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Master's thesis in Political Science
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Abstract

This paper empirically investigates the causal relationship between Foreign Direct Investment (FDI) measured in FDI flow and FDI stock to interpersonal violence measured in homicide rates using data from 170 countries spanning 30 years. I study this relationship using a time series Cross-sectional (TSCS) method and Instrumental Variable (IV) regression. The results suggest that while there is a negative correlation between FDI flow and homicide rates, the relationship is not statistically significant in the IV regression and robustness test, implying the presence of endogeneity. I also find a non-linear relationship, indicating that some FDI might reduce homicide rates, while excessive amounts may lead to an increase. However, this finding could not be reproduced in the IV regression due to methodological issues, leaving this for future research. This study represents an examination of the interplay between FDI and homicide rates, shedding light on the socioeconomic complexities affecting crime and providing crucial insights for policymakers aiming to strike a balance between economic growth and societal safety.

Sammendrag

Denne oppgaven undersøker den empiriske årsakssammenhengen mellom direkte utenlandsinvesteringer (FDI) målt i investeringsstrøm og investeringsbeholdning til interpersonell vold målt i drapsrater ved bruk av data fra 170 land over 30 år. For å studere dette forholdet, anvender jeg tverrsnittsmetode med tidsseriedata og instrumentell variabel (IV) regresjon. Resultatene antyder at selv om det er en negativ korrelasjon mellom FDI-strøm og drapsrater, er forholdet ikke statistisk signifikant i IV-regresjonen og robusthetstesten, noe som antyder tilstedeværelse av endogenitet. Jeg finner også et ikke-lineært forhold, noe som tyder på at noe FDI kan redusere drapsrater, mens en overdreven mengde kan føre til en økning. Dette funnet kunne imidlertid ikke reproduseres i IV-regresjonen på grunn av metodiske problemer, noe jeg legger igjen til fremtidig forskning. Denne studien representerer en undersøkelse av samspillet mellom FDI og drapsrater, og kaster lys over de sosioøkonomiske kompleksitetene som påvirker kriminalitet og gir viktige innsikter for beslutningstakere som ønsker å føre en politikk som sikter mot å finne en balanse mellom økonomisk vekst og samfunnssikkerhet.

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1. Introduction

The impact of foreign direct investment (FDI) on developing countries is a recurrent theme in the field of international political economy (IPE) as multinational corporations (MNCs) continue to dominate the global economy. When an MNC invests in another country, it does so through FDI. This study adds to the literature by investigating the relationship between FDI and homicide rates in host countries. Scholars critical of MNCs and FDI tend to argue that FDI brings a host of problems detrimental to developing countries. Liberals tend to see the benign aspects of FDI, arguing that it brings economic growth, prosperity, and peace. Marxist and dependency-oriented writers would argue that an MNCs introduction of FDI would increase homicide rates in the host country. Liberals would argue that FDI would bring opportunities, economic growth, and thereby lower homicide rates. Empirically testing the liberal and Marxist perspectives, I employ a time series cross-sectional analysis of 170 countries, offering substantial empirical evidence to inform the debate. In this introduction, I briefly outline the research question and introduce the most relevant international political economy (IPE) literature on the topic before delving more into depth on FDI, multinational companies (MNCs), sociology, criminology, and the use of methods. I find that contrary to prior arguments, the evidence shows no clear relationship between FDI and homicide in terms of either a clear positive or negative effect on homicide rates. The results show a rather U-shaped relationship. Some level of FDI reduces homicide rates. However, this relationship turns positive at higher levels. The net effect is thus indeterminate. Next, I highlight the importance of FDI for the development debate and assess its theoretical links to crime and interpersonal violence.

1.1 The Gap

The income gap between the rich and poor countries is a striking aspect of the international political economy. While the gap inside countries is large, the gap between countries is immense. Research on the income gap is inconsistent; some scholars say the gap is narrowing, and others say it's widening. Some scholars say we shouldn't care at all about the gap, that underdevelopment is simply a stage poor countries must endure on their way to becoming rich, and what matters more is increasing absolute wealth rather than bothering with the relative gaps. From World War II to the 1980s, the GDP per capita income gap increased from 3677 dollars to 9403 dollars for developed countries (in 1980s dollars). While the average per capita income of low-income countries was 164 dollars in the 1950s, it only increased to 245 dollars in the 1980s. On the other hand, the industrialized countries increased

their per capita income from 3,841 to 9,648 dollars in the same period, leaving an income gap of 9,403 dollars. The gap showed no sign of closing and only increased in scale. In the 2000s, the gap also increased. In 2011 the income per capita for low-income countries was 571 dollars, while the same figure for high-income countries was 41,274 dollars – lending little support to those trumpeting the convergence theory (Seligson & Passé-Smith, 2014, p. 1-2).

Convergence theory posits that low-income countries will catch up with the rich through the mechanism of diminishing returns to capital; all countries eventually converge in wealth as capital seeks more profitable markets and higher rates of return. Since rich countries have a high capital-to-labor ratio, the rate of return will be low. Poorer countries are capital poor or have low capital-to-labor ratios. Thus, capital will naturally flow to more underdeveloped countries, increasing their growth while the more mature markets slow down. However, Seligson (in Seligson & Passé-Smith, 2014, p. 1-3) shows that the gap is wide and growing, while Passé-Smith (in Seligson & Passé-Smith, 2014, p. 27-30) shows that some countries do manage to narrow the gap while most do not. Using purchasing parity and weighted data, Firebaugh (in Seligson & Passé-Smith, 2014, p. 49-51) finds that the gap is neither growing nor shrinking. It's steady. The road to maturity and mass consumption still seems a faraway dream for economically underdeveloped, low-income countries. For the poorer countries, it is not just about the gap. The concern extends beyond the mere existence of economic disparity. Absolute poverty, characterized by conditions such as malnutrition, disease, deprivation of rights, and violence, inhibits the opportunity for decent living. Consequently, enhancing the economic status of impoverished populations can significantly alleviate a number of issues at both local and international scales.

Underdeveloped nations often encounter a poverty trap due to the insufficiency of domestic capital for investment. Consequently, the capital required for development often originates from external sources such as loans, aid, and FDI from MNCs. State-led development relies on borrowed capital, which carries the potential risk of inducing debt-related complications. On the other hand, development steered by foreign private capital is often perceived as more efficient, given the innovative and investment-oriented nature of competitive international capital aimed at maximizing profits. Economies with this more open structure tend to attract a significant amount of FDI.

The infusion of FDI presents added benefits as it often comes bundled with advanced technologies, efficient production methods, and access to new markets abroad. Hence, FDI-led development is typically linked with market economies and capitalism. Moreover, it is associated with value chains in extensive markets, indicative of a globalized world where investments cross national borders. Thus, MNCs have the potential to leverage the global economy to invest in underdeveloped and emerging nations. By capitalizing on their competitive advantage at an international level, MNCs can increase their profits while simultaneously enhancing the wealth and living standards of the local populace.

FDI plays a pivotal role in economic development, yet it may also have unexpected societal impacts due to rapid social change, such as changes in crime rates and interpersonal violence. As Pinto and Zhu (2022) conclude, FDI increases the likelihood of civil conflict in host countries. This paper delves deeper into a similar question: what are the implications of FDI-led development on the homicide rates within host nations? This question is pivotal, as it problematizes the intersection of economics, societal well-being, and security within a globalized framework.

I consider several facets in my exploration. First, I examine the direct impact of increased FDI on a country's social fabric, specifically focusing on the changes in homicide rates. I also look at how increased economic activity, urbanization, liberal democracy, and trade interplay and influence crime and homicide rates. Furthermore, I delve into the sectoral differences in FDI and their corresponding impacts on homicide rates. Is there a different impact depending on whether the FDI is allocated toward natural resources? Understanding such nuances can aid in creating a more holistic and accurate picture of the relationship between FDI, crime, and homicide rates.

Next, I examine the temporal aspect of FDI inflow and its impact on homicide rates. Is there an immediate spike in homicide rates following the influx of FDI, or do we observe these changes over a more extended period? Understanding the time dynamics can help in devising effective policy interventions. This study aims to contribute to understanding the multi-dimensional impact of FDI, moving beyond purely economic benefits and examining its societal implications. My findings will hold considerable significance for policymakers, enabling them to craft strategies that optimize the benefits of FDI while minimizing potential societal costs.

I briefly discuss theories explaining crime; then, I move on to theories explaining the association between FDI and development and how they connect. Having presented the reader with an overview, I delve into criminological theories, economic theory, and the nature and complex role of FDI and MNCs in development. Then I present competing hypotheses based on the theoretical discussion and the previous findings. Having done this, I discuss my choice of method and data. Finally, I present the discussion and the results section, presenting my findings and conclusions.

1.2 Cultural Change and Crime

Writing on the effects of modernization, Durkheim noticed that as societies grow, their population density grows as well, becoming more complex and the population dislocated (Durkheim, 2001). Both Durkheim and Engels (2000) focused on the social consequences of rapid economic development and urbanization. Writing during the industrialization of the 1800s, they described a sickness in society: rising crime rates, violence, drunkenness, debauchery, suicide, homicide, and more. For Durkheim, the loss of connection to society, social norms, and values was responsible for the social upheaval. At the time, private, national capital was the norm, not FDI. Some growth periods are troublesome, as the economy, culture, and norms are shifting – no matter the developmental model. Studies investigating the particular character and consequences of FDI-led development are more recent. Some aspects of development are present no matter the type – urbanization, for example, is a consequence of opportunities for employment in factories located in growing cities – and all three developmental models (state-led, private- and foreign direct investment) would produce some level of urbanization. Despite this, Pinto and Zhu (2022) find that in contemporary times FDI increases the likelihood of civil conflict and civil war, which begs the question of whether FDI has similar idiosyncratic consequences leading to increased crime, violence, and homicide. If FDI is producing violence, then surely it is more likely to manifest itself in crime and homicide rather than civil wars, which are rather rare. Why exactly FDI matters rather than processes common to a nationally or local investor-led development model is not immediately clear and needs further elaboration.

Any interference with established culture, economic norms or values, or existing social hierarchies is bound to have consequences – some good and some bad. Changing hierarchies

and uprooting traditions and social dynamics leave individuals unsure of their societal roles and positions and which values and groups to follow. This can induce what Durkheim (2001), in his seminal book *the suicide* dubbed "anomie" – a sense of normlessness. That being said, poor nations need capital to grow, escape poverty and become affluent; some negative externalities may be acceptable for the greater good, that is, development. It depends on how acute and deep-running the consequences are. Rising crime rates can disrupt the accumulative good of economic growth, such as better schools, access to hospitals and social services, employment, and the ability to lead good and decent lives. As Kuznets (in Seligson & Passé-Smith, 2014, p.143-147) argues, inequality rises in the starting phase of industrialization, increasing the probability of riots and civil war. The challenge is to take off into the later stages of economic development without social deterioration, as the dangers are greater in the initial stages. Similarly, Muller and Seligson (in Seligson & Passé-Smith, 2014, p. 166-168) argue that a high degree of land ownership concentration in the hands of the few increases the likelihood of civil war. Inequality, urbanization, and changing social norms are all thought of as crime and conflict-inducing, but whether FDI is more crime- and homicide-inducing than other forms of capital for development is yet to be established. It could be that the social fabric is weaker when foreign investors with foreign customs direct the change rather than locally known and respected investors, as foreigners are likely to hold less of a stake in the local community.

1.3 Globalization, Foreign Direct Investment, and Homicide Rates

This paper explores a different dimension of interpersonal violence, namely homicide. Drawing on theories of economic inequality and crime, this paper hypothesizes that FDI increases homicide rates by creating winners and losers in the host country's economy, and that FDI disrupts local culture and politics, increases strain and anomie, and decreases levels of collective efficacy. To test this hypothesis, this paper employs a time series cross-sectional analysis of FDI stock and flow and homicide rates from 1990 to 2019 from 170 countries contributing a large N study to the ongoing debate. The main findings, implications, and limitations of this study are discussed in the following sections.

As mentioned above, there are three main types of development paths: state-led, market-led, and foreign-direct-investment-led. Countries adopt different combinations of these paths depending on their political and economic systems and historical and geographical context.

However, all countries share a common goal of development. According to Rostow's economic growth model, achieving higher development levels requires capital accumulation and investment. Countries that lack domestic sources of capital may opt for trade liberalization to attract FDI as a means of development. FDI-led development may entail rapid social changes in the host country that could exceed its adaptive capacity. Previous research and dependency/Marxist arguments have suggested that rapid social changes may result in social disorganization and anomie, which may, in turn, increase the prevalence of various forms of deviance, such as crime, violence, suicide, and homicide.

The opposing point of view to Marxist theory is economic liberalism. Liberalism is optimistic about growth and development, prizing free markets, private property, individual liberty, free choices, and limited government interference in the economic realm. Liberalism emphasizes good governance, institutions, property rights, and a strong legal system. Liberals tend to see the good side of development and view some of the negative externalities as a necessary evil for the greater good. They see FDI and private ownership as the only viable option, as neither aid nor debt has, historically, been a good developmental model. FDI can raise poor countries' capabilities, increase their wealth and help them become self-sustained by having an advanced and dynamic economy. Liberal economists favor liberalization as a developmental model. Integration into the global market opens up a host of favorable outcomes, such as access to international markets, improved competition, access to technology and innovation, lower consumer prices, and increased specialization.

Pinto and Zhu (2022) found that countries receiving FDI have an increased likelihood of experiencing civil conflict and civil war. The underlying causal mechanism is that large multinationals can outcompete and dominate in a host country, creating huge rents.[1] MNCs can create huge economic rents that rebel groups can seize upon and exploit to finance their operations and challenge the state. However, civil wars are relatively uncommon, requiring a rebel faction to militarize to confront a more powerful state. There could be different dynamics shaping these conditions. Homicide is a more frequent occurrence often explained by individual-level social dislocation or anomie. By examining the relationship between FDI and homicide rates, policymakers can initiate epistemically informed policy. Nevertheless,

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[1] Economic rents is the surplus value generated by a product, above what it cost to produce the product. Rents aren't inherently good or bad, but excessively large rents may stem from exploitation of labor, environmental degradation or other externalities avoided in production costs – increasing profits.

