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ABSTRACT

Refugees and Foreign Direct Investment: Quasi-Experimental Evidence from U.S. Resettlements*

We exploit the designs of two separate U.S. refugee dispersal policies to provide causal evidence that refugees foster outward FDI to their countries of origin. Drawing upon aggregated individual-level refugee and project-level FDI data, we first leverage the quasi-random distribution of refugees “without U.S. ties” after the enactment of the 1980 Refugee Act, to show that outward FDI to refugees’ countries of origin grew more from those U.S. commuting zones that hosted greater numbers of refugees after 1990. Secondly, we exploit the specificities of the Indochina Migration and Refugee Assistance Act, which resulted in a quasi-experimental dispersal of Vietnamese refugees in 1975, to provide causal evidence that Vietnamese refugees fostered FDI to their home region, while national domestic reforms in Vietnam amplified the positive FDI-creating effects of the overseas Vietnamese diaspora. Overall, our results highlight a new mechanism through which refugees foster development to their origin countries.

JEL Classification: F21, F22, F23

Keywords: refugees, networks, foreign direct investment

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1 Introduction

Resettled refugees in the United States historically exhibit remarkable success. On average, refugees fare better than economic migrants in terms of earnings, hours worked and acquisition of language due to their higher rates of human capital accumulation (Cortes, 2004). Evidence also suggests that refugees are more entrepreneurial than immigrants, who in turn are more entrepreneurial than natives (New American Economy (2017)).¹ Refugees excel in myriad fields, famous examples include: Madeleine Albright in the public sphere, Sergey Brin in the technology sector, Albert Einstein in the field of science, Wyclef Jean in music, Thomas Mann in literature and Billy Wilder in Hollywood.²

Obfuscating these successes however, recent public debate has focused on the potential (negative) impacts of refugees on *host* communities, which, along with recent data innovations, has catalyzed a new wave of literature examining the veracity of such claims.³ This debate overlooks the economic contributions of refugees to their *countries of origin*. In this paper, we address this gap in the literature, by providing causal evidence in favor of a new channel through which refugees influence the development of their origins, namely through outward Foreign Direct Investment (FDI), which demonstrates that decisions taken primarily for humanitarian reasons in developed host nations, may yield economic benefits for some of the world's poorest nations. Our analysis is divided into two parts. The first examines the universe of refugees that entered the U.S. between 1990 and 2000 and their influence on outward FDI from the U.S. to all refugees' countries of origin between 2005 and 2015; while the second, our case study, exploits a natural experiment of the Vietnamese Boat People that entered the U.S. from 1975 onward, in order to further explore the role of developing country policy in nurturing FDI.

We focus on FDI since it is an essential ingredient for economic development and long-lasting stable relationships between origin and destination countries (World Investment Report (2008)). Evidence of refugees fostering FDI to their origin countries would be all the more surprising given the persecution they once fled, thereby speaking to the strong attachment refugees maintain with their countries of origin. FDI is also less likely to experience capital reversals in times of adverse economic shocks (Albuquerque, 2003), which refugee origin countries will likely be more susceptible to. Since technology diffusion through

¹In 2015, the US hosted 181,000 refugee entrepreneurs, the businesses of which collectively earned \$4.6 billion

²Refugees' success is not unique to the United States. Famous refugees in the U.K. for example include: Joseph Conrad, Jacob Epstein, Victor Hugo, Lucien Freud, Sir Hans Krebs, Freddie Mercury and Tom Stoppard.

³For example see: on long-run prosperity, Murard and Sakalli (2018); Maystadt and Duranton (2018) on welfare; Amuedo-Dorantes et al. (2018) on crime, Figlio and Ozek (2017) Tumen (2018) on educational outcomes, Altindag et al. (2018) on businesses and the informal economy, Altindag and Kaushal (2017) on voting behaviour; Beaman (2012), Maystadt and Verwimp (2014), Del Carpio and Wagner (2015), Tumen (2016), Gehrsitz and Ungerer (2017), Aksul et al. (2018) and Dagnelie et al. (2019) on labour market outcomes and Ferwerda et al. (2017) on attitudes.

FDI contributes more to productivity and economic growth than domestic investment (Borensztein et al., 1998; Xu, 2000), FDI will likely be particularly important for refugees' origins, which are located far from the technological frontier.

FDI has played a particularly important role for Vietnam, our case study, which is chosen for a number of reasons. First, the Vietnamese represent the largest refugee group in the United States during our period of analysis. Secondly, the Vietnamese were dispersed across the U.S. under the auspices of a different resettlement policy than refugees allocated after 1980. Our combined results therefore demonstrate that the phenomenon that we document in this paper is not specific to a particular time period or dispersal policy. Thirdly, we are able to leverage sub-national data in the case of Vietnam, thereby demonstrating that the network effect of the Vietnamese Boat People *only* affected U.S. FDI to Southern Vietnam, which additionally serves as a valuable placebo exercise, given the cultural, linguistic and institutional similarities between the North and the South of Vietnam. Fourthly, the Vietnamese were resettled during a complete FDI ban imposed on Vietnam by the United States, which in tandem with their initial quasi-experimental allocation in 1975 motivates an alternative identification strategy to that implemented in our main analysis, lending further credence to our main finding. Finally, given the period of our study, we are able to analyse, implementing a difference-in-difference design, the FDI amplifying effects of laws specifically passed to foster FDI to Vietnam, thereby, for the first time, providing evidence of the efficacy of developing country policies in this regard.

Refugees may facilitate FDI in one of three ways, although they are not mutually exclusive. First, refugees might be positively selected (Roy (1951), Borjas (1987)), thus relatively well endowed with human capital and more likely to possess the gumption required for success. Sticking to our Vietnamese case study, Thuan Pham left Vietnam in 1975 aged 12 to later attend MIT. Today Pham is the CTO of Uber Technologies, for which he recently negotiated with Vietnamese authorities to allow Uber to invest in Vietnamese start-ups.⁴ Henry Nguyen rather left Vietnam by helicopter in 1975, aged 15, after which he started working at McDonald's. After studying at Harvard Business School and following 10 years of negotiation, Nguyen brought McDonald's to Vietnam in 2014.⁵ Today, Nguyen heads Vietnam's first venture capital fund.

A second mechanism is through refugees accessing their ethnic networks or social capital (Bourdieu (1980), Portes (2000)). Since refugees often maintain close ties to family and friends in their countries of origin, they often have extensive knowledge of their home markets, languages and customs. Refugee networks provide information on local business opportunities, reduce information frictions and lower transaction costs (Gould (1994)). In addition, refugees can also help overcome problems of imperfect contract enforcement through maintaining trusting relationships, especially in weak institutional environments (Greif (1989)),

⁴See: <https://vneconomicstimes.com/article/society/uber-cto-to-consult-startups>.

⁵<https://www.bloomberg.com/news/videos/2015-09-14/meet-the-man-who-helped-bring-mcdonald-s-into-vietnam>.

Greif (1993), Greif et al. (1994), Rauch (1996), Rauch and Casella (2002), Dunlevy (2006)). Leveraging social capital in this context is especially important since FDI flows are highly sensitive to information frictions (Daude and Fratzscher, 2008b). Incomplete information deters businesses from investment opportunities since substantial costs are incurred by firms to conduct market research, especially if the potential project is located in a developing country (Lucas, 1990; Allen, 2014). An example of the Vietnamese leveraging their social capital in this regard is David Duong whose family started a small recycling business on the Pacific West Coast, which today is a thriving multimillion dollar company, California Waste Solutions.⁶ It was only after Duong established a network with the authorities in Vietnam; first following a meeting with Ho Chi Minh City’s leaders in 2003 - which led to Duong returning to Vietnam to implement a project - and subsequently further developing relationships through hosting Vietnamese officials in California, that Duong expanded into Vietnam in 2015, under the name Vietnam Waste Solutions. The investment was worth \$450 million USD and created 409 jobs.

A third mechanism, one proffered by Vandor and Franke (2016) conjectures that cross-cultural (i.e. cross-cultural capital) experiences increase individuals’ capabilities to identify promising business ideas. David Tran for example, combined his knowledge of making hot sauce, specifically a recipe originating from *Si Racha* in Thailand, to launch *Huy Fong* foods in California,⁷ makers of one of the world’s leading brands of hot sauce, Sriracha.⁸ Similarly, David Thai, who immigrated to Seattle at age six, witnessed Starbucks’ success, which in turn inspired him to establish *Highlands Coffee*, in 1998, the first *Viet Kieu* investment in Vietnam.⁹ As of 2009, the company operated 80 coffee shops in six cities and provinces across Vietnam and, in 2012, David Thai sold 50% of the shares of Highlands Coffee to Jollibee for U.S.25 million dollars. This mechanism is related to Bahar et al. (2019) who provide evidence that returning Yugoslavian refugees from Germany, fostered exports in sectors in which the Yugoslavs has previously been exposed.

While empirically challenging to distinguish between the three mechanisms, all require that refugees maintain strong links to their countries of origin. In the case of the Vietnamese Boat People “*many Vietnamese refugees rebuilt overseas networks with families and friends [and] Letters frequently moved between the receiving countries and Vietnam...*” (Zhou and Bankston, 1998). Further evidence of these communications was documented in a 1979 *New York Times* article in which Pham Xi Thiet a 23-year-old fisherwoman from Phan Thiet stated “*It is not unusual for Vietnamese refugees to get mail from ‘home’ as even the Vietnamese who have been here for three years call their former country.*” With the advent of computers, further communication between the overseas Vietnamese and their compatriots at home was facilitated by software developed by Ho Thành Viet in 1987, which eased the use of the Vietnamese language on computers. The aforementioned *New York*

⁶<https://www.voanews.com/east-asia-pacific/vietnam-refugee-turns-trash-treasure>.

⁷Huey Fong was the name of the Taiwanese liner that brought Tran to the United States.

⁸<https://fortune.com/2019/10/05/sriracha-thai-chili-sauce-huy-fong-david-tran/>.

⁹<https://www.economist.com/special-report/2008/04/26/entrepreneurs-unbound>.

Times article also reported an underground ‘*pagoda*’ banking system, through which middle class Vietnamese refugees, whose families had squirreled away their assets in the form of gold, else U.S. dollars, could transfer their wealth from Vietnam to the United States.¹⁰ The *Viet Kieu*, not only kept in touch with their friends and relatives therefore, but also developed the communications technology to improve such interactions over time, in addition to being aided financially by those they had left behind in Vietnam.

The channels through which refugees stimulate FDI flows are similar to those that undergird the trade-migration nexus (see Parsons and Winters (2014), Felbermayr et al. (2015)).¹¹ Specifically, our paper borrows - in part - from Parsons and Vézina (2018), which exploits the quasi-random allocation of Vietnamese refugees during a trade ban to causally identify a link between migration and trade and Steingress (2018) who leverages refugees “without ties” in the United States to estimate the causal impact of refugees on bilateral trade.

This paper is also closely related to the literature that explores the role of *migrant* networks in fostering foreign direct investment. In a standard neo-classical framework, migration and capital mobility are predicted to be substitutes (Mundell (1957)). Intuitively, either workers flow to locations where there are jobs, or investments are made to create jobs in those areas with potential employees (Kugler and Rapoport (2007)). This intuition is consistent with the results of Glennon (2018), which investigates the impact of high-skilled migrants (H-1B visa holders) in the United States on FDI flows. H-1B visa restrictions are found to lead to increased foreign affiliate activity by U.S. multinational corporations. A larger body of evidence rather suggests that migrant networks complement FDI (Buch et al. (2006); Javorcik et al. (2011); Docquier and Lodigiani (2010); Foley and Kerr (2011) and Burchardi et al. (2018)). *A Priori*, therefore, it remains an empirical matter as to whether refugees and FDI are complements or substitutes.

We contribute to these literatures along several dimensions. We exploit two separate refugee policies, which both resulted in quasi-random refugee dispersals, to document for the first time the causal impact of *refugees* on FDI flows. To this end, we employ more granular FDI and refugee data, disaggregating FDI along its extensive and intensive margins. We also explore the heterogeneity of the effects, across different measures of FDI and differing refugees’ countries of origin. We are therefore able to estimate a structural gravity model while also implementing an IV strategy. In the second part of our analysis, we rather exploit the natural experiment of the Vietnamese Boat People to the United States, which further allows us to document for the first time, FDI flowing to refugees’ *region* of origin, as well as the amplifying effects of the Vietnamese Government policies, which aimed, among other things, to foster FDI to Vietnam. In relation to the existing literature therefore, we

¹⁰<https://www.nytimes.com/1979/01/28/archives/boat-people-find-hardship-in-us-but-also-hope-we-must-be-content.html>

¹¹Indeed, because of higher start-up costs and a greater number of economic agents involved, informational costs appear larger for FDI relative to trade (Daude and Fratzscher, 2008a).

are able to interrogate far richer data in tandem with cleaner identification strategies, in order to document a new channel through which refugees foster development in their origin countries.

