

### More on society's PPC

I gave you the short cut methodology as to how to produce the three important points on society's PPC. Perhaps a bit more thinking about how it is derived would be useful (I may be thumping on the very dead horse for some of you, if so, crumple this paper up and do something else...)

Recollect the following:

- RC's opp. cost of producing 1 banana = 1 fish
- Friday's opp. cost of producing 1 banana = 2 fish
- RC's opp. cost of producing 1 fish = 1 banana
- Friday's opp. cost of producing 1 fish =  $\frac{1}{2}$  banana

Thus, the low cost producer of bananas is RC (1 fish vs. 2 fish). Likewise, the low cost producer of fish is Friday ( $\frac{1}{2}$  banana vs. 1 banana). Thus we concluded that **Friday has the comparative advantage in fish production**, and **RC has the comparative advantage in banana production**. That is, Friday is relatively better at fish production and RC is relatively better at banana production.

Flip to the next page and take a look at society's PPC, which is drawn. Let's think about how it is drawn. Suppose we decide that society, for argument's sake, starts out with a desire to eat only bananas. Thus, society will have both RC and Friday produce bananas, resulting in 24 bananas total (the bottom of society's PPC). Now, suppose society decides to eat one fish. In this case, the question becomes – who should switch over to fish production? The answer is - the person who has the comparative advantage in fish production, Friday. (Why? Friday must only give up  $\frac{1}{2}$  banana to produce the fish where as RC would have to give up 1 banana to produce the fish). Friday produces 1 fish and 11.5 bananas, while RC continues to produce only 12 bananas.

Suppose we want a second fish? It still makes sense to have Friday produce it. Friday produces 2 fish (and 11 bananas), while RC still produces 12 bananas. Hmmm... it's like we're sliding Friday along his PPC, while RC is always producing 12 bananas.

Say we want 24 fish? Still have Friday produce all 24 fish (while RC produces 12 bananas).

Suppose society wants 25 fish? We can't continue to slide Friday along his PPC, he's hit the end. Here, finally, we have exhausted the low-cost producer of fish (Friday's). He can only produce 24 fish in a day. If we want a 25<sup>th</sup> fish, we must have RC switch some of his time from banana production to fish production. But wait – RC does not have a comparative advantage in fish production – why would we have him produce fish? It is only after we exhaust the low cost producer (Friday), do we allow the high cost producer to produce fish. We slide along **RC's** PPC by one fish now.

If we want a 26<sup>th</sup> fish, again, we slide along RC's PPC.

Notice, when society wanted fewer than 24 fish, we are along the lower section of the PPC, and RC was always producing 12 bananas. If society wants a few more or less fish, the tradeoff being made is being made along Friday's PPC. In fact, it as though we have taken Friday's PPC and shifted it over to the right by 12 bananas (which come from RC, who is always producing those 12 bananas).

However, when society wants more than 24 fish, we are along the upper section of the PPC, and Friday is always producing 24 fish. If society wants a few more or less fish, the tradeoff that is being made is being made along RC's PPC. In fact, it as though we have taken RC's PPC and shifted it up by 24 fish (which come from Friday, who is always producing those 24 bananas).

### What's the point?

Along different portions of society's PPC, we are moving along one individual's PPC. On the top of the two person's PPC, we are moving along RC's. Along the bottom, we are moving along Friday's. Look at the picture again. Look at the colors.

