

#### IV. Global sectoral end-use consumption

(See Table 8.)

Across the five major economic sectors considered<sup>7</sup> (industry, transportation, agriculture, commercial and public services, and residential), per capita energy consumption among the industrialized countries unsurprisingly exceeds that in the developing world (Figure 3). At more than 10 million BTUs/year per capita, the residential sector is the greatest energy consumer among the developing countries, followed by industry (9.8 million BTUs/year per capita), transportation (5.2 million BTUs/year per capita), services (1.3 million BTUs/year per capita), and agriculture (0.9 million BTUs/year per capita). In contrast, the same sectors in high-income countries consume around three to fourteen times the energy, depending on the sector. Among the developed countries, transportation has the greatest energy consumption (53.6 million BTUs/year per capita), followed by industry (45.6 million BTUs/year per capita), residential (29.1 million BTUs/year per capita), services (17.7 million BTUs/year per capita), and agriculture (2.6 million BTUs/year per capita). In the developing world, the residential and industrial sectors are the dominant energy consumers, with 34% and 35% of the total, respectively (Figure 4). In the developed world, the dominant sectors are industry (29%) and transportation (35%). It is important to note that residential consumption of energy in many regions included among developing states is predominantly combustible resources and waste such as fuelwood, manure, and other biofuels, rather than the forms of energy described in the analyses above. For both the developing and developed world, services and agriculture consume the least energy per capita.

Differences in sectoral consumption exist among the developing countries as well. Energy consumption by each sector in the middle-income countries is about three to four times that by each sector in the low-income states (Figure 3). The exception is the residential sector, which consumes about the same amount of energy (10 million BTUs/year per capita) in both the low- and middle-income countries. Although the residential and industrial sectors are the greatest energy consumers per capita for both the low- and middle-income states, the industrial and transportation sectors consume a substantially greater percentage of total energy in the middle-income countries than in the low-income countries. This difference possibly represents a shift towards the distribution of energy consumption exhibited by the high-income states.

As expected, the most dramatic differences in sectoral energy consumption are between the richest and poorest ten percent of countries. The industrial sector of the richest countries consumes the equivalent of nearly eight barrels of oil per capita more than the same sector in the poorest ten percent—a twenty-one-fold difference (Figure 3). In the transportation sector, the richest consume more than thirty-three times the energy of that sector in the poorest countries, a difference that is equivalent to more than nine

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<sup>7</sup> Based on sectoral end-use data for year 2000 from the datasets *Energy Balances of the OECD Countries* and *Energy Balances of the Non-OECD Countries* compiled by the International Energy Agency. The 133 countries included in this part of the analysis are not as extensive as the World Bank data and are listed in Appendix II. Also, the International Energy Agency dataset includes consumption of combustible renewables and waste, such as fuelwood, whereas the Energy Information Administration data does not. As a result, inferences drawn from comparison of the two different sets of data and analyses are not robust and are not discussed here. Descriptions of end-use sectors by the International Energy Agency are in Appendix III.

barrels of oil per person per year. Services sectors of the richest nations consume more than 250 times the energy as the services sectors in the poorest nations, and the agricultural sector of the richest nations consumes about thirty-two times the energy of the agricultural sector of the poorest countries. However, since services and agriculture consume the least energy among all sectors for both groups, this difference is equivalent to about 3.5 barrels of oil per capita per year for the services sector, and less than half a barrel of oil per capita per year for the agricultural sector. The difference in energy consumption for the residential sector is also less pronounced: 13 million BTUs/year per capita in the poorest states and 31 BTUs/year per capita in the richest states, a difference equivalent to about three barrels of oil per person per year. However, the makeup of the energy used by the residential sectors of both groups are quite distinct: whereas the poorest countries rely mostly on combustible fuels such as fuelwood and manure, the richest countries rely predominantly on electricity and natural gas.