The key threat to identification in such studies is the endogenous location decision of refugees. In the first part of our analysis, we overcome this issue in a number of ways. First, we exploit the quasi-random allocation of refugees who have no family members or other ties in the U.S. (i.e. refugees “without U.S. ties”), since the placement of these refugees is determined by refugee resettlement agencies, as opposed to by the refugees themselves. This allays fears of the endogenous location of refugees as a function of their individual-level decisions.

At the same time, resettlement agencies could potentially strategically place refugees, by allocating, for example, refugees to commuting zones with greater opportunities for FDI flows to refugees’ countries of origin. While it is unlikely that agencies base their relocation decisions on the potential for doing business in the refugees’ origin countries, rather than on employment and housing considerations, the location of pre-existing communities of co-nationals is an important factor in the location decision of agencies, according to [Beaman \(2012\)](#). So while we are able to control for the fact that some commuting zones are chosen because they have better employment and housing opportunities etc., using commuting zones fixed effects, we cannot rule out that pre-existing communities may well be associated with refugee allocations as well as greater FDI flows to their countries of origin. To surmount this issue, we control for the effect of pre-existing co-national communities by including economic migrants, both in 1990 and in 2000, on the right-hand side. This way we can be sure that the FDI effect of refugees is not driven by co-national migrants. We also examine the effect of refugees on FDI in commuting zones where there are no economic migrants of the same nationality whatsoever, both in 1990 or 2000, thereby removing this potential source of endogeneity, and focusing on commuting zones which are unlikely to have been strategically chosen by agencies.

Our specification delivers an estimate of the impact of 1990-2000 refugee inflows on 2005-2015 FDI flows. Using our preferred specification, we show that a 10% increase in refugees increases outward FDI flows to their countries of origin by 0.54%, FDI projects by 0.24% and FDI jobs by 0.72%. The positive effect on FDI is highest for refugees from the former Soviet Union, former Yugoslavia and Vietnam.

In the second part of our analysis, we focus on the specific case of Vietnamese refugees in the U.S. We exploit the Fall of Saigon as a natural experiment. This event triggered an exodus of over 700,000 Vietnamese refugees, especially to the U.S., due to American military involvement in South Vietnam. The first wave of some 125,000 Vietnamese refugees admitted to the U.S. in 1975, under the auspices of the Indochina Migration and Refugee Assistance Act, was quasi-randomly dispersed across the U.S. at a time when a complete ban on FDI (and trade) was imposed on Vietnam by the U.S. Note that the existence of a ban on FDI and trade with Vietnam – in the period we focus on to measure Vietnamese presence in U.S.

commuting zones – implies that there cannot be a reverse-causality problem in our analysis. Nevertheless we employ an instrumental variable strategy, to address lingering concerns of omitted variable bias. Our identification strategy consists of instrumenting the 1976-1995 flow of Vietnamese refugees – i.e. those refugees who arrived to the U.S. before the lifting of U.S. FDI sanctions on Vietnam in 1995 – with the initial quasi-randomly allocated 1975 distribution of refugees, across U.S. commuting zones. As part of our identification strategy we also exploit the fact that almost all Vietnamese refugees are originally from the south of Vietnam. We thus compare the effect of refugees on FDI to the south of Vietnam, where most refugees are from, to FDI the north, where the capital Hanoi is located. This provides a quasi-ideal counterfactual as it is the same country (since 1975), with the same institutions, language, and investment potential.

Our results show that those commuting zones that hosted larger concentrations of Vietnamese refugees, before the lifting of the ban, invest more in the south of Vietnam today. Our estimates show that a 10% increase in 1995 Vietnamese refugees increased FDI flows to the south of Vietnam by 0.4%. Finally, the Government of Vietnam implemented several policies aimed at engaging overseas Vietnamese as part of its overarching growth strategy, which included the 2005 Investment and Enterprise Laws and the 2008 Nationality Law. Implementing a difference-in-differences strategy, we further document that those commuting zones hosting larger concentrations of Vietnamese fostered larger volumes of FDI to Vietnam following the enactments of the laws, thereby highlighting the potential of developing country policies aimed at leveraging overseas diasporas for development. Taken together, our results provide causal evidence that refugees foster FDI to their countries of origin, only a few years after they were forced to flee persecution.

The rest of this paper is organized as follows. In the following section we provide a brief history of refugee resettlement in the U.S. We describe our data and empirical strategy in Sections 3 and 4, respectively and our main results in Section 5. In Section 6, we provide details of our Vietnamese case study, before we conclude.

2 Historical Background

In 1945, President Truman passed a directive granting ‘Welfare Organisations’ the power to sponsor refugees, provided that they covered all associated costs and that the individual in question had a relative in the U.S. This preceded the signing of the Displaced Persons Act of 1948, which acknowledged refugees as a special class of migrant for the first time and, together with its extension in 1950, paved the way for hundreds of thousands of displaced Europeans to enter the U.S. In subsequent decades, the U.S. continued admitting refugees across her borders largely from communist countries. Most of these later waves of refugees were resettled in the U.S. by private ethnic and religious organizations, some of which had been operating in one form or another for decades, and which, to this day, form the institutional backbone

of the public/private role of U.S. refugee resettlement.

The watershed 1965 Hart-Celler Act ended the national origins formula for migrant quotas and finally defined refugees as constituting separate legal entities from other immigrants, but only for Europeans fleeing communism. This restricted definition led to the passing of the 1966 Cuban Adjustment Act to provide political asylum to Cubans that reached U.S. soil and the Indochina Migration and Refugee Assistance Act of 1975, which granted special status to the first wave of Indochinese refugees that entered the U.S. after the fall of Saigon. Importantly, at this time, the Department of State entered into resettlement contracts with NGOs for the first time, paying \$500 per resettled Indochinese refugee and \$350 for non-Indochinese refugees. Post 1975, the U.S. resettled hundreds of thousands of Southeast Asian refugees via an interagency task force for Indochinese refugees established with temporary funding. This reportedly chaotic experience proved the catalyst for Congress to pass the 1980 Refugee Act. At this time the U.S. adopted the UN definition of a refugee, while standardising resettlement services for refugees and in doing so established into law the Office of Refugee Resettlement (ORR), an office within the U.S. Department of Health and Human Services.

Given that the Refugee Act of 1980 does not place a statutory limit on refugee numbers to the United States, each year, the President, after consultation with Congress, determines an annual target number for refugees from each region of the world, known as the ‘refugee ceiling’. Since 1975, the U.S. has resettled over 3 million refugees, with annual inflows ranging from 207,000 in 1980 to just 27,110 in 2002. Although far and away the largest OECD recipient of refugees, the U.S. is ranked far lower on a per capita basis. Nonetheless refugees have historically constituted around 10% of total annual foreign born inflows to the U.S.

Off-shore Processing

Unlike many other countries across the world, the United States processes refugees prior to their arrival on foreign soil in Resettlement Support Centers (RSC). Refugees must first register with the United Nations High Commissioner for Refugees (UNHCR), which is mandated to provide protection to refugees. This registry is conducted in whichever country that particular individual has fled to. The U.S. funds the UNHCR to review refugee applications and once recognised as a refugee, the UNHCR designates some refugees as ‘most vulnerable’, meaning they are eligible for resettlement. Less than 1% of all ‘most vulnerable’ refugees are actually resettled and the process typically takes at least 18-24 months, undoubtedly resulting in a degree of randomness as to which refugees are actually settled.

Refugees eligible for resettlement to the United States are then subject to further screening on medical and security grounds at one of the RSCs, which are operated by international and nongovernmental organisations under the auspices of the Bureau of Population, Refugees

and Migration (PRM) of the U.S. Department of State.¹² The RSC provide support for the Worldwide Refugee Admissions Processing System (WRAPS), which is used to track refugee's data. Once a refugee has been conditionally accepted by the Department of Homeland Security, the RSC requests an assurance of sponsorship from the US from one of nine national voluntary agencies. After assurances are received, the refugees' travel to the U.S. can be booked.

U.S. Resettlement

PRM is responsible for the processing of refugees prior to their arrival, their admission to the U.S. and their initial placement and resettlement. ORR is then responsible for providing the newly settled refugees with a range of services during their first year in the United States, including cash transfers, English language training, medical assistance and a range of employment and social services. The Department of State commissioner for Refugee Affairs enters into agreements with one of nine voluntary agencies, often referred to VolAgs.¹³ These agencies provide an assurance to the RSC to resettle the refugee in the United States at the local level and do so from meeting the refugees at the airport. In turn, these agencies receive a reimbursement by PRM and ORR for a proportion of their costs.

Representatives of the VolAgs meet weekly to review refugee files sent by the RSC to determine where refugees will be allocated. It is at this meeting that the VolAgs match the needs of refugees with the local resources available to them. If an incoming refugee already has relatives in the U.S. typically the incoming refugee is either resettled with them or close to them. Otherwise the refugee has little to no choice as to where they are settled since their location is determined by the availability of local resources, what we term 'refugees without ties'. Refugees in the United States are eligible to work on arrival, although they are unable to work for the federal government, with the exception of the US armed forces. A green card has to be obtained after one year of residence, while US citizenship can be acquired after five years of continuous residence.

¹²These RSC include: Nairobi, which covers all of sub-Saharan Africa, run by the Church World Service, Austria, run by Hebrew Immigrant Aid Society, Thailand, which covers East Asia, run by the International Rescue Committee, Jordan, covering the middle-east and North Africa, run by the International Organisation for Migration, Russia, covering Eurasia, run by the International Organisation for Migration, Nepal, covering South Asia, run by the International Organization for Migration and Turkey covering Turkey and the Middle East, run by the International Catholic Migration Commission. There also exists a U.S. Government facility in Havana, Cuba.

¹³These include: Church World Service, Ethiopian Community Development Council, Episcopal Migration Ministries, Hebrew Immigrant Aid Society, The International Rescue Committee, Lutheran Immigration and Refugee Service, U.S. Committee for Refugees and Immigrants, United States Conference of Catholic Bishops/Migration and Refugee Services, and World Relief.

3 Data

We employ highly-confidential individual-level data on refugees resettled in the U.S. between 1990 and 2015 from the Worldwide Refugee Admissions Processing System (WRAPS), housed at the Refugee Processing Center (RPC) which is part of PRM.¹⁴ The WRAPS data set provides individual-level information on the entire *universe* of refugees resettled to the United States. One of the advantages of our analysis therefore is that the main explanatory variable is measured with no sampling error. Crucially, in contrast to the publicly available WRAPS data, which only begin in 2002,¹⁵ our data also contain the variable that underpins our primary identification strategy, namely whether a refugee is placed with family or friends or not.

Figure 1 depicts annual refugee arrivals to the United States between 1990 and 2015, by region of origin, according to whether refugees were placed with or without pre-existing ties in the U.S. The early 1990s witnessed the largest refugee inflows. Around three-quarters of refugees who arrived over the period 1990-2015 reported having existing ties with friends or family. Table 1 breaks down refugee inflows by country of origin. We omit refugee arrivals from OECD countries as these typically capture “transit” countries as opposed to refugees’ actual countries of origin. The largest refugee groups hail from Vietnam, Russia, Ukraine, Iraq, Myanmar and Bosnia and Herzegovina.

Figure 2 illustrates the geographic dispersion of refugee resettlements. It shows that on average, refugees from a specific origin country are resettled in 51 different commuting zones. Vietnamese refugees were resettled in 401 commuting zones, that is in more than 50% of all existing commuting zones. Refugees from most origins are resettled in around 20 commuting zones.

Our project-level FDI data are from fDiMarkets, a research arm of the Financial Times Group (FT). fDiMarkets has been collecting project-level data on all cross-border greenfield investment projects since 2003.¹⁶ fDiMarkets represents a particularly rich data source in comparison with other more commonly used FDI statistics, since FDI can be decomposed along the extensive and intensive margins, i.e. the number of projects vs. the value of these projects. Information is also provided on the estimated number of jobs created by each project. All FDI projects are recorded at the firm level, flowing from a U.S. to an overseas city. There is no minimum size requirement for a project to be included. Data are collected

¹⁴As part of the processing and vetting of refugees and housed at RPC, as well as at the Resettlement Support Centers, an interactive computer system is maintained by WRAPS. This system is used to process and track the movement of refugees from various countries around the world to the U.S.

¹⁵See: <https://ireports.wrapsnet.org/>.

¹⁶According to their website “fDi Markets tracks cross-border investment in a new physical project or expansion of an existing investment which creates new jobs and capital investment.” Joint ventures are only included where they lead to a new physical operation. Mergers & acquisitions (M&A) and other equity investments are not tracked.

