

Chapter 9

Preference Shocks

We have derived the consumption demand curve and the labor supply curve in the context of the consumption-leisure model. Specifically, by varying either the wage or the price of consumption (and holding the other constant), we traced out a single labor supply and consumption demand function. However, much of macroeconomic fluctuations are attributed to shifts, not movements along, the aggregate demand function, which in turn can be attributed to shifts of the consumption demand function. We need to consider now why this function might shift. The most natural explanation of such shifts is that consumer tastes change over time, perhaps due to evolving cultural norms or society-wide unexpected events.⁵⁴

Given our study of consumer theory, we have a ready way of modeling such changes in consumer preferences, namely by supposing that an individual's utility function changes occasionally – that is, the utility function is subject to periodic **shocks**. We will briefly consider one way of introducing this feature into our theoretical model and see that it does indeed induce shifts in the consumption demand function (and thus by extension the aggregate demand function).

A Utility Function Augmented by Shocks

Recall our usual one-period consumption-leisure model. We now slightly modify the utility function in that model to be

$$u(Bc, l), \tag{1.12}$$

in which B is some given constant over which the individual has no control. The constant B simply multiplies whatever consumption level the individual chooses in the final determination of utility. For example, the utility function may be $u(Bc, l) = \sqrt{Bc} + \sqrt{l}$. With this formulation, it is clear that our baseline consumption-leisure model simply had $B=1$ all the time. For any given value of B then (not only $B=1$), the indifference map over consumption and leisure is just as before, as illustrated by the solid indifference curves in Figure 40.

⁵⁴ For example, based on some macroeconomic evidence since the terrorist attacks of September 11, 2001, one could make the case that, broadly speaking, the average American individual's preferences over "consumption" and "leisure" have changed, towards valuing "leisure" more highly.

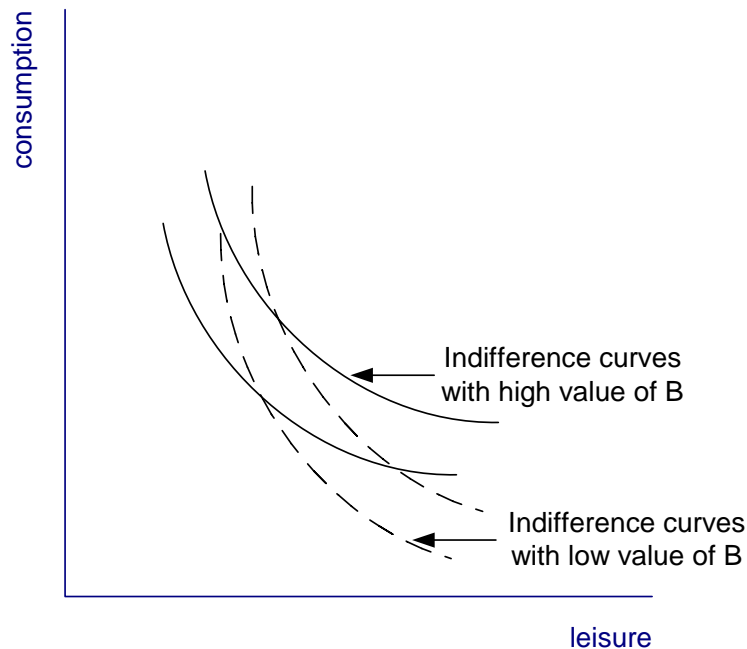


Figure 40. As B falls, the individual's indifference map steepens because the individual is willing to trade more consumption for leisure.

Now suppose all of a sudden B falls due to some unexplained event. The fact that B multiplies consumption in the utility function means that a lower value of B makes the “consumption utility” component of the utility function stronger for an unchanged level of consumption. For example, if initially $B=1$ and the consumer were optimally choosing $c^*=10$, the consumption utility component of the above utility function would be $\sqrt{1 \cdot 10} = \sqrt{10} \approx 3.16$. If all of a sudden B falls, to $B=0.5$ say, and the consumer did not change his level of consumption, then his consumption component of utility would be $\sqrt{0.5 \cdot 10} = \sqrt{5} \approx 2.23$. This means that each unit of consumption is now less valuable in utility terms.⁵⁵

Because the individual decides both how much consumption and how much leisure he takes, the fact that consumption is now less valuable in utility terms means that he is willing to give up more units of consumption for a given increase in leisure. Thus the indifference curves of the individual steepen in Figure 40 due to the fall in B .

Now let's think about how the individual's optimal consumption choice changes as a result of the fall in B . The situation is presented in Figure 41. With the wage rate W , the price P , and the labor tax rate t all held constant, the new optimal choice features less consumption and more leisure – the latter implying that the individual now works fewer hours.

⁵⁵ More properly speaking, in terms familiar from microeconomics, the fall in B means that the marginal utility of consumption has decreased, and at an unchanged price of consumption the individual will optimally choose less consumption.

