



Petroleum Demand in Developing Countries

Posted by [Robert Rapier](#) on August 10, 2012 - 12:50pm

Note: This article was originally written for [World Business Magazine](#) in Singapore, and explores one of the themes I covered in my book [Power Plays](#).

Ed. note: This post first appeared on Robert's blog [R-Squared Energy](#).

Oil Prices Rise, But Demand Growth Remains Strong

Access to affordable, stable energy supplies is critical for economies throughout the world. For developing countries, affordable energy can offer a pathway to a better quality of life. But between 2000 and 2010, world oil prices became much less affordable. The average global oil price advanced from approximately \$25 per barrel to more than \$100 per barrel – far outpacing rates of inflation in most countries.

Many books and articles have been published that argued that the increase in prices has been due to oil speculation, the restriction of supplies by OPEC, growth in developing countries, peak oil, or various geopolitical factors. Regardless of the cause, the response to higher prices in developed and developing countries may be surprising.

Conventional wisdom might suggest that as oil prices rise, developing countries would be less able to afford oil, leaving wealthier countries to bid against each other for increasingly higher-priced supplies. But that is not at all what happened over the past decade, and the trend may give developed countries a reason for concern.

From 2005 to 2010 – a period that saw oil prices rise to record highs – oil consumption in the United States fell by 1.6 million barrels per day (bpd). Other developed regions experienced similar trends. The European Union saw oil consumption drop by 1.2 million bpd, and Japan registered a drop of 900,000 bpd.

Japan was the exception in the Asia Pacific region. Excluding Japan, the rest of the Asia Pacific region increased its oil consumption by nearly 4 million bpd even in the face of the strong oil price increases from 2005 to 2010 (see Figure 1). Over the decade, Asia Pacific oil consumption increased by nearly 7 million bpd.

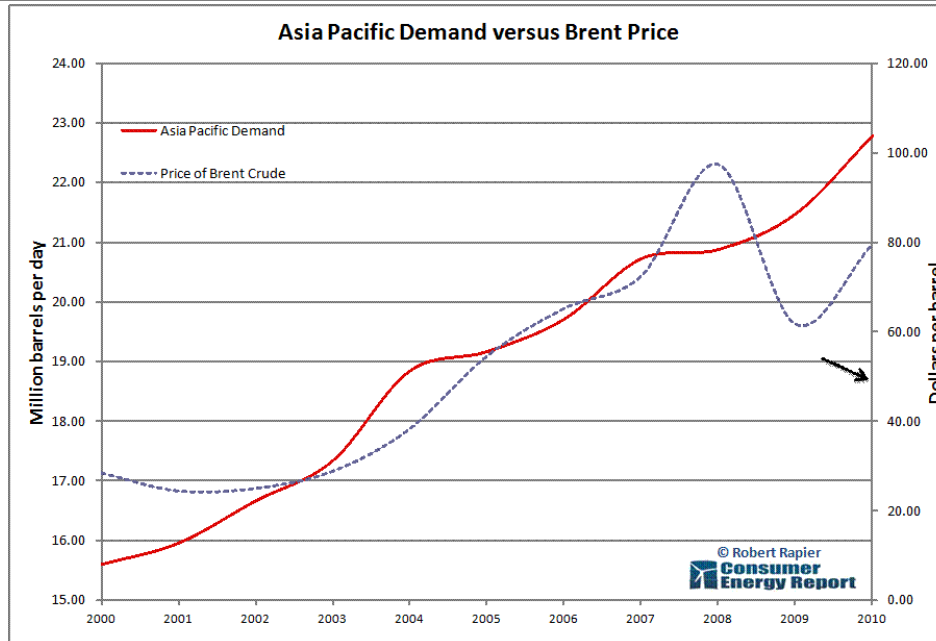


Figure 1. Demand growth in Asia Pacific (minus Japan) was strong despite escalating oil prices.