Table 1: Refugees to the U.S. 1990-2000 - Top 20 origins

	Without U.S. ties	With U.S. ties	Total
Vietnam	85,634	231,198	316,832
Russia	42,967	144,129	187,096
Ukraine	10,754	173,018	183,772
Iraq	44,271	120,931	165,202
Myanmar	69,348	84,366	153,714
Bosnia & Herzegovina	34,268	97,591	131,859
Somalia	55,605	72,168	127,773
Bhutan	27,619	56,267	83,886
Cuba	23,917	56,239	80,156
Iran	11,706	57,911	69,617
Laos	2,210	58,788	60,998
Belarus	1,673	32,295	33,968
Serbia	15,188	18,328	33,516
Sudan	19,721	13,633	33,354
Liberia	10,621	22,651	33,272
Ethiopia	9,873	22,732	32,605
Uzbekistan	1,519	28,738	30,257
Moldova	1,324	27,394	28,718
Congo (Kinshasa)	21,740	5,735	27,475
Afghanistan	13,032	8,289	21,321
Total	558,753	1,414,377	1,973,130

once companies release the details of an investment in public news outlets.^{17,18}

Figure 3 presents total outward FDI flows, from the United States to all countries, along the intensive and extensive margins, between 2005 and 2015. Figure 3 shows an increase in outward FDI until around 2011, after which it displays a slow decrease until the end of the period.

We aggregate our individual-level refugee and project-level FDI data to U.S. commuting zones, which are clusters of urban and rural counties characterized by strong commuting ties.¹⁹ In particular, the empirical analysis is based on the 741 commuting zones from the

¹⁷In some cases where companies do not disclose the details of their projects, a proprietary algorithm is used to estimate jobs and capital flows.

¹⁸To match commuting zones to the corresponding U.S. city of origin of the investment, we use the “1990 Commuting zones to States” crosswalk file as provided by Autor and Dorn (2013) and multiply the number of jobs created and the investment by the relevant area weights.

¹⁹Originally developed by Tolbert et al. (1987), commuting zones capture greater variation and lower spillover effects in local economies and their labour markets when compared to political boundaries. Many commuting zones are clusters of multiple counties and in these cases, area weights are assigned to sub-state

1990 classification. Figure 4 examines the correlation between the number of refugees and outward FDI from the U.S., at the commuting zone level, to refugees’ countries of origin. The left panel is based on data for the total number of FDI projects. The right panel is based on data for the share of FDI projects to refugees’ countries of origin. Both panels show a strong positive relationship, although causal interpretation can only be established with regression analysis, which is the subject of the following section.

4 Empirical Strategy

The two main threats to identification of a causal effect of refugee impacts are i) the individual sorting of refugees into commuting zones and ii) the strategic placement of refugees across commuting zones by resettlement agencies. Sorting at the individual level arises if refugees are free to locate in advantageous commuting zones, perhaps those with strong labor markets, specifically for workers of their nationality, which in turn might also be places with pre-existing FDI opportunities with their countries of origin. We would expect economic migrants for example to sort in this way.

In meeting this challenge, we adopt an identification strategy akin to that of [Beaman \(2012\)](#) and [Dagnelie et al. \(2019\)](#) and instrument the total number of refugees with the number of refugees ‘without U.S. ties’ (See Section 2). As shown in Figure 5, the number of refugees without U.S. ties is a strong predictor of total refugee numbers, confirming that our IV is strong. We exploit variation in the *initial* placement of refugees, such that we need not worry about refugees’ subsequent internal mobility that might otherwise bias our results.²⁰

Our identification hence relies on the fact that refugees do not choose where they resettle. This rules out any endogenous location decision by the refugees themselves. Second, since we estimate a bilateral gravity model (which we describe below), we are able to include commuting-zone fixed effects. These control for all employment, housing and other opportunities, which being location specific, might otherwise determine refugee agencies allocation decisions and subsequently refugees’ economic performance. We are also able to control for the fact that some countries will have greater affinities with the U.S., which might otherwise determine refugee inflows and FDI to their countries of origin, by including origin country fixed effects.

geographical units that represent a part of one commuting zone. For example, Washington DC shares the same commuting zone code, 11304, with counties such as Montgomery in Maryland and Fairfax in Virginia because individuals commute frequently from these two states to work in the U.S. capital.

²⁰Note that refugees have an incentive to remain in the location where they are placed by the resettlement agency, since otherwise they would lose agency assistance. Indeed, [Dagnelie et al. \(2019\)](#) document that the fraction of refugees without U.S. ties who move to another location within the 3-month period after arrival is a low 7.4% (between 2005 and 2010). Therefore, although secondary migration takes place, many refugees stay in the location of first placement.

Strategic placement by resettlement agencies may still occur, however. As a factor in deciding where to place cases without U.S. ties, refugee agencies may potentially identify commuting zones that host pre-existing communities of c-nationals from the same country of origin as the refugee. This could be problematic, since a large pre-existing community may well be associated with greater FDI flows to their country of origin. It is unlikely however, that agencies base their allocation decisions on any potential for doing business (and hence fostering FDI) with their countries of origin, but rather on considerations of employment and housing. Yet, if, as [Beaman \(2012\)](#) suggests, pre-existing communities of co-nationals are an important factor in the location decision of agencies, these communities of co-nationals could indeed be the driving force behind the link between refugee flows and FDI to their origin countries.

To surmount this issue, we control for pre-existing co-national communities by including a variable capturing economic migrants, both in 1990 and in 2000, on the right-hand side. In this way, we can be sure that the FDI fostering effect of refugees is not driven by co-nationals. As an additional robustness check, we further examine the effect of refugees on FDI in commuting zones where there are no economic migrants of the same nationality whatsoever, both in 1990 or 2000, thereby completely removing this potential source of endogeneity by focusing only on those commuting zones that are highly unlikely to be strategically chosen by agencies, (given the absence of economic migrants). This variation is shown in [Figure 6](#), which plots show the positive correlation between refugee inflows from 1990 to 2000 and economic migrants in 2000 across commuting zones, for six different countries of origin with large refugee inflows, namely Vietnam, Russia, Ukraine, Iraq, Myanmar and Bosnia and Herzegovina. What the plots also show is that in each case there are a large number of commuting zones with positive refugee inflows but no economic migrants in 2000. Focusing on variation in refugees and FDI across only these commuting zones allows us to remove the co-nationals source of endogeneity.

Other factors introduce additional exogenous variation into our analysis. For example, [Beaman \(2012\)](#) suggests that arrival delays prevent resettlement agencies from being strategic in their placement of refugees. These delays, combined with refugee agency budgetary uncertainty and national-level refugee quota changes, ultimately affect the number, as well as the nationalities, of incoming refugees. Furthermore, the specific refugees to be resettled are not always those that were initially expected given the vetting processes that occur prior to resettlement and the inherent randomness which stems from the fact that less than 1% of those refugees deemed ‘most vulnerable’ are actually selected for resettlement.

Our analysis exploits the bilateral variation in the number of refugees and outward FDI from the United States, by U.S. commuting zone and refugees’ countries of origin. Given the political and economic conditions of refugees’ countries of origin at the time of their departure, we expect their impact on outward FDI to take place with a substantial lag, hence our main specification considers a 15 years lag. More precisely, we look at the effect of refugees who arrived between 1990 and 2000 on FDI flows from 2005 to 2015. We also

show that our results are robust to different lag structures.

We therefore estimate bilateral gravity equations, similar to those used in the related literature on the impact of immigrants on FDI (see for example [Javorcik et al. \(2011\)](#) and [Burchardi et al. \(2018\)](#)). Our specification is as follows:

$$(1) \quad FDI_{ij} = \alpha_i + \alpha_j + \beta_F(Refugees_{ij}) + \epsilon_{ij}$$

where FDI_{ij} represents total outward FDI flows (or projects or jobs created by FDI projects) between 2005 and 2015 in country j from U.S. commuting zone i . $Refugees_{ij}$ refers to the total refugee arrivals between 1990 and 2000, from country j to U.S. commuting zone i . In a set of robustness checks we also control for $EconomicMigrants_{ij}$ which refers to non-refugee immigrants from country j residing in U.S. commuting zone i in 1990 or 2000, else the number of immigrant arrivals between 1990 and 2000. We take the inverse hyperbolic sine rather than the log of FDI, refugees and immigrants so as to include observations with zero bilateral inflows ([Burbidge et al., 1988](#); [MacKinnon and Magee, 1990](#); [Kristjánssdóttir, 2012](#)). The parameters α_i and α_j are commuting zone and origin country fixed effects.

Our specification allows us to remain agnostic with regard the timing of any effect of refugee placement on FDI flows. The number of observations in these cross-sectional regressions is 136,344 which derive from 741 commuting zones and 184 countries of origin, equivalent to all non-OECD members. We estimate Equation (1) with an instrumental variable strategy, in which refugee arrivals are instrumented with the placement of refugees without U.S. ties, across commuting zones and countries of origin. Our specification therefore delivers an estimate of the impact of 1990-2000 refugee inflows on 2005-2015 FDI flows.²¹

²¹Our gravity specification can be interpreted as a first-differenced panel specification of FDI stocks on refugee stocks, such as those estimated in the literature on the impact of immigrants on FDI (see for example [Javorcik et al. \(2011\)](#) and [Burchardi et al. \(2018\)](#)). Indeed, we can start from a framework in which outward FDI stocks from commuting zone i to country j at time $t+15$ are affected by the stock of refugees from country j placed in commuting zone i at time t . Given the political and economic conditions of refugees' countries of origin at the time of their departure, we expect their impact on outward FDI to take place with a substantial lag, hence our main specification considers a 15 years lag. Consider such a specification:

$$FDIstock_{ijt} = \alpha_{ij} + \alpha_{it} + \alpha_{jt} + \beta_F(Refugeestock_{ijt'}) + \epsilon_{ijt}$$

where $FDIstock_{ijt}$ represents the total FDI stock in country j from U.S. commuting zone i at time t . $Refugeestock_{ijt'}$ refers to the total refugee stock from country j placed in U.S. commuting zone i at time t' , where $t = (t' + 15)$ in our main specification. The parameters α_{ij} , α_{it} and α_{jt} are commuting-zone by origin, commuting-zone by year and origin-by-year fixed effects. By taking the first difference between $t = 2015$ and $t = 2004$, and hence between $t' = 2000$ and $t' = 1989$ for refugee stocks, the commuting-zone by origin fixed effects cancel out, and the time-varying origin and commuting zone fixed effects become origin and commuting zone fixed effects. Our specification (1) can thus be interpreted as a first difference of regression (2).

Table 4 presents the summary statistics.

Table 2: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
Refugees without ties	136,344	1.75	42.66	0.00	5,102.00	State Dept.
Refugees with ties	136,344	6.08	250.40	0.00	47,889.00	State Dept.
Refugees	136,344	7.83	276.53	0.00	51,234.00	State Dept.
Migrants (1990)	136,344	126.30	5242.55	0.00	1,660,895	IPUMS
Migrants (2000)	136,344	1133.13	50119.25	0.00	142,000,00	IPUMS
Migrant inflow 1990-2000	136,344	85.28	2954.29	0.00	763186.8	IPUMS
FDI (USD)	136,344	7.88	219.70	0.00	45,067.68	fDiMarkets
FDI jobs	136,344	36.69	1058.63	0.00	140,804.00	fDiMarkets
FDI projects	136,344	0.18	4.51	0.00	864.00	fDiMarkets
FDI dummy	136,344	0.02	0.14	0	1	fDiMarkets
Variables in inverse hyperbolic sine						
Refugees without ties	136,344	0.08	0.56	0.00	9.23	State Dept.
Refugees with ties	136,344	0.10	0.67	0.00	11.47	State Dept.
Refugees	136,344	0.13	0.76	0.00	11.54	State Dept.
Migrants (1990)	136,344	0.90	1.93	0.00	15.02	IPUMS
Migrants (2000)	136,344	0.91	2.21	0.00	17.16	IPUMS
Migrant inflow 1990-2000	136,344	0.54	1.62	0.00	14.24	IPUMS
FDI (USD)	136,344	0.10	0.74	0.00	11.41	fDiMarkets
FDI jobs	136,344	0.14	0.97	0.00	12.55	fDiMarkets
FDI projects	136,344	0.04	0.31	0.00	7.45	fDiMarkets

5 Results

We present our main results in Tables 3, 4 and 5, where the dependent variable is, respectively, outward FDI flows, FDI jobs and FDI projects, between 2005 and 2015. Note that each table comprises six panels. The top panel in each table presents our baseline results, while the other five show include our various controls for economic migrants. In each panel of each table, columns (1) to (3) present OLS regression estimates using, as explanatory variables, the arrivals of total refugees, refugees without U.S. ties and refugees with U.S. ties between 1990 and 2000, respectively. Column (4), our preferred specification, rather presents the IV estimates from regression (1), in which ‘refugees without U.S. ties’ are used as an instrument for the total number of refugees. Table 6 rather replicates the specification of [Burchardi et al. \(2018\)](#) using as the dependent variable a dummy equal to one in those commuting zones in which FDI occurred, to which our results are robust.

