Problem Set #1

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1 Research Interests

1.1 Foreign Direct Investment

One of my primary research interests at this time involves analyzing the locational determinants of greenfield foreign direct investment in the United States. Greenfield investment is defined as a new investment in an area or region. This is an important distinction from the current FDI literature because greenfield investment implies an explicit locational choice whereas other types of FDI, such as mergers and acquisitions, may have no such implied decision making at the firm level. As such, it has the potential to reveal more about the most important locational determinants for European firms [Woodward, 1992]. In the first stage of this research I hope to shed light on the factors that may increase the attractiveness of European FDI in the United States over a time period ranging from 2003-2014. Utilizing a conditional logit setup, I will model the probability of investing in a given county in the United States. Evidence on the most important determinants of FDI in the United States has been mixed across previous studies because of the use of various models and specifications. Past studies have been mostly conducted at the state or county level and have primarily been focused on the manufacturing industry. This research hopes to offer a fresh perspective on the most important locational determinants by utilizing new data and examining the uniqueness of European investment across all sectors at the county level.

This is an interesting research area because foreign firms make many investments each year and these investments can arguably lead to many benefits for host countries. Some of these investments include new factories or simply expansions of current operations. These factories then employ Americans in what are generally thought of as well paid jobs as well as help fund R&D activities [OFII, 2016]. For these reasons, states and even localities fiercely compete with each other in order to draw in as much investment as possible, with some states even offering large incentive packages to convince new firms to locate in their area [Zhuang, 2016]. Therefore, many studies have been done on locational decisions in order to better understand what actually sways investors. Having a better understanding on these determinants can not only guide firms in their decisions but can also guide policy makers as they plan future policy in their state. The United States is a particularly interesting market to examine, as it has consistently drawn large investment flows each year. According to a recent report by the Organization for International Investment, cumulatively from 2009-2014 the United States attracted more FDI investment than any other country in the world. This could be for various reasons including that the U.S. has a large consumer base, a highly educated, skilled, and productive work force, as well as offers political stability and a transparent regulatory environment [OCE, 2016]. European firm decisions are interesting to study as cumulatively Europe has been the

largest regional investor in the United States. Europe has accounted for 70 percent of all FDIUS through 2014. The top 8 countries accounted for 80 percent of the stock of FDIUS. In order of investment these countries include the United Kingdom, Japan, Netherlands, Canada, Luxembourg, Germany, Switzerland, and France [OFII, 2016].

1.2 Anticipated Model

The conditional logit model relies on several assumptions, the most important of which is that there is a deliberate decision made about where to locate and that European firms are rationally evaluating all characteristics of the location from a set of alternatives. This assumption is very likely to hold as this analysis is focused on greenfield investments. The anticipated model would take the following form.

Let $i = 1, ..., N$ represent a European branch/plant which is faced with a set of location choices $j = 1, ..., J$. If the firm chooses a particular site j, it earns a profit π_{ij} for that particular plant. We assume that firms are profit maximizers such that a firm will only choose location j over over location n if the $\pi_{ij} > \pi_{in}$. We also assume here that the profits that each individual company obtains from locating in any of the areas is a function of the specific characteristics of that area.

Following [Woodward, 1992], profit can be expressed as follows:

$$\pi_{ij} = C_0 X_{1j}^{\alpha 1} ... X_{mj}^{\alpha m} e^{\sum_{k=m+1}^{n} \alpha_k D_{kj} \epsilon_{ij}^{M}}$$

Taking the logs of both sides and dividng by M we have:

$$ln(\pi_{ij})/M = ln\left(C_0\right)/M + \sum_{k=1}^{m} \alpha_k ln\left(X_{kj}\right)/M + \sum_{k=m+1}^{m} \alpha_k D_{kj}/M + \epsilon_{ij}$$

This equation can be simplified further by letting $C_1 = C_0/M$ and $\beta_k = \alpha_k/M$ such that the equation becomes:

$$ln\left(\pi_{ij}\right) = ln\left(C_1\right) + \sum_{k=1}^{m} \beta_k ln\left(X_{kj}\right) + \sum_{k=m+1}^{m} \beta_k D_{kj} + \epsilon_{ij}$$

Following [Woodward, 1992] we can also state that if ϵ_{ij} are i.i.d with Weibull density functions, then the probability of locating at j is given by:

$$P_j = \{e^{\sum_{k=1}^{m} \beta_k ln\left(X_{kj}\right) + \sum_{k=m+1}^{n} \alpha_k D_{kj} \epsilon_{ij}^{M}}\} \{\sum_{j \in J} e^{\sum_{k=1}^{m} \beta_k ln\left(X_{kj}\right) + \sum_{k=m+1}^{n} \alpha_k D_{kj} \epsilon_{ij}^{M}}\}^{-1}$$

1.3 Limitations and Extentions

One of the biggest limitations of the research so far is that I was unable to obtain any direct measure of business, tax, or promotional efforts undertaken by states. These efforts often represent a significant draw for investors, even more so than labor or regional characteristics of the state. In future research it would be important to obtain tax records, details on incentive packages offered, or find a way to create my own index of these characteristics. The inclusion of such a measure should

allow for a more robust conclusion on the effects of state promotion efforts and their contributions to the firm location decision.

My future work would also examine, upon understanding more about the promotion efforts by a given state, the benefits and development outcomes received by each state that drew greenfield investments. As many states compete to obtain new business contracts it would be interesting to test whether the benefits each state receives upon investment, measure up to the extent of the incentive packages offered. This area of analysis would not only be interesting in itself but could prove to be instrumental in upcoming political debates regarding the robustness of the American job market while also determining potential impacts of protectionist trade policies.

A relevant study in 1999 by Figlio and Blonigen looked at the impact of FDI on local communities in South Carolina using data from 1980 to 1995 [Figlio and Blonigen, 1999]. They use county level panel data to look for the differential effect of foreign manufacturing firms on local labor markets. They find that FDI increases wages more so than does domestic investment but lowers per capita county government expenditures and reduces money away from public school expenditures. However, they do not separate the effects of higher wages coming from using high skilled labor. Much has changed in South Carolina since 1995 in terms of FDI and business development. Is there a better/new way to evaluate the welfare impacts of increased FDI?

Most of the literature pertaining to FDI is interested in understanding where foreign firms locate. The other branch of the literature looks at general equilibrium theory to understand whether FDI leads to differing trade costs across countries. Not very many have looked at the particular impact of FDI on the welfare of the United States or a certain state for that matter. This is a relevant research area because it could lead to signifcant improvements in current state policies. For example, understanding how many South Carolina jobs are attributable to a given incentive, compared to how many are attributable to favorable geography, infrastructure, market conditions, or other considerations would allow policy makers to tailor the types and extent of packages they offer to incoming firms. This type of research could aid in determining whether the benefits resulting from investments exceed the loss of revenue due to incentives. If the benefits of FDI do not exceed the losses of state revenue are we indeed engaged in a "race to the bottom" in which each state offers to deprive itself of more revenue than the next? Does FDI hinder states by drawing funds away from education, infrastructure, and other types of development? My next research focus will be further understanding how we can better evaluate the cost and benefits of state competition for investment.

References

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