

GETTING ESSENTIAL MEDICINES TO CUSTOMERS

Why Mesoamerica Should Increase Its Investment in Supply Chains

Countries Invest in Essential Medicines

An Estimated U.S. **\$500 Million** Invested in Essential Medicines Each Year in Mesoamerica



Without Supply Chain Funding, Products Can't Reach People

Initial investment gets medicines to the central warehouse but not into the hands of customers. More funding to strengthen supply chains can help get health products to people.



Regional Level

Regional and local warehouses must store and distribute health supplies on time and in good condition.



Customer Level

Customers must receive health services and products when and where they need them.



Central Level

Program manager and policymakers must select, quantify, and procure health supplies. Warehouse must store and distribute supplies.



Facility Level

Health facilities must store and dispense supplies to customers, and need trained staff members to monitor product availability.



Strong Supply Chains Support Health Programs

Supply chain investments can strengthen health programs by getting products to people, accelerating progress toward 2015 Millennium Development Goals:

- Maintain eradication of childhood diseases
- Reduce maternal and child deaths
- Reduce unwanted pregnancies
- Reduce HIV and AIDS prevalence



What Governments Can Do

Invest **.20 cents** for every **\$1.00** spent on health products to strengthen the supply chains that deliver health products to people. This will help protect your investment in essential medicines.



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Estimating Mesoamerican Public Health Supply Chain Costs

Overview

The governments of Mesoamerica have shown a strong commitment to improving the availability of essential medicines, including contraceptives, in their public health supply chains.

Strong national leadership, commitment, coordination, coupled with partnerships between civil society and non-governmental organizations (NGO) and the private sector-have all been pivotal. Underpinning this success has been the strength and robustness of increasingly integrated and sophisticated public health supply chains. Sustaining this success comes with challenges, such as the dwindling support of traditional donors to fund both commodities and supply chain improvements. As donor funding decreases, governments need to budget adequate resources to fund public health supply chains and ensure their populations have access to essential medicines, including contraceptives. A key question remains, however. How much should they budget to fund the supply chains needed to ensure product delivery?

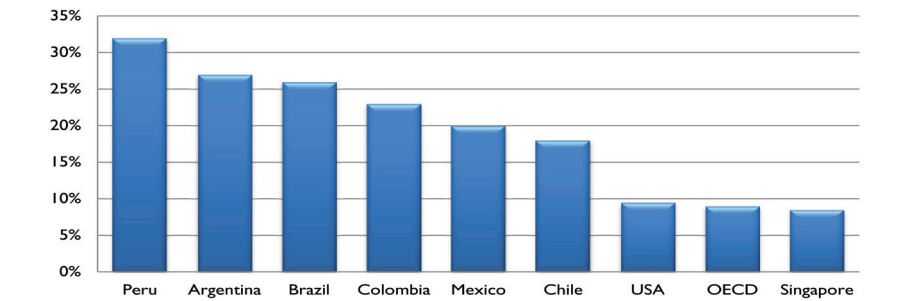
To answer this question, countries should estimate their supply chain costs. This requires an analysis of supply chain activities across administrative levels or tiers in the systems and different supply chain actors. In the absence of this detailed analysis we adapted and updated an economic model first developed by the USAID | DELIVER PROJECT for the World Health Organization (WHO) in 2009. That model provided a macroeconomic estimate of the supply chain costs associated with helping 49 developing countries achieve their Millennium Development Goals (MDGs) in health (Sarley et al. 2009). The model was intended to give an idea of the total costs for supply chain to deliver essential medicines. The estimates derived from the model give a macroeconomic view of supply chain costs for initial budgeting purposes. More detailed analysis would be required in each country to validate these costs.

The updated model predicts that in Mesoamerican countries, public health supply chain costs are between 30 percent of commodity values in countries with the lowest logistics performance and 12 percent in the best performing. We summarize our approach in this brief, the model used, and results generated.