Overall, refugees placed in a given U.S. commuting zone, between 1990 and 2000, exert a positive and significant effect on outward FDI flows from that commuting zone, to their

countries of origin, between 2005 and 2015. In our preferred specification, we find that a 10% larger inflow of refugees in a given commuting zone during 1990-2000, from a particular origin, causes a 0.54% larger inflow of FDI to that country between 2005-2015 (see column (4), Table 3). Based on the OLS estimates, refugees with ties have an even larger effect, at 0.74%, suggesting that endogenous location decisions may create an upward bias in refugee-network effects (see column (3), Table 3). Our baseline IV estimates also suggest that a 10% larger inflow of refugees in a given commuting zone during 1990-2000, from a particular origin, causes an increase in FDI projects, i.e. the extensive margin, by 0.24% (see column (4), Table 4) and of FDI jobs by 0.72% (see column (4), Table 5).

The magnitudes of these effects are broadly comparable to those in the existing literature. According to our estimates, a doubling of refugees (which corresponds to an increase of eight individuals) produces a 5.4% increase in FDI, which is of the same order of magnitude (but greater) than the 2% increase in FDI due to 8 additional migrants, as estimated [Javorcik et al. \(2011\)](#).

The bottom panel of each table (see the “Controlling for non-refugee migrant inflows” panel in Tables [3](#), [4](#) and [5](#)) shows the estimates of a key robustness check, which controls for the possibility of refugee agencies strategically placing ‘refugees without ties’. Should this indeed be the case, it is likely that refugees are placed in commuting zones that offer some economic advantage to refugees of a specific background, in other words where *economic* migrants from the same nationality will likely locate. We therefore control for the arrivals of economic migrants from the same country of origin and in the same commuting zone, over the same period (between 1990 and 2000), which allows us to capture the time-varying economic drivers (both labor-market and FDI-related) that might push resettlement agencies to locate refugees of a given nationality in a specific commuting zone. Our main results change little as a result.

Note that our estimate of the impact of refugees on FDI is *not* driven by the fact that refugees and immigrants from the same nationality (for whatever reason) live in the same location and, concurrently that immigrants, as opposed to refugees, foster FDI flows. Rather *both* refugee and immigrant arrivals exert a positive and significant impact on FDI when we include both sets of arrivals in the same regression. If anything, the coefficients on refugees and economic migrants suggest that it is the former who exert the largest impact (when an increase by the same number of individuals is considered). Finally, panels 3 and 5 of Tables [3](#), [4](#) and [5](#), present our results when we focus specifically on commuting zones in which no economic immigrants from the same nationality as refugees lived in the years 1990 and 2000. These results show that, in these commuting zones, refugees that arrived between 1990 and 2000 still had a positive and significant impact on FDI flows, projects and jobs, between 2005 and 2015. In turn this means that refugees placed in a location, for reasons orthogonal to whatever factors might determine economic immigrants’ locations, still give rise to positive FDI effects - a clear indication that omitted economic variables are not driving our results.

The next set of regressions examine the robustness of our results to considering different

lag structures and periods of impact. In the right panels of Figure 7 we consider refugee arrivals over 1990-1995 and estimate the impact on FDI flows with a lag of, respectively, 15 years (on FDI flows between 2005 and 2010), 16 years (on FDI flows in 2006-2011), 17 years (on FDI flows in 2007-2012), up to 20 years (on FDI flows in 2010-2015). We find that as the lag increases, the effect remains positive and significant, although it becomes smaller. Note however that the longer lags correspond to the years of the Great Recession and this is what might be driving this result (as opposed to the longer lag). In the right panels of Figure 7 we further explore this point by examining the impact of refugees with a 10-year *fixed* lag over time. Specifically, we estimate the effect of refugees in 1995-2000 on FDI in 2005-2010, of refugees in 1996-2001 on FDI in 2006-2011, of refugees in 1997-2002 on FDI in 2007-2012; up to refugees in 2000-2005 on FDI in 2010-2015. We find that, keeping the lag fixed at 10 years, the impact of refugees on FDI is indeed smaller during the years of the Great Recession. This implies that it is not the greater lag that produces the smaller effects but rather it is the period of the Great Recession. Our findings however, are robust to considering different lag structures and periods of analysis.

Finally, we explore the heterogeneity of refugee effects by country of origin by estimating a model akin to equation 1, by each origin country. In this analysis, we are unable to include origin and destination fixed effects however, since we can only exploit the variation across commuting zones. Nonetheless the quasi-randomness in the allocation of refugees ‘without U.S. ties’ allows us to estimate IV regressions and hence identify plausible causal effects of refugees on FDI. In other words, these estimates inform us as to whether additional refugees in a particular commuting zone are correlated with greater FDI inflows to their country of origin. The results are summarized in Figure 8, which shows the effects for refugee groups comprising at least 20,000 individuals. We find the largest refugee effects on FDI to be driven by refugees from countries of the former Soviet Union and of former Yugoslavia, although we also confirm significant diaspora externality effects of Vietnamese refugees, which are the focus of our case study.

6 Case Study of the Vietnamese Boat People

In this section, we build on the analysis of [Parsons and Vézina \(2018\)](#). In that paper, the natural experiment of the exodus of the Vietnamese Boat People following the Fall of Saigon was used to causally identify the effect of Vietnamese networks on U.S. state exports to Vietnam. In this section, drawing upon much richer data, we again exploit the same natural experiment to provide causal estimates of the effect of Vietnamese refugee networks on outward FDI from the commuting zone of placement within the U.S. to the Vietnamese region of origin, i.e. the South of Vietnam. Importantly, we also provide evidence that the effects of the Vietnamese diaspora were amplified following the enactment of two national laws, thereby linking the impacts of Vietnamese domestic reforms and U.S. outward FDI to Vietnam.

After the Fall of the Southern Vietnamese capital to the communist North, the U.S. imposed an embargo on all Vietnam, under the auspices of the 1917 Trading with the Enemy Act and the 1969 Export Administration Act. During this time, trade and FDI between the two nations were completely outlawed. The Vietnamese arrived to the U.S. between 1975 and 2000 in three main waves. The first wave, as argued by [Parsons and Vézina \(2018\)](#), was dispersed quasi-randomly throughout the U.S. Our natural experiment therefore examines the effect of Vietnamese refugees who arrived prior to the sudden lifting of the FDI embargo in 1994, instrumented by the first wave of 125,000 exogenously allocated Vietnamese. Quasi-random assignment of the first wave of Vietnamese refugees across the U.S. was, as argued in [Parsons and Vézina \(2018\)](#), and explained in detail in the next two paragraphs, because i) that was the stated preference of Congress and ii) of the chaotic refugee allocation process.

Following the U.S. Congress guidelines to avoid a similar agglomeration experienced with the Cuban refugees, an effort was made by the VOLuntary Resettlement AGencies (VOLAGs) to achieve a wide dispersal of refugees throughout all states in 1975 ([Fasick, 1975](#); [Zucker, 1982](#)). [GAO \(1976\)](#) writes in his report to the Senate that *“every effort will be made to ensure the resettlement to the extent possible will not be concentrated in a few enclaves in the country and will not result in economic or social service hardship.”* Consequently, the distribution of refugees was geographically wide across and within U.S. states. [GAO \(1975\)](#) reported *“75 percent of the school districts enrolling refugees have fewer than 20 refugees enrolled in the district scattered among several schools”* and *“about 85 percent of the schools enrolling Indochinese children have fewer than 10 in each school.”* The aim was to integrate the Indochinese into U.S. society quickly, while limiting the costs for receiving locales. The assimilation of refugees was not prioritised relative to the objective of minimising costs to tax payers, particularly when the U.S. economy was going through a period of stagflation.

Around 125,000 Vietnamese were resettled in the U.S. between April and December 1975, after the Fall of Saigon. To evacuate and relocate such a large influx of refugees in such a short period of time, an Interagency Task Force was created to supervise the operations of all bodies involved. The bodies included nine professional non-profit VOLuntary Resettlement AGencies (VOLAGs) that were contracted by the U.S. Department of State and the Department of Health, Education, and Welfare to resettle the refugees. The role of the VOLAGs proved vital to the resettlement process due to their expertise resettling past refugees in the U.S., e.g. from Hungary and Cuba ([GAO, 1975](#); [Zucker, 1982](#)). In May 1975, Congress enacted the Indochina Refugee Migration and Assistance Act of 1975 to authorise emergency assistance for training, employment, transportation and temporary housing for the Indochinese. The 1975 Act detailed the resettlement of refugees to the U.S. in three stages i) movement of refugees to reception centres ii) VOLAGs resettlement program and iii) post-sponsorship assistance.

In the first stage of resettlement, the President’s Interagency Task Force brought the Indochinese refugees to four reception centres: Camp Pendleton in California, Fort Indian

Town Gap in Pennsylvania, Eglin Air Force Base in Florida and Fort Chaffee in Arkansas. VOLAGs established offices at the camps and had the responsibility of counselling and placing individuals with sponsors that were willing to meet their immediate needs. Congress and the Executive Branch put immense pressure on the VOLAGs and the Task Force to relocate the refugees from the reception centres as swiftly as possible (GAO, 1977). During counselling sessions, refugees were asked for their location preferences, although the matching and relocation of refugees were largely exogenous to the stated preferences of the refugees. Baker et al. (1984) note that “almost half of (the refugees) wanted to go to California, but only a fifth were sent there. Less than a quarter wanted to go to the 43 least-favoured states, yet more than one half were sent to those places”. Most Vietnamese had no prior connection to any community in the U.S. and had very little control over their ultimate destinations. The refugees had to “depend almost entirely on the government (mostly voluntary agencies) and individual or institutional sponsors to determine where they would resettle” (Zhou, 1997). Consequently, many Vietnamese were relocated to northern parts of the Great Plains and remote areas that initially hosted few or no recent migrants.

Large volumes of secondary migration provide additional evidence that many refugees were allocated to locations against their preferences. Secondary migration further indicates that the initial resettlement was largely exogenous to the preferences of Vietnamese refugees. The limited power of refugees to choose their destination combined with discontent in their destinations of resettlement resulted in subsequent internal migrations, during what was known as the “grieving phase” (Vo, 2006). Resettled Vietnamese migrants were not discouraged from secondary migration and subsequently many refugees relocated interstate to reunify with their kin. In many cases, migrants moved to warmer locations or areas with higher welfare payments.

6.1 Data and Empirical Strategy

Our Vietnamese analysis draws on individual level refugee data from the Office of Refugee Resettlement (ORR), a division of the U.S. Department of Health and Human Services. Crucially, the dataset comprises the individual level data on the first (exogenously allocated) wave of Vietnamese refugees who arrived in 1975. Figure 9 presents the dispersal of Vietnamese refugees across 741 commuting zones in the United States in 1975. Some agglomeration occurred in commuting zones located in the Northeast, Southeast and Southwest, because the first available sponsors were local to the four reception centres based in California, Pennsylvania, Florida and Arkansas (Zhou, 1997). Figure 9 also illustrates the Vietnamese migrant stock in 1995, immediately after the trade and FDI embargo on Vietnam was lifted. This distribution shows how persistent the initial exogenous placement of refugees in 1975 was. The bottom scatter rather confirms the high correlation between the aggregated flow from 1976-1994 and the 1975 distribution of Vietnamese refugees.

Figure 10 shows the evolution of U.S. FDI projects to Vietnam from 2003 to 2015,

disaggregating FDI between the Vietnamese North and South. While the South, where Ho Chi Minh City (Saigon) is located and where most overseas Vietnamese herald from, is richer, the capital and largest city, Hanoi, is in Northern Vietnam. FDI grew steadily from 2003 to 2008, with about twice as many projects in the South as in the North.

The random allocation of Vietnamese refugees in America in 1975 constitutes exogenous variation that can be used to identify the effect of refugees on FDI. To do so we estimate the following equation in a cross-section:

$$(2) \quad FDI_{ij} = \beta_1 VietKieu_i + \beta_2 VietKieu_i \times South_j + \beta_3 South_j + \beta_4 X_i + \epsilon_{ij},$$

Depending on the specification, FDI_{ij} stands for the amount of FDI capital, the number of jobs created through FDI, or the number of FDI projects, from commuting zone i to Vietnamese region j . Vietnam is divided into Northern and Southern regions and, as most overseas Vietnamese living in the U.S. are from the South, we expect a stronger network effect for FDI to the South and hence a positive interaction effect between the South dummy and $VietKieu_i$, the natural logarithm of the 1975 Vietnamese refugee inflow in commuting zone i . X_i represents a set of controls listed in Table 7. ϵ_{ij} is the residual term.

