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An Initial Estimation of the Size of Health Commodity Markets in Low- and Middle-Income Countries

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Earlier this year, CGD launched a new working group on the Future of Global Health Procurement to consider how the global health community can ensure the medium- to long-term relevance, efficiency, quality, affordability, and security of global health procurement. As countries grow richer and lose aid eligibility, and disease burdens and population profiles shift, the landscape of global health is set to change dramatically over the next 10-20 years. CGD, along with partners, is conducting a series of background research projects to inform the working group's deliberations. These analyses will generate novel datasets, new hypotheses, and action-oriented policy recommendations. And we will post results as they become available over the coming months, calling on you—our readers—for feedback and new ideas.

This first post in the series previews preliminary answers to one initial question: What can we say about the size and nature of health commodity markets in low- and middle-income countries? We share early insights; list the data sources we used, while also signalling others we hope to draw on going forward; and highlight our assumptions and caveats.
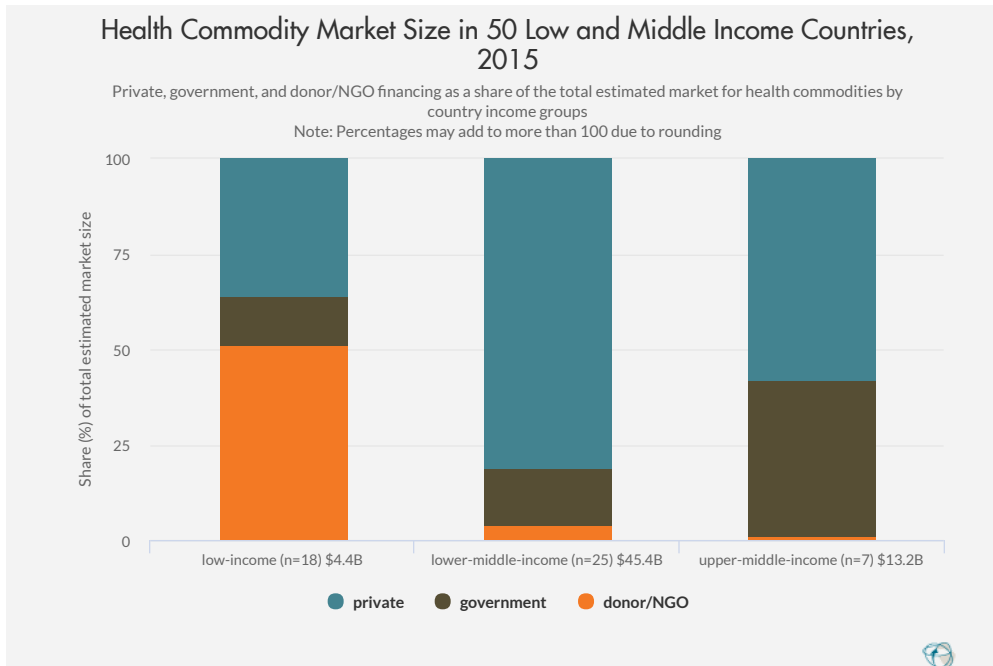
What exactly are we analyzing?

To help navigate these early results, we offer a few basic definitions to frame the scope of the analysis.

