Chapter 3 – Tools of Normative Analysis

1. a. In this particular insurance market, one would not expect asymmetric information to be much of a problem – the probability of a flood is common knowledge. Moral hazard could be an issue – people are more likely to build near a beach if they have flood insurance. Still, one would expect the market for flood insurance to operate fairly efficiently.

b. There is substantial asymmetric information in the markets for medical insurance for consumers and also malpractice insurance for physicians. For efficient consumption, the price must be equal to the marginal cost, and the effect of insurance may be to reduce the perceived price of medical care consumption. That would lead to consumption above the efficient level. Because of the roles of regulation, insurance, taxes, and the shifting of costs from the uninsured to the insured, there is little reason to expect the market to be efficient.

c. In the stock market, there is good information and thousands of buyers and sellers. We expect, in general, efficient outcomes.

d. From a national standpoint, there is a good deal of competition and information with regards to personal computers. The outcome will likely be efficient for computer hardware. However, some firms might exercise some market power, especially in the software market; in these markets “network externalities” may be present where the value of a programming language or piece of software is dependent on the number of others who also use that software.

e. The private market allocation is likely inefficient without government intervention. Student loan markets may suffer from asymmetric information – the student knows better than the lender whether he will repay the loan or default on it, a form of adverse selection. Government intervention does not “solve” the adverse selection problem in this case (because participation in the student loan program is not compulsory), but it may create a market that would not exist without intervention.

f. There are several reasons why automobile insurance provision is likely to be inefficient without government intervention. As with other insurance markets, the automobile insurance market suffers from asymmetric information. Drivers who know they are particularly accident prone will be particularly likely to want car insurance (or policies with greater coverage), while drivers who are less accident prone (or able to self-insure) might choose to go without insurance. By mandating that people purchase auto insurance if they choose to drive, the adverse selection problem is mitigated to some extent (but, again, more accident prone drivers could still be by more generous plans). Another market imperfection, related to “underinsurance” has to do with the financial externalities from an automobile accident. An uninsured motorist who is at fault may not have sufficient income to cover the costs of the other driver’s bills, and instead default on the obligation by
declaring bankruptcy. The bankruptcy “floor” on costs creates various moral hazard problems.

2. Point $a$ represents an equal allocation of water, but it is not efficient because there is no tangency. Point $b$ is one of many Pareto efficient allocations, representing a case where Catherine benefits enormously by trade, and Henry’s utility is unchanged from the initial endowment.

AD: 1) The dashed line is positioned at the halfway point on the horizontal axis.
2) Point $b$ is a tangency

3. The marginal rate of transformation between foreign and domestic moves depends on the ratio of their prices before taxes and subsidies. Because of the wedge created by the taxes and subsidies, the two price ratios are different. Therefore, the marginal rate of substitution and marginal rate of transformation are not equal, and the allocation of resources is inefficient.
4.  a. Social indifference curves are straight lines with slope of $-1$. As far as society is concerned, the “util” to Augustus is equivalent to the “util” to Livia.
b. Social indifference curves are straight lines with slope of $-2$. This reflects the fact that society values a “util” to Augustus twice as much as a “util” to Livia.
7. In this case, the “Edgeworth box” is actually a line because there is only one good on the island. The set of possible allocations is a straight line, 100 units long. Every allocation is Pareto efficient, because the only way to make one person better off is to make another person worse off. There is no theory in the text to help us decide whether an allocation is fair. Although splitting the peanuts evenly between the people may be fair, it may not be fair if the calorie “needs” of the people are different. With a social welfare function, we can make assessments on whether redistribution for society as a whole is a good thing.

9. Although Victoria’s marginal rate of substitution is equal to Albert’s, these are not equal to the marginal rate of transformation and the allocation is, therefore, Pareto inefficient. Both people would give up 2 cups of tea for 1 crumpet but, according to the production function, could actually get 6 crumpets by giving up 2 cups of tea. By giving up tea and getting crumpets through the production function, both utilities are raised.

10. a. False. As shown on page 41 of the text, equality of the marginal rates of substitution is a necessary, but not sufficient, condition. Question 9 shows that the MRS for each individual must also equal the MRT.

b. True. As long as the allocation is an interior solution in the Edgeworth box, the marginal rates of substitution must be equal across individuals. This need not be true, however, at the corners where one consumer has all the goods in the economy.

c. True. Although the benefit of vaccinations is largely private, you produce a positive externality by lowering the chance that you could spread the disease to others.

d. False. The Second Fundamental Welfare theorem tells us that society can attain any Pareto efficient allocation of resources by making a suitable assignment of initial endowments and then allowing free trade. Whether the competitive allocation that is actually arrived at is “socially desirable” depends on the initial endowment and the social welfare function.