While the quasi-random allocation of Vietnamese refugees in America in 1975 creates exogenous variation that constitutes an ideal instrument, so as to align our case study analysis to the first part of the paper, in additional regressions we rather use the 1976-1994 refugee inflows as the explanatory variable and instrument for them using the 1975 distribution of refugees. Note that we only exploit variation in refugees who arrived prior to the lifting of the FDI sanctions.

Control variables include commuting zones' total FDI, (to the rest of the world), to capture its investment prolificacy; population; mean household income; the share of immigrants relative to its total population and the share of workers in the manufacturing sector, as well as East Coast and West Coast dummies. These were chosen as factors that may affect a commuting zone's propensity to export to Vietnam or be open to world business in general. Summary statistics and sources are listed in Table 7.

6.2 Results

Figure 11 presents the point estimates of the effect of Vietnamese refugees on FDI to Vietnam, whether measured in terms of FDI invested, jobs created, or number of projects. These results correspond to Table 8. Estimates are provided for a) a reduced form estimation, which simply implements our quasi-randomly allocated 1975 wave of Vietnamese refugees directly into our estimated equation (together with its interaction with a South of Vietnam dummy variable), b) the overall impact of all incoming Vietnamese from 1976-1994, i.e. right up until the abrupt lifting of the FDI sanctions (together with its interaction with a South

of Vietnam dummy variable) and finally, c) the impact of the 1990-2000 wave only (together with its interaction with a South of Vietnam dummy variable), which is solely provided for the sake of a comparison with our estimates for the FDI-creating effects of the Vietnamese from our main specification.

Our main result (in column 3) suggests that a 10% increase in 1975 Vietnamese refugees increases FDI outflows to the South of Vietnam by 0.72%. [Parsons and Vézina \(2018\)](#) suggests that a 10% increase in the Vietnamese stock raises exports to Vietnam by between 4.5% and 14%. The results on FDI thus appear at least ten times smaller. Note that these are not directly comparable however, since here we are using commuting zone level data as opposed to state level data. Nevertheless, our results constitute strong evidence of a causal effect of Vietnamese refugees on FDI to Vietnam. Finally, our point estimate of the effects of Vietnamese refugees that arrived between 1990 and 2000, of 0.79 is broadly comparable to our Vietnamese estimate in [Figure 8](#), although the two are not directly comparable given the two data sets and identification strategies employed. Note that the coefficient on our South dummy variable, in the presence of our interaction term captures the effect of the (predominantly) Southern Vietnamese residing in the U.S. on FDI flows to the *North* of Vietnam. This explains the robust negative coefficients.

6.3 Diaspora Engagement Policies

Keenly aware of the important role overseas communities are able to play in fostering economic development at origin, developing countries have increasingly established ‘diaspora institutions’, the number of which has grown from 10 in 1970 to 40 in the year 2000 ([Gamlen, 2014](#)). According to [Gamlen \(2014\)](#), Vietnam in this regard specifically engages its diaspora through ‘investment policies and lobby promotion’. [Harding and Javorcik \(2011\)](#) argue that such investment promotion efforts lead to increased FDI in countries in which ‘red tape and information asymmetries are likely to be severe’, in other words, in the cases of developing countries such as Vietnam. [Pham et al. \(2010\)](#) note that a set of policies was passed as Resolution 36/NQ-TW in 2004 recognizing the potential of engaging the *Viet Kieu* in Vietnam’s development.

Reforms enacted include the 2005 Investment and Enterprise Laws, as well as the 2008 Nationality Law. The introduction of the Vietnamese 2005 Law of Investment and Law of Enterprise became effective in July 2006. The Laws’ objective was to create a more favourable environment for investors. In 2008, the Law of Vietnamese Nationality was established to help American Vietnamese citizens regain their Vietnamese citizenship status, excepting those that officially renounced their nationality. This law eased the administrative procedures for *Viet Kieu* investors by allowing them to register themselves as foreign or domestic investors. The Laws also include tax incentives and rent exemptions for foreign investors. To investigate whether the reforms associated with the introduction of the 2005 Investment and Enterprise Laws and the 2008 Nationality Law affected the role of refugee

networks we estimate the following model:

$$(3) \quad FDI_{it} = \alpha_i + \gamma Law_t + \beta_1 VietKieu_i \times Law_t + \epsilon_{it},$$

Where Law_t is a dummy variable that takes on the value of one between 2006 and 2010 and zero otherwise. We limit our study period to 2003-2010, to capture the effect of refugee networks on the FDI boom that occurred during that period. We focus on FDI projects along the extensive margin, which are less volatile and the dimension that migrants affect most. α_i are commuting zone fixed effects. We estimate this model separately for FDI to the North and South of Vietnam.

Figure 12 illustrates the effect of the Laws on FDI, or more precisely the post-reform jump in FDI projects to Vietnam, across U.S. commuting zones that host differing concentrations of Vietnamese refugees. The three columns show the reduced-form, OLS, and 2SLS estimates respectively. Across estimates, we find a positive interaction of policies with Vietnamese refugees on FDI projects to the South, although we find that the post-reform increase in FDI projects to be positive and statistically significant only from commuting zones with above-average Vietnamese refugee communities.²² There is no post-reform boom in FDI projects to the North of Vietnam and this is the case from across all commuting zones. In summary, we find that the introduction of the three laws post-2005 boosted the number of FDI projects to Vietnam, but only from commuting zones with above-average Vietnamese refugee communities.

7 Conclusion

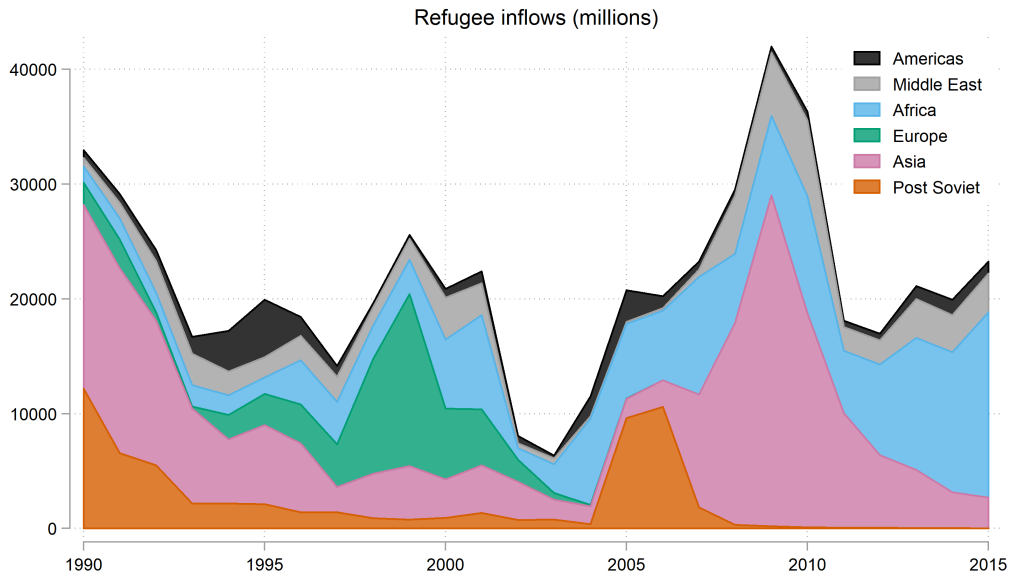
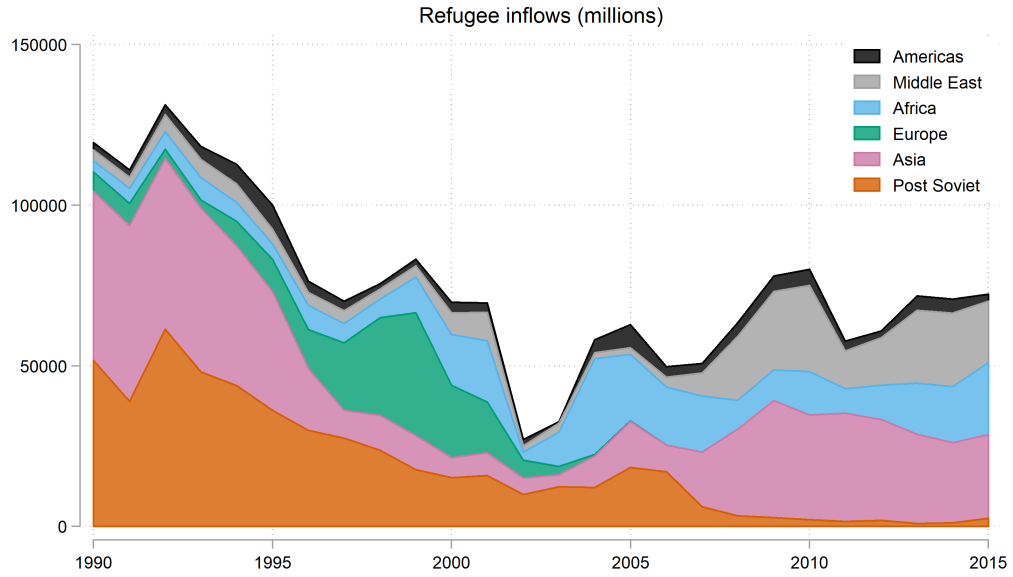
FDI is an essential ingredient for economic development and productivity growth. The existing literature emphasizes that information frictions deter FDI and are thus detrimental to long-run economic growth. This study provides causal evidence of the pro-investment effects of *refugees* by exploiting the specificities of two separate U.S. refugee dispersal policies. In doing so, we provide evidence that even refugees, those who left their countries of origin facing persecution, nevertheless maintain their ties and within little more than a decade foster significant FDI flows, which therefore constitute an important and yet until now undiscovered developmental mechanism.

First, we analyze the impact of refugees of all origins resettled to the United States on FDI inflows to their origin countries post-1990. Our methodology exploits the exogenous variation in the number of refugee cases ‘without U.S. ties’ – who are unable to decide their initial location of resettlement in the US. We show that a 10% increase in refugees increases FDI outflows to their origin country by 0.54%. This causally identified effect is consistent for capital investment, job creation as well as the number of FDI projects.

²²Please note that commuting zones with zero Vietnamese refugees are excluded here.

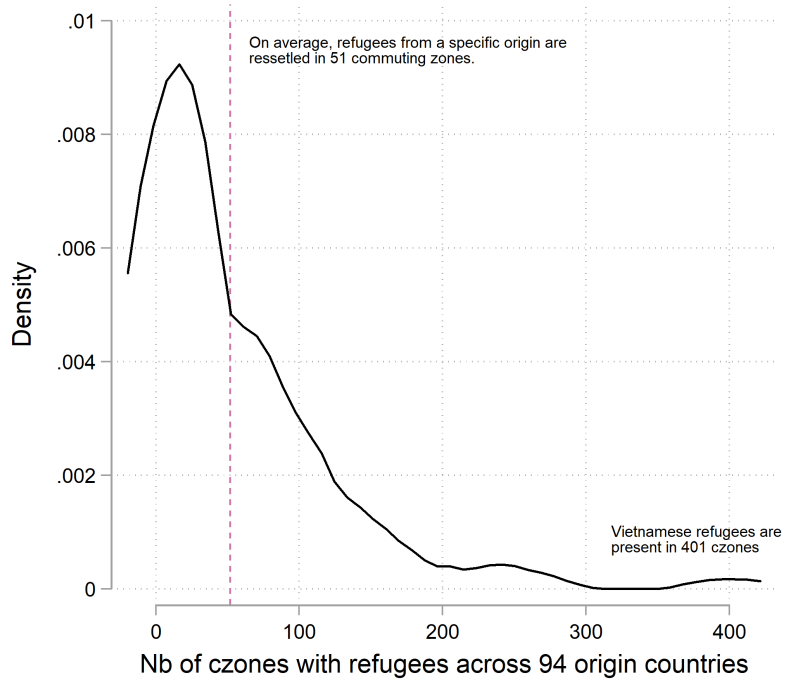
Second, we rely upon a unique event in history for causal identification, namely the Fall of Saigon at the end of Vietnam War in April 1975, which triggered a refugee exodus from Vietnam. The first wave of Vietnamese who arrived in the U.S. in 1975 was subsequently randomly distributed across the country. This exogenous variation is then exploited to instrument the Vietnamese stock of refugees in the U.S. in 1995, at a time when an embargo that outlawed FDI flows between the U.S. and Vietnam, was abruptly lifted. The main empirical results show that those U.S. commuting zones that host larger concentrations of Vietnamese refugees invest more in Vietnam. Additionally, the evidence suggests that the greatest impacts of Vietnamese networks on FDI occurred after the introduction of the 2005 Enterprise and Investment Laws and into South Vietnam, which highlights the important pro-development potential of policies that are able to leverage overseas diasporas for the development of origin countries.

