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Natural Resource Sector FDI and Growth in Post-Conflict Settings: Subnational Evidence from Liberia

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Abstract

The Ellen Johnson-Sirleaf administration, which came to power in 2006 after the end of a nearly fifteen year civil war, has made foreign direct investment (FDI) the centerpiece of its growth and development strategy. However, unlike other governments that have sought to benefit from FDI through technology and knowledge transfers, the Liberian authorities have pursued a strategy of requiring that investors provide public goods in specific geographic areas. It is not clear if this strategy, which is designed to set in motion agglomeration processes, improves local economic growth outcomes. This paper presents first-of-its kind, quasi-experimental evidence on the economic impacts of natural resource sector FDI. We first construct a new dataset of more than 550 sub-nationally georeferenced natural resource concessions that the Liberian government granted to investors between 2004 and 2015. We then merge these georeferenced investment data with survey- and satellite-based outcome and covariate data at the 1km x 1km grid cell level. We use remotely sensed data on nighttime light to measure local economic growth and propensity score matching methods to compare growth in otherwise similar locations with and without FDI. Our results suggest that, in general, natural resource concessions improve local economic growth outcomes. However, there is important variation across different types of concessions and concessionaires. Mining concessions outperform agricultural concessions, and concessions granted to Chinese investors outperform concessions granted to U.S. investors.

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Contents

1. Introduction

The Ellen Johnson-Sirleaf administration, which came to power in 2006 after the end of a nearly fifteen year civil war, has made foreign direct investment (FDI) the centerpiece of its growth and development strategy. It has granted more than a third of the country's land to foreign investors in the hopes that they will stimulate economic activity in the agriculture and mining sectors, increase employment in rural areas, and build and maintain infrastructure (Government of Liberia, 2013).

Proponents of foreign direct investment (FDI) argue that it brings a wide range of benefits to host countries, including (higher-wage) employment, increased tax and royalty revenue, technology transfer, knowledge spillovers, and backward and forward production linkages to the local economy. Skeptics argue that the economic growth and development impacts of FDI are limited and in some cases even negative. Extractive sector FDI, in particular, may provide few economic benefits. In comparison to other forms of FDI, extractive investment is believed to create fewer linkages and spillovers to the local economy. It may even depress economic growth by encouraging rent-seeking and dampen incentives for host governments to invest in human capital accumulation.

In this paper, we introduce and test a new channel through which extractive sector FDI may affect local economic growth: government strategies that require incoming investors to provide public goods, such as the construction and rehabilitation of roads, ports, bridges, power plants, and electricity distribution networks (Jourdan, 2007). Under so-called 'growth pole' or 'development corridor' strategies, governments focus public good investments in specific geographic areas in order to crowd in additional investments, create clusters of interconnected firms, and nurture the development of value chains. Agglomeration dynamics can, in principle, also reduce unemployment and provide basic public services (e.g. water, sewerage, electricity) to individuals in those geographic areas (Speakman and Koivisto, 2013).

This study examines whether Liberia's FDI-based growth strategy has been successful. It seeks to answer two questions. First, do the local areas in which the Liberian government has granted concessions to foreign investors experience faster rates of economic growth than those areas without concessions? Second, do concession and concessionaire attributes differentially affect local economic growth outcomes?

To answer these questions, we first assemble a dataset of all known natural resource concessions that the Liberian government granted to investors between 2004 and 2013.[1] We then georeference this dataset by constructing polygons that correspond to the specific tracts of land granted to concessionaires, which allows us to calculate at a high-level of spatial resolution (1km x 1km grid cells) whether a particular location has been "treated" with an FDI project. We subsequently merge these geocoded investment data with a remotely sensed outcome measure of nighttime light growth. We use this outcome measure because higher levels of luminosity strongly correlate with higher levels of economic activity at the subnational level (Henderson, Storeygard, and Weil, 2012; Hodler and Raschky, 2014; Michalopoulos and Papaioannou, 2014). We then merge these georeferenced investment data and remotely sensed outcome data with a battery of survey- and satellite-based covariate data at the 1km $\times$ 1km grid cell level.

[1] Since approximately 95% of Liberia's FDI is concentrated in the natural resource sector (Werker and Beganovic, 2011; Mlachila and Takebe, 2011), we are confident that this dataset of FDI activities provides a close approximation of the full universe of FDI projects in Liberia between 2004 and 2013.

Finally, we use a propensity score matching method to compare the economic performance of otherwise similar subnational localities with and without extractive sector investment projects.