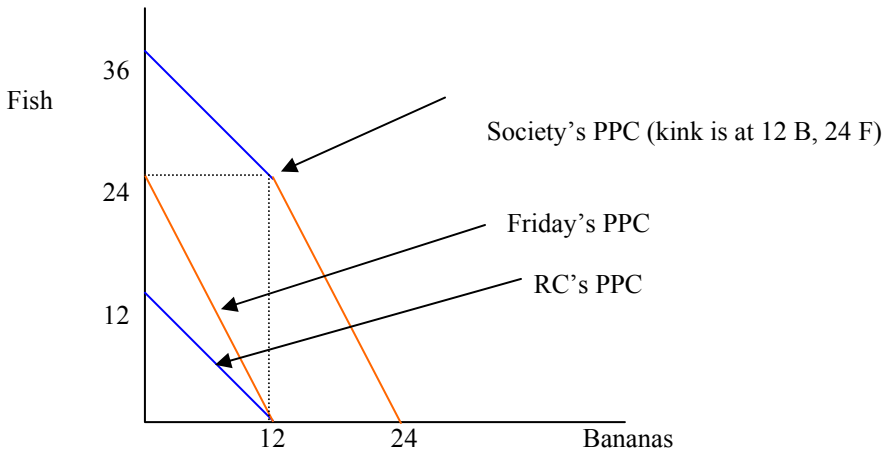
What then happens as we add a third person? How would we construct a 3-person PPC?

Here, there will be 4 relevant points. 2 endpoints, and 2 kinks. Suppose the two goods are units of academic integrity and football wins. See example below. Suppose we start with everyone producing football wins. Now, society decides we'd like some more academic integrity. Who should we switch to academic integrity first? The lowest-cost producer of academic integrity. What if society wants more academic integrity than the low cost producer can produce? Have the 2<sup>nd</sup> lowest cost producer of AI switch over to AI production. Even more? Finally, switch the third school over (which will get you the other endpoint).

As we add in thousands of people, there will be thousands of kinks, and thousands of different opportunity costs along the PPC. Thus, it will become, at least approximately, a smooth curve.

What's the big picture?

As we want to produce more and more of one good, we're going to have to use of resources that are less and less well suited to production of the good. Suppose we are starting WWII. We decide we need to produce some tanks. At first, it is easy to find civilian factories to convert to tank factories. First, we switch over car factories. Then, if we need still more tanks, we switch over tractor factories, etc. However, if we still need more, now we need to switch over toy factories, then mattress factories, then pizza stores, which are not well suited to produce tanks. **As we produce more and more of a good, the resources that are being used to produce it will be less suited to its production, and thus the opportunity cost of producing it will increase.** Check this out along a curved PPC (or even a kinked three person PPC). For another example, as we need more home runs, first we switch Mark McGwire, then Sammy Sosa, then Michael Jordan, then Dan Dierdorf, then Brian Boitano, then Mini-me, then the guy in a coma at the hospital?



**Thee person PPC example**

	Football Wins		Units of Academic Integrity
Clemson	30	or	30
Tennessee	30	or	15
Fla. State	30	or	10

1. Calculate the opportunity costs of football wins and academic integrity and football wins for each school.
2. Do the endpoints – everyone completely specializes in football wins, and then everyone completely specializes in academic integrity.
3. Pick one of the endpoints, say everyone producing wins. Who should you switch to academic integrity first? (Hint: how is the low cost producer of academic integrity?). Have this school completely specialize in academic integrity. Make a dot.
4. Who should you switch to academic integrity second? Have them produce only academic integrity. Make a dot.
5. Connect the dots.
6. Repeat 3 –5 starting from the other endpoint – that is, do the whole process in reverse. You should come up with the same dots).

As an alternative, albeit a brute force way to come up with society’s PPC – consider the following. I’ve filled one or two to help.... See how much stuff you get produced on all the possible arrangements of production.

	<u>Producing Wins</u>		<u>Producing AI</u>	
Point 1	C, F, T	(90 wins)	none	(0 units of AI)
Point 2	C, F		T	
Point 3	C, T		F	
Point 4	F, T		C	
Point 5	C	(30 wins)	F, T	(25 units of AI)
Point 6	F		C, T	
Point 7	T	(30 wins)	C, F	(45 units of AI)
Point 8	none		CFT	

4 of these points will be inside the PPC, and 4 will be on the PPC. Does this help you see what an inefficient point will be?