Table 1: Scope and working definitions

Term/Scope	Definitions given the purpose and scope of our analyses
Health commodities included	Pharmaceuticals, hospital consumables, diagnostic devices, long-lasting insecticide-treated nets, biologics including vaccines.[1]
Countries included 18 LICs 25 LMICs 7 UMICs	• Countries with a **population > 10 million** are included. • Countries with **GNI per capita < $7,000** are included, and classified per the World Bank's income group categories for 2015.[2] This threshold was chosen with the goal of having South Africa—an upper-middle-income country that receives about $50 million in donor commodity support annually—meet the inclusion criteria.[3] • Syria, Somalia, North Korea, and other countries are excluded due to lack of available GNI and other macroeconomic data. • China is not included as GNI/capita was $7,940 in 2015.
Timeframe	This analysis covers **2015**. A lack of regularly available figures on public-private sector split, procurement, and market share of local manufacturers has required extrapolation from historical data points. For export data, we used an average of 2014-2016 data to account for year-on-year fluctuations.
Price levels	• Ex-factory price • Customs Insurance Freight (CIF) or Freight on Board (FOB) price / Procurement price • Wholesaler / CMS price • Pharmacy / Hospital / Clinic price
Sources of expenditure on health commodities (WHO NHA definitions)	**Public**: governments (central and local); social health insurance funds; external borrowings and grants, including from international agencies and nongovernmental organizations **Private**: out-of-pocket; private insurance; private not-for-profit, charitable, and faith-based organizations

Term/Scope	Definitions given the purpose and scope of our analyses
Health commodity procurement channel	**Government sector health commodity procurement includes:** • Central medical stores, ministries of health • Regional medical stores, state/group of hospitals • Social security programs **Private sector health commodity procurement includes:** • Large hospitals or pharmacy chains (group purchasing organizations) • Private wholesalers and retailers • Private distributors (e.g., Eurapharma and Laborex across French West Africa) • Government hospitals, clinics, pharmacies purchasing directly from domestic private sector distributors **Donor health commodity procurement includes:** • Integrated procurement within government systems • Multicountry NGO global tenders (e.g. through Gavi and PAHO)

What can we say about the size and nature of health commodity markets in low- and middle-income countries?

Health Commodity Market Size in 50 Low and Middle Income Countries, 2015

Private, government, and donor/NGO financing as a share of the total estimated market for health commodities by country income groups
Note: Percentages may add to more than 100 due to rounding

Share (%) of total estimated market size

- low-income (n=18) $4.4B
- lower-middle-income (n=25) $45.4B
- upper-middle-income (n=7) $13.2B

● private ● government ● donor/NGO

Early results suggest that the overall market for health commodities in the 18 low-income (LIC) countries was $4.4 billion in 2015; the market in the 25 lower-middle-income countries (LMIC) was estimated just over $45 billion for that same year. It is worth noting that the LMIC category includes India ($16 billion), Egypt ($4.8 billion) and Indonesia ($4.7 billion), which together make up over half of the total. The market in the 7 upper-middle-income countries (UMIC) is estimated at $13.2 billion. These results exclude China, which alone consumed ~$108 billion in pharmaceuticals in 2015. To put the findings for low- and middle-income countries into further context, OECD countries consumed around $800 billion worth of pharmaceuticals in 2013, accounting for about 20 percent of total health spending. Of this, about 60 percent, on average, is financed by the public sector if all countries are weighted equally.

To our knowledge, the most recent assessment of these trends predating our work is from the WHO World Medicines Situation 2011 report. WHO's estimates of total pharmaceutical expenditure are based on National Health Accounts data from 161 countries from 2006. These estimates suggest that about two-thirds of pharmaceutical expenditures are financed by private sources in MICs, while the share in LICs is more than three-quarters. These findings are not directly comparable to ours given sample differences as well as other possible reasons: (i) donor funding spiked after 2006 and is especially concentrated in LICs with a high HIV burden; (ii) the WHO analysis only differentiates between public and private sources and does not include donor/NGO funding; and (iii) India, where roughly 90

percent of the market is privately financed, was a LIC in 2006 but is classified as an LMIC in our analysis for 2015.[4]

While these are very early results, we observe what looks like a commodities transition from a predominantly public consolidated and donor-funded procurement landscape in LICs to one that is predominantly privately financed and fragmented in MICs. In some ways this points to the priorities ditch hypothesis—a concept our colleagues Amanda Glassman and Charles Kenny explain here—applied to health commodities.

In addition to investigating *who* is procuring *what* value of health commodities, we are also interested in understanding *how* different actors are carrying out procurement functions. For example, to what extent is procurement consolidated or fragmented, on average? This question is an important consideration for the working group, which aims to propose recommendations for how global health procurement can work better going forward.