Our results suggest that natural resource concessions have a positive effect on local economic growth outcomes. We also find some evidence of heterogeneous treatment effects by concession and concessionare type. Whereas mining concessions have a positive impact on local economic growth outcomes, agricultural concessions do not. We also find that Chinese concessions outperform U.S. concessions. Our results do not suggest that concessions with CSR provisions deliver larger economic growth benefits than concessions without such provisions. Overall, the quantitative and qualitative evidence that we marshal is consistent with the interpretation that natural resource concessions can lead to economic agglomeration effects.

Our findings speak directly to an ongoing debate among Liberian policymakers, media, and domestic civil society groups about the types of concessions and concessionaires that deliver the largest economic development dividends (Lanier, Mukpo, and Wilhelmsen, 2012; Slakor and Knight, 2012; Werker and Beganovic, 2011; IMF, 2012; AFDB, 2013). More broadly, the evidence we present in this study suggests that not all types of extractive sector investment are equally beneficial, and it may be advisable for resource-rich countries such as Liberia to increase the level of priority assigned to specific sectors and geographical areas where there is a higher likelihood that investment will produce significant development benefits.

2. The Importance of Examining the Effect of FDI on Local Economic Growth

Liberia's devastating, fifteen year civil war finally came to an end in August 2003. A transitional administration then assumed power for three years, and a free and fair presidential election subsequently brought Ellen Johnson-Sirleaf to office in January 2006. Her administration made foreign direct investment (FDI) the centerpiece of its growth and development strategy. Since taking office, the government has granted more than 550 concessions to foreign investors in the hopes that they will stimulate economic activity in the agriculture and mining sectors, increase employment in rural areas, and build and maintain infrastructure (Government of Liberia, 2013). In theory, FDI could have a positive effect on economic development: investment in infrastructure could remove growth bottlenecks, and jobs could create income that might translate into increased demand (Government of Liberia, 2013; Aragón and Rud, 2013b).

However, previous administrations in Liberia also pursued FDI-led growth strategies and ultimately failed to achieve broad-based development gains (Werker and Beganovic, 2011). The William Tubman administration (1944-1971), for example, attracted investors to the natural resource extraction sector through a so-called Open Door Policy, but concession enclaves emerged and created few linkages to the local economy (AFDB, 2013). In recognition of these pitfalls, the Johnson-Sirleaf administration has taken steps to reduce the likelihood that their FDI-led growth and development strategy will result in similar enclaves. It has negotiated explicit contractual provisions that require concessionaires to invest in local infrastruc-

ture (e.g. roads, railways, ports, electricity), hire local labor, support domestic value chain development through local sourcing, and support local communities through corporate social responsibility activities and social development fund contributions (AFDB, 2013; IMF, 2012).

Yet, it is not clear whether these steps have been sufficient to spur and sustain growth that benefits local populations. Many of the concessions that the Liberian government has granted to investors are located in areas where the state's presence is limited and where it is difficult to monitor the extent to which promises of employment and reinvestment are honored (USAID, 2013; Lanier, Mukpo, and Wilhelmsen, 2012; Nyei, 2014).[2] There are also some indications that incoming investment in the natural resource extraction sector has encouraged corruption and rent-seeking behavior (Dwyer, 2012). More fundamentally, it is unclear if the Liberian government has attracted investment in the "right" sectors for growth, as nearly all incoming FDI has gone to the natural resource sector rather than manufacturing or services (Werker and Beganovic, 2011; Mlachila and Takebe, 2011).

Liberia's donors and creditors have questioned the wisdom of the authorities' decision to focus their growth and development strategy so heavily on the granting of natural resource concessions to foreign investors. The World Bank, for example, has voiced concerns about whether "such concessions are pro-poor when they often involve pitting local communities with limited capacity against far more sophisticated operators" (IEG, 2012, xxvi). The African Development Bank has warned the authorities that "[t]ensions will mount unless means are found to generate win-win economic benefits between concessionaires and local communities" (AFDB, 2013).

Civil society organizations in Liberia are even more skeptical of incoming investors and their close ties to the host government (Lanier, Mukpo, and Wilhelmsen, 2012; MacDougall, 2015). They charge that the Johnson-Sirleaf administration has trampled upon the rights of customary land owners and granted forestry, agriculture, and mining concessions to investors without engaging in any meaningful consultation with local communities (Tran, 2012). They also claim that concessionaires are refusing to pay and mistreating local workers, degrading the local environment, committing human rights abuses, and fueling local conflicts (Siakor and Knight, 2012).

The general public seems to view the government's concessions-led growth and development strategy with a similarly high level of skepticism. A 2011 survey of nearly 1500 rural and urban households in Liberia revealed that 46% of the population strongly disagreