In this model I adjust the assumption that the banks cannot use the borrowed amount of the entrepreneurs to imply about their types. Here I assume that the banks observe the amount the entrepreneur borrows but they cannot offer infinitely many contracts due to fixed costs of creating a contract. In other words, the bank cannot just take the amount borrowed by the entrepreneur, bunch all entrepreneurs with exactly the same borrowed amount into one pool and choose a borrowing rate for that. It needs to create contracts for a group of borrowed amounts. E.g. if an individual asks for a capital from a given set Sk then he/she faces a borrowing rate r(Sk) the capital in the set may not be monotone.

How to create these sets? I use the results from the paper by Livshits, McGee, Tertilt (2016) and assume there is a fixed cost of creating a contract, the bank observes the amount k demanded by an entrepreneur, then it calculates the probability of the entrepreneur to default, given the distribution of entrepreneurs in the market, next it orders the probabilities of default in a decreasing order, and bunches them into several groups, the number of groups depending on the fixed cost. In their paper the authors argue that in equilibrium the bank won’t lend to an entrepreneur with a borrowing rate given that the expected value of the lending is negative, so then the highest risk borrower in a given pool will be the one on whom the bank breaks even, from where I can derive the borrowing rate, those with lower likelihood to default will generate positive expected profit from lending, summing these profits should equal the cost of creating the contract.

The strategy to code this approach is as follows. Look at how much each individual borrows under a given scheme, then calculate the probability to default for small intervals of capital borrowed, order these probabilities, choose the borrowing rate that makes 0 profit from the entrepreneur with the highest risk and include other capital intervals with lower borrowing risks until you get expected revenue equal to the fixed cost of creating the contract. For the last guys, choose the borrowing rate so that