Pinto and Zhu demonstrate that FDI increases host countries' risk of civil conflict and civil war. Breakthroughs in one field can often lead to breakthroughs in other areas, especially adjacent fields. I build upon this novel argument and examine a related but distinct effect.

2. Theories of Development

This chapter starts by presenting and explaining the theories of development. The primary theories are Rostow's modernization theory and dependency theory, developed by Gunder Frank. These approaches to development are a part of the larger liberal and Marxist theories of economic development. While some individuals may hesitate to label themselves as Marxist or dependency theorists, De Soysa (2003, pp. 115-116) underscores that these perspectives are essentially grounded in similar theoretical foundations. As this chapter will show, scholars in the Marxist camp tend to believe that FDI brings a lot of negative externalities that generate and exacerbate underdevelopment. Liberal scholars may acknowledge that FDI can bring some negative externalities but argue that the benefits of FDI far outweigh the negatives. This research paper attempts to answer which of the theories provides a better explanation for how FDI affects homicide rates in host countries. The broader theoretical frameworks pave the way for investigating the more specific mechanisms by which FDI can exert both direct and indirect influences on homicide rates.

2.1 Liberal View of Globalization

Liberal theorists generally view global economic integration as a positive and beneficial process that enhances cooperation, peace, and prosperity among states and societies. They argue that global economic integration fosters interdependence, reduces conflict, promotes democracy and human rights, and creates opportunities for development and growth. Liberal theorists also emphasize the role of institutions, norms, and values in facilitating and regulating global economic integration. They support free trade, open markets, multilateralism, and regionalism as means to achieve liberal goals and interests such as peace, prosperity, and openness. According to the liberal perspective, economic actors bear the brunt of societal disruptions, such as conflict – implying that they would have the largest interest in mitigating such risks. Economic integration increases the opportunity costs of going to war against other states. Blattman (2022) argues that conflict is often irrational and costly for all parties involved. Two warring parties would often be better off settling their differences peacefully; conflict often arises from unchecked leaders with different incentives than the people they rule. People are generally peaceful and do not want war; warmongering and unaccountable sovereigns with interests unaligned with their subjects are the issue, a general theme in the liberal approach to international relations theory (Waltz, 2018).

Convergence theory, the archetypical neo-liberal theory of development, posits that development happens in stages and that countries in the earlier part of development grow at a slower pace than highly developed, modern countries, leading to the "gap." The theory predicts that countries will converge but that it takes time. Countries start in the traditional phase: this phase (i) is pre-industrial and based on subsistence farming, and technology for development is lacking. The second stage (ii) is the pre-conditions for take-off, where some investment in infrastructure leads to more productive manufacturing, setting the stage for the next phase. The third stage (iii) is take-off, where urbanization and industrialization lead to economic growth. The fourth stage (iv) is the drive to maturity, where the economy as a whole is more or less industrialized and moves beyond the few industries that initially drove its take-off. The last stage (v) is the age of high consumption. A shift toward goods and services and a significant improvement in living standards characterize this stage (Rostow, 1990; Seligson & Passé-Smith, 2014, p. 204-208). Countries with open economies can gain from technological exchange with developed countries, as copying technology is easier than innovating, making it cheaper for them to converge – as the world growth rate is driven by technological innovation (Barro & Sala-I-Martin, 1997; De Soysa, 2003, p. 27).

Liberal arguments tend to favor free markets and market solutions. In a 2021 study, De Soysa argues that free markets and institutions reduce the rents for underground criminal organizations. Countries where markets are distorted see higher levels of crime and homicide, as criminal syndicates often use private, violent justice. De Soysa finds no connection between free-market policies and increased levels of violent crime. People will invest in the legal economy rather than the illegal one if they are allowed more freedom to do so. He argues that economic freedom is more homicide-reducing than both political freedom and fair political governance. Brush (2007) found inconclusive results when applying time series data, implying that inequality may not be as homicide-inducing as some might suggest. In a 2023 study on inequality and homicide rates, Vilalta et al. (2023) found no support for inequality leading to increased homicide rates in Mexico. On the contrary, the authors found neighborhoods with a higher level of inequality to have fewer homicides than those with low levels. While the study does have its limitations, using only Mexican municipalities between 1990 and 2015, it does present an interesting contribution to a debate with divergent findings, as inequality may not be as homicide-inducing as previously thought. This perspective indeed shifts focus from general societal explanations regarding the prevalence of crime, prompting

us to consider how homicide might be a phenomenon occurring for narrower, more personal motivations.

As the above suggests, liberal scholars and economists tend to maintain a belief in market forces and solutions. Ross (2012), in *The Oil Curse,* finds that natural resources can be both a blessing and a curse; it depends on how the resource is managed. He also argues that public ownership of oil resources can make a country more prone to violence as governments depend more on the unpredictable nature of oil markets. Hodges (1995) has a similar argument, arguing that state-owned mineral companies are inefficient and that poorer African countries could benefit significantly from allowing foreign investors to take part and spend the rents accrued more efficiently. During the 1980s and 90s, organizations such as the World Bank and International Monetary Fund (IMF) promoted the Washington Consensus, which included privatization and trade liberalization as a developmental model. Globalization and free flow of capital were prescribed as excellent ways to develop, as a rising tide lifts all boats.

While Pinto & Zhu (2022) study armed civil conflict, crime and homicide operate through different dynamics. Yes, criminal gangs and mafialike organizations operate on a somewhat similar fighting dynamic as rebel groups i.e. they are rational and profit-maximizing. War is often costly and disrupts profitable activities such as drug sales and other illicit endeavors. But organized violence such as civil war and violence caused by anomie, strain, or low rates of collective efficacy operate by different mechanisms. From the liberal perspective, being unable to invest in the legal economy or make a decent living, watching the government hoard oil wealth is considered homicide-inducing, as the rules of the game and the governing system are perceived as unfair. Thus, FDI and an increasingly open economy should lower homicide rates as more people are able to participate through legal means. Growth will alleviate destitution and enable the growth of a middle class

2.2 Marxist and dependency theory
The liberal view of economics may be the most prominent today, but it certainly is not the only one. Neo-Marxism, dependency theory, and world systems theory are all used to explain concepts and phenomena in the study of international political economy. Some are distinctly oriented around core concepts. Marxist theories emphasize power, arguing that rich countries exploit poor countries. Wallerstein (1979) separates countries into core and periphery; in his

world systems theory, poor peripheral countries are mere exporters of natural resource products to be refined by rich core countries. The core maintains its wealth and status by exploiting poor countries' cheap labor and natural resources by selling industrial products and technology at a high markup. Dependency theory is similar, sorting the world into metropoles and satellite countries (Frank, 1971; Seligson & Passé-Smith, 2014, p. 283-288). In dependency theory, however, poor countries are trapped in their dependent relationship. Poor countries open themselves up to foreign markets and become trapped as they produce goods that the core countries need. Dividing the world into satellites and metropoles, any foreign capital only further facilitates the poor countries' satellite status. For rich metropole countries, development leads to economic growth, while for poor satellites, it leads to further extraction and dependency – a modern variety of imperialism (De Soysa, 2003, p. 36-37. Some liberals have attributed the challenges faced by underdeveloped nations in attracting capital investment and achieving economic growth to factors within these countries themselves. They argue that the expropriation of private enterprises and other unfavorable cultural characteristics are responsible for these difficulties (De Soysa, 2003, p. 32-33). Contrarily to liberals, dependency theorists argue that the technology transferred to developing nations is typically outdated by the standards of the developed, metropoles countries. They suggest that the primary motivation behind this transfer is profit-driven, as multinational corporations can continue to generate income from this technology in the less-developed satellites (De Soysa, 2003, p. 31).

The literature is filled with scholars presenting findings divergent from the liberal narrative. Bussmann & Schneider (2007) contends that opening trade barriers lowers the opportunity costs of engaging in violence for the economic losers as they struggle with economic reform. Martin, Mayer & Thoenig (2008) find that international trade can act as a substitute for domestic trade, weakening ties between groups within a country and increasing the likelihood of conflict. Wegenast and Schneider (2017) find that foreign ownership in resource extraction can intensify grievances in local communities. Thus, there are concerns to be accounted for in foreign ownership models. As Pinto & Zhu (2022) point out, commercial liberalism assumes that globalization and integration generate benefits to the economy and that the benefits are somewhat evenly distributed. Yet, benefits aren't evenly distributed. There is an unequal distribution, and some gain more than others. This has the potential to nourish grievances and revisionist attitudes.

As Levchack (2019) writes, there has been empirical knowledge of the negative consequences of modernization since the days of Engels, Durkheim, and Marx. Levchack contends that FDI increases homicide rates through three routes. Modernization (i) leads to urbanization as farmers and peasants flock to the cities in search of the opportunities urban life brings. While urbanization can lead to higher degrees of opportunity and employment, rapid urbanization, without the infrastructure to handle it, can lead to increased squalor, crime, and homicide. FDI (ii) also leads to increased inequality. As written in section 2.1 on liberal theory, there are divergent findings on whether inequality leads to increased homicide rates. Scholars in the literature critical to liberal theory tend to maintain that inequality does increase homicide rates. Kelly (2000) found that inequality causes violent crime rates to increase, while Fajnzylber, Lederman & Loayza (2002) found a causal relationship between crime and inequality both between and within countries. The third way (iii) FDI leads to increased homicide rates is economic growth, which can unevenly distribute the costs and benefits, leading to inequality and increased homicide rates (Levchack, 2019).

2.3 Why FDI – Why do countries need and seek FDI?

Poor countries both lack and need capital. Without capital, underdeveloped countries cannot build and maintain the self-sustaining, dynamic market economy necessary in the modern world. While different methods of providing developing countries with the means to develop have been attempted, FDI seems to deliver the best results since many experts argue that historically, foreign aid has not work very well, and aid might even hamper development as some countries become reliant on it; inequitable distribution and corruption may also hinder aid from working successfully (Easterly, 2006; Moyo, 2009; Bueno de Mesquita & Smith, 2011). Lending has also been attempted, but this has also delivered less-than-ideal results, leading poor countries into the debt trap.

Some scholars are positive about FDI, showing that the negative effects of FDI on growth argued by dependency scholars are not apparent in the data (De Soysa, 2003, p. 116-117). Borensztein, De Gregorio & Lee (1998) contend that FDI can lead to improved growth rates compared to investments made by domestic capital, but this is contingent upon the presence of adequate human capital. Other scholars are warier about the consequences of FDI. As Pinto & Zhu (2022) highlight, there is a divergence in the FDI conflict literature; some scholars find and argue that FDI decreases conflict, while others argue that it increases conflict and the

intensity of conflicts. Some argue that there is no effect of FDI on conflict. Similarly, in the FDI to homicide literature, there is uncertainty. In a 2019 study examining ten Latin American countries, Doyle (2019) discovered that FDI did not lead to increased homicide rates. Instead, the study concluded that FDI contributed to lower homicide rates in the host nations. However, the research's scope was limited, using data from 2010-2016 and focusing on 10 countries within a geographically narrow region: South America. Conversely, Levchack (2019) presents a theoretical argument suggesting that FDI should increase homicide rates, as it fosters economic growth, urbanization, and inequality – three somewhat established correlations to homicide. FDI indeed promotes urbanization, economic growth, and inequality, yet these outcomes can also be attributed to other forms of development. Consequently, the question of whether FDI distinctly raises homicide rates compared to other types of development remains unresolved and warrants further research.

2.4 What is FDI, and why can it be negative for poor and developing countries

John Dunning's (1980; De Soysa, 2003, p. 31) eclectic theory of international production combines several elements from different theories to establish a comprehensive theoretical framework to explain what motivates MNCs and which advantages they gain from engaging in FDI. Dunning demonstrates three core intertwined advantages for firms, shaping their decision of whether to invest in a foreign country. (i) ownership advantages, (ii) location advantages, and (iii) internalization advantages (OLI framework). Ownership advantage is the unique technology, patent, skills, technology, and other resources the multinational owns. Location advantage refers to the favorable conditions it has in foreign markets, such as market size, access to resources, and business environment or tax laws. Internalization means the benefits a multinational can enjoy by controlling its operation in a foreign environment instead of outsourcing. Dunnings argues that a firm will invest in a foreign market when the ownership and location advantages are in its favor. This is to offset the transaction costs that arise when operating in a foreign market.

Of course, transaction costs will vary for each firm and in every country, meaning the influence and relative weight given to each advantage will change from case to case. Dunning's theory of international production offers a nuanced understanding of the motivations and advantages that drive firms to engage in FDI. According to this theory, MNCs exist and prosper because they are able to effectively exploit the benefits of FDI

Specifically, the theory emphasizes the significance of direct control and ownership in fully allowing firms to utilize their competitive edge.

Alfaro, Chanda, Kalemli-Ozcan & Sayek (2004) argue that countries with well-developed financial systems are better equipped to take advantage of the spillovers from FDI, such as knowledge transfer and technological transfer, which may lead to economic growth, while countries with less-developed financial systems reap fewer benefits. Javorcik (2004), studying Lithuania, found that projects with both domestic and foreign ownership successfully created spillovers, while projects fully owned by foreign actors did not create spillovers, suggesting that some countries will be better equipped and take advantage of the developmental opportunities FDI produces. A combination of the OLI framework and the conditions inside the host countries could determine the effect of FDI and how the potential spillovers and externalities manifest themselves.

In *Development & Under Development*, Seligson and Passé-Smith (2014) present the traditional approaches to economic development. The theory of convergence is prominent in development theory stemming from the neo-classical economics theory. If capital is free to flow, then the assumption of diminishing capital returns will lead capital from wealthy developed countries to underdeveloped and poor countries in search of greater capital returns, as there is a more favorable capital-to-labor ratio in poor countries. (Seligson & Passé-Smith, 2014, pp. 203-210). During the different stages of growth, countries in the second (pre-conditions for take-off) and third (take-off) stages grow faster than in the first, leading to inequality and the infamous gap between rich and poor.