Donor spending on health commodities is generally consolidated. Funding is either combined with local government budgets for health commodities, or products are procured through global multicountry tenders. Smaller NGOs may procure through individual tenders for single countries, but these purchases seem to be a relatively small proportion of the total NGO spend. On the other hand, the private sectors in many OECD countries, taking an absolute value approach, are relatively consolidated, particularly in the United States and Canada.

In French West Africa, there are three major private distributors of health commodities that supply approximately 50 percent of the region's demand, including public sector demand, though the latter is hard to quantify. Eurapharma, for example, delivered over €500 million in health commodities in 2016, mostly for non-donor priority diseases. This is more than any single country in the region consumed alone. Unless the public procurement entities in the region pool their buying power, it is unlikely they could match the procurement power of Eurapharma. Drawing on such examples, we will try to learn from private models that can deliver consolidated procurement and consider possible interventions to encourage consolidation of procurement in the private and public sectors alike.

While it is possible to categorize these different approaches more generally, it is challenging to measure the exact level of fragmentation or consolidation of procurement within a country. (If you have ideas on how we could approach this, we'd love to hear from you.)

What data sources have we used and what do we hope to use in the future?

This analysis draws on a wide range of publicly available sources listed in table 2. The bottom half of the table highlights sources we hope to obtain access to over the

coming months to complement our current analysis and carry out additional research.

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Table 2: Main data sources

Source Title	Year	Author/Source	Usage
Used			
UN Comtrade health commodity exports	2015	UN Comtrade	Value estimation
Industry reports on local manufacturing market share (e.g., Bangladesh)	Various	Various	Value estimation
UNIDO Pharmaceutical Sector Profiles (e.g., Kenya)	Various	UNIDO	Value estimation
WHO Pharmaceutical Country Profile (e.g., Bolivia)	2010-2011	WHO	Procurement segmentation
WHO National Health Account reports	Various	WHO	Procurement segmentation
PEPFAR country operational planning reports (e.g., Zimbabwe)	2016, 2017	PEPFAR	Donor value quantification
Systems for Improved Access to Pharmaceuticals and Services (SIAPS) reports (e.g., Angola)	2014	SIAPS	Procurement segmentation
Global Fund PQR database	2006-2015	Global Fund	Donor value quantification
GAVI disbursement database	2001-2016	GAVI	Donor value quantification
Other reports on health commodity procurement or public : private split (e.g., Afghanistan)	Various	Various	Procurement segmentation
To be used			
UN Country Purchase Order Summaries	2015	UNDP	Donor value quantification
Reproductive Health Supplies Dashboard Estimates of NGO Spend on RH commodities by country	2014	Reproductive Health Supplies Coalition	Procurement segmentation
IMS Health country data	2014-2017	IMS Health	Various
IMS Health Sales Channel Estimates (MIDAS)	2017	IMS Health	Procurement segmentation

Source Title	Year	Author/Source	Usage
To be used			
Interviews results from LIC & LMIC procurement departments in Central Medical Stores and Ministries of Health	2017	CGD and partners	Country deep dives

What are the assumptions and caveats of our analysis?

Below we list the major working assumptions and caveats regarding our sources and methods.

- This analysis covers 50 countries; others have been excluded because they did not meet our thresholds for population size and/or GNI per capita, or because data were unable.

- Sources of data on donor financing are missing. Based on initial back-of-the-envelope calculations, we believe total donor and NGO spending on health commodities totalled approximately $6 billion in 2015. We are currently able to track about $5 billion of this expenditure at a country level.[5] There is still ample room for improvement.

- Countries with large social security programs under wide-reaching government-imposed price controls, which reimburse health commodity costs incurred by individuals, need to be studied further to assess the impact of price regulations on purchasing power of both public and private sectors operating in such settings (e.g., Algeria).

