:

- Improve the investment climate to attract more capital into the sector and to increase access to finance (both debt and equity).
- Strengthen the business environment in terms of ease of entry, growth, and exit through more business-friendly policies and regulatory measures.
- Set and enforce quality standards.
- Provide regulators and policy makers with information to permit better informed decision making.
- Encourage formalization of the fragmented informal sector.
- Increase the supply of well-trained health care professionals.
- Improve revenue stability for providers and equitable access for consumers.

More specifically, the study identified the potential areas for follow up action:

#### *Stewardship and Governance*

- Review and revise the 2003 PHSP with involvement of all stakeholders and establish an implementation framework and realistic timetable. Establish an engagement committee with equal representation of the public and private sectors to facilitate ongoing dialogue and oversee the review, revision, and implementation of the PHSP.
- Strengthen the participation of the private sector in existing coordination mechanisms.
- Raise the standing and increase the staffing of the Private Sector Unit (PSU) of the MOH and provide it with more resources to allow it to perform the work needed to achieve the agenda of the revised PHSP.
- Seek out required technical support from the Ministry of Finance and other relevant resources and learn how to proactively create and implement public-private partnerships.

#### *Private Health Sector*

- Private sector actors as individuals, health businesses, and professional associations have much that they could do. However, there is one option specific only to the private sector. That is to create a collective voice for issues that cut across all of the private entities in the health sector.



*Health Insurance*

- Establish a joint task force—including representation from the NHIA, GHS, and private providers—to address immediate and acute issues of NHIS, including fraud, delays in reimbursement, and slow accreditation. Consider building on the work of the task force to carry out ongoing periodic peer reviews of NHIS tariffs and instruments to promote quality of care.
- The National Health Insurance Authority should move as quickly as possible to implement a centralized claims management system to speed up reimbursements and help reduce fraud.

*Health Business Environment and Investment Climate*

- Create avenues of access to credit for the private health sector. This might be facilitated by setting up specific lending funds through local banks, providing training for bank loan officers on the specificities of health businesses, or offering banks partial guarantees for health lending portfolios.
- Increase access to business advisory services for the private health sector to help health businesses take better advantage of opportunities to use credit and/or receive equity investments.
- Develop innovative ways to provide government support to private actors and create incentives for investment in rural areas. Methods that could be tested and then implemented include making insurance tariffs higher for services provided in rural areas and rebating part of the investment costs of opening and operating services in underserved areas.

*Quality of Care*

- Review and strengthen the role of licensing and accreditation bodies, provide them with resources adequate to achieve their assigned mandates, and invite input from all stakeholders on how quality will be monitored and encouraged.
- Finalize a legal framework for a laboratory regulatory body.
- Review and expedite licensing and accreditation processes with special focus on rural facilities and staffing norms.

*Human Resources for Health*

- Strengthen continued professional education.
- Develop business skills for public and private practitioners, managers, and administrators through pre-service training programs and on-the-job learning.

*Pharmaceutical Supply Chain*

- Improve distribution networks through incentives to consolidate the wholesale market and leverage supply chains of other sectors.
- Encourage regional standardization of drug registration and expand cooperation on testing and surveillance.
- Assess the impact of international financing, donations, and procurement policies on local industry.
- Channel donor funds through local supply and distribution mechanisms, as in the World Bank Multi-sectoral AIDS Project in Mali. (McCabe 1999)

*Information Exchange and Management*

- Facilitate the exchange of information on the private health sector. The PSU should create an on-line information exchange as a part of the MOH website where news, data, and analyses that it and others produce can be posted, including an annual update on the state of Ghana's private health sector.
- Increase market research and conduct organized data collection on the pharmaceutical industry. The PSU might seek collaboration with the Ministry of Trade and Industry in conducting this and post the results on the MOH website.

This in-depth country assessment is part of a planned set of studies designed to deepen understand of ways to enhance the business environment in which the private health sector operates in Ghana and other African countries. It was undertaken to establish a baseline for evaluation purposes, informing the policy work and providing insights for equity and debt investments.

Alexander S. Preker  
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Ricardo Bitrán led the writing of the demand section. His team—Rodrigo Muñoz, Kelsey Vaughan, and Isabel Gac all of Bitrán & Asociados—made significant contributions to the analysis of demand data. Muñoz helped Bitrán conduct the econometric analysis of existing household surveys while Vaughan helped develop the descriptive analysis of those surveys. Gac supported the patient exit poll analysis.

Sam Adjei and his team at the Center for Health and Social Services (CHeSS) played a central role in the on-the-ground data collection, analysis, and stakeholder engagement throughout the assessment. CHeSS also contributed case studies on pre-hospital emergency care and on the partnership between the Ministry of Health (MOH) and the Christian Hospital Association of Ghana (CHAG). Members of the CHeSS team included Alex Nazzar, Peter Peprah, Mercy Abbey, Edith Wellington, Jane Amponsah, Cynthia Bannerman, Yaw Brobbey-Mpiani, Paapa Turkson, and Senu Awunor. The CHeSS team also included several dedicated enumerators who supported the primary data collection.

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For her diligence and hard work during the editorial phase of producing a high-quality publication, we also thank Kathleen A. Lynch, editorial consultant.

Finally we thank the Ghanaian government for actively supporting this work and engaging in the process of developing and implementing strategies to enhance the role of the private health sector. Without their input, the policy relevance of the work would have been much diminished.

# Acronyms and Abbreviations

AFD	Agence Française de Développement [French Development Agency]
AfDB	African Development Bank
API	Active pharmaceutical ingredient
CHAG	Christian Health Association of Ghana
CMS	Central Medical Store
DHS	Demographic and Health Survey
DMHIS	District Management Health Insurance Schemes
DRG	Diagnosis-related groups
FBO	Faith-Based Organization
GHS	Ghana Health Service
GLSS	Ghana Living Standards Survey
GPRS	Growth and Poverty Reduction Strategy
IFC	International Finance Corporation
M&E	Monitoring and evaluation
MOH	Ministry of Health
MOU	Memorandum of Understanding
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
OOPS	Out-of-pocket spending
PHMHB	Private Hospitals and Maternity Homes Board
PHSP	Private Health Sector Policy
PMAG	Pharmaceutical Manufacturers Association of Ghana
PPP	Public-Private Partnership
PSU	Private Sector Unit
SDP	Service delivery point
SME	Small and medium enterprises
SWAp	Sector Wide Approach
U-5	Under five years of age
WHO	World Health Organization



# 1. Introduction

Most countries in Sub-Saharan Africa confront serious health challenges; however, Ghana has done better than many of its neighbors. Ghana's life expectancy at birth is 60 years (versus 53 for all of Sub-Saharan Africa), the infant mortality rate is 73 per thousand (versus 79), and the maternal mortality ratio is 562 per 100,000 (versus 832) (World Bank 2009b). Ghana has worked hard to achieve the gains it has made, and it has benefited from substantial assistance from external development partners. Ghana has separated policy making (the Ministry of Health, MOH) from provision (Ghana Health Service, GHS) in the public sector and decentralized health service management to the district level. In 2004, Ghana instituted its National Health Insurance Scheme (NHIS) to ease consumers' need to mobilize payment at the time of illness.

Even with all these efforts, Ghana has much yet to achieve. Malaria and parasitic diseases coexist with developing challenges of chronic illness, such as diabetes, cancer, and heart disease. Additionally, there is considerable inequity in access to health care and in health care status across regions and socioeconomic status groups.

One opportunity for Ghana to move ahead more rapidly in addressing its health challenges is presented by the private sector in health. Private delivery of health care represents between a third and a half of all services used and likely half or more of all out-of-pocket spending (OOPS), according to the limited data available and anecdotal information. Many observers believe that private provision, and spending on it, has been growing faster than public provision and spending—but hard data on these questions are scarce.

Ghana is ahead of many other countries in that it has a specific policy concerning the role of the private sector in health. It has an agreement between the public sector and the country's biggest grouping of not-for-profit private providers, the Christian Health Association of Ghana. Another advantage for Ghana in addressing the private sector is the National Health Insurance Scheme (NHIS). The National Health Insurance Authority (NHIA) reimburses all accredited public and private providers for services used by NHIS members. Thus, accredited private providers can and do benefit from this government initiative. Ghana also has regulatory boards and councils set up by the MOH to assess private providers' plans for opening new offices and offering new services and then to oversee their performance and quality. Groups of private providers (e.g., pharmacies) and groups of health professionals (e.g., midwives) are organized to represent their members.

Despite all these advantages, many holes remain in the picture and in the potential of Ghana's private health sector. Much of the agenda of the Private Health Sector Policy (PHSP) remains unimplemented seven years after its adoption. Other than the significant agreement with the Christian Health Association of Ghana (CHAG), there are no public-private partnerships of note. Little is known about the real effectiveness of the regulatory boards and councils. The activities and scope of services provided by the private associations are not documented. There is no systematic assessment of the role played by private actors. Data are not available on what consumers think about, how they use services, and what they spend on privately provided services. Little is known

about the type, extent, and severity of problems faced by private actors. It is unknown whether and to what extent any of the following are problematic: taxes, regulation, input supplies, NHIS payments, the overall business environment, access to credit, and management skills. Finally, the public sector has doubts and suspicions about the motives and behaviors of private actors, and the situation is similar concerning private thinking about the public sector.

All of the above is the context for this *Private Health Sector Assessment in Ghana*. In May 2009, with funding from the joint International Finance Corporation–World Bank Health in Africa initiative, the government of Ghana commissioned a research team to conduct a comprehensive assessment of the private health sector in Ghana. Results for Development Institute, the lead implementer of the assessment worked in close partnership with the Center for Health and Social Services, Bitrán & Asociados, and the African Center for Economic Transformation to carry out the work. The objectives of the assessment were:

- Determine the private health sector’s current role
- Diagnose the nature and effectiveness of the interface between the public and private sectors
- Engage in policy dialogue with stakeholders
- Develop recommendations, short- and long-term, for reform to improve public-private engagement.

Several months prior to the launch of this country assessment, Results for Development was funded by the French Development Agency (AFD) to conduct a rapid diagnostic study of Ghana’s private sector in health to identify assistance and financing needs. The AFD study mapped private actors in two districts (Tema and Manya Krobo), conducted in-depth interviews with a sample of the private actors mapped and others in Accra, and conducted interviews with policy makers and national representatives of private health sector actors. This country assessment builds on that foundation of analysis, instead of repeating it, taking the findings and data as a base to go beyond, where needed, to address key concerns. Similarly, this assessment has drawn from various other relevant pieces of work and has focused its research efforts on filling gaps not covered by others.

The report is organized as follows:

- *Background/context*. Description of the Ghanaian health system and the broader environment in 2010
- *Methodology*. An explanation of the analytical framework employed and a description of methods for each analytical piece of work
- *Findings*. Diagnostic of the role of the private health sector through examination of (1) demand data; (2) supply data; (3) other important factors affecting the health market; (4) market, policy, and institutional successes and failures
- *Options for action*. A series of actionable recommendations, short- and long-term, for improved public-private engagement.



## 2. Background

The following section provides the background for this report, outlining the existing national health system and recent reforms, as well as the political and economic context of Ghana's private health sector.

### **Ghana's Health System**

This section describes the organization, strategic direction, recent reforms, and performance of Ghana's health sector.

#### *Organizational and Financial Reforms of the Health System*

In Ghana's health system, two government institutions define the public sector (1) the MOH (policy making) and (2) the Ghana Health Service (GHS) (service delivery). The MOH is responsible for sector-wide policy formulation and monitoring and evaluation of progress in achieving sector targets. The GHS was created in 2001 to facilitate planning and management decentralization and to give more authority to the Regional and District Health Services. The push for this division of responsibility came as early as the 1980s when health sector performance had noticeably deteriorated after the country's economic decline in the late 1970s. However not until the development of the national strategy, "Ghana Vision 2020," in the early 1990s was there a renewed call for a new organization of the health system to better deliver on stated health development objectives. To date, the two agencies have worked well together in the strategic and operational management of the health sector.

The Sector Wide Approach (SWAp), until recently, formed the basis of donor financing in the Ghanaian health sector. This pooled-funding arrangement, known as the Health Fund in Ghana, was formally launched with the signing of a Memorandum of Understanding (MOU) between the MOH and Development Partners (DPs) in 1998. One of the primary objectives of moving to the Health Fund arrangement was to increase the government's control over resources and to ensure a more integrated approach to planning, budgeting, and monitoring and evaluation (M&E). In 2008, development partners that were contributing into the Health Fund decided to shift to Sector Budget Support, which gave the government even more allocative freedom. As an independent review team of Ghana's Health Sector observed, in a "post-SWAp" world, with sector budget support, the burden of ownership falls more heavily on the government (Ghanaian MOH 2009).

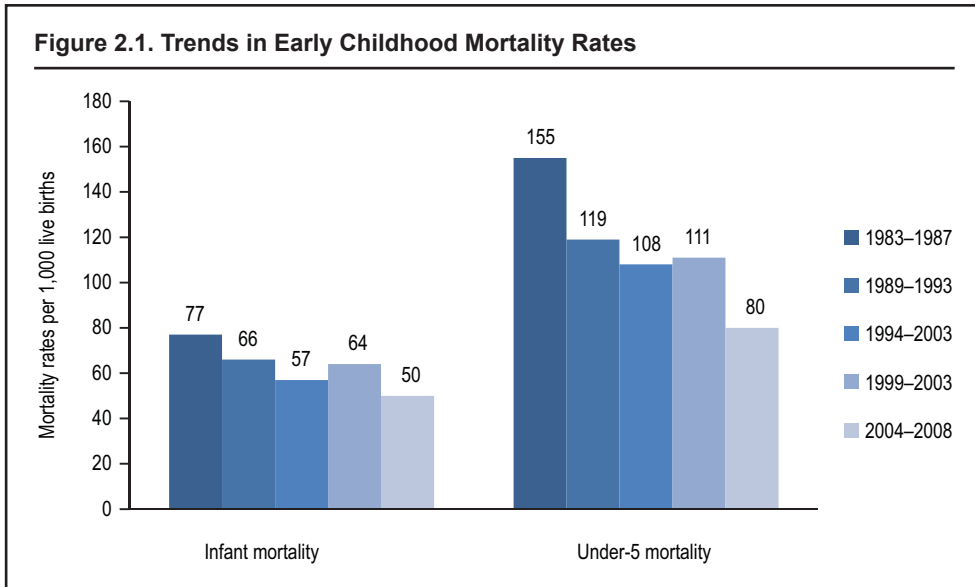
#### *Major Strategic Directions and Performance*

In 2010, the government was in the fourth year of the Five Year Programme of Work III (2007–11) and had just begun implementation of the Health Sector Medium Term Development Plan (2010–13). The two plans are aligned in purpose and intended to meet the overarching health sector objective of improved health and reduced inequality for all. The plans focus on strengthening health system capacity, improving governance and sustainable financing, bridging equity gaps in access, and ensuring the reduction of deadly diseases through promotion of healthy lifestyle behaviors.

Overall, there have been gains in most health outcomes over the last several years. Infant and under five-year (U-5) mortality in Ghana has decreased substantially. Signifi-

cant improvements have been made, with infant mortality decreasing to 50/1,000 and U-5 mortality to 80/1,000 (figure 2.1). One factor contributing to these reductions in child mortality is an increase in vaccination coverage, from 69 percent to 79 percent over the five-year period 2003–08 (GSS/IFC Macro 2008).

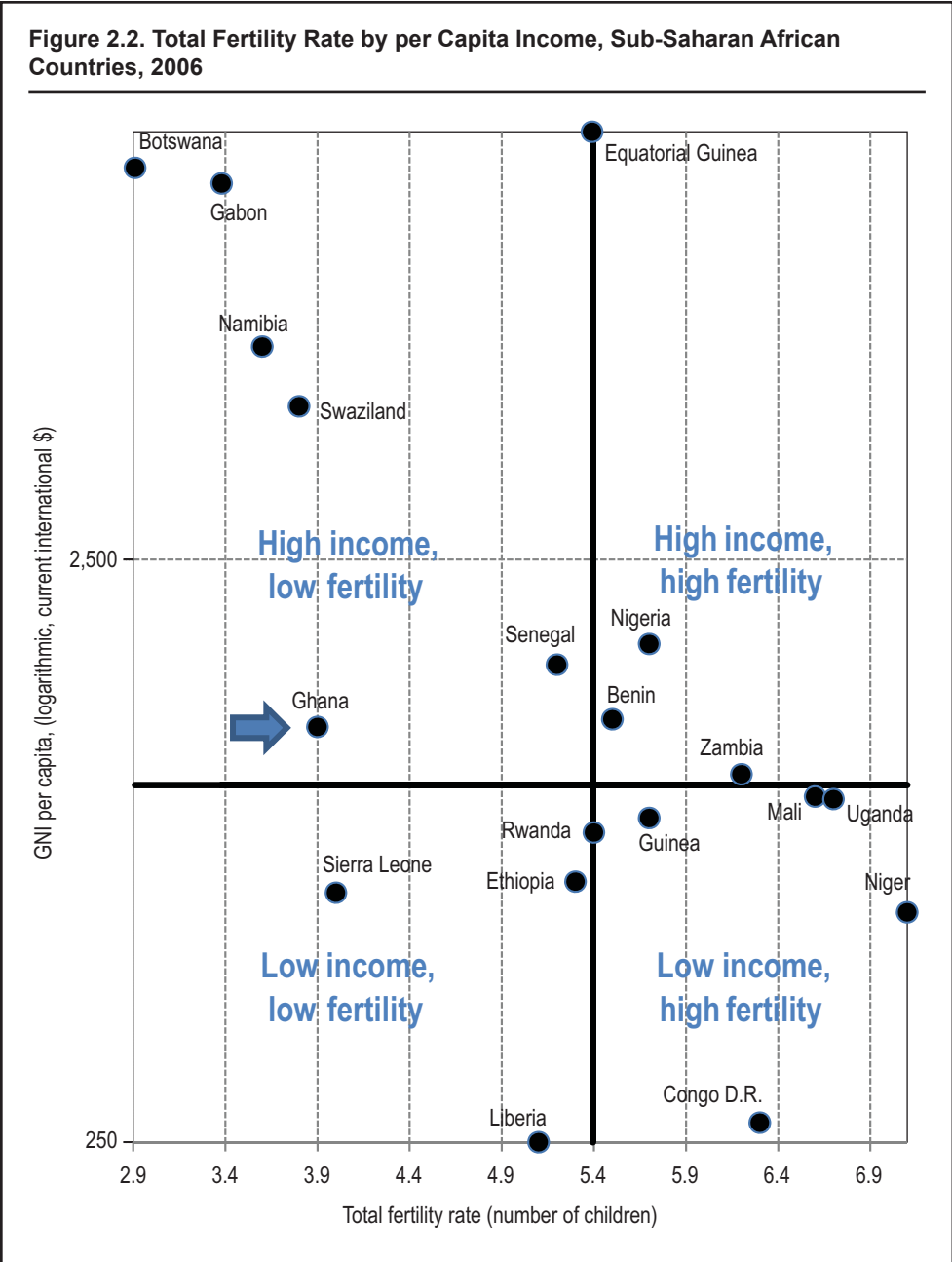
Over the last several years, the number of deliveries assisted by skilled personnel has risen by 20 percent, bringing Ghana almost to its target of 60 percent of births delivered by a skilled provider (GSS/IFC Macro 2008). However, the number of maternal deaths remains high (451 per 100,000 live births) and has only slowly been reduced.



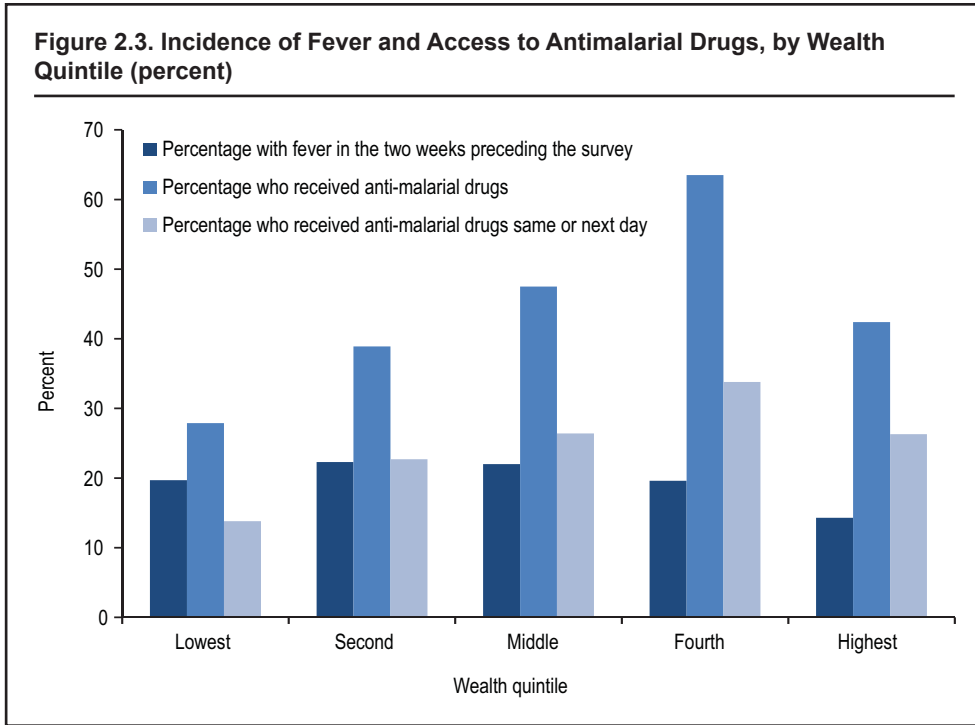
Sources: GSS, GLSS 5, 2005.

The government declared maternal health a national emergency in 2008, but despite the implemented measures, maternal health outcomes have changed little. In the regional context, Ghana is a high-income, low-fertility country, and in that group of countries it performs relatively well (figure 2.2). Ghana's total fertility rate is similar to that of Swaziland and Namibia, but Ghana's income is much lower. Thus, Ghana appears to have been particularly effective in reducing total fertility through family planning and other mechanisms.

Ghana has successfully improved the welfare of its population, although poverty and inequity in health remain important policy concerns. There is significant inequity in the delivery of health services in Ghana. For example, the incidence of fever increases with poverty, but timely access to antimalarials drops with poverty (figure 2.3). In Ghana, poorer people suffer from fever more often than the nonpoor, but their access to malaria treatment is considerably more restricted. A coordinated public policy that draws on a combination of public and private resources may help bridge gaps in access to health services.



Sources: World Bank 2009b; GSS/ICF Macro 2008.



Sources: GSS/ICF Macro, Ghana DHS 2008.

## General Environment in 2010

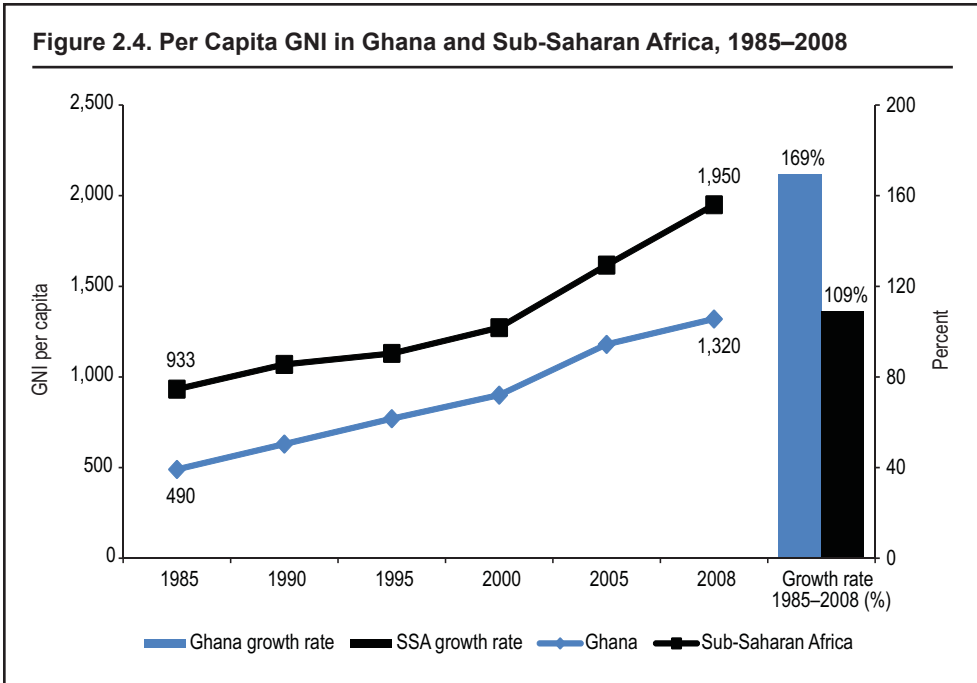
Ghana's health sector both influences and responds to the broad context of Ghana's economic and political situation. The following section outlines the general environment in 2010.

### *Economic Outlook*

In the past two decades Ghana's economy has experienced considerable growth (figure 2.4); at the same time, poverty has been reduced. Whereas in 1985 Ghana's per capita gross national income was about half that of Sub-Saharan Africa's average, in 2008 it had risen to reach two thirds of the regional average. Over the period, Ghana's per capita income grew by almost 170 percent while that of the whole region grew by only 110 percent. During the 1990s, poverty in Ghana dropped from 50 to 40 percent and extreme poverty from 37 to 27 percent of the population.

The government's primary development objective, articulated in its Growth and Poverty Reduction Strategy (GPRS II), is to accelerate growth while maintaining macro-economic stability, intended to facilitate the country's path to middle-income status by 2015. A key component of GPRS II has been promotion of the private sector. The country has privatized roughly two thirds of state-owned enterprises. The government has also strengthened its Public-Private Partnership (PPP) policy to incentivize the private sector's participation, particularly in major infrastructure projects (OECD 2008).

Recently, however, Ghana has faced rising fiscal and external balances. In 2008, the fiscal deficit rose to 14.9 percent of GDP (up from 9.2 percent in 2007) due in large part



Sources: World Bank 2003, 2009.

to the increase in the public sector wage bill, which rose to 11.5 percent of GDP (MOH 2009). The new administration identified this troubling trend in its Budget Statement for 2009 and was able to cut the deficit back to 2007 levels. Inflation also increased in 2008 to 19.9 percent (up from 12.7 percent at the end of 2007) but has since declined to about 12 percent (MOH 2009).

The medium-term macroeconomic outlook for Ghana is positive, with forecasts of strong GDP growth, though slightly lower than the 2005 to 2008 rates (OECD 2008). This outlook assumes continued social stability and deepened democracy, successful economic stabilization, and implementation of the agenda for private sector growth.

#### *National Health Insurance*

The institution of the National Health Insurance Scheme (NHIS) since 2004 has changed the financing landscape of the health sector, meeting a presidential promise to do away with “cash and carry” medicine. The scheme includes both public and private providers and is far-reaching in coverage, both in its depth (95 percent of the disease burden addressed by services covered) and breadth (60 percent of the population covered, according to NHIA). NHIS financing now accounts for two thirds of internally generated funds at government facilities and over 40 percent of total health expenditure in Ghana (MOH 2009). While household and patient data reveal that NHIS has increased utilization of care and reduced financial barriers, the scheme faces a number of challenges. Fraud and weak administrative management threaten the sustainability of the scheme. The core symptom of these challenges is delayed reimbursement of providers, which negatively affects public and private health care actors all along the supply chain, but is particularly damaging to private providers.

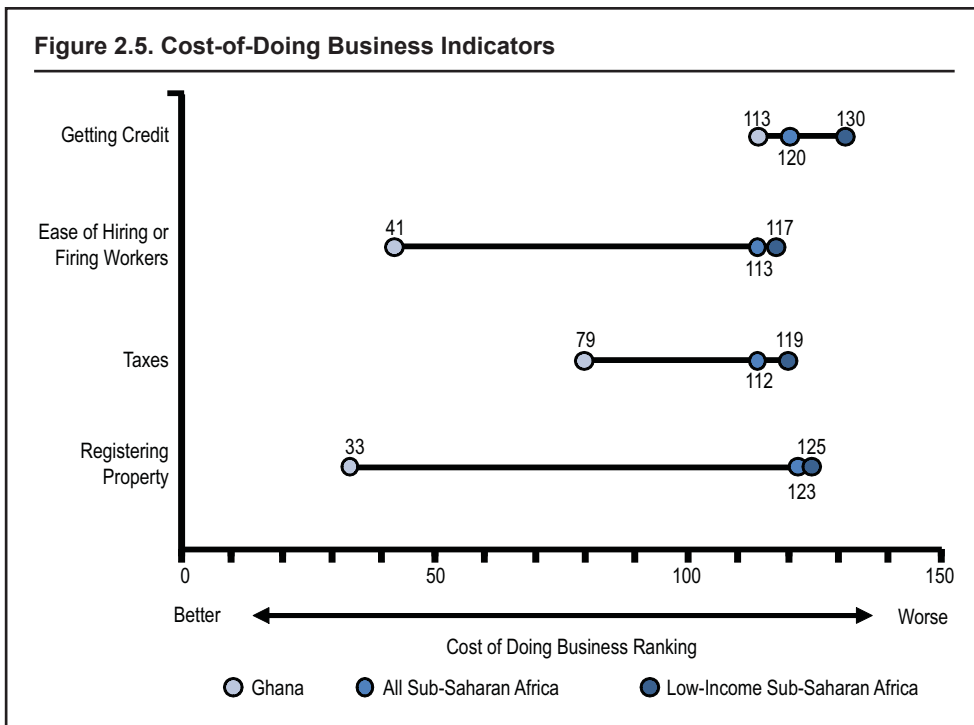
*Political Climate*

Ghana marked its 50th anniversary of political independence in 2007, against a backdrop of political stability and deepening democracy. The election of a new government at the end of 2008 brought a center-left political party to power (the National Democratic Congress) that is slightly less business and private sector oriented than its predecessor.

The government has demonstrated commitment to governance and accountability through various measures such as implementation of the African Review Peer Mechanism and fostering of open dialogues through the People’s Assembly; however, some perceptions of corruption remain. The government’s emphasis on decentralization (e.g., the administration of NHIS and GHS in the health sector) creates additional risks and increases the government’s burden in controlling corruption.

*Business Environment*

Across sectors, Ghana’s business environment is generally strong relative to its neighbors. Ghana performs better overall on most indicators for the region, and in 2010 was ranked 92nd out of 183 economies globally (World Bank 2010). However, Ghana was ranked 87th in 2009. Its five-place drop was due to weaker performance on a number of indicators. The key bottlenecks identified across all sectors in Ghana are: (1) getting credit, (2) starting a business, (3) dealing with construction permits, (4) employing workers, and (5) closing a business (World Bank 2010). One striking finding is that Ghana far outperforms the Sub-Saharan African average on most indicators except one: getting credit (figure 2.5). In Ghana, access to credit is particularly challenging for small and medium enterprises (SMEs).



Sources: World Bank 2010.

According to the major private sector associations and entities in Ghana, including the Association of Ghana Industries (AGI) and the Ghana National Chamber of Commerce and Industry (GNCCI), the most significant challenges faced by private actors are: (1) lack of access to finance; (2) weak institutional and regulatory framework for small business management; (3) inadequate information on existing regulations; (4) complexity and nontransparency of regulations; and (5) weak and inadequate capacity within the public sector to formulate, implement, monitor, and evaluate private sector policies (Private Enterprise Foundation 2009). In 2009, the private sector associations of Ghana formally submitted input into the formation of the government's Budget and Economic Policy (Private Enterprise Foundation 2009). The associations requested that the government support the establishment of a bank, through initial seed capital, that would put a special focus on SMEs. The associations noted that Ghana's existing financial institutions adopt a one-size-fits-all approach to credit administration and do not consider important factors specific to SMEs. To address the lack of information on and transparency of regulations, the associations urged the government to speed up passage of the Freedom of Information bill and to put in place procedures to make access to information less difficult (Private Enterprise Foundation 2009).

### 3. Methodology

This section describes the methodology utilized by the assessment team in carrying out the research.

#### **Analytical Framework**

The assessment team applied an analytical framework that: (1) depicted in greater detail than ever before the situation concerning the private role in the health sector and identified the factors that created and sustain this role, and (2) provided information needed by public and private actors to inform decision making concerning how to enhance<sup>1</sup> the private role. The analytical framework employed a supply and demand approach to identify market, policy, and institutional failures or weaknesses that could be addressed through policy change and action. The assessment was conducted in the environment of an explicit national health goal of better health and reduced inequality and a strategic objective of good governance and partnership.<sup>2</sup>

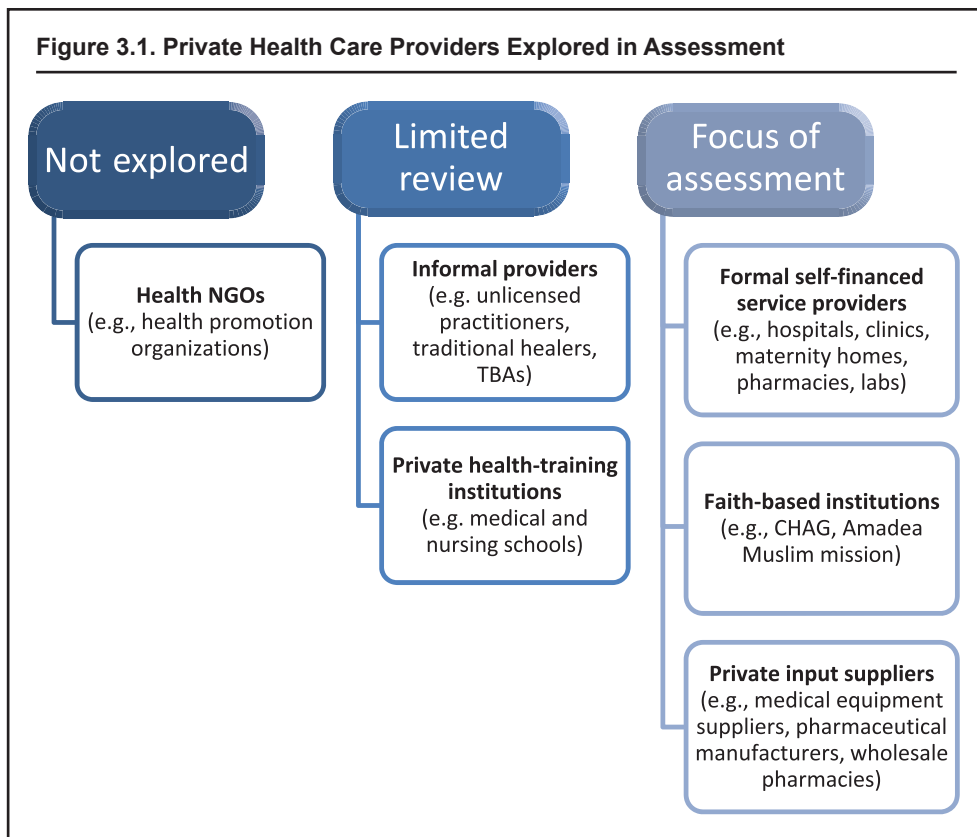
The analytical pieces of the assessment come together as follows: the demand information reveals how consumers see private providers and their potential; the supply information lets all parties gain a better understanding of the role being played by private actors and the constraints and barriers they face to doing more and doing better; and the institutional information points to areas in which institutions are facilitating, hindering, shaping, or failing to shape adequate private participation. The specific analyses conducted have allowed interventions to be formulated to address the targeted issues, whether these are opportunities for: public-private collaboration, enhanced dialogue, improved and more-effective regulation, policy change, or otherwise. Three stakeholder engagement workshops throughout the assessment provided the forums for discussion on research design, debate, and processing of specific analyses, and formulation of recommended interventions.

## Definition of the Private Health Sector

In this report, the private health sector is defined as any nongovernmental health business—including private self-financed,<sup>3</sup> not-for-profit, and mission- or faith-based facilities—involved in the direct delivery of health services, the supply of inputs, or the training of health professionals.

The assessment focused primarily on faith-based facilities and formal SFP service providers and input suppliers (figure 3.1). SFP health providers comprise hospitals, clinics, retail pharmacies, laboratories and chemical shops (i.e., drugstores). SFP input suppliers comprise wholesale pharmacies, medical equipment suppliers and pharmaceutical manufacturers. Faith-based service provision, represented almost entirely by the Christian Health Association of Ghana (CHAG), comprises hospitals and clinics.<sup>4</sup> Like quasi-government facilities, CHAG functions autonomously but receives significant government support in the form of salaries, equipment, and supplies. For this reason, CHAG facilities are separated from SFP facilities wherever possible for purposes of analysis and discussion.

The assessment included some analysis of informal providers and private pre-service health training institutions, but to a lesser extent than the above-named private actors. Informal providers comprise traditional healers, unlicensed practitioners, traditional birth attendants, herbalists, and spiritual healers. The contribution of informal



Source: Authors.



providers was examined from a demand perspective but not from a supply perspective. Private health-training institutions comprise medical, dental, nursing, midwifery, and community health schools.

Finally, while there are many nongovernmental health organizations in Ghana, they were not included in this study, given their focus on preventive care versus service delivery.

## **Study Components**

The assessment utilized a combination of surveys, focus groups and interviews, in addition to drawing on existing literature. Each component is described below. For a detailed account of the methods used for each, see appendix A.

### *Health Facility Mapping*

The health facility mapping was the first piece of primary research conducted for the assessment. All further primary research at the district level drew on the mapping exercise: initial findings were incorporated into survey design and facilities and participants were drawn from the mapping sample.

Given limited resources, the assessment team could not map and interview every health facility in the country. Rather, the team used purposive sampling and the input of the Assessment Steering Committee to select a sample of 7 (out of 170) districts in 5 (out of 10) regions. Although the sampling was purposive to ensure that major centers of private activity were captured (districts were selected in Ghana's two largest cities, Accra and Kumasi), the research team also sought to balance the sample in terms of geographic and socioeconomic diversity.

### *Patient Exit Polls*

A survey of about 1,100 patients exiting a sample of 49 health care facilities, including public, SFP, and private not-for-profit facilities was conducted in seven districts in mid-2009 as part of the assessment. The survey research questions were as follows:

- What are the distinguishing features of private providers, according to their patients, and how do these features compare with those of public and CHAG providers?
- Does NHIS coverage influence the choice of private providers by individuals?
- How much do patients of public, SFP, and CHAG facilities pay out-of-pocket for care?
- Does NHIS lower OOPS by patients of these three provider categories, and if so, is the effect similar among provider types?

### *Population Focus Groups*

The assessment team conducted 10 focus group discussions in the seven focus districts selected for the health facility mapping. More focus groups were held with women than men because: (1) the government has made reduction of maternal mortality a central objective, and (2) Ghanaian women typically oversee the health care of their children. The focus group discussions assembled seven female groups and three male groups between the ages of 20 and 45 who were living with at least one U-5 child. Focus group participants were randomly selected from households in communities in the mapped

districts. Household recruitment ensured a representative sample of the population of Ghana, which included persons who might not seek health care in formal settings. The objectives of the focus group discussions were to better understand

- The factors that drive frequency and use of health care
- The factors that drive selection of public and private providers, informal and formal providers
- Perceptions of quality of care
- The impact of NHIS on health care utilization.

#### *Secondary Analysis of Existing Data Sets*

The assessment took advantage of two sets of data from nationally representative household surveys that are performed at approximately five to six-year intervals in Ghana: the Ghana Living Standards Survey (GLSS) for 1999 (GLSS 4, 2000) and 2005 (GLSS 5, 2005) (each covering a sample of about 8,000 households) and the Demographic and Health Survey (DHS) for 2003 and 2008 (each covering a sample of more than 6,000 households). Both surveys provide information about the choice of health service provider according to household geography, demographics, and socioeconomic status. The GLSS 5 and DHS 2008 surveys also provide information about households' status concerning NHIS coverage (since NHIS began in 2004). Although these data sets have been analyzed in many ways for other purposes, the analyses performed for this assessment are the first to focus on issues concerning the private role in the health sector. The analyses use both cross-tabulations and econometric techniques.

#### *In-depth Qualitative Interviews with Private Providers*

Qualitative interviews were conducted to better understand the private health sector's contributions, constraints, and opportunities for playing a more effective role in providing health care in Ghana. This report draws from two sets of qualitative interviews: (1) interviews drawn from the health facility mapping sample and focused on private providers that indicated they faced obstacles to growth; and (2) interviews conducted as part of the AFD study and focused on "promising actors" that could potentially benefit from financial assistance.

#### HEALTH FACILITY MAPPING SAMPLE

The assessment team gathered qualitative data from interviews with nine private health care providers in four of the seven districts sampled: Tamale, Manya Krobo, Tema, and Accra. The sample was drawn from providers that indicated they faced "major" or "very severe" obstacles to growth in the areas of: (1) skills and education of available health workers; (2) business licensing and operating permits; (3) health regulations; and (4) access to financing. The sample included three hospitals, two clinics, one maternity home, two pharmacies, and one laboratory. Interviews were tape recorded and transcribed for purposes of analysis.

#### AGENCY RAPID DIAGNOSTIC STUDIES

This assessment built on the foundation developed by the rapid diagnostic AFD study on the role of the private sector in Ghana. Thus, the research performed for the AFD study, including in-depth qualitative interviews with 26 private health actors, has been incorporated into assessment findings.

### *National Key-Informant Interviews*

The assessment team met with several stakeholders at the national level to understand their perspectives on the public and private roles in the health sector, to seek relevant information in their areas of expertise, and to discuss constraints and opportunities for an improved private sector role. Interviewees included key stakeholders in the Ministries of Health and Finance, Ghana Health Service, NHIA, and the regulatory bodies; the private provider associations; development partners; and academic health institutions (see appendix B for a detailed list of stakeholders interviewed).

## 4. Assessment Findings: Role of the Private Health Sector in Ghana

This section examines how Ghanaians perceive and use health services, often by comparing the use of GHS, CHAG, and SFP providers. It also examines how Ghanaians use services by socioeconomic group, rural/urban status, and gender. It begins with descriptive analysis of how the use of health services changed between 1999 and 2005–06 as captured by the Ghana Living Standards Surveys (GLSSs). The descriptive analyses precede econometric analyses of the 2008 Demographic Health Survey (DHS), prepared by the Ghana Statistical Service. The analyses cover not only choice of public and private provider but also the factors influencing the decision to use health services at all.