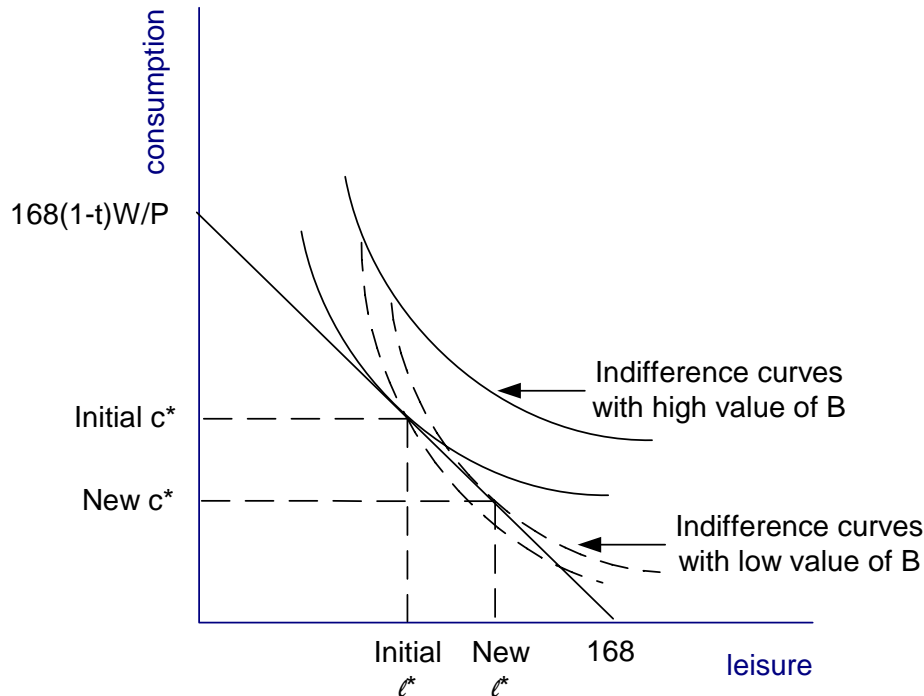


Figure 41. Following a fall in B (with the wage W , the price P , and the tax rate t held constant), the new optimal choice features less consumption and more leisure (and hence fewer hours worked).

The change in the optimal choice in Figure 41 occurs with no change in the price P . It should be clear that such a reduction in consumption would occur for any given price P . Thus, for any given price P , optimal consumption is now lower, which is precisely what it means for the consumption demand function to shift inwards, as shown in Figure 42. For convenience, the shift in Figure 42 is shown to be a parallel shift, but in general the nature of the shift will depend on the exact shapes of the initial and new indifference curves. But the general point is that the consumption demand curve shifts (and hence the aggregate demand curve shifts) due to changes in consumer tastes.

One further observation follows from this analysis: because the individual chooses to work fewer hours following the fall in B , the entire labor supply curve must shift inwards.⁵⁶

Finally, such utility function shocks can also be introduced in the consumption-savings model. An important result of doing so is that such shocks would cause the aggregate savings function to shift.⁵⁷ The analysis of this effect proceeds completely analogously

⁵⁶ Verify for yourself that this is true.

⁵⁷ For example, interpreting the events of September 11, 2001 as causing a preference shock to U.S. consumers, we could explain why consumption demand in the present has decreased while savings for the future has increased.

as the above, except we would examine the indifference curves in $c_1 - c_2$ space rather than in $c - l$ space.

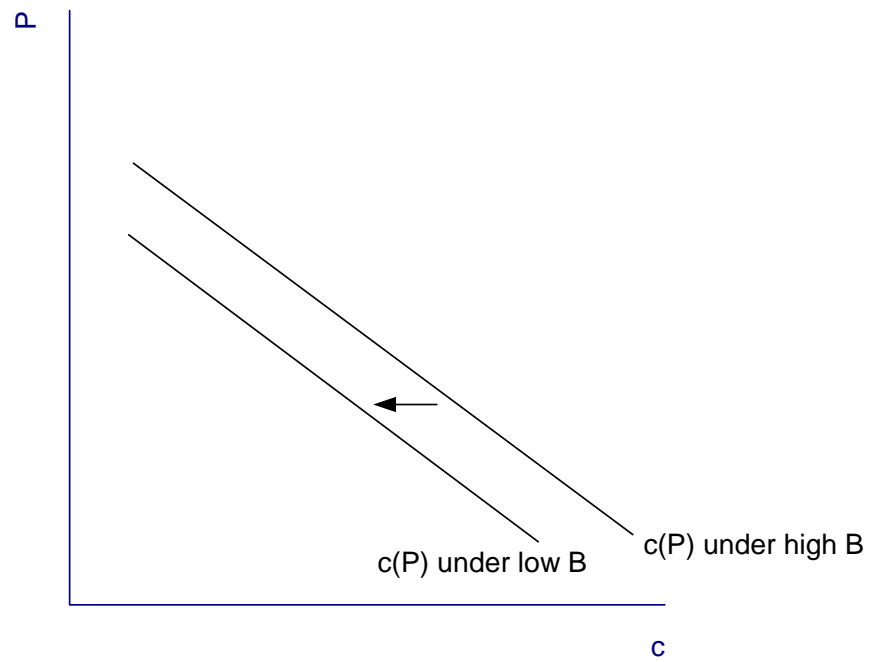


Figure 42. The consumption demand curve shifts following a preference shock.