- More work needs to be done to make sure we have captured all procurement through regional medical stores or state-level procurement functions, particularly for highly populous countries like India and Nigeria.

The above results will be enriched—and may well change for individual countries—with our forthcoming analyses. These will include, for example, using national-level IMS Health data for 6 select countries where it is possible to segment the public and private sectors, and for an additional 10-15 countries where both data coverage and accuracy is over 90 percent and IMS covers both the hospital and retail segments of the market. For the latter group of 10-15 countries (where the IMS data cannot be split between public and private), we will be looking at the proportion of originator versus branded generic versus generic products, the average age of originator brands in LICs and LMICs, and the speed of innovation diffusion. Indian export data will also be used, particularly for HIV-related commodities. Finally, country deep dives and surveys will help validate or contradict results found through secondary research.

Some of the key questions we are hoping to answer with additional sources of data for select countries include:

- In terms of the donor health commodity spend, what is the split by commodity type and financing agent?

- How do procurement prices vary both between and across countries? Does price variation relate to tender characteristics, analysed by country income level and best practice characteristics?

- What is the breakdown of consumption of originator brand versus branded generics versus unbranded generics across countries, in terms of both value and volume?

- Is it possible to evaluate the introduction of new HIV therapies (using Indian export data)?

- How does the composition of what countries buy (commodities for noncommunicable versus communicable diseases, for example) change over time as they become richer?

Conclusion

It is too early to draw any concrete conclusions other than providing an initial estimation of the size of health commodity markets across low-and middle-income countries, and the split between donor, government and private procurement. As we dig deeper into the data, we hope the resulting analyses will contribute some of the hard evidence needed to inform the working group's actionable recommendations on how smarter procurement can improve efficiency and unlock resources needed to ensure commodities and services are available to those who need them the most.

It is early days, of course, so stay tuned for more. Feel free to critique the sources and methods we have used, and to share suggestions to improve our analytical approach in the comments section below. And please do point us to untapped data sets if you have leads on where to find them.

[1] While vaccines are technically out of scope for the working group, it is difficult to disaggregate them from available data sources.

[2] For 2015, the World Bank's income categories per the Atlas method were as follows: low-income < $1,045; lower-middle-income $1,046 - $4125; upper-middle-income $4,126 - $12,745. For our initial analysis, we only include 7 upper-middle-income countries whose GNI per capita < $7,000. Other upper-middle-income countries with GNI > $7,000 in 2015 are excluded from the analysis.

[3] PEPFAR (2017). South Africa Country Operational Plan 2017. Country Operational Plans. Rapid test kits XRT 13; budget estimate FY2017/18, VMMC kits, Condoms XRT 13.2; FY 2016/17, Other drugs & commodities are from FY2014/15.

[4] National Health Accounts Technical Secretariat (NHATS), National Health Systems Resource Centre (NHSRC), Ministry of Health and Family Welfare (MoHFW), Government of India - National Health Accounts, Estimates for India, 2013-2014. All traditional and alternative medicine spend excluded. Total Indian health commodity value is lower than stated in the 2013/2014 NHA based on industry estimates and UN Comtrade data.

[5] We are able to track the following components of global donor spend down to a country level: $1.85 billion spent on HIV commodities from the PEPFAR Country Operational Plan reports; $2.46 billion from UNICEF disbursements and procurement (this includes procurement of $1.23 billion for Gavi and also includes an additional $450 million for commodities for education, water and sanitation, nutrition, and emergency supplies which are outside the scope of the working group); $225 million on family planning commodities from the RH interchange and RH supplies data; and $540 million for Global Fund procurement for non-HIV and non-family planning commodities in 2015, visible on the PQR database. This adds up to a total spend of $5.07 billion that we can track to a country level. For the 50 countries covered by this exercise, we can track donor spending of approximately $4 billion at the country level, after compensating to remove 20 percent of UNICEF's contribution to account for out-of-scope commodities.