Figure 1: Arrivals to the U.S. of Refugees With and Without Ties since 1990



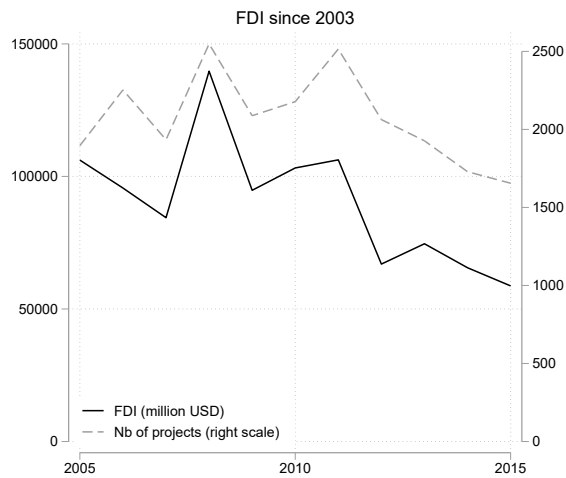
Note: Source: WRAPS Dataset

Figure 2: The geographic distribution of refugee resettlement



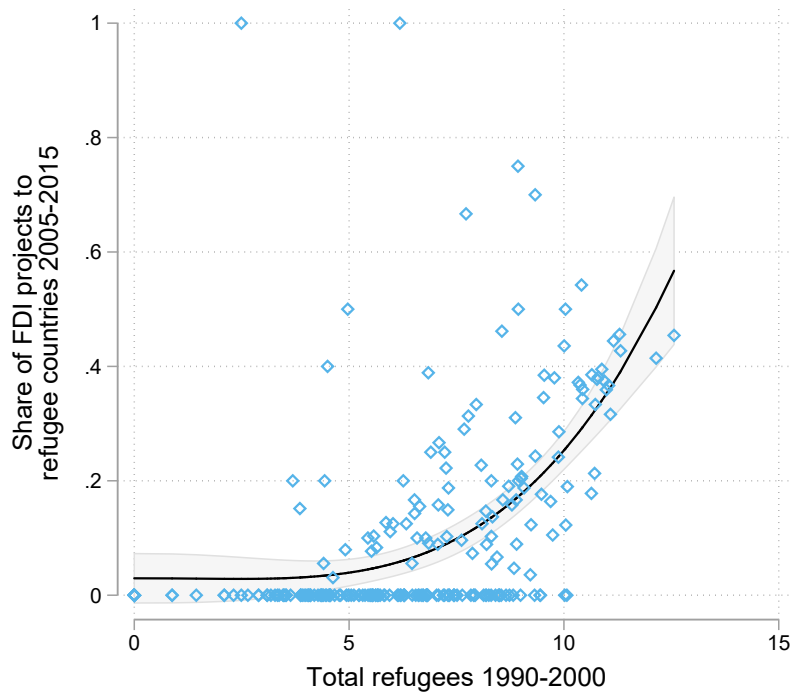
Note: Source: WRAPS Dataset

Figure 3: FDI from the U.S. since 2005
To all countries



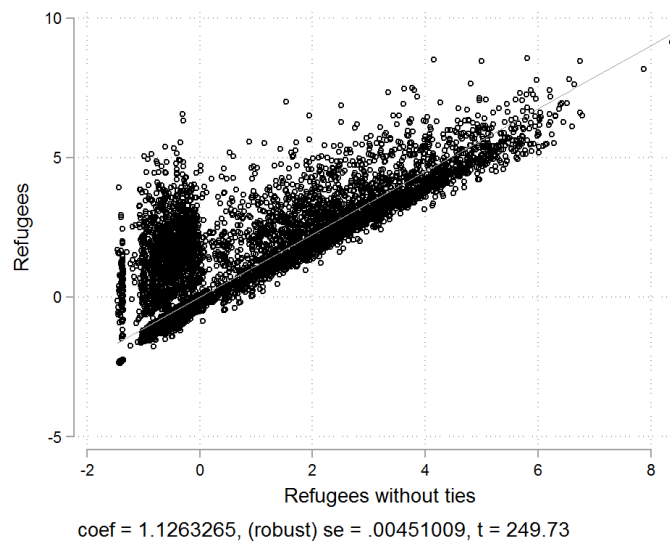
Note: Source: fDiMarkets.com

Figure 4: Refugees and FDI across U.S. commuting zones



Note: We sum refugee inflows of all origins by commuting zones, and plot them against the commuting zone's share of FDI projects going to those origin countries. FDI projects are from 2005 to 2015 and refugee inflows are from 1990 to 2000.

Figure 5: First stage



Note: Partial regression plot of the relationship between total refugee inflows and total inflows of refugees without ties, conditional on distance and origin country and commuting zones fixed effects. Both refugee flows are totals from 1990 to 2000.

Figure 6: Inflows of refugees without ties 1990-2000 vs. migrant stocks in 2000, across commuting zones

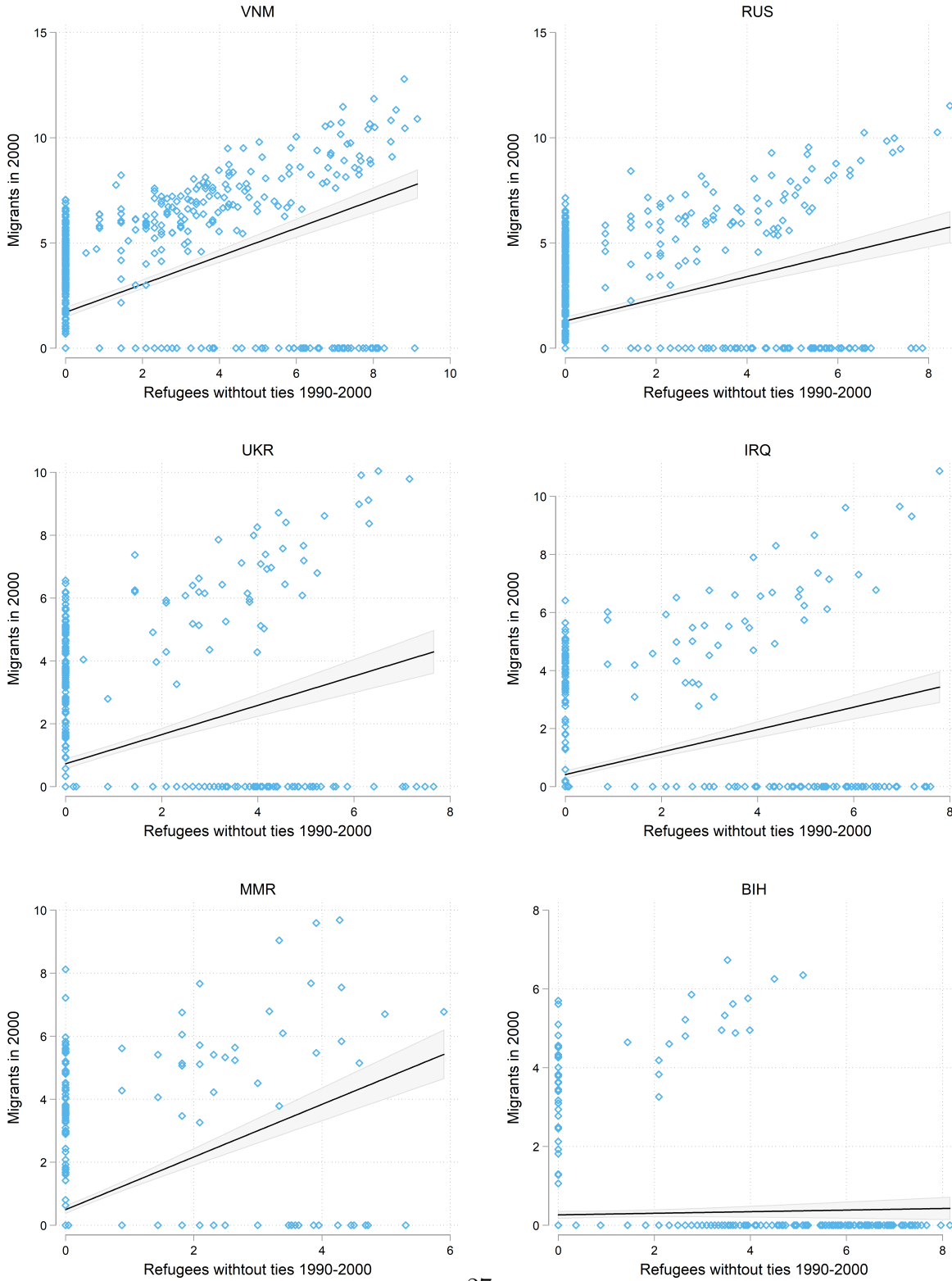


Table 3: The effect of refugees on FDI inflows

Baseline				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.055*** (0.007)			0.054*** (0.009)
Refugees without ties		0.061*** (0.010)		
Refugees with ties			0.074*** (0.009)	
N	136344	136344	136344	136344
R-sq	0.26	0.26	0.26	0.00
F IV				62367.34
Controlling for 1990 migrants				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.050*** (0.007)			0.048*** (0.009)
Refugees without ties		0.054*** (0.010)		
Refugees with ties			0.068*** (0.009)	
Migrants in 1990	0.054*** (0.003)	0.054*** (0.003)	0.054*** (0.003)	0.054*** (0.003)
N	136344	136344	136344	136344
R-sq	0.27	0.27	0.27	0.02
F IV				61833.98
Only commuting zones with no migrants in 1990				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.073*** (0.009)			0.077*** (0.011)
Refugees without ties		0.089*** (0.012)		
Refugees with ties			0.091*** (0.011)	
N	107595	107595	107595	107595
R-sq	0.19	0.19	0.19	0.01
F IV				33218.19
Controlling for 2000 migrants				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.050*** (0.007)			0.050*** (0.009)
Refugees without ties		0.057*** (0.010)		
Refugees with ties			0.067*** (0.008)	
Migrants in 2000	0.063*** (0.002)	0.063*** (0.002)	0.062*** (0.002)	0.063*** (0.002)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.28	0.03
F IV				62473.49
Only commuting zones with no migrants in 2000				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.035*** (0.007)			0.038*** (0.009)
Refugees without ties		0.043*** (0.010)		
Refugees with ties			0.049*** (0.009)	
N	112786	112786	112786	112786
R-sq	0.17	0.17	0.17	0.00
F IV				35203.24
Controlling for non-refugee migrant inflows				
	(1)	(2)	(3)	(4)
	FDI (USD)	FDI (USD)	FDI (USD)	FDI (USD)
Refugees	0.057*** (0.007)			0.054*** (0.009)
Refugees without ties		0.061*** (0.010)		
Refugees with ties			0.075*** (0.008)	
Migrant inflow 1990-2000	0.061*** (0.003)	0.060*** (0.003)	0.061*** (0.003)	0.061*** (0.003)
N	136344	136344	136344	136344
R-sq	0.27	0.27	0.27	0.02
F IV				62364.47

Note: Cross section with origin country and commuting zone fixed effects included in all regressions. Refugees are from 1990-2000. FDI is 2005-2015. Column (4) is refugees IVD by refugees without ties. Robust standard errors in parenthesis, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level. Variables are in inverse-hyperbolic sines. All regressions include the log of bilateral distance as a control (not shown for space).

Table 4: The effect of refugees on FDI jobs

Baseline				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.074*** (0.009)			0.072*** (0.011)
Refugees without ties		0.081*** (0.012)		
Refugees with ties			0.101*** (0.011)	
N	136344	136344	136344	136344
R-sq	0.27	0.27	0.27	0.00
F IV				62367.34
Controlling for 1990 migrants				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.067*** (0.009)			0.063*** (0.011)
Refugees without ties		0.071*** (0.012)		
Refugees with ties			0.092*** (0.011)	
Migrants in 1990	0.074*** (0.003)	0.075*** (0.003)	0.074*** (0.003)	0.075*** (0.003)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.28	0.02
F IV				61833.98
Only commuting zones with no migrants in 1990				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.096*** (0.011)			0.100*** (0.013)
Refugees without ties		0.116*** (0.015)		
Refugees with ties			0.120*** (0.013)	
N	107595	107595	107595	107595
R-sq	0.19	0.19	0.19	0.01
F IV				33218.19
Controlling for 2000 migrants				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.067*** (0.009)			0.067*** (0.011)
Refugees without ties		0.075*** (0.012)		
Refugees with ties			0.090*** (0.011)	
Migrants in 2000	0.086*** (0.003)	0.087*** (0.003)	0.086*** (0.003)	0.086*** (0.003)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.29	0.03
F IV				62473.49
Only commuting zones with no migrants in 2000				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.051*** (0.010)			0.054*** (0.011)
Refugees without ties		0.060*** (0.013)		
Refugees with ties			0.072*** (0.012)	
N	112786	112786	112786	112786
R-sq	0.17	0.17	0.17	0.00
F IV				35203.24
Controlling for non-refugee migrant inflows				
	(1)	(2)	(3)	(4)
	FDI jobs	FDI jobs	FDI jobs	FDI jobs
Refugees	0.076*** (0.009)			0.072*** (0.011)
Refugees without ties		0.081*** (0.012)		
Refugees with ties			0.102*** (0.011)	
Migrant inflow 1990-2000	0.082*** (0.004)	0.082*** (0.004)	0.082*** (0.004)	0.082*** (0.004)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.28	0.02
F IV				62364.47

Note: Cross section with origin country and commuting zone fixed effects included in all regressions. Refugees are from 1990-2000. FDI is 2005-2015. Column (4) is refugees IVD by refugees without ties. Robust standard errors in parenthesis, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level. Variables are in inverse-hyperbolic sines. All regressions include the log of bilateral distance as a control (not shown for space).

