

STOCKHOLM UNIVERSITY  
Department of Economics

**Course name:** Public Finance  
**Course code:** EC2106  
**Examiner:** Mikael Priks  
**Number of credits:** 7,5 credits  
**Date of exam:** Saturday, 2017-02-18  
**Examination time:** 3 hours

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Do not write answers to more than one question in the same cover sheet. Explain notions/concepts and symbols. Only legible exams will be marked. No aids are allowed.

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The exam consists of 3 questions. 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

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If you think that a question is vaguely formulated: specify the conditions used for solving it.

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Your results will be made available on your "My Studies" account ([www.mitt.su.se](http://www.mitt.su.se)) on Friday, March 10th at the latest.

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**Good luck!**

## Exam, Public Finance, 2017-02-18

This exam consists of three questions. The first and second question give 40 credits each and the last question gives 20 credits.  $p$  denotes prices and  $q$  quantities. To get full credit, you need to state and explain your results clearly. Good luck!

### Externalities (40)

- Define a negative production externality.
- Show in a figure how a subsidy can remedy the problem of a positive consumption externality. How large should the subsidy be?
- Show in a figure and explain why taxation is cost efficient and regulation is not. What is the requirement for cost efficiency?
- Consider a monopoly, which faces the demand curve  $p=20-q$ . The firm's profit is given by

$$\pi = pq - q^2$$

The production also leads to a negative externality so the society's value of production is given by

$$\pi = pq - q^2 - \frac{q^2}{2}$$

Show the first-order conditions for the firm and for the society. How large is the firm's production without government intervention. Which tax rate per unit should the government use to deal with the negative externality? What is the firm's level of production with this tax rate? Derive and show in a figure.

### Empirical Methods (40)

- What is the difference between correlation and causality?
- Describe how a randomized trial works and why it is the gold standard of testing for causality.
- What is a cross-sectional analysis? What is the main problem we have discussed with cross-sectional regression analyses? Why are control variables used?
- Assume that there are two areas A and B and that the government imposes more police in area A but not in area B. Before the introduction of police, area A had 30 incidents per year and area B had 15 incidents per year. After the introduction, the number of incidents in area A was 10 and in area B it was also 10. What is the effect of police on the number of incidents according to the three different empirical methods cross-

sectional analysis, time-series analysis, and difference-in-difference analysis? Explain the results.

### **Public Goods (20)**

- a) Is disease prevention by the government a pure public good, impure public good or a private good? Explain.
- b) Define warm glow. Which problem can it resolve? Define social capital.