



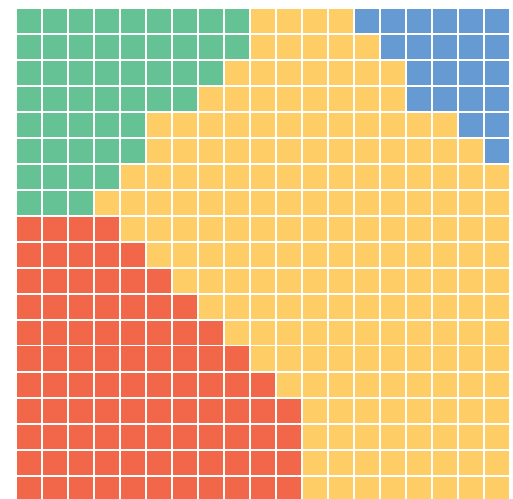


For many in the BOP lack of transportation—or the high cost of what is available—is a constant obstacle to looking for work, getting goods to or from markets, or obtaining health care. All too often public transit systems in developing countries are run-down or nonexistent, and the costs of owning a private vehicle prohibitive. That leaves few options: walking, bicycling, animal-drawn carts, minibuses or other informal services.

Under these circumstances people cannot easily fulfill their economic potential. And sometimes, especially in rural areas, they put off seeking medical care or sending children to school because of the high cost or long hours in getting to the hospital or the school. In urban areas gridlock and pollution levy an additional toll. Deliberate transportation planning that involves multiple stakeholders is one promising route toward creating better urban transportation options (case study 5.1).

Distribution and delivery systems for merchandise operate under different constraints than public transportation systems, yet these too contribute to the economic barriers facing the BOP. The focus here is on personal transportation spending. But more efficient distribution channels for services, products, and information—from health care to consumer products to better agricultural techniques and equipment—would also help empower rural communities and reduce the need for people to

**BOP spending on transportation**  
\$179.3 billion



	\$ billions (PPP)
Africa	24.5
Asia	98.3
Eastern Europe	10.7
Latin America	45.9

Each square represents approximately \$500 million

## CASE STUDY 5.1 **ALL ABOARD:**

### **TRANSIT PLANNING WITH MULTIPLE STAKEHOLDERS**

Urban migration continues to expand city populations in many developing countries: in the measured countries covered in this report around 40% of the population are urbanites. Meanwhile, such transportation issues as gridlock and pollution are generating bigger and bigger costs—fuel costs, labor hours lost in traffic, health care costs due to respiratory illnesses. Because urban transportation systems involve so many actors—from politicians to private owners, passengers, and civil and mechanical engineers—creating one that is affordable and environmentally sustainable requires involving multiple stakeholders.

Doing so can yield big benefits. Consider the Mexico City Bus Rapid Transit system, established by a public-private partnership between the city government, private bus owners, and the EMBARQ program of the World Resources Institute. In 2006, after a year in operation, the transit system carried more than 100 million passengers, had reduced commute times along its route by about 50%, and prevented around 36,000 tons of carbon dioxide emissions into Mexico City's air. Rides cost around US\$0.30 each (Flores-Arias 2006).

Another project, in the Philippine city of Vigan, Luzon, is retrofitting motorbikes—the most common transportation vehicle in Asia—with less polluting and more efficient fuel injection systems. The project, which plans to retrofit thousands—potentially several tens of thousands—of motor-tricycle taxis, is being undertaken by the nonprofit organization Envirofit, working with city officials, motorbike owners, local mechanics, and manufacturers. City officials have committed to passing legislation that will require tricycle drivers to replace or retrofit their vehicles. Envirofit is training local manufacturers and mechanics in the production and installation of its fuel injection systems, building capacity for a transportation industry based on environmentally friendly technology.

Both of these examples illustrate the value of the strategy of **unconventional partnering**.

travel to obtain such essentials. Indeed, transportation impacts every sector covered in this report.

### **How large is the market?**

The measured BOP market for transportation for Africa (12 countries), Asia (9), Eastern Europe (6), and Latin America and the Caribbean (9) is \$105 billion. This represents the annual household transportation spending of 2.2 billion people in the 36 low- and middle-income countries for which standardized data exist. The total BOP transportation market in these four regions, comprising 3.9 billion people, is estimated to be \$179 billion (see box 1.5 in chapter 1 for the estimation method).

