

## UPCES 2010: Housing in Central and Eastern Europe

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### FINAL EXAMINATION

The estimated time to complete the exam is 90 minutes. It is a closed-book exam, worth 40 points. Answer all FIVE problems. During the exam you can use either a calculator or a laptop with MS Excel installed.

#### 1. [8 points] Affordability

a. Construct the income-based Lorenz curve for the US income in 2000 given below (Table 1).

TABLE 1

	Lowest				Highest
Non-cum.	3.6	8.9	14.8	23.0	49.6
Cumulative	3.6	12.5	37.3	60.3	100

b. Discuss the implications of the Lorenz curve for the Czech Republic (see Figure 1). Specifically, compare the impact of three main housing policies – housing allowance, rent-regulation, and housing consumption-related tax relief. What is the objective of these three tools of the housing policy and the corresponding result?

#### 2. [12 points] Housing Finance in Central and Eastern Europe

a. Name at least two measures of financial burden due mortgage payments for a household. Explain what exactly is measured.

b. Have households in Central and Eastern Europe suffered from the financial burden in years 2005-2007?

c. Compare the old EU members with the new EU members based on Figure 6 with respect to tenure choice, households with mortgages, and outright owners.

FIGURE 1

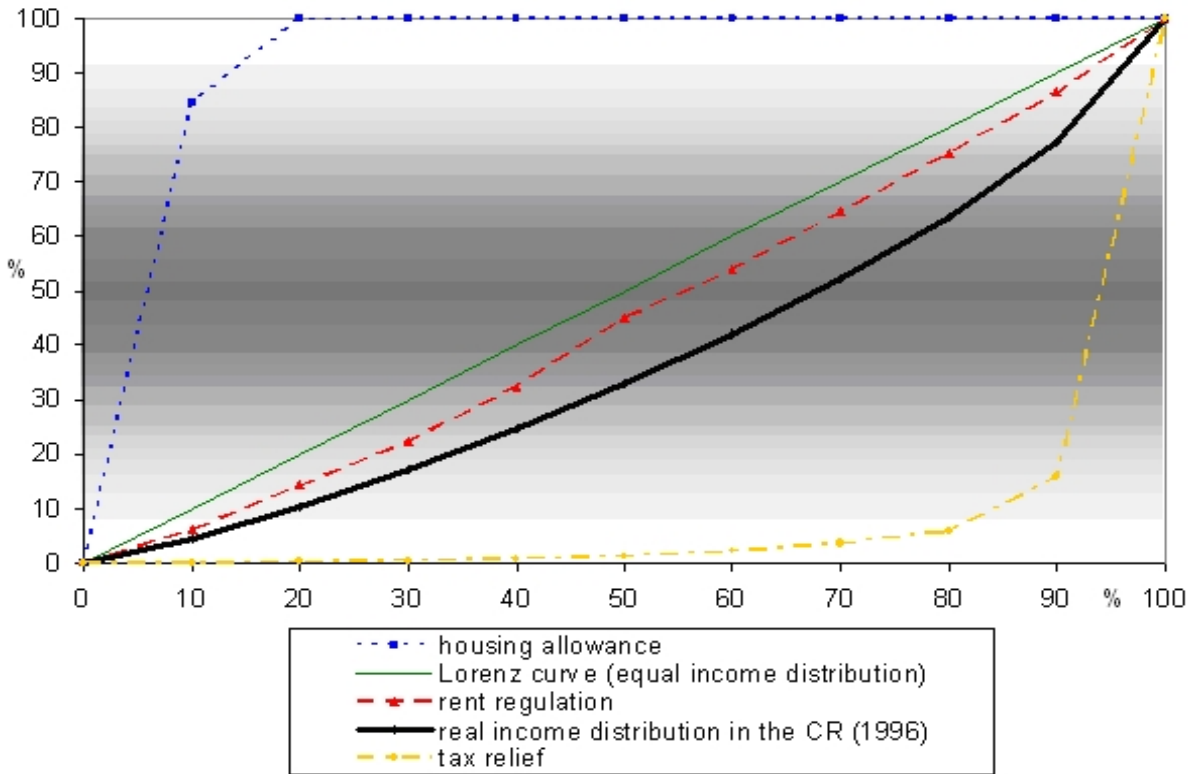


Figure 6: Tenure Status by Income Decile, 2007



Source: SILC - EU Statistics on Income and Living Conditions, 2007

3. [6 points] Home ownership vs. renting

- a. Choose one country from Central and Eastern Europe with a strong rental market and briefly discuss the situation on its housing market.
- b. Choose one country from Central and Eastern Europe with strong home ownership and briefly discuss the situation on its housing market.

4. [6 points] Loan amortization

- a. Using the Excel file Loan\_amortization.xlsx, calculate the debt service for a 1,000,000 USD loan with annual payments at 10% for 30 years.

b. What is the interest payment in the year 15?

c. What is the loan balance in the year 20?

Note – email me your updated Excel file at [petr.zemcik@cerge-ei.cz](mailto:petr.zemcik@cerge-ei.cz) for potential partial credit

4. [8 points] To buy vs. to rent

a. Suppose that in our example given in the Excel table `Rent_vs_buy_example_v02.xlsx`, you change the interest rate on a mortgage from 12% annually to 6% annually. What is the interest on loan in year 1? Is now purchasing the condo preferable? Why yes or why no? (use the same interest on loan for years 2 and 3 as for year 1)

b. Suppose that the return on alternative investment for the renting choice is only 5%. How does the overall result change?

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