

## BOX SF1.2 Commodity consumption: Implications of government policies

*Government policies—with respect to infrastructure investment, pollution control, energy use, and international trade—can have a major impact on commodity consumption.*

**Infrastructure investment.** Significant infrastructure investment gaps exist at the global level, and closing these would provide both direct and indirect boosts to commodities consumption (World Bank 2016b, 2017a). The difference between expected investment needs and current actual investment in EMDEs is estimated at \$1–\$2 trillion per year (1.25 to 2.5 percent of global GDP).<sup>1</sup> By sector, the investment requirements are largest in electricity generation, followed by construction and transportation. Fiscal and structural policies such as increased public investment, structural governance reforms, and improved access to finance could boost investment directly and through the crowding-in of complementary private sector investment (World Bank 2017a).

China's Belt and Road Initiative (BRI) aims to promote economic development and integration across countries in Asia, Europe and Africa (State Council 2015). Outward foreign direct investment (FDI) from China increased substantially after the launch of the BRI from \$28.6 billion in 2003 to \$183 billion in 2016, with most of the increase going to countries on the BRI. The majority of FDI deals have been in manufacturing, while the construction and infrastructure sector has seen more rapid growth (Figure SF1.2.1).

Because of the high metal-intensity of investment, such policies could boost metals consumption. In addition, investment in electricity generation in EMDEs could result in energy demand shifting away from the decentralized use of biomass, toward centralized generation of electricity from fossil fuels and renewable sources of energy.

**Pollution control.** Environmental concerns are also likely to shape consumption patterns in commodity markets. For example, in energy markets, pollution or climate-change considerations, as embodied by the

2015 Paris Agreement, could accelerate the use of policy tools, such as carbon pricing, which favor the use of renewable energy and discourage the use of highly polluting fossil fuels (World Bank 2018a). During the past five years, global consumption of natural gas has increased nearly 10 percent while coal consumption has declined 2 percent.

**Subsidies.** Although aimed at protecting consumers, the use of energy subsidies can encourage energy consumption, discourage investment in energy efficiency and renewables, and impose large fiscal costs. The use of energy subsidies globally was equal to around 6.5 percent of global GDP in 2013. They are particularly prevalent in EMDEs (13–18 percent of GDP; IMF 2015; Rentschler 2018). The use of energy subsidies is high in the Middle East and North Africa (MENA), which accounts for half of all energy subsidies (World Bank 2014). The energy price collapse in 2014 provided impetus for subsidy reform, with more than half of commodity-exporting EMDEs doing so during 2014–2016 (World Bank 2018b). Additional subsidy reforms could further reduce energy consumption.

**Biofuels.** The diversion of food commodities to the production of biofuels will also affect demand for food commodities. Biofuels currently account for just over 1.5mb/d, or 1.6 percent, of global liquid energy consumption. Most biofuel production is not profitable at current energy and agricultural prices but is supported through various forms of mandates and trade measures (De Gorter, Drabik, and Just 2015). Biofuels come principally in the form of maize-based ethanol from the United States, sugar-based ethanol from Brazil, and plant oil-based biodiesel from Europe. Other smaller producers include China, Indonesia, and Thailand. The policy-driven diversion of food commodities to biofuels was motivated by energy security concerns and, especially, environmental benefits (Hill et al. 2006). However, interest has waned recently and biofuel production growth has slowed amid evidence of the

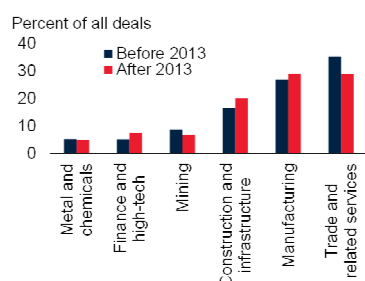
<sup>1</sup> Bhattacharya et al. (2012); McKinsey Global Institute (2013).

## BOX SF1.2 Commodity consumption: Implications of government policies (continued)

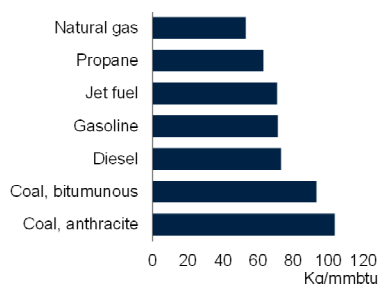
### FIGURE SF1.2.1 Developments in commodity markets

A number of policy actions could have unintended spillovers to commodity consumption. A renewed infrastructure push, for example to fill infrastructure investment gaps or in the context of China's "Belt and Road Initiative" could raise manufacturing and construction activity and, hence, metal demand. Environmental policies to control pollution could reduce and shift energy demand towards cleaner fuels, including natural gas and renewables. Biofuel production is likely to slow, however, as policy makers gradually acknowledge the limited environmental benefits of biofuel policies.

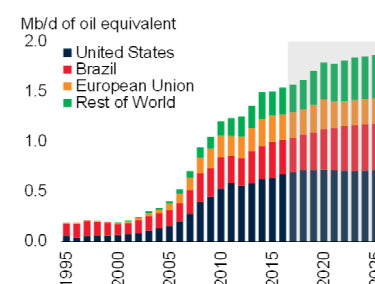
**A. Change in sectoral distribution of outward FDI deals before and after the BRI**



**B. CO<sub>2</sub> emissions from different fuels**



**C. Global biofuels production**



Sources: BP Statistical Review, Energy Information Administration, International Energy Agency, Organisation for Economic Co-operation and Development, Ministry of Commerce People's Republic of China, World Bank.

A. BRI stands for Belt and Road Initiative. Change in the average annual number of outward foreign direct investment (FDI) deals received by EMDEs before and after 2013. The sample covers EMDEs.

B. CO<sub>2</sub> emissions in kilograms (kg) per million British thermal units (mmbtu) of fuel consumed.

C. Shaded area represents OECD (2017) projections. Units are million barrels of oil equivalent per day.

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limited environmental and energy independence benefits of biofuel policies (Searchinger et al. 2008; German et al. 2010). For example, biofuel production growth exceeded 20 percent per annum during 2001-10 but slipped to about 4 percent during the past five years. Current projections by the Organisation for Economic Cooperation and Development and the Food and Agriculture Organization of the United Nations (OECD/FAO) point to even lower biofuels production growth in the next decade (Figure SF1.2.1).

**Food wastage.** Although difficult to measure, by some accounts food waste may account for a quarter of global food production, amounting to roughly \$680 billion in high income countries and \$310 billion in developing countries, according to the Food and Agriculture Organization of the United Nations (FAO 2018). Policy interventions and technological improvements could significantly reduce food waste, which in turn would reduce demand for food commodities (Bellemare et al 2017; Delgado, Schuster, and Torero, 2017).

**Trade policies and sanctions.** Trade-restricting measures could have direct and indirect effects on commodity consumption and prices. A broad-based increase in tariffs would have major adverse consequences for global trade and activity (Ossa 2014; Nicita, Olarreaga, and Silva, forthcoming). An escalation of tariffs up to legally allowed bound rates could translate into a decline in global trade flows amounting to 9 percent (Kutlina-Dimitorva and Lakatos 2017). Such a fall in trade volumes would have a direct negative impact on oil consumption, given its use in transport fuel. A 5 percent drop in global trade could reduce international fuel oil bunker demand by at least 180 kb/d, or roughly 5 percent (IEA 2018). A reduction in global activity arising from trade-restricting measures would also reduce commodity demand. Finally, the imposition of sanctions could affect prices if they disrupt operations by major commodity-producing nations or companies (Box SF1.1).