

INDUSTRIAL ORGANIZATION II (EC 2901)

**University of Toronto. Department of Economics. Winter 2014
Instructor: Victor Aguirregabiria**

FINAL EXAM: April 11, 2014. From 7:00pm to 10:00pm (3 hours)

INSTRUCTIONS: This is a closed book exam. No study aids are allowed. The exam consists of four sets of questions. Please, try to answer all the questions.

TOTAL MARKS = 150

PROBLEM 1 (40 points).

- (a) **(10 points)** Describe a discrete choice model of demand of a different product in characteristics space and its main assumptions.
- (b) **(10 points)** Write the expression of a product market share in a model with random coefficients in the marginal utility of product attributes.
- (c) **(10 points)** Explain the invertibility of market shares with respect to average utilities δ_j .
- (d) **(10 points)** Explain the 'BLP' estimation method and the so called BLP instruments.

PROBLEM 2 (30 points).

- (a) **(10 points)** Explain the endogeneity problem in the estimation of a Cobb-Douglas production function.
- (b) **(10 points)** Describe Olley-Pakes method.
- (c) **(10 points)** Show the identification problem in Olley-Pakes method as pointed out by Akerberg-Caves-Frazer.

PROBLEM 3 (40 points).

- (a) **(10 points)** Describe a two-players game of market entry with incomplete information.
- (b) **(10 points)** Describe a Bayesian Nash equilibrium in terms of players' conditional choice probabilities.
- (c) **(10 points)** Show the identification of players' payoffs using the standard type of data and identification assumptions in this literature.
- (d) **(10 points)** Explain the implementation of a two-step pseudo maximum likelihood estimator of payoff parameters.

PROBLEM 4 (40 points).

- (a) **(10 points)** Describe the structure of the dynamic game of airline network competition in Aguirregabiria and Ho (2012).
- (b) **(10 points)** In the context of this model, explain the argument for spatial entry deterrence by Hendricks-Piccione-Tan.
- (c) **(10 points)** Explain the assumptions in Aguirregabiria and Ho (2012) to reduce the dimensionality of the state space of the model.
- (d) **(10 points)** Describe an approach to implement a counterfactual experiment in a model with multiple equilibria.

END OF THE EXAM