I follow Kerner's (2014) recommendation of accurately distinguishing between FDI stock and FDI flow data. By following Kerner's recommendations, I can ensure that the correct FDI data is used, leading to more valid and reliable findings. By being explicit about the definitions and assumptions of FDI stock and FDI flow, I can avoid potential ambiguities. FDI stock represents the total accumulated value of foreign investments in a country at a specific point in time. At the same time, FDI flow measures the net inflows and outflows of FDI during a particular period, such as a year or a quarter. This means that FDI flow captures short-term while stock captures more long-term effects. Kerner emphasizes the importance of using accurate and comprehensive data sources for FDI. By selecting reliable data sources such as the World Bank, UNCTAD, or OECD, I can be confident that the FDI stock and FDI flow

data are accurately represented and comparable across countries and time periods. I gathered my data from UNCTAD, a renowned source commonly used and recommended by Kerner.

Kerner recommends applying a separate analysis for FDI stock and FDI flow. This distinction allows the study to determine if the relationship between FDI and homicide varies depending on whether it is a stock or flow measure. For example, FDI stock might have a different impact on economic development compared to FDI flow due to differences in the long-term presence of investments and their short-term dynamics. This distinction enhances the accuracy and validity of the findings and allows for a more nuanced understanding of the relationship between FDI and homicide rates in the host country.

UNCTAD (2022) defines FDI as "an investment reflecting a lasting interest and control by a foreign direct investor, resident in one economy, in an enterprise resident in another economy (foreign affiliate)." FDI flow is defined by UNCTAD (2022 & n.d) as "capital provided by a foreign direct investor to its foreign affiliate resident in the reporting country, or capital received by a foreign direct investor resident in the reporting country from its foreign affiliate abroad. FDI flows are presented on a net basis, i.e., as credits less debits. Thus, in reverse investment or disinvestment cases, FDI may be negative." And finally, FDI stock is defined as "FDI stock is the value of capital and reserves attributable to a non-resident parent enterprise, plus the net indebtedness of foreign affiliates to parent enterprises."

As the World Bank (n.d) defines it, "Foreign direct investments are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor." Also: "It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments." FDI stock refers to the total level of direct investment – the accumulated value held – at a measured point in time, normally at the end of a quarter or year. "The inward FDI stock is the value of foreign investors' equity in and net loans to enterprises resident in the reporting economy" (OECD, 2023). Flow measures investment coming and going to a country in a given period. Stock, on the hand, is the total amount of investment held by foreigners at a given time.

2.5 Explanatory power

As these two chapters above make clear, there is ample theoretical support for both the hypothesis that FDI leads to more homicide and that it does not. Rich countries see less homicide, so if FDI leads to economic growth and prosperity, the results should support the claim that FDI, ultimately, leads to lower homicide rates indirectly through income gains. On the other hand, as dependency theorists argue, if FDI is making poor countries further dependent on rich countries and not alleviating their poverty, furthering rates of anomie, alienating citizens, and increasing their deprivation, we should observe rising homicide rates when FDI increases. The empirical data and results, not the theory, can ultimately provide the evidence.

3. Multinationals and criminological theories

This chapter examines MNCs and theories in sociology and criminology to sort out the potential mechanism connecting FDI to high crime and homicide rates. I start by explaining what MNCs are and some of the potential positive and negative aspects of allowing MNCs to enter and operate in a country. I discuss the different models of MNCs, how some are more benign than others, and why some companies might be tempted to get involved in local politics. Further, I outline how inequality, economic growth, and urbanization can increase homicide rates. I discuss how legitimacy affects homicide rates; states rely on legitimacy, which is built slowly. I then move on to discuss indirect effects. FDI leading to more homicides is bound to be an indirect effect, and in this section, I explain how the causal mechanism would operate. The chapter then moves on to the sociology and criminology theories necessary to explain the connection between FDI and increased homicide rates. The prominent theories are institutional anomie theory, general strain theory, relative deprivation, and collective efficacy, which should support the claims of dependency theorists.

3.1 MNCs

Multinational companies are companies that operate in more than one country. They have become increasingly common in a globalized world as companies seek to expand and seize the opportunities a globalized world and integrated markets can offer. FDI flows increased massively in the 90s and increased five-fold in the 2000s (Krugman, Obstfeld & Melitz, 2012, p, 225). While most of the FDI went to developed countries, the amount flowing to developing countries has increased steadily. As this section will show, multinational companies can be and are seen in both a positive and negative light. MNCs can provide much-needed capital to developing countries and help spur economic development. They can increase trade and improve local labor markets by creating jobs. Multinationals can bring the transfer of technology and knowledge and improve living standards. Multinationals have multiple positive aspects, but as the dependency perspective shows, and I further demonstrate below, there are negative aspects to be considered.

Multinationals have several advantages. They can develop high-tech in a developed country yet place production in a low-cost country, maximizing profits. Similarly, multinationals can place productions near markets, cutting transportation costs (Krugman, Obstfeld & Melitz, 2012, p, 228). This ability to use each country's competitive advantage is a hallmark of

modern multinationals. Multinationals are more robust to shocks, as their production is not limited to one or two prominent locations. Production and operations are distributed worldwide, thereby hedging themselves against external shocks and political or natural disasters. Economic downturns or recessions in one country do not impact multinational companies as severely as risk is diversified worldwide.

Multinationals, ideally, adapt to local law, customs, culture, and language. They do not operate outside international and local law. To some degree, they must engage local expertise in law and regulation to maintain operations. MNCs generally have to act responsibly and follow corporate social responsibility (CSR) to maintain relations with the public and local authorities in a host country. Van Zanten & Van Tulder (2018) found that MNCs are more likely to abide by sustainable development goals (SDG) that are aimed at avoiding harm than goals that are proactive and seek to "do good.". They also find that MNCs are more likely to support SDGs if they are actionable within their operational goals. There are, however, deviations among companies.

While some companies emphasize social responsibilities and place importance on being seen as responsible stakeholders and actors, others do not. Remaining opaque and keeping a low profile, some multinational companies operate in murky waters, in the grey area of legal and ethical boundaries. Mining, drilling, and other natural resource-related businesses are infamously unclean and corrupt (Wenar, 2011). Dictators maintain their grip on power, and foreign companies extract wealth and resources on their behalf without caring for the local population or environment (Bueno de Mesquita & Smith, 2011). Prior studies have also indicated an association between natural resource rents and homicide rates within countries (Stretesky, Long, & Lynch, 2017).

The concerns and issues levied against multinationals range from excessive power over the local population to tax avoidance (Amnesty International, n.d). Multinationals can be *the* source of income in a town or country, enabling the companies to squeeze the locals as they have nowhere to go; often, locals lack the ability to access information on the consequences of the MNC's operation, inhibiting their agency. This touches upon another criticism – the harsh working conditions often imposed upon locals. Human rights abuses, child labor, and forced labor are all charges that, historically, have been brought forward against MNCs (Amnesty International, n.d).

Going further, MNCs have been documented to have been acting both corruptly and unethically. MNCs have contributed to and facilitated corruption in countries with weak institutions and regulations. Their lack of transparency also undermines the rule of law, as they can use shell companies and tax havens to engage in bribery and other malicious activities subversive to the rule of law and development in host countries (Amnesty International, n.d). They can use their political influence on the local governments to receive tax breaks, have the state subsidize some of their business costs, or entice the use of government funds to build construction and infrastructure projects more favorable to multinationals than the local population. A multinational could have strong interests in keeping a host country's political leadership weak, which would inhibit the state from effectively taxing the company. In many poorer countries political power is concentrated in the hands of the few, and bribing a smaller selectorate is easier and less costly than a large selectorate (Mesquita & Smith, 2011).

Multinationals can be cultural imperialists, promoting their own business culture, way of life, and social culture in general over the locals' historical culture and traditions – eviscerating ancient inheritance. Rapid urbanization, the loss of traditional and communal life, and the loss of status and meaning can produce what Durkheim (2001) called *anomie.* A loss of social standards, increasing alienation, and normlessness can produce a society with increasing social troubles such as crime, violence, and homicide Durkheim (2001). In a 2019 paper, Levchak examines how globalization affects development and modernization today. He links FDI and homicide through economic growth, urbanization, and inequality. Levchack considers an increase in homicide in host countries an indirect effect of FDI. Investment leads to rapid economic growth, which leads to anomie. Individuals seek employment in cities because of urbanization and the expropriation of land. Too rapid development and cities won't be able to accommodate and employ the new residents (Shelley, 1981 & 1982). Squalor, competition for scarce resources, and anonymity in the city for potential criminals increase the likelihood of violent crime and homicide as the risk of getting caught is lower (Levchak, 2019). In addition, new residents who recently migrated from the village used to a different form of justice may bring their own form of conflict resolution, which is at odds with the urban citizens, leading to increased conflict between the newly arrived and already-integrated residents. Finally, the type of migration is important; young men seeking employment are

likely to be the main movers from the countryside to the city. Young men are also prime instigators of violence and homicide. (Levchack, 2016)

There are important distinctions to be made. Some ownership models produce more benign results. As Layna Mosley (2010, p. 7) argues, direct ownership has a higher likelihood of leading to a climb to the top, while outsourcing has a higher likelihood of leading to a race to the bottom dynamic. Direct ownership refers to the parent company directly controlling the production line. Outsourcing or subcontracting refers to a company using third-party actors to supply them with the work. According to Mosley (2010, p. 238-239), direct ownership produces different incentives than outsourcing. The incentives include respect for internationally recognized labor rights – which do not prevail with outsourcing, where cost-effectiveness trumps labor rights, which can be costly to uphold. It is difficult for the company hiring a third party to check what the third party is doing, as they do not directly control it. Mosley provides an important distinction: different models and entries into host countries produce different results. Companies may want to retain highly qualified employees with increased competition, and thereby treat and pay them well. Beyond ownership models, companies vary in how they pay their employees. Some studies show that companies receiving FDI pay their employees more than domestic companies that do not receive FDI (Levchak, 2019, s. 319).

When investments are made but control is weak, we would expect to see the most negative aspects of FDI, an increase in homicide resulting from increased corruption, lower social trust, fragmentation, and alienation. It is not the socially responsible multinational corporations that bring about such negative outcomes through their contributions to infrastructure, high-paying employment, and technological advancements. Rather, it is the unintended consequences of multinational corporations that engage in unscrupulous behavior without regard for the potential harm they may cause.

Multinationals getting involved in local politics can come from several angles, but an important one stems from the time inconsistency problem. Before an investment is made, the multinational holds all the power. Companies looking to go abroad can shop around for the best deal, seeking favorable tax arrangements, subsidies, lax labor laws, etc. Once the deal is struck and capital has been invested in factories, machinery, and trained personnel, the state can renege on its commitment, creating a commitment problem (Vernon, 1971). While larger

companies may be able to retreat from the investment, some companies might have invested sufficient capital that they cannot afford to retreat elsewhere and are vulnerable to the ruling government in the host country, a sunk-cost problem. This gives companies great incentives to get involved in local politics. They must influence the decision-makers to work in their interest to protect their investment. Rodrik (1997, p, 69-70) argues that capital can get up and leave, resulting in capital flight if policymakers turn hostile to them. But for some, staying and influencing the government might be preferable when significant investments are involved. Vernon's (1971) obsolescent bargaining model may explain a significant part of why multinationals engage in politics and attempt to shape host countries' policies to be favorable to the MNC. Vernon (1971) emphasizes that before the investment is made, the company holds most of the power, but *ex post*, the balance shifts towards the government.

Legitimate actors in the political sphere may also influence homicide rates. The state and its policies must be seen as legitimate. In a recent study, a high degree of legitimacy was correlated with lower levels of homicide and vice versa (Nivette & Eisner, 2013). Legitimacy may deteriorate if multinationals eager to protect their investment get involved in local politics and derail popular social programs. Legitimacy is built slowly but can deteriorate quickly. States with low levels of legitimacy lack firm control over the legitimate use of force, fostering private justice and cycles of retaliatory violence. Foreign influence may reduce and inhibit the development of stable trust between the ruled and rulers, leading to the continuation of private and retributive justice and cycles of revenge and honor killings associated with less developed legal systems and clan-based societies.

Pinto & Zhu (2022) argue that one of the mechanisms by which FDI increases the likelihood of civil war is the MNC's ability to dominate local markets and outcompete local actors; this leads to large rents, which rebels seize and tax to fund an insurgency. Accepting this, it is also plausible that the local population losing their jobs, businesses, and/ or status as respected members of the community are put under pressure. The loss of status, along with both the removal of positive stimuli and the impact of negative stimuli, is certainly going to introduce *strain*. It is also possible that this is going to introduce anomie. Multinationals bring their capitalistic economic values, exchanging traditional values for the new value of monetary and material gain. As I discuss in section 3.4, societies where material success is valued above all else are likely to produce more crime, violent crime, and even homicide.

3.2 Homicide – What and Why

Homicide is a complex and multifaceted crime that is caused by a variety of factors. Simply, it is the intentional act of ending the life of one human being by another. Although it is difficult to provide an exhaustive list of all possible reasons that can contribute to someone committing the act of homicide, several commonly cited causes include mental illness, domestic violence, poverty and unemployment, gang violence, revenge or retaliation, political or ideological differences, access to firearms, childhood abuse or neglect, exposure to violence at an early age, social and cultural factors, historical and systemic factors, substance abuse, and personal disputes. Despite the diversity of causes, they lead to the same outcome, namely, one person intentionally killing another.

The relationship between FDI and the causes of homicide is complex and can vary depending on the context. In some cases, FDI may indirectly contribute to an increase in homicide by exacerbating existing risk factors, such as poverty, inequality, and social marginalization. For example, FDI may lead to urbanization, increasing the scale and relevance of gangs and criminal activity and making it more difficult for individuals to access essential resources and support systems. Furthermore, the long hours associated with factory work may leave workers with limited time to care for their children, leading to a higher risk of child neglect, which may influence the prevalence of criminal youths.

Additionally, rapid changes in communities brought about by FDI can lead to feelings of alienation, loss of status and identity, and even mental illness, all risk factors for violent behavior, including homicide. Furthermore, historical injustices may be brought to the forefront in communities undergoing rapid change, leading to conflicts based on ethnic or religious differences, which can also contribute to the incidence of homicide. Some groups may have easier access to jobs and opportunities produced by FDI, or some groups may be deliberately kept away from the new opportunities, increasing grievances and conflict levels. As the subsequent sections will show, acts of crime and homicide can be induced by a number of factors. A large body of work attempts to explain the wide variety of reasons, including changes to economic status, highlighting that there is a broad theoretical argument to connect FDI and increased homicide rates.

