

CHAPTER 2 – PROBLEM 2 – PAGE 62.

2. Coal producer, steel producer, and consumers.
- a) (i) Product approach: Coal producer produces 15 million tons of coal at \$5/ton, which adds \$75 million to GDP. The steel producer produces 10 million tons of steel at \$20/ton, which is worth \$200 million. The steel producer pays \$125 million for 25 million tons of coal at \$5/ton. The steel producer's value added is therefore \$75 million. GDP is equal to \$75 million + \$75 million = \$150 million.
- (ii) Expenditure approach: Consumers buy 8 million tons of steel at \$20/ton, so consumption is \$160 million. There is no investment and no government spending. Exports are 2 million tons of steel at \$20/ton, which is worth \$40 million. Imports are 10 million tons of coal at \$5/ton, which is worth \$50 million. Net exports are therefore equal to \$40 million – \$50 million = – \$10 million. GDP is therefore equal to \$160 million + (– \$10 million) = \$150 million.
- (iii) Income approach: The coal producer pays \$40 million in wages and the steel producer pays \$50 million in wages, so total wages in the economy equal \$90 million. The coal producer receives \$75 million in revenue for selling 15 million tons at \$5/ton. The coal producer pays \$50 million in wages, so the coal producer's profits are \$25 million. The steel producer receives \$200 million in revenue for selling 10 million tons of steel at \$20/ton. The steel producer pays \$40 million in wages and pays \$125 million for the 25 million tons of coal that it needs to produce steel. The steel producer's profits are therefore equal to \$200 – \$40 million – \$125 million = \$35 million. Total profit income in the economy is therefore \$25 million + \$35 million = \$60 million. GDP therefore is equal to wage income (\$90 million) plus profit income (\$60 million). GDP is therefore \$150 million.
- b) There are no net factor payments from abroad in this example. Therefore, the current account surplus is equal to net exports, which is equal to (– \$10 million).
- c) As originally formulated, GNP is equal to GDP, which is equal to \$150 million. Alternatively, if foreigners receive \$25 million in coal industry profits as income, then net factor payments from abroad are (– \$25 million), so GNP is equal to \$125 million.