Problem set 2 – ECON 4921, September 14, 2009

1) The putting out system

Use the model presented on the lectures as a starting point, but assume:

$U(w,e) = w - ½*e^2$
$f(e) = e$
output price, $p = 1$
$w = q*e$

a) Show that in equilibrium: $e = q = ½$
b) Draw iso-surplus and iso-utility curves, illustrate the equilibrium.
c) Explain the intuition behind U-shaped iso-utility curves.
d) For which values of q is a pareto-improvement possible, if e is set to 1?
e) Why isn't such (e,q)-combinations incentive compatible?

2) Contingent renewal

Use the model presented on the lectures as a starting point, but assume:

$U(w,e) = w - ½*e^2$
Probability of contract renewal, $p = A + a*e$, for a suitable choice of a and A.

a) Derive the optimal effort of the worker as a function of w.
b) Show that; $e = aR / (1+r-p)$, where $R = r (u (w,e) / r - Vu)$ is the employment rent.
c) Show that $de/dw = a / (1+r-p)$
d) Compare the equilibrium with the equilibrium in the putting-out system.