3.3 Institutional Anomie Theory

Institutional anomie theory (IAT) builds upon Durkheim's anomie theory. It also builds upon Parsons's work on institutions in general sociological theory (Messner, Thome & Rosenfeld, 2008). Durkheim saw the rapid change and breakdown of social norms as leading to higher crime and increased homicide rates. On the other hand, Parson emphasizes the importance of material values in society. Societies' value of material over everything else creates a need for individuals to become materially successful at all costs. While anomie theory focuses on the erosion of traditional values, Parson's theory principally focuses on cultural and social structures represented by societies' social institutions. Social institutions guide people's behavior and give it meaning by providing means and ends. These complex means and ends must be coordinated with other actors so that one actor's ends provide someone else's means in an ongoing web of interaction that makes up a society or country at large. This means there must be some degree of final end for everyone involved in the social system, making the argument that there is something akin to a shared or common value system for everyone involved in a country's social system. Of course, there are outliers, people who do not accept these values, and who do not acknowledge or act in accordance with them. A country without these sets of principles would likely be chaotic, and Hobbesian [2], and so most follow them (Messner, Thome & Rosenfeld, 2008). Parson has a narrow view of institutionalized behavior, limiting the concept of institutions to the rules that contribute to the emergence of specific regular behavior patterns. Institutions are man-made for shaping human behavior. Man's incentive for following the norms is largely due to the institution's moral authority over the individual. On a continuum, there is at one end the ideal type of society, where society has integrated all institutions perfectly and conforms as such. On the other end of the spectrum is a society where the moral authority of the institutions has disintegrated, resulting in a loss of control and cohesion. Anomie, for Parson, is a situation where the moral authority of the institution's norms has broken down (Messner, Thome & Rosenfeld, 2008).

Institutional anomie theory acknowledges the roles of institutions but argues that institutions have a hierarchy; the economy, the political, and the family compete for dominance. Some societies favor the political, others the family. Institutional anomie theorists argue that in advanced societies, there is more crime in societies where the economy dominates the balance

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[2] "Hobbesian" refers to the chaotic and anarchic existence in the state of nature, where, according to Hobbes, life is solitary, poor, nasty, brutish, and short.

of power. These societies experience more crime due to an institutional imbalance (Messner, Thome & Rosenfeld, 2008, p. 168). Economic dominance manifests in three key ways, (i) devaluation; other, non-economic roles and tasks are devalued relative to economic ones. They carry less prestige and provide fewer rewards. (ii) Accommodation; when the different roles conflict, individuals prioritize economic roles above the others. Not showing up for a ballgame or school play, neglecting family dinners, etc. (iii) Penetration; the logic of the markets permeates its way into all other aspects of society, relegating everything to the market and leading to the privatization of key public institutions and services (Messner, Thome & Rosenfeld, 2008).

In relation to crime, IAT portends that some individuals will seek financial ends no matter the means due to spillover effects from the domination of economics and the value of wealth accumulation. When there are few normative and internalized values from other institutions, individuals will seek material value above all else, as this is what society expects and deems successful. Under severe cases of anomie, there are few restraints keeping individuals from committing criminal acts, resulting in a cost-benefit calculation similar to what Gary Becker (1968) and the rational choice model of crime purports – even though economic dominance is likely to weaken those controls as well (Messner, Thome & Rosenfeld, 2008, p. 169). IAT predicts that individuals who favor their economic roles over their other roles are more likely to engage in violent crime (Messner, Thome & Rosenfeld, 2008, p. 173-174). Further, the commodification of social interaction, the "marketness," is where market transactions are ingrained in general social relations on a continuum similar to the abovementioned one. On the one end is the archetypical *homo economicus*, a purely economically rational actor; on the other end, transactional relationships also carry some other social or solidarity function. According to IAT, an individual's degree of marketness and how transactional their relations are is also an indicator of the risk of violent crime, predicting higher levels of crime in the transactional end due to higher levels of anomie in their relations to society at large.

In the transition from a conventional society to a swiftly transforming modern society, where potent economic values supplant customary values such as familial or tribal affiliations, a state of normlessness (Durkheim's "anomie") may arise. Durkheim discerned in historical Europe that societal constructs were predominantly governed by honor and hierarchy. Consequently, as observed by Messner, Thome & Rosenfeld (2008, p. 170-173), violence was pervasive; retaliations for perceived insults and defamation were routine, thereby perpetuating

an endless cycle of violent acts and blood feuds. It is critical to note that contrary to some popular beliefs, traditional societies and their values are not innately less violent. Various groups such as tribes, ethnic communities, religious factions, clans, and families can espouse violent norms and cultural traits as a defensive mechanism to safeguard their collective identity. The gradual retreat of collectivism and the ascendance of individualism have been linked with a reduction in interpersonal violence across Europe. Nevertheless, remnants of hierarchical structures may persist in the change from a collective to an individualistic society, thereby perpetuating violence. Furthermore, emerging social control agents - schools, nuclear families, and state authority - lay the moral groundwork for the new social order. To a certain degree, the foundation of these institutions prescribes the level of violence considered tolerable in society (Messner, Thome & Rosenfeld, 2008, p. 171-173).

Institutional anomie theory thus posits that societies cherishing economic values at the expense of other values leads to a more criminal society. Individuals seek financial and material gain and have fewer ethical constraints in doing so. The dominance of economics and the value of gaining material goods makes it less costly to bend the rules and engage in criminal activity, violence, and homicide. A significant increase in FDI could foster a societal turn leading to a more materially oriented society in which the traditional norms erode, and the new foundational institutions are dominated by material values that cause increasing crime, interpersonal violence, and homicide rates.

3.4 General Strain Theory

General Strain Theory (GST) is an updated state-of-the-art version of strain theory, building upon Merton (1938), Cohen (1995), Cloward & Ohlin (1960), and Agnew (2017 & 1992 & 2001; Brezina, 2017). Merton's version of strain theory used the American Dream as an example. Every American is instilled with the idea, but inequality of means and opportunity makes the ability to achieve material success by legal and legitimate means uneven. The goal of acquiring money and wealth came to clash with the social structure of inequality, generating strain. The frustration that built up could increase drug trafficking and other unlawful behavior, such as larceny, as people still wanted to achieve the American Dream even if they were breaking the law.

In order to fit youth delinquency and other non-utilitarian crimes into the theory, Cohen (1955) theorized that boys from a young age couldn't live up to the expectations of the middle class and therefore generated their own status system, which emphasizes things they are good at – violence, toughness, more thuggish behavior. Some young people are more exposed to criminal role models, which increases their likelihood of becoming like their drug-dealing heroes. Others are born into neighborhoods without such role models and are likelier to become drug consumers.

General strain theory broadened the scope of the theory even further. Agnew (1992) defined the first of three types of strain as; (i) the inability of the individual to achieve their goals or goal blockers. For Agnew, goal blocking is an expansive term useful for explaining crimes committed by both the lower and middle classes. Some goals and aspirations are more utopian and may thus not necessarily be a large contributor to strain. Some goals are, on the other hand, expected to be achieved. These expected goals being blocked are likely to generate frustration. The second type (ii) of strain refers to negative external experiences. Bullying, harassment, and poor relations with peers, parents, and teachers will likely strain individuals and increase their probability of entering a criminal path. The third (iii) strain type is the loss of positively valued stimuli. This could be being robbed, stolen from, or losing a valued partner or significant other – parents withdrawing care and affection (Brezina, 2017). These three classification categories of strain contain hundreds of possible specific stressors. Some are more likely to lead to experiencing strain than others. Bullying is more likely to lead to criminal behavior than weaker strain types.

According to GST, the main connection between strain and crime is that these strains will increase negative emotions in the individual experiencing them: anger, anxiety, resentment, and depression. These emotions create pressure on the individual, and a need for corrective behavior: criminal behavior is one such possible corrective (Brezina, 2017). Strain may lead individuals to commit criminal or delinquent acts as it allows them to strike at their source of strain, or it may counteract the negative feelings previously associated with crime. Retaliation against a negative strain, such as violence toward a bully or murdering an abuser, may occur. GST gives strong emphasis to emotions in explaining the cause of violence. Negative emotions caused by external events and negative social relations lead to criminal acts. Anger is a prominent emotion in GST, as it is strongly associated with crime. It reduces tolerance for insults and injury, and motivates retaliation, revenge, and hostile action. Although GST is

primarily a psychological theory, providing individual/unit-level explanations of crime and delinquency, it also has explanatory power on the group level. A comparison of neighborhoods found an increase in strain on the neighborhood to be associated with higher levels of violence in neighborhoods with low levels of social control, even though joblessness and poverty provided a more significant predictor of delinquency in urban communities in the US (Brezina, 2017).

The introduction of FDI and the subsequent societal changes could lead to strain as individuals cannot achieve their goals of becoming wealthy and successful due to the inequality of means to achieve them. Unable to achieve expected goals, harassment and bullying by peers, and the loss of communal life to an increasingly materialistically oriented society would explain a rise in strain and a corresponding resentful and angry response from certain individuals. This could result in increased crime and homicide rates.

3.5 Collective Efficacy & Relative Deprivation

Collective efficacy is a theory revolving around social control, that is, communities' own ability to maintain order and regulate themselves and their ability to promote decent behavior and socially punish unwanted and indecent behavior. High levels of homeownership, for example, give residents a larger stake in maintaining neighborhood order, achieving social, collective goods through desired principles, not force. It is the ability to create and maintain social order without using forced conformity (Janowitz, 1975; Sampson & Raudenbush, 1999). There is an overall consensus that crime on display is unwanted. Even local gang leaders in urban neighborhoods try to punish public displays of crime, such as graffiti, street-level prostitution, and street-fighting (Sampson & Raudenbush, 1999).

Informal control is the act of residents cracking down on public disorder. Residents take charge and make sure public delinquency is not tolerated by, for example, reporting graffiti, and businesses or premises where drug-peddling, public prostitution, and fighting are frequent. Collective efficacy argues that neighborhoods that effectively establish and maintain social control experience less crime, including violence and homicide. While collective efficacy may not be a solution to structural and deep-rooted problems which can make it difficult to establish collective efficacy, it is an important contributor strategy to maintain lower levels of crime – providing community members with a sense of participation and

safety (Sampson & Raudenbush, 1999). An influx of FDI could lead to rapid urbanization, making residents unable to keep up with and maintain control over their neighborhoods, leaving them unable to deter and control a rise in criminal behavior.

Relative deprivation theory posits that individuals do not become resentful from simply being deprived of something. They become resentful, dissatisfied, and angry when their deprivation is compared to those who *do* have what they themselves want. Person A wants something (X) and compares themselves to someone who has X. A then feels entitled to X and experiences deprivation. Different variants of the theory have different specifics; Gurr (1970) posits that resentment arises when A lacks and wants X, feels entitled to X, and thinks it is unfeasible to attain X. Bernstein & Crosby (1976) sees relative deprivation as resentment or grief. Individuals feel it when they lack X and want X, perceive that another has X, and they have a sense of entitlement to X. They see it as feasible to attain X, and their not having X is not their own fault.

Individuals become deprived, not simply from lacking something, but seeing someone else having X or craving X. They are deprived compared to others. The feeling of being deprived motivates individuals to act. Relative deprivation can cause disenchantment, resentment, and grief, increasing the likelihood of criminal acts. FDI causing economic growth and high-paying jobs for some can lead to resentment and anger in others – thereby leading to increased crime and homicide rates.

3.6 Presenting a hypothetical case

This paper uses a large N quantitative study to provide empirical results. This means there are no cases to trace the causal mechanism in detail. Instead, I present a hypothetical case where FDI enters a country, and the proposed causal mechanism is demonstrated and detailed.

A rural village in a developing country has long relied on agriculture and local handicrafts for subsistence. Recently, a multinational corporation opened a large manufacturing plant in a nearby city, leading to an influx of FDI. As a result, the local economy starts to change, and villagers leave to work in the city. Those who remain in the village begin to feel a growing sense of relative deprivation as they witness the success and material wealth of their neighbors who have found employment in the city, earning higher wages.

Robert, a young man in the village, is unable to secure a job at the new plant due to a lack of formal education and skills. He watches as his friends and family members leave the village for better opportunities, returning with new clothes, smartphones, and other material possessions that were once out of reach. Robert begins to feel resentful and deprived as he compares his own situation to the perceived success of others. One day, Robert is approached by a group of men who offer him a chance to make quick money through illegal activities, such as smuggling and theft. Fueled by his feelings of deprivation and the desire to attain the same level of wealth and success as his peers, Robert reluctantly decides to join the group, resulting in his involvement in criminal activities.

As Robert becomes more involved with the group, he starts to realize that leaving the criminal life is not as simple as he initially thought. The group's leaders use a variety of tactics to manipulate and control Robert, ensuring that he remains loyal and committed. They threaten him with violence, saying that they will harm him or his family if he ever tries to leave. They also exploit Robert's emotional vulnerability, making him feel like the group is his only support system and that he owes them his loyalty.

Robert experiences several traumatic events as a result of his involvement with the group. He witnesses brutal acts of violence and is sometimes forced to participate in them, generating strain. He starts to feel increasingly detached from his family, who are unaware of his criminal activities. Robert's mental and emotional health deteriorates as he struggles to reconcile his new life with the values he was raised with. He is exposed to and begins using drugs as a coping mechanism. Over time, Robert becomes fully socialized into a life of crime. The group's manipulation, combined with his trauma, drug abuse, and isolation, makes it nearly impossible for him to envision a way out. The once-innocent young man has become a victim of the very forces he sought to escape, his dreams of a better life swallowed by the brutal realities of urban crime.

In the meanwhile, the government, highly dependent on the taxes and the employment the MNC provides, initiates brutal tactics to crack down on criminality, hardening the criminal gangs and creating large-scale mistrust between the state and the population as allegations of government corruption flourish. Trust within neighborhoods withers and collective efficacy

levels decline as the local community suffers from collective anomie, leaving them unable to prevent rampant crime.

This hypothetical case illustrates how FDI can lead to social disruption and feelings of relative deprivation among individuals who do not benefit from the new economic opportunities. Such feelings can contribute to increased criminal behavior as individuals seek alternative means to achieve the wealth and success they perceive others to have. The scenario exemplifies how FDI can either directly or indirectly contribute to conditions where crime and homicide increase.

