# Solutions to Tutorial Questions

**Chapter 5 – CBA**

**5.1 If a project is said to have “passed the Kaldor Hicks test”, what exactly does this tell us?**

*It tells us that the discounted total benefits of the project are greater than the discounted total costs, so that the Net Present Value is positive. This means that, in principle, those who lose out as a result of the project being implemented could be fully compensated for these losses by those who gain from the project, with the gainers still being better off as a result. However, it does not mean that those who lose out are actually compensated for their losses.*

**5.2 CBA developed in the context of project analysis. What can it tell us about the desirability of alternative policies (such as alternative policies for encouraging more recycling)?**

*There are two three pieces of information we can get from applying CBA to possible policy options. First, the CBA tells us whether the policy is economically efficient, in the sense that the benefits of implementing the policy exceed the costs. Second, we can rank alternative policy options in terms of their Net Present Value, and learn something about the relative economic efficiency of options which all have a positive NPV. Finally, CBA can inform policy analysts who will lose and who will gain from a policy being implemented, how big these losses and gains are and how they are distributed over time.*

**5.3 Explain why economists think that future costs and benefits should be discounted as part of the CBA process.**

*This is for several reasons. First, most people seem to exhibit some kind of time preference for benefits and costs which impact them personally. That is, they value gains more highly the sooner they occur, for example. Second, over time we expect economies to grow so that, over time, the average person’s real income rises. If the marginal value of each extra pound earnt declines as people get richer, then this gives another reason why we want to discount future benefits and costs within CBA. Other reasons advanced include recognising the return that capital could earn in alternative uses, and risk about future benefits and costs.*

**5.4 In what sense is the choice of the discount rate more important for projects whose benefits and costs stretch far into the future, compared to projects with more immediate impacts?**

*This is due to the exponential nature of standard discounting. This means that the further into the future a benefit or cost occurs, the greater will be the difference between the benefit or cost in the year in which it occurs, and the present value of this benefit or cost when evaluated in “year zero”, when the analysis is undertaken. So switching from a 5% discount rate to a 10% discount rate will have a much greater effect on the NPV of a project where the benefits occur far in the future (eg planting an oak woodland and then harvesting it in 150 years) compared to a project where the benefits occur much closer in time. This effect is reduced if the analyst makes use of a declining discount rate schedule.*

**5.5 What can CBA tell us about the distributional impacts of climate change policy options?**

*CBA can tell us two things here. First, it can tell us within any time period (eg the next 5 years) how the expected economic costs and benefits of an adaptation programme vary between different groups of households according to their income. For instance, suppose one adaptation policy taken up is to increase tree cover in urban areas to reduce the adverse health effects of heat waves. This is likely to have effects which differ across households in terms of which income groups live in different parts of a city, or the extent to which people are able to undertake their own actions to offset the deleterious effects on them of heatwaves (which ability might well depend on income). Second, CBA can tell us how the benefits and costs of adaptation policies are distributed across different time periods: is it the average citizen in 5 years’ time who will benefit the most, or the average citizen in 25 years’ time?*