The largest measured regional BOP transportation market is the \$49.6 billion Asian market (1.5 billion people), followed by those in Latin America (\$38.4 billion and 276 million people), Africa (\$11.0 billion and 253 million people), and Eastern Europe (\$6.0 billion and 148 million people). Total BOP household transportation spending is estimated to be \$98.3 billion in Asia, \$45.9 billion in Latin America, \$24.5 billion in Africa, and \$10.7 billion in Eastern Europe.

Spending by the BOP accounts for 63% of the total Asian transportation market, 41% of the

Eastern European market, 39% of the African market, and 28% of the Latin American market.

In national transportation markets the BOP consistently accounts for a large share of the total in Asia. BOP spending represents more than 60% of the total market in every measured Asian country but Cambodia (42%)



The BOP share of transportation spending is consistently high in Africa. It exceeds 50% in all but three measured countries. South Africa, where the BOP market share is just 14%, is the most prominent exception.

and Thailand (30%). In Bangladesh, Indonesia, Pakistan, and Tajikistan the BOP share is more than 90%.

The BOP share of transportation spending is also consistently high in Africa. It exceeds 50% in all but three measured countries. South Africa, where the BOP market share is just 14%, is the most prominent exception. BOP market shares are largest in Côte d’Ivoire (74%), Djibouti (94%), and Nigeria (98%).

In Eastern Europe the BOP share of the market ranges from 23% in FYR Macedonia to 77% in Kazakhstan. In Russia the BOP transportation market, Eastern Europe’s largest, accounts for 43% of the total.

Spending by mid-market and high-income segments dominates the transportation market in most countries of Latin America and the Caribbean. The BOP share of the national market is less than 35% in every country but Jamaica (81%) and Peru (51%). The smallest BOP shares are in Colombia (17%) and Paraguay (19%).

### How is the market segmented?

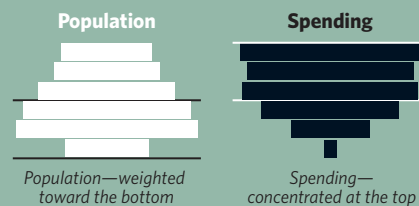
In most of the measured African and Asian countries BOP transportation markets are bottom heavy. BOP transportation spending is concentrated in the BOP1000 and BOP1500 groups, as exemplified by Bangladesh and Burkina Faso. Important exceptions to this pattern include South Africa and Thailand, where BOP transportation spending is significantly top heavy,

### CASE STUDY 5.2 BRAZIL: A BIG MARKET AT THE TOP OF THE BOP

Brazil’s BOP transportation market of \$19.5 billion is the largest among the nine measured countries in Latin America. Though this spending is more than 50% of the total measured BOP transportation market in the region, it is only 28% of Brazil’s total transportation market of \$71 billion. This kind of market distribution is common in Latin America, where the mid-market and high-income population segments account for the majority of transportation expenditures even though the population is concentrated in the BOP. In Brazil the BOP accounts for 71% of the total population.

Brazil’s BOP population itself is bottom heavy, with 71% in the bottom three BOP income segments. Yet the BOP transportation spending is concentrated in the top three BOP income segments. These three constitute a \$13.6 billion market, more than 70% of the BOP market and 19% of the national market. That market alone is larger than every other measured national BOP transportation market except India’s.

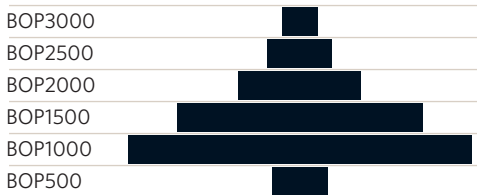
The 13.8 million households in Brazil’s top three BOP income segments spend an average of \$983 a year on transportation, 12% of their household budget. Urban households account for 85% of the transportation spending by these segments.





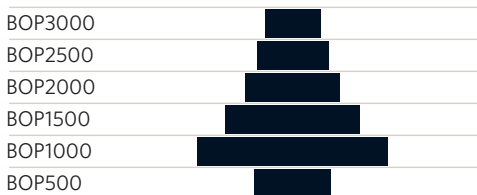
### Bangladesh

TOTAL TRANSPORTATION SPENDING BY INCOME SEGMENT



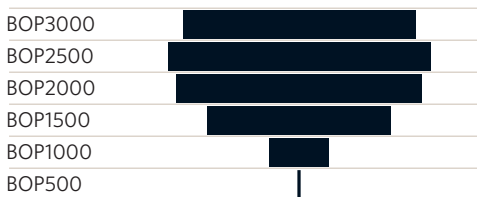
### Burkina Faso

TOTAL TRANSPORTATION SPENDING BY INCOME SEGMENT



### Thailand

TOTAL TRANSPORTATION SPENDING BY INCOME SEGMENT



and India, where it is marginally top heavy. BOP transportation spending in Eastern Europe and Latin America is distinctly top heavy and concentrated in the BOP2500 and BOP3000 groups. This top-heavy pattern is exemplified by Brazil, which has one of the largest BOP transportation markets (case study 5.2).

