Let's evaluate whether tax revenue can increase with a decrease in the tax rate.

Suppose that individual preferences over consumption (c) and leisure (L) can be represented by a utility……function

u(c, L) = c + 400 ln L.

The hourly wage is $25 and people have up to 60 hours per week to devote for work hours.

(a) Derive the expressions for optimal leisure (L), labor supply (l) and consumption (c). What is the

optimal number of hours worked and consumption without taxation?

(b) The government introduces a linear income tax t that applies to wage. What are the optimal leisure

hours (L), labor supply (l), consumption (c), and government revenue R(t)?

(c) What is the Laffer Curve equation here? The government is trying to maximize tax revenue. It would

like a tax rate of 75%, but officials do not know how to take derivatives and FOC maximization problems to

check if this is the revenue maximizing rate.

Therefore, they asked you to calculate revenue possibilities and labor supply hours for each of the following

tax rates: 5%, 15%, 25%, 35%, 45%, 55%, 65%, 75%. Which tax rate would you recommend to collect

maximum revenue?

Can you make a rough plot of the Laffer curve for a given tax rate?

1 2 Suppose that individual preferences over consumption (c) and leisure (L) take the Cobb-Douglas form

instead. Thus,

$u(c, L) = c^{\alpha} L^{1-\alpha}$

where $\alpha = 23$

(d) What is the hours of work (l) function with the tax rate t now?

(e) What is the Laffer Curve equation now? Again, calculate revenue possibilities and labor supply hours

for each of the following tax rates: 5%, 15%, 25%, 35%, 45%, 55%, 65%, 75%. Which tax rate would you

recommend to collect maximum revenue now?