### **Demand for Health Services**

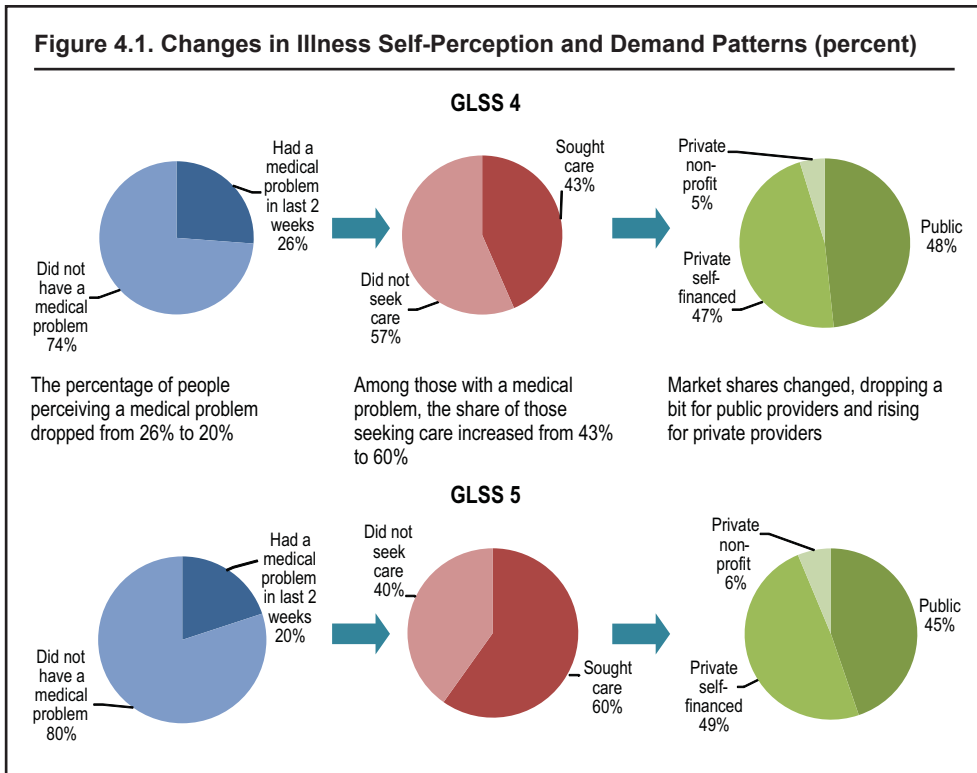
During the time periods covered by the surveys analyzed, all GHS and CHAG providers benefited from provisional accreditation by NHIS and hence were eligible for NHIS reimbursements. Only a small number of SFP providers had been assessed for accreditation at the time of the surveys. Thus, insured consumers could use their coverage to pay for GHS or CHAG services, but not for many SFP services.

The following section outlines the demand for health services, drawing on national surveys as well as novel data and analysis. This includes the factors that influence Ghanaian's illness self-perception and health-seeking behaviors.

#### *Descriptive Analysis of GLSS 4 and 5*

When Ghanaians are ill and seek care, they go to private sources half or more of the time. Given that, three important changes occurred between the two surveys known as GLSS 4 (2000) and GLSS 5 (2005): (1) The share of people (children and adults combined) perceiving a medical problem during the recall period dropped from 26 percent to 20 percent; (2) among those with a medical problem, the share of those seeking care increased from 43 percent to 60 percent; and (3) among those seeking care, the selection of public providers dropped from 48 percent to 45 percent, the selection of SFP providers increased from 47 percent to 49 percent, and the selection of private not-for-profit providers increased from 6 percent to 8 percent (figure 4.1).

The decline in illness self-perception could be interpreted as an overall improvement in health status, but it may also be attributable to a seasonal effect. For example,



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

GLSS 4 may have taken place predominantly at the end of the rainy season, when there is greater incidence of malaria (Karamagi et al. 2004). However, the increase in health care seeking is considerable—almost a 50 percent increase from 43 percent to 60 percent—and is unlikely to be attributable solely to shifting epidemiological patterns. Instead, it suggests that overall accessibility to treatment for all medical problems improved dramatically, possibly reflecting greater supply of services and improved socioeconomic status of the population that increased the ability to pay for care.

As mentioned, among users of health care, selection of public providers dropped slightly, the use of private not-for-profit providers increased marginally, and the use of private self-financed providers increased in an important way (figure 4.1). Thus, during this five year period, government-provided health care became relatively less attractive to users than private health care.

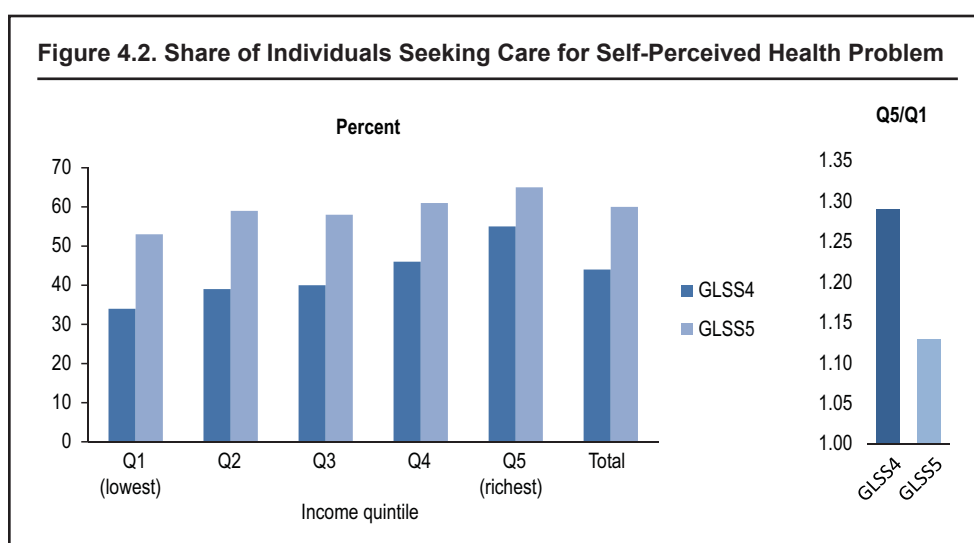
An annual rate of illness episodes can be linearly extrapolated based on the rate of health problem self-reporting over the survey's two-week recall period. This exercise may be biased by the seasonal nature of illness in Ghana, already discussed. However, it provides an order of magnitude estimate for the annual incidence of health problems. Combining that information with further information on the proportion of people seeking care when ill, the average annual number of contacts a Ghanaian has with the medical system can also be approximated. That figure comes to 3.19 medical contacts during 1999 and 3.33 contacts during 2006 (table 4.1). Thus, despite a drop in illness self-perception, medical contacts may have increased over the five-year period because of a significant increase in the propensity of the ill to seek care.

**Table 4.1. Changes in Illness Self-Perception and Demand**

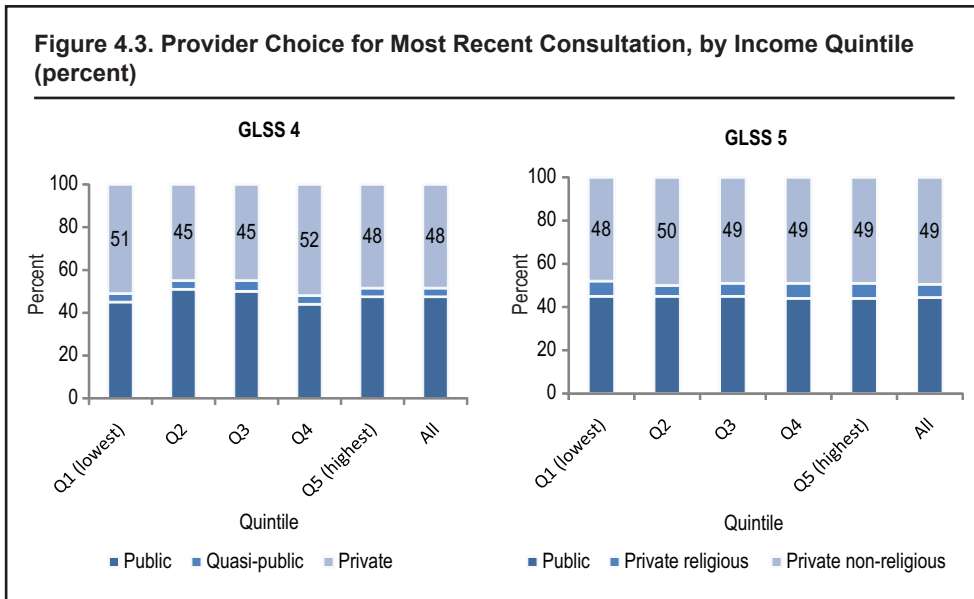
Indicator	GLSS 4			GLSS 5		
Respondents						
• reporting health problem in past two weeks (percent)	26.2			19.9		
• seeking care in past two weeks (percent of those who reported health problem)	43.5			59.8		
Number of illness episodes per year	7.33			5.57		
Number of annual contacts with medical system	3.19			3.33		
Type of provider chosen	Health care provider	Pharmacy or chemical seller	Total	Health care provider	Pharmacy or chemical seller	Total
Public	1.53	0.01	1.54	1.44	0.03	1.47
Private self-financed	1.33	0.17	1.50	1.32	0.26	1.59
Private nonprofit	0.15	0.00	0.15	0.11	0.17	0.28
Total of all providers	3.01	0.18	3.19	2.87	0.47	3.33

Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

Another way to examine the change in use of care when ill between GLSS 4 and GLSS 5 is to look at what happened across socioeconomic status groups. The increase in use of care occurred in all income groups (figure 4.2). Additionally, although use of care when ill remained greater among the richer, the gap between the poorest and the richest socioeconomic groups narrowed. In GLSS 4, the ratio in access to care between the richest and the poorest quintiles (Q5/Q1) was 1.29, meaning that those in the higher socioeconomic group were 29 percent more likely to seek care when ill than those in the lowest group. In the subsequent GLSS, that ratio had dropped to 1.13.



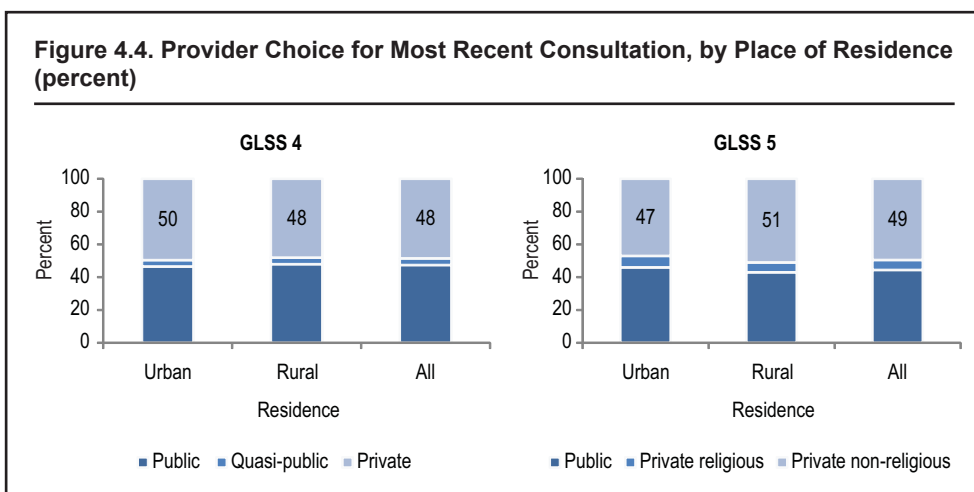
Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.



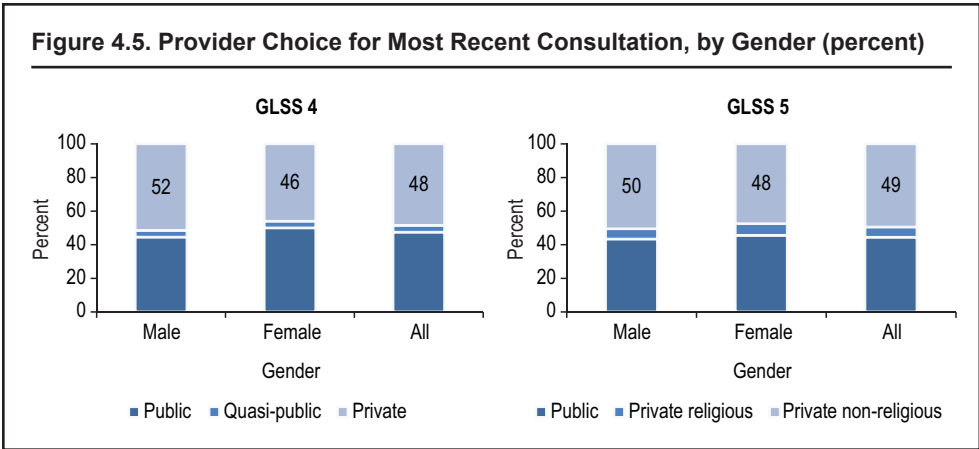
Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

Another important finding from the analysis by socioeconomic group is that all Ghanaians, rich or poor, choose private service providers about half of the time in both GLSS 4 and 5 (figure 4.3).

In the period between these two surveys, there were also important changes in the patterns of demand for curative care, according to place of residence and gender (figures 4.4 and 4.5). Regarding place of residence (figure 4.4), when GLSS 4 was conducted, those living in urban areas were considerably more likely to seek care when ill than their rural counterparts (53 percent versus 40 percent, meaning that urban residents were 28 percent more likely to seek care when ill). Six years later, use of health care when ill improved in an important way both in urban and rural settings, but the gap narrowed:



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

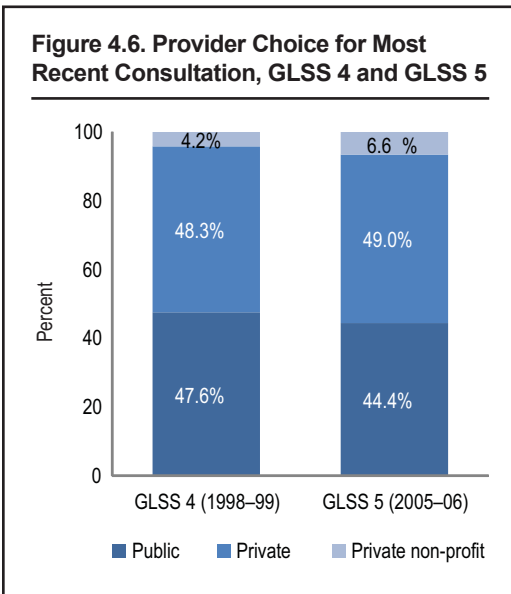


Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

the ratio of use by urban versus rural residents fell to about a 22 percent advantage for urban residents. This narrowing of the gap was even more pronounced between males and females (figure 4.5). In 1999, there was a 2 percentage point difference in access to care between males and females in favor of men. By 2005, this gap had vanished: both males and females were equally likely to seek care when ill at a rate of about 60 percent.

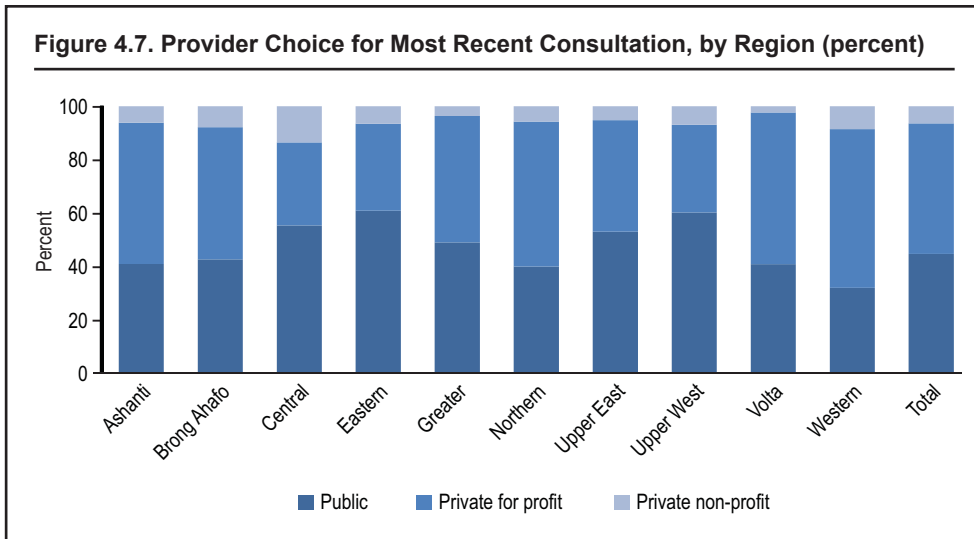
Both urban and rural residents used private providers when seeking care about half of the time in each GLSS (figure 4.4). Both males and females also used private providers about half of the time, as found in each GLSS (figure 4.5). Thus, the ability to use private providers is important (making up about half of total use) to the access to care for all socioeconomic groups, for both urban and rural residents, and for both males and females. Contrary to some beliefs, use of privately provided services in Ghana is not at

all limited mainly to urban residents of higher socioeconomic status.



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

Given the focus of this assessment on the private health sector, it is important to examine the selection of providers by ownership type. The assessment compared the national results between GLSS 4 and 5, (figure 4.6), and compared the results across regions for the GLSS 5 (figure 4.7). The use of public providers dropped while that of private providers increased between the two periods (figure 4.7). This result was explained above. There was some variation in provider selection among the regions (figure 4.7). In several regions, the market shares of public and private providers (both self-financed and not-for-profit) were more or less evenly split, although with exceptions; in the

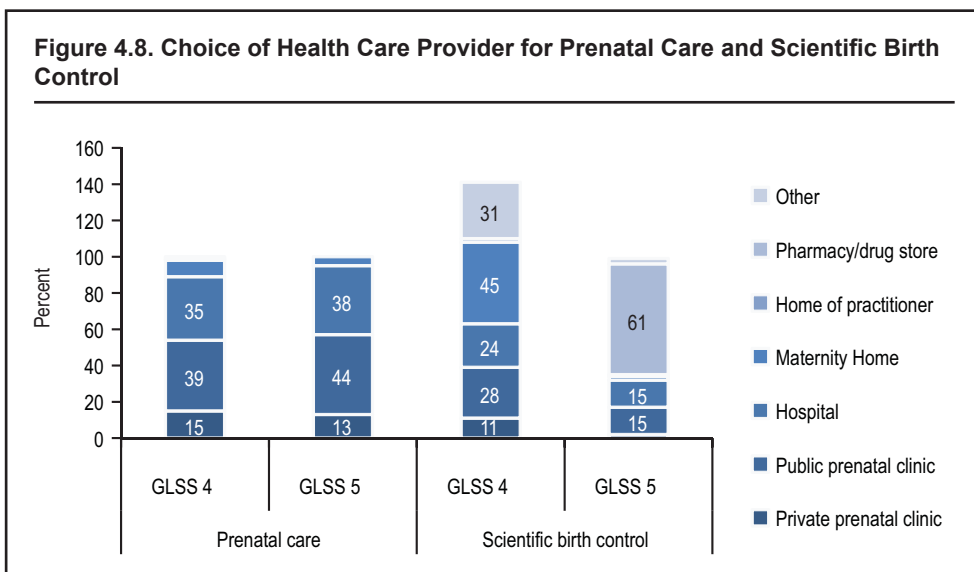


Sources: GSS, GLSS 5, 2005.

Eastern and the Greater Accra regions, private providers accounted for as much as 60 to 70 percent of total demand.

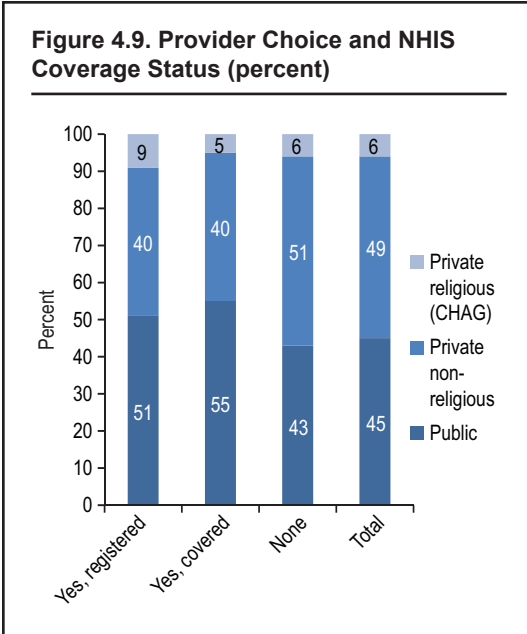
As can be seen, over time several changes have occurred in provider selection for specific services: prenatal care and scientific birth control (figure 4.8). Women increasingly sought prenatal care from public prenatal clinics and hospitals, and during the same period, fewer women obtained scientific birth control from prenatal clinics, hospitals, maternity homes, and homes of practitioners, and more from pharmacies/drug stores.

Nevertheless, the advent of NHIS is undoubtedly a key change in the health sector that has influenced access, provider choice, and OOPS by consumers. But it is not



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.



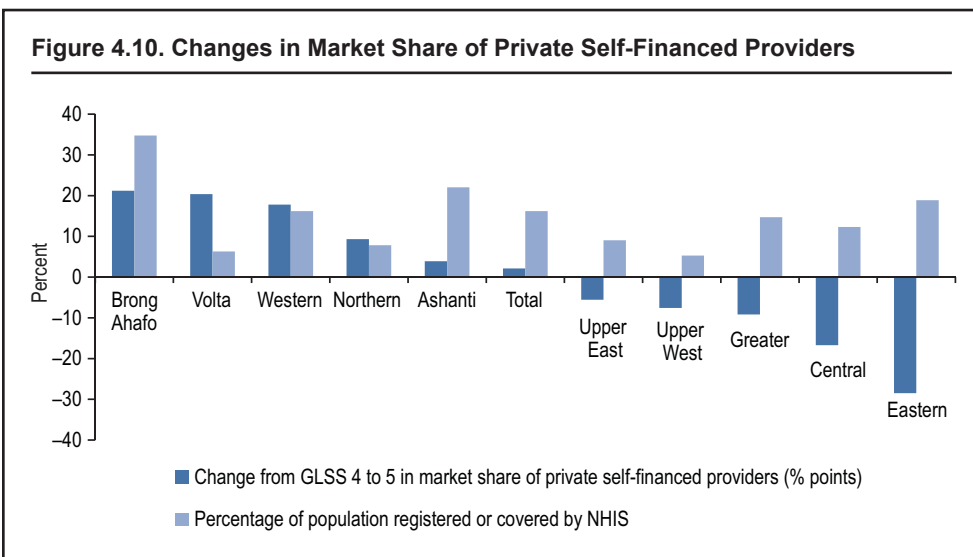


Sources: GSS, GLSS 5, 2005.

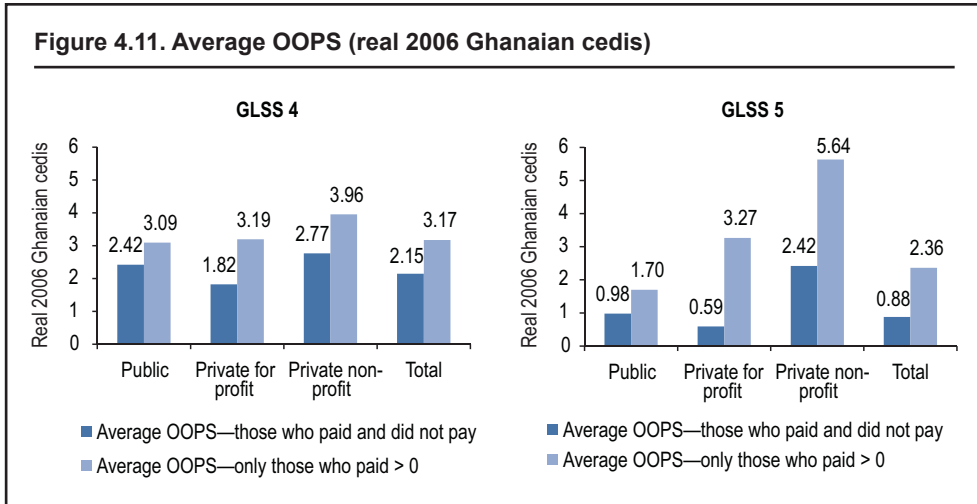
were private. Thus, it is to be expected that by 2006 any increase in use attributable to the NHIS may have gone primarily to public providers. Those registered with or covered by the NHIS selected public providers more often than the rest (figure 4.9). While this may be a consequence of NHIS coverage and its early accreditation of public providers, it may also be a result of other, unmeasured variables influencing provider choice. The econometric analysis presented attempts to explore this issue. As is evident from figure

the only change that took place in Ghana between 1999 and 2006. Other changes observed during those five years are the growth in per capita income, reduction in poverty, and change in government health spending. It is therefore natural to expect changes in demand patterns, and attributing them solely to the NHIS is not appropriate.

The influence that the NHIS may have had on the selection of provider by ownership type is a key policy research question. In principle, the NHIS was developed to promote greater accessibility to care for all Ghanaians and from all accredited providers, both public and private. In practice, however, by 2006 most NHIS-accredited providers were public, and only a handful, if any,



Sources: GSS, GLSS 5, 2005.

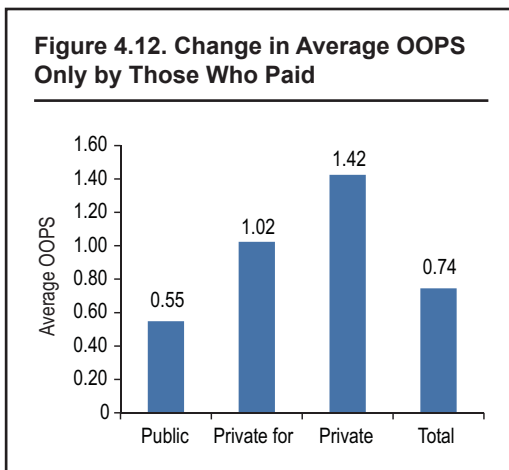


Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

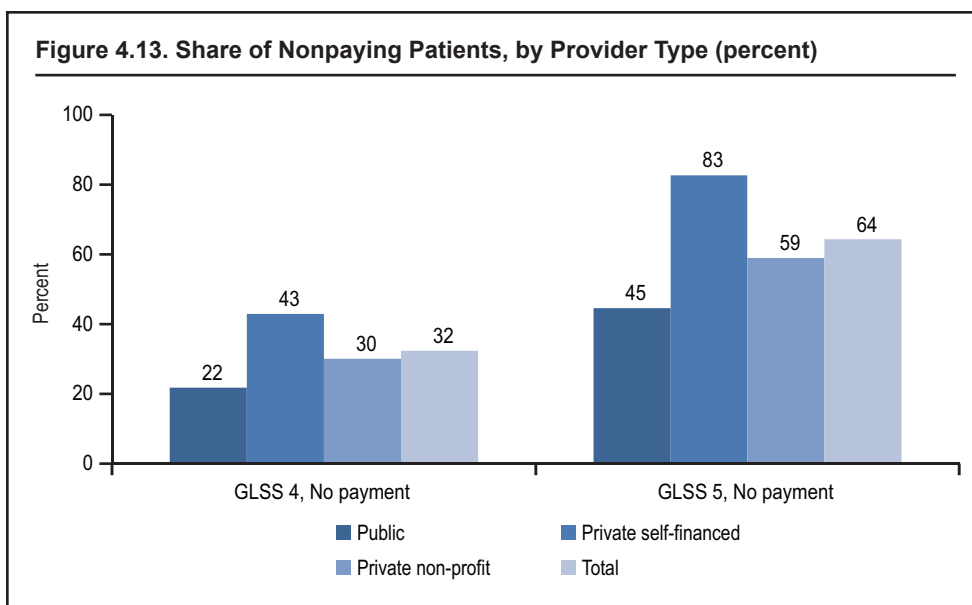
4.10, the NHIS had no clear influence on changes in the market share of private providers between GLSS 4 and GLSS 5. No pattern emerges from contrasting the coverage of the NHIS in 2006 with the change in market share of private providers; regions with similar NHIS coverage saw both increases and decreases in the market share of private providers.

The NHIS should help reduce the OOPS of its beneficiaries through the waiving of user fees and its direct reimbursement of accredited providers. It is therefore relevant for this research to assess any changes in OOPS over the two surveys. There were variations in OOPS according to provider ownership type (figure 4.11). The amounts shown are in real (inflation-adjusted) Ghanaian cedis of 2006. In both periods, however, the relationship of OOPS is as follows: highest for private not-for-profit, lowest for public, intermediate for private self-financed.

Average patient OOPS, measured in real terms (adjusted by inflation) followed different trajectories between GLSS 4 and GLSS 5 (figure 4.12). Among public providers, OOPS fell by 45 percent. Among private self-financed providers, it increased by 2 percent. And among private not-for-profit providers, it increased by 42 percent. Because public providers represent nearly half of demand, the weighted average patient OOPS fell by 36 percent. There was a considerable increase in the proportion of patients exempted from payment—the proportion actually doubled (figure 4.13). But this happened with all providers, and therefore, by itself, the NHIS cannot explain this phenomenon.



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.



Sources: GSS, GLSS 4, 2000; GSS, GLSS 5, 2005.

To summarize what the descriptive analysis of GLSS 4 and GLSS 5 reveals:

- There were considerable changes in demand patterns between the two surveys. From GLSS4 to GLSS 5, the proportion of people reporting a health problem dropped; a higher proportion of people with a health problem sought care; and a smaller share of those seeking curative care went to public providers, and a higher share went to SFP and not-for-profit providers.
- Both GLSS 4 and GLSS 5 showed that all population groups make substantial use of privately provided health services. About 50 percent of services are utilized at private providers by all socioeconomic status groups (richest to poorest), rural and urban residents, and males and females. These results show important demand for privately provided services that includes, but goes well beyond, wealthy urban consumers.
- There were important changes in the regional market share of private providers. These changes cannot be attributed to the NHIS and may be explained by other factors. Patients selecting a public provider went mostly to a hospital or clinic. Those visiting a private provider went more frequently to hospitals or clinics, followed by pharmacies and chemical sellers.
- OOPS is highest for private not-for-profit, lowest for public, and intermediate for private self-financed providers.
- OOPS fell dramatically between GLSS 4 and GLSS 5 at public providers, barely changed at self-financed providers, and rose at not-for-profit private providers.

#### *Analysis of DHS 2003 and 2008*

The Demographic and Health Surveys (DHSs) of 2003 and 2008 cover the choice of provider for selected services used by U-5 children. For these narrowly focused services, the choice of provider favored public over private sources between 2003 and 2008. The

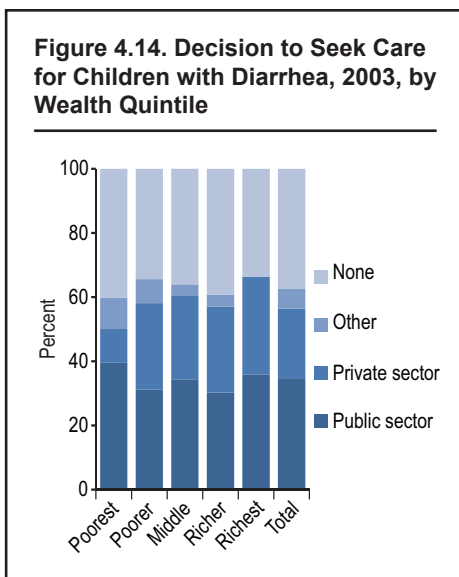
DHSs examined provider choice for seeking care when the child (1) had fever or cough and (2) when the child had diarrhea. The 2008 DHS indicated that 34.5 percent of Ghanaian households had insurance coverage for health care. Insurance coverage is important because it seems to influence choice of provider (appendix D discusses this in greater depth).

Figures 4.14 through 4.18 examine care seeking and choice of provider for the two types of children's illnesses between the 2003 and 2008 DHSs by socioeconomic group. Care seeking for diarrhea increased between 2003 and 2008 from just less than 50 percent to about 63 percent (figures 4.14 and 4.15). The biggest increases were for children in the lower socioeconomic groups. The choice of a private provider when seeking care went from 47 percent in 2003 to 34 percent in 2008. All socioeconomic status groups increased their use of public sources of care, relative to private sources, when seeking care.

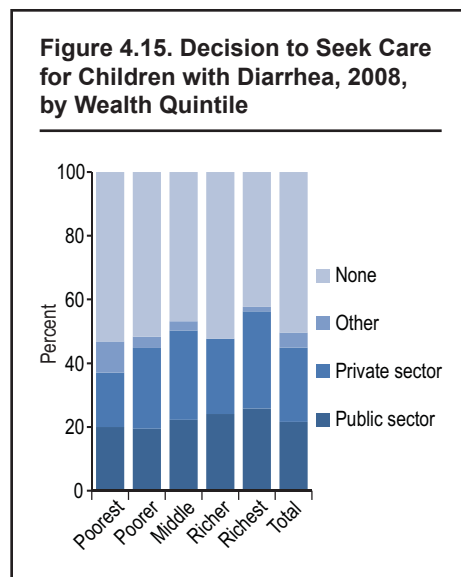
Care seeking for U-5 children when ill with fever or cough barely changed between 2003 and 2008, from 67 percent and 64 percent, respectively (figures 4.16 and 4.17). In the poorest socioeconomic status group (the poorest quintile), care seeking for U-5 children when ill dropped from 67 percent to 53 percent, while the middle to richest quintiles all saw modest increases in care seeking. Use of private providers when seeking care dropped a bit from 43 percent to 37 percent. The share of private providers for care rose for the richest quintile and fell for the other four quintiles.

#### *Econometric Analysis of Health Care Demand Using the DHS 2008 Survey*

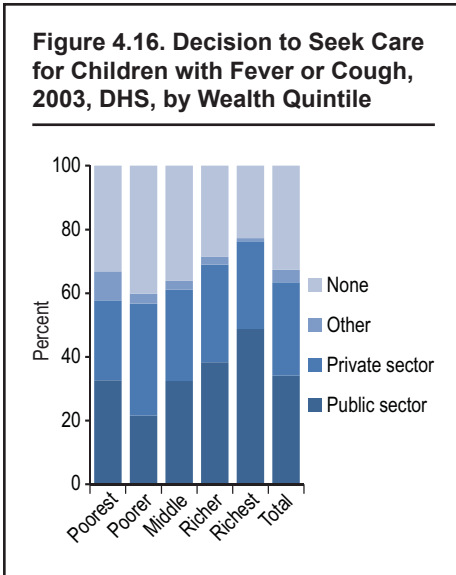
The assessment team conducted an econometric analysis of demand using the DHS 2008 data and focusing on two groups of individuals: (1) women who reported having been pregnant at least once in the past and (2) U-5 children. Findings related to the impact of health insurance coverage on provider choice are provided below. Results presented in the following several bullets are based on regression results provided in appendix D. Appendix D also presents additional findings related to the probability of having health insurance coverage.



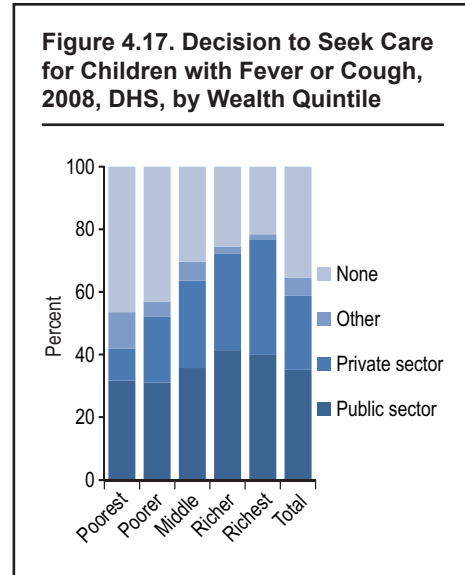
Source: GSS/NMIMR/ORC Macro 2004.



Source: GSS/ICF Macro 2008.



Source: GSS/NMIMR/ORC Macro 2004.

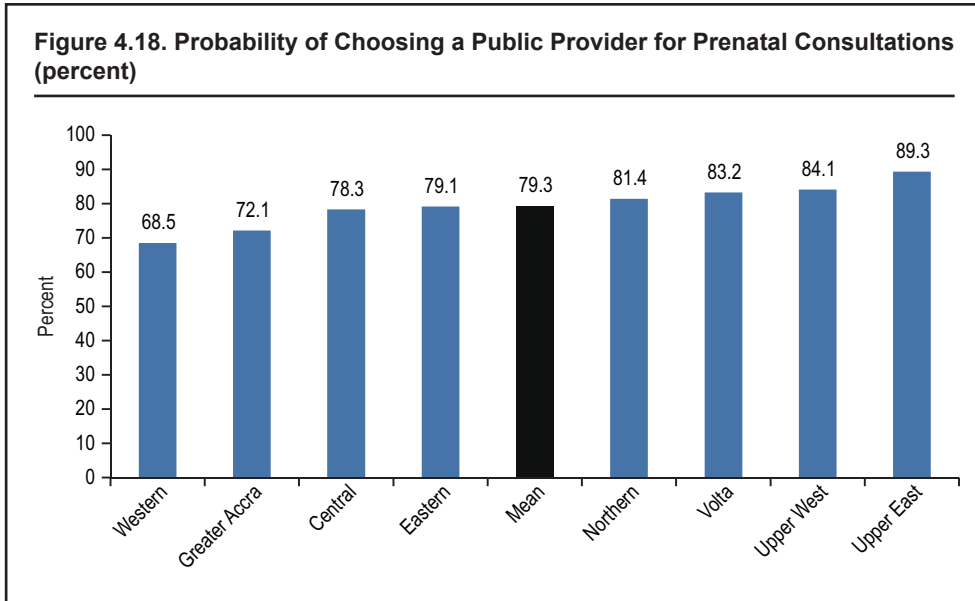


Source: GSS/ICF Macro 2008.

#### WOMEN PREGNANT AT LEAST ONCE BEFORE

This section presents the findings about the health service choices of women who had been pregnant at least once before.

- *Probability of choosing a public provider for prenatal care consultations* (table D.5, column 4). Using regression analysis, the assessment team studied the factors influencing the selection of provider type by women seeking prenatal care. The dependent variable of this regression model was the likelihood that a pregnant woman would select a public provider for her prenatal consultations. The significant independent variables thus indicate which factors influence women to choose public providers for prenatal care. The only other choice being private providers, it can be inferred that these same features make private providers less likely to be chosen for prenatal consultations. The following variables made it more likely for pregnant women to choose public providers for prenatal consultations:
  - *NHIS coverage*. Pregnant women covered by the NHIS are more likely to choose a public provider.
  - *Rural residence*. Women living in rural areas are more likely to obtain prenatal care from public providers.
  - *Age*. Older women favor public providers for prenatal care.
  - *Region of residence*. There are important and statistically significant differences among some regions in the probability that a pregnant woman chooses a public provider for prenatal care during pregnancy (figure 4.18).
- *Probability of delivering outside the home* (table D.5, column 5). Before analyzing choice of provider for assisted deliveries, first the choice to deliver outside the home is analyzed. This model examines the variables that influence a woman's choice of place of delivery. The two options considered in the model are deliv-

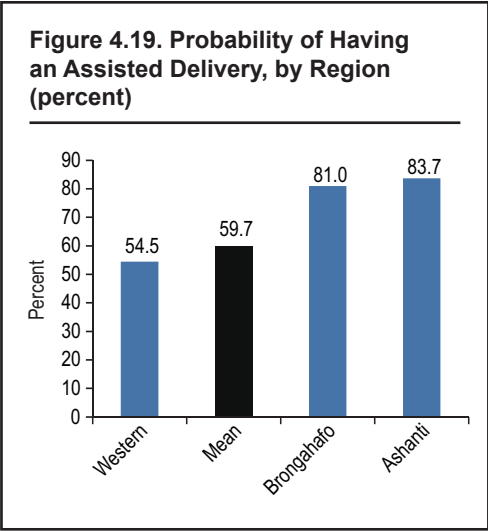


Source: Author analysis of data from GSS/ICF Macro 2008.

ery at home and delivery outside the home (assisted delivery). A statistically significant and positive model coefficient indicates that the associated variable increases the likelihood that a woman will seek care outside the home. As was done for the previous models, rather than commenting on each of the effects, for simplicity, the results of this model are presented here directly through the magnitude of the effects, and only for statistically significant variables.

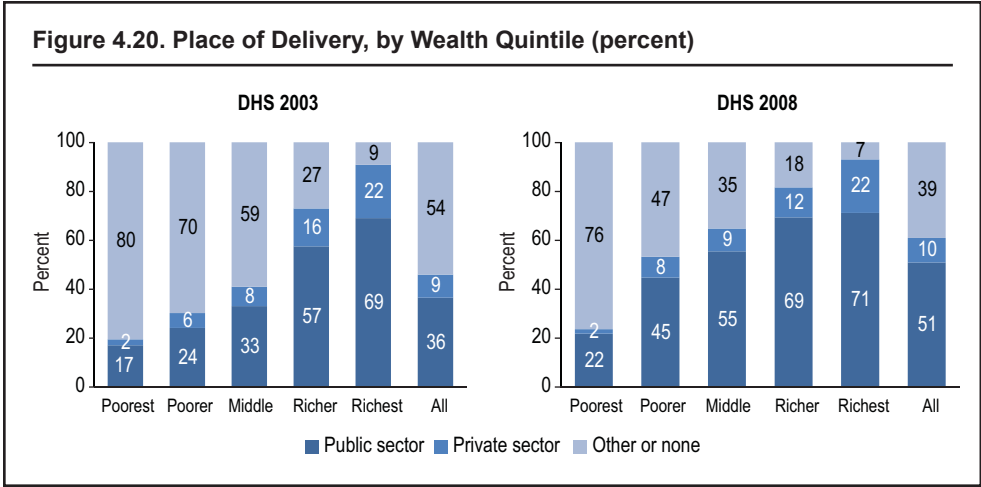
- Having NHIS coverage considerably increases the probability that a pregnant woman will deliver outside her home, from 54.2 percent to 64.5 percent.
- Living in a rural setting makes it less likely that a woman will deliver outside her home.
- The simulation result for age considers two scenarios: one in which a woman is 15 years old (corresponding to the column labeled “From”) and another in which the women is 30 years old (the column “To”), where 30 is the average age of women ever pregnant who responded to the DHS 2008. As the table shows, there is an important and positive age effect: as women age they are more likely to decide to deliver their baby outside their home. This may be a learning effect, from difficulties some of the older women may have had in previous at-home deliveries. Hence, many of those older, more experienced women now are choosing to deliver outside of the home.
- More educated women are more likely to deliver outside the home.
- Women living in richer households are also more likely to deliver outside the home, and the effect is considerable.
- The decision to deliver outside the home varies among regions (figure 4.19). Only regions that had a statistically significant effect are shown in the figure.