Table 5: The effect of refugees on FDI projects

Baseline				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.024*** (0.003)			0.024*** (0.004)
Refugees without ties		0.027*** (0.004)		
Refugees with ties			0.033*** (0.004)	
N	136344	136344	136344	136344
R-sq	0.27	0.27	0.27	0.00
F IV				62367.34
Controlling for 1990 migrants				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.022*** (0.003)			0.021*** (0.004)
Refugees without ties		0.024*** (0.004)		
Refugees with ties			0.030*** (0.004)	
Migrants in 1990	0.023*** (0.001)	0.024*** (0.001)	0.023*** (0.001)	0.023*** (0.001)
N	136344	136344	136344	136344
R-sq	0.28	0.27	0.28	0.02
F IV				61833.98
Only commuting zones with no migrants in 1990				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.033*** (0.004)			0.037*** (0.005)
Refugees without ties		0.043*** (0.006)		
Refugees with ties			0.041*** (0.005)	
N	107595	107595	107595	107595
R-sq	0.21	0.20	0.21	0.01
F IV				33218.19
Controlling for 2000 migrants				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.022*** (0.003)			0.023*** (0.004)
Refugees without ties		0.025*** (0.004)		
Refugees with ties			0.030*** (0.004)	
Migrants in 2000	0.028*** (0.001)	0.028*** (0.001)	0.028*** (0.001)	0.028*** (0.001)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.28	0.03
F IV				62473.49
Only commuting zones with no migrants in 2000				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.014*** (0.003)			0.015*** (0.004)
Refugees without ties		0.017*** (0.004)		
Refugees with ties			0.020*** (0.004)	
N	112786	112786	112786	112786
R-sq	0.18	0.18	0.19	0.00
F IV				35203.24
Controlling for non-refugee migrant inflows				
	(1)	(2)	(3)	(4)
	FDI projects	FDI projects	FDI projects	FDI projects
Refugees	0.025*** (0.003)			0.024*** (0.004)
Refugees without ties		0.027*** (0.004)		
Refugees with ties			0.033*** (0.004)	
Migrant inflow 1990-2000	0.028*** (0.001)	0.028*** (0.001)	0.028*** (0.001)	0.028*** (0.001)
N	136344	136344	136344	136344
R-sq	0.28	0.28	0.28	0.02
F IV				62364.47

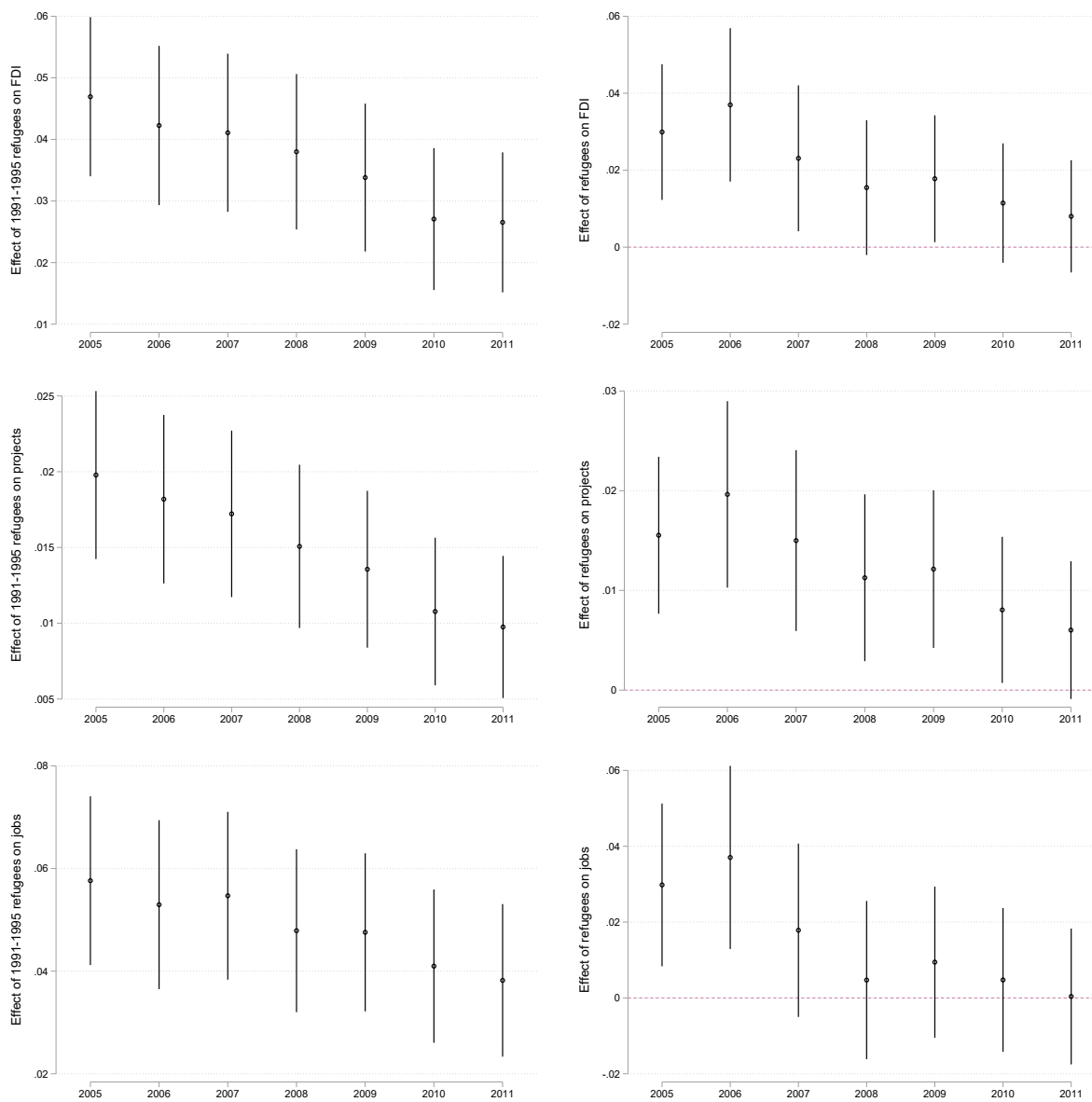
Note: Cross section with origin country and commuting zone fixed effects included in all regressions. Refugees are from 1990-2000. FDI is 2005-2015. Column (4) is refugees IVD by refugees without ties. Robust standard errors in parenthesis, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level. Variables are in inverse-hyperbolic sines. All regressions include the log of bilateral distance as a control (not shown for space).

Table 6: The effect of refugees on FDI dummy

Baseline				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.011*** (0.001)			0.010*** (0.002)
Refugees without ties		0.011*** (0.002)		
Refugees with ties			0.015*** (0.002)	
N	136344	136344	136344	136344
R-sq	0.25	0.25	0.25	0.00
F IV				62367.34
Controlling for 1990 migrants				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.010*** (0.001)			0.009*** (0.002)
Refugees without ties		0.010*** (0.002)		
Refugees with ties			0.013*** (0.002)	
Migrants in 1990	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)
N	136344	136344	136344	136344
R-sq	0.26	0.26	0.26	0.01
F IV				61833.98
Only commuting zones with no migrants in 1990				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.014*** (0.002)			0.014*** (0.002)
Refugees without ties		0.016*** (0.002)		
Refugees with ties			0.018*** (0.002)	
N	107595	107595	107595	107595
R-sq	0.18	0.18	0.18	0.01
F IV				33218.19
Controlling for 2000 migrants				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.010*** (0.001)			0.009*** (0.002)
Refugees without ties		0.010*** (0.002)		
Refugees with ties			0.013*** (0.002)	
Migrants in 2000	0.012*** (0.000)	0.012*** (0.000)	0.012*** (0.000)	0.012*** (0.000)
N	136344	136344	136344	136344
R-sq	0.27	0.27	0.27	0.02
F IV				62473.49
Only commuting zones with no migrants in 2000				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.008*** (0.002)			0.008*** (0.002)
Refugees without ties		0.009*** (0.002)		
Refugees with ties			0.011*** (0.002)	
N	112786	112786	112786	112786
R-sq	0.17	0.17	0.17	0.00
F IV				35203.24
Controlling for non-refugee migrant inflows				
	(1)	(2)	(3)	(4)
	FDI dummy	FDI dummy	FDI dummy	FDI dummy
Refugees	0.011*** (0.001)			0.010*** (0.002)
Refugees without ties		0.011*** (0.002)		
Refugees with ties			0.015*** (0.002)	
Migrant inflow 1990-2000	0.011*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.011*** (0.001)
N	136344	136344	136344	136344
R-sq	0.26	0.26	0.26	0.02
F IV				62364.47

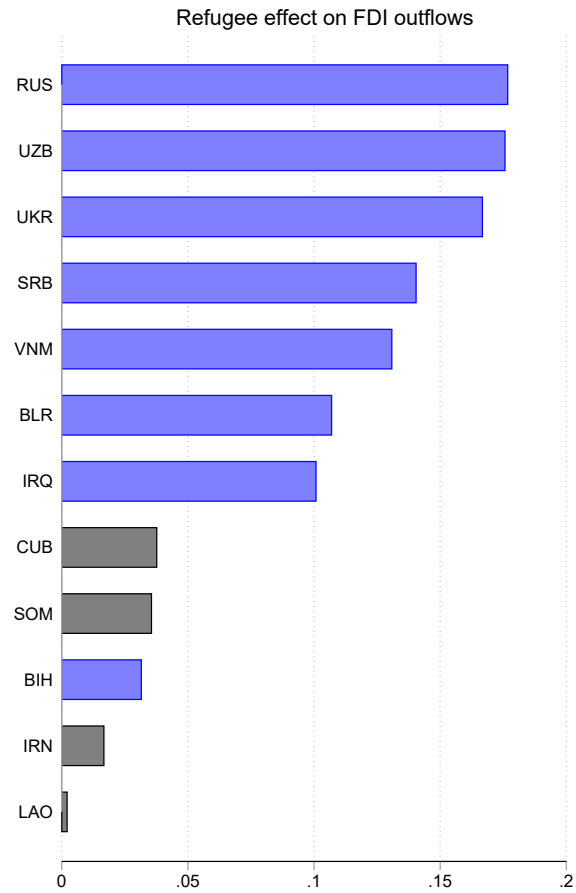
Note: Cross section with origin country and commuting zone fixed effects included in all regressions. Refugees are from 1990-2000. FDI is 2005-2015. Column (4) is refugees IVD by refugees without ties. Robust standard errors in parenthesis, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level. Variables are in inverse-hyperbolic sines. All regressions include the log of bilateral distance as a control (not shown for space).

Figure 7: Cross section estimates by year: Refugee arrivals 1991-1995 vs. Five years of refugee arrivals until 5 years prior, FDI 5 years after



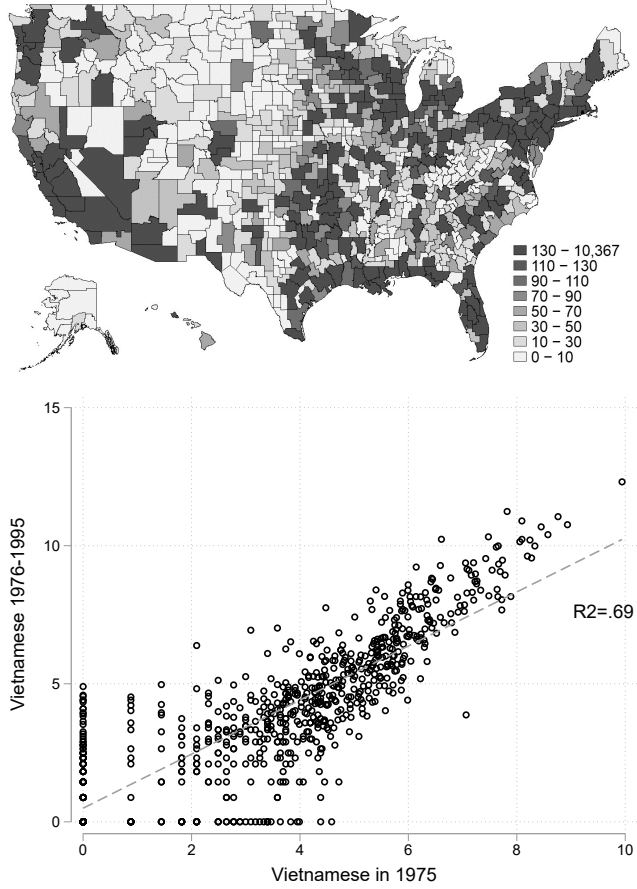
Note: Left: Sum of refugees 1991-1995. Sum of FDI in the x-axis year and the 4 following years. Right: Sum of refugees in the 5 years ending 5 years before year in x axis, Sum of FDI in the x-axis year and the 4 following years.