Alternatively, FDI leads to ample employment for the community, providing higher tax revenues to the government, enabling the government to provide better public goods, such as education, health services, and internal security. FDI also encourages higher domestic investments, driving up better quality of life and higher security demands. The favorable outcomes may depend on whether or not local political agents have the community's best interest at heart.

3.7 Hypotheses

As the above discussions make clear, there are mainly three possible ways FDI can impact the homicide rate in host nations. It can increase homicide rates, lower homicide rates, or have no discernible impact on homicide rates. Thus the hypotheses are formulated and presented as:

Hypothesis (i): FDI leads to increased homicide rates in host countries because of the negative externalities it produces.

Hypothesis (ii): FDI decreases homicide rates in host countries by providing economic growth and opportunities for the population in host countries.

Null hypothesis (0): FDI does not have a discernible effect on homicide rates in host countries.

4. Method

A core tenet of modern science is the scientific method. Sound methods ensure that what we find is valid by limiting the possibility of error, spuriousness, endogeneity, and false positives. Methodology is the systematic and organized process used to conduct a study. In this paper, I subscribe to the ideas outlined by King, Keohane, and Verba in *Designing social inquiry* (2021). They argue for a unified scientific method, where achieving causal inference is a researcher and social scientist's primary task. Limiting biases, using critical cases, gaining leverage on a research question, and avoiding endogeneity to isolate and observe the research object under scrutiny. Most importantly, researchers must document and demonstrate the studied effect, as no one cares about what you think, only what you can demonstrate.

4.1 Method and Methodology in social science

While methodology is the study of the methods and principles in scientific research, a method is the specific techniques and procedures used to gather data, analyze data and interpret the findings. Stretching back to the scientific revolution, methodology made knowledge more objective by inventing scientific methods of observation and experimentation. Bacon and Hume are prominent philosophers of science, improving on methods and our ability to draw causal inferences. Popper's falsification principle that researchers should attempt to falsify their theories to prove their robustness is a powerful tool in scientific research. Unfortunately (or perhaps fortunately), social scientists cannot conduct large-scale experiments on societies to test their theories. In the hierarchy of methods, randomized control tests may reign supreme but are unavailable in much of political science and international political economy, where nations and huge populations are the units being studied – leaving the social scientist with other research means, such as case and cross-sectional studies.

In political science research, researchers work with inductive empirical work, drawing theories from observation; or deductive work testing theories on empirical cases. While not mutually exclusive, the approaches form the basis of political science research. This study is a mix as it starts with theoretical assumptions it seeks to test. A strong theoretical foundation is critical to explaining the findings and drawing a causal inference. Causal inference is a researcher's ability to draw a cause-and-effect relationship between variables.

A critical component of research is formulating a research question. King, Keohane, & Verba maintain that a research question should fulfill four criteria. (i) The question should be important to the field of study or society. This entails finding the research frontier and deciding whether the study can achieve some social benefit. Repurposing a research question with validity in an adjacent field can provide an excellent research question; similarly, achieving economic growth and avoiding increased homicide rates is of critical importance, making this study useful in both regards. (ii) The research question should be clear and concise, limiting confusion and making it understandable to others. Rephrasing a comprehendible research question, making clear use of concepts, and focusing on a narrow and specific area ensures clarity. (iii) The research question needs good theoretical grounding, something the Marxist, liberal, and criminological theories provide. The theories provide an explanation for the empirical findings. (iv) A research question needs to be empirically testable; this chapter will go into testability and the specific method and research approach.

Another important aspect of research is the researcher themselves. The researcher is relied upon to act in good faith and to work in an open process to facilitate trust and credibility in the research. The researcher must be objective, transparent, and rigorous. They must be objective to avoid personal biases such as confirmation bias, availability heuristics, anchor bias, and selection bias – which can distort the research and produce incorrect findings. Transparency is required to ensure replicability and accountability and encourage cumulative knowledge building to move the research frontier forward. By being rigorous, the researcher ensures that the research is valid and reliable, reduces the possibility of bias, and makes the results more likely to be generalizable. Ethical research is also a concern. This study will adhere to ethical guidelines for data privacy, confidentiality, and informed consent. All data used in this paper is obtained from publicly available sources. No personally identifiable information will be collected or disclosed. The author is committed to upholding these principles and delivering a trustworthy, ethical study.

This study uses a time series cross-sectional (TSCS) method. Regular cross-sectional studies are limited by the fact that they are limited to observations at one moment in time, leaving the researcher unable to determine cause and effect with confidence; one point in time may also not be representative of the phenomenon studied. Time series solves this by observing units at several points in time. This makes it easier to determine that the treatment/X variable occurs prior to the effect on the unit/Y variable – a fundamental requisite for drawing causal

inference. The TSCS method allows the researcher to study variation within units and between units. This gives the combined strength of a longitudinal study, tracking units over time and comparing differences among units as in comparative research.

The TSCS method offers several advantages but may also have limitations, such as potential biases in the data or issues with generalizability. This study acknowledges these limitations and suggests avenues for future research to address them, such as using alternative data sources and applying different methodological approaches and instruments to validate and expand upon the findings. I will return to the TSCS method, fixed and random effects, and instrumental variable regression in section 4.5 and section 4.6 below.

4.2 Data Sources

This study uses data from three reputable sources: the World Bank, UNCTAD (United Nations Conference on Trade and Development), Varieties of Democracy (V-Dem), and PRIO/UCDP (Peace research Institute Oslo)(Uppsala Conflict Data Program). These sources provide comprehensive and reliable data on various economic, political, and social indicators, including FDI and homicide data. The World Bank is an international financial institution that offers financial and technical assistance to developing countries. It provides a wide range of economic growth, poverty, education, health, and infrastructure data. I use data from the World Bank's World Development Indicators (WDI) database, which offers a comprehensive collection of development indicators for over 200 countries from 1960 to the present. Researchers and policymakers widely use the WDI database for its accuracy, consistency, and comparability across countries and over time. The data in the WDI comes from various international organizations, national statistical offices, and other sources. The World Bank updates the WDI database annually, ensuring it stays relevant and accurate.

UNCTAD, a United Nations entity, aids developing nations in their pursuit of integration into the global economy and the realization of sustainable development. The organization's data resources cover a wide range of subjects, such as trade, investment, and technology. I utilize data from UNCTAD's databases, which furnish in-depth information on international trade, FDI, and other economic indicators. These datasets especially benefit my research as they offer valuable insights into the global economic landscape and the intricacies of international trade and investment. The datasets also provides data points on both FDI stock and flow,

increasing the clarity of the analysis by enabling differentiation between short-term and long-term foreign investment, as Kerner (2014) recommends.

V-Dem is a collaborative project that aims to provide high-quality, fine-grained data on democracy and its various components across the world. The V-Dem dataset covers over 180 countries from 1900 to the present, with data on a wide range of political and institutional variables. For my analysis, I use the V-Dem dataset to obtain information on political institutions and regime types – relevant political indicators to my research question. V-Dem is a collaborative effort involving hundreds of scholars and experts from various fields, ensuring a high level of expertise and rigor in the data collection and validation process. This makes the V-Dem dataset particularly valuable for its methodological rigor, extensive coverage, and fine-grained detail on various aspects of democracy. Moreover, the V-Dem dataset includes multiple indices, such as the Liberal Democracy Index, the Electoral Democracy Index, and the Participatory Democracy Index. These indices provide additional insights and dimensions to my analysis, as it captures the idiosyncratic effect of liberal democracy.

The Armed Conflict Dataset is a collaboration between PRIO and UCDP, it offers comprehensive data on armed conflicts worldwide from 1946 to the present. The dataset includes information on conflict location, intensity, and duration, serving as a valuable resource for researchers studying conflict dynamics and patterns. By leveraging this dataset in my analysis, I can efficiently estimate and control for the effect of an ongoing civil war or a recently concluded war on homicide rates.

By leveraging data from these four sources, I can ensure that my study is based on reliable, accurate, and up-to-date information. Furthermore, the use of multiple data sources allows me to cross-validate my findings and mitigate potential biases or measurement errors that may arise from relying on a single data source. In the following sections, I will describe the specific variables and indicators obtained from each of these sources and outline how they are used in my analysis.

4.3 Dependent, Independent, and control variables

In addition to my independent and dependent variables, this study uses control variables to control for the potential effect of other factors that may influence my dependent and

independent variables. This helps mitigate the effect of omitted variable bias and improves my ability to draw causal inference from my models. Control variables need theoretical justification. One does not simply add arbitrary variables. My control variables are grounded in the theories outlined in the theory chapters. GDP per capita is included, as wealthy countries see less homicide. Urban population as a percentage of the population is added as densely populated areas see more homicides. Democracy and natural resources, trade, and civil war, are also controlled for, as they might have a significant covariation.

In this study, I focus on two key FDI indicators: FDI stock and FDI flow, utilizing data from the United Nations Convention on Trade and Development dataset (UNCTAD, 2021). FDI stock refers to the total accumulated value of foreign-owned assets in a host country at a specific point in time, reflecting the sum of all past FDI inflows, adjusted for disinvestments and changes in asset values (UNCTAD, 2021). FDI flow captures the net inflows of FDI during a specified time period, accounting for both new investments and disinvestments (UNCTAD, 2021). Flow data is more recent, while stock data is more historic. UNCTAD reports FDI stock and FDI flow in millions of US dollars and distinguishes between inward and outward investments (UNCTAD, 2021). The data is highly reputable and widely used in research, ensuring strong reliability.

In a research model examining the relationship between FDI and homicide rates, incorporating GDP per capita as a control variable is essential for accurately assessing the impact of FDI. GDP per capita represents a country's average income and standard of living (World Bank, n.d.). Higher GDP per capita often indicates improved social and living conditions, including better access to education, healthcare, and public services, which can contribute to reduced crime rates and social unrest. Additionally, higher income levels can lead to increased social cohesion and reduced income inequality, further mitigating the potential drivers of homicide rates. It can also mean more and better resources for the police, enabling improved forensics, clearance rates, and crime prevention. Controlling for GDP per capita allows the analysis to better isolate the impact of FDI on homicide rates independently of wealth effects since more FDI locates in wealthier economies. This enables a more accurate estimation of the relationship between FDI and homicide rates while accounting for potential confounding effects related to social and living conditions.

Trade as a percentage of GDP as a control variable is essential for capturing potential confounding factors and isolating the effect of FDI on homicide rates. As an indicator of a country's integration into the global economy, trade can, directly and indirectly, affect both FDI and homicide rates (World Bank, n.d.). Trade can influence FDI through various channels, such as market access, supply chain linkages, and comparative advantages. Countries with higher levels of trade openness are often more attractive to foreign investors. By controlling for trade, the analysis can better isolate the impact of FDI on homicide rates, as countries with a high amount of trade might also have more abundant levels of public goods, such as resources to police effectively and greater demands for security. Furthermore, trade can indirectly affect homicide rates through channels like income levels, employment opportunities, and economic growth. These factors can, in turn, influence social conditions, crime rates, and violence. Trade can also lead to changes in social dynamics, cultural exchanges, and the distribution of resources, which may potentially affect homicide rates. By including trade as a control variable in the model, I can more accurately estimate the relationship between FDI involving MNCs and homicide rates, accounting for the potential confounding effects of trade on both FDI and homicide. This approach allows for a more robust and reliable assessment of the causal impact of FDI on homicide rates.

Examining the relationship between FDI and homicide rates, controlling for urban population percentage is essential. The demographic indicator, retrieved from the World Bank's World Development Indicators (WDI) database, represents the proportion of a country's population living in urban areas. Controlling for the urban population as a percentage of the population allows me to control for the known association between urbanization and crime, including homicide rates, independently of any association of FDI with crime. Urbanization for example, is highly likely to happen under national development plans. Crime rates tend to be higher in densely populated urban areas due to various factors discussed in sections 3.3 to 3.7. Controlling for the urban population as a percentage of the population is thus essential for estimating the true relationship between FDI and homicide. Of course, if FDI does increase urbanization, then there is an indirect effect of FDI on crime, as urbanization tends to increase crime and homicide rates. However, as FDI is included in the model, the effect from FDI can be assessed independently. Due to this fact, I test models with and without urban population as a share of the population. More on this in the results section.

Incorporating natural resources as a percentage of GDP will help control for the effect of natural resource wealth. The economic indicator, gathered from the World Bank's WDI (World Bank, n.d.), represents the contribution of various natural resources to a country's overall economic output. The rationale behind controlling for natural resources as a percentage of GDP lies in the potential relationship between resource wealth and increased homicide rates and the fact that much FDI is resource-seeking. High dependence on natural resources can lead to a range of socio-economic and political issues, such as income inequality, resource-driven conflicts, and rent-seeking behaviors, which may contribute to higher levels of crime and violence. This phenomenon, "the resource curse", posits that countries rich in natural resources tend to experience negative economic, political, and social outcomes (Wenar, 2015). By including this control variable, the model allows for a more robust and reliable assessment of the causal impact of FDI on homicide rates and contributes to a better understanding of the complex interplay between economic factors, natural resources, and crime. Additionally, it helps to shed light on the resource curse's implications, as Wenar (2015) describes it. In addition, recent studies suggest that investments in both the service and manufacturing sectors may lead to more inequality than in others (Suanes, 2016; Bogliaccini & Egan, 2017).

The "years of peace since last civil war" variable is derived from the Peace Research Institute Oslo (PRIO) and Uppsala Conflict Data Program (UCDP)(Gleditsch, et. al, 2002). It is an important measure used in conflict studies and political science research. This variable captures the number of years that have elapsed since a country's last civil war or internal armed conflict. Additionally, the "civil war ongoing" variable indicates whether a country is experiencing an active civil war at time of measurement. Both variables are gathered from the PRIO UCDP and are widely used in research.

These variables are valuable indicators for understanding the stability, post-conflict dynamics, and ongoing conflict situations of countries that have experienced or are experiencing civil wars. The rationale behind using these variables is based on the observation that countries with a recent history of civil war are often more prone to relapse into violence, as the underlying causes of conflict may not have been fully addressed, and the institutions and social fabric may still be fragile (Collier, Hoeffler & Söderbom, 2008). By measuring the years of peace since the last civil war and whether a civil war is ongoing, I can assess the relative stability of a country in a more nuanced way. Thus, this should capture all the risks

associated with homicide and account for areas that usually would not get a large amount of FDI.