■ *Probability of selecting a public provider among women who decide to have an assisted delivery outside the home (table D.5, column 6). In the five years between the two DHS surveys, the proportion of institutional deliveries increased in an important way, from 45 percent to 61 percent (the sum of Public sector and Private sector in the column “All” in both graphs in figure 4.20). Still, in both years the choice of place of delivery was heavily influenced by household wealth. Among the poorest households, most deliveries took place in the home, whereas women living in wealthier households were much more likely to select a private provider. In both surveys, women delivering outside the home expressed a much stronger preference for public providers. Overall, the market share of private providers changed little in the five-year span. The growing preference for private providers among women from wealthier households may be explained by women’s greater ability to pay for their services and by a greater supply of private obstetrical services in the places where those wealthier households are located.*



Source: Author analysis of data from GSS/ICF Macro 2008.

Next, regression analysis was used to examine the factors that influence a woman’s choice of provider for a delivery, among those who choose to deliver outside the home.



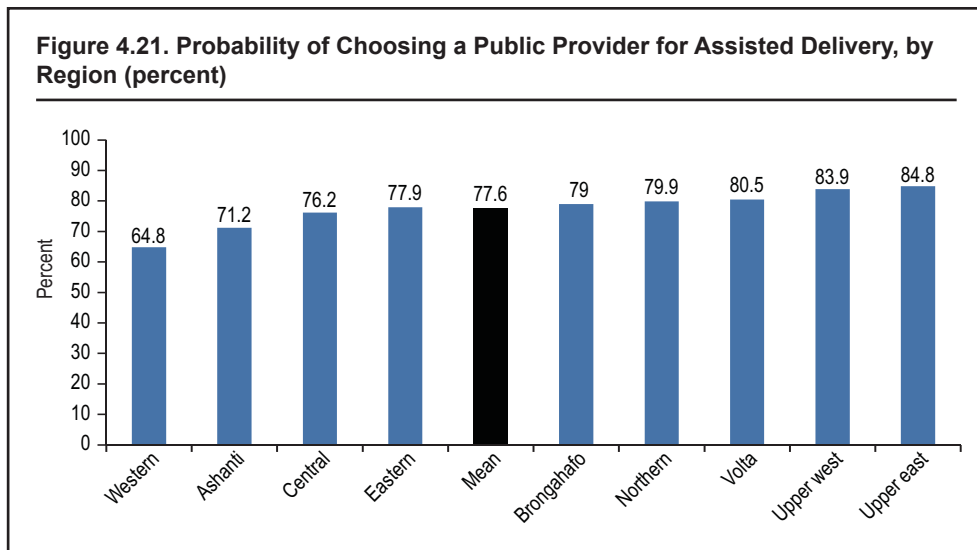
Sources: Author analysis of data from GSS, et al., Ghana DHS 2003, 2004; GSS/ICF Macro 2008.

The analysis reveals two significant factors influencing the choice to use a public provider: having NHIS coverage and the region of residence. The magnitude of the effects of these statistically significant variables is reported in appendix D (table D.5). As can be seen:

- NHIS coverage increases by almost 6 percentage points the probability that a woman who delivers outside the home will select a public provider relative to a private provider.
- Among women who chose to deliver outside the home, their decision to select a public provider varied among regions (figure 4.21). Only regions that had a statistically significant effect are shown in the figure.

#### CHILDREN UNDER FIVE YEARS OF AGE

- *Probability of seeking formal treatment for a diarrhea episode (table 4.2).* The analysis of treatment for a diarrheal episode for U-5 children begins with a regression analysis of choosing to seek formal care for the episode. The results are:



Source: Author analysis of data from GSS/ICF Macro 2008.

**Table 4.2. Probability of Seeking Formal Treatment for Diarrhea in U-5 Children (percent)**

Variable influencing demand	From	To	Difference
Health insurance	36.6	49.1	12.5
Rural setting	31.0	46.3	15.3
Education of mother	35.4	42.4	7.0
Greater Accra Region	42.8	18.7	-24.1
Household Income Quintile 4	38.5	55.9	17.4
Household Income Quintile 5	39.6	61.6	22.0
Mole-Dagbani	36.7	53.2	16.4

Source: GSS/ICF Macro 2008.



- NHIS coverage significantly increases the probability that a child with diarrhea will be taken to a formal health facility (either public or private) for care.
  - A child living in a rural area is 50 percent more likely to be taken for formal treatment for diarrhea than a child in an urban area.
  - Educated mothers more often take their children to formal treatment for diarrhea than mothers without education.
  - Wealthier households are more likely to seek formal treatment for their children with diarrhea. The wealth effect is even greater than the independent NHIS coverage effect. Since wealthier people are more likely to have NHIS coverage, the two effects multiply their chances of seeking formal treatment.
- *Probability of choosing a public provider among those seeking treatment for diarrhea (table 4.3).* The regression analysis with choice of a public provider for treatment of diarrhea in U-5 children shows that three variables are statistically significant. The findings are:
- Health insurance and living in a rural setting increase the probability that a public provider will be selected.
  - Older mothers are less likely to choose public providers.

**Table 4.3. Probability of Choosing a Public Provider to Treat Diarrhea in U-5 Children (percent)**

Variable influencing demand	From	To	Difference
Health insurance	47.9	65.2	17.3
Rural setting	44.4	59.9	15.6
Age of mother	66.1	54.6	-11.5

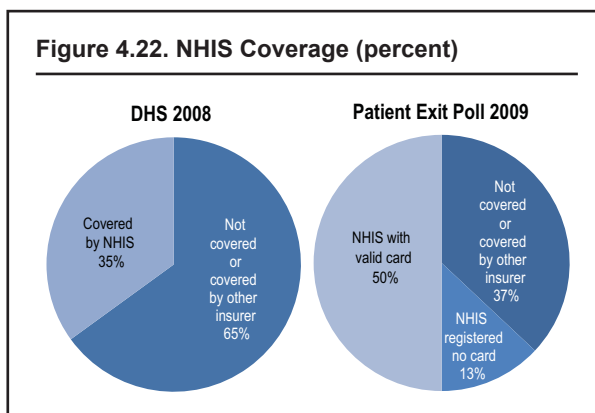
Source: GSS/ICF Macro 2008.

*Patient Exit Polls*

The following are the main findings from the patient exit poll:

**NHIS COVERAGE**

The exit poll asked patients the following question: “Are you covered by the NHIS?” Nearly two thirds of respondents reported having coverage (figure 4.22). As can be seen, there were important differences in NHIS coverage as reported by respondents to the DHS 2008 and that reported through exit polls (figure 4.22). The earlier DHS 2008 reports coverage slightly above one third, whereas according to the exit poll, total NHIS coverage was nearly two thirds (63 percent, although coverage with a valid card was only 50 percent). The large difference in reported coverage may be explained by



Source: GSS, GLSS 5, 2005; Authors.

an aggressive and successful effort by the NHIS to expand coverage in the recent past and also by differences in the sampling frame of the two surveys (DHS 2008 was a national sample drawn from households whereas the patient exit poll was a regional sample drawn from health facilities). The exit poll allowed for greater detail in the responses on coverage (figure 4.22), inquiring whether interviewees had a valid NHIS card at the time of the survey or were registered with the NHIS but did not hold a valid card (NHIS beneficiaries must renew their cards annually). Reportedly, patients who are registered with the NHIS but who do not have their card should not be entitled to NHIS coverage.

#### SOCIOECONOMIC STATUS

To compare patient responses on the basis of their socioeconomic status, the assessment team inquired about combined household income. Income ranges in the survey instrument were constructed on the basis of the most recent GLSS household survey in an attempt to match the quintiles of that survey. However, incomes reported by survey patients were overall higher than those in the GLSS 5. Hence, the assessment team had to redefine income ranges and construct terciles instead (table 4.4).

**Table 4.4. Household Income Terciles of Respondents**

Combined monthly household salary/profit (2009 Ghanaian cedis)	Respondents (number)	Distribution (percent, excluding DN/NS)	Percent	Tercile
0-80	242	25	25	T1
81-110	140	15	31	T2
111-125	65	7		
126-140	95	10		
More than 140	413	43	43	T3
DN/NS	186	—	—	—
Total	1,141	100		

Sources: Authors analysis, Patient exit poll 2009.

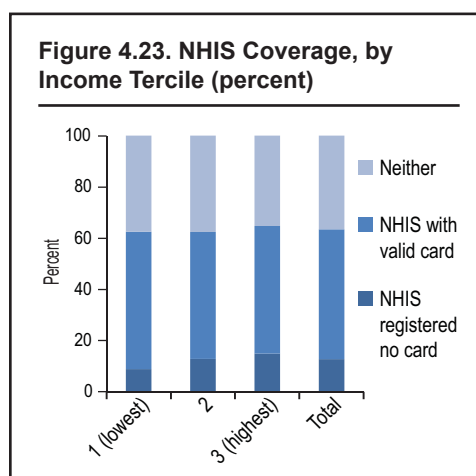
Note: DN = don't know; NS = not sure; — = not relevant.

#### NHIS COVERAGE BY SOCIOECONOMIC STATUS

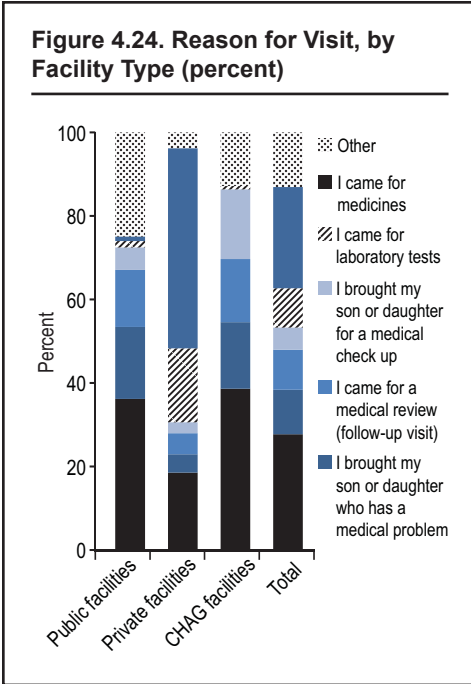
Household income and consumption appear to bear little relationship to NHIS coverage (figure 4.23).

#### REASON FOR VISIT BY FACILITY TYPE

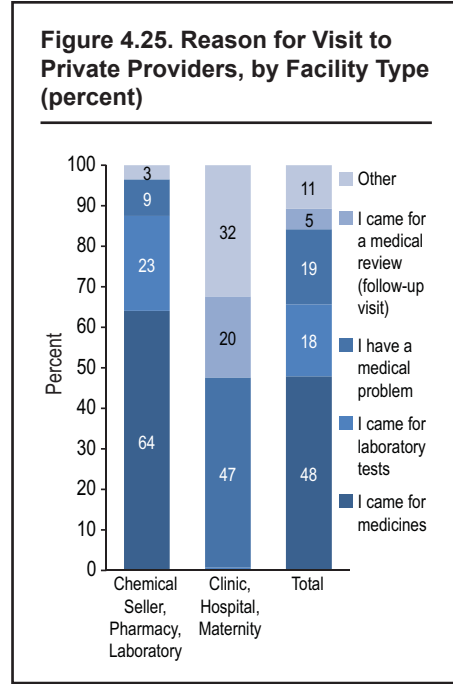
The assessment explored the main reasons for selecting a particular provider varied by provider type (figure 4.24). Private providers are selected more often for medicines and lab tests; public providers for a consultation or medical problem. That is to be expected given that the types of facilities selected in the sample differ between the public and private sectors. Private fa-



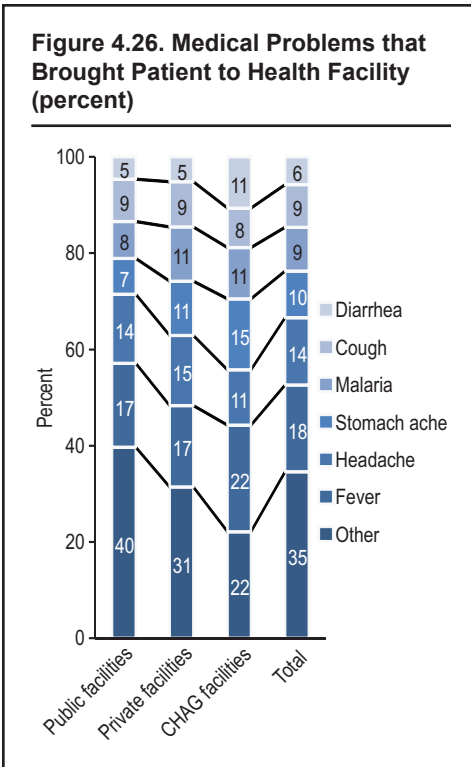
Source: Authors.



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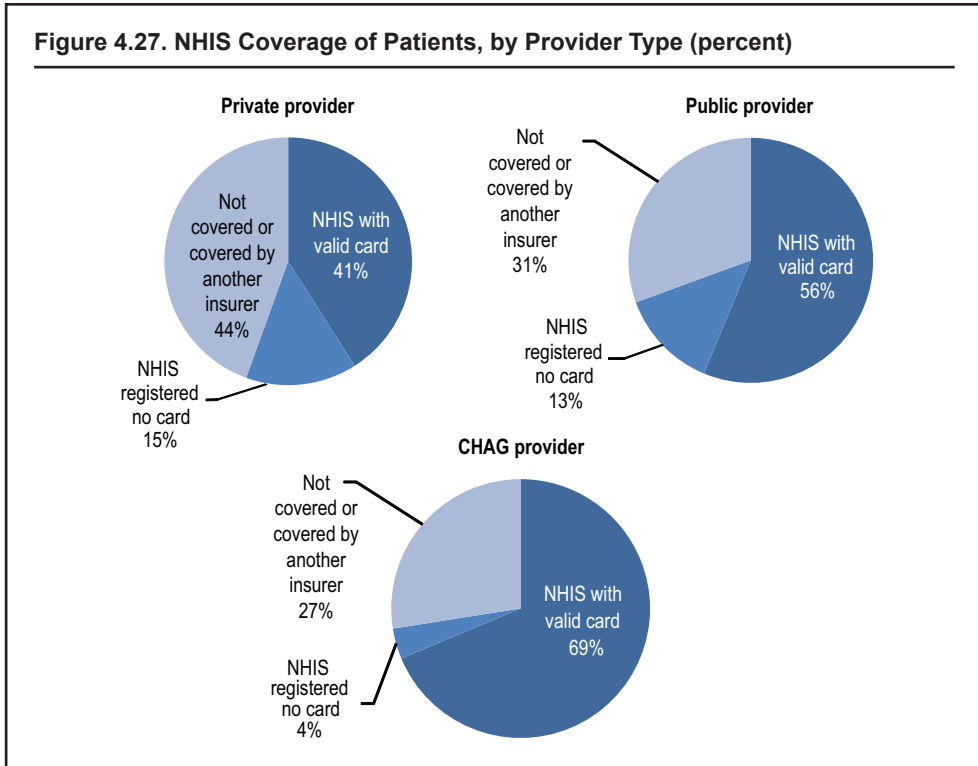


Source: Authors.

ilities are mostly drug sellers and retail pharmacies; public facilities are mostly health centers and clinics (figure 4.25). In the private sector some providers specialize in the delivery of medicines or exams (chemical sellers, pharmacies, labs); others in the delivery of consultations (clinics, hospitals, maternities). There are only small differences in the structure of medical problems seen in each type of facility (figure 4.26). Fever is the chief complaint in all facility types, followed by headache and stomach ache.

**NHIS COVERAGE OF PATIENTS BY PROVIDER TYPE**

The insurance status of patients varies by provider type (figure 4.27). The share of NHIS-covered patients was highest among CHAG providers (73 percent), intermediate among public providers (69 percent), and lowest among self-financed private providers (56 percent).



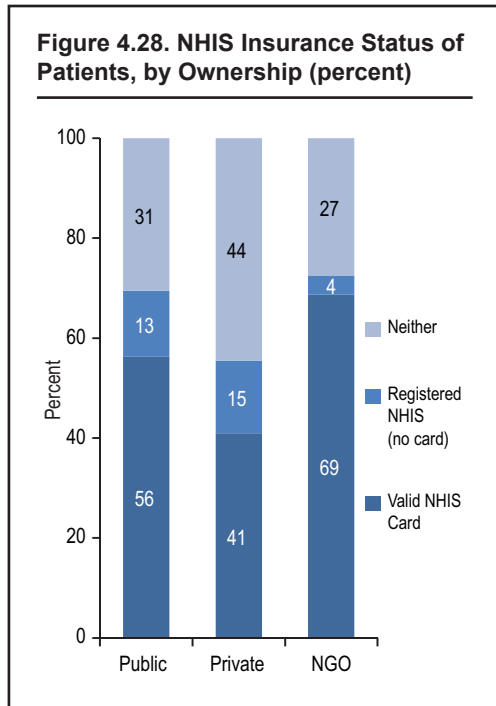
Source: Authors.

**NHIS COVERAGE STATUS AND PROVIDER CHOICE**

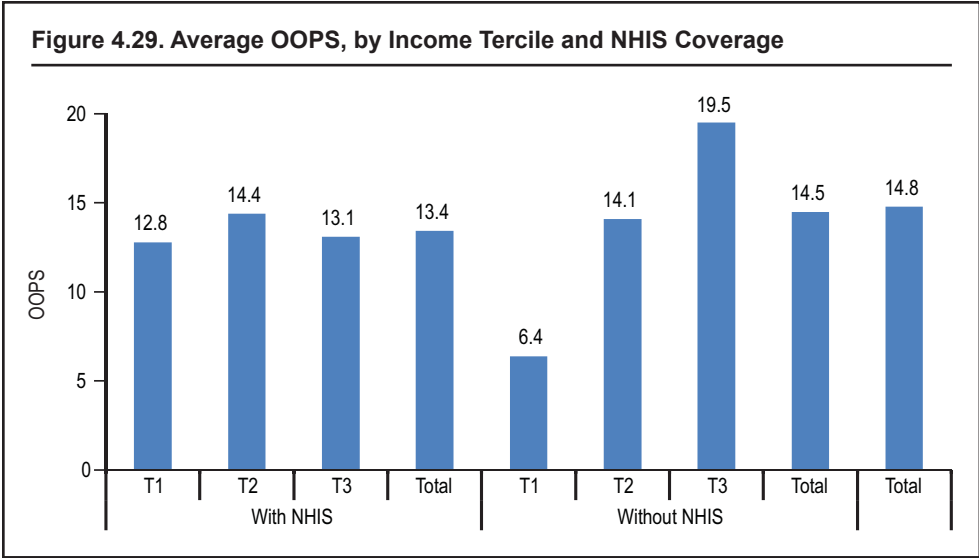
If NHIS had no influence on provider choice, insurance status patterns among patients of public, private, and NGO providers should be similar. However, as seen in figure 4.28, NGO providers see the highest share of NHIS patients (73 percent), followed by public providers (69 percent), and SFP providers (56 percent).

**OUT-OF-POCKET SPENDING**

Overall, spending by patients at CHAG providers is higher than at private and public providers (figure 4.29). Average OOPS is similar between private and public providers. Surprisingly, NHIS coverage does not seem to lower OOPS, except at CHAG. Among low-income persons, those with NHIS coverage have higher OOPS with private and public providers than those without. No clear



Source: Authors.

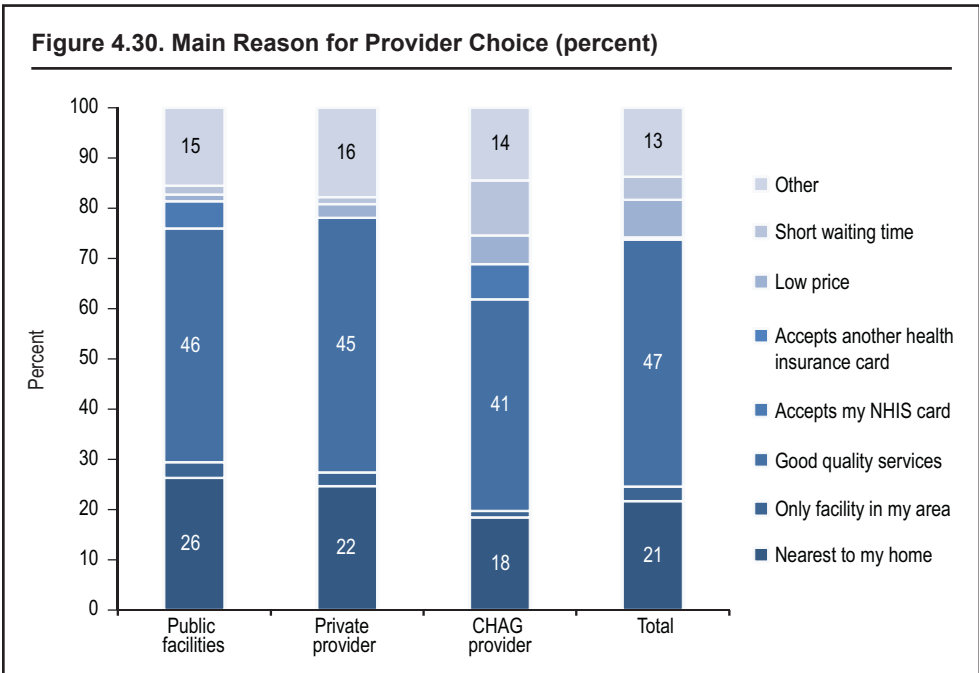


Source: Authors.

pattern emerges regarding OOPS per diagnosis by different kinds of providers (see appendix D for more detail on OOPS).

REASONS FOR PROVIDER SELECTION

For all provider types, the two main reasons for selecting a provider are: quality of care and vicinity (figure 4.30). Low price as a provider attribute is least frequent among pub-



Source: Authors.

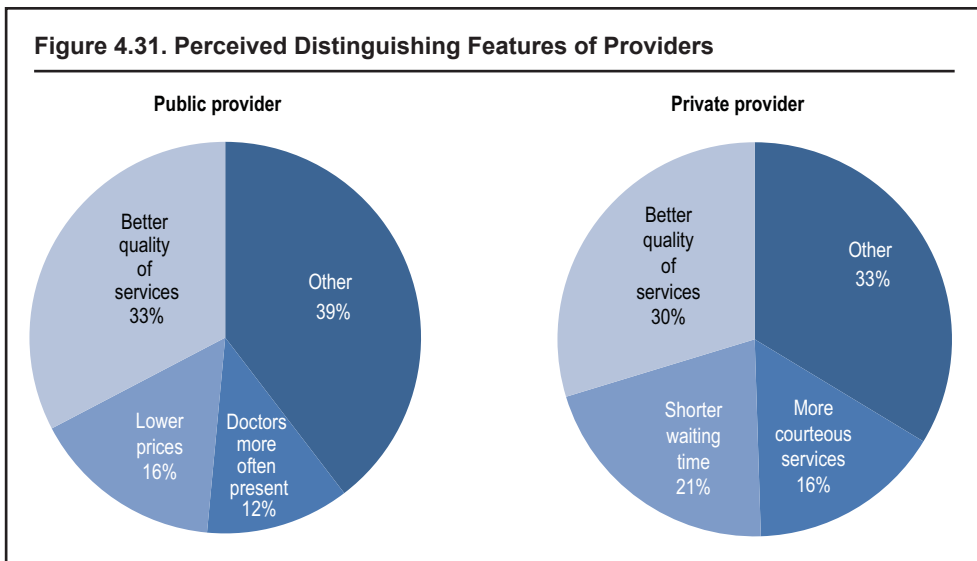
lic providers, most frequent among CHAG providers, and intermediate among private providers. CHAG providers' short waiting time appears to be a differentiating attribute. There were no significant differences in these findings when considering NHIS coverage status

#### PATIENT SATISFACTION

Willingness to return to the same facility was high, even among patients who were somewhat dissatisfied with the services received. No significant differences existed among provider types. A high level of satisfaction with services received was seen everywhere. However, among public providers, satisfaction appears somewhat higher among NHIS beneficiaries. Among NHIS-insured patients going to private providers, satisfaction does not seem higher (see appendix E for further details).

#### PERCEIVED DISTINGUISHING FEATURES OF PROVIDERS

Better quality service is the prime reason for selecting any kind of provider (figure 4.31). Low price is a distinguishing perceived feature of public providers, although actual spending by users of public providers does not seem to be relatively lower. Shorter waiting time is a distinguishing feature of private providers. More courteous services is a distinguishing feature of CHAG providers.



Source: Authors.

The following is a summary of the other main findings from the patient exit poll:

- No special individual or household features appear correlated with NHIS coverage.
- Private providers play a central role in the market for pharmaceutical products and lab exams.
- Clinical private providers offer a similar mix of services as public and CHAG providers.
- The range of symptoms that all provider types treat seems similar.

- Private provider patients exhibit the lowest NHIS coverage, followed by public providers, and then by CHAG providers.
- NHIS coverage seems to result in a migration of patients from private to public providers.
- CHAG patients spend more than patients of private and public providers; average OOPS is similar in private and public providers.
- Surprisingly, NHIS coverage does not seem to lower OOPS.
- Surprisingly, also, among low-income persons, those with NHIS coverage have higher OOPS at both private and public providers than those without.
- A high level of patient satisfaction with services received is seen everywhere; but among public providers, satisfaction appears somewhat higher among NHIS beneficiaries.
- Among NHIS-insured patients of private providers, satisfaction does not seem higher.
- Good quality care and vicinity are the two main reasons for selecting a provider of any type.
- Low price as a provider attribute is least frequent among public providers, most frequent among CHAG providers, and intermediate among private providers.

#### *Population Focus Groups*

As described in the methodology section, the objectives of the focus group discussions were to better understand

- The factors that drive frequency and use of health care
- The impact of NHIS on health care utilization
- Perceptions of quality care
- The factors that drive selection of public and private providers, informal and formal providers.

The following section contains the findings of the population focus groups.

#### FACTORS AFFECTING HEALTH-SEEKING BEHAVIOR

Concerning the factors affecting seeking health care (from any source, public or private, formal or informal), the responses were similar across geographical areas and cultural groups, but varied in some ways between male and female participants. Male participants said that they seek treatment infrequently, only when they have relatively serious illnesses or injuries. Female participants, by contrast, reported frequent use of health facilities for themselves, their children, and for elderly relatives. The male and female participants said similar things about what they would not seek care for in formal health care facilities, but rather go to herbalists for: boils on the head, fractures and dislocations, slight headaches, and general body weakness. Participants of both sexes also said that they would seek treatment from a pharmacy or community health worker for the following—body pains, slight headaches, abdominal pains, elevated temperatures, coughs, and colds—before going to a health facility.

#### IMPACT OF NHIS

The relatively recent availability of NHIS coverage has had an important impact on seeking care, according to the participants. All participants agreed that NHIS improves ac-

cess to health care and leads to earlier treatment when ill. The following are quotations from participants that address this:

“The health insurance is good for me. I have five children who fall sick often. It sometimes happens that three of them are ill at the same time. This [used to] make my trading unproductive but now I am even able to save some money in the bank because I use the health insurance” (female, Ashaiman).

“Formerly if one will undergo a surgery, it will take a long time because you now have to go and look for money to enable you undergo the surgery. You can even die if you don’t get the money for the surgery. But with the insurance you can have the surgery at any time when the doctor says so” (female, Duayaw Nkwanta).

NHIS coverage might be creating “moral hazard,” however, in that some of the participants cited inappropriate use of health facilities that comes about as a result of NHIS coverage. See, for example, the following quotations:

“But now you can take a common headache to the hospital” (female, Manya Krobo). “The problem I see with the health insurance is that too many people go to the hospital. Some take minor ailments they could handle at home to the hospital and crowd the place because of health insurance. I think they should only take critical illness to the hospital” (male, Manya Krobo).

NHIS’s impact on access to care has caused some crowding of health facilities and some impression among participants that those who pay out-of-pocket are given preferential treatment. See the following comment:

“Those without health insurance are paying for services rendered, they are treated special and given priority as well. Those of us with insurance are not given such treatment. We spend so much time at the facility” (male, Duayaw Nkwanta).

In addition, the participants mentioned that often there were still fees to be paid, even when one is insured, for items such as record cards, laboratory services, and tips solicited from patients by facility staff. Participants also noted that frequently patients are not provided with drugs at the facilities but rather with prescriptions that must be filled at pharmacies and paid for by the patient:

“When you go to the hospital to collect a card (which enables treatment) even with the insurance, they still collect money saying it signifies your attendance. At times they will say we should give them money because they have helped us” (female, Tamale).

#### PERCEPTIONS OF QUALITY

The top indicators of quality of care cited by the participants are good customer service and the provision of comprehensive services. These indicators were followed by knowledgeable staff, up-to-date medical equipment, clean and professional environment, and



ease-of-use from the patient's perspective. Female participants mentioned that the following items were important to them in selecting providers: good patient care by nurses, good reception, taking time to explain issues to patients, and the provision of a variety of services at a facility. Male participants cited the following factors: staff treatment of a patient, proximity, and waiting time.

#### CHOICE OF PROVIDER

Perceived quality of care is cited by participants as the most important factor in choosing which facility to go to for care. The factor least considered is cost of care, though this factor was more important for uninsured participants than for those covered by NHIS. The male preference for short waits as an element of quality shows in the following quotation:

“When it [sickness] happens, and I see it is critical, I don't go to the general [public] hospital, I go to [a private clinic] because they pay attention to the patient very, very well. But if I realize that with the sickness, I can sit for about an hour or two, I go to the general [public] hospital” (male, Tema).

Most of the female participants prefer private clinics to public clinics. They reported that private clinics give quality care, have receptive staff and shorter waiting times. Most female groups disagreed with the statement that the quality of care offered by private and public providers is the same. They agreed that private facilities provide better care than public facilities. The following is a typical comment:

“At the private facility, you are well taken care of but you will queue at the government and waste your time. Private provides higher quality of care” (female, Osu Klottey).

Male participants in Tema and Manya Krobo particularly preferred public facilities. These participants reported that treatment is the same, but the difference is in terms of staff attitude and waiting time, and that private providers charge too much for these differences. See the following quotation:

“Some of them [private providers] collect huge sums of money from you and still write prescriptions for you to go and buy, so I think they cheat us” (male, Tema).

An advantage for public facilities for some participants is the perception that the services that they offer are more comprehensive in scope. See the following quotations:

“Government facilities are better because that is where all the services are rendered. They are able to diagnose the position of a baby in the mother's womb and know what to do if the need arises. However the private clinics are not able to do this” (male, Duayaw Nkwanta).

“I still prefer the government hospitals because the private clinics refer you to the government hospitals when things get out of hand. So I feel I must go straight away to the government hospital to avoid referrals” (male, Manya Krobo).

#### SOCIOECONOMIC STATUS AND CHOICE OF PROVIDER

Both males and female participants disagreed with the statement that private facilities are only for rich people. They agreed that rich people are more likely to frequent private facilities; however, anybody who can afford the services of private health facilities can patronize them irrespective of whether they are rich or poor. Furthermore, NHIS coverage has made access to all providers included in NHIS, both public and many private providers, more accessible to people of all socioeconomic levels.

#### CONCLUSIONS FROM THE FOCUS GROUPS

The focus group discussions indicated that females are frequent users of health care for themselves and those they look after. Males tend to use health care less and wait to seek care until an illness or injury seems serious. NHIS has made health care more accessible to those covered and may be causing some overutilization of care. Self-treatment is frequent for minor ailments and herbalists are used for a specific set of illnesses and injuries. Good customer service (where private providers perform better than public providers) and comprehensiveness of services (where public providers, especially hospitals, do better) are the major indicators of quality care according to participants. Female participants prefer private providers because of their better customer service. Male participants prefer public providers because of their comprehensiveness and lower charges, though charges for care were ranked low by all as a factor in selection of providers. Thus, the combination of public and private providers and their relative strengths give different consumers choices that fit their perceived needs. Finally, participants agreed that those in higher socioeconomic groups are more likely to use private providers, but that many in middle- and lower-socioeconomic groups do so too.

### **Supply of Health Services**

The following section describes Ghana's supply of health services, drawing on national surveys as well as novel data and analysis. This includes descriptions of the size, distribution, composition, and functions of the public and private health sectors.

#### *Size and Distribution of the Private Health Sector*

The private health sector in Ghana is a large and important actor in the market for health-related goods and services. However, little has been documented concerning the size and configuration of private providers and their contribution to health sector outcomes. The recently published independent review of Ghana's health sector referred to Ghana's private sector as a "black box." The review highlighted the dearth of information on the private sector and the government's missed opportunity to better support and regulate a body of health actors that comprise a significant percentage of health service delivery (Ghanaian MOH 2009). In this respect, CHAG is a clear exception. The faith-based umbrella network of facilities has a close-knit formalized relationship with government, serving public health goals through targeting hard-to-reach rural areas and urban slums. Given this formalized partnership, the government has much more information on the size, scope, and contribution of CHAG facilities to the health sector.

#### *Private Health Care Market*

While nearly all health experts acknowledge that the private sector is a major provider of health services, available estimates on the size of the private sector vary widely and

are outdated. The analysis of GLSS 2005-06 data for this assessment revealed that private health providers produce more than half (55 percent) of all services used by Ghanaian consumers, and that the private sector share of services is growing. World Health Organization (WHO) National Health Accounts can be a rich source of information on a country's total health care market, in some cases capturing total health care dollars accounted for by provider type. However Ghana's most recent National Health Accounts (NHA) data were collected in 2002 and do not provide this level of detail. According to the 2002 NHA data, private expenditure as a percentage of total health expenditure was 64 percent, with nearly 80 percent of that expenditure coming from out-of-pocket payments. It is likely that OOPS has decreased to some extent since the introduction of NHIS. However, as presented in the demand section above, NHIS membership appears to reduce the probability of having to make an out-of-pocket payment, but NHIS membership does not seem to reduce the amount of out-of-pocket spending on health care.

#### *Number of Health Care Service Providers (National)*

Although there is more available documentation on the number and geographic distribution of private health actors than on the breakdown in health expenditure, it is still incomplete and outdated. Data from the Ministry of Health and its agencies are presented below. In some cases, data from multiple sources are referenced to demonstrate the currently inconsistent and incomplete information available on private health actors.

#### SERVICE PROVIDERS

The Private Hospitals and Maternity Homes Board (PHMHB), an agency of the MOH, is the regulatory body responsible for accrediting and maintaining records of SFP hospitals, clinics, and maternity homes. At end-2008, the PHMHB had accredited a total of 479 private facilities, including 55 hospitals, 290 clinics, and 134 maternity homes (Ghanaian MOH 2009). However, the agency acknowledges that it is only aware of a small fraction of the total number of SFP facilities in Ghana. The agency indicated that there are likely as many as 2,500 additional private facilities with incomplete or no accreditation (key informant interview). Technically, accreditation by PHMHB is a requirement for accreditation by NHIA for participation in NHIS. However, as of 2008, the NHIA had accredited 395 private hospitals and clinics and 237 private maternity homes—25 percent more facilities than the number officially registered with PHMHB (Ghanaian MOH 2009). PHMHB's numbers are also low compared to other publicly available government reports. The most recent national mapping conducted by the Ministry of Health in 2007 counted 156 private hospitals, 688 private clinics, and 379 private maternity homes—over 60 percent more private facilities than recognized by PHMHB. These numbers reveal the incomplete picture held by PHMHB, bringing credence to the view, “that accreditation by the PHMHB does not have any relevance for functioning as a health institution” (Ghanaian MOH 2009). This is troubling, given that the agency represents the main unit within the MOH for licensing, provision of technical support, and monitoring of private health facilities.

The Pharmacy Council, also an agency of the MOH, is responsible for the licensing of pharmacists as well as the registration of pharmacies and chemical shops. According to the council, there are 1,915 standalone pharmacies in Ghana, all of them privately owned (key informant interview). The council has registered 11,430 chemical shops but reports that only 8,818 of them have renewed their licenses (key informant interview).

Given the lack of data from other sources on the number and geographic distribution of pharmacies and chemical shops, it is difficult to verify whether the Pharmacy Council's estimates are accurate. One helpful exercise is to compare the council's official lists with the actual facilities mapped in the seven focus districts, which reveals substantial differences. It appears that the council underestimates the number of chemical shops in rural districts but overestimates the number in urban districts.

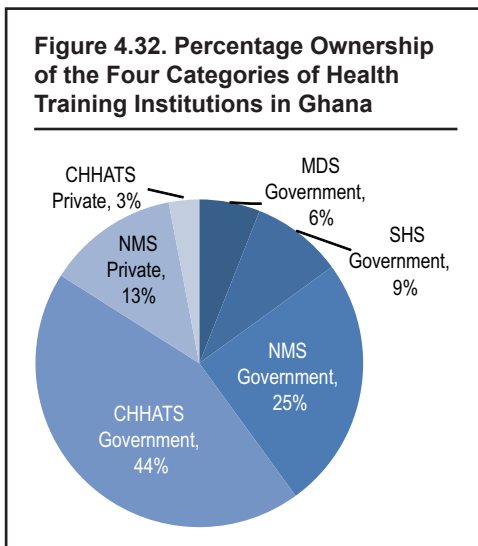
There is less data on the number of private laboratories in Ghana given that there is no regulatory body for laboratories. The Ghana Association of Biomedical Scientists registers individual laboratory professionals but not laboratories. The Association of Private Medical Laboratories, a privately formed association, reports a membership of 160 laboratories. Given that some laboratories choose not to join the association, the actual number of private laboratories in Ghana is likely substantially higher.

#### INPUT SUPPLIERS

The private sector is the dominant player in the pharmaceutical industry, both in terms of value and—very likely—total units. Thirty-eight local manufacturers are registered with the Pharmaceutical Manufacturers Association of Ghana, and 22 are considered to be active. In addition, the Food and Drugs Board reported 60 registered national and international importers, and the Pharmacy Council cites 150 registered wholesalers (for more detail on private input suppliers, see the Pharmaceutical Supply Chain section).

#### HEALTH TRAINING INSTITUTIONS

Most health training institutions in Ghana are public. In fact, Ghana has no private Medical and Dental Schools (MDS) or Schools of Health Sciences (SHS). However, there are several private health training institutions for lower-level cadres of health workers, including Nursing and Midwifery Schools (NMS) and Community Health and Health Assistants Training Schools (CHHATS). Ghana differs from other countries in Africa such as Liberia and Uganda where private nonprofits, particularly faith-based organizations (FBOs), play a significant role in running nursing, midwifery and other schools



Source: World Bank 2009a.

for lower-level health care workers. About 16 percent of health training institutions in Ghana are represented by the private sector—either nonprofit or self-financed (figure 4.32).

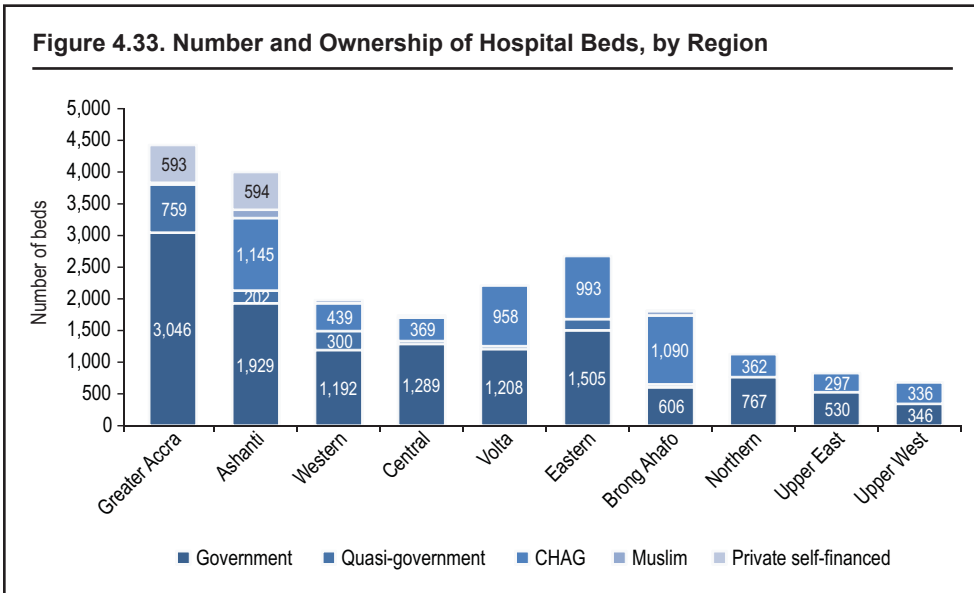
#### *Geographic Distribution of Health Care Service Providers (National)*

Although nationally available data on geographic distribution are also outdated, they reveal a troubling picture that most agree still holds true—higher-level public and private service providers are heavily concentrated in urban areas, leaving rural areas acutely underserved.