Strong Growth in All Developing Regions

But even though the developing countries in Asia Pacific saw a nearly 50% increase in consumption over the decade, it wasn't even the fastest growing region. That distinction belongs to the Middle East, which added 56% to their oil consumption between 2000 and 2010. The Middle East's total increase in consumption was smaller than that of Asia Pacific at just under 3 million barrels per day, but that is primarily a function of the relative populations of the regions. OPEC countries like Saudi Arabia saw the strongest demand growth in the region. This is understandable considering that the high price of oil brought a huge influx of cash into oil exporting countries, and countries tend to increase their oil consumption as they become wealthier.

Demand growth was strong in other developing regions as well (see Figure 2). Africa increased consumption over this timeframe by 850,000 bpd, a 35% increase. Consumption in South America increased by 1.2 million bpd, a 26% increase over year 2000 levels. Thus, despite drops in consumption among most developed regions, global oil consumption over the past decade rose by nearly 11 million barrels per day.

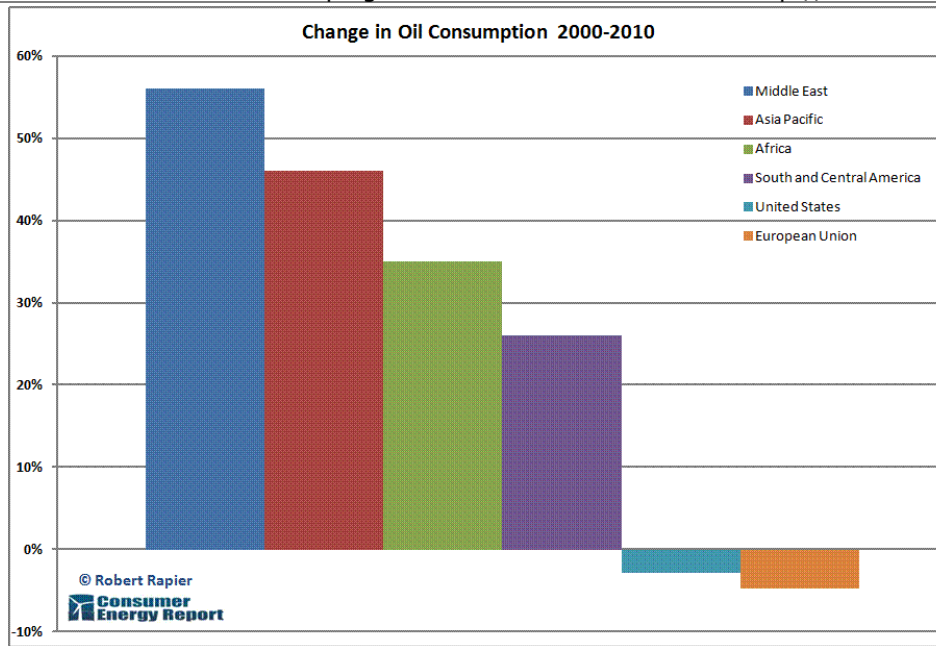


Figure 2. Demand fell in developed regions and increased in developing regions.

The trend was clear: As oil prices increased, developed countries reduced oil consumption, while regions that were significantly undeveloped or developing increased oil consumption. Perhaps unsurprisingly—since their revenues would have increased over this time period—oil-exporting regions experienced the greatest percentage increases in consumption. In addition to the Middle East’s 56% increase in oil consumption over the decade, Venezuela saw oil consumption increase by 37%.

Explaining the Demand Changes

But why would developing oil-importing regions have also experienced consumption growth as oil prices climbed to record highs? Consider the change in the consumption habits of the United States and China over the past decade. In 2000, the U.S. consumed 19.7 million barrels of oil per day—25.5 barrels of oil per person per year. By 2010 the population of the U.S. had increased by 10%, but the country’s oil consumption had fallen to 19.1 million bpd—22.6 barrels per person per year.