Figure 8: Cross section estimates by origin - FDI - Refugee arrivals 1990-2000



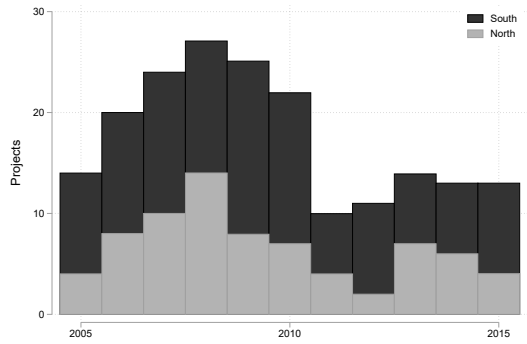
Note: The bars show the size of the relationship between refugees and FDI to their origin country. These are IV estimates on a cross section of commuting zones, whereby total refugees are instrumented by refugees without ties. We only include countries with at least 20,000 total refugees over the period 1990-2000.

Figure 9: Vietnamese in the U.S.
1975



Note: Source: Office of Refugee Resettlement and IPUMS USA.

Figure 10: U.S. FDI to the North and South of Vietnam

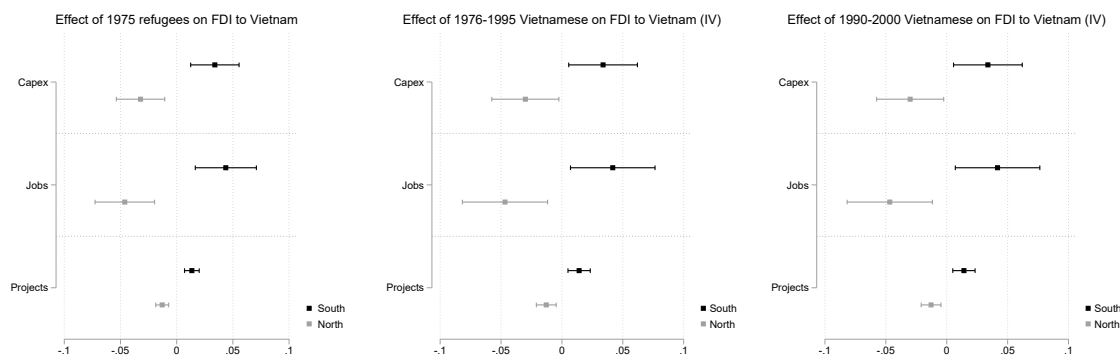


Note: Source: fDiMarkets

Table 7: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
Refugees 1975	741	140.067	501.803	0	10,387	ORR
Refugees 76-95	741	816.352	4,973.24	0	111062	ORR
Refugees 90-00	741	321.829	1,992.91	0	42,836	ORR
Capex	741	28.6474	258.266	0	4,908.2	fDiMarkets
Jobs	741	101.783	660.935	0	8,924	fDiMarkets
Projects	741	0.422412	2.67737	0	51	fDiMarkets
Total projects	741	47.6682	365.083	0	7,868	fDiMarkets
Total jobs	741	6,283.26	45,860.7	0	891,339	fDiMarkets
Total capex	741	1,754.61	12,625	0	248,563	fDiMarkets
Population	741	379,787	1.00E+06	1,193	1.60E+07	
Mean Household Income	741	32,870	5,750.71	16,696	58,628.4	US BEA
% Immigrants	741	4.11632	5.04208	0	39.6842	
% Working in Manufacturing	741	14.0357	8.40667	0.19968	44.9262	US BEA
West Coast	741	0.048583	0.21514	0	1	Google Maps
East Coast	741	0.160594	0.367404	0	1	Google Maps

Figure 11: Effect of Vietnamese refugees on FDI to Vietnam



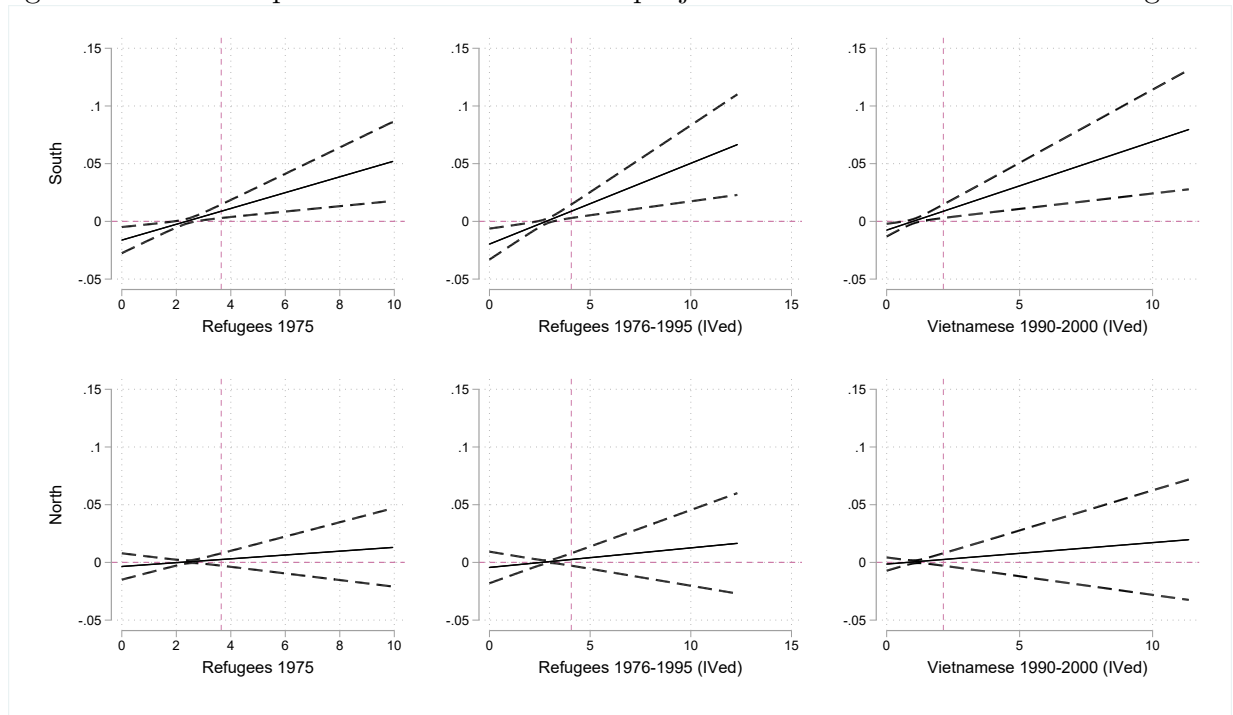
Note: The figure summarizes the estimates of Table 8. The dependent variables are FDI Capex, Jobs, and Projects to Vietnam, as categorized on the y axis. The effect on FDI to the South is the sum of the coefficients on Refugees 1975, IVD 1976-1995 refugees, or IVD 1990-2000 refugees, and its interaction with the South Vietnam dummy. The capped lines represent the 95% confidence intervals.

Table 8: The effect of Vietnamese refugees on FDI

	Baseline														
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	capex	capex	capex	capex	capex	jobs	jobs	jobs	jobs	jobs	projects	projects	projects	projects	projects
Refugees 1975	-0.029** (0.011)					-0.041*** (0.013)					-0.011*** (0.003)				
Vietnamese 1975 x South	0.070*** (0.019)					0.094*** (0.024)					0.027*** (0.005)				
Refugees 76-95		-0.034*** (0.011)	-0.025* (0.014)				-0.045*** (0.014)	-0.037** (0.015)				-0.013*** (0.003)	-0.010*** (0.004)		
Vietnamese 76-95 x South		0.074*** (0.019)	0.072*** (0.020)				0.097*** (0.024)	0.096*** (0.025)				0.027*** (0.005)	0.027*** (0.005)		
Refugees 90-00				-0.041*** (0.013)	-0.026 (0.016)				-0.053*** (0.017)	-0.039** (0.018)				-0.016*** (0.004)	-0.010** (0.004)
Vietnamese 90-00 x South				0.080*** (0.021)	0.079*** (0.021)				0.103*** (0.027)	0.105*** (0.027)				0.029*** (0.005)	0.030*** (0.005)
South	-0.126*** (0.046)	-0.172*** (0.053)	-0.161*** (0.054)	-0.041 (0.025)	-0.037 (0.023)	-0.158*** (0.058)	-0.208*** (0.064)	-0.204*** (0.068)	-0.035 (0.034)	-0.039 (0.031)	-0.053*** (0.013)	-0.065*** (0.014)	-0.067*** (0.015)	-0.018*** (0.006)	-0.020*** (0.006)
Pop	-0.028** (0.012)	-0.025** (0.011)	-0.035** (0.016)	-0.020** (0.010)	-0.036** (0.016)	-0.034** (0.015)	-0.031** (0.013)	-0.041** (0.019)	-0.026** (0.013)	-0.042** (0.019)	-0.011** (0.005)	-0.008* (0.005)	-0.013** (0.006)	-0.007 (0.005)	-0.014** (0.006)
Mean HH income	0.023** (0.010)	0.023** (0.009)	0.030** (0.013)	0.013 (0.009)	0.027* (0.014)	0.030** (0.013)	0.029** (0.012)	0.037** (0.016)	0.017 (0.012)	0.032* (0.017)	0.009** (0.004)	0.008** (0.004)	0.012** (0.005)	0.004 (0.004)	0.010* (0.005)
% Immigrants	0.012** (0.006)	0.012** (0.006)	0.012** (0.006)	0.012* (0.006)	0.011* (0.006)	0.010 (0.008)	0.010 (0.008)	0.010 (0.008)	0.010 (0.008)	0.009 (0.008)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005 (0.003)	0.004 (0.003)
% Working in Manufacturing	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.005** (0.002)	0.005** (0.002)	0.005** (0.002)	0.004** (0.002)	0.005** (0.002)	0.001* (0.001)	0.001* (0.001)	0.001* (0.001)	0.001* (0.001)	0.002* (0.001)
West Coast	0.309** (0.144)	0.308** (0.144)	0.303** (0.143)	0.310** (0.145)	0.308** (0.143)	0.387** (0.153)	0.387** (0.153)	0.382** (0.151)	0.389** (0.153)	0.387** (0.152)	0.084* (0.044)	0.084* (0.043)	0.082* (0.043)	0.084* (0.044)	0.083* (0.044)
East Coast	0.090* (0.050)	0.088* (0.050)	0.090* (0.050)	0.087* (0.050)	0.087* (0.050)	0.081 (0.065)	0.079 (0.065)	0.081 (0.065)	0.078 (0.065)	0.078 (0.065)	0.030 (0.019)	0.029 (0.019)	0.030 (0.019)	0.029 (0.020)	0.028 (0.020)
Total capex	0.311*** (0.020)	0.311*** (0.020)	0.310*** (0.019)	0.311*** (0.020)	0.308*** (0.019)										
Total jobs						0.374*** (0.020)	0.374*** (0.020)	0.373*** (0.020)	0.375*** (0.020)	0.372*** (0.020)					
Total projects											0.158*** (0.013)	0.159*** (0.013)	0.158*** (0.013)	0.159*** (0.013)	0.157*** (0.013)
N	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482
R-sq	0.67	0.68	0.68	0.68	0.68	0.69	0.69	0.69	0.69	0.69	0.67	0.68	0.68	0.68	0.68
F IV			99.50		80.66			99.66		80.85			99.70		81.19

Note: Refugees are in 1975, from 1976 to 1995, or from 1990 to 2000. FDI is 2005-2015. Column (4) is refugees IVD by 1975 refugees. Czone clustered standard errors in parenthesis, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level. Variables are in inverse-hyperbolic sines.

Figure 12: Effect of post-2005 reforms on FDI projects to Vietnam across commuting zones



Note: The graphs illustrate the effects of post-2005 reforms on FDI projects to Vietnam across commuting zones, as estimated in equation 3. The solid line is computed as $\gamma + \beta_1 \times VietKieu_i$. A coefficient of 0.05 suggests that FDI projects increased by around 5% ($e^{.05}$) from 2003-2005 to 2006-2010. Dashed lines are 95% confidence intervals. The three columns show the reduced-form, OLS, and 2SLS estimates respectively.

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