Mesoamerica is an expensive place for general logistics costs

Research by Guasch (2011) at the Inter-American Development Bank (IDB) and the World Bank (WB) has highlighted that the cost of logistics in Latin America is very high in comparison to the United States of America (USA), Organization for Economic Cooperation and Development (OECD), and other emerging markets. As figure 1 illustrates, logistics costs as a percentage of the value of products delivered ranges from approximately 30 percent in Peru to 20 percent in Mexico and 18 percent in Chile. In comparison, the level is 9.5 percent in the USA and 8.5 percent in Singapore. High costs in the Bureau for Latin America and the Caribbean (LAC) result from a number of factors including high shipping and transportation costs, incomplete infrastructure, a lack of competition among logistics providers, and the high cost of customs clearance.

Figure 1: Logistics Costs as a Percentage of Product Value, 2004



Source: Guasch 2011

Pharmaceutical logistics costs

Typically, the value of pharmaceuticals is higher, on average, than other products; thus, the logistics cost of moving essential medicines is lower. In the USA, with its high prices for pharmaceuticals, logistics costs for pharmaceuticals are estimated at 4 percent of the product value. Assuming a similar relationship between logistics costs for the whole economy and logistics costs for pharmaceuticals, this would suggest that pharmaceuticals logistics costs in LAC would also be less than those percentages shown in figure 1.

How much do public health logistics cost?

The WB has created a Logistics Performance Index (LPI) (Arvis et al. 2010) that ranks country performance around a number of key areas including customs, infrastructure, international shipments, logistics quality and competence, tracking and tracing, and timeliness (table 1).

The LPI contains a number of variables that may not be appropriate for public health supply chains. Therefore, we constructed a revised index that focused more on factors that would affect public health supply chain costs. This index included:

- An infrastructure score that reflects the better the transport infrastructure, the better the score and the lower the supply chain costs;
- Logistics competency reflects the capability of the private sector in the country and would likely lead to lower the costs for clearing and transportation;
- Population density would reflect the challenges of reaching rural populations. The greater the population density is, the easier it is to reach and the lower the costs of reaching them;
- The governance (USAID |DELIVER PROJECT 2009) score is a proxy for how well the public sector works. The better the governance that is in place, the more effective and efficient public supply chains are assumed to be, and;
- The gross national income (GNI) per capita reflects how much the economy is developed. The more that the economy is developed, the lower the supply chain cost will be.

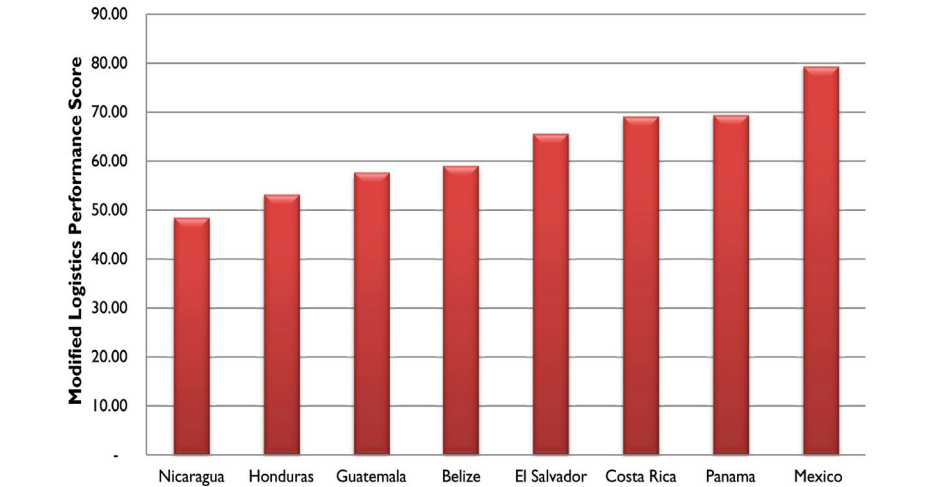
Table 1: LAC Logistics Performance Index Ranking Out of 155 Countries

Brazil	41	Peru	67
Argentina	48	Honduras	70
Chile	49	Colombia	72
Mexico	50	El Salvador	86
Panama	51	Guatemala	90
Costa Rica	56	Nicaragua	107

Source: Arvis et al. 2010

Mexico is ranked as having the highest modified LPI score for the 57 countries analyzed (figure 2). For comparison purposes, the score for El Salvador and Bangladesh are similar, while the score for Nicaragua places it between Kenya and Uganda.