### What do households spend?

Average annual transportation spending per BOP household varies widely within and between regions. In Africa and Asia, however, the median for this figure among measured countries is remarkably close: in Africa, \$211 (Burkina Faso) and \$275 (Uganda); and in Asia, \$211 (Tajikistan). In contrast, the recorded average spending in Africa ranges from \$25 a year in Burundi to \$157 in Nigeria, \$333 in South Africa, and \$517 in Gabon. In Asia the range is from \$101 a year in Nepal to \$136 in India and \$601 in Thailand. Differences in the survey questions asked and data captured may account for some of the variation.

The median among measured countries in Eastern Europe is \$141 a year (Ukraine), and in Latin America, \$521 a year (Paraguay). Average transportation spending per BOP household in Eastern Europe is generally less than in Africa and Asia, probably reflecting that region's heavily urban character and its well-developed public transit systems. Russia also reflects the Eastern European median, recording an average of \$141 in transportation spending per BOP household.

Within the BOP, transportation spending increases steeply—and often disproportionately—as income rises.





In contrast, in Latin America BOP transportation spending is distinctly higher than in Africa and Asia: in every measured country but Peru BOP households spend more than \$270 a year on average for transportation. The range extends from \$181 a year in Peru to \$331 in Jamaica, \$613 in Brazil, and \$809 in Mexico.

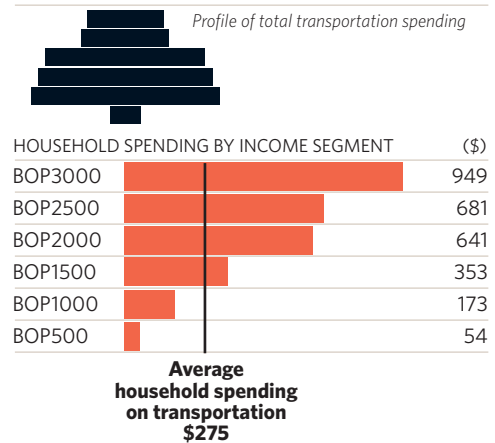
Within the BOP, transportation spending increases steeply—and often disproportionately—as income rises. While the income ratio between the BOP3000 and BOP500 groups is 6:1, the transportation spending ratio is at least 10:1 in 29 of the 36 measured countries. The ratio varies across the largest BOP markets by region: in Nigeria it is 32:1; in India, 17:1; in Brazil, 13:1; and in Russia, 5:1. The pattern suggests substantial latent demand for transportation within the BOP. Clearly, those in the BOP view spending for transportation—buying that first motorbike—much as they do spending for ICT: a priority for increasing their productivity and their economic options. Data from Nigeria give additional insight into the spending of different market segments (case study 5.3).

Transportation spending in the mid-market segment is higher than in the BOP but not dramatically so. Ratios of average mid-market to average BOP per household spending for some major countries range from less than 2:1 in Russia and 3:1 in Mexico to 5:1 in India, 8:1 in Pakistan and South Africa, and 12:1 in Nigeria. Transportation, as a share of total per household spending, varies widely between BOP income segments, and between countries, as shown by the examples of India and Brazil.

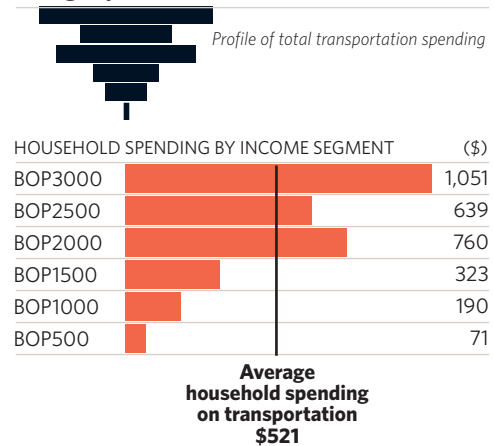
### Where is the market?

