# UNIVERSITY OF CALIFORNIA AT BERKELEY

## Department of Economics

## International Economics Field Exam 2025

GENERAL INSTRUCTIONS:

This is a 2-hour (120 min) field exam. There are 2 questions in total. You need to answer both questions. Question 1 corresponds to course 280A (Fall 2024) and Question 2 corresponds to course 280D (Spring 2025). Each question is worth 30 points for a total of 60 points.

**Question 1 for 280A (Faber and Rodriguez-Clare)**

**Part 1 (Rodríguez-Clare) (15 points)**

Consider the Caliendo-Parro model but let's start with no trade. As in the lecture notes, let $\{\beta_k\}$ be the consumption shares, let $\mathcal{A} \equiv \{\alpha_{sk}\}$ be the matrix of input coefficients, and let $\mathcal{L} \equiv \{\ell_{sk}\} \equiv (I - \mathcal{A})^{-1}$ be the Leontief inverse matrix.

1) Write down the expression for the Domar weight of sector $s$ in terms of the elements of the Leontief inverse matrix and consumption shares.

2) What is the relationship between total sector-level revenues, GDP and the Domar weights?

3) What is the elasticity of real income relative to TFP in sector $s$? How is this related to Hulten's Theorem? Use this result to write down an expression for the hat change in welfare as a function of the hat change in TFP across sectors.

4) Now imagine there is trade with domestic trade shares $\lambda_s$. How do we go from the expression you derived for the hat change in welfare as a function of the hat change in TFP across sectors to one as a function of the hat change in $\lambda_s$?

**Part 2 (Faber) (15 points)**

Your task is to propose an empirical analysis to test the effect of recent US import tariff increases on household cost of living. Answer the following three questions.

(i) Provide a theoretical framework to guide the measurement of changes in US household cost of living.

(ii) Describe the empirical strategy to quantify the expressions you propose in (i).

(iii) Discuss some of the main caveats to have in mind when interpreting the results from what you suggest in (i) and (ii).

## Question 2 for 280 D (Gaubert and Tsivanidis) (30 points)

### Part 1 (Gaubert) (15 points)

1. Consider the Allen and Arkolakis model, with amenity elasticity $\beta$, productivity elasticity $\alpha$ and elasticity of substitution $\sigma$. What is the optimal spatial policy in this model? Which places are taxed/subsidized? Explain the intuition for the direction of transfers.

2. We make the following addition to the model: suppose that workers consume housing in addition to the CES good. Utility in location $i$ is now: $U = A_i C_i^{1-\eta} H_i^{\eta}$, where $A_i$ denotes amenities, $C_i$ consumption and $H_i$ housing. The housing stock in each location is fixed. What assumption is missing to conclude on the optimal spatial policy in this model? Make assumptions as you see fit and conclude on the optimal spatial policy. Which places are taxed/subsidized? Explain the intuition for the direction of transfers.

3. Come back to the Allen Arkolakis model from question 1, but now assume that regions produce their good using not only labor but also intermediate inputs from all regions, aggregated in a CES fashion with elasticity of substitution $\sigma_2 > \sigma$. Specifically, labor $L$ and intermediate inputs $I$ are combined in a CRS production function $F(L, I)$. How does the optimal spatial policy change compare to question 1? Explain the intuition.

### Part 2 (Tsivanidis) (15 points)

# Part 2 (Tsivanidis) (15 points)

Consider a spatial equilibrium model of residential and firm location choice. There are locations $i \in \{1, \ldots, N\}$, with $\omega \in [0, \bar{L}]$ indexing individual workers with total population $\bar{L}$. Workers have Cobb–Douglas preferences given by

$$U_i(\omega) = a_i \, C_i^{\beta} \, H_{Ri}^{1-\beta} \, \epsilon_i(\omega),$$

where $a_i$ are local amenities, $C_i$ is a freely traded aggregate consumption good that aggregates individual varieties available in the economy with elasticity of substitution $\sigma > 1$, $H_{Ri}$ is residential floorspace, $\beta \in (0, 1)$, and $\epsilon_i(\omega)$ is an idiosyncratic preference shock drawn i.i.d. from a Frechet distribution with shape parameter $\theta$.

There are $n \in [0, \bar{N}]$ entrepeneurs in the economy, and each produces using the production function

$$Y_i = A_i \, L_i^{\alpha} \, H_{Fi}^{1-\alpha},$$

if they locate in location $i$. Entrepreneurs (or "firms") have a (multiplicative) idiosyncratic preference to produce in each location $\nu_i(n)$ distributed iid from a Frechet distribution with shape parameter $\phi$, and choose where to locate. Production is under monopolistic competition, output is freely traded, firms face fixed entry costs $F$ and the number of firms $\bar{N}$ is determined by free entry (you can assume the shocks $\nu_i$ are realized after entry). $H_{Fi}$ is commercial floorspace (which have rental price $r_{Fi}$) and let $H_{Ri}$ denote residential floorspace. Begin by assuming these are exogenous to the model, and throught assume that amenities and productivities are also exogenous.

(a) (3 points) Taking prices as given, what is the distribution of residents across locations? What is the distribution of worker welfare across locations?

(b) (4 points) Taking prices as given, what is the distribution of firms across locations? What is the distribution of firm profits across locations? What is the total number of firms in the economy?

(c) (4 points) Continuing to take floorspace supplies as given, state the full set of endogenous variables in the model which are determined in equilibrium and write down the systems of equilibrium equations that determine them.

(d) (4 points) Now assume housing is endogenous to the model. What functional form for housing supply might you choose (hint: to keep things simple, assume the commercial and residential markets are completely segmented so there are independent functions for both)? Write down your new system of equilibrium variables and equations after you endogenize housing supply. Discuss how you would use this model to think about changes in housing regulations.