The Liberal Democracy Index (LDI) in the Varieties of Democracy (V-Dem) project is a comprehensive measure of democracy offering a broader perspective than the more narrowly focused Polyarchy Index (Coppedge, et al., 2023). While the Polyarchy Index specifically concentrates on the electoral aspects of democracy, the LDI goes beyond this dimension by capturing a wider range of liberal democratic characteristics. The LDI encompasses not only electoral aspects but also individual liberties, the rule of law, and checks and balances. It is constructed by aggregating multiple subcomponent indices, such as the Electoral Democracy Index, Liberal Component Index, Egalitarian Component Index, Participatory Component Index, and Deliberative Component Index (Coppedge, et al., 2023). This comprehensive approach allows the LDI to provide a more nuanced and complete representation of a country's democratic system. By utilizing the LDI, this study is able to better control for the effects of being a liberal democracy and whether it has a mitigating effect on homicide rates. As democracies can offer the investing company benefits such as the rule of law, stable governance, and transparency, they are not as unattractive to investors as previously thought (Jakobsen & De Soysa, 2006).

4.4 Variables and Logarithmic Transformation

A requirement in OLS models is that the variables are normally distributed. When a variable is skewed, this assumption is breached. Logarithmically transforming the variable can solve this problem (Mehmetoglu & Jakobsen, 2017, p. 256-257 & 329-330). A kurtosis test reveals that most of my variables are skewed to the right. GDP per capita data, stock and flow data, and urban population need transformation. I start with GDP, generating the variable using the logarithmic for each unit (country). Unless specified, all the variables are done for each country. Next, I generate a variable from the ratio of FDI to population multiplied by a million. I use this variable to generate a new variable for FDI flow using the inverse hyperbolic sine transformation (IHS)(Burbidge, Magee, & Robb, 1988). This helps with right-skewed data that have negative values, as the FDI flow data does contain because of divestments. I also ensure not to create any values for missing FDI observations. I perform the same transformation for FDI stock.

Next, I generate a new variable that represents the ratio of FDI to population, with FDI magnified by a factor of a million. This variable, FDI per capita, represents FDI flow on a per capita basis. Using FDI per capita, I generate another variable using the inverse hyperbolic sine transformation (IHS). The IHS transformation is particularly useful when dealing with right-skewed data that includes negative values, which is the case with the FDI flow data gathered from UNCTAD. I ensure that this transformation is only applied to non-missing observations, avoiding the introduction of invalid data points.

Continuing, I create a variable FDI stock per capita representing FDI stock as a proportion of GDP per capita divided by the population. This variable is also subjected to the IHS transformation. I apply the IHS transformation to the homicide variable. Similarly, this operation is done for each unique country and only for non-missing values. The next step involves the natural resources component of GDP. Again I utilize the inverse hyperbolic sine (IHS) transformation process. Generating a new variable that captures the proportion of GDP derived from natural resources and applying the IHS transformation to it.

Trade and urban population are subjected to a logarithmic transformation. Moving further in the transformation process, I handle the variable which represents each country's distance from major markets to be used in the instrumental variable regression. I apply a natural logarithmic transformation to this variable, creating a new variable to address potential skewness and heteroscedasticity. I then generate an interaction term, distance times growth, which is the product of the logarithmic variable and a variable representing the growth rate of high-income countries. This new variable captures the combined effect of a country's distance from major markets and the growth rate of high-income countries, providing my instrument for the IV regression. Next, I turn my attention to the variable for FDI coming out from high-income countries to be used in the instrumental variable regression. Here I add one to each observation in the variable to deal with potential zero values, shifting the distribution up by a single unit (Mehmetoglu & Jakobsen, 2017, p. 327-330).

4.5 Time series cross-sectional Method

The time-series cross-section (TSCS) method is a powerful analytical approach extensively employed across various disciplines, including political science, economics, and sociology (Beck & Katz, 1995; Mehmetoglu & Jakobsen, 2017). TSCS combines time-series and cross-

sectional data, enabling researchers to study the behavior of variables across different units and over time, providing a more comprehensive understanding of the underlying relationships among variables (Beck, 2001; Mehmetoglu & Jakobsen, 2017, s 252). It does this by multiplying i with t, where the units are i and time is t, suitable when the number of units is small but time is large. This increases the number of observations.

Mehmetoglu & Jakobsen (2017) discuss TSCS methods in their book *Applied Statistics Using Stata*, highlighting key aspects and addressing methodological challenges. The authors emphasize that proper model specification is crucial in TSCS analysis, as researchers need to carefully consider the model's functional form, the inclusion of relevant control variables, and the potential presence of interaction effects among variables. An OLS model is based on the Gauss-Markov assumptions; one assumption is that the observations are independent of each other, something GDP data is not.

TSCS data often exhibit autocorrelation, where the error terms of a regression model are correlated over time. Mehmetoglu & Jakobsen (2017, p. 252-254) suggest incorporating a lagged dependent variable in the model, vector autoregression, to address this issue. Lagged variable refers to shifting the time series of that variable forward by a certain period. A variable that is lagged by one year, for instance, means that the value of the variable at any given year (t) is replaced with the value from the previous year (t-1). Lagged variables are used primarily for two reasons. First, to examine delayed effects, the impact of a particular variable on another might not be immediate. For example, changes in economic policy might not have an immediate effect on a country's economy. Instead, the effects might surface after a certain period. By using a lagged variable, I can analyze these delayed effects. Secondly, lagged variables are used to address potential endogeneity issues. In certain scenarios, the independent variable could be correlated with the error term, which can cause biased and inconsistent estimates, i.e., endogeneity. This can sometimes be mitigated by using a lagged independent variable (Mehmetoglu & Jakobsen, 2017, p. 254-255). I use lagged independent variables, meaning each independent variable is measured in the previous year. This means Y is measured at t while X is measured at $t-1$. Thus the homicide rate is measured one year after the introduction of FDI.

Mehmetoglu & Jakobsen (2017, p. 252) also stress the challenge of non-stationarity when analyzing time series data. Non-stationarity refers to a situation where the statistical

properties, such as mean and variance, of a series change over time. In these circumstances, standard regression analysis may yield misleading results. Incorporating lagged variables into the model can help mitigate this issue, ensuring more robust and reliable findings. Wooldridge (2010) also highlights the importance of addressing autocorrelation in time-series data, emphasizing that ignoring this issue may lead to incorrect inferences. I use the Wooldridge test for testing for autocorrelation. The test suggests that my data show inhibits autocorrelation. Because of this, I use Driscoll-Kraay standard error method, which is robust to temporal and spatial autocorrelation. It is a conservative method for providing correct standard errors (Hoechle, 2007)(Driscoll & Kraay, 1998)..

In panel data analysis, endogeneity, where the error term is correlated with one or more independent variables, can lead to biased parameter estimates. A fixed effects estimator can address this issue by accounting for unobserved, time-invariant heterogeneity. The Hausman test can be used to determine whether a random effects model is as consistent as a fixed effects model (Hausman, 1978). If the test is not significant, the random effects model is appropriate, provided there is minimal covariation between the error term and the explanatory variables (Mehmetoglu & Jakobsen, 2017, p. 250). A Hausman test shows that a random effects model is appropriate; I thus use both fixed and random effects in my analysis. Applying both assists in providing a detailed and rigorous analysis – highlighting that the choice of estimator does not significantly skew and bias my results.

While fixed effects models are robust to serial correlation and heteroscedasticity, they only estimate the effects of time-varying variables and focus on within-unit variation (Mehmetoglu & Jakobsen, p. 248-249). The Generalized Least Squares (GLS) estimator can be utilized to address heteroscedasticity in the data. It estimates the unknown parameters in a linear regression model when residuals are correlated. The Driscoll-Kraay estimator offers a solution to potential biases in the analysis by mitigating the effects of spatial autocorrelation in geographically proximate countries (Hoechle, 2007)(Driscoll & Kraay, 1998). Consequently, this approach makes the analysis robust to spatial autocorrelation, temporal autocorrelation, and heteroscedasticity.

Additionally, the presence of heteroskedasticity, where the variance of the error terms is not constant across observations, can lead to biased standard errors. To address this issue, Mehmetoglu & Jakobsen (2017) recommend using heteroskedasticity-consistent standard

errors or weighted least squares (WLS) regression. Cameron & Trivedi (2005) also provide a comprehensive discussion on dealing with heteroskedasticity in panel data analysis.

Another key aspect of TSCS analysis is controlling for unobserved heterogeneity through fixed effects or random effects models, which can help reduce omitted variable bias and allow for a more accurate estimation of the causal effect of the independent variable on the dependent variable (Mehmetoglu & Jakobsen, 2017; Wooldridge, 2010). Mehmetoglu & Jakobsen also discuss the issue of multicollinearity, which occurs when independent variables in a regression model are highly correlated. To address this issue, researchers can use variance inflation factors (VIF) to identify multicollinearity and remove or combine highly correlated variables (Mehmetoglu & Jakobsen, 2017, p. 147 & 179).

The TSCS method offers valuable insights into analyzing complex relationships among variables across time and different units. By carefully considering key aspects of TSCS analysis and addressing potential methodological challenges, as discussed in Mehmetoglu & Jakobsen (2017), Beck & Katz (1995), Wooldridge (2010), and Cameron & Trivedi (2005), I attempt to improve the validity and reliability of my findings and contribute to a more robust estimate of the relationship between FDI and homicide rates in recipient nations.

4.6 Instrumental Variable Regression

Regression-based analysis of variables cannot conclusively establish causality from correlation. The observed relationship could be due to reverse causality or overlooked variables. Instrumental variable (IV) regression is a statistical technique that addresses endogeneity in regression models, enabling researchers to establish causal relationships between variables (Angrist & Pischke, 2009). Endogeneity arises when an independent variable is correlated with the error term, potentially leading to biased estimates. To overcome this issue, IV regression uses an exogenous variable, called an instrument, which must satisfy two conditions: (i) it must be correlated with the endogenous independent variable (X), and (ii) it must not be correlated with the error term in the main equation (Angrist & Pischke, 2009). By isolating the exogenous variation in the endogenous variable, IV regression allows for a more accurate estimation of the causal effect of the independent variable (X) on the dependent variable (Y).

My analysis employs instrumental variable regression (xtivreg2 in STATA) to tackle endogeneity concerns. The chosen instrumental variable is the distance from major markets to help assign causal direction and resolve reverse causality issues, similar to the approach used by De Soysa (2021) and Pinto & Zhu (2016 & 2022).

In this case, Z (distance from major markets) cannot be directly caused by Y (homicide) but may have an indirect effect, as countries farther from major markets might have less developed legal systems, indirectly influencing homicide rates. Y cannot impact Z; homicide rates do not affect distance from major markets. Distance from major markets influences X (FDI) because investors tend to prefer familiar and geographically closer countries. The chosen instrument can affect X directly but not Y directly, making it an effective method for addressing endogeneity concerns (Angrist & Pischke, 2009). This makes the chosen instrument suitable for its purpose, fulfilling the basic requirements. It is also used in similar studies, such as Pinto & Zhu (2022) and De Soysa (2021), suggesting that the instrument is suitable for this analysis. Regardless, the estimation method calculates multiple formal statistics that help researchers evaluate the appropriateness of the instrument used. Specifically, the instrument's relevance can be judged by the initial stage F-statistic. At the same time, the Hansen J-statistic (known as instrument exclusion) is used to determine if the instrument directly influences Y.

5. Results and Analysis

The first set of results is presented in Table 1. Table 1 represents my initial naïve models, which feature both random and fixed effects models.[3] In this model, each independent variable (X) is lagged by one year. Stock and flow data are analyzed in separate both random and fixed effects models, presented in the table below.

Table 1

Table 1 – Naïve models

Dep. Var: Homicide logged	(1) FE	(2) RE	(3) FE	(4) RE
FDI flow / Per capita logged	-0.01**	-0.01**		
	(0.00)	(0.00)		
FDI stock / Per capita logged			-0.02	-0.02
			(0.02)	(0.02)
Trade per capita / logged	-0.01	-0.02	-0.01	-0.02
	(0.04)	(0.04)	(0.04)	(0.03)
GDP / per capita logged	-0.48***	-0.49***	-0.45***	-0.46***
	(0.05)	(0.04)	(0.08)	(0.07)
Liberal democracy	0.16	0.17*	0.11	0.12
	(0.10)	(0.10)	(0.10)	(0.11)
Urban population logged	0.85***	0.75***	0.72***	0.66***
	(0.15)	(0.08)	(0.13)	(0.08)
Natural resources / GDP logged	-0.04	-0.03	-0.04*	-0.04
	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.00	3.27***	0.00	0.00
	(0.00)	(0.59)	(0.00)	(0.00)
Observations	2,753	2,753	2,739	2,739
Number of groups	144	144	143	143

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Year fixed effects estimated

As observed in column 1, FDI flow, one of my main independent variables, shows a negative association with the homicide rate variable, meaning an increase in FDI flow leads to a decrease in homicide rates per one hundred thousand inhabitants. The result is significant at the 5% significance level in both the fixed and random effects model, indicating that the model choice does not significantly alter my results. A one percent increase in the inflow of FDI to GDP is associated with a 0.01 decrease in homicide rates. Using the standard deviations from the fixed effects model, I have generated standardized results for the FDI

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[3] The term "naïve" indicates that this starting model has been developed with minimal effort to refine it using statistical techniques.

flow and GDP per capita variables. An increase in FDI flow by one standard deviation would decrease the homicide rate by about 3% of a standard deviation of the homicide rate. This effect is not negligible, but it is not large. However, comparatively, one standard deviation increase in GDP per capita would account for about 35% of a standard deviation of the homicide rate, more than ten times greater than FDI. Thus, while GDP per capita has a significantly larger effect, it would be much harder to increase GDP per capita by one standard deviation than increase FDI by one standard deviation, meaning FDI could potentially affect homicide rates significantly with greater increases of FDI.