The trend in China was sharply in the other direction. In 2000, oil consumption in China was 4.8 million bpd, or 1.4 barrels per person per year. In 2010, consumption had grown to 9.1 million bpd, or 2.5 barrels per person per year. Incidentally, if per capita oil consumption in China was as high as it is in the U.S., China would consume more than 82 million barrels of oil per day—an amount equivalent to almost all of the world’s oil production.

Oil demand growth in China, in India, and across Asia and South America in the face of record-high oil prices may at first be counterintuitive. But consider the consumption patterns in developed countries. Developed countries consume a lot more oil than they really need because they have more discretionary consumption. Thus when oil prices rise, consumers in developed countries make a few lifestyle changes—driving fewer miles, buying more fuel-efficient cars, using more mass transportation, etc.—and oil consumption falls.

So the 22nd annual barrel of oil consumed by someone in the U.S. isn’t worth \$100 to them, and they use a bit less when oil prices rise. If oil prices were sustained at \$150 a barrel, they would use even less. But the vast majority of the world uses very little oil, and aspires to higher

standards of living. The average consumption of oil in the world—87 million bpd in 2010 (Source: 2011 BP Statistical Review of World Energy) divided by a population of approximately 6.8 billion people in 2010—is 4.7 barrels of oil per person per year. In other words, if everyone on earth was allocated an equal amount of oil, the 2010 allotment would have been 4.7 barrels per person. This is 79% lower than average U.S. consumption, and 54% lower than average EU consumption.

Developing countries are presently below the average 4.7 barrel allotment, but their consumption is rising. Chinese consumption has risen to 2.5 barrels per person per year, a 79% increase in the past ten years. At that growth rate—and assuming China’s population remains constant—China will reach 4.7 barrels of oil per person in slightly over ten years. But this would require another 8 million barrels of oil per day for China, which either must come from the allotment of other countries—most likely developed countries—or would require global oil production to rise another 10%.

Bear in mind that this is only for China; other developing countries are also on growth trajectories that would see their demand for oil collectively increase by millions of barrels per day over the next decade. The threat for developed countries is clear: As oil prices rise, consumption in developed countries is likely to continue to decline in response, but developing countries could continue to increase their consumption and still grow their economies. To the extent that the consumption decline in developed countries is a result of the adoption of alternative fuels and improved efficiencies, economic growth in developed countries may be able to continue. But if the decline comes as a result of people simply being unable to afford oil, economic difficulty in developing countries is practically assured.

Implications for the Future

What might this signal for future oil prices? A question I frequently encounter is, “How high could gasoline prices ultimately rise in the U.S.?” Because the oil markets are global, the answer to that question is, “It depends on how much value people in developing countries place on increasing their oil consumption to two or three barrels of oil per year.” Or, an alternative way to think about it is, “If you were only allocated 3 barrels of oil per person per year, how much would you be willing to pay for those barrels?” The 20th barrel the average person in the U.S. consumes each year might allow us to drive that 12,000th mile. But the first barrel that someone in a developing country consumes might allow them to drive that very first mile and have heat in their home for the first time. They will be willing to pay a lot more for those initial barrels than we are for our excess barrels, and this explains why their consumption has increased even as oil prices have risen.

And if future oil prices are dictated by how much developing countries are willing to pay for their second or third barrel of oil per capita, this number may ultimately be much higher than \$100 per barrel. This is a major reason that I don’t ever foresee a sustained return to cheap oil. There are many who have placed most of the blame for increased oil prices on speculation, but the thirst for oil in developing regions means that there are fundamental issues of supply and demand at work as well.

Conclusions

The developing world—and in particular Asia Pacific—will play a very important role regarding global energy supplies and global carbon dioxide emissions. With respect to energy supplies, developed regions should recognize the likelihood that this growth will keep upward pressure on oil prices over the long term, and governments would be wise to pass policies that encourage lower fossil fuel consumption. In developing regions, governments must recognize that future growth will ultimately be slowed by rising prices unless alternative energy sources become an

increasingly greater part of the mix.



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