**Parameter Interpretation**

Questions for Markus:

* changes in unemployment benefits
  + adabting L to take into account changes in aggregate employment as a reaction to changes in unemployment benefits, by utilizing some empirical findings?
* In general: do we use empirical findings to analyze changes, or just take any %-change we deem reasonable?
* Changes in idiosyncratic capital/ wage returns.
  + What do you mean by that? How do we measure idiosyncratic capital returns?

Risk aversion-> changing sigma

* Singularly: and increase in risk aversion, will increase the desire to smooth consumption and hence provoke a stronger reaction to changes in idyosyncratic risk.
* As the risk increases, precautionary savings will increase, this in turn will affect aggregates, which will affect the marginal product of capital and labor
* Thoughts:
  + analysis best in combination with other changes

Borrowing constraint -> changing kmin

* look at paper
* impacts the ability to smooth consumption by accumulating riskless assets.

**Interpretation listed on Project 3 description:**

**Goal of the project: Analyzing the effects of changes in income risk:**

Changes in unemployment benefits -> changing mu? (Toshihiko Mukoyama 2012)

* since consumers face an uninsurable idiosyncratic unemployment shock, which is given exogenously, the unemployment process is exogenously modeled as shocks, and therefore UI reform has no impact on the unemployment rate -> note, not a very realistic feature of the model,
* asset market is incomplete – consumers are allowed to hold only one type of asset (capital). Thus, the tax-financed unemployment insurance can be beneficial to the consumers, particularly those with low level of asset
* increase in UI
  + enables consumer to have more income when unemployed -> insurance and liquidity for an unemployed consumer
  + c.p. this increases all consumers’ permanent incomes as well,
  + second, there are indirect effects of the policy change on the individual consumers -> change in taxes:
  + – if the individual benefit increases and the unemployment rate does not change, the government has to finance more funds by raising taxes.
  + – the other effect is the change in prices – change in individual behavior translates into the market prices and in turn affects individual welfare.
    - A reduction of individual risk by a more generous UI benefit decreases precautionary savings, and therefore reduces the aggregate capital stock. This will increase the interest rate and reduce the wage rate. (looking at the marginal products holding L constant, this will be the effect of a decrease in aggregate capital)
    - To illustrate: show the transition path of capital/labor ratio after the policy change (page 9)
  + The welfare effect?
    - Which of the effects described above is stronger?
      * pp. 9-15 in (Toshihiko Mukoyama 2012)
* thoughts:
  + however, if we also change Lt or changes in the probabilities (i.e. changes in the lenghts of employment/unemployment )-> we are able to simulate changes in total employment.
    - This might be due to the fact that with higher unemployment benefit and lower wages as well as higher capital returns, workers will be more reluctant to work.
    - By how much would Lt go down? To equal the old wage?
    - Note that when changing Lt, you will change PI\_EU as PI\_UE is fixed
    - -> really messed up interpretation -> ask Markus
  + Note: the above description does not take into account that taxes are paid only by the employed -> and hence their income decreases -> should be taken into account when calculating the welfare effects and interpreting the results!
  + question: how do we calibrate?
    - -> need data from somewhere!!!!
  + Include aggregates into analysis i.e. consumption and output

Changes in (un)employment duration -> decreasing the probability PI\_UE

* direct changes to other exogenous factors:
  + will decrease the probability PI\_EU (note that if 0<L<1, PI\_UE will always change more than PI\_EU as the factor 0<(1-L)/L < 1 , at a constant unemployment rate, when the probability to find a job changes, the probability to loose a job also changes, but by less, governed by steady state labor supply) -> be careful with welfare interpretatio, as transitions need to be considered
  + L will be kept constant, as we are interested in the duration of (un)employment and not in the overall risk of being unemployed and earning less
  + as the risk of being unemployed decreases when one is employed -> agents will decrease precautionary savings, however, anticipating that when being unemployed, it will be more likely to stay unemployed for a while they will increase precautionary savings -> similarly for agents being unemployed
  + -> as the overall change is larger in PI\_UE, one would expect for aggregate capital to increase, as precautionary savings increase, as the negative effect on the unemployment duration is more severe than the positive effect on more secure jobs
  + -> this in turn will increase wages and decrease capital returns as L remains constant.
* Thoughts
  + It might not be very realistic to assume that L remains constant, as more secure jobs mean that firms will be more reluctant to hire, as well as increasing wages indicate higher costs
  + However, if L decreases, the wages will further increase and r will further decrease
  + Include aggregates into analysis (i.e. consumption and output)
* Observed:
  + Probability of getting employed is positively correlated with the probability of getting unemployed -> hence, if both small, savings are extreme, if both high, savings are "median"
  + Who does save what?
    - Obviously more despersed savings
    - A lot of the unemployed hit the min savings at a very high unemployment duration, some of the employed as well
    - In turn a lot of the employed have roughly 38 capital – why??
  + Aggregates:
    - Capital increases as probability to get employed (unemployment duration) decreases (increases) – consumption and output also increase as a consequence

Idiosyncratic wage shocks -> same as unemployment benefits ?

Changes in idiosyncratic capital returns : (1+r-delta)ki,t

* we can analyze changes in the ability to smooth consumption, by changing the savings constraint
  + how do you get the max savings constraint?

* wage income or unemployment benefits, capital income (capital costs?)

What else is income risk???

* changing the expected employment rate L?
  + Will reduce output -> marginal return on capital increases (here fixed)? as does marginal return on wage -> hence, capital is less attractive

To analyze aggregates, need relative to GDP changes?

Borrowing constraint (source: Aiyagari(1994)

* if r < 0: some limit on borrowing is required since otherwise the problem is not well posed and a maximum does not exist: PV of earnings is infinite and nothing prevents the individual from running a Ponzi scheme
* if r > 0 : a less restrictive alternative is to impose PV buget balance = at/(1+r)^t ≥ 0
  + together with nonnegativity of consumption this is equivalent to the period-by-period borrowing constraint at ≥ -wlmin/r
  + hence by nonnegative consumption a borrowing constraint is necessarily implied