FDI stock is not statistically significant in either the fixed or random effects models, which indicates that FDI stock, or the accumulated effect of foreign capital, does not have a discernable effect on homicide rates. This result further indicates that short-term investments may matter and not long-term investments. Trade per capita is not significant in any of the models, indicating that openness to the global market generally does not have a clear effect on homicide rates. GDP per capita exhibits a strong negative and statistically significant relationship with homicide rates in all models (models 1, 2, 3, and 4) at the 1% significance level. As the theory indicated, this suggests that rich countries experience significantly less homicide, and becoming more affluent lowers crime and homicide rates.

The control variable, Liberal democracy, surprisingly has a positive relationship with homicide rates. In model (2) RE, it is statistically significant at the 10% significance level. However, the results for liberal democracy are not consistent across all models, as it is not statistically significant in the other three models (models 1, 3, and 4). The mixed results suggest that the relationship between liberal democracy and homicide rates may not be robust. Other factors, such as FDI flow per capita and GDP per capita, appear to be more influential.

Urban population consistently displays a positive and highly significant relationship with homicide rates across all models (models 1, 2, 3, and 4) at the 1% significance level. The coefficients range from 0.66 to 0.85, indicating, as the theoretical framework alluded to, urbanization is a major contributor to increased homicide rates. Natural resources show a negative but insignificant result in models 1, 2, and 4. In model 3, measuring FDI stock as the main independent variable produces a significant result at the 10% level. The results indicate that, in some specifications, an increase in the value of natural resources as a percentage of

GDP might be associated with a small decrease in homicide rates. However, this relationship is not robust across all models.

The naïve models show a consistent but small significant correlation between increased levels of FDI flow and decreasing homicide rates. This indicates that there might be a small homicide-reducing effect from receiving FDI flow. In the next model, I test to see if there might be a non-linear relationship between FDI and homicide rates.

Table 2

Similar to the previous table, this table provides random and fixed effects regression models for both FDI stock and flow. I add the quadratic term for both FDI stock and flow per capita in the model. The inclusion of this quadratic term allows me to account for potential nonlinear relationships between FDI and homicide rates.

Table 2 – Testing for non-linear effect

	(1)	(2)	(3)	(4)
Dep. Var: Homicide logged	FE	RE	FE	RE
FDI flow / Per capita logged	-0.01***	-0.01***		
	(0.00)	(0.00)		
FDI flow / Per capita logged squared	0.00**	0.00**		
	(0.00)	(0.00)		
FDI stock / Per capita logged			-0.09***	-0.08**
			(0.03)	(0.03)
FDI stock / Per capita logged squared			0.01***	0.00**
			(0.00)	(0.00)
Trade per capita logged	-0.01	-0.02	-0.02	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)
GDP / per capita logged	-0.50***	-0.51***	-0.43***	-0.46***
	(0.05)	(0.04)	(0.07)	(0.06)
Liberal democracy	0.14	0.16	0.09	0.10
	(0.10)	(0.10)	(0.10)	(0.11)
Urban population logged	0.91***	0.80***	0.90***	0.76***
	(0.17)	(0.10)	(0.13)	(0.08)
Natural resources / GDP logged	-0.04	-0.03	-0.04	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.00	0.00	0.00	3.15***
	(0.00)	(0.00)	(0.00)	(0.61)
Observations	2,753	2,753	2,739	2,739
Number of groups	144	144	143	143

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Year fixed effects estimated

Applying a squared version of my main independent variables, I can see that there is indeed a non-linear relationship for both FDI flow and FDI stock. FDI stock now shows a strong and statistically significant relationship with homicide rates. This indicates that both FDI flow and stock might have homicide-reducing effects up to a certain degree, before they lead to increased homicide rates. I present the marginal plots for flow and stock below, visualizing

the curved effect. It is important to note that the confidence intervals are quite broad, so the results have a wide variety. Returning to the theoretical framework, this connects well to institutional anomie theory. While some FDI can lead to optimism and sustainable social change, rapid economic and social change might lead to materialistic values associated with IAT. The theoretical framework also suggested that some countries are better at absorbing the potential spillover effects from FDI, there are several possible interpretations. I return to this in the discussion. The results further indicate that additional testing is needed to establish if the results are robust.
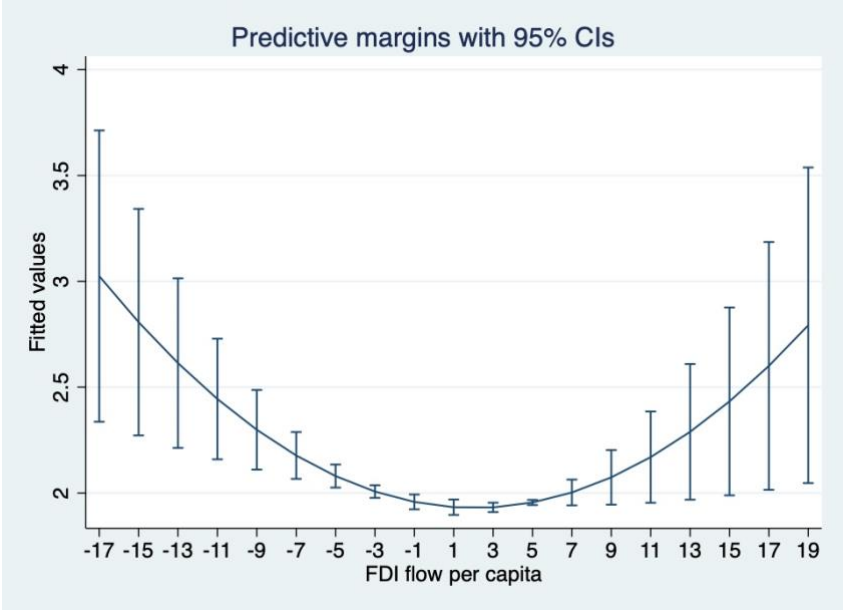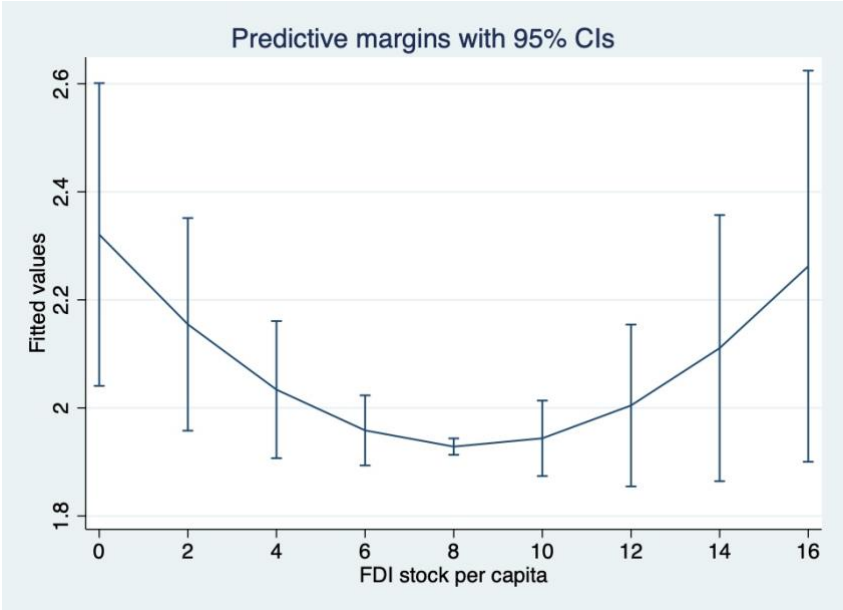

Figure 1: using flow data

Figure 2: using stock data

Table 3

Table 3 – Including years of peace and civil war ongoing

Dep var: Homicide logged	(1) FE	(2) RE	(3) FE	(4) RE
FDI flow / per capita logged	-0.01***	-0.01***		
	(0.00)	(0.00)		
FDI flow / per capita squared	0.00**	0.00**		
	(0.00)	(0.00)		
FDI stock / per capita logged			-0.09***	-0.08**
			(0.03)	(0.03)
FDI flow / per capita squared			0.01***	0.00**
			(0.00)	(0.00)
Trade / per capita logged	-0.01	-0.02	-0.02	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)
GDP /per capita logged	-0.49***	-0.51***	-0.42***	-0.45***
	(0.05)	(0.04)	(0.07)	(0.06)
Liberal democracy	0.17	0.17	0.11	0.12
	(0.10)	(0.10)	(0.10)	(0.11)
Urban population /population logged	0.92***	0.80***	0.89***	0.75***
	(0.17)	(0.10)	(0.13)	(0.08)
Natural resources / GDP logged	-0.04*	-0.03	-0.04*	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Civil war ongoing	0.06*	0.06*	0.06*	0.06**
	(0.03)	(0.03)	(0.03)	(0.03)
Years of peace since last civil war	0.00***	0.00**	0.00***	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	2,753	2,753	2,739	2,739
Number of groups	144	144	143	143

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Year fixed effects estimated

Table 3 includes Years of peace since the last civil war and ongoing civil war as additional control variables. Ongoing civil war somewhat predictably shows a positive effect on homicide, meaning homicide rates increase during a civil war. The result is significant at the 10% and 5% levels for Fixed and random effects, respectively. Years of peace since the last civil war shows a consistent but negligible result, meaning the effect may not be noticeable. FDI flow and stock remain significant, indicating the variables' robustness to the new control variables. The effect of liberal democracy is not significant. Natural resources as a percentage of GDP, which produced insignificant results in the FDI stock models in Table 2, now

produce a negative and significant result at the 10% level in Table 2, indicating that the grim picture painted of natural resource extraction might not affect homicide rates. It could also indicate that some of the homicides accounted for occurred in nations engaged in civil war. GDP per capita consistently produces a strong negative result, while the urban population variable produces a significant and consistent positive result.

The main results stay the same, meaning FDI flow shows a small but consistent homicide-reducing effect. The results indicate that there is a negative correlation between FDI flow and stock and homicide rates, but further testing and robustness checks are needed in order to bolster confidence in the results. In the next models, I test FDI flow and stock in the same model, to see if this alters the results.

Table 4

I use an instrumental variable regression in a fixed effects model to investigate causal direction. I separate the FDI flow and FDI stock variables into different models to establish whether there is a causal connection between FDI flow and homicide.

Table 4 – testing instrumental variable regression for stock and flow

	(1)	(2)
Dep. Var: Homicide logged	FE	FE
FDI flow / Per capita logged	0.04	
	(0.05)	
FDI stock / per capita logged		0.04
		(0.05)
Trade / per capita logged	0.02	-0.04
	(0.06)	(0.07)
GDP /per capita logged	-0.76***	-0.80***
	(0.13)	(0.19)
Liberal democracy	0.15	0.05
	(0.21)	(0.22)
Urban population	0.82**	0.66**
	(0.33)	(0.31)
Natural resources / GDP logged	-0.03	-0.01
	(0.04)	(0.03)
Civil war ongoing	0.08	0.07
	(0.07)	(0.07)
Years of peace since last civil war	-0.00	-0.00
	(0.00)	(0.00)
Observations	2,568	2,552
R-squared	0.186	0.234
Number of id	132	131
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		
F-statistic	4,29	27,99
Hansen J-statistic	2,14	2,39
P-value	0,34	0,30
Year fixed effects estimated		

Presented above is the result of my instrumental variable regression. I apply an IV regression in order to control for endogeneity in my model. Endogeneity occurs when some of the regressors are correlated with the error term in the regression model. Thus, endogeneity can lead to biased and inconsistent estimates and, as a result, incorrect estimation of the causal relationship between the independent and dependent variables. IV regression helps ensure that I do not commit a type 1 error – incorrectly rejecting the null hypothesis.

Interpreting Table 4, it is clear that my independent variables, FDI flow, and FDI stock are no longer statistically significant. While in the naïve and more advanced models, FDI flow was associated with a small decrease in homicide, there is now a positive result. It is nevertheless not significant, meaning there has probably been some endogeneity in my previous models and that the result for FDI flow – as they stand – must be rejected in favor of the null hypothesis. In light of the empirical evidence presented, the observed relationships between the control variables and the dependent variable, homicide rate, appear consistent with theoretical expectations, increasing confidence in the results. Specifically, the solid and consistent negative association between GDP per capita and homicide rates aligns with the hypothesis that higher economic development levels correlate with improved economic and social conditions and policing abilities, which in turn may reduce crime rates. Additionally, the persistent positive association between urbanization and homicide rates across the models lends support to the argument that misspecification is less likely to have produced inaccurate results in the IV regression. The remaining independent control variables provide insignificant results. Neither trade, liberal democracy, natural resources, ongoing civil war, nor years of peace since the last war are significant.

Interpreting the technical aspect of the models, the F-statistic for weak identification provide a result of 4.29 in model 1 for FDI flow– a result below the threshold set at 10. This suggests that the instrument is weak. However, the Hansen J-statistic and the concomitant p-value of 0.34 suggest that the instrument is not correlated with the error term and that the instrument is valid. The instrument seems relevant, but attempting a different instrument might provide an extra level of certainty. More on this in the discussion. For the second model measuring FDI stock, both the F-statistic and the Hansen J-statistic suggest that the instrument is valid, as the p-value is measured at 0.30 – meaning I fail to reject the null hypothesis that the instrument is uncorrelated with the error term. This suggests that the instrument is valid as it satisfies the condition of being exogenous and that I cannot exclude the possibility that endogeneity is leading to bias in my quadratic models. In order to increase confidence in my results, I apply a conditional effects test and a robustness test.

Having tested my results in an instrumental variable regression, I move on to testing for conditional effects. Natural resources have a unique quality. Research points to their conflict-inducing effect in underdeveloped countries (Wenar, 2011). Investment in resource extraction

may thus have a more acute effect on homicide rates than investments in manufacturing or the service industry. To test whether there is a distinctive effect from FDI to the primary sector, I employ a conditional effects variable – testing FDI and natural resources as a percentage of GDP in a regression model.