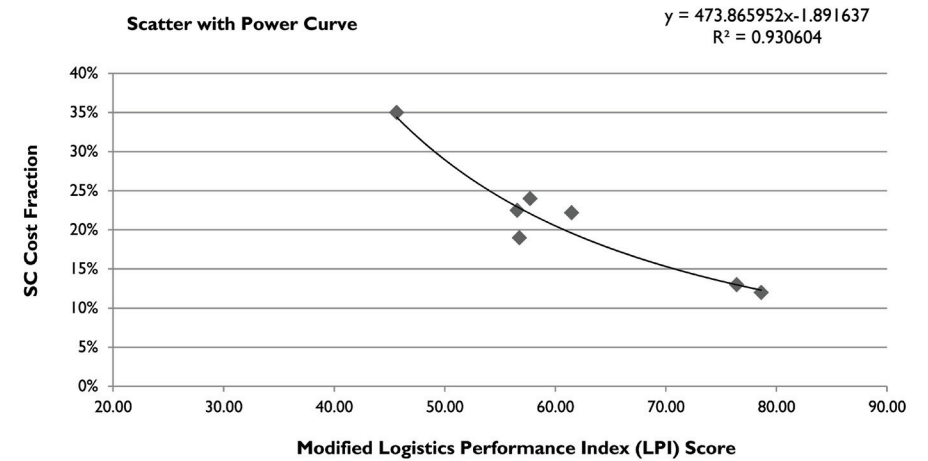
Figure 2: Mesoamerican Logistics Performance Scores



Source: Sarley et al. forthcoming

We then modeled this new LPI against results from the limited number of supply chain cost studies available from African and Asian countries. We then fitted a regression curve. While based on a small number of observations, the estimated curve has a strong predictive power as shown in figure 3.

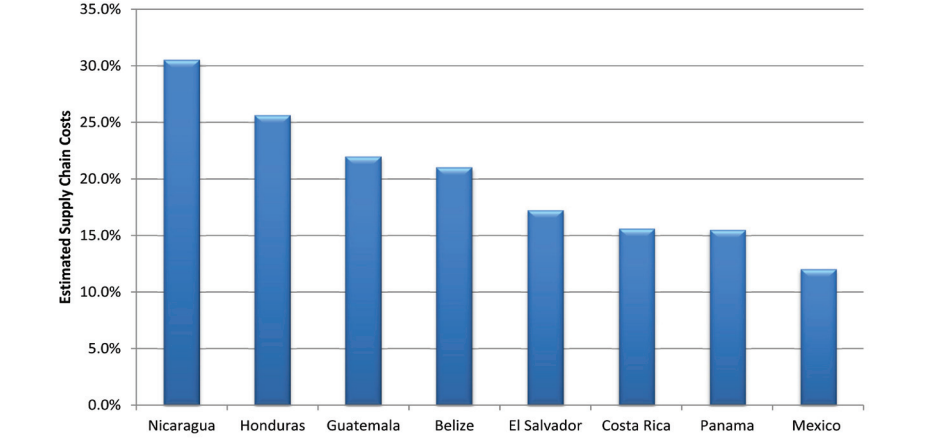
Figure 3: Supply Chain Cost Ratio



Source: Sarley et al. forthcoming

The regression equation in the figure below was then applied to the modified LPI scores calculated for the Mesoamerican countries in order to generate predicted logistics cost ratios expressed as a percentage of the product value. These ratios are displayed in figure 4 and show a range similar to the range discussed by Guasch. The scale ranges from 12 percent (least costly) to 31 percent (most costly). With the best logistics performance in the region, Mexico is likely to require supply chain costs of at least 12 percent of commodity value. Panama and Costa Rica are estimated to require costs of approximately 16 percent. El Salvador is estimated to require costs of approximately 17 percent, with Guatemala, Honduras and Nicaragua's costs approximated at 22 percent, 26 percent, and 31 percent, respectively. They represent guidelines that Mesoamerican countries could take into consideration until more detailed cost analysis can be conducted of logistics costs for ensuring product availability at service delivery points throughout the country, including hard to reach rural areas.

Figure 4: Estimated Predicted Supply Chain Costs as a Percentage of Product Value for Mesoamerican Countries



Source: Sarley et al. forthcoming

Governments should set aside and allocate sufficient funds to deliver products. Otherwise, money spent on commodities will risk being wasted as products cannot get to the populations they are intended to reach.

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