

PROBLEM SET FOUR--MBA 5110

- ❶ Suppose Abe has utility, U , equal to $2\sqrt{I}$, where I = income. Abe has two (equally likely) possibilities for income: either $I = \$500$ or $I = \$1000$.
- a) What are $E(I)$, $\text{Var}(I)$, and $E(U)$ for Abe? $E(U) = y$ in Figure 1.
- b) If Abe could receive a certain income, z in Figure 1, what must z equal to make him indifferent to the uncertain income given above? What is Abe's risk premium (R)?
- ❷ Why do Open Source (OS) programmers spend time on OS when they are not compensated for this time, & why do for-profit companies support OS programs that may compete with the companies' programs? What are the implications for OS programmers' behavior if the OS programs are *substitutes* or *complements* to commercial programs?
- ❸ How do price premiums signal high product quality? What are the implications for profit for high quality sellers? Discuss *moral hazard* and *adverse selection*.
- ❹ Suppose Jane is smart & Tarzan is not smart. She may be able to demonstrate this by engaging in some activity, y , that has a lower cost per unit for her than for Tarzan. Firms will hire smart individuals for \$20 & others for \$10. Jane's cost of signaling is $y/2$, & Tarzan's cost is y .

If firms believe those with $y \geq y^*$ are smart, & those with $y < y^*$ are not smart, how could a signaling equilibrium occur, and what does such an equilibrium entail? Explain when *pooling* may occur, assuming α is believed to be the share of smart individuals in the population.

Figure 1