Table 5

Table 5– conditional effects

Dep. Var: Homicide	(1) RE	(2) RE
FDI flow / per capita logged	-0.01***	
	(0.00)	
FDI flow / per capita squared	0.00**	
	(0.00)	
Interaction between natural resources GDP and FDI flow	0.00	
	(0.00)	
FDI stock / per capita logged		-0.07*
		(0.03)
FDI stock / per capita squared		0.00*
		(0.00)
Interaction between natural resources GDP and FDI stock		-0.00
		(0.00)
Trade / per capita logged	-0.02	-0.03
	(0.04)	(0.04)
GDP /per capita logged	-0.51***	-0.46***
	(0.04)	(0.06)
Liberal democracy	0.17	0.11
	(0.10)	(0.11)
Urban population /population logged	0.80***	0.77***
	(0.10)	(0.09)
Natural resources / GDP logged	-0.04**	-0.00
	(0.02)	(0.04)
Civil war ongoing	0.06*	0.06**
	(0.03)	(0.03)
Years of peace since last civil war	0.00**	0.00*
	(0.00)	(0.00)
Constant	0.00	3.04***
	(0.00)	(0.60)
Observations	2,753	2,739
Number of groups	144	143

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Year fixed effects estimated

Presented above is Table 5, which encompasses all the variables included in Model 3 and an interaction variable for FDI flow and stock with natural resources. Given the absence of data concerning the specific sector targeted by FDI, I have to assume that FDI is directed towards the natural resources sector in countries with abundant natural resources. Although this assumption has limitations, it is reasonably justifiable. By explicitly controlling for the effect of natural resources, the model enables the observation of potential impacts from investments in the natural resource sector.

The results are similar to the previous models, except the IV regression. The models indicate no relationship between sector-specific FDI to natural resources and homicide rates. Consequently, the conditional effect does not significantly improve the model's explanatory power, suggesting that FDI channeled towards natural resource-based investments does not affect homicide rates in a meaningful way. While the effects of FDI flow and stock remain statistically significant, I cannot exclude the possibility of endogeneity significantly affecting my results. Also, adding a quadratic term introduces multicollinearity and other specification issues. As xtscc regression does not allow me to run a VIF test for multicollinearity, thus, I cannot exclude the possibility of this issue affecting the models.

In light of the empirical evidence, I find continued support for the null hypothesis (H0), maintaining that FDI does not substantially influence homicide rates. Acknowledging the limitations of the data and the assumptions made, it is prudent to conduct a robustness test to assess the reliability and validity of the results. Subjecting the findings to a robustness test will provide further confidence in the conclusions drawn from this study. However, as I cannot ascertain whether my models are biased from multicollinearity due to the inclusion of a quadratic term, I employ the model without the quadratic terms.

Table 6
Next follows a robustness test. I do not include developed countries and focus on my main target, developing countries.

Table 6– Robustness test

Dep. Var: Homicide	(1) FE	(2) RE	(3) FE	(4) RE
FDI flow / per capita logged	-0.00	-0.01		
	(0.01)	(0.01)		
FDI stock / per capita logged			-0.02	-0.02
			(0.02)	(0.02)
Trade / per capita logged	0.01	0.00	0.01	0.01
	(0.04)	(0.04)	(0.04)	(0.04)
GDP /per capita logged	-0.59***	-0.55***	-0.56***	-0.51***
	(0.05)	(0.05)	(0.07)	(0.06)
Liberal democracy	0.12	0.17	0.08	0.13
	(0.10)	(0.10)	(0.10)	(0.11)
Urban population	0.89***	0.83***	0.75***	0.72***
	(0.15)	(0.08)	(0.12)	(0.07)
Natural resources / GDP logged	-0.04	-0.04	-0.04	-0.04*
	(0.02)	(0.02)	(0.03)	(0.02)
Constant	0.00	0.00	0.00	3.53***
	(0.00)	(0.00)	(0.00)	(0.52)
Observations	2,130	2,130	2,116	2,116
Number of groups	121	121	120	120

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Year fixed effects estimated

In this refined model, I focus exclusively on developing countries by excluding developed nations from the analysis. This approach serves as a crucial test to ascertain whether a relationship between FDI and homicide rates exists when solely considering the most relevant units, i.e., developing countries. If there indeed is a relationship, the robustness test should tease it out. The robustness test aims to eliminate potential confounding factors arising from the inclusion of developed countries in the model. I apply this test as Blonigen & Wang (2009) suggest that empirical analysis of FDI should differentiate between less developed countries and developed countries when examining the effects of FDI.

As visible from Table 6, the robustness test fails to demonstrate a relationship between FDI and homicide rates. A wide variation in the results precludes the identification of a discernible trend. The results do not indicate a clear direction, and we cannot dismiss the possibility that

any observed correlation may be attributable to chance. I have also attempted to exclude the urban population as a percentage of the population variable, trade as a percentage of GDP per capita, and liberal democracy to further investigate whether I can find an effect, but the results remain insignificant. I do not include these attempts as they do not provide any more meaningful results than those already provided.[4]

Throughout the various models, the consistently non-significant p-values and weak coefficients in models not containing quadratics suggest that a causal link between FDI and increased or decreased homicide rates is unlikely but not impossible. Attempting to improve the model by incorporating additional control variables or employing more sophisticated tests would likely be unproductive, given the inability to obtain significant results in the current analyses. Furthermore, it could also lead to further specification issues, as I do not wish to overfit the models. The compelling evidence derived from the robustness test supports the rejection of both the first and second hypotheses. Consequently, I am unable to refute the null hypothesis, which posits that there is no significant relationship between FDI and homicide rates in developing countries.

While interpreting the findings, it is essential to exercise caution. The results indicate that we cannot generalize any significant effect of FDI on homicide rates across developing countries. Nonetheless, it is important to recognize that specific individual countries may observe or experience an increase or decrease in homicide rates after receiving FDI. The confidence interval crosses zero, signifying that countries experience both positive and negative effects on homicide rates following FDI inflows. This implies that we cannot make reliable predictions, as the variations are too substantial and preclude the establishment of a discernible trend. More on this in the discussion section below.

6. Discussion

The analysis is an attempt to understand the impact of foreign direct investment on interpersonal violence, specifically homicides, in developing countries. The interpretations drawn challenge the assertions of Marxist and dependency theories, instead showing more alignment with liberal perspectives. Strong advocates of liberal economic theory maintain that increasing FDI should inherently lead to a decrease in homicide rates due to the

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[4] If the reader should want to see the additional results, they can be provided by request.

accompanying benefits and opportunities. However, the analysis and results only partially confirm this viewpoint. It strongly suggests that developing countries can attract foreign capital without the consequential rise in crime and homicide rates – as seen in the IV regression and robustness test. By not clearly leading to increased homicide rates in host countries, increases in FDI should lead to lower homicide rates over time as countries grow richer – wealth being the best indicator of lower homicide rates. However, the clear signs of lowering homicide rates, as observed in models 3 and 5, need to undergo further research, as the models showing a decrease in homicide rates do not account for endogeneity and multicollinearity.

FDI's potential to enhance the overall wealth of developing countries without an explicit corresponding rise in homicide rates is more in line with moderate liberal viewpoints. The data illustrates that as GDP per capita increases with FDI over time, countries may observe lower homicide rates due to better opportunities for citizens, improved law enforcement, and reduced poverty-driven crime. Therefore, regarding crime and homicide, FDI appears to be a safe choice as a development model. Policies that promote FDI could be an effective poverty reduction strategy for developing nations aiming to increase their overall wealth and citizen standard of living. This analysis does not discredit theories linking rapid urbanization and growth to increased homicide rates. Instead, the IV regression shows that FDI is not more likely to induce homicide than other forms of developmental capital. However, if the effect *is* non-linear, there might be, as theorized, homicide-increasing effects when FDI is large.

It is rather surprising that with the amount of theory proposing that receiving FDI should increase homicide rates, there is little empirical support for it. Neither strain nor anomie, relative deprivation, or lower levels of collective efficacy has explanatory power on FDI in reasonable amounts. The suggestion that as society turns more economical and traditional values give way to economic self-interest produces more cynical actors seeking material gain at all costs does not manifest itself in the IV regression and robustness test. This suggests that homicide, as mentioned earlier, may occur from narrower, more personal motivations. Traditional societies are not perfect – they are complex. And while the theories are useful in understanding societal dynamics, they do not explain all cases. While it is beyond the scope of this paper, understanding the level of development and institutional environment of the countries experiencing increased homicide rates and comparing it to countries experiencing lower levels could further enhance the conclusions drawn from this paper. Do higher levels of

development and better financial systems improve the ability to take advantage of the spillover effects from FDI, thus leading to lower homicide rates? I leave this question for future research.

When comparing alternative capital sources, such as loans and foreign aid, the outcomes have tended to be less desirable for loans and foreign aid because of the debt trap in case of loans, and countries can become reliant on foreign aid, inhibiting organic self-sustaining growth. This implies that a focus on attracting investment from profit-driven multinational companies could be more beneficial for developing countries than relying heavily on loans or the goodwill of wealthier nations. Nevertheless, this doesn't negate the complexity of the development process. The challenging journey from an underdeveloped to a high-income country is still a stark reality. Countries should remain cautious of profit-seeking capital's nature. Some MNCs demonstrate more concern for their host nations' inhabitants' welfare than others, and impoverished populations can become easy targets in a labor market lacking sufficient protections. The optimal scenario is a balanced power dynamic between the government and MNCs, which provides mutual benefits while minimizing risks. There are other less severe but still concerning effects FDI might produce. Allowing MNCs special privileges can increase the potential for corruption and other moral hazards.

While FDI isn't a cure-all solution, it is a viable development model for growing economies aiming to raise their citizens' living standards and security without inducing a rise in crime rates. Therefore, developing countries should consider it as a significant part of their economic growth strategy while being mindful of its potential pitfalls. Increasing the country's competitive edge on the international market should, as liberal economists argue, increase GDP per capita levels over time and enable the government to access more international capital and technology for development.

When evaluating the impact of FDI on homicide rates, it is important to differentiate between direct and indirect effects. Direct effects signify a direct causal link, representing an immediate, primary consequence – X leading directly to Y. In contrast, indirect effects signify influences that transpire as secondary consequences in a sequence of events – X causing Z, which subsequently leads to Y. While this analysis initially sought to establish a direct link between FDI and changes in homicide rates, it is clear that FDI primarily influences homicide rates through a somewhat indirect route. FDI can inadvertently contribute to higher homicide

rates by amplifying social inequality, stimulating rapid urbanization, and promoting economic growth, factors that have been associated with an increase in homicide rates. However, given the lack of a confirmed causal relationship between FDI and increased homicide rates in this study, it is inferred that there is no direct link between the two.

As for the weaknesses of this paper, the inability to perfectly identify the cause of the homicide and to be able to differentiate between anomie-induced homicide, politically motivated homicide, or forms of homicide leaves future research possibilities. Disaggregating the homicide data could provide even more accurate results. Similarly, applying a more valid instrument could enhance the reliability of the findings. The study attempted to account for the complex interplay between different variables in studying homicide and its multifaceted nature. In addition, the inability to test for non-linearity in the IV regression leaves the research somewhat incomplete. However, due to the complex nature of achieving this, and the lack of time to verify the results, I leave this for future researchers. Further research could improve upon this and investigate further avenues related to ways MNCs can negatively impact host countries. An extended investigation into MNCs' adverse effects is a viable route. There is a springboard for deeper exploration into the negative externalities that MNCs may have on host countries. Subsequent studies could examine the varied ways MNCs influence host countries' socio-economic and political structures, extending beyond foreign direct investment to aspects such as labor standards, environmental implications, corruption, and ramifications on local industries.

An inquiry into mediating variables could also be an avenue. An investigation could be conducted into the variables that might mediate the correlation between MNCs and homicide rates. For instance, more pronounced effects could be observed in countries with weaker legal structures, rampant corruption, or elevated social inequality. Discerning these mediators could aid in identifying strategies to alleviate the externalities MNCs might bring. An example would be to investigate how the host country develops post-FDI; do schools, access to quality healthcare, or other development indicators show signs of improvement?

7. Conclusion

This paper has examined a highly contested area of the literature related to MNCs their effects on host nations by examining levels of FDI and homicide rates. Building upon the existing literature, I ask whether an MNCs entry into a country, in the form of FDI, increases the host nations' homicide rates. I derived this question by building upon Pinto & Zhu's (2022) article and questioning whether their conclusion – that FDI increases the likelihood of civil war – had explanatory power on a similar topic, homicide rates. While civil conflict and criminally induced homicide may stem from different mentalities, dynamics, and reasonings, they are sufficiently adjacent. Further, reviewing the literature, there seemed to be a shortage of large-scale studies examining the subject. A large N study examining more than a few countries or a single country was missing. After examining the literature across multiple fields, I constructed competing hypotheses, building upon international political economy, sociology, criminology, and various sub-fields. These hypotheses integrate both established and emerging perspectives in FDI, development, and criminology, offering a comprehensive theoretical framework.

I employ powerful statistical analysis using advanced statistical tools in order to determine whether a causal effect could be established. While the initial results indicated a slight decrease in homicide rates after an increase in FDI, more advanced statistical testing using IV regression and robustness checks examining only non-developed countries did not support the initial results, indicating that the null hypothesis – FDI not having an effect on homicide rates – could not be rejected.

Because low-income countries need capital to develop, and the range of choices in where to get it is limited, FDI is essential for developing countries. And while the literature on the potential hazards involved in letting MNCs get special privileges and access to favorable deals is extensive, the empirical findings in this paper did not find a systematic association between increases in FDI and interpersonal violence measured as homicide. While the results are not entirely supportive of liberal arguments, by not directly increasing homicide rates, FDI is not a bad alternative. Thus the overall findings in this study indicate that an FDI-led approach to development can be pursued without fear of spiraling crime and homicide rates.

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9. Appendix

Descriptive statistics

Variables	Observations	mean	sd	min	max
IHS Homicide	3493	2.075022	1.176431	0	5.647031
IHS FDI flow	8683	2.68775	3.57752	-16.80543	19.34429
IHS FDI stock	6778	6.979594	2.576491	0.000000247	16.54867
Trade logged	7469	4.199547	.6242305	-3.863269	6.092711
GDP /PC logged	8371	8.330597	1.463699	5.040433	11.76569
Liberal democracy	8443	.3483733	.2785119	.005	.896
Urban pop logged	10234	3.809023	.5956292	1.045563	4.60517
IHS natural resources	8433	1.720363	1.418805	0	5.165702
Civil war ongoing	8164	.1653601	.371528	0	1
Years of peace since last civil war	8164	27.00367	22.13668	0	73