

## Problem Set 2

- (1) The annual income increments plot of Guvenen et al can be fit by the Hellinger concave estimator provided by `medde`. Unfortunately, the function `rmedde` in `REBayes` only allows random number generation from log-concave estimates. It would be nice to have an extension to the Hellinger case so one could easily simulate from these estimated densities.
- (2) A vignette about the `REBayes` package is available at <http://www.econ.uiuc.edu/~roger/research/ebayes/rebayes.pdf> that sketches a variety of applications of the Kiefer Wolfowitz procedure. There are many possible extensions. One example that has been explored a bit in the financial econometrics literature is mixtures of Paretos. This would have some interesting connections to the Hill estimator literature and the economics of inequality.
- (3) There seemed to be something fishy about the connection I made in class between the optimal transport plan cost and the Wasserstein distance between the two quantile functions. This is related to a 2013 final exam question for 574, available from the 574 website and also to Exercise 2.2 in Galichon, who mentions “constants to be characterized.” Verify either computationally or analytically that we don’t need no stinkin’ constants, at least in the simplest one dimensional setting.