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Exercise 1 *Two-sided lack of commitment*

Because the process is i.i.d., there is only one autarky level of utility, which is independent of the state. This implies that for all values of parameters full risk sharing cannot be achieved, due to risk aversion and Jensen’s inequality. Therefore, there is only one pair of cutoff levels, which must satisfy a single binding constraint (the two constraints for the two agents are identical, since they are symmetric). Only in the highest state is it that the constraint is binding, since if it is satisfied in the highest state, then it is satisfied in all the others. Hence, the cutoff level could be found from the following system of equations:

$$u(1 - w) + \frac{\beta}{1-\beta} \sum_{i=1}^7 \frac{1}{7} u(c_i) = u(y_7) + \beta v_{aut} = u(y_7) + \frac{\beta}{1-\beta} \sum_{i=1}^7 \frac{1}{7} u(y_i),$$

where the consumption bundle is determined as: $c_i = \min [\max [w, y_i], 1 - w]$

When the two agents have different parameters the scheme with a wider range of consumption levels applies. This is because the system is closed and if at least one person rejects the bundle, we cannot implement it for both.

We plot the solutions to this system for different values of time discount and risk aversion.

The results indicate that for sufficiently large betas or sufficiently large risk aversion perfect risk sharing is available.