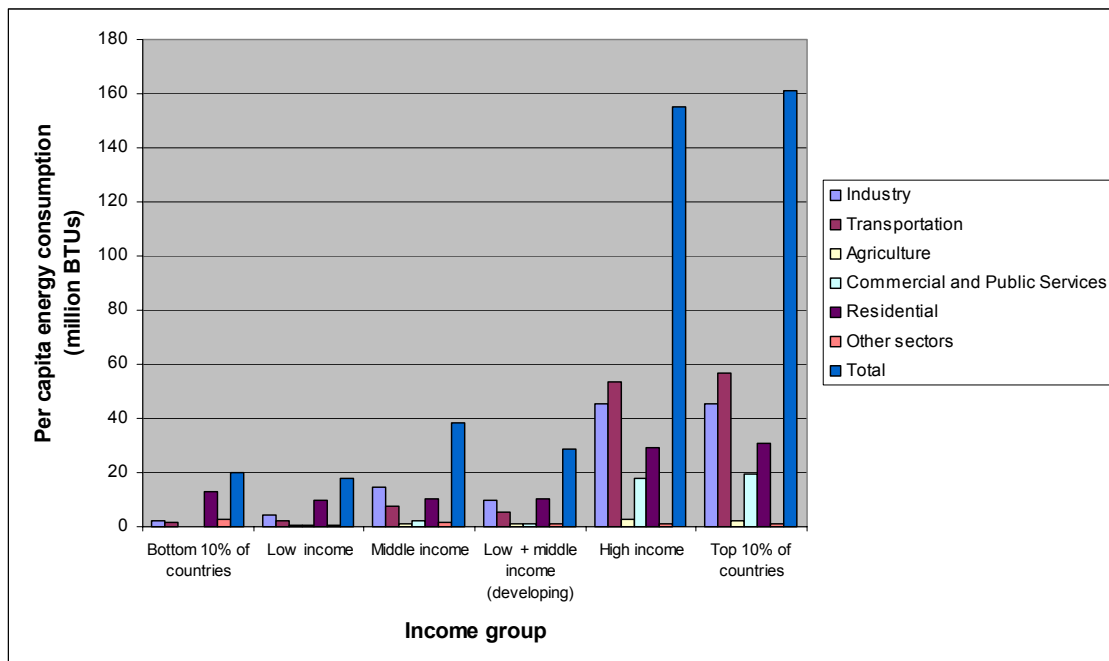


Figure 3. Sectoral end-use energy consumption, by income group, in 2000.

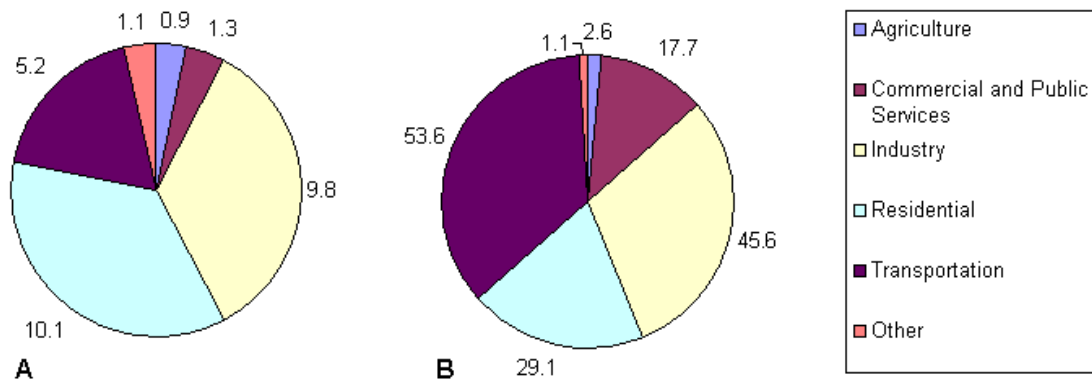


Figure 4. Per capita energy consumption by sectoral end-use in (A) the developing world and (B) the developed world (10<sup>6</sup> BTUs).