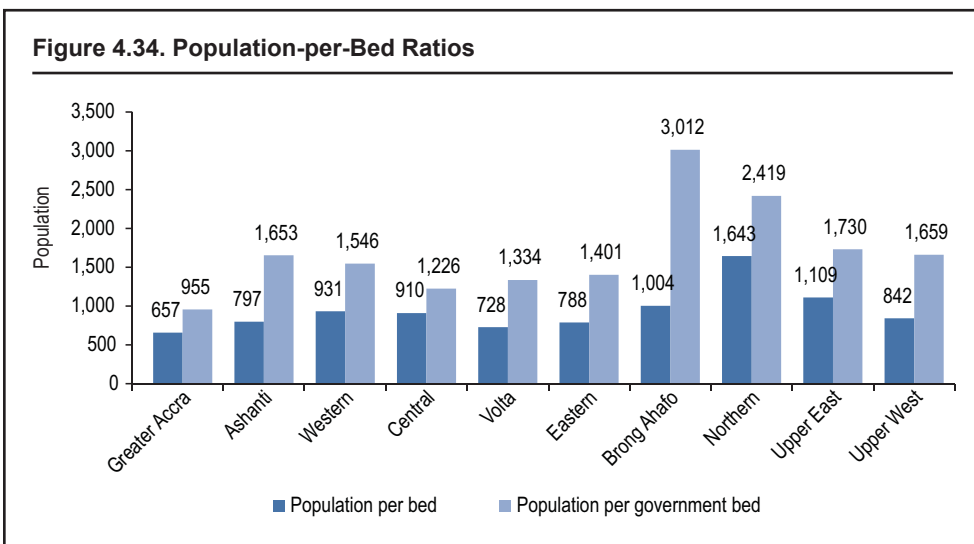
#### HOSPITALS

The number and ownership of hospital beds and population/bed ratios vary

across regions. In observing regional differences, note that Greater Accra, Ashanti, and Western are the three most urbanized regions in Ghana while Northern, Upper East, and Upper West are the three most rural regions (figures 4.33 and 4.34). A high proportion of CHAG hospitals are concentrated in nonurban regions, a high proportion of SFP hospitals are in urban regions, and nongovernmental beds account for a large percentage (42 percent) of beds across all regions (figure 4.33). There are also large discrepancies between the urban and rural regions in number of beds per person, particularly with regard to government beds (figure 4.34).



Source: Ghana MOH 2007a.



Source: Ghana MOH 2007a.

## PHARMACIES AND CHEMICAL SELLERS

According to the Pharmacy Council, pharmacies are similarly concentrated in urban areas. The council notes that roughly 75 percent of pharmacies are in Accra and Kumasi—two cities that represent less than 25 percent of the population. Licensed chemical shops partially fill the void of pharmacies in the rural areas, and often serve as a primary source of care.

## LABORATORIES

Although most public and private hospitals have laboratories, rural and urban-poor areas typically average about one standalone laboratory. About 30 percent of the 85 accredited private laboratories in Ghana are based in Accra.

*Health Care Service Providers (Mapping Sample)*

Given the lack of reliable data on the size and configuration of the private health sector, particularly the private self-financed sector, the assessment team conducted a comprehensive mapping of all formal health facilities—public and private, from tertiary government hospitals to private chemical shops—in a sample comprising seven districts (table 4.5).

The total sample reveals some interesting findings:

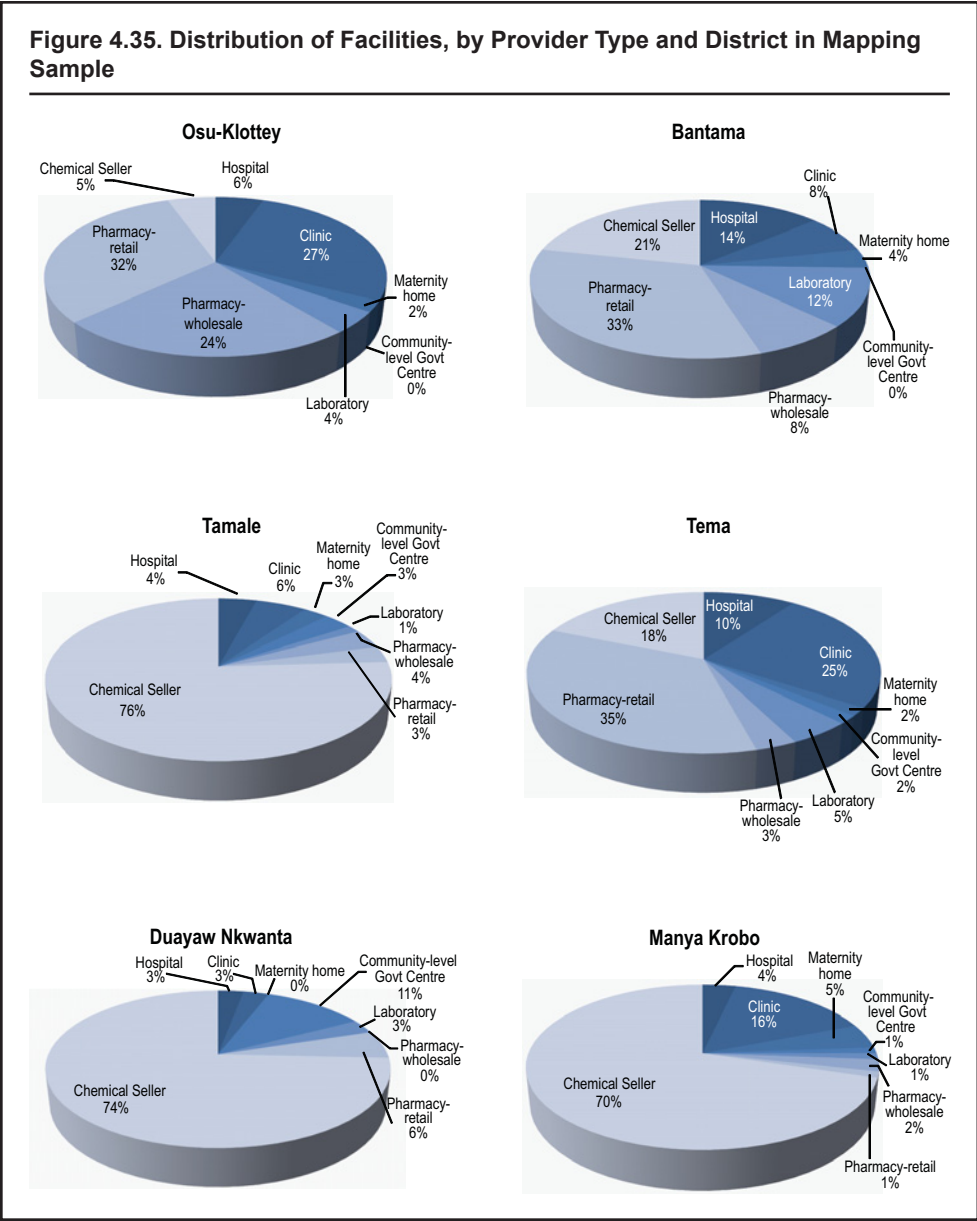
- Chemical sellers, by their number, appear to represent the greatest and most accessible source of services in rural and urban-poor districts.
- Retail pharmacies, by their number, make up a significant portion of total health care facilities in urban districts.
- Wholesale pharmacies are concentrated in the most urban parts of Ghana.

**Table 4.5. Total Health Facility Mapping Sample**

Facility type	Urban			Urban poor		Rural		Total
	Osu-Klottey	Bantama	Tema*	Tamale	Ashaiman*	Duayaw Nkwanta	Manya Krobo	
Hospital	5	7	18	9	1	1	3	44
Clinic	25	4	45	12	8	1	13	108
Maternity home	2	2	3	6	4	0	4	21
Community government center	0	0	3	7	0	4	1	15
Laboratory	4	6	9	3	2	1	1	26
Pharmacy, wholesale	22	4	6	8	4	0	2	46
Pharmacy, retail	29	17	65	7	9	2	1	130
Chemical seller	5	11	34	164	41	26	59	340
Total	92	51	183	216	69	35	84	730

Source: Authors.

Note: The initial mapping exercise treated Tema and Ashaiman as one district (Tema and Ashaiman used to be recognized as one district but, as the population grew beyond average district size, the area was divided into two districts.) For this reason, some district-level analysis combines these two districts.

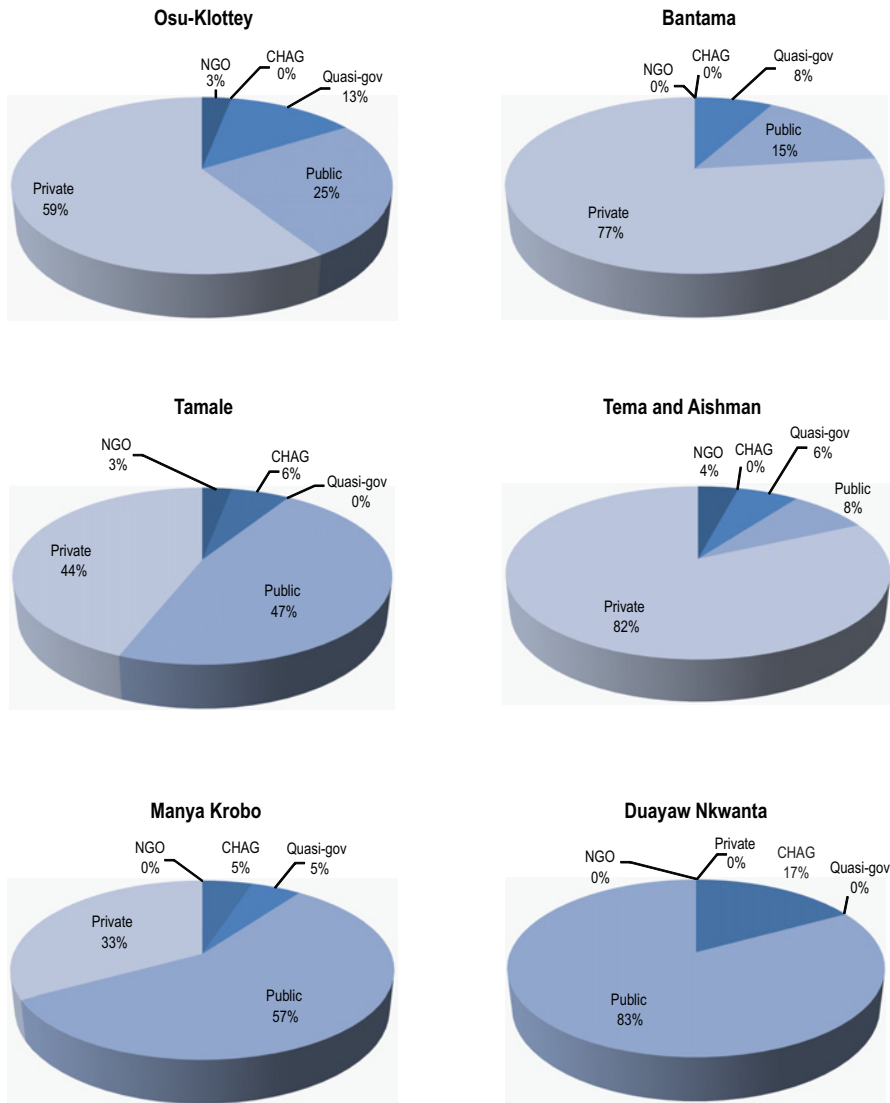


Source: Authors.

Additional interesting findings are observed when looking at the sample by provider ownership (figure 4.36):

- Private self-financed service providers are concentrated in urban areas.
- In rural areas, the populations are primarily served by GHS and CHAG service providers (and when considering all facility types, by chemical sellers as well).

**Figure 4.36. Distribution of Service Providers, by Ownership and District in Mapping Sample**



Source: Authors.

Note: Excludes chemical sellers, pharmacies, and laboratories.

#### SEGMENTATION OF THE PRIVATE HEALTH SECTOR

The private health sector is segmented between many different types of service providers. Table 4.6 summarizes the role of each of these providers within Ghana's health system.



**Table 4.6. Segmentation of Private Health Market**

Facility type	Market segment	Socioeconomic group	Regulatory bodies	Representative associations
Faith-based hospitals, clinics and maternity homes	Act as an extension of the public sector in the provision of inpatient and outpatient care, primarily in hard-to-reach areas	Mostly low-income in rural areas and urban slums	Ghana Health Service	CHAG, Amadea Muslim Mission
Private hospitals	Provide inpatient and outpatient care, diagnostic services, medicines, surgery, and emergency care	Predominantly middle-class (but also poor) in urban areas	Private Hospitals and Maternal Homes Board	Society of Private Medical and Dental Practitioners
Private clinics, maternity homes	Provide outpatient care, sometimes including antenatal care and normal deliveries	Poor and middle-class in urban areas, poor in rural areas	Private Hospitals and Maternal Homes Board	Society of Private Medical and Dental Practitioners, Ghana Registered Midwives
Private laboratories	Serve need for diagnostic services not met by public and private hospitals	Poor and middle-class in urban areas, poor in rural areas	No regulatory body	Private Medical Labs Association
Private pharmacies	Provide OTC and physician-prescribed medicines, but stock-outs are frequent	Poor and middle-class in urban areas, poor in rural areas	Pharmacy Council	Community Pharmacists Practice Association
Private chemical sellers	Provide OTC medicines primarily in underserved areas	Poor in rural and urban poor areas	Pharmacy Council	Ghana National Chemical Sellers Association
Private pharmaceutical manufacturers and importers	Manufacture and/or import medicines to furnish to health care providers	Public and private hospitals, private clinics, pharmacies and chemical sellers	Food and Drugs Board	Pharmaceutical Manufacturers Association of Ghana
Private medical equipment suppliers	Supply medical equipment to public and private health care providers	Public and private hospitals, private laboratories	Biomedical Engineering Department of Korle Bu Hospital	No representative association

Source: Authors.

#### FAITH-BASED HOSPITALS, CLINICS, AND MATERNITY HOMES

The faith-based sector is an important provider of outpatient and hospitalization services and training of health professionals in the rural areas of Ghana. Aside from the Amadea Muslim Mission which contributes to roughly 2 percent of nonprofit service provision, the Christian Health Association of Ghana (CHAG) represents nearly all nonprofit health care service provision in the country. CHAG is a major network of faith-based providers with 178 health facilities spread across the country, including 60 hospitals as well as numerous clinics, maternity homes, and programs that provide primary health care services. The organization has historically targeted slum areas and hard-to-reach rural communities.

CHAG has a central secretariat that coordinates member activities and represents members to the government and external partners. CHAG estimates that it provides 40 percent of Ghana's hospital, primary health care, and training services (CHAG 2007). Because of its importance and scale, CHAG is seen as the major voice for NGOs in the health sector in dialogue with the public sector.

CHAG receives significant financial support, both from the government and external development partners. In interviews with CHAG, officials stated that they sometimes have more financial support than they are able to use. The Danish International Development Agency (DANIDA) works closely with CHAG and has supported capacity building at the institutional level, along with many other projects. UNFPA, CORDAID/ICCO, and Population Council/Frontiers also support CHAG (CHAG 2006).

Although many SFP facilities face difficulties in obtaining NHIS accreditation, CHAG's formalized relationship with the government allowed for immediate provisional accreditation of member facilities. CHAG officials noted that the advent of NHIS has significantly increased patient volume in many CHAG facilities. Due to the high poverty rate in rural areas, many people could not afford the fees charged by CHAG for health care before NHIS. With insurance, hospitals have seen significant increases in outpatient care.

#### PRIVATE HOSPITALS, CLINICS, AND MATERNITY HOMES

Private hospitals and clinics are high in number in urban and periurban areas. The SFP sector in rural Ghana is much smaller and faces more challenges given the higher poverty rate of the population, although some clinics/maternity homes are doing well and NHIS has raised the effective purchasing power of these populations. The assessment has found that generally, facilities in both urban and rural areas of Ghana not accredited by NHIS are losing patient volume and struggling to make a profit. Accredited facilities are growing and doing reasonably well financially, but their cash flows suffer due to delayed reimbursements (see the Health Sector Business Environment section for more detail). Additionally, the large increase of public sector health worker salaries in 2006 negatively affected profit margins for some private providers that had to match these salaries to keep staff.

Most private hospitals and clinics explained that they set prices based on estimated costs plus a small profit margin. In both hospitals and clinics, patients pay out-of-pocket or are covered by their employers or NHIS. Few if any are permitted to pay on credit. Most facilities explained that patients who cannot afford to pay are treated only in emergencies, but typically these patients account for less than 5 percent in lost income.

The Society of Private Medical and Dental Practitioners (SPMDP) is a well-organized association representing nearly 300 for-profit hospitals and clinics. The Ghana Registered Midwives Association (GMRA) similarly has a large base of 400 members, and 82 percent of them are in private practice.

#### PRIVATE LABORATORIES

Compared with the high volume of pharmacies in Ghana, there are far fewer standalone laboratories. Most of the laboratories surveyed reported that they would purchase more microscopes and other equipment if they had more resources. A couple of laboratories explained a longer-term vision to increase sophistication of services through purchase of CT scanners.

The laboratories do not have a regulatory body, but individual laboratory professionals are regulated by the Association of Biomedical Labs and Scientists (ABLS). Laboratories must receive a license from ABLS in order to conduct business; however ABLS does not oversee quality of labs once they are functioning. This has been identified as a gap by the Ministry of Health as well as by private laboratories.

The private laboratories are represented by the Association of Private Labs. The association is currently lobbying the NHIA to increase reimbursements for diagnostic services. The association does not have funds to provide training for members but has occasionally received donor support for one-time courses.

#### PRIVATE PHARMACIES AND CHEMICAL SELLERS

Pharmacies that employ licensed pharmacists are more common in the cities, and chemical sellers are more common in rural areas. Pharmacies are not permitted to sell class A drugs (prescription medicines) without a doctor's prescription but may provide class B ("pharmacy only" medicines) and class C (over-the-counter) medicines without prescriptions.

If pharmacies want to carry a wide range of medicines, regulations require them to work with multiple wholesalers at a time since certain products are assigned to specific wholesalers. For this reason, patients often have to visit numerous pharmacies before finding the medicines they need. The most frequently purchased medicines by pharmacies are antimalarials, analgesics, and antibiotics. Most of these medicines and supplies are purchased from wholesalers on credit. For specialized drugs that are not included on the government's approved list of medicines, the law requires pharmacies to procure them internationally on a per-patient basis, which can be very costly. The pharmacies in the urban districts serve a balance of middle- and low-income customers, whereas the pharmacies in the rural district serve primarily the poor.

#### PRIVATE IMPORTERS, WHOLESALE PHARMACIES, AND PHARMACEUTICAL MANUFACTURERS

Pharmaceutical manufacturers and importers sell to Central and Regional Medical Stores (RMS), large private and public hospitals, and wholesale pharmacies. Wholesale pharmacies sell to public-private hospitals, clinics, pharmacies, and chemical sellers. Generally, increased utilization of health care through NHIS, particularly in the public sector, has positively impacted the industry, but delays in reimbursements are negatively impacting cash flows. There are no ongoing contracting arrangements with the government, although manufacturers frequently bid on government tenders. Given that Ghana's health sector is fairly decentralized, warehousing and distribution occurs at both the national and regional levels (see the Pharmaceutical Supply Chain section for more detail).

The Pharmaceutical Manufacturers Association of Ghana (PMAG) is a strong organization that represents manufacturers in lobbying the government. Wholesale pharmacies are represented by the Community Pharmacists Practice Association. Pharmaceutical importers do not have a representative association.

#### PRIVATE MEDICAL EQUIPMENT SUPPLIERS

In contrast to a competitive pharmaceutical manufacturing, import and wholesaler market, there are not many medical equipment suppliers in Ghana, and they do not have a representative association. Medical equipment suppliers acknowledge that there is not much competition. They sell mainly to Central Medical Stores (CMS), public-private hospitals, and private laboratories. Key players note that sale and profit growth is strong. Given that purchasing for government hospitals is done centrally, nearly all of the medical equipment suppliers are located in Accra. Similar to other input suppliers, medical equipment suppliers report that the introduction of NHIS has increased business substantially.

*Range of Hospital Services Offered*

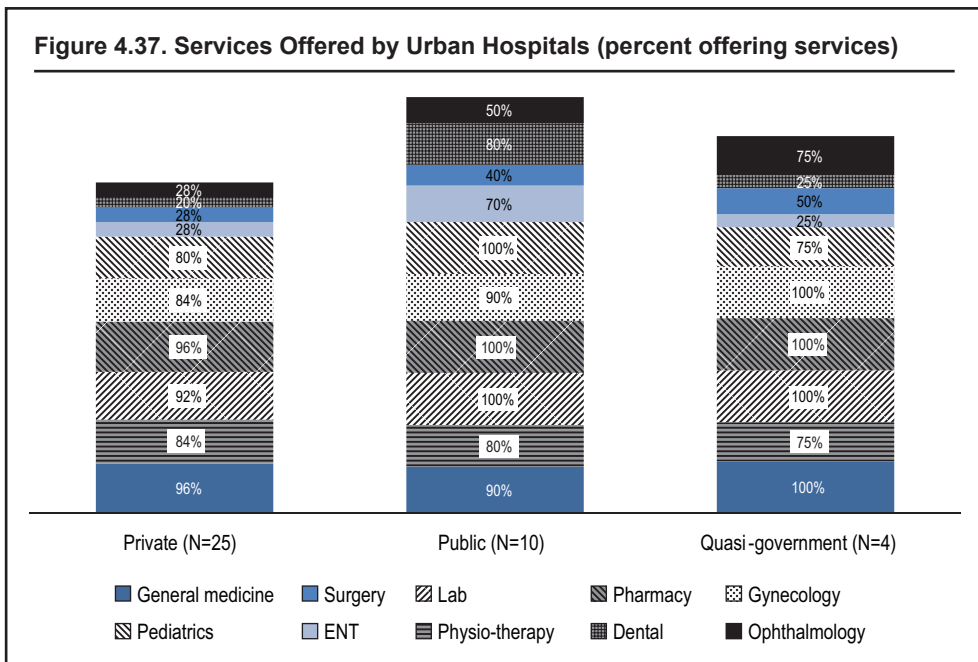
In the health facility mapping study, providers were asked to list the services they provided. Given that there were only four hospitals in the rural districts mapped—two public facilities and two CHAG facilities—the mapping sample is not necessarily representative. However, a larger number of urban hospitals were surveyed, and results indicate that urban hospitals offer a broad range of services, whether GHS, quasi-governmental, or private self-financed.<sup>5</sup> There are no significant differences in the services offered across GHS, quasi-governmental and SFP urban hospitals (figure 4.37). Public and quasi-government hospitals were more likely to offer ophthalmology and physiotherapy while public hospitals were much more likely to offer ear, nose, and throat care versus private and quasi-governmental.

*Health Sector Workforce*

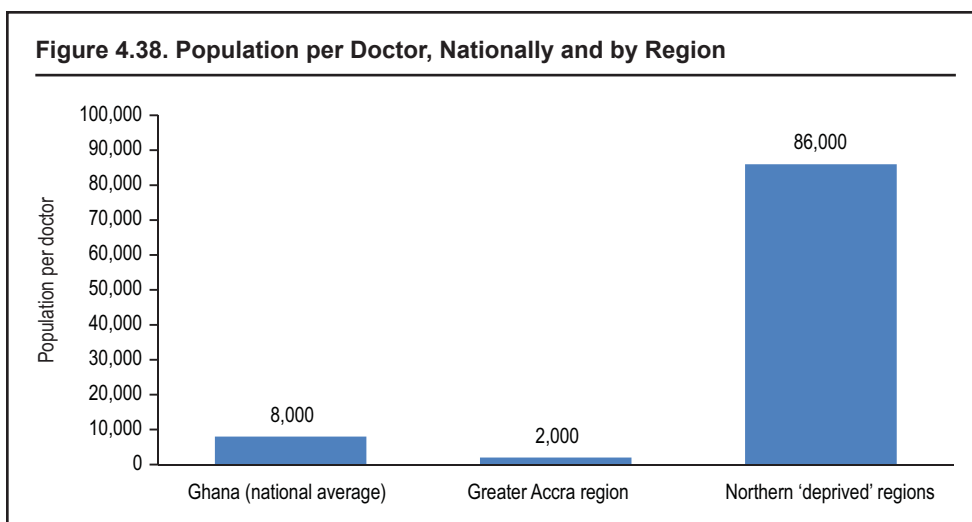
While nationally available data on the number and distribution of the health sector workforce are also somewhat incomplete and outdated, it is still a helpful barometer, particularly in gauging regional differences.

NATIONALLY AVAILABLE DATA

According to the Medical and Dental Council (MDC), of the 2,346 registered doctors and dentists in Ghana, 10 to 15 percent are dentists. About 250 doctors and dentists are trained and accredited each year. Seventy-seven percent of doctors and dentists are based in urban areas, and 67 percent of the total number of doctors and dentists are based in Accra and Kumasi (representing less than 25 percent of the population). Statistics on the distribution of doctors by population are troubling and tell the same story illustrated by the provider-level data discussed above: the rural areas, particularly the higher poverty, rural Northern regions, are severely underserved (figure 4.38).



Source: Authors.



Source: Eli Atikpui, Registrar, Medical and Dental Council, interview by Stephanie Sealy, November 10, 2009.

According to the Nurses and Midwives Council (NMC), there are 30,000 registered nurses. However the NMC notes that this number is actually much lower, since many of these once-registered nurses may no longer be practicing.

#### MAPPING SAMPLE

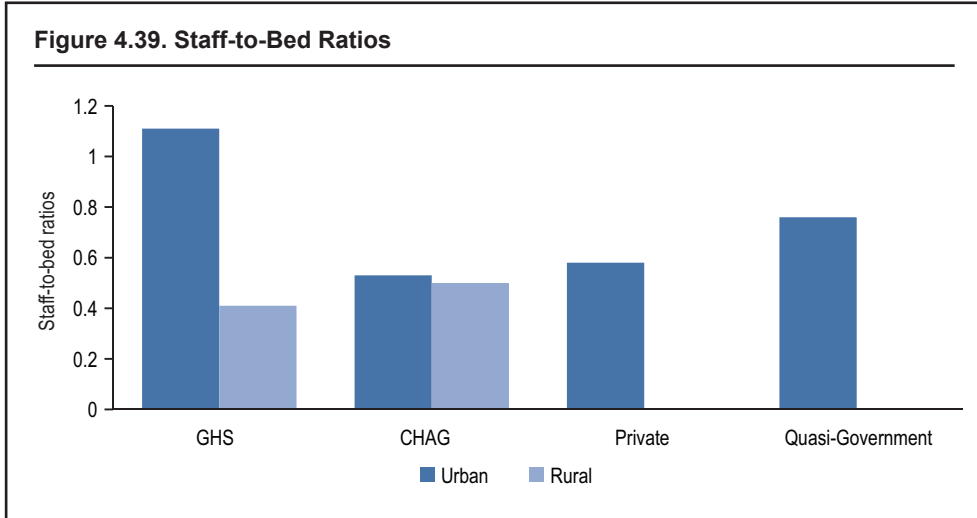
The mapping data revealed a similar kind of skewing, in that doctors and nurses are disproportionately concentrated in urban areas. In the health facility mapping study, providers were asked to give the number of each type of medical staff employed—doctor, nurse, midwife, auxiliary nurse, laboratory technician, laboratory technologist, and pharmacist—and to designate whether employees worked full- or part-time. Although the sample for hospitals in the rural districts was small—two GHS hospitals and two CHAG hospitals—it still provides insight into considerable differences in staff composition between rural and urban hospitals. No part-time (PT) human resources are used in rural hospitals, whereas urban hospitals have some reliance on part-time staff, especially doctors (table 4.7). There are more people per staff in rural than urban areas, highlighting again the inequitable distribution of medical staff in the country (table 4.7).

**Table 4.7. Hospital Full-time and Part-time Staff and Population Ratios**

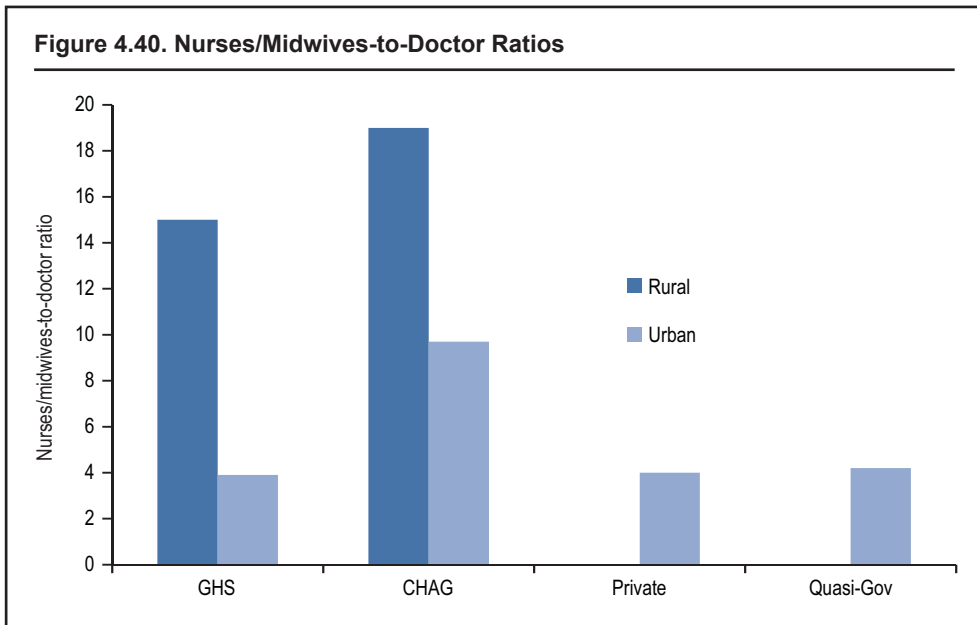
Profession	Status	Urban	Rural
Physicians	Full-time	708	9
	Part-time	118	0
Nurses	Full-time	2,317	122
	Part-time	110	0
Midwives	Full-time	555	35
	Part-time	30	0
Population per full-time staff member	—	437	1,000

Source: Authors.

In general, the staff-to-bed ratio is higher on average in urban hospitals (0.89) than in rural hospitals (0.43) and it is dramatically higher in GHS urban hospitals at (1.10), (figure 4.39). The data also reveal that the most educated staff—doctors and nurses—are concentrated in urban hospitals. Of the staff employed, rural hospitals rely much more than urban hospitals on nurses and midwives than on doctors (figure 4.40). In rural hospitals, the average nurses and midwives-to-doctor ratio is 17:1 compared with an average ratio of 4:1 for urban hospitals.



Source: Authors.



Source: Authors.

### Sources of Funding in the Health Sector

As part of the mapping exercise, the assessment team looked into the types of funding that providers access both in starting up their businesses/making major purchases and in the day-to-day running of their facilities. Given that the uptake of NHIS has created a rapidly changing situation in which providers rely more and more on insurance reimbursements, it should be noted that the data presented represent only one point in time.

Savings and profits are the principal sources used for major purchases by all types of private providers surveyed in the mapping (table 4.8). Bank loans are used substantially by private hospitals and wholesalers, but not by other types of private providers (clinics, maternity homes, retail pharmacies, chemical sellers). Investors and donors are negligible sources.

**Table 4.8. Sources of Funding for Major Purchases, Private Providers (percent)**

Facility type	Bank loan	Investors	Friends or family	Savings or profits	Government	Donors
Hospital	54	7	29	82	11	4
Clinic	22	4	16	71	1	6
Maternity home	24	10	29	90	5	0
Pharmacy, retail	32	7	19	89	0	0
Pharmacy, wholesale	43	13	26	89	0	0
Chemical seller	21	1	22	96	1	0
Laboratory	42	4	23	96	0	0

Source: Authors.

For day-to-day operations, all providers rely mainly on patient payment, government a bit less than private providers (table 4.9). Public and private hospitals and clinics also rely substantially on health insurance reimbursements, private clinics a bit less. Only 30 percent of private laboratories and private retail and wholesale pharmacies reported reliance on health insurance reimbursements. GHS hospitals and clinics benefit from

**Table 4.9. Funding Sources for Day-to-Day Operations, All Providers (percent)**

Facility type	Health insurance reimbursement	Payment from patients	Donors	Government
Hospital, private	64	100	0	11
Hospital, public	69	88	13	44
Clinic, private	35	84	6	0
Clinic, public	62	72	17	48
Maternity home	62	100	0	5
Pharmacy, retail	30	97	0	0
Pharmacy, wholesale	28	98	0	0
Chemical seller	3	99	0	0
Laboratory	27	100	0	0
Community government center	80	93	20	67

Source: Authors.

government and donors—private providers see hardly anything from these sources. GHS hospitals and clinics are more likely to report that they receive health insurance reimbursements than private hospitals, clinics and maternity homes. Virtually no chemical sellers accept insurance reimbursements, and less than 30 percent of private laboratories and private retail and wholesale pharmacies accept health insurance reimbursements.

### **Other Important Factors Affecting the Health Market**

In addition to the supply and demand climate for health services, important structural factors within and outside of the health system help shape the health market. This section outlines the role that these other factors play.

#### *Health Insurance*

The introduction and uptake of national health insurance in Ghana over the last several years has had significant implications for the health sector. The scheme has reached high levels of coverage, in terms of both depth (95 percent of the disease burden) and breadth (over 60 percent of the population). The NHIA is now a major financier of health care, contributing to over 40 percent of total health expenditure (Ghanaian MOH 2009). Utilization of care has increased, and financial barriers to access have decreased. Health care providers that participate in the scheme are seeing increased volumes of patients and for private health providers in particular, the scheme has opened them up to new, lower-income markets. However, NHIS also faces severe challenges which threaten the sustainability of the scheme. The scheme is plagued by corruption, cash shortages, and weak and slow administrative management—and the impact of these problems on all players in the health sector is significant.

Given the cross-cutting nature of the NHIS and its impact on both patients and providers, the role of health insurance in Ghana is examined below.

#### BACKGROUND

In the 1980s many Ghanaians could not afford the user fees associated with the country's "cash and carry" health system. As a result, several districts began to experiment with community-based health insurance. By 2002, there were 159 mutual health organizations in 67 districts across Ghana (Sulzbach 2005). For the majority of the population who were not covered by the schemes, however, user fees continued to be a major barrier in accessing health care. In the 2000 presidential campaign, the winning candidate made a central campaign promise to abolish the cash and carry system. In 2003, the government passed the National Health Insurance Act and launched the National Health Insurance Scheme in 2004. Although private commercial insurance schemes were recognized by the act, they represent an extremely small portion of health insurance in Ghana, covering only 1 percent of the population (GSS/IFC Macro 2008).

#### ROLE OF DISTRICT MUTUAL HEALTH INSURANCE SCHEMES

Building on the country's history of community-based health insurance, the act called for management of the schemes at the district level. The District Mutual Health Insurance Schemes (DMHIS) are run by the districts as autonomous units and each DMHIS is considered a "legal entity." The district schemes have operational and financial authority. They are responsible for member registration, claims administration, and fund management.



#### ROLE OF THE NATIONAL HEALTH INSURANCE AUTHORITY

The NHIA is responsible for setting overarching policies and accrediting participating facilities (box 4.1). The NHIA supports the districts in three ways: (1) it covers all salaries to run operations; (2) it covers the premiums of Ghanaians who are exempt; and (3) it provides reinsurance for unexpected events (e.g., disease outbreak). The NHIA also supports the MOH by earmarking funds for health promotion activities.

#### **Box 4.1. Ghanaians Exempt from Paying Premiums**

- Children under 18
- Adults over 70
- Indigents
- Pregnant women
- All formal sector workers who contribute to Social Security
- All retirees who are former contributors to Social Security

#### FINANCING OF NHIS

The term “health insurance” is somewhat misleading given that a large percent of the funds used to finance NHIS come from tax revenues. The majority of funds collected for NHIS (about 67 percent) come from a National Health Insurance Levy, which is a 2.5 percent consumption tax. Another major source of funds (about 27 percent) comes from mandatory payroll deductions of 2.5 percent of the 17.5 percent Social Security and National Insurance Trust (SSNIT). The informal sector also contributes through graduated premiums based on social classification; however actual revenue from these premium contributions constitutes a small portion (about 6 percent) of total revenue. A large percentage of the population (about 70 percent) is exempt from paying premiums (box 4.2).

#### **Box 4.2. NHIA Accreditation**

The National Health Insurance Authority (NHIA) updated its accreditation process in 2009, such that in addition to either receiving or being denied accreditation, health care providers are assigned a specific letter grade. Providers are evaluated against a comprehensive list of weighted criteria (e.g., safety, management) and assigned a letter ranging from A+ (“Center of Excellence”) to E (failure to receive accreditation). Reimbursement rates are then commensurate with a facility’s letter grade. The intention is to incentivize providers to improve quality to achieve a higher reimbursement rate.

Some experts have expressed concern that NHIS may not be financially sustainable due to widespread corruption, district deficits, and potential increases in membership without associated increases in funds. The NHIA admits that the scheme faces corruption at every level—customer, provider, and administrator. According to the NHIA, members are allowing nonpaying friends and family to use their cards, resulting in increased utilization of care. The NHIA also claims that providers are engaging in “tariff creep,” charging for complex procedures (e.g., cesarean versus normal deliveries) that

weren't actually performed. Finally, NHIA acknowledges that some cream-skimming is occurring at the administrative level.

The scheme is also considered to be financially at risk because funding is not tied to membership. In a classic health insurance system, increased membership would equate to increased funds. However, given that premiums for the informal sector are not actuarially based, they are fairly low and do not cover the actual cost of care. Thus, should membership increase at a pace faster than national income, the scheme might not be able to cover costs.

Currently, several districts are running deficits. The districts complain that NHIA reimbursement is not sufficient to cover the exempt population, but the NHIA counters that district deficits are a matter of poor financial forecasting.

Based on International Labour Organization estimates, the National Health Insurance Fund's balance should remain positive for the next few years and will likely continue to be positive as long as Ghana maintains strong economic growth, prevents excessive use of health care services, and does not increase enrollment of exempt populations. In 2007, the NHIA took a step toward greater financial security by transitioning from a fee-for-service model to a DRG (diagnosis-related groups) system which was intended to induce hospitals to contain costs. The NHIA is also planning to launch a task force to identify and quantify the corruption and propose needed measures for its elimination.

#### NHIS COVERAGE

The NHIA claims that over 60 percent of the population is covered, but this figure is widely debated. Some experts have pointed out that the NHIA has used old population numbers to calculate this figure while others explain that the NHIA is not accounting for once-registered members who choose not to renew. At the time of the DHS 2008, 39 percent of women and 29 percent of men reported having coverage with the NHIS, and most Ghanaian health experts agree that this number has likely increased in the last year.

Another frequently raised coverage issue is whether the NHIS is reaching the poor. Although the indigent are technically exempt from paying premiums, many district schemes find the process of verifying a person as indigent cumbersome, and in some cases have ignored this condition. Additionally, while the district schemes were originally instructed to stratify premiums based on ability to pay (suggested premium ranging from 7 to 48 Ghanaian cedis), many districts now charge all members the same premium.

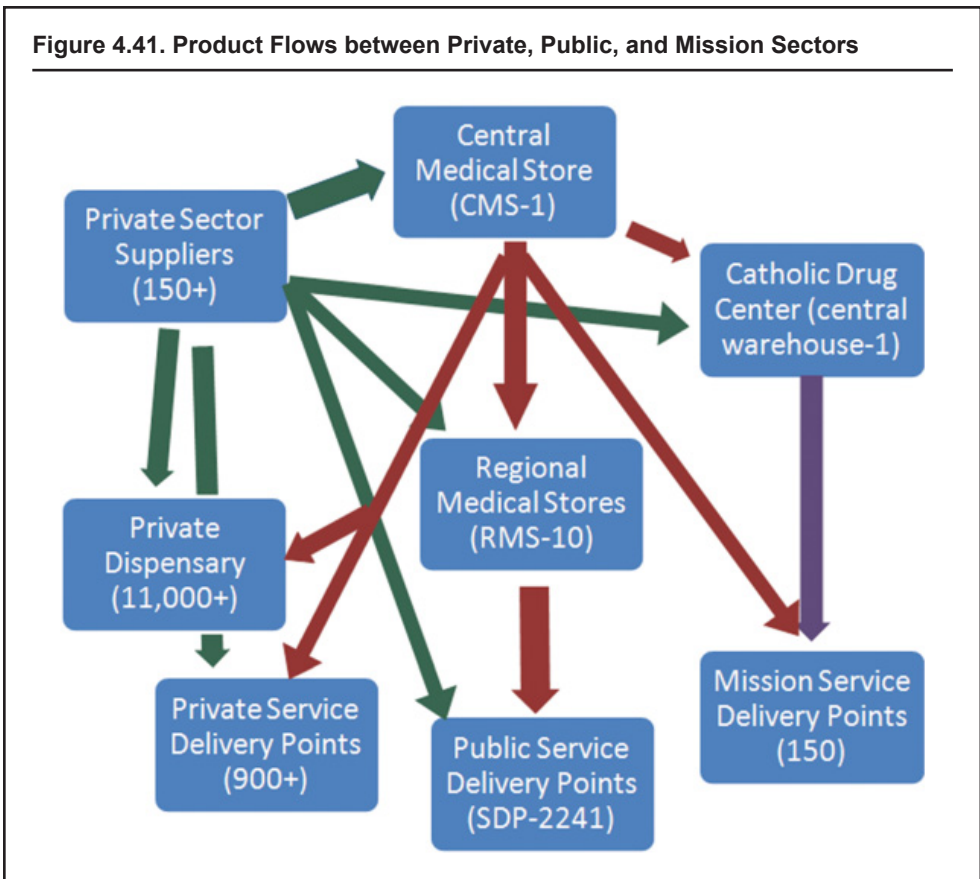
#### *Pharmaceutical Supply Chain*

Ghana's pharmaceutical supply chain is characterized by complex interaction between the public, self-financed, and faith-based sectors. Private self-financed and faith-based health actors play a dynamic and important role in the flow of goods through the 2010 estimated \$350 million<sup>6</sup> pharmaceutical market (Seiter and Gyansa-Lutterodt 2009). Despite the government's efforts, the public supply chain has its weaknesses, resulting in bottlenecks and persistent drug stockouts at hospitals, clinics, pharmacies, and other service delivery points (SDPs). Over the years, the private sector has continued to expand, often helping to fill gaps and address some of the inefficiencies in the public sphere. While this development is generally positive, it has also bred several areas of concern, including an excessive number of unregulated "middlemen" and unsafe, sometimes illegal, distribution practices.

Setbacks in the public chain occur at the very first steps in procurement. The MOH has often struggled in successfully executing the international competitive bid process, unexpectedly depleting the stock of the Central Medical Store (CMS) and stranding representatives of the Regional Medical Stores (RMS) and other SDPs in Accra with unfilled purchase orders (Ballou-Aares et al. 2008). As a result, a growing number of government health facilities opt to buy from local private sector suppliers, many offering smaller, more frequent shipments and direct delivery (Seiter and Gyansa-Lutterodt 2009). The National Procurement Act allows public health providers to purchase medicines directly from a private sector supplier, as long as (1) the product is not available from a public actor, and (2) the total value of the purchase does not exceed certain preestablished limits.