National transportation markets are predominantly urban in every region but Asia. In Africa more than 50% of all transportation spending is urban in every country but Uganda and Burkina Faso; in eight coun-

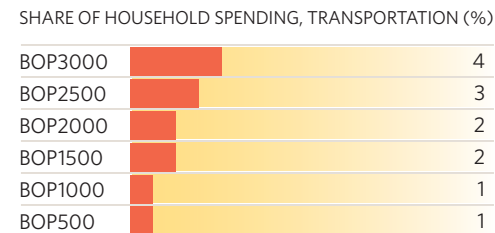
### Uganda



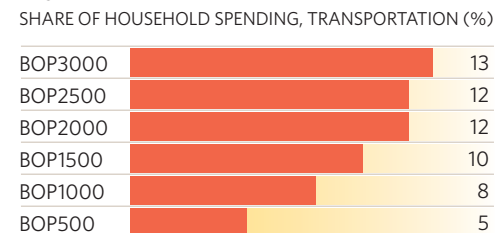
### Paraguay



### India



### Brazil





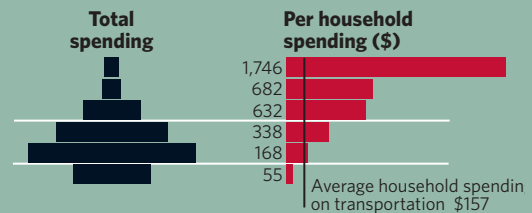
### CASE STUDY 5.3 **NIGERIA:** **THE BIGGEST BOP TRANSPORTATION MARKET** **IN AFRICA**

Nigeria has the largest BOP share in the total transportation market, at 98%, and the largest BOP transportation market in Africa, at \$4.2 billion. Indeed, its BOP transportation market is nearly twice as large as South Africa's, the next largest recorded one in the region.

Nigeria's BOP transportation market centers on the spending of the BOP1000 and BOP1500 income segments. Together, these segments account for 39% of Nigeria's population but 62% of its BOP spending, and 61% of its total spending, on transportation. In contrast, the lowest BOP income segment, BOP500, has 59% of Nigeria's population yet accounts for only 17% of the national transportation market, spending only \$55 per household a year on average.

In Nigeria, as in most countries, household spending on transportation rises significantly with income. Spending reaches \$682 in the BOP 2500 segment and jumps markedly to \$1746 in the BOP 3000 segment. This may reflect purchase and operating costs of a first motorbike or other vehicle. In any event, the pattern of increased spending likely reflects pent-up demand for transportation and the importance of better solutions.

TOTAL TRANSPORTATION SPENDING BY INCOME SEGMENT





Though rural transportation markets are generally smaller than urban ones, except in Asia, the BOP share of rural markets is large: more than 60% in all but 7 countries for which standardized data exist.

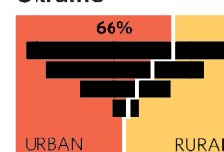
tries more than 70% of transportation spending occurs in urban areas. In Eastern Europe and Latin America the urban share of the transportation market is more than 65% in all countries except Jamaica. In Asia, however, urban market shares range from 22% in Sri Lanka to 69% in Indonesia, reflecting the importance of the rural transportation market in this region.

A similar pattern appears in the BOP market, though in nearly every country the BOP transportation market is more rural than the total market. Even so, more than half of BOP transportation spending occurs in urban areas in all but four countries in Africa, two in Eastern Europe, and two in Latin America. Ukraine, with 66% of the BOP transportation spending in urban areas, and South Africa with 64% illustrate common patterns. The Asian BOP transportation market, however, is distinctly rural: 85% of BOP transportation spending in Cambodia, for example. Less than 42% of BOP transportation spending occurs in urban areas in every country but Indonesia.

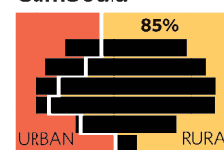
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Comparing urban with rural BOP markets shows urban BOP markets to be more top heavy and rural markets more bottom heavy. In 26 urban BOP markets the income segment with the largest market share is among the top three BOP segments. In 29 rural BOP markets the income segment with the largest market share is among the bottom three.

#### Ukraine



#### Cambodia



Total BOP transportation spending by income segment, urban and rural

#### Endnotes

1. Reported household expenditures in a given country should be regarded as a minimum estimate of actual expenditures, because surveys may not have collected information on all types of transportation-related spending.
2. EMBARQ, "Cities on the Move: Mexico City, Mexico," <http://embarq.wri.org/en/ProjectCitiesDetail.aspx?id=1> (accessed January 31, 2007).
3. Envirofit, "About Vigan," <http://www.envirofit.org/projects/vigan.php> (accessed January 31, 2007).