The public-private relationship is not one-directional. Private and faith-based actors purchase from the government as well. It is estimated that 20 percent of total CMS sales stem from nonpublic sources, including self-financed private hospitals, faith-based hospitals, and NGOs.<sup>7</sup>

Ghana’s pharmaceutical supply chain is complex and interconnected (figure 4.41). The CMS directly supplies almost all players in the pharmaceutical market, including private pharmacies and chemical sellers (dispensaries) and private service delivery

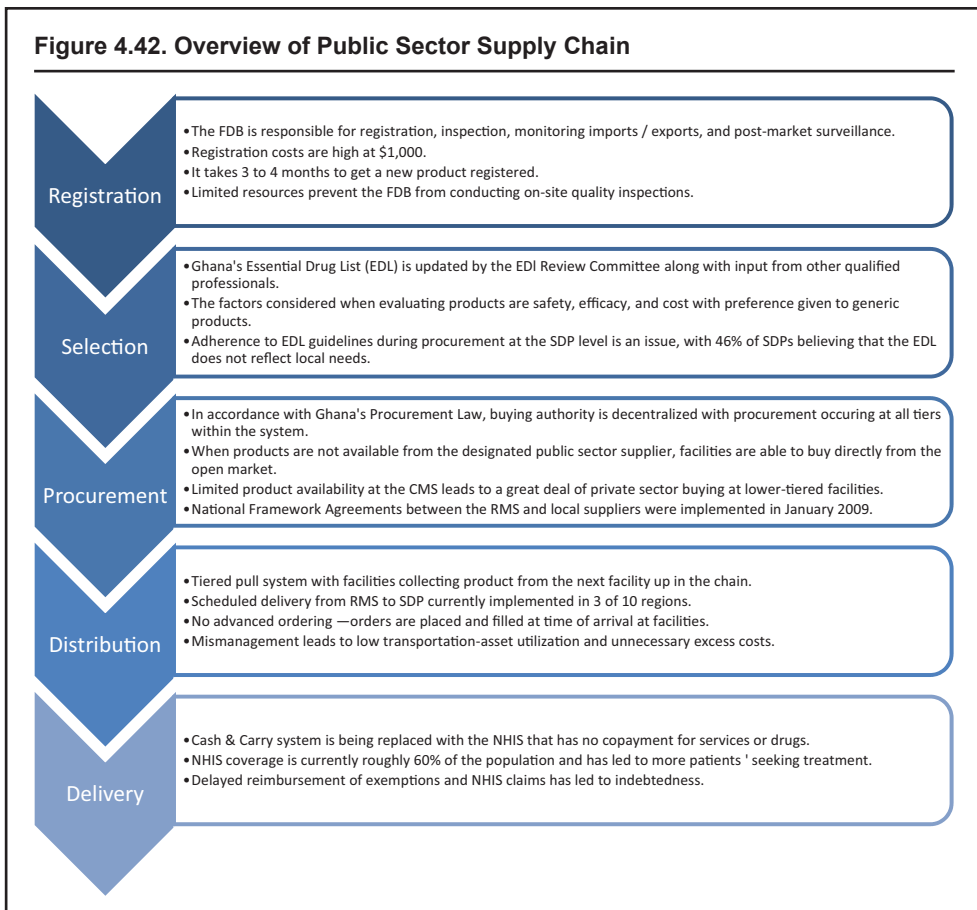


Source: Ballou-Aares et al. 2008.

points such as hospitals, clinics, and maternity homes. The same can be said of private sector suppliers—their products are sold to all players at every level in the chain, including directly to the CMS itself.

#### PUBLIC SECTOR SUPPLY CHAIN

Government policy gives the CMS the mandate to supply all needed pharmaceuticals for the 10 Regional Medical Stores and over 2,241 public SDPs, including all hospitals, clinics, maternity homes, community-level government centers, and pharmacies. Central procurement is the responsibility of the MOH, and occurs annually through a combination of national and international bidding, both competitive and limited. In contrast, although the RMSs are expected to purchase almost exclusively from the CMS, their procurement unit is entirely separate, falling instead under the auspices of the Ghana Health Service. All funding for health expenditures and pharmaceutical purchases comes from disbursements by the Ministry of Finance (MOF), although donor agencies, including PEPFAR, USAID, UNFPA, and UNICEF are also actively involved in financing and procurement. Figure 4.42 gives a more detailed overview of the public sector supply chain.



Source: Ballou-Aares et al. 2008.

Not surprisingly, this division of labor across numerous ministries leads to bureaucratic inefficiencies and bottlenecks throughout the chain. The MOH policy of annual procurement means shipments to the CMS are infrequent and large, to the point of being unmanageable. The RMS are then forced to travel to Accra at these times to stock their warehouses, because the CMS does not deliver and cannot otherwise guarantee availability. Delayed disbursements by the MOF often exacerbate the problem, as RMSs discover they are too low on cash to cover their orders and are forced into debt to the CMS (Seiter and Gyansa-Lutterodt 2009). Over time, growing indebtedness can make purchasing from the CMS almost impossible, resulting in frequent stockouts at the RMSs and SDPs.

When drugs are not available at the RMSs, public SDPs generally resort to “shopping” —purchasing from independent private or faith-based suppliers—in an effort to procure needed products. Moreover, the share of total government pharmaceutical purchases at the RMS- and SDP-levels coming from the private sector appears to be growing. An estimate given at the 2007 annual retreat for supply chain practitioners placed this figure between 80 percent and 85 percent (Health Supply Chain Practitioners 2007).

#### PRIVATE SECTOR SUPPLY CHAIN

The private sector is the dominant player in the pharmaceutical industry, both in terms of value and very likely, total units. Thirty-eight local manufacturers are registered with the PMAG, and 22 are considered active. In addition, the Food and Drugs Board (FDB) reported some 60 registered national and international importers. Finally, the Pharmacy Council cites 150 registered wholesalers, 1,637 licensed pharmacies, and roughly 11,430 chemical sellers.

Among the active registered local manufacturers, six are major producers, with another 14 considered medium-scale. Most focus on antibiotics, vitamins, tonics, analgesics, and antimalarials, although two companies plan to begin producing active pharmaceutical ingredients (APIs) and another has started production of antiretrovirals (ARVs). Local manufacturers hold a 28 percent to 33 percent share of the market for prescription and OTC products. They also benefit from generous pro-local policies: 44 drugs are reserved exclusively for national production, and 66 of the 200 basic input materials are excluded from the 12.5 percent VAT and 2.5 percent NHIS levy.

Sustained government support has aided the expansion of the national pharmaceutical manufacturing sector. However, long-run growth and international competitiveness are hampered by (1) the difficulty of obtaining WHO prequalified status and (2) the current focus on low-margin, low value-added products (McCabe 2009). Ghanaian manufacturers express frustration with the lack of affordable and reliable water and electricity supplies—both necessary to begin seeking WHO approval. Local producers also struggle to provide regulators with the necessary documentation to demonstrate their compliance with machine calibration and raw materials-sourcing guidelines. In addition, lack of qualified staff and difficulty obtaining APIs consistently at a reasonable price have been cited as barriers to the growth and maturing of Ghanaian pharmaceutical production (McCabe 2009).

Local manufacturers may also face significant competition from donor agency initiatives like the Global Fund’s Affordable Medicines Facility (McCabe 2009). By negotiating a lower bulk price for antimalarials on behalf of public, private, and nonprofit buy-

ers, the Global Fund hopes to bring the cost of artemisinin-based combination therapies from the current \$6.00 to \$10.00 price down to \$0.20 to \$0.50. This poses a threat to Ghanaian manufacturers heavily invested in the antimalarials market, who doubt their ability to compete with these higher-quality and significantly cheaper drugs (McCabe 2009).

Imports, mostly generics from India and China, already make up roughly 70 percent of the pharmaceutical market. In contrast, almost all brand name drugs come from European multinationals. Despite their large market share, importers face a daunting mark-up structure (table 4.10).

**Table 4.10. Pharmaceutical Markup Structure for Importers**

Item	Percent markup
Import Duty	10
VAT+NHIL	15
Port inspection	1
ECOWAS levy	0.5
Export development levy	0.5
Network charges	0.5
Wholesale markup	30–40
Retail markup	30–40

Source: Ballou-Aares et al. 2008.

Whether locally manufactured or imported from abroad, a drug's path from wholesaler to consumer is unpredictable. Ghana's private distribution network appears more chaotic and fragmented than that of other Sub-Saharan countries. In contrast to Mali, where three major wholesalers form a natural oligopoly effectively and consistently serving all regions of the country, Ghana has between 150 to 166 suppliers (McCabe 2009). While certainly "competitive" in the market sense, the fragmentation means few businesses have the necessary infrastructure to obtain cost-saving economies of scale and ensure safe, efficient delivery to remote regions of the country. Rather, the sheer number of wholesaler/distributors seems to have created a surprising degree of vertical integration, with manufacturers becoming importers, wholesalers, and retail pharmacists, in an effort to fulfill business needs (McCabe 2009).

The absence of reliable distributors with national reach has led to the rise of countless "middlemen," each with a separate profit margin. In a typical example, a drug passes through the hands of about four separate middlemen with mark-ups ranging from 5 percent to 200 percent (table 4.11).

A drug's price, quality, and safety may vary greatly across neighborhoods, let alone across regions. Together, these features of the private sector supply chain create an atmosphere of sustained uncertainty and distrust.

#### *Health Sector Business Environment*

The current business environment for the health sector is positive in that competition is healthy, the NHIS offers potential for increased revenues and new markets, and the lending sector is confident. However, there are many negatives—difficulties in accessing financing, a lack of financial and general management expertise, a high degree of fragmentation, and damaged cash flows and lost business associated with the NHIS.

**Table 4.11. Likely Private Sector Supply Margins**

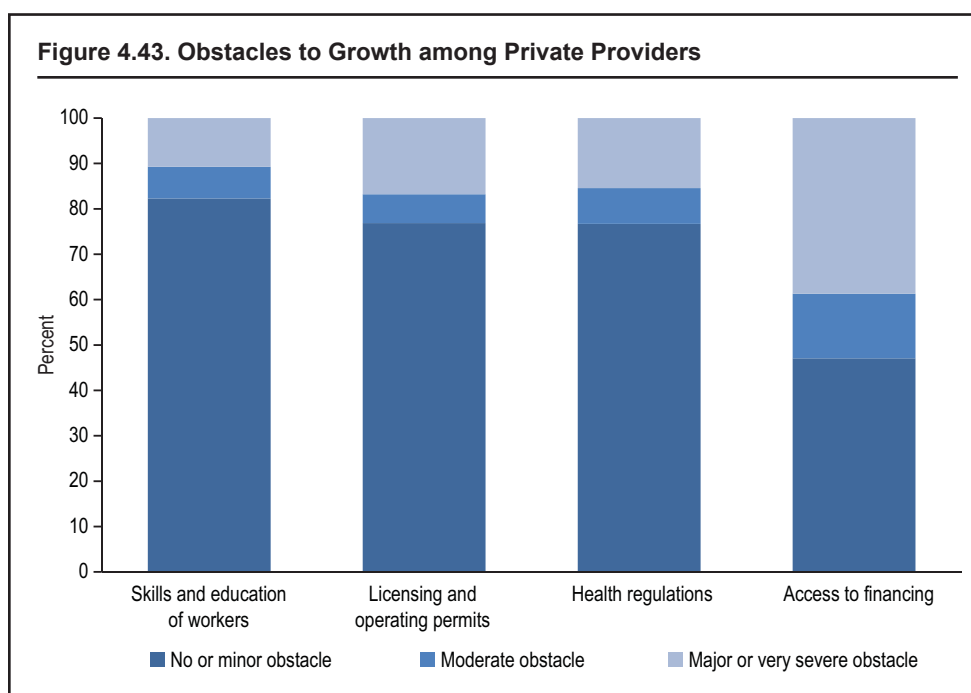
Actor	Margin (percent of selling price)
Manufacturer	10–50
Wholesaler	10–30
One-stop-shop wholesaler	5–10
Retailer	30–200

Source: McCabe 2009.

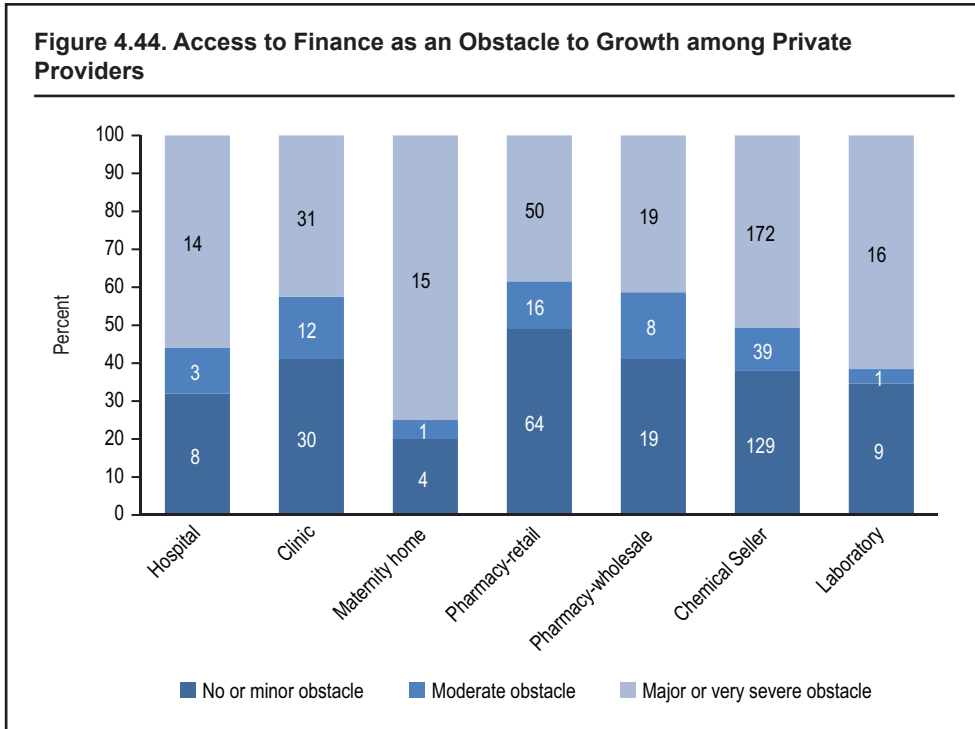
#### ACCESS TO FINANCING

In the mapping survey, providers were asked to rate how much of an obstacle the following factors represent for them and whether any of them were considered problematic for the facility's growth and operations: (1) skills and education of workers; (2) licensing and operating permits; (3) health regulations; and (4) access to financing. Overwhelmingly, private providers cited access to financing, as an obstacle to growth. The majority of private providers responded that skills and education of workers, licensing and operating permits, and health regulations constitute "no obstacle" or a "minor obstacle" (figure 4.43). In contrast, 48 percent of private providers noted access to financing as a "major" or "very severe" obstacle, with another 12 percent noting it as a moderate obstacle.

While responses were fairly consistent across private provider type, maternity homes found access to financing more of a barrier; 75 percent found it a major/very severe obstacle. Retail pharmacies found it less of a barrier, with only 38 percent finding it a major/very severe obstacle (figure 4.44).



Source: Authors.



Source: Authors.

The private health facilities that participated in qualitative interviews talked about the difficulties in the credit environment. They complained about bank interest rates, short repayment periods, collateral requirements, and transaction costs. As shown in the mapping results and verified through in-depth interviews, most private providers rely on retained earnings, personal sources, and bank loans (including overdrafts) to fund investments. Some have taken out bank loans, but most are open to bank loans given reasonable terms. Because the credit environment is so challenging, most health facilities have accounts with multiple banks. They obtain loans from known international banks primarily because of the credibility it lends for purchasing equipment and consumables on credit. However, they also work with lesser known banks that can give them slightly higher loan amounts more quickly. Almost none had sought equity financing, but some were interested.

Interest rates for health enterprises are high (30 percent) when considering a general inflation rate around 11 percent (CIA 2010). Additionally, loan repayment periods are typically short (between 18 months and 2 years), which providers complain limits opportunities to see the financial benefits of expansion. For private actors without collateral (land or property), available loan amounts are small (averaging about \$6,000). Facilities interviewed explained that the small loan amounts and high interest rates dictate that they only rely on banks for small additions to their businesses, such as the purchase of a new piece of equipment. For larger investments needed to expand a business (e.g., property for a new location, additional staff), facilities must rely on internally generated income, which slows potential growth tremendously.



Interviews with several local financial institutions confirmed much of what was reported by the private providers, in that there are high interest rates, significant collateral requirements, and high transaction costs. In addition to describing Ghana's credit environment, these financial institutions also shared how health sector lending compares with other sectors.

The following facts were observed:

- Health sector loans typically make up a small percentage (about 5 percent) of a financial institution's portfolio.
- Health sector loans are considered by financial institutions to be better-performing and less risky than loans in other sectors.
- The average health sector loan size is between \$75,000 and \$130,000, which is slightly less than the average loans made to other sectors.
- The base interest rate is 30 percent and does not differ from loans to other sectors.
- Most loans in the health sector and other sectors are short term (up to one year repayment period) to cover working capital.
- Collateral is required in the form of the owner's personal property.

When asked what can be done to improve the credit environment, financial institutions explained that, until the rates associated with the government treasury bill go down, banks will not have incentive to offer loans at lower interest rates. But financial institutions also admitted that they lack knowledge and expertise about the health sector and that improvement in this area could result in loans that are more tailored to health businesses' needs. Finally, the financial institutions reported that many small and medium-size health businesses do not maintain structured accounting records and that doing so would increase the banks' willingness to lend and likely the businesses' success in repaying the loan.

Additionally, the financial institutions interviewed indicated that they are reluctant to make loans to or even make equity investments in start-up businesses. This was evidenced not only by the banks' confirmation but also by many of the facilities interviewed. They explained that initially they had to start their businesses with individual savings. Only after these facilities were well-established were they able to obtain loans.

#### IMPACT OF THE NHIS

The introduction of the NHIS has significantly impacted private health actors across the supply chain. As discussed earlier in this report, the NHIS has "changed the game" for the provision of health care products and services. Lower tariffs, coupled with increased volumes, have pushed providers into high-volume, low-cost models. The scheme has also opened up new lower-income markets to private providers, now that many people who previously could not afford private health services are covered by the NHIS. Some private providers welcome the increased business, but the great majority, while seeing the long-term potential of the NHIS, claim its introduction has harmed their businesses.

According to the qualitative interviews with private providers for the assessment, providers are frustrated with various aspects of the scheme but claim the core issue is delays in reimbursement. There are several root causes for the delays. The NHIA claims it does not receive money quickly enough from the Internal Revenue Service. Widespread corruption at all levels of the system has significantly slowed the reimbursement

process because each claim submission must be heavily analyzed for fraud. Finally, the DMHISs suffer from weak claims management capacity and cash shortfalls due to delayed fund transfers from the NHIA.

The impact of these delays on private providers is significant. Many providers interviewed claimed that delays are as long as four to six months. The delays damage cash flows, forcing many providers to default on loans. Many went on to explain that either they had dropped out of the scheme because of the delays or they knew of other providers who had stopped accepting the NHIS because of reimbursement issues. The delays also profoundly affect input suppliers. As supplies in the form of medicines and equipment are generally provided on credit, input suppliers have found that providers are taking much longer to pay them because of NHIS delays. The same cycle is occurring then with suppliers, with many of them facing impaired cash flows and potential loan default.

Another fundamental issue voiced by the facilities is that reimbursement rates for particular services or drugs are not large enough for facilities to break even. Many facilities acknowledge charging insured customers additional fees when the NHIS reimbursements do not cover costs.

#### FINANCIAL AND GENERAL MANAGEMENT

Financial and general management abilities vary widely across private providers. Although many report confidence in their own financial management capabilities, actual financial and general management practices show holes and weaknesses. For example, the many providers interviewed noted that they had written business plans but they could not easily retrieve them or speak easily and convincingly to their contents. Similarly, few of the providers exhibited strength in project formulation or feasibility analyses.

#### FRAGMENTATION

The private health sector is heavily fragmented, with many small and medium-size businesses and few large-scale operations (with the exception of pharmaceutical manufacturers). Ghana has no private self-financed tertiary hospitals. Each city has a handful of medium-size hospitals, but few have more than 100 beds. Pharmacies and chemical sellers make up the most fragmented part of the health sector. According to the Pharmacy Council, only 5 percent of standalone pharmacies (all standalone pharmacies are private) are part of larger pharmacy chains. The number is likely even lower for chemical sellers. Although there are a few large pharmaceutical manufacturers, with 22 active players the market is still fairly fragmented, especially when compared with the handful of manufacturers that dominate the industry in neighboring countries.

#### REGULATION

The private actors subject to regulation have little input into the regulations. Providers interviewed generally replied that regulations put little to no burden upon them. Many private actors would like more and more-effective regulation, especially in the pharmaceutical area. Pharmacies and other suppliers see their businesses harmed by competition from unauthorized dealers and the widespread sale of counterfeit and illegal drugs and wish for stronger regulation and enforcement to reduce this practice.

Nearly all of the facilities interviewed reported that they pay taxes and do not consider them a financial burden. The rural facilities visited serve primarily the poor. In ur-

ban areas, clinics serve roughly the same percentage of poor and middle-class patients. Private hospitals in urban areas have the greatest percentage of middle-class patients but low-income patients still make up between 20 and 30 percent of patient volume. Wealthy individuals make up less than 5 percent of patient volume in all of the facilities sampled.

#### CHOICE OF INPUT SUPPLIER

Although most facilities were satisfied with their pharmaceutical wholesalers, nearly all private hospitals and clinics interviewed commented that the medical equipment market is not sufficiently competitive and that choice is limited. These service providers complained that the several medical equipment providers each carried only a few products; parts and service were problems, and prices were high. The medical equipment suppliers interviewed confirmed that the lack of competition (there are three to four major medical equipment suppliers in Accra and very few outside of the major cities). Some facilities have resorted to travelling abroad and purchasing medical equipment themselves, but they complain that this method of procurement is expensive, particularly because very few types of equipment are exempted from government duties.

#### *Regulatory Environment*

The Ghanaian Ministry of Health includes five regulatory agencies (table 4.12). These agencies compose a regulatory environment that faces the various challenges discussed below.

**Table 4.12. Regulatory Agencies of the Ministry of Health**

Function	Private Hospitals and Maternal Homes Board	Medical and Dental Council	Nurses and Midwives Council	Pharmacy Council	Food and Drugs Board
Mandate	Ensure quality health care in private hospitals, clinics and maternity homes, through monitoring, inspection and technical support	Ensure public safety by prescribing, developing and enforcing high standards of medical and dental practice	Maintain and promote standards of professional conduct and efficiency with organization of training and education of nurses and midwives	Guarantee highest levels of pharmaceutical care by ensuring competent pharmaceutical providers who practice within agreed standards and are accessible to whole population	Achieve highest standard of safety, efficacy and quality for all food, drugs, cosmetics, household chemical substances and medical devices
Licensing	Facilities: • Private hospitals • Private clinics • Private maternity homes	Individuals: • Physicians • Dentists	Individuals: • Nurses • Midwives	Facilities: • Wholesale pharmacies • Retail pharmacies • Pharmacies within hospitals or clinics • Chemical shops Individuals: • Pharmacists	Facilities: • Pharmaceutical manufacturers Products: • All medicines on market, local and international

Source: Authors.

#### PRIVATE HOSPITALS AND MATERNITY HOMES BOARD

The PHMHB is responsible for accrediting private hospitals, clinics and maternity homes. To receive accreditation, a facility must be staffed by doctors accredited by the Medical and Dental Council (in urban areas) or by senior nurses or midwives accredited by the Nurses and Midwives Council (in rural areas). The PHMHB has regional teams that inspect the premises and evaluate facilities on equipment, staff-to-bed ratio, outlay of health facilities, and other criteria. The PHMHB coordinates with other agencies such as the Environmental Protection Agency, the Fire Service, and the Police Service to ensure the facility's compliance with all regulations. The PHMHB is also responsible for providing technical guidance to facilities that seek to upgrade or expand. As already described, the PHMHB acknowledges that it cannot move at a fast enough to accredit all private health facilities. The agency estimates it has accredited only a quarter of all private hospitals, clinics, and maternity homes.

Once facilities are registered, the PHMHB is responsible for ongoing monitoring and evaluation of these facilities. Registered facilities are required to issue monthly reports and must pass requalification inspections every year. However, as representatives at the PHMHB explain, facilities rarely submit data because they have limited time to compile and deliver the reports and they do not see benefits when they do submit the reports. The PHMHB is also technically responsible for enforcement, but the agency acknowledges that it rarely rejects applicants or revokes accreditation.

As representatives of the agency explain, the PHMHB's very low budget (3,000 Ghanaian cedis a year) severely restricts its ability to carry out its regulatory mandate. The agency explains that inadequate resources have resulted in the limitations discussed above.

#### MEDICAL AND DENTAL COUNCIL

The Medical and Dental Council (MDC) licenses public and private doctors and dentists and is responsible for registration, training, standard setting, and regulation of standards. Although the National Accreditation Board is technically responsible for the accreditation of any tertiary health training institution, the MDC is actively involved in the evaluation of medical institutions. The MDC also offers Continuing Professional Development, required of all practicing doctors and dentists for license renewal.

Although the MDC is technically responsible for standard setting, the council acknowledges that, apart from guidance on ethical conduct, no specific clinical guidelines are given. Rather, licensed practitioners are expected to follow the broad guidelines outlined in the law. The council also acknowledges that regulation/enforcement is more reactive than proactive. This is partially due to limited resources: as the council claims its budget is 35 percent smaller than what is needed. The council relies on patient complaints to detect malpractice. Patient complaints, if deemed credible, require the practitioner in question to go through a disciplinary process that could end in license removal. The MDC also relies on the press to expose practitioners that may be engaging in harmful practices. Despite MDC's uneven ability to regulate, it is cited by the Private Enterprise Foundation of Ghana as a good example of regulation of private activity (Private Enterprise Foundation 2008).

#### NURSES AND MIDWIVES COUNCIL

The Nurses and Midwives Council (NMC) licenses public and private nurses and midwives and is responsible for registration and training. Nurses and midwives must re-

new their licenses every three years. Although the National Accreditation Board is technically responsible for the accreditation of any tertiary health training institution, the NMC is actively involved in the evaluation and training of nursing and midwife training institutions.

The NMC is responsible for monitoring and evaluation of both training institutions and licensed nurses and midwives, but acknowledges a significant gap in supervision. The council monitors training institutions by periodic evaluations of teaching methodology and test construction. The council's Disciplinary Committee used to have about seven people but now has only two, due to limited resources. The committee has not sanctioned a licensed nurse or midwife for more than two years.

#### PHARMACY COUNCIL

The Pharmacy Council is responsible for the licensing of facilities and pharmacists, education and training, monitoring and inspection, and enforcement. The council designs and monitors accreditation of training institutions and programs for pharmacists and other pharmaceutical care providers. The council also offers continuing professional education and training. Pharmacists must renew their licenses with the council every two years and must participate in continuous education, offered by the council or other accredited institutions.

Pharmacies must present a Certificate of Incorporation and a Certificate to Commence Business to be considered. Wholesale and retail pharmacies may be run by a businessperson, but they must employ at least one full-time licensed pharmacist. A retail pharmacy cannot open within 400 meters of another one. Once these requirements are verified, the council makes a site visit to evaluate ventilation, lighting, storage facilities, toilet facilities, counseling area, equipment, and reference books. When chemical shops apply for a license, both the applicant and the facility are evaluated. The applicant must be a secondary school graduate and deemed medically and mentally fit. Chemical shops in areas well-served by pharmacies are not considered for registration. The council stipulates that a chemical shop must be at least one kilometer in distance from a pharmacy or another chemical shop. Once these requirements are met, the council makes a site visit to evaluate ventilation, lighting, floor space, and the facility structure. Final approval for pharmacies and chemical shops is given by the Registration Committee, which reviews the inspection results. About one application in 20 is rejected.

Though responsible for ongoing monitoring and enforcement, the Pharmacy Council acknowledges that it has not been entirely effective in this regard. Although the council has tried to educate the public about its complaint mechanism, consumers typically direct complaints to the media rather than the council. In cases of grave misconduct, the Disciplinary Committee meets with the pharmacist and can suspend his/her license, close the facility, or both.

#### FOOD AND DRUGS BOARD

The Food and Drugs Board (FDB) audits all local and some international pharmaceutical manufacturers and oversees the registration of all products on the market to ensure their safety, quality, and efficacy. The FDB acknowledges that it has limited resources and cannot audit every international pharmaceutical manufacturer that imports medicines to Ghana. Because of the high volumes of medicines coming from Southeast Asia, the FDB began auditing pharmaceutical manufacturers there in 2002. Audits are completed

to ensure the facility meets Good Manufacturing Practices (GMP) guidelines. The FDB audits all local manufacturers on a regular basis. As FDB representatives explain, their relationship with local manufacturers is supportive, in that the audits are intended to identify areas where more technical assistance is needed.

The FDB also registers each and every product, local or international. In addition to registering the products, the FDB conducts post-market surveillance to ensure the safety, quality, and efficacy of the medicines. Samples are picked at random and tested. The FDB also participates in a global practice, Pharmacovigilance, where adverse reactions to medicines are submitted to a central WHO database.

Counterfeit medicines are a challenge throughout Sub-Saharan Africa, but the FDB reports that substandard medicines are an even greater challenge in Ghana. If substandard medicines are identified, the FDB visits their manufacturer and attempts to identify the cause. If the facility has committed a grave error, it is shut down immediately. Otherwise, the FDB attempts to provide the relevant technical assistance.

The FDB acknowledges its limitations. It has a presence in only 6 of the 10 regions. Given limited resources, the FDB focuses on inspection of finished products and does not currently inspect raw materials.

#### OVERARCHING GAPS AND CHALLENGES

Based on qualitative interviews—with representatives of the regulatory bodies as well as other players in the health system, particularly private health actors—some key gaps and challenges in the regulatory environment have been identified: lack of a regulatory body for laboratories, limited resources, reactive rather than proactive regulation, limited private input, and limited coordination with the NHIA.

##### *No Regulatory Body for Laboratories*

For many years, Ghana has had no regulatory body for laboratories. Private laboratories, in particular, have advocated the creation of a regulatory body they believe would strengthen their profession, weeding out poor-quality labs and providing recognition and support to high-quality labs. The Ministry of Health has developed a bill, the Health Professions Regulatory Bodies Bill 2007, which calls for the creation of the Allied Health Professional Council, a regulatory body of medical laboratories. At the time of this writing, the bill was awaiting approval from the attorney general. If approved by the attorney general, the final step will be passage by the president's cabinet.

##### *Limited Resources*

Each of the regulatory bodies cited the constraint of limited resources. Small budgets mean a lack of necessary human resources and often a limited regional presence. Some of the councils acknowledged that limited resources have meant in particular less attention to practitioners in the private health sector. For example, representatives of the Medical and Dental Council explained that the council often visits public facilities to observe doctors but that visits to private facilities are outside the MDC's mandate.

Private providers interviewed for the assessment cited under-regulation as a constraint to their businesses. Under-regulation penalizes facilities that provide high-quality services by allowing substandard providers to offer cheaper, low-quality care that might not be observable to patients. Although all the regulatory bodies recognize that they need strengthening, there is no discussion or action at the policy-making level to bring additional needed resources.

*Reactive versus Proactive Regulation*

Partly due to limited resources, most of the regulatory bodies employ reactive rather than proactive monitoring strategies. In most cases, this means relying on patient complaints to identify poorly performing facilities and practitioners. And often these complaints are discovered indirectly through press coverage rather than through complaint mechanisms designed by the regulatory bodies. Reliance on publicity about after-the-fact harmful practice is inferior to proactive strategies that identify and root out unqualified, poor-performing practitioners and substandard drugs before they reach the public.

*Limited Private Input*

Private health actors note that they are widely excluded from input into the regulatory process. Although some separation is needed between regulator and regulated, these actors argue that regulatory bodies should at least call upon them for information and discussion while guidelines and licensing processes are being designed and reviewed.

*Limited Coordination with the NHIA*

Currently, interaction is limited between the regulatory bodies the NHIA. Although the NHIA technically will not accredit a facility that does not already have a license from its regulatory body, this is not what happens in practice. As described above, at the end of 2008, the NHIA had accredited 25 percent more facilities than were licensed by the PHMHB. The regulatory bodies argue that the NHIA should consult them about the facilities under their purview instead of acting independently and perhaps seeking out information already captured.

*Policy Environment*

The MOH and Ghana Health Service (GHS) officials frequently mention the government's relationship with CHAG when asked to discuss successful public-private partnerships in Ghana. However, officials are quick to admit that interaction with the for-profit private sector is "very weak." The government is not ideologically opposed to working with the private sector, but officials claim that they lack resources, capacity, and direction. In 2000, the MOH took a big step when it created the Private Sector Unit (PSU) with support from donor funds in order to facilitate greater partnership. By 2003, the MOH had developed a policy framework that encouraged engagement with the private health sector at all levels of government. However, in addition to a lack of funds, the PSU went unstaffed for long periods of time and, as of the writing, had only one staff member. Inasmuch as 80 percent of the government budget goes to salaries, very little budget is left to direct toward private sector engagement. Ministry officials admit that even policy-level conversations have been discontinued and that resources, as well as refreshed political will, are needed to begin to utilize the framework laid out in 2003. Private facilities are not included in any one-off government trainings but are expected to participate in Continuing Professional Development. Ministry officials also note that little data is exchanged. They claim that private facilities complain about sharing data and that getting them to comply is very difficult. Private facilities explain that they do not share data with government both because they admittedly have poor data management and because they rarely receive feedback from the government on data submitted.

The GHS is working on developing a legal framework for contracting, but currently there are no contracting arrangements for service delivery except for donor-led HIV/

AIDS, TB, or malaria programs. The assessment uncovered some limited examples of interaction such as governmental provision of free immunization vaccines and promotional materials to private facilities, but not any ongoing contract arrangements. Several of the government officials and private facilities interviewed suggested that the greatest opportunity for contracting may be in rural areas where there is no government presence. The MOH noted that Ghana had failed to obtain World Bank funding for Heavily Indebted Poor Countries (HIPC) to establish a clinic-building program in rural areas to contract to private practitioners.

### *Quality of Care*

Points of view about the quality of care offered by private providers in Ghana are many and divergent. Some people think the quality of services offered by private providers is superior to that offered by the GHS since private providers need to attract paying clients who would not come to them if they did not provide good quality. Others think that private providers compromise on quality, especially the self-financed private providers, because they are held to be more interested in earning profits than in providing quality care.

The GHS Strategic Health Plan 2007–11 included a quality assurance component, but it did not address the private sector, except CHAG facilities serving as district hospitals. The MOH has developed clinical guidelines and protocols, but these are not systematically compiled and disseminated to private providers.

In this light, data for the assessment were gathered on quality from two points of view: (1) consumer satisfaction and (2) structural indicators of quality. A third point of view, clinical assessment of quality, is beyond the scope of this assessment.<sup>8</sup> Consumer satisfaction was examined in three ways: (1) through analysis of household surveys that show what choices consumers make, (2) through focus group discussions in the community that allow qualitative probing of consumer thinking behind their actions, and (3) interviews of patients as they exit from the GHS and private health facilities. For the assessment information was gathered on structural indicators of quality from the sample of 730 health sector actors mapped in the seven focus districts of the assessment.

#### CONSUMER SATISFACTION

The analysis of household survey data compared the findings of the GLSS 4 (2000) and the GLSS 5 (2005). It showed that Ghanaian consumers reported using private providers a bit more than half of the times they seek care (total use of private sources went from 52.5 percent to 55.6 percent between the two surveys). The gain in using private sources was particularly marked for use of not-for-profit private sources (rising from 4.2 percent to 6.6 percent of reported use). Some of the reported use of services is for pharmaceuticals only (about 6 percent of reported use in GLSS 4 and 14 percent in GLSS 5). When this reported use of services is taken out, reported use of private providers of health services was 44.2 percent in GLSS 4 and 46.0 percent in GLSS 5.

The focus group discussions conducted in communities found the following concerning the perception of quality by consumers. Consumers in the focus groups look for good customer service, availability of comprehensive services, knowledgeable staff, up-to-date medical equipment, a clean and professional environment, and ease-of-use from the patient's perspective. Female participants in the focus groups preferred private to public providers, citing quality care, receptive staff, and shorter waiting time as reasons



for this preference, even though prices are higher than in public health facilities. Male participants in the focus groups preferred public providers, noting that staff attitude and waiting time are better at private providers but prices are lower at public providers.

As presented in the demand section, above, the patient exit survey conducted for the assessment showed that patients of either the GHS or private providers expressed strong satisfaction with the services they received. More than 90 percent of both groups of patients said that they would return to the same provider.

Again, as presented in the demand section, waiting time (cited in the focus groups as an indicator of quality to consumers) is significantly shorter at private providers than at GHS providers.

#### STRUCTURAL INDICATORS OF QUALITY

The mapping survey gathered data on a number of indicators of structural quality, applying categories of indicators recommended by the World Health Organization and adapted to Ghana's situation. The indicators are services offered, basic equipment, human resources, general amenities, availability of basic drugs and supplies, infection control capabilities, and prices for basic services.

Much of the mapping data is presented in the discussion of supply in section 4. Findings related to structural quality are therefore discussed below without reproduction of the tables and figures.

##### *Services Offered*

The indicator of services offered was applied only to hospitals. In the two rural areas mapped, there were only two public and two private (CHAG) hospitals. All four offered the basic services of general medicine, surgery, pediatrics, gynecology, laboratory, and pharmacy. Neither public hospital offered additional services, but one or both of the CHAG hospitals offered physiotherapy, dental and ophthalmological services, and ear, nose, and throat services.

In the urban areas where there were many more hospitals (40), public hospitals had a more complete array of services to offer than did private self-financed or the one CHAG hospital (figure 4.37). However, in urban areas where there is a choice of hospitals, it is not as critical that all hospitals offer all services.

##### *Basic Equipment*

The items of basic equipment included in the mapping survey are adult weighing scale, child-weighing scale, thermometer, stethoscope, blood pressure apparatus, and X-ray machine. With the exception of X-ray machines, these items were generally available in rural hospitals, clinics, and maternity homes, regardless of ownership. Only one GHS and one CHAG hospital of the 18 rural facilities surveyed had a functioning X-ray machine.

The indicator items were generally available in urban facilities regardless of ownership, similar to availability in rural areas. Again, only some of the urban facilities have functioning X-ray machines, but there is no clear pattern of ownership. Only 37 percent of self-financing urban clinics have child-weighing scales, maybe indicating that they cater mainly to an adult clientele.

With the exception of functioning X-ray machines, particularly in rural areas, the availability of basic equipment is good across types of facilities and ownership type.

### *Human Resources*

For the mapping survey data were collected about the staffing of GHS and private facilities in terms of the following categories of staff including whether they are in full- or part-time employment: doctor, nurse, midwife, auxiliary nurse, laboratory technician, laboratory technologist, pharmacist, and “other.”

Rural hospitals employ almost no part-time staff (table 4.7). In rural districts, the CHAG hospitals have 18 percent more staff per bed than the GHS hospitals (figure 4.39). The CHAG hospitals also have a substantially higher nurse-to-doctor ratio in their staff (figure 4.40). All of the urban hospitals have substantially higher staff-to-bed ratios than do the rural hospitals. Overall, the urban hospitals have twice as many staff per bed (0.89) as the rural hospitals (0.43). The nurse-to-doctor ratio is much lower in urban hospitals (3.8 nurses per doctor) than rural (17). The single CHAG urban hospital stood out with a higher ratio (9.8), though still way below the two CHAG rural hospitals (19). The higher density of staff per bed in urban areas is particularly pronounced for GHS hospitals (1.10 per bed urban and 0.41 rural). GHS hospitals have about a third more doctors per bed (0.23) than do self-financing private hospitals (0.16). Also notable is that the private urban hospitals have more than three times the pharmacists and nearly five times the laboratory staff per bed compared with the GHS (private pharmacists per bed = 0.042, GHS = 0.013; private laboratory staff per bed = 0.072, GHS = 0.013).

Staffing patterns show that the pro-urban distribution of health facilities is even more pronounced when staffing is taken into account. Not only are there more hospitals and hospital beds in urban areas, but these urban hospitals are also more generously staffed than their rural counterparts, particularly by GHS doctors. The more generous staffing of self-financing private hospitals with laboratory and pharmacist personnel suggests that they provide more of these services than GHS hospitals.

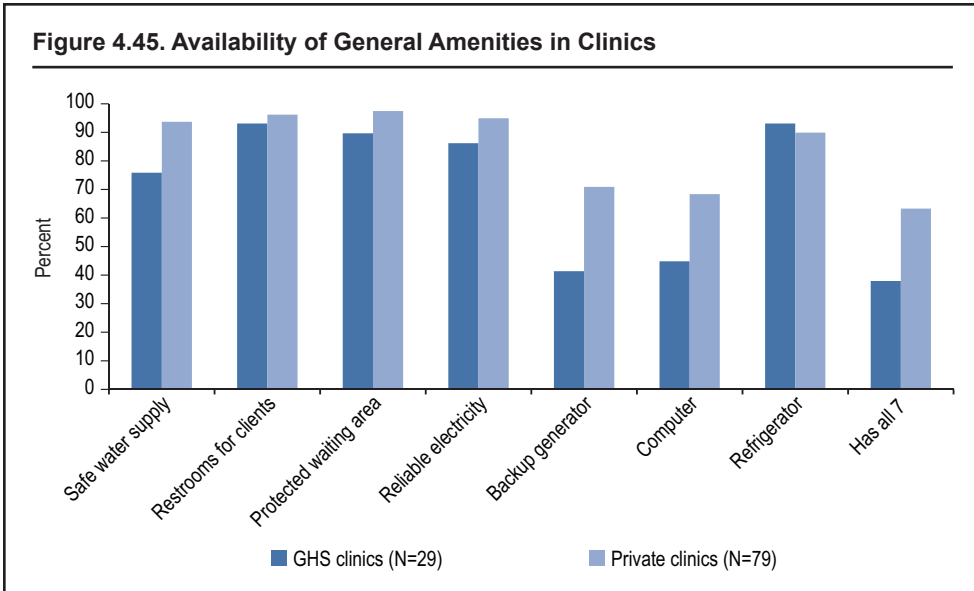
In terms of quality, all the hospitals appear to have adequate staff, with the variations in patterns of staffing indicating that they provide different mixes of care. GHS hospitals look to provide more doctor-oriented care, likely more specialized. CHAG hospitals provide more basic services with their more nurse-oriented staffing. Self-financing private hospitals offer doctor-oriented care exclusively in urban areas and also have more substantial pharmacy and laboratory capabilities than the others.

### *General Amenities*

The data collected on the availability of general amenities covered the following items: safe water supply, toilet facilities for patients, protected waiting area, frequently available electricity supply, backup generator, computer, and refrigerator.

The findings concerning the availability of the amenities for hospitals of all ownership types are comparable. Most hospitals—at least 80 percent of all GHS or privately owned hospitals—had all the amenities. Thus, the quality of all hospitals surveyed in terms of amenities is high.

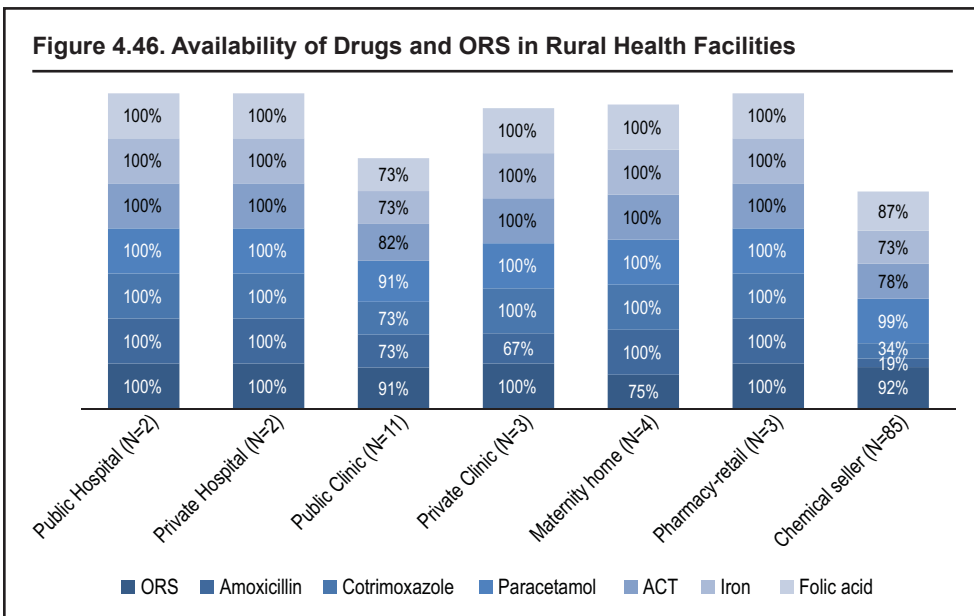
For clinics, however, the survey results show differences between GHS and private facilities in terms of amenities. More than 60 percent of private clinics had all the amenities, while less than 40 percent of all GHS clinics had all of them (figure 4.45). In particular, the private clinics were more likely than the GHS clinics to have a safe water supply, a backup generator, and a computer. Thus, quality in terms of amenities seems to be better in private clinics.



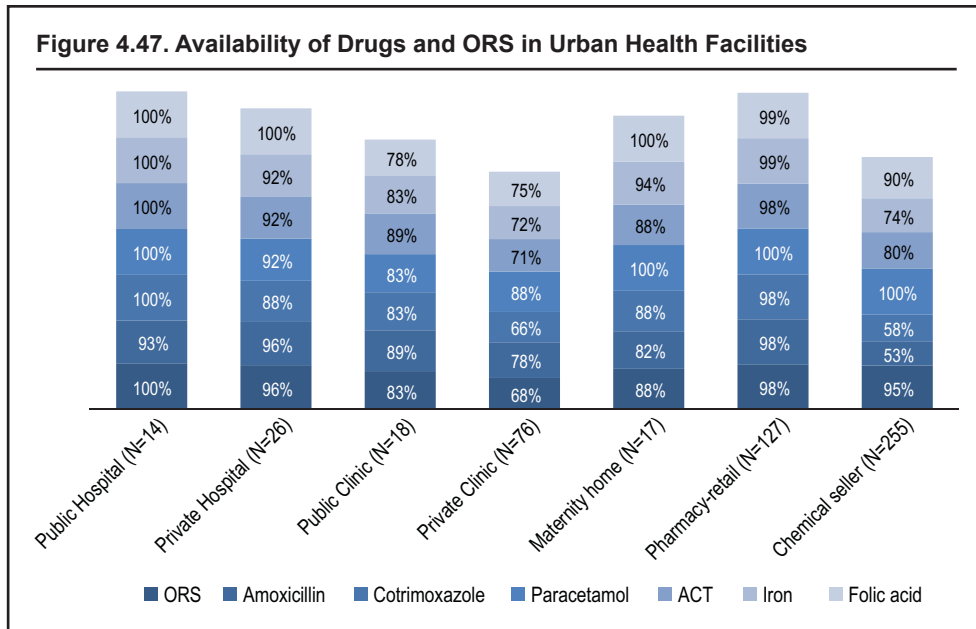
Source: Authors.

**Availability of Basic Drugs and Supplies**

The mapping survey examined the availability of six drugs (cotrimoxazole, artemisinin combination therapy, folic acid tablets, amoxicillin, paracetamol, and iron tablets) and oral rehydration solution (ORS) packets in both private and GHS facilities. None of the items were consistently available across rural public sector clinics; among private clinics and maternity homes, all but one of the items was in stock at all of the facilities interviewed (figure 4.46).



Source: Authors.



Source: Authors.

Urban public hospitals had the best availability of the six items (figure 4.47). Private clinics in urban areas often did not have one or more of the items. However, in urban areas many retail pharmacies almost always had the six items.

### *Infection Control*

The mapping survey collected information concerning the availability of the following forms of infection control: autoclave, boiling and steaming set up, chemical disinfection set up, container for disposal of needles and syringes, and disinfection solution. The data show good availability of infection control items across all types of facilities (hospitals, clinics, or laboratories), regardless of ownership type and across rural and urban areas. Thus, the quality of infection control availability appears high across the board.

### *Prices for Basic Services*

In the mapping questionnaire, participants were asked the prices charged for (1) a consultation for a child with a fever and (2) a normal delivery.<sup>9</sup> The findings show that the prices charged by self-financing private facilities for both types of services are substantially higher (3 to 10 times) than the prices charged by GHS or CHAG facilities. Hospitals charge more than clinics and maternity homes.

### *Conclusions Concerning Structural Indicators of Quality*

Only a few differences in structural quality indicators between public and private providers were disclosed by the mapping survey. The notable differences are

- The broader array of services offered by CHAG rural hospitals compared with the GHS
- The greater density of staffing of urban GHS hospitals compared with rural GHS hospitals and with private hospitals, particularly in terms of doctors per bed

- The greater density of laboratory and pharmacist personnel in self-financing urban hospitals compared to others
- Better equipped private clinics than GHS clinics, particularly concerning safe water supply, backup generators, and computers
- The lower availability of drugs in rural GHS facilities
- The much higher prices charged by self-financing providers for child fever consultations and normal deliveries.

The findings are that structural quality is roughly comparable across ownership type in terms of urban services offered, availability of general amenities beyond those mentioned in the bullets above, availability of basic human resources, availability of basic equipment, and availability of infection control.

The important differences in indicators of structural quality are between rural and urban facilities, regardless of ownership. Rural residents face providers of all ownership types with fewer and less specialized personnel, less secure supply of drugs (particularly in GHS facilities), and a scarcity of functioning X-ray machines.

## **Successes and Failures**

This section outlines successes and failures within the market, policies, and institutions that have an impact on the Ghanaian health system.

### *Market Successes and Failures*

Markets succeed when supply matches up with demand at prices close to the production cost of the goods or services. Markets fail when there is a mismatch between supply and demand or the prices that result are substantially above the cost of production. The market for private health services in Ghana has a number of successes but also several failures.

#### MARKET SUCCESSSES

The private supply of outpatient services matches demand for urban middle- to upper-socioeconomic groups. The chemical sellers provide important access to drugs for rural dwellers. Private providers in urban areas respond to consumers with shorter waits, better drug availability, and more courteous treatment than in GHS facilities but at higher prices that their mainly middle- and upper-socioeconomic consumers are willing to pay.

#### MARKET FAILURES

The private market serves urban middle- and upper-socioeconomic populations well that already are better served by the nonmarket GHS services. The self-financing private sector serves rural and poor urban populations hardly at all because the purchasing power of these populations is limited (although NHIS reimbursements are changing that situation). Nonmarket GHS and not-for-profit private services try to fill the gap for the lower socioeconomic groups not served by the private market, but do so only to a limited extent. In fact, GHS providers are more concentrated in urban areas compared to rural, so that the overall combination means that access to health services is quite skewed toward the middle- and upper-socioeconomic groups.

Another form of market failure is underinvestment by private actors in the health sector. This arises from: (1) the lack of business and financial skills of their owners and

managers and (2) relatively high interest rates, short repayment periods, substantial collateral requirements, and what are perceived to be burdensome application procedures for bank loans. This means that private actors take out fewer bank loans to fund investments than they would if the conditions were changed. The lack of business and financial skills and relatively undeveloped equity markets in Ghana also mean that the use of equity financing to fund investments is rare to nonexistent.

Few providers are organized as small group practices. This would seem to limit the economies that might be realized by scaling up and spreading out the costs of the business infrastructure needed to operate a health business.

The pharmaceutical supply system is highly fragmented with many firms dealing in only a few products each. This, too, would seem to lose out on scale economies. The pharmaceutical supply system also seems to be overly integrated vertically, with the possibility that firms specializing in one type of service, such as drug wholesaling, and leaving other parts of the chain, such as distribution to others specialized in the other areas might be more efficient.

Similarly, the market for medical equipment is fragmented. Each supplier offers a narrow array of products, limiting choice for providers.

### *Policy Successes and Failures*

Policy, discussed in this section, is taken to mean official statements, strategies, regulations, and policies—everything that indicates intent. Actions taken by units assigned responsibility for implementation are taken up below, under the heading of “institutional” successes and failures. Policies are successful when they attain their stated purposes. They fail when they do not.

#### POLICY SUCCESSSES

Ghana recognized the private health sector’s importance, and its potential importance, when it fashioned a Private Health Sector Policy, in 2003. Many of the analyses in that policy remain accurate in early 2011. Since the enactment of that policy, the importance of the private role in the sector has been recognized by the inclusion of private representatives in the annual health summits and by the creation of a Private Sector Unit in the Ministry of Health. A special relationship between the CHAG and the Ministry of Health and the GHS is codified by a memorandum of understanding that facilitates close collaboration and the delivery of services to many otherwise underserved populations. The regulatory bodies set up to oversee private activities in the sector successfully oversee the licensing of most new facilities. How to enhance the role of the private sector in health was on the agenda for the April 2010 health summit. The NHIS reimbursements for care delivered by both the GHS and private accredited providers broaden accessibility to services. Finally, the overall policy of the government of Ghana is business friendly and encourages private activity.

#### POLICY FAILURES

It is the intent of Ministry of Health policy to ensure access to health services for all. However, the supply of services from both private sources and the GHS in rural areas lags far behind the supply in urban areas, yet the majority of the population lives in rural areas.

Despite the sound situation analysis and identification of policy issues concerning the role of the private sector in health in the 2003 Private Health Sector Policy, most of the agenda for action related to that analysis remains unimplemented (box 4.3). Despite the enshrinement of the private sector policy and the stated intention to work in close partnership with the public and private sectors, with the exception of the CHAG relationship, much of the private sector feels left out of the mainstream of MOH and GHS thinking and action.

The inclusion of accredited private providers in NHIS reimbursements changed the landscape; but only one third of all private providers had been evaluated for NHIS accreditation by the end of 2009. Therefore, many were excluded from participation (communication from the NHIS accreditation team).

#### **Box 4.3. Failure to Implement the 2003 Private Sector Health Policy**

"In 2003 a private health sector policy was launched, which sets the goal, objectives and strategies. The MOH wants to support the private sector to grow, and wants to support capacity strengthening and human resource development. It wants to increase partnership at implementation level, and exchange of information... *There has been little progress in public-private collaboration since 2003 (with the exception of CHAG–MOH/GHS relations)*" [emphasis added]. (MOH Independent Review, 2009, p. 12)

#### *Institutional Successes and Failures*

The analysis of institutional successes and failures examines how well policy is implemented. Policies are statements about what is intended to be achieved. Institutions allow policy intents to be achieved. Institutions, offices or units of government, are assigned responsibility for acting to carry out policy. Methods or practices are used to implement policy (such as forums for interaction, public hearings, negotiation sessions). Both the offices and units and the methods and practices involved with attempting to execute policy are the subjects of this analysis concerning the private sector's role in health.

#### INSTITUTIONAL SUCCESSES

The Ministry of Health has had several institutional successes: The regulatory councils' and boards' criteria and standards for the opening of private facilities are applied and respected by private actors. The Private Sector Unit was established by Ministry of Health and assigned to implement the Private Health Sector Policy. The public-private partnership with CHAG works well and makes CHAG an extension of the GHS in underserved rural areas. The national tuberculosis program collaborates with private providers to extend its reach. Korle Bu Teaching Hospital is beginning a public-private partnership to allow doctors to have on-campus offices for seeing private patients.

On the private side, private associations represent health professions and provider groups. Private schools add significantly to the supply of nurses.

Concerning the NHIS, its accreditation program systematically addresses many aspects of quality of care in the private sector and soon will do so for GHS providers. The NHIA openly recognizes important problems in operations and expresses a desire to overcome them. The NHIA has identified, and is actively seeking means to limit, fraud at various levels of the system.

## INSTITUTIONAL FAILURES

The list of institutional successes is counterbalanced by numerous institutional failures, such as the Ministry of Health/GHS failure to develop a high-level public champion for an enhanced private role in the health sector. The private sector unit in the MOH is small, far down the administrative hierarchy, and represents only a small fraction of MOH personnel and financial resources, despite the fact that private actors provide about half of all care and at least as much care as the GHS. The Private Sector Unit has been unable to achieve more than a few of the items on the action agenda by the 2003 policy. The Ministry of Health captures data for the health information system from CHAG, but almost none from any other private actor in the system.

There is little collaboration by the MOH with the unit of the Ministry of Finance charged with facilitating public-private partnerships. The MOH reacts to private sector proposals instead of pursuing public-private partnerships proactively.

The regulatory councils and boards have insufficient resources to conduct ongoing supervision and monitoring of private actors, so they are limited mainly to oversight of the opening of facilities. Regulations are formulated by the councils and boards without a forum for input and criticism by the regulated parties. The Food and Drugs Board's regulation of pharmaceutical products is inadequate to sufficiently address the issue of counterfeit and substandard drugs; this opinion is shared by wholesale and retail private pharmacies, which desire stronger oversight and regulation.

At the district and regional levels, the District and Regional Health Management Teams (DHMTs and RHMTs) are charged with overseeing the health sector, but are managed by the GHS which focuses on its providers' activities, not the sector as a whole. The GHS could also be considered to have a potential conflict of interest, because self-financed and GHS providers can be seen as competitors. There is no specific forum for discussion and engagement between public and private sector representatives.

Private sector institutions also fail. There is no overall representation for the private health sector; each professional association represents only its members, so there is no single voice speaking for the issues common to or cutting across private groups. Private associations contribute little to monitoring and ensuring quality of care or to the development of business and financial skills of their members. Private health providers make little use of bank loans and almost no use of equity as a means of financing investment. Their lack of skills and experience with these options, coupled with market conditions for bank loans (interest rates, collateral requirements, and repayment periods) inhibit their use.

There are also failures related to the NHIS. The National Health Insurance Agency (NHIA) has only begun to realize and develop its potential to influence private development through accreditation, reimbursement, application of the Essential Drugs List (EDL), payment methods, clinical and financial audits, and so on. The NHIA acknowledges its slow payment of providers as a problem. The NHIA has uncovered important instances of fraud in claims for payment by both private and GHA providers and recognizes that its fraud prevention and detection methods are inadequate.

There are failures in the area of training. Private pre-service training of health workers is limited, and there are no private medical schools, despite claims of doctor shortages. The pre-service training of doctors, nurses, laboratory technicians, and pharmacists does not include business and financial management courses and there are no special-



ized post-graduate training courses available for managers of health-related businesses. The result is that private sector health managers lack business and financial management skills, which hinders their ability to be successful and maximize their contribution.

## 5. Options for Action

For this assessment, much information was assembled, collected, and analyzed, allowing the actual and potential contribution of the private sector to the Ghana health system to be seen more clearly. The assessment, with significant input from participants in the December 2009 and March 2010 workshops,<sup>10</sup> identified a number of actions that must be taken to come closer to reaching the potential for the private health sector in Ghana. The options for action fall into the categories of stewardship and governance; private sector; health insurance; business environment, quality of care, human resources for health; pharmaceutical supply chain; and information exchange and management. Although all options are considered important, the highest-priority recommendations in each category are listed first.

### Stewardship and Governance

The assessment revealed that, although a start has been made on dialogue and specific interaction between the public and private sectors, much untapped potential remains. The dialogue is limited, and specific interactions come mainly from the GHS-CHAG relationship. Not only dialogue, but also collaboration are essential among public and private stakeholders in overseeing the private sector's role in health.

Also noteworthy is the fact that health sector stakeholders extend beyond that sector to include the Ministries of Finance and Trade and Industry, among others. Overall responsibility for the health sector and all of its actors resides with the Ministry of Health. The MOH Private Sector Unit needs strengthening to serve the ministry's and other stakeholders' needs. In addition, the MOH has limited experience in implementing public-private partnerships, one area in which the policy is in place but little follow-up action has occurred in the health sector.

Implementation priorities for the MOH should include:

- Review and revise 2003 Private Sector Policy with involvement of all stakeholders and establish an implementation framework. Identify and establish specific roles and responsibilities for the public and private sectors. Set priorities among the actions and a realistic timetable for their accomplishment.
- Strengthen the participation of the private sector in existing coordination mechanisms (e.g., include private sector representation in existing national policy dialogue mechanisms). Raise the standing of the Private Sector Unit and increase its staffing and resources. The private provision of health services accounts for at least half of all service use in Ghana. The small size and low status of the Private Sector Unit do not reflect the importance of private provision. The MOH should consider raising the unit's visibility and providing it with more and more highly qualified staff and a larger budget to enable it to perform all the necessary work to achieve the agenda of the revised Private Sector Policy.

- Seek out required technical support and other relevant resources from the Ministry of Finance and learn how—proactively—to create and implement public-private partnerships.
- Establish a public-private engagement committee with equal representation of the public and private sectors to facilitate dialogue among stakeholders. Consider building this committee from the steering committee set up to oversee this assessment, but do not be wedded to this structure. Representation on the committee should include the Ministry of Finance, Parliament, and the academic sector in addition to the bodies represented on the assessment steering committee. Give this engagement committee oversight over the review, revision, and implementation of the Private Sector Policy.

### **Private Health Sector**

Private sector actors as individuals, health businesses, and professional associations have much to do. Recommended actions by these actors are sprinkled though many of the recommended options in this section. However one recommended option is specific only to the private sector: to find a way to develop and express a collective voice on issues that cut across every private entity in the health sector. In other words, create a collective voice for the private health sector.

### **Health Insurance**

The NHIS already affects private sector development by putting the power to buy privately delivered services directly in the hands of the people enrolled in and covered by the insurance. However, the NHIS faces some immediate challenges: the NHIA, private providers, the GHS, and health sector regulatory bodies will always have to collaborate in various ways to solve these common problems. Collaboration should include:

- Establish a joint task force (NHIS, GHS, professional associations, FBOs) to address immediate and acute issues of the NHIS, including fraud, delays in reimbursement and slow accreditation.
- Urge the NHIA to move as quickly as possible to implement a centralized claims management system to speed up and help reduce fraud in reimbursements.
- Consider building on the work of the task force mentioned in the bullet above (including representatives of the NHIA, private providers, and the GHS) to carry out the ongoing task of conducting periodic (annual or every two years) peer reviews of NHIS tariffs and instruments to promote quality of care, such as the accreditation system.
- Establish and formalize a joint committee involving health sector regulatory bodies and the NHIA to oversee and analyze the systematic collection of reliable, “on-the-ground” monitoring and evaluation information (including that collected by the NHIS accreditation system) to identify, understand, and act to resolve challenges to provider performance and quality of services.

### **Health Sector Business Environment**

The results of the assessment show that private health businesses lack access to credit and also lack business skills to assess the financial prospects of investment ideas and to

prepare adequate applications for credit. In addition, the assessment showed that private self-financing providers are concentrated in the already well-served urban higher socioeconomic status areas, rather than in the areas of greatest need, lower socioeconomic urban neighborhoods and rural areas. To address this problem,

- Create avenues of access to credit and advisory services for the private health sector (box 5.1).
- Create incentives for private investment in rural (and underserved urban) areas and identify innovative ways to provide government support to private actors. The NHIS reimbursements for rural dwellers and for lower socioeconomic status urban residents should make the provision of health services to these groups more interesting than ever before. If more incentive is needed, means such as raising tariffs for services provided in these geographical areas could be tested and if they work well, implemented broadly. Other methods that might be tried would be to rebate part of investment costs of opening and operating services in underserved areas, with the rebates coming only after delivery of the service (e.g., if setting up a rural clinic cost 20,000 cedis, a rebate of 5,000 cedis might be offered in payouts of 1,000 cedis at the end of each year for five years if the clinic continued to operate in the underserved area).

#### **Box 5.1. Some Ideas for Widening Access to Credit and Advisory Services**

Access to credit might be facilitated by setting up specific lending funds through banks that target health sector borrowers and provide training for bank loan officers in the specificities of health businesses. Partial guarantees of bank health lending portfolios could also be used to give the banks incentives to reduce collateral requirements for health loans.

The advisory services of some national business consultants could be of great help to health actors but health businesses do not even know about them. To encourage the start of such relationships, a competitive small grants program could be set up to provide matching funds for contracts between health businesses and consultants. The grants would be made with the understanding that the consultants' reports or other work products would be made public (with editing to protect proprietary information) at forums organized to promote such relationships. The forums might also include (in addition to the presentation of the grants results) "fairs" where consultants could market their services and credentials to interested health businesses. The aim would be to catalyze these kinds of relationships to help health businesses take better advantage of opportunities to use credit and to take advantage of opportunities such as the Africa Health Fund set up by IFC to provide equity investment possibilities for health businesses in Africa.

### **Quality of Care**

Evaluation of structural indicators of quality showed a good level of quality generally for both private and GHS providers but weak ability of the regulatory bodies to perform their mandated role. At the December 2009 workshop on the assessment findings, the lack of coordination and collaboration between the regulatory bodies and NHIS accreditation was also noted. Recommendations at the workshop included

- Review and strengthen the role of licensing and accreditation boards (in areas of representation, financing, autonomy, and decentralization) and strengthen

coordination among stakeholders on how quality will be monitored and encouraged (see third bullet under Health Insurance, above).

- Finalize legal framework for laboratory services (note that this has been on the agenda since the Private Sector Policy of 2003).
- Review and expedite licensing and accreditation processes with a special focus on rural facilities and staffing norms.
- Review and harmonize the legal framework for regulatory bodies and review the mandate of the regulatory bodies to level the playing field between public and private actors and eliminate nonprofessional providers.

### **Human Resources for Health**

The quality of the human resources in private practice depends in part on practitioners' keeping up with changes in clinical practices once on the job. The assessment also revealed weaknesses in the business management skills of many private health actors. To address these issues, the following recommendations were made:

- Develop business skills for public and private practitioners, managers, and administrators. Consider offering basic business management courses (tailored to health business specifics, such as how to manage insurance reimbursements and how to amortize medical equipment) as options at the pre-service training programs for health professionals of all types. Promote the development of modules or certificate programs at business training schools for training in health business management. Promote the offering of short- and part-time courses in health business management by these same schools so that already on-the-job health professionals can learn the needed skills without having to take much time away from their practices. The professional associations might be involved in organizing and certifying some of these courses and offering continuing professional education credits for them as well.
- Strengthen continued professional education (review the role of professional associations, costs of training to the private sector, and inclusion of private actors in national programs). Consideration might be given to making the earning of continuing education credits a requirement to be able to keep a license to work as a health professional. The professional associations could organize and ask their members to pay fees for continuing education courses or to arrange for their members to join GHS in-service training while paying incremental costs of participation. The plans to organize a Ghana Public Health Association might lead to meetings of the association at which continuing education sessions might be held and credits earned. Paying fees for continuing education should be considered a cost of doing (health) business.

### **Pharmaceutical Supply Chain**

Because much work had been done by others on the pharmaceutical supply chain, the assessment relied on this other work and did not duplicate it. The following recommendations come from the work of pharmaceutical supply specialist Ariane McCabe (2009) and are in line with the assessment findings:

- Improve distribution networks through incentives to consolidate wholesale market and leverage supply chains of other sectors.
- Encourage regional standardization of drug registration and expand cooperation on testing and surveillance.
- Assess the impact of international financing, donations, and procurement policies on local industry.
- Channel donor funds through local supply and distribution channels, as in the World Bank Multi-sectoral AIDS Project in Mali.

## Information Exchange and Management

The assessment brought to light much new information on the private health sector and more information will be generated in the future, especially as recommended actions are taken over time. It is important that this information be shared widely so that it can be used by all stakeholders to track trends, serve as the basis for analyses, and facilitate informed decision making.

To facilitate the exchange of information on the private health sector, it was recommended that the Private Sector Unit should create an online information exchange as part of the Ministry of Health website. There news, data, and analyses produced by the MOH and others (especially the professional associations representing private actors) can be posted. The Private Sector Unit should continuously post information to the site, including an annual update on the state of the private health sector (e.g., covering progress in achieving the agenda of the revised Private Sector Policy, estimates of the size and scope of the private sector, changes in regulations, and new research and analysis performed).

To increase market research and conduct organized data collection on the pharmaceutical industry, it was recommended that the Private Sector Unit might seek collaboration with the Ministry of Trade and Industry in conducting this research and data collection and post the results on the private sector part of the MOH website.

## Notes

1. "Enhance" is used here in the sense of "adding to the value" of the contribution that the private sector makes to attaining national health goals and objectives.
2. Good governance and partnership is strategic objective 4 of the Five-Year Programme of Work III.
3. "Self-financed" is the term used in Ghana to indicate what is often referred to in other countries as "for-profit."
4. The Amadea Muslim Mission contributes to roughly 2 percent of faith-based service provision.
5. Given that there was only one CHAG hospital in the urban areas, the results are not presented since they are not necessarily representative of other CHAG hospitals in other urban areas.
6. All dollar amounts quoted in this report are U.S. dollars unless otherwise noted.
7. Gyimah, Peter, interview by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), March 2, 2007.
8. Note that the assessment of clinical quality is a complex and costly task. This dimension of quality would add to the two dimensions assessed here.
9. These services represent very commonly used child and maternal services that are critical to achieving Ghana's objectives to reduce child and maternal mortality and meet the MDGs.
10. See appendix C for the full set of recommendations devised by workshop participants.



# Appendixes

- A. Detailed Assessment Methodology**
- B. National-Level Stakeholders Interviewed**
- C. December 14–16, 2009 Workshop Report**
- D. Secondary Analysis of Existing Data Sets—Supplementary Data and Analysis**
- E. Testing and Correcting for Endogeneity**
- F. Patient Exit Poll Data**



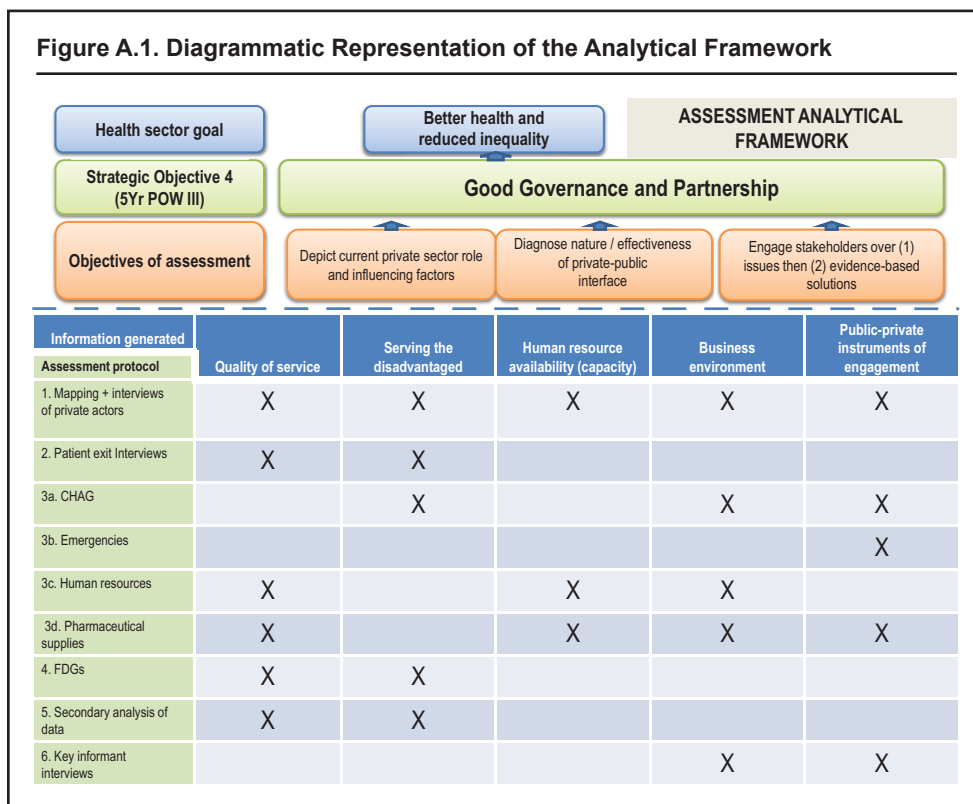


# Appendix A. Detailed Assessment Methodology

## Analytical Framework

The assessment took a demand, supply, and market-, policy-, and institutional-failures approach to identify barriers to improving the private contribution to the health sector. Given the significant impact of the NHIS on both patients and providers, the function and administration of the NHIS was explored as well as its impact. The approach sought to identify gaps in health care in Ghana that might be addressed through an enhanced private sector role, whether a bigger role or one more focused on doing better. The focus on market, policy, and institutional failures and weaknesses sought to identify where policy or other interventions could alleviate the failures and allow private actors to play an enhanced role. The assessment was conducted in the environment of an explicit national health goal of better health and reduced inequality and a strategic objective of good governance and partnership (figure A.1).

On the demand side, the assessment analyzed existing data sets (including the 2008 Demographic and Health Survey (DHS) and 2006 Ghana Living Standards Survey (GLSS)) to examine use by different socioeconomic status groups of privately provided



Source: Authors.

services and associated payments. In addition, the assessment conducted patient exit interviews and focus group discussions in seven focus districts to gather additional information about the reasons for the choice of public and private providers, including but not limited to, issues of perceived quality of care.

On the supply side, the assessment mapped public and private actors in five districts additional to the two covered in the AFD study, including gathering structural quality information, prices for selected services, and information concerning use of electronic record keeping, reliance on the NHIS, and access to credit. The assessment conducted more detailed qualitative interviews of a sample of private actors to learn about their financial situation, access to inputs, financial management capabilities, and degree and effectiveness of interaction with the public sector regulatory mechanisms and information systems.

Quality of care is a supply condition that affects demand and is a point of contention between the public and private sectors (the public sector questions whether private providers compromise on quality, while the private sector claims that it attracts patients by providing superior quality to that available from public providers). Thus, the assessment gathered structural quality information and patient and focus group assessment of quality, as well as information concerning the effectiveness of quality regulation. In addition, an attempt was made to obtain and include in the analysis information from the ongoing implementation of facility accreditation under the National Health Insurance Authority (NHIA).

The assessment also gathered information concerning the institutional environment around private participation in the health sector, by conducting key informant interviews with policy makers, regulators, leaders of professional associations, and health input suppliers (pharmaceuticals, supplies, equipment). The interviews were structured to elicit information concerning policies, legislation, regulations, defined processes, and structures, as well as actual practices, attitudes, opinions, and capacities. These interviews also assessed the structures for public-private dialogue to judge their effectiveness and allow the proposal of measures to strengthen them.

The assessment also included the organization and facilitation of engagement workshops to promote exchanges between public and private actors and to provide input into the formulation of alternative policies. The aim was to facilitate the development of evidence-based policy responses to alleviate barriers and motivate enhanced and better targeted private participation in the sector. A “kick-off” engagement workshop was held among private and public sector leaders at the beginning of the assessment to ensure that all issues were put on the table and that data would be collected to address them. A second engagement workshop was held to allow a similar set of participants to sift and review the new evidence produced by the assessment and to put forward and prioritize a set of actionable recommendations. A final engagement workshop focused on the formulation of specific policy and other interventions.

Finally, the analytical framework included analyses to address some specific questions of interest: (1) lessons that can be drawn from the close public-private relationship between CHAG and the MOH CHeSS 2010a (2) the potential private role in pre-hospital emergency services CHeSS 2010b and (3) particular circumstances and barriers faced by Ghana’s pharmaceutical manufacturers. Additional data were also sought to complement that already gathered by others on: (1) the pharmaceutical supply chain and the actual and potential role of the private sector in addressing weaknesses and (2) the role of the private sector in pre-service training of human resources for health.

### Health Facility Mapping

The objectives of the mapping exercise were the following:

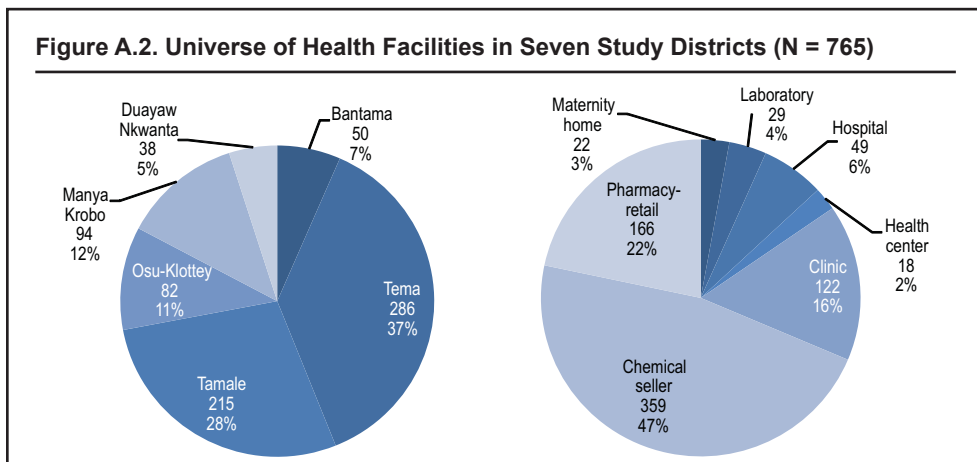
- Gain a much deeper understanding of the size and configuration of Ghana’s health system across rural, urban-poor, and urban districts in terms of facility ownership (public, private self-financed, and CHAG) and facility type (hospital, clinic, maternity home, community-level government centre, laboratory, wholesale pharmacy, retail pharmacy, and chemical seller).
- Evaluate basic structural quality indicators across facility ownership and facility type such as services offered, staff to bed ratios, equipment, and drug availability.
- Understand the severity of obstacles to growth faced by health care providers.
- Identify sources of funding for major purchases and day-to-day operations.
- Determine differences in pricing across facility ownership for basic services.
- Quantify the proportion of providers that are accredited by the NHIS and/or private commercial insurer(s).

The mapping was conducted in the seven selected districts in August 24–31, 2009. Trained enumerators mapped all formal sector health care providers—public and private—in the seven districts by taking the facility’s GPS coordinates and conducting a 20-minute short-form questionnaire. Enumerators were given lists of facilities compiled in advance based on available data from government and private provider associations. However, because these lists were outdated and often incomplete, enumerators relied on local sources (from the local District Health Office to the taxi drivers) to ensure that all facilities were captured. Table 4.5 in the main body of this report includes the total number of facilities mapped, according to district and facility type.

### Patient Exit Polls

The survey was conducted in seven districts selected for this and for several other components of the private sector assessment study. From a universe of 730 facilities in these seven districts, the assessment team designed the following sampling frame (figure A.2):

- To achieve district representation, about seven facilities were selected per district, for a total sample of 49 facilities (for sample of facilities, see table A.1).



Source: Authors.

**Table A.1. Sample of Health Facilities in Seven Study Districts (N = 49)**

Facility type	Bantama			Duayaw Nkwanta			Manya Krobo			Osu-Klottey			Tamale			Tema			Total		
	P	G	C	P	G	C	P	G	C	P	G	C	P	G	C	P	G	C	P	G	C
Chemical seller	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	6	0	0
Clinic	1	1	0	0	1	0	0	1	0	0	1	0	0	1	1	0	2	0	1	7	1
Health centre	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	2	0	0	5	0
Hospital	0	1	0	0	0	1	0	1	1	0	1	0	0	1	1	0	2	0	0	6	3
Laboratory	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	2	0	0	7	0	0
Maternity home	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	2	0	0	6	0	0
Pharmacy-retail	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	2	0	0	7	0	0
Total	5	2	0	3	2	1	4	3	1	4	2	0	4	3	2	7	6	0	27	18	4
<b>Total per district</b>	<b>7</b>			<b>6</b>			<b>8</b>			<b>6</b>			<b>9</b>			<b>13</b>			<b>49</b>		

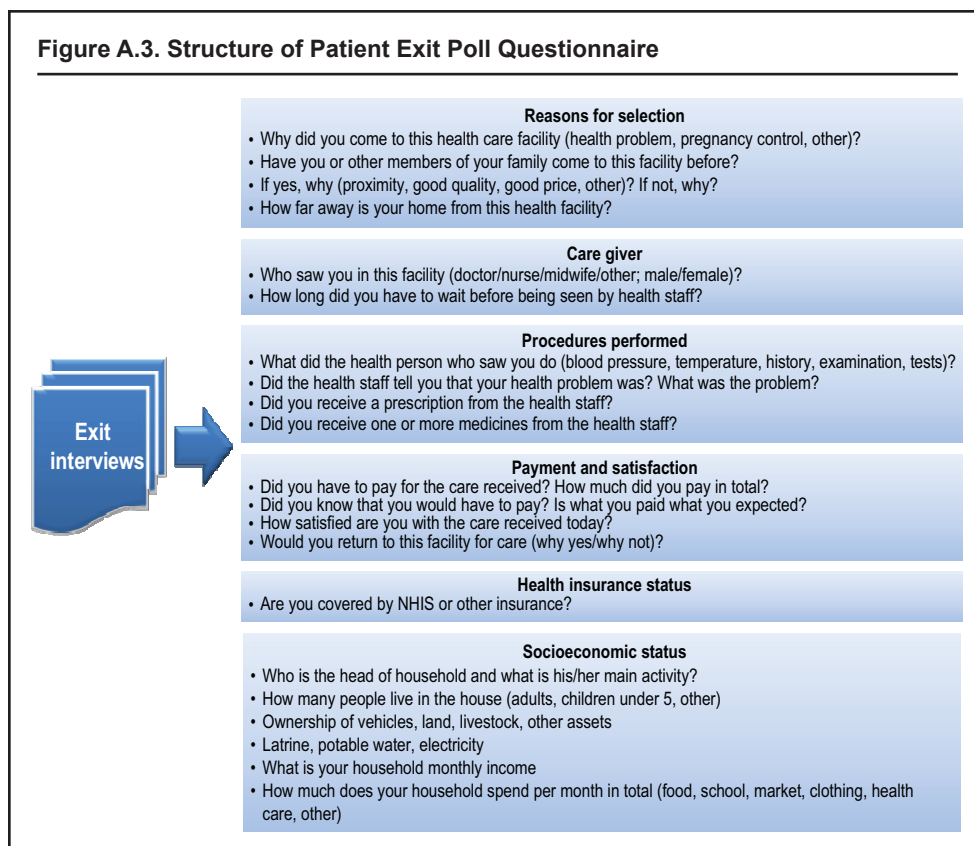
Source: Authors.

Notes: P = Private; G = Government; C = CHAG.

- Where possible, at least one facility of each type was selected in each district.
- On average 20 patients were to be interviewed per facility. However, the actual number in a given facility was proportional to its daily patient load. The target size of the patient sample was 1,000. Owing to time and resource limitations, the strategy for selecting respondents in each facility was as follows: enumerators selected all patients as they were exiting the facility after their visit, which lasted a maximum of one day. Within that day, enumerators interviewed as many patients as they could until they reached the target sample size of 20 patients. In medium to large facilities, they reached the target in only a few hours. In smaller facilities with lower patient loads, they could not interview the targeted number, prior to moving on to the next facility in the sample. The actual sample ended up being 1,141 patients.
- Private facilities were 55 percent of the sample.

Selected patients exiting the facilities were asked to respond to 66 questions focusing on their reasons for selecting the provider that they had just seen and on the experience of use with the provider. They were also asked several questions about their socioeconomic status later to link socioeconomic status with provider choice, health insurance coverage, out-of-pocket payment, and quality perceptions (figure A.3).

Exit poll data were analyzed descriptively, giving rise to a series of tables through which the assessment team answered this effort’s research questions.

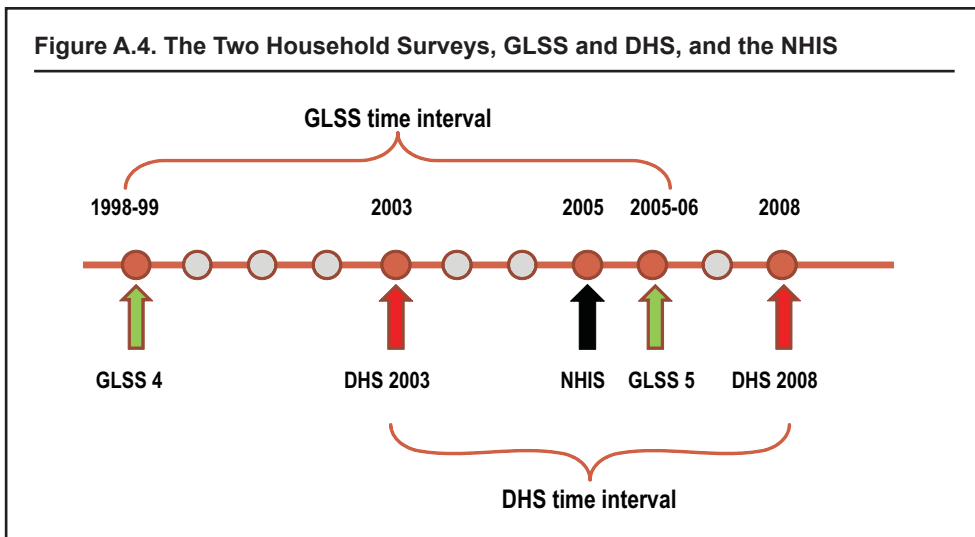


Source: Authors.

## Secondary Analysis of Existing Data Sets

The study of health care demand patterns is indispensable for health policy assessment and formulation. Demand patterns reveal how people perceive their health status; whether or not they seek curative care when ill; whether or not they value and seek preventive health services; where they go for health services (e.g., government versus private self-financed providers versus private not-for-profit providers); what factors influence their choice (education, income, illness severity); how satisfied they are with the services they get from providers; how much money they spend out-of-pocket on health services; how health insurance promotes use of services and financial protection of beneficiaries; and so on. By assessing health care demand patterns from household surveys and combining this information with administrative data on the supply of services, government can, for example, determine the presence and social consequences of geographic inequalities in the distribution of health infrastructure, or health manpower, or inequities in the consumption and financing of health care. Government can therefore take policy measures to overcome problems of equity, efficiency, quality of care, and financial protection against health shocks.

Ghana's government, in collaboration with several development agencies, has for decades systematically carried out several household surveys to study the welfare of its citizens. Two key surveys containing valuable health sector information are Ghana's Living Standards Survey (known as GLSS) and the Demographic and Health Survey (DHS). The two most recent GLSS surveys are GLSS 4 from 1999 and GLSS 5 from 2006). The two most recent DHS surveys are from 2003 and 2008. Hence, two of these four surveys took place before, and two after, the implementation of the NHIS (figure A.4). All four surveys are equally important for the study of health care-seeking patterns, in particular for the role that private providers play in Ghana's health sector. However, the usefulness of each of these four surveys varies, depending on the policy research objectives.



Source: Authors.

*GLSS 4, 1999*

The GLSS 4 survey is the one that goes farthest into the past among the four analyzed here. Its usefulness resides in the picture that it offers regarding health care-seeking patterns in Ghana over a decade ago. The data from GLSS 4 can serve as a baseline at the end of the 20th century. This is a general purpose household survey focusing on household welfare and the consumption of social services. In its health section, it looks at some preventive maternal and child health services and curative care for all persons. The GLSS 4 survey can also be easily compared with the GLSS 5 survey, conducted five to six years later, given that both share a similar structure, sampling methods, and set of questions. Its nationally representative sample consisted of about 8,000 households, and was designed to ensure that at least 400 households were selected from each region.

*GLSS 5, 2006*

The GLSS 5, conducted between 2005 and 2006, focused on preventive maternal and child health services and on curative care for all persons. This survey collected similar information to GLSS 4, but at a time when the NHIS was just one year into its implementation. Hence, it may serve as a baseline against which to assess the consequences of the NHIS in subsequent years. In 2005–06 only a small fraction of Ghanaians were covered by this public health insurer, and geographic coverage of the NHIS was uneven. In addition, by 2006, public health care providers were de facto certified by the NHIS whereas most private providers, both not-for-profit and self-financed, were not and therefore their patients could not claim NHIS coverage. As a consequence of this, one should expect to find that the use of public providers may have been greater in 2006 than it may be today, considering that a significant share of private health providers are now accredited by the NHIS.

*DHS 2003*

Its focus is on maternal, child, reproductive health, and HIV/AIDS. As a standard international survey, its questionnaire and sampling strategies are fairly stable over time. The DHS 2003 survey preceded the implementation of DHS by two years, and therefore it may be a better baseline than GLSS 5 to assess the impact of the NHIS. Its nationally representative sample consists of about 6,600 households nationwide. Its sample allows separate estimates for key indicators for the whole country, for each of 10 regions, and for urban and rural areas.

*DHS 2008*

Similar to DHS 2003 in sampling frame and contents, this survey is the most recent of the four, and thus the one that offers the most up-to-date information on demand patterns and the influence that NHIS coverage may be having on them.

This assessment presents an analysis of these four surveys. The research questions that motivated the analysis as well as the two different methodologies used—a descriptive methodology and an econometric (or statistical) methodology—are described below.

*Research Questions*

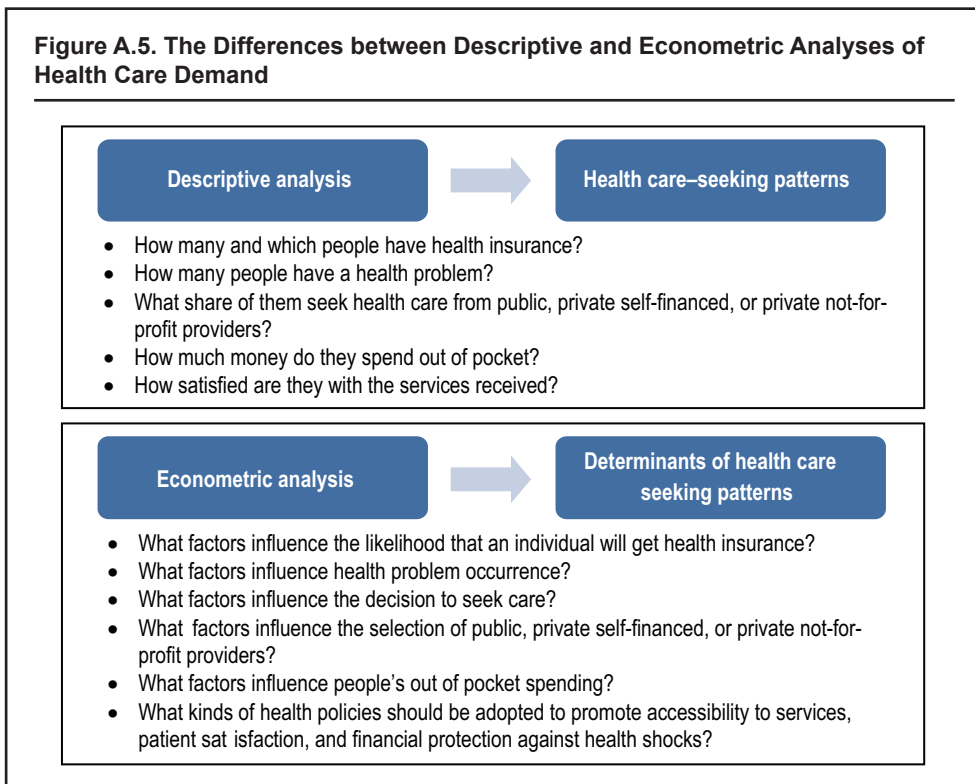
The demand for health care services is influenced by a multitude of variables, including those that characterize the individual, his or her household, and the alternative providers. Examples of individual characteristics that may influence demand are self-per-

ceived health status, age, gender, education, and health insurance coverage. Examples of household characteristics that may influence demand are income or socioeconomic status, religion, and ethnicity. Examples of provider characteristics influencing demand are technical quality, staff attitude, hours of operation, services offered, prices of services, eligibility for health insurance coverage, and location.

It is possible and useful for policy purposes to study demand patterns in a descriptive way. See, for example, the questions listed in the upper quadrant of figure A.5. A descriptive analysis consists of a series of tables and figures that offer a “snapshot” of the situation at the time of the survey. A descriptive analysis explains what is happening in terms of health care demand patterns but not what is causing it.

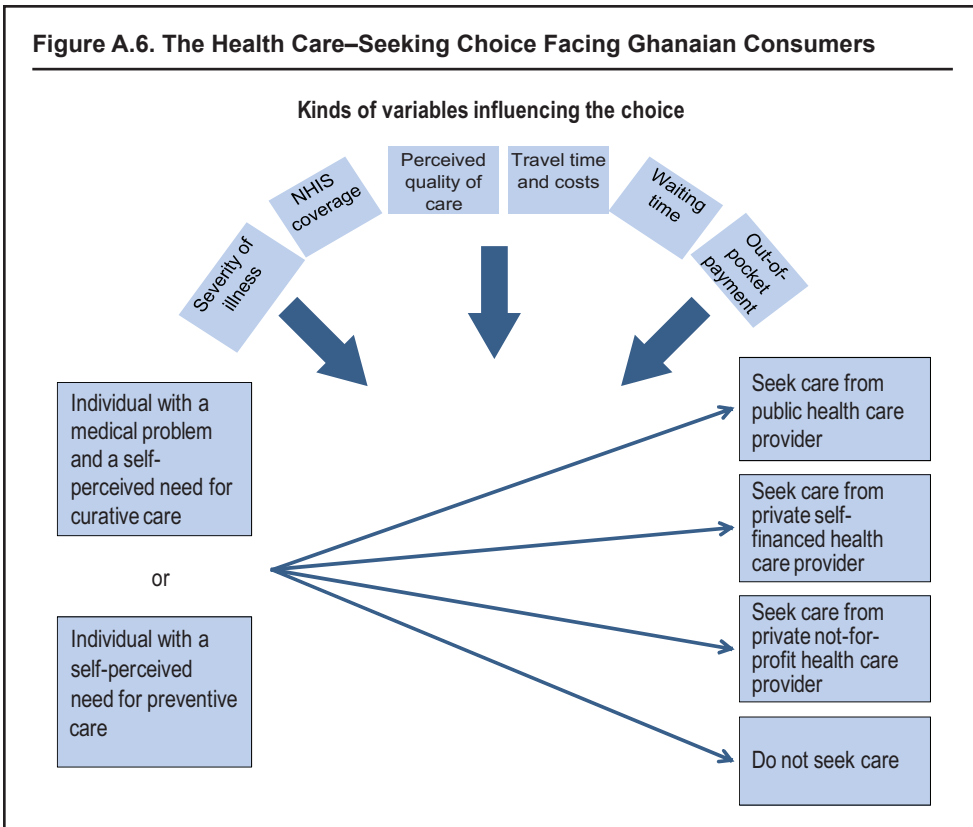
All of the above-listed variables simultaneously affect consumer decisions regarding whether or not to seek medical care, where to go for care, and what type of care to request. Because of this simultaneous influence, studying demand to understand consumer behavior requires the use of multiple regression analysis to enable the analyst to single out through a statistical procedure the influence that each of the above kinds of variables has on demand (figure A.5).

To understand consumer behavior in Ghana’s health care market, policymakers must understand the factors that shape these patterns of provider choice, to enable them to detect problems associated with demand (e.g., low-income individuals seeking care less often than the better-off) and to formulate policies that may solve these problems (e.g., using public subsidies to extend health insurance coverage for low-income populations) (figure A.6).



Source: Authors.





Source: Authors.

What influence the NHIS has had on access to health care in Ghana and on the relative importance of public and private providers is a central policy question. One would expect to find both that the NHIS has improved accessibility to care for all socioeconomic groups, but particularly for the poor, who without insurance may find themselves unable to afford private health services. The econometric analysis carried out as part of this assessment of the private sector in Ghana sought to answer the above questions, as well as several others. Below is a list of main research questions that motivated this analysis.

- What share of individuals with a self-perceived medical problem seeks care from the different kinds of health providers offering services in Ghana's health care market?
- Where do people go for curative and preventive care?
- In particular, what are their health care-seeking patterns between public, private self-financed and private not-for-profit providers?
- Who is covered by the NHIS?
- How does NHIS coverage influence the choice of provider?
- What other variables beside NHIS coverage may influence the decision to seek medical care and the choice of provider?
- How much do people pay for curative and preventive care?
- How does NHIS coverage influence out-of-pocket spending on health care?

### *Research Methods*

The descriptive analyses of the GLSS and DHS surveys were carried out using the statistical software of STATA and SPSS, in order to produce cross-tabulations, frequencies, averages, and other descriptive statistics of demand patterns.

The econometric analysis of GLSS and DHSS used here adopt standard approaches found in the international literature on the subject. A good example is the work published by Propper (2000) to study the demand for private health care in the U.K. She, in turn, adopts the approach developed by Goddard and Smith (1998) to study the demand for health care when the consumer faces both public and private choices for providers.

Following that approach, in the current study in Ghana the authors assumed an economic model in which consumers face multiple choices of health care providers and their selection of providers is influenced by income, price, quality, and other variables. In the Ghanaian case individuals who consider the consumption of curative or preventive health services face four choices: seek care from public providers, or from private self-financed providers, or from private not-for-profit providers, or not to seek medical care at all (figure A.6). As noted, these choices are affected by the self-perceived severity of illness (in the case of curative care), or the self-perceived importance of obtaining some form of preventive service (such as prenatal care or child immunization), the availability of alternative provider choices, the individual's health insurance coverage (mainly from the NHIS), and other variables already mentioned.

A choice model was assumed with four alternatives (seek care from the three kinds of providers and do not seek care). In accordance with the literature, the probit econometric technique to estimate each of the following models was assumed: probability of having NHIS health insurance coverage; probability of seeking care, probability of selecting public or private provider, and probability of having to pay for care. In addition, ordinary least squares were used to estimate the logarithm of the amount of out-of-pocket spending (OOPS) by those who have to pay for care.

Studying the effect of the NHIS on health care-seeking patterns is of central importance to this policy research initiative. The NHIS is a recent and significant policy change in Ghana and, as seen from the analysis below, it is having far reaching consequences on health care demand around the country. By removing user fees—either informal fees from public providers or formal fees from private ones—NHIS coverage may influence the decision to seek any form of curative or preventive care, and it may also influence the choice of provider—public, private self-financed, or private not-for-profit. The prominence of health insurance in demand calls for the careful selection of econometric methods to study its consequences on demand. But studying the effect of health insurance on the demand for health care is a challenging problem because of the endogeneity problem. Cagatay (2005: 99) clearly describes the problem as follows:

The endogeneity of health insurance complicates the estimation of the relationship between insurance and health care use. Consumers who enter a health insurance contract are not selected at random. Characteristics, such as health, may influence the decision to enter a contract and thus create a self-selection bias. If these characteristics can be hidden prior to the contract, the resulting policy may adversely affect the uninformed parties in the contract. This phenomenon is known as “adverse selection.” In addition, insurance companies may attempt to control

health care use of high-risk consumers, a procedure known as “screening” or “selection.” Either selection bias, adverse selection, or screening potentially confounds the estimation of the moral hazard effect. However, adverse selection upwardly biases effect estimates, while screening downwardly biases these estimates, if left uncontrolled.

To deal with this problem, the assessment team adopted a two-stage estimation technique (Bitrán & Asociados 2009) where in the first stage it estimates the probability of having NHIS health insurance and in the second stage, conditional on having NHIS coverage, it estimates the effect of this coverage on demand.

### **In-Depth Qualitative Interviews with Private Providers**

The assessment both conducted its own in-depth interviews with private providers and drew on those conducted by the earlier French Development Agency (AFD) study. Both sets of interviews explored private providers’ obstacles to and opportunities for growth. The AFD interviews also included perceptions of the public sector’s and the private sector’s roles in health, while the assessment’s interviews included the impact of the NHIS on private providers.

#### *Health Facility Mapping Sample*

The study explored the following areas:

- Perceived constraints faced by private providers, including but not limited to: access to financing, the regulatory environment, competition, business/financial management skills, availability of human resources, choice of input suppliers
- The impact of the NHIS on private health care provision, including but not limited to: patient load, services offered/rendered, revenue and profitability, engagement with the public sector
- Perceived contributions of private providers to health care in Ghana, including but not limited to: quality, specialty services, human resources
- Potential opportunities for improving health care provided by the private sector, including but not limited to: training, resources, regulatory environment, government incentives, the NHIS, public-private engagement.

#### *French Development Agency Study*

The AFD study was conducted in two phases. In Phase 1, the research team conducted in-depth qualitative interviews with 26 private health actors in two focus districts (one rural and one urban) as well as the capital city of Accra. These interviews explored revenue and profitability, clientele, perceived obstacles to growth, experience with loans, perceptions of the public sector and the level of public-private engagement, perceptions of the regulatory environment, future growth plans, and technical assistance and financing needs. The research team also interviewed several financial institutions and private health insurers to better understand the overall business environment.

In Phase 2, the research team identified 10 of the 26 private health actors as potentially “promising opportunities” based on management, scale, expansion plans, and ability to serve the poor. A second set of in-depth interviews was conducted with these 10 actors. These interviews captured data to assess: (1) quality of care, (2) business practices, (3) obstacles related to access to financing, and (4) degree of sophistication in conceiving expansion or extension projects.

## Appendix B. National-Level Stakeholders Interviewed

The following national level stakeholders were interviewed in July–December 2009. Many others were interviewed at the district level as part of the assessment team’s primary research.

**Table B.1. National-Level Stakeholders Interviewed, July–December 2009**

Interviewee	Title	Organization
Aaron Lante Lawson	Provost	College of Health Sciences, University of Ghana
Benjamin Neequaye	Secretary	Community Practice Pharmacists Association
Camilla Christensen	First Secretary	Royal Danish Embassy
Christine Fenenga	Senior Project Manager	PharmAccess
Ebenezer Appiah-Denkyira	Director, Human Resource for Health Department	Ministry of Health, Human Resources for Health
Eli Kwasi Atikpui	Registrar	Medical and Dental Council
Emmanuel Agarko	Former Pharmacist Chief	Food and Drugs Board
Faustina Fynn-Nyame	Country Director	Marie Stopes International
George Amofa	Deputy Director General	Ghana Health Service
George Dakpallah	Ag, Director, PPME	Ministry of Health
Gilbert Buckle	Executive Secretary, National Catholic Secretariat	Christian Health Association of Ghana
Helen Dzikunu	Senior Programme Advisor	Health Sector Advisory Office
Hudson Larbie	President	Association of Private Medical Laboratories
Isaac Adams	Director, Information, Monitoring and Evaluation	Ministry of Health
James Demitrus	Project/Team Leader	Ministry of Finance & Economic Planning
Jan Borg	Senior Health Policy Advisor	Health Sector Advisory Office
Jonathan Martey	Ag. Deputy Chief Executive	Food and Drugs Board
Karima Selah	Senior Health Economist	World Bank
Ken Osei Owusu	Head, Information Management & Research Department	Pharmacy Council
Louis Nortey	Coordinator, Industrial Pharmaceutical Sector Strategy Development	UNIDO
Maureen Martey	Head, Private Sector Unit	Ministry of Health
Michael Agyekum Addo	President	Pharmaceutical Manufacturing Association of Ghana
Reginald Odai	Head, Research and Statistics Unit	Ministry of Health
Seth Ayetey	Board Chairman	Korle Bu Teaching Hospital
Susan Wright	FP/MNCH Senior Advisor	USAID
Sylvester Mensah	CEO	National Health Insurance Authority
Veronica Darko	Registrar	Nurses and Midwives Council

Source: Authors.

The assessment team also drew from interviews conducted for the rapid diagnostic study funded by the French Development Agency. These interviews were conducted in December 2008. Stakeholders interviewed for both studies are not mentioned again in table B.2.

**Table B.2. Interviewees for French Development Agency Study, December 2008**

Interviewee	Title	Organization
Andreas Grub	National Administrator	Network of Mutual Health Organizations (GNeMHO)
Charles Acquah	National President	Ghana Coalition of NGOs in Health
Charles Gerhardt	Management Advisor	Christian Health Association of Ghana
Daniel Yayemain	Ag Director, PPME	Ghana Health Service
Docia Saka	Director	Private Hospitals and Maternity Homes Board
Doris Attafua	President	Community Practice Pharmacists Association
Edward Abbah-Foli	President	Society of Medical and Dental Practitioners
Ernestina Djokotoe	President	Ghana Registered Midwives Association
James Boateng	Projects Coordinator	Christian Health Association of Ghana
Mariyama Sumanai	National Organizer	Ghana Registered Midwives Association
Nathaniel Otoo	Director of Administration and General Counsel	National Health Insurance Authority
Philip Akanzinge	NHIS Administrator, Office of Director General	Ghana Health Service
Samuel Boateng	Director, Procurement and Supply	Ministry of Health
Thomas Adade-Boateng	President	Association of Private Medical Laboratories

*Source:* Authors.

## Appendix C. December 14–16, 2009 Workshop Report

The assessment involved a three-day engagement workshop on December 14–16, 2009, to present data to stakeholders, identify gaps, and begin to formulate recommendations. Representatives from the Ministry of Health, Ghana Health Service, the NHIA, Parliament, the Ministry of Finance, the CHAG, the regulatory bodies, the private provider associations, the professional associations, and the development partners were in attendance. The December workshop was the second in a planned series of three engagements on the Private Health Sector Assessment. The final workshop took place in March 2010.

### **Box C.1. Presentations, December 14–16, 2009, Workshop**

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- Secondary Analysis of Existing Data Sets
- Health Facility Mapping, Part 1
- Synthesis of Existing Pharmaceutical Supply Chain Work
- Additional Pharmaceutical Data
- Patient Exit Interviews
- In-Depth Provider/Financial Institution Interviews
- Regulatory Environment
- Population Focus Groups
- Kenya Private Health Sector Assessment
- Mali Private Health Sector Assessment
- Africa Health Fund
- Health Facility Mapping, Part 2
- CHAG Study
- Pre-hospital Emergency Care Study

### **Workshop Format**

The workshop was structured such that Day 1 and the morning of Day 2 focused on presentations from the Research Team (box C.1), followed by round-table participant discussions. Participants were asked to validate the data presented, identify information gaps, discuss implications, and pose recommendations. Following the presentations, participants spent most of Day 2 in group work organized around five topic areas: Improving Access to Services; Enhancing Quality of Care; Making Health Insurance Work Better for the Poor; Promoting an Enabling Environment: Policies and Regulation; and Promoting an Enabling Environment: Institutional Frameworks. Day 3 brought the participants back to plenary to summarize the challenges identified in the workshop and prioritize recommendations for addressing those challenges.

## Major Themes Emerging from Workshop Discussion

The Day 3 discussion identified a number of conclusions, and then proposed some priority recommendations for action. The conclusions are shown below as characteristics of the current environment in the health sector concerning the role of the private sector, additional gaps in information, and a set of challenges.

### *Characteristics of the Current Environment*

The private sector continues to play a prominent role in service delivery and pharmaceuticals. However, workshop participants reported that there is a perception of variations in quality among public and private providers. Additionally, changes in financial architecture and the introduction of the NHIS are impacting the health care system in the following ways:

- Changing financial architecture
  - National budget for health is larger than ever before
  - The NHIA is a major purchaser of health care
- The NHIS has a positive impact on the health care system (if severe challenges can be addressed):
  - Increased access to care
  - Additional volumes for health care businesses across the supply chain
  - Platform for public-private engagement
  - Opening up private health sector to lower-income markets.

### *Information Gaps*

Information gaps exist around topics that are critical to designing a comprehensive health policy. These include:

- A national mapping of all health facilities, public and private
- Up-to-date data on NHIS coverage
- An effective framework for identifying research priorities and implementing them
- Identification of champions, both in public and private sectors
- Information on informal providers.

### *Challenges*

Workshop participants identified the following as critical challenges facing the Ghanaian health system:

- Institutional arrangements still too weak for effective engagement
- Evolving consumer expectations
- Complex licensing and accreditation procedures
- Limited access to capital
- Poor infrastructure, especially in rural areas
- Limited business skills of private actors
- Limited access to training
- Weak and under-resourced regulatory bodies
- Weak engagement of professional associations
- Major weaknesses in the NHIS

- Fraud occurs at multiple levels of scheme
- Delayed payments to providers are a major impediment to sustainability/growth
- Coverage of the poor is incomplete
- Less than half of private providers were expected to be accredited by end-2009
- Regulatory bodies have limited involvement in accreditation and monitoring
- Slow implementation of policy initiatives outlined in 2003 Private Health Sector Policy
- Private training institutions struggling with finances and accreditation
- No single representation for cross-cutting private interests in the health sector.

### **Recommendations from Discussions**

The recommendations from the Day 3 discussion were categorized as those with immediate priority and those of next priority.

#### *Recommendations—Immediate Priority*

- Create a collective voice for the private health sector
  - Proposed lead: Private health sector, Louis Nortey
- Establish joint (NHIS, GHS, professional associations, FBOs) task force to address fraud, delays in reimbursement, slow accreditation, tariffs and other related weaknesses of the NHIS
  - Proposed lead: NHIA, Sylvester Mensah
- Review 2003 Private Sector Policy with involvement of all stakeholders and establish an implementation framework. Identify and establish specific roles and responsibilities for the public and private sectors.
  - Proposed lead: MOH, Maureen Martey
- Educate the public on NHIS and intensify registration, especially for the poor and rural
  - Proposed lead: NHIA, Sylvester Mensah

#### *Recommendations—Next Priority*

- Create avenues of access to credit and advisory services for the private health sector.
- Review and strengthen the role of licensing and accreditation boards (in areas of representation, financing, autonomy, decentralization).
- Strengthen continued professional education (review role of professional associations, costs of training to the private sector, inclusion of private actors in national programs).
- Conduct periodic peer reviews to review operations of the NHIS to adjust tariffs and promote quality of care.
- Review and harmonize the legal framework for regulatory bodies and review the mandate of the regulatory bodies to level the playing field between public and private actors, and exclude nonprofessional providers from practicing.
- Strengthen the participation of the private sector in existing coordination mechanisms (e.g., include private sector representation in existing national policy dialogue mechanisms).



- Establish a formal engagement committee with equal representation of the public and private sectors.
- Review and expedite licensing and accreditation processes with special focus on rural facilities and staffing norms.
- Finalize legal framework for laboratory services.
- Create incentives for private investment in rural (and urban) areas and identify innovative ways to provide government support to private actors.

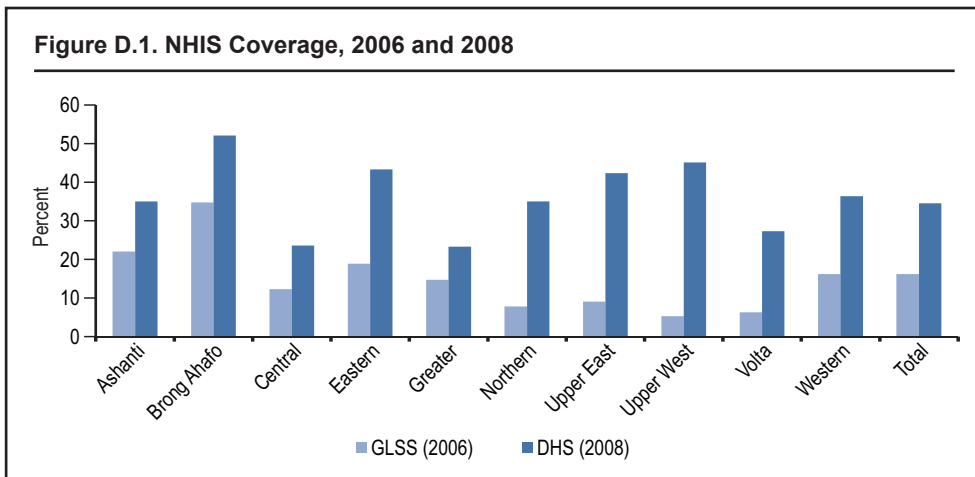
### **Next Steps**

As the workshop concluded, participants agreed upon several next steps: First, the proposed sectoral and individual leads for the four prioritized recommendations will immediately begin implementation. Second, the Steering Committee on the Private Health Sector Assessment will expand membership as agreed, brief the Minister of Health on the workshop and next steps, and draft a new private sector strategy that can be adopted by the government and included in the revised Program of Work. Third, the Research Team will complete the analysis for the assessment, guided by feedback and discussion from the workshop, and draft a written report which summarizes this analysis. Finally, a third workshop took place in March 2010 to review progress on the prioritized recommendations, review a draft report of the Research Team, and further develop and refine additional action steps and policy recommendations.

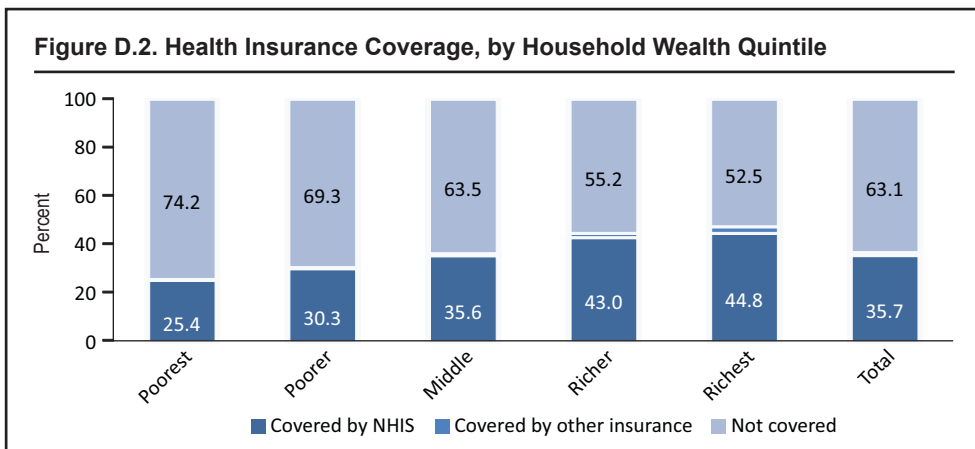
# Appendix D. Secondary Analysis of Existing Data Sets— Supplementary Data and Analysis

## NHIS Coverage Patterns

According to the DHS 2008 survey, overall NHIS coverage in Ghana was 34.5 percent, up from 16.2 percent, when the GLSS 5 survey was conducted two to three years earlier (figure D.1); thus, NHIS coverage more than doubled in those two years. Whereas in 2006 NHIS regional coverage was highly unequal, by 2008 coverage rates had evened out across most regions. Yet another disparity had become more pronounced by 2008: NHIS coverage became strongly influenced by socioeconomic status (figure D.2). Households in the highest wealth quintile were nearly twice as likely to have NHIS coverage as those



Sources: GSS 2008; .GSS/ICF Macro 2008.

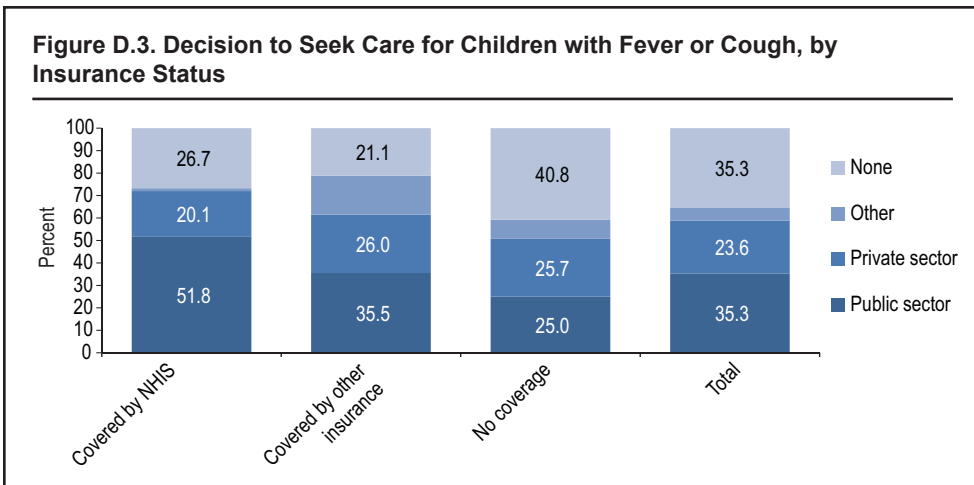


Source: GSS/ICF Macro 2008.

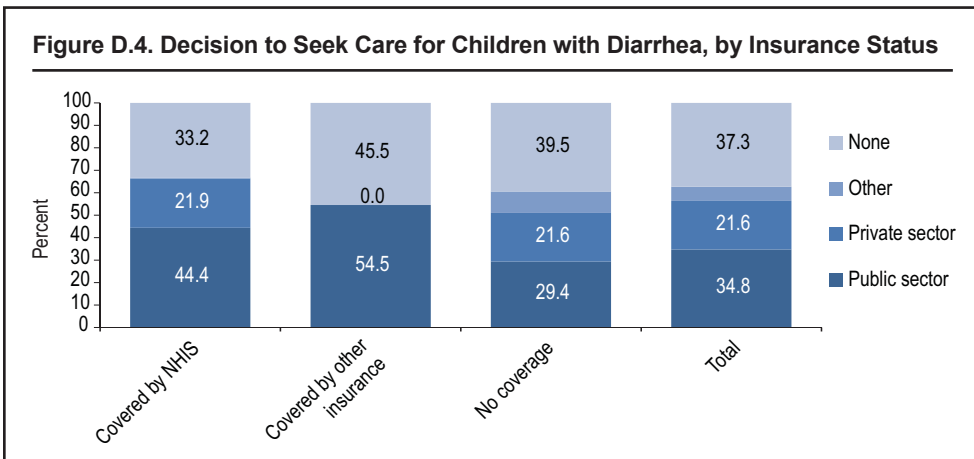
in the poorest quintile. The same figure also shows that only a negligible proportion of Ghanaians had health insurance other than the NHIS, and they were concentrated mostly in the upper quintiles.

**Impact of NHIS Coverage on Health-Seeking Behavior**

Care was sought for about 65 percent of children ill with fever or cough (figure D.3). About 36 percent of the time care was sought, a private provider was chosen. Persons covered by the NHIS or other health insurance, sought care more frequently than those with no coverage (figure D.3). The results also show that when a child has NHIS or other coverage, the care sought was more likely to be from a public sector provider.<sup>1</sup> The situation was similar for U-5 children with diarrhea (figure D.4). Care was sought for about



Sources: GSS/ICF Macro 2008.



Source: GSS/ICF Macro 2008.

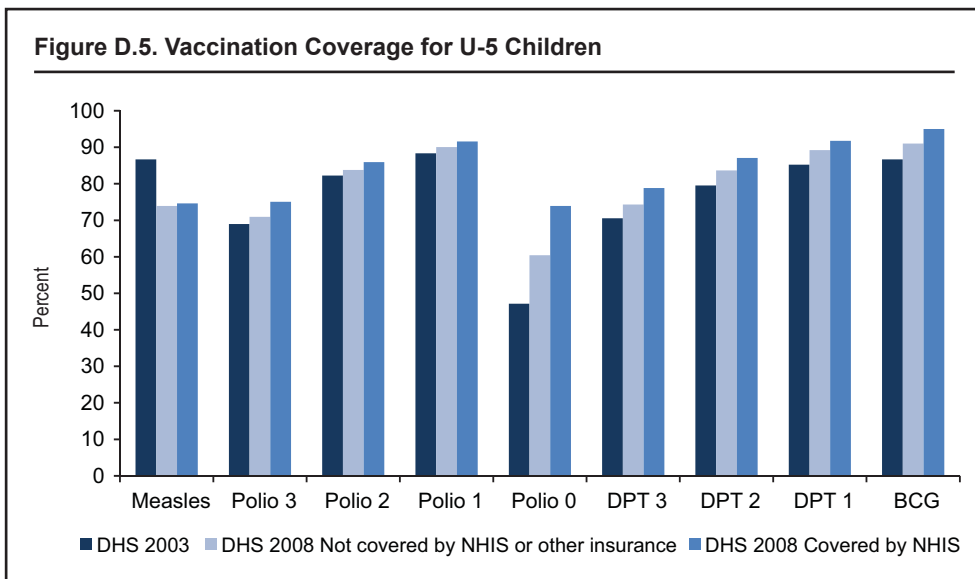
1. Again, all public sector (GHS) providers had provisional accreditation from the NHIS at the time of the DHS 2008, while only a minority of private providers had accreditation. Hence, consumers would not have been able to benefit from having NHIS coverage when using many private providers.

63 percent of such children, private providers were chosen about 34 percent of the time when care was sought, and having insurance coverage was associated with a higher rate of seeking care from public sector sources.

NHIS coverage appears to promote accessibility to curative health care services for children with fever or cough (figure D.3). Among the children with NHIS coverage who experienced an episode of fever or cough, only about 25 percent did not seek any kind of health care, compared with the much higher 41 percent share of those without any insurance. In addition to promoting access to care, NHIS coverage seems also to promote use of public providers. Nearly 75 percent of the NHIS-insured children with a fever or cough who sought care (51.8 percent of the total children in that group) went to a public provider. Among the uninsured children with the same conditions, utilization of public and private providers was almost evenly split. By contrast, for children with diarrhea, NHIS coverage does not seem to increase total use of health care services, public or private. About 40 percent of the children with that condition who lacked health insurance did not seek any care, compared with 33 percent of the NHIS-insured children (figure D.4).

**Vaccination Coverage**

Between 2003 and 2008, child vaccination coverage increased for all vaccines except for measles (figure D.5). The 2003 bar in the figure represents all children, irrespective of health insurance coverage, since in 2003 the NHIS did not exist and other coverage was even more negligible than in 2008. As the figure shows, the children who lacked insurance in 2008 showed higher vaccination coverage than those in 2003 (figure D.5). In addition, children covered by the NHIS in 2008 exhibited a higher rate of vaccination coverage than those without coverage that same year. In sum, not only did overall child vaccination coverage increase for all vaccines except measles in the five-year period, but in 2008 NHIS coverage also had a positive impact on coverage.



Sources: GSS et al. 2004; GSS/ICF Macro 2008.

In addition, immunization against polio expanded in an important way between 2003 and 2008, and in 2008 NHIS coverage further increased for beneficiaries by as much as 12 percentage points. It would be important to find out what happened with measles vaccination.

### **Econometric Analysis of Health Care Demand Using the DHS 2008 Survey**

This section presents the findings from the econometric analysis of demand using the DHS 2008 data and focusing on two groups of individuals: women who reported having been pregnant at least once in the past and U-5 children.

#### *Women Pregnant at Least Once*

For women who have ever been pregnant, the assessment team estimated the models listed below, using the probit technique (appendix A) for discrete choices and ordinary least squares (OLS) for continuous dependent variables. The models were:

- Probability of having health insurance–Probit
- Number of prenatal care consultations during pregnancy–OLS
- Probability of choosing a public provider for prenatal care consultations–Probit
- Probability of having an assisted delivery–Probit
- Probability of choosing a public provider for assisted deliveries–Probit.

As can be seen in table D.4, 39.2 percent of the women in the sample were covered by the NHIS; 59.5 percent of them lived in rural areas; their average age was about 30 years; 87 percent were married, in consensual union or widowed; their average household size was 5.5 people; and their average education was 5.3 years table D.4. All these variables were included in the models, in addition to the other variables listed in the table, including the region of residence, the woman's household wealth quintile,<sup>6</sup> employment status, and reported ethnicity.

#### PROBABILITY OF HAVING HEALTH INSURANCE

As can be seen in table D.4, column 2, the variables listed below had a statistically significant and *positive* impact on the probability that a woman in this group had NHIS coverage. In other words, the following variables made women more likely to have NHIS coverage: being married, in consensual union, or widowed; living in larger households; being more educated; living in the Brong Ahafo Region, Northern Region, Upper East Region, and Upper West Region; being wealthy (the wealthier the woman's household, the more likely that she would have NHIS coverage).

In contrast, the following variables made women less likely to have NHIS coverage:

- Relative to the Western Region, women in the Central Region and Greater Accra Region were less likely to be NHIS-insured.
- Relative to women of the Akan ethnic group, women in the Ewe ethnic group were less likely to have NHIS coverage. Women in other ethnic groups did not have a statistically significant probability of having NHIS coverage.

The previous results identified characteristics of ever-pregnant women or their household that make it more or less likely that they would have NHIS coverage. However, those results said nothing about the magnitude of the positive or negative effect of the variable on having NHIS coverage. Table D.1 presents the magnitude or importance

**Table D.1. Probability of Fertile Age Women Having Health Insurance (percent)**

Variable influencing demand	From	To	Difference
Rural setting	37	41	4
Marital status	34	44	10
Household size	36	40	4
Education of individual	29	37	8
Central Region	41	24	-17
Greater Accra Region	44	20	-24
Eastern Region	38	50	12
Brong Ahafo Region	37	62	25
Northern Region	38	53	15
Upper East Region	38	74	36
Upper West Region	39	62	23
Household Income Quintile 2	37	52	15
Household Income Quintile 3	36	57	22
Household Income Quintile 4	33	65	32
Household Income Quintile 5	31	71	40
Ewe	40	34	-6

Source: Authors.

of the effect. This table reproduces information from table D.6 about the magnitude of all statistical effects for all DHS models. To illustrate the information in the table, the following are examples with reference to a couple of the variables (table D.1).

Ever pregnant women living in urban areas had a 37 percent probability of having NHIS coverage, whereas women living in rural areas had a probability of 41 percent—4 percent higher. Thus, the NHIS appears to have been somewhat (about 10 percent) more effective in covering rural pregnant women than urban pregnant women.

Women who were ever pregnant and who lived in the Greater Accra Region had a 20 percent higher probability of having NHIS coverage than women living in the Western Region.

#### NUMBER OF PRENATAL CARE CONSULTATIONS

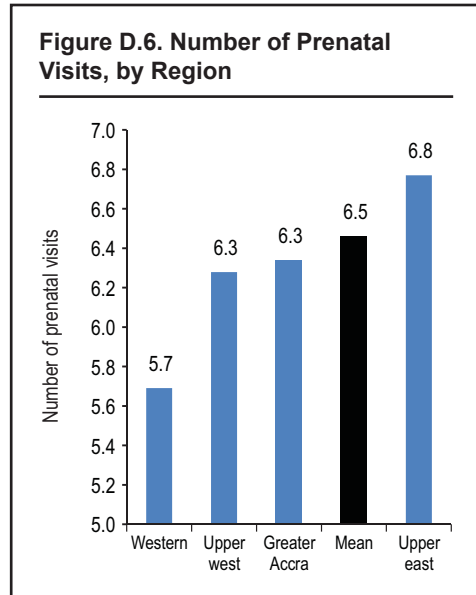
Prenatal consultations are a key factor influencing maternal, neonatal, and infant mortality and morbidity (table D.2). Prenatal consultations are supposed to begin early in pregnancy and continue regularly through the end of pregnancy, according to the standard protocols defined by Ghana's Ministry of Health. The variables listed below had a statistically significant and positive impact on the number of a woman's prenatal care visits during her pregnancy:

- *NHIS coverage.* Women covered by the NHIS tended to make more prenatal visits than women without this insurance.
- *Age.* The older a woman, the more prenatal visits she made during her pregnancy.
- *Education.* The more educated a women, the more prenatal care visits she made.

- *Region.* There were small, but statistically significant differences among some regions in the number of a woman's prenatal visits (figure D.6).
- *Wealth.* Women living in household in the three wealthiest quintiles made more prenatal care visits than women in the poorest quintile.

The following variables had a statistically significant and negative impact on the number of a woman's prenatal care visits:

- *Rural residence.* Women residing in rural areas made fewer prenatal visits than did women living in urban areas.
- *Ethnicity.* Women in the Grussi and Gruma ethnic groups made fewer prenatal visits than did women from the Akan ethnic group.



Source: Author analysis of data from GSS/ICF Macro 2008.

Table D.2 presents the magnitude of the effects.

**Table D.2. Prenatal Care Consultations during Pregnancy**

Variable influencing demand	From	To	Difference
Health insurance	5.6	6.1	0.5
Rural setting	6.0	5.6	-0.4
Age (simulation changes age from 15 to the sample mean of 30 years)	5.0	5.9	0.9
Education of individual (simulation changes years of education from 0 to the sample mean of 5.3 years)	5.4	5.8	0.4
Greater Accra Region	5.7	6.3	0.6
Upper East Region	5.7	6.8	1.1
Upper West Region	5.8	6.3	0.6
Household Income Quintile 3 (simulation effects is relative to the poorest Quintile 1)	5.7	6.2	0.5
Household Income Quintile 4 (simulation effect relative to the poorest Quintile 1)	5.5	6.7	1.2
Household Income Quintile 5 (simulation effect is relative to the poorest Quintile 1)	5.5	7.2	1.7
Ga/Dangme (simulation effect is relative to being in the Akan ethnic group)	5.8	5.3	-0.5
Grussi (simulation effect is relative to being in the Akan ethnic group)	5.8	5.1	-0.7
Gruma (simulation effect is relative to being in the Akan ethnic group)	5.8	5.1	-0.7

Source: Authors.

### *Children under 5 Years of Age*

About 39 percent of the U-5 children in the sample had NHIS coverage; 62 percent of them lived in rural areas; their average age was 28 months; their mother's average age was 30 years; they lived in households with an average of 5.8 members; and their mother's education was just over 5 years, (Descriptive statistics for U-5 children in the DHS 2008 are presented in (table D.7). The two most heavily represented ethnic groups in the sample were Mole-Dagbani (20 percent) and Ewe (13 percent).

Below is the list of econometric models that the assessment team estimated for U-5 children, using for all the Probit econometric technique:

- Probability of having health insurance
- Probability of seeking formal treatment for diarrhea episode
- Probability of choosing public provider among those seeking treatment for diarrhea
- Probability of seeking treatment for Acute Respiratory Infections (ARI) episode
- Probability of seeking formal treatment for ARI episode
- Probability of choosing public provider among those seeking treatment for ARI.

Below are the findings from the estimation of these econometric models, accompanied by their summary table with the magnitude of the effects for statistically significant variables (actual regression results are presented in table D.7. The magnitude of the coefficients' effects is shown in table D.8.

From the analysis of the probability of having health insurance, the following findings emerge:

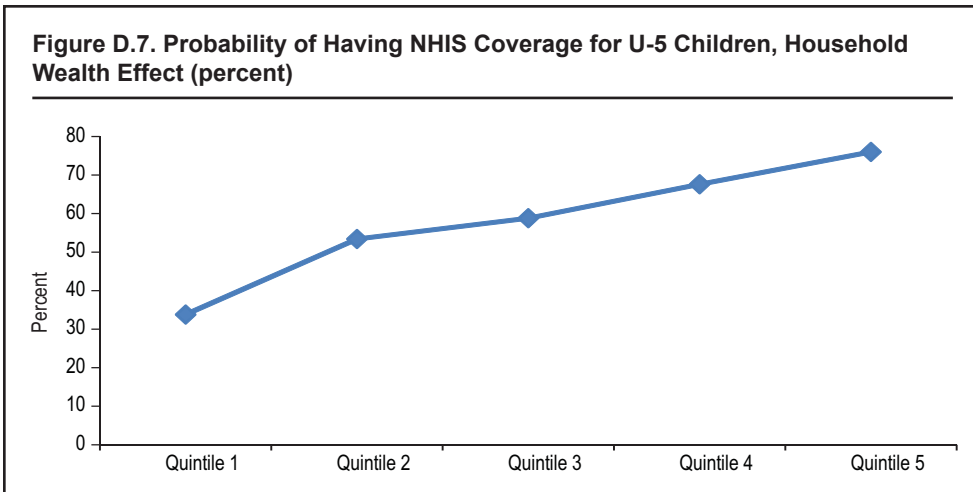
- Boys are more likely than girls to be covered by the NHIS.
- Older women are more likely to benefit from NHIS coverage for their U-5 children than younger ones; so are married women, women in consensual relationships and widows, relative to single women.
- A mother's education greatly increases the chances that her child will have NHIS coverage. For example, a woman with no education will have a 28 percent probability of having her child covered by the NHIS; in contrast, a woman with 5.2 years of education (the average) will have almost a 40 percent chance of having her child insured.
- Household wealth also increases the probability of NHIS coverage (figure D.7 and table D.3).

There are also differences in the probability of insurance coverage by region, and some of the differences are considerable. For example, relative to the Western Region, children under 5 living in Greater Accra are 27 percentage points less likely to have NHIS coverage, whereas children under 5 living in the Upper East Region are nearly 40 percentage points more likely to be covered by the NHIS than children in the Western Region.

### **Econometric Analysis of Health Care Demand Using the GLSS 2006 Survey**

Results from the econometric analysis of health care demand using the GLSS 6 survey are presented in table D.11; the descriptive statistics for the corresponding data set, table D.10. The main findings emerging from the analysis are as follows:





Source: Author analysis of data from GSS/ICF Macro 2008.

**Table D.3. Probability of Having Health Insurance among U-5 Children (percent)**

Variable influencing demand	From	To	Difference
Gender of child (0 = male; 1 = female)	40.5	37.5	-3.0
Age of mother	34.1	39.0	4.9
Marital status	32.4	39.7	7.3
Education of mother	28.4	38.8	10.4
Central Region	41.0	21.3	-19.8
Greater Accra Region	43.2	16.3	-26.8
Eastern Region	37.8	50.8	12.9
Brong Ahafo Region	37.0	58.0	21.0
Northern Region	37.8	48.4	10.6
Upper East Region	36.9	76.5	39.6
Upper West Region	38.4	63.1	24.7
Household Income Quintile 2	35.5	53.4	17.9
Household Income Quintile 3	35.0	58.8	23.8
Household Income Quintile 4	32.8	67.6	34.8
Household Income Quintile 5	33.0	76.0	42.9
Employment of mother 2	34.5	40.0	5.5

Source: Authors.

From the analysis of the probability of having NHIS coverage in 2005–06, the following findings emerge. The probability of having NHIS coverage is:

- Smaller in rural areas
- Higher for women
- Lower if married
- Higher in households with more educated HH head
- Variable across regions

- Higher the richer the person
- Lower if individual is informally employed.

In addition, having the NHIS around 2006 had the following impact on health care demand:

- Increased by 9 percent the probability of seeking care with any provider when ill or injured.
- Reduced by 41 percent the probability of seeking care from a private not-for-profit provider.
- Reduced by 22 percent the probability of seeking care from a private self-financed provider.
- Increased by 22 percent the probability of seeking care from a public provider.
- Reduced by 20 percent the probability of having to make an OOPS.
- Did not have a statistically significant effect on the amount paid OOPS, for those who did have to pay.

**Table D.4. Variables in Regression Models for Women Ever Pregnant**

Variable	Mean	Std. dev	Min.	Max.	Notes
Health insurance	0.392	0.488	0.000	1.000	0: No health insurance; 1 With health insurance
Rural setting	0.595	0.491	0.000	1.000	0: Urban; 1 Rural
Age	29.986	7.191	15.000	49.000	0: Male; 1 Female
Age squared	949.611	453.899	225.000	2401.000	Age squared
Marital status	0.872	0.334	0.000	1.000	0: Separated, divorced, or never married 1: Married, consensual union, or widowed
Household size	5.517	2.751	1.000	22.000	Number of household members
Education of individual	5.262	4.500	0.000	18.000	Education of the individual in years of schooling
Western Region	Omitted	Omitted	Omitted	Omitted	
Central Region	0.099	0.298	0.000	1.000	
Greater Accra Region	0.122	0.328	0.000	1.000	
Volta Region	0.089	0.285	0.000	1.000	
Eastern Region	0.090	0.286	0.000	1.000	
Ashanti Region	0.193	0.394	0.000	1.000	
Brong Ahafo Region	0.107	0.309	0.000	1.000	
Northern Region	0.127	0.333	0.000	1.000	
Upper East Region	0.056	0.231	0.000	1.000	
Upper West Region	0.027	0.163	0.000	1.000	

*(Table continues on next page)*

**Table D.4 (continued)**

Variable	Mean	Std. dev	Min.	Max.	Notes
Household Income Quintile 1	Omitted	Omitted	Omitted	Omitted	Lowest
Household Income Quintile 2	0.219	0.414	0.000	1.000	
Household Income Quintile 3	0.193	0.394	0.000	1.000	
Household Income Quintile 4	0.211	0.408	0.000	1.000	
Household Income Quintile 5	0.153	0.360	0.000	1.000	Highest
Individual has formal employment	Omitted	Omitted	Omitted	Omitted	
Individual has informal employment	0.822	0.383	0.000	1.000	
Individual does not work	0.074	0.262	0.000	1.000	
Akan	Omitted	Omitted	Omitted	Omitted	
Ga/Dangme	0.049	0.216	0.000	1.000	
Ewe	0.132	0.338	0.000	1.000	
Guan	0.029	0.168	0.000	1.000	
Mole-Dagbani	0.194	0.395	0.000	1.000	
Grussi	0.031	0.174	0.000	1.000	
Gruma	0.046	0.210	0.000	1.000	
Mande	0.009	0.092	0.000	1.000	
Other	0.037	0.188	0.000	1.000	

Source: GSS 2008.

**Table D.5. Regression Results for Women Ever Pregnant**

Coverage	Income tercile	Public providers	Private providers	CHAG providers	Total
With NHIS	T1	15.8	12.5	10.0	12.8
	T2	15.1	14.5	10.0	14.4
	T3	11.9	13.9	6.0	13.1
	Total	13.8	13.7	8.3	13.4
Without NHIS	T1	4.2	7.7	12.0	6.4
	T2	14.8	8.7	51.3	14.1
	T3	17.3	21.6	13.3	19.5
	Total	13.2	13.8	25.4	14.5
Total		13.9	14.8	20.3	14.8

Source: Authors.

**Table D.6. Simulations of the Effect of Each Independent Variable X on the Dependent Variable Y, Ever Pregnant Women**

Independent variable X	Mean(X)	Simulation range: change in X		Change in mean value of predicted dependent variable Y		
		From	To	Probability of having health insurance (fertile age women)		
				From	To	Δ
Health insurance	0.392	0	1	—	—	—
Rural setting	0.595	0	1	0.374	0.413	0.040
Age	30.0	15	30	—	—	—
Age squared	949.6	225	899	—	—	—
Marital status	0.872	0	1	0.341	0.438	0.096
Household size	5.52	1	5.52	0.358	0.396	0.038
Education of individual	5.26	0	5.26	0.290	0.372	0.081
Western Region	Om	Om	Om	Om	Om	Om
Central Region	0.099	0	1	0.411	0.236	—0.175
Greater Accra Region	0.122	0	1	0.439	0.203	—0.236
Volta Region	0.089	0	1	—	—	—
Eastern Region	0.090	0	1	0.382	0.503	0.120
Ashanti Region	0.193	0	1	—	—	—
Brong Ahafo Region	0.107	0	1	0.371	0.618	0.247
Northern Region	0.127	0	1	0.381	0.528	0.147
Upper East Region	0.056	0	1	0.375	0.740	0.365
Upper West Region	0.027	0	1	0.388	0.621	0.233
Household Income						
Quintile 1	Om	Om	Om	Om	Om	Om
Quintile 2	0.219	0	1	0.370	0.518	0.148
Quintile 3	0.193	0	1	0.357	0.574	0.217
Quintile 4	0.211	0	1	0.329	0.651	0.322
Quintile 5	0.153	0	1	0.314	0.715	0.400
Individual has formal employment	Om	Om	Om	Om	Om	Om
Individual has informal employment	0.822	0	1	—	—	—
Individual does not work	0.074	0	1	—	—	—
Akan	Om	Om	Om	Om	Om	Om
Ga/Dangme	0.049	0	1	—	—	—
Ewe	0.132	0	1	0.402	0.337	—0.065
Guan	0.029	0	1	—	—	—
Mole-Dagbani	0.194	0	1	—	—	—
Grussi	0.031	0	1	—	—	—
Gruma	0.046	0	1	—	—	—
Mande	0.009	0	1	—	—	—
Other	0.037	0	1	—	—	—

Source: Authors.

Notes: - = Not calculated, Om = Omitted from calculation. For household size, X varies between 1 and 5.52; for education, X varies between 0 and 5.26. Statistical significance of regression coefficients: \* 10%; \*\* 5%; \*\*\* 1 percent.

Table D.6 (continued)

Change in mean value of predicted dependent variable Y											
Number of prenatal care consultations during pregnancy			Probability of choosing a public provider for prenatal care consultations			Probability of having an assisted delivery			Probability of choosing a public provider for assisted deliveries		
From	To	Δ	From	To	Δ	From	To	Δ	From	To	Δ
5.563	6.095	0.532	0.845	0.875	0.030	0.542	0.645	0.103	0.809	0.867	0.059
5.991	5.622	-0.368	0.828	0.884	0.056	0.671	0.532	-0.139	—	—	—
4.982	5.891	0.909	0.915	0.839	-0.076	0.475	0.595	0.120	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	0.628	0.573	-0.055	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
5.417	5.772	0.354	—	—	—	0.495	0.587	0.092	—	—	—
Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om
—	—	—	0.848	0.917	0.070	—	—	—	0.823	0.924	0.101
5.692	6.339	0.647	—	—	—	—	—	—	—	—	—
—	—	—	0.841	0.960	0.120	—	—	—	0.819	0.951	0.132
—	—	—	0.846	0.937	0.091	—	—	—	0.820	0.935	0.115
—	—	—	—	—	—	0.559	0.666	0.107	0.816	0.878	0.062
—	—	—	—	—	—	0.572	0.646	0.074	0.816	0.941	0.124
—	—	—	0.841	0.951	0.110	—	—	—	0.825	0.950	0.125
5.711	6.789	1.078	0.849	0.989	0.140	—	—	—	0.829	0.976	0.147
5.755	6.343	0.587	0.853	0.969	0.116	—	—	—	0.831	0.972	0.141
Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om
—	—	—	—	—	—	0.548	0.660	0.112	—	—	—
5.680	6.155	0.475	—	—	—	0.533	0.719	0.187	—	—	—
5.516	6.725	1.209	—	—	—	0.510	0.793	0.283	—	—	—
5.509	7.222	1.714	—	—	—	0.526	0.877	0.352	—	—	—
Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om	Om
5.795	5.317	-0.478	—	—	—	—	—	—	—	—	—
—	—	—	0.864	0.796	-0.068	0.568	0.651	0.083	—	—	—
—	—	—	0.860	0.735	-0.125	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
5.795	5.055	-0.740	—	—	—	—	—	—	—	—	—
5.804	5.108	-0.696	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	0.577	0.681	0.104	—	—	—

**Table D.7. Descriptive Statistics of Variables in Regression Models, U-5 Children**

Variable	Mean	Std. Dev.	Min.	Max.	Notes
Health insurance	0.387	0.487	0.000	1.000	0: No health insurance; 1: With health insurance
Rural setting	0.616	0.486	0.000	1.000	0: Urban; 1: Rural
Gender of child	0.487	0.500	0.000	1.000	0: Man; 1: Woman
Age of child	27.902	17.574	0.000	59.000	In months
Age of mother	30.025	6.981	15.000	49.000	In years
Marital status	0.909	0.287	0.000	1.000	0: Separated, divorced or never married; 1: Married, consensual union or widowed
Household size	5.765	2.733	2.000	22.000	Number of household members
Education of mother	5.146	4.482	0.000	19.000	Education of the individual in years of schooling
Western Region	Omitted	Omitted	Omitted	Omitted	Omitted
Central Region	0.099	0.299	0.000	1.000	
Greater Accra Region	0.121	0.327	0.000	1.000	
Volta Region	0.088	0.284	0.000	1.000	
Eastern Region	0.088	0.284	0.000	1.000	
Ashanti Region	0.188	0.391	0.000	1.000	
Brong Ahafo Region	0.097	0.296	0.000	1.000	
Northern Region	0.141	0.348	0.000	1.000	
Upper East Region	0.054	0.227	0.000	1.000	
Upper West Region	0.026	0.160	0.000	1.000	
Quintile 1	Omitted	Omitted	Omitted	Omitted	Lowest
Quintile 2	0.223	0.416	0.000	1.000	
Quintile 3	0.182	0.386	0.000	1.000	
Quintile 4	0.196	0.397	0.000	1.000	
Quintile 5	0.149	0.356	0.000	1.000	Highest
Employment of mother 1	Omitted	Omitted	Omitted	Omitted	
Employment of mother 2	0.827	0.379	0.000	1.000	
Employment of mother 3	0.077	0.267	0.000	1.000	
Akan	Omitted	Omitted	Omitted	Omitted	
Ga/Dangme	0.050	0.218	0.000	1.000	
Ewe	0.128	0.334	0.000	1.000	
Guan	0.027	0.163	0.000	1.000	
Mole-Dagbani	0.200	0.400	0.000	1.000	
Grussi	0.030	0.170	0.000	1.000	
Gruma	0.052	0.222	0.000	1.000	
Mande	0.008	0.090	0.000	1.000	
Other	0.038	0.192	0.000	1.000	

Source: GSS 2008.

**Table D.8. Results of Regression Models, U-5 Children**

Dependent variable Y →	Probability of having health insurance	Probability of seeking treatment for diarrhea episode	Probability of seeking formal treatment for diarrhea episode	Probability of choosing public provider among those seeking treatment for diarrhea	Probability of seeking treatment for ARI episode	Probability of seeking formal treatment for ARI episode	Probability of choosing public provider among those seeking treatment for ARI
Model type:	Probit	Probit	Probit	Probit	Probit	Probit	Probit
Number of observations:	2.640	505	508	328	141	141	82
Prob > chi2/Prob > F:	0.000	0.002	0.000	0.005	0.007	0.000	0.192
Pseudo R2/Adj. R2:	0.156	0.078	0.103	0.107	0.196	0.250	0.192
Independent variables X	Model coefficients						
Health insurance	—	-0.045	0.351 **	0.491 ***	0.815 **	0.842 ***	0.598
Rural setting	-0.006	-0.088	0.455 ***	0.436 **	0.408	0.582	0.493
Gender of child	-0.095 *	—	—	—	—	—	—
Age of child	—	0.000	-0.005	-0.003	-0.003	-0.013	-0.015
Age of mother	0.010 **	0.007	-0.006	-0.023 *	-0.014	-0.019	-0.033
Marital status	0.235 **	—	—	—	—	—	—
Household size	0.008	—	—	—	—	—	—
Education of mother	0.064 ***	0.068 ***	0.040 **	0.000	-0.090 **	-0.026	0.040
Western Region	Omitted						
Central Region	-0.679 ***	-0.099	0.000	0.400	0.984	0.751	0.157
Greater Accra Region	-0.985 ***	-0.656 **	-0.782 **	-0.234	-0.538	-0.674	0.038
Volta Region	0.058	-0.577	-0.370	0.058	0.241	0.268	Dropped
Eastern Region	0.392 ***	-0.393	-0.024	0.593	0.170	0.390	Dropped
Ashanti Region	-0.095	-0.061	0.036	0.058	0.609	0.097	-0.558
Brong Ahafo Region	0.635 ***	-0.091	-0.207	-0.008	0.128	0.079	-0.202
Northern Region	0.331 **	0.230	0.390	0.525	0.699	1.049 *	-0.088
Upper East Region	1.263 ***	0.457	0.441	0.492	0.753	1.509	0.139
Upper West Region	0.757 ***	0.264	-0.086	0.042	1.297	0.959	-0.458
Quintile 1	Omitted						
Quintile 2	0.567 ***	0.115	-0.010	-0.299	0.887 **	0.975 **	-0.466
Quintile 3	0.745 ***	0.115	0.203	-0.087	1.088 **	1.210 **	0.253
Quintile 4	1.096 ***	0.030	0.501 **	-0.087	1.482 **	2.192 ***	0.728
Quintile 5	1.382 ***	0.098	0.631 *	0.147	3.261 ***	3.381 ***	-0.281
Employment of mother 1	Omitted	—	—	—	—	—	—
Employment of mother 2	0.175 *	—	—	—	—	—	—
Employment of mother 3	0.154	—	—	—	—	—	—
Akan	Omitted	—	—	—	—	—	—
Ga/Dangme	0.201	-0.292	-0.440	-0.124	—	—	—
Ewe	-0.089	0.047	0.405	0.086	—	—	—
Guan	0.098	0.406	0.274	0.001	—	—	—
Mole-Dagbani	-0.023	0.326	0.461 **	0.251	—	—	—
Grussi	0.154	0.308	-0.194	-0.397	—	—	—
Gruma	0.224	-0.305	-0.259	-0.051	—	—	—
Mande	0.301	Dropped			—	—	—
Other	0.167	-0.424	-0.174	-0.331	—	—	—
Constant	-2.068 ***	-0.094	-0.822 **	0.225	-0.473	-1.202	1.144

Source: Authors.

Notes: — = Not calculated. Statistical significance of regression coefficients: \* 10%; \*\* 5%; \*\*\* 1 percent.

**Table D.9. Simulations of the Effect of Each Independent Variable X on the Dependent Variable Y Models, U-5 Children**

Independent variable X	Mean (X)	Simulation range: change in X		Change in mean value of predicted dependent variable Y					
				Probability of having health insurance			Probability of seeking treatment for diarrhea episode		
		From	To	From	To	Δ	From	To	Δ
Health insurance	0.387	0	1	–	–	–	–	–	–
Rural setting	0.616	0	1	–	–	–	–	–	–
Gender of child	0.487	0	1	0.405	0.375	-0.030	–	–	–
Age of child	27.9	0	28	–	–	–	–	–	–
Age of mother	30.0	15	30	0.341	0.390	0.049	–	–	–
Marital status	0.909	0	1	0.324	0.397	0.073	–	–	–
Household size	5.77	1	5.77	–	–	–	–	–	–
Education of mother	5.15	0	5.15	0.284	0.388	0.104	0.540	0.664	0.124
Western Region	Om	Om	Om	Om	Om	Om	Om	Om	Om
Central Region	0.099	0	1	0.410	0.213	-0.198	–	–	–
Greater Accra Region	0.121	0	1	0.432	0.163	-0.268	0.662	0.424	-0.238
Volta Region	0.088	0	1	–	–	–	–	–	–
Eastern Region	0.088	0	1	0.378	0.508	0.129	–	–	–
Ashanti Region	0.188	0	1	–	–	–	–	–	–
Brong Ahafo Region	0.097	0	1	0.370	0.580	0.210	–	–	–
Northern Region	0.141	0	1	0.378	0.484	0.106	–	–	–
Upper East Region	0.054	0	1	0.369	0.765	0.396	–	–	–
Upper West Region	0.026	0	1	0.384	0.631	0.247	–	–	–
Quintile 1	Om	Om	Om	Om	Om	Om	Om	Om	Om
Quintile 2	0.223	0	1	0.355	0.534	0.179	–	–	–
Quintile 3	0.182	0	1	0.350	0.588	0.238	–	–	–
Quintile 4	0.196	0	1	0.328	0.676	0.348	–	–	–
Quintile 5	0.149	0	1	0.330	0.760	0.429	–	–	–
Employment of mother 1	Om	0	1	–	–	–	–	–	–
Employment of mother 2	0.827	0	1	0.345	0.400	0.055	–	–	–
Employment of mother 3	0.077	0	1	–	–	–	–	–	–
Akan	Om	Om	Om	Om	Om	Om	Om	Om	Om
Ga/Dangme	0.050	0	1	–	–	–	–	–	–
Ewe	0.128	0	1	–	–	–	–	–	–
Guan	0.027	0	1	–	–	–	–	–	–
Mole-Dagbani	0.200	0	1	–	–	–	–	–	–
Grussi	0.030	0	1	–	–	–	–	–	–
Gruma	0.052	0	1	–	–	–	–	–	–
Mande	0.008	0	1	–	–	–	–	–	–
Other	0.038	0	1	–	–	–	–	–	–

Source: Authors.

Notes: – = Not calculated. Om = Omitted from calculations. Statistical significance of regression coefficients: \* 10%; \*\* 5%; \*\*\* 1 percent. For all children in the sample, the predicted dependent variable Y was calculated keeping all covariates untouched, except for one independent variable X.





**Table D.10. Descriptive Statistics of Variables in Regression Models**

Variable	Mean	Std. Dev.	Min.	Max.	Notes
Health insurance	0.162	0.369	0.000	1.000	0: No health insurance; 1 With health insurance
Rural setting	0.624	0.484	0.000	1.000	0: Urban; 1 Rural
Gender	0.516	0.500	0.000	1.000	0: Male; 1 Female
Age	24.423	19.547	0.000	99.000	In years
Age squared	975,206	1,389,938	0,000	9,801,000	Age squared
Marital status	0.362	0.480	0.000	1.000	0: Separated, divorced, or never married 1: Married, consensual union, or widowed
Household size	5.943	3.473	1.000	29.000	Number of household members
Education of individual	4.061	3.887	0.000	9.000	Education of the individual in years of schooling (from 0 to 9)
Education household head	5.277	4.233	0.000	9.000	Education of the household head in years of schooling (from 0 to 9)
Western Region	Omitted	Omitted	Omitted	Omitted	
Central Region	0.087	0.282	0.000	1.000	
Greater Accra Region	0.139	0.346	0.000	1.000	
Volta Region	0.074	0.262	0.000	1.000	
Eastern Region	0.134	0.341	0.000	1.000	
Ashanti Region	0.168	0.374	0.000	1.000	
Brong Ahafo Region	0.092	0.289	0.000	1.000	
Northern Region	0.121	0.326	0.000	1.000	
Upper East Region	0.048	0.214	0.000	1.000	
Upper West Region	0.036	0.186	0.000	1.000	
Quintile 1	Omitted				Lowest
Quintile 2	0.199	0.399	0.000	1.000	
Quintile 3	0.200	0.400	0.000	1.000	
Quintile 4	0.200	0.400	0.000	1.000	
Quintile 5	0.200	0.400	0.000	1.000	Highest
Individual has formal employment	Omitted				
Individual has informal employment	0.403	0.490	0.000	1.000	
Individual does not work	0.557	0.497	0.000	1.000	
Household head has formal employment	Omitted				
Household head has informal employment	0.768	0.422	0.000	1.000	
Household head does not work	0.110	0.312	0.000	1.000	

Source: Author analysis of GSS 2006.

Notes: — = Not calculated. Om = Omitted from calculations. Statistical significance of regression coefficients: \* 10%; \*\* 5%; \*\*\* 1 percent. For all children in the sample, the predicted dependent variable Y was calculated keeping all covariates untouched, except for one independent variable X.

**Table D.11. Results of Regression Models**

Dependent variable Y →	Probability of having health insurance	Probability of seeking health care for those reporting health problems in the last 2 weeks	Probability of seeking private religious health care among care seekers	Probability of seeking private non religious health care among care seekers	Probability of seeking public health care among care seekers	Probability of spending a positive OOP amount	Logarithm of amount spent among those spending a positive OOP amount
Model type:	Probit	Probit	Probit	Probit	Probit	Probit	OLS
Number of observations:	35,914	7,173	4,281	4,281	4,281	4,281	1,497
Prob > chi2/Prob > F:	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2/Adj. R2:	0.160	0.048	0.038	0.039	0.040	0.301	0.199
Independent variables X	Model coefficients						
Health insurance	—	0.176 ***	-0.009	-0.308 ***	0.309 ***	-0.346 ***	0,048
Rural setting	-0,069 ***	-0,264 ***	-0,135 *	0,108 **	-0,066	-0,205 ***	-0,113 *
Gender	0,065 ***	-0,004	0,006	-0,084 *	0,084 *	-0,033	0,085
Age	0,009 ***	-0,006	0,018 **	0,011 **	-0,017 ***	0,018 ***	0,015 **
Marital status	-0,086 ***	0,221 ***	-0,192 **	-0,135 **	0,207 ***	-0,163 **	-0,083
Household size	0,033 ***	0,000	0,012	-0,013 *	0,009	-0,017 *	0,019 *
Education individual	0,003	0,002	-0,007	0,002	0,001	0,000	0,012
Education household head	0,047 ***	0,007	-0,001	-0,012 *	0,013 *	0,011	0,018 **
Western Region	Om	Om	Om	Om	Om	Om	Om
Central Region	-0,132 ***	-0,846 ***	0,317 **	-0,761 ***	0,615 ***	0,162	0,074
Greater Accra Region	-0,346 ***	-0,580 ***	-0,540 ***	-0,315 ***	0,486 ***	0,431 ***	0,765 ***
Volta Region	-0,455 ***	-0,749 ***	-0,692 ***	-0,090	0,278 ***	0,258 **	0,118
Eastern Region	0,093 **	-0,707 ***	-0,169	-0,637 ***	0,706 ***	0,438 ***	0,435 ***
Ashanti Region	0,261 ***	-0,271 ***	-0,197 *	-0,115	0,198 ***	0,518 ***	0,345 ***
Brong Ahafo Region	0,755 ***	-0,355 ***	-0,073	-0,274 ***	0,313 ***	0,062	0,495 ***
Northern Region	0,041	-0,382 ***	-0,308 **	-0,215 **	0,337 ***	0,030	-0,055
Upper East Region	0,208 ***	-0,480 ***	-0,378 **	-0,502 ***	0,636 ***	-0,072	-0,014
Upper West Region	-0,090 *	-0,694 ***	-0,063	-0,653 ***	0,687 ***	-0,318 **	-0,458 ***
Quintile 1	Om	Om	Om	Om	Om	Om	Om
Quintile 2	0,339 ***	0,131 **	-0,132	0,054	-0,011	0,026	0,031
Quintile 3	0,506 ***	0,059	-0,106	0,049	-0,016	-0,029	0,158
Quintile 4	0,589 ***	0,076	-0,074	0,083	-0,056	-0,089	-0,065
Quintile 5	0,718 ***	0,103	-0,112	0,085	-0,047	-0,031	0,141
Individual has formal employment	Om	Om	Om	Om	Om	Om	Om
Individual has informal employment	-0,234 ***	-0,111	-0,047	0,288 **	-0,263 **	0,358 **	0,059
Individual does not work	-0,013	-0,032	-0,144	0,224 *	-0,168	0,345 **	0,164
Household head has formal employment	Om	Om	Om	Om	Om	Om	Om
Household head has informal employment	-0,703 ***	-0,044	0,043	-0,176 **	0,168 **	0,206 **	0,097
Household head does not work	-0,686 ***	-0,156 *	0,013	-0,278 ***	0,270 ***	0,175	0,213 *
Constant	-1,538 ***	0,909 ***	-1,329 ***	0,168	-0,434 **	-0,579 ***	8,158 ***
Endogeneity statistics using bivariate probit							
Health insurance coefficient	—	0,376 **	-0,521 *	0,102	0,273	-0,409 **	—
Significance level of Rho	—	0,255	0,073	0,364	0,942	0,750	—
Significance level of residuals	—	0,788	0,010	0,585	0,503	0,835	—
Value of Rho (only if signs of endogeneity)	—	-0,110	0,305 *	—	—	—	—

Source: Authors.

# Appendix E. Testing and Correcting for Endogeneity

## Method

The endogeneity bias is a problem that arises in regression models when an independent variable is correlated with the error term. When this correlation exists, the regression delivers a biased coefficient for the affected independent variable. In health care demand models, endogeneity appears if both health insurance and demand depend simultaneously on unobserved individual preferences. To see why this is true, consider that the effect of all unobservable determinants of demand will be relegated to the error term of the demand equation. If some of these unobservables also affect health insurance, health insurance will necessarily be correlated with some of the error term of the demand equation. Thus, if health insurance is included as an independent variable in the demand equation, an endogeneity bias occurs.

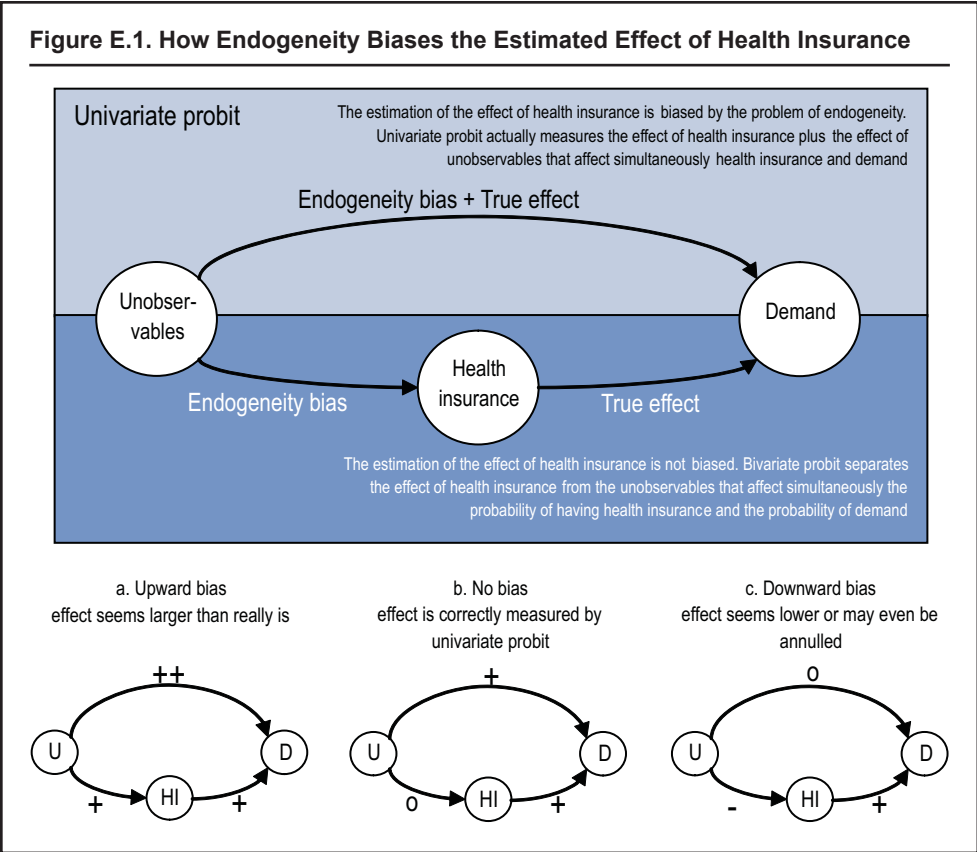
To detect and correct this possible source of endogeneity, a bivariate probit model is used, in which the probability of having health insurance and the probability of seeking care are simultaneously estimated (Waters 1999). The following statistics are reported to detect signs of endogeneity:

- *The health insurance coefficient using the bivariate probit model.* If the coefficient or its level significance is very different from those in the univariate probit model, there is an indication of endogeneity.<sup>2</sup>
- *The significance level of  $Rho$ .*<sup>3</sup> If the error terms are correlated, health insurance, which is necessarily correlated with the error term in its own equation, is consequently correlated with the error term in the demand equation. This indicates endogeneity in the demand equation, because health insurance is an independent variable correlated with the error term.
- *The significance level of residuals.* The residuals of the health insurance equation represent unobservables that explain health insurance. If these residuals have significant coefficients when inserted in the demand equation, some of the unobservables that explain health insurance also explain demand. In other words, both health insurance and health care depend simultaneously on some unobservables, and there is a source of endogeneity.
- *The value of  $Rho$ .* If different from zero and statistically significant, the sign of  $Rho$  indicates the direction of the endogeneity bias. If positive, the coefficient estimated by the univariate probit is expected to be biased upward, and the bivariate probit, to deliver a lower value (figure E.1). If  $Rho$  is negative, the coefficient estimated by the univariate probit should be biased downward, and the bivariate probit should deliver a higher value.

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2. Bivariate probit models have larger standard errors than univariate probit models, so a lower level of significance in the bivariate probit model may not necessarily be a sign of endogeneity.

3. The correlation coefficient between the error terms in both equations.



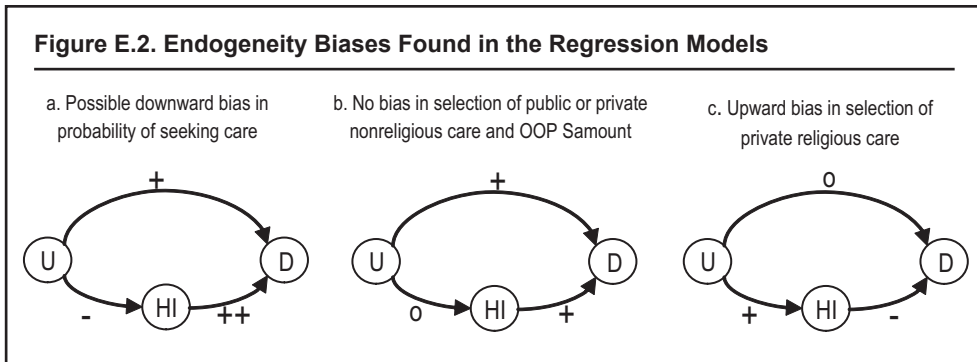
Source: Authors.

The bivariate probit model requires one or more identifying or instrumental variables for the equation describing the probability of having health insurance. These identifying variables should be highly explanatory of health insurance, but at the same time should not be explanatory of demand. The assessment team could find satisfactory identifying variables only in the GLSS 5 survey: for the model of the probability of seeking health, formal employment of the individual and of the household head were used; for the three models describing provider choice, the income quintiles were used.

**Results**

The model of the probability of seeking health care (table D.8) shows little or no endogeneity. The health insurance coefficient increases from 0.18 in the univariate model and to 0.38 in the bivariate probit model, and Rho is negative, which indicates a downward endogeneity bias (figure E.2a). However, Rho and the residuals are not statistically significant. In conclusion, the effect of health insurance found by the univariate model remains our preferred estimate, In the case that endogeneity existed, we should expect an even higher health insurance effect.

The models of provider selection show no endogeneity in the selection of public and private non religious care (figure E.2b). The selection of private religious care, however, shows a positive and statistically significant endogeneity bias (figure E.2c). The univari-



Source: Author analysis of GSS 2006.

ate probit model mistakenly showed that health insurance had no effect on the selection of private religious care. However, the bivariate probit model shows that health insurance does have a negative effect on the selection of private religious care, which was previously masked by the upward endogeneity bias.

The model of the probability of spending a positive OOPS amount does not show any signs of endogeneity (figure E.2b).

## Appendix F. Patient Exit Poll Data

Below are detailed findings from the patient exit polls about out-of-pocket spending (OOPS) and patient satisfaction.

**Table F.1. Average Out-of-Pocket Spending, by Provider Type**

Coverage	Income tercile	Public providers	Private providers	CHAG providers	Total
With NHIS	T1	15.8	12.5	10.0	12.8
	T2	15.1	14.5	10.0	14.4
	T3	11.9	13.9	6.0	13.1
	Total	13.8	13.7	8.3	13.4
Without NHIS	T1	4.2	7.7	12.0	6.4
	T2	14.8	8.7	51.3	14.1
	T3	17.3	21.6	13.3	19.5
	Total	13.2	13.8	25.4	14.5
Total		13.9	14.8	20.3	14.8

*Source:* Authors' analysis based on Ghanaian cedis of 2009.

**Table F.2. Average Out-of-Pocket Spending, by Diagnosis**

Diagnosis	Public facilities	Private facilities	CHAG facilities	Total
Fever	11.3	11.0	—	11.2
Cough	18.4	22.0	—	19.0
Diarrhea	4.0	5.0	—	4.3
Headache	18.2	9.0	—	16.7
Stomach ache	7.0	10.0	—	9.3
Diabetes	12.5	3.0	—	9.3
Blood pressure	—	40.0	—	40.0
Typhoid fever	32.5	50.0	25.0	38.0
Malaria	14.3	25.7	14.3	21.0
No diagnosis given	6.8	12.6	17.0	9.9
DN/NS	8.5	35.0	20.0	14.8
Other	19.6	23.8	—	20.7
Total	13.9	14.8	20.3	14.8

*Source:* Authors' analysis based on Ghanaian cedis of 2009.

**Table F.3. Patient Satisfaction (N = Respondents)**

Willing to return to this facility	Answer	Satisfaction with services obtained				Total
		Very satisfied	Somewhat satisfied	Dissatisfied	DN/NS	
Public facilities	Yes	386	43	3	3	435
	No	1	3	4	0	8
	DN/NS	2	4	0	0	6
Private facilities	Yes	521	30	2	1	554
	No	2	4	1	1	8
	DN/NS	5	4	0	1	10
CHAG facilities	Yes	121	9	0	0	130
	No	0	0	0	0	0
	DN/NS	0	0	0	0	0
Total		1,038	97	10	6	1,151

Source: Authors.

Note: DN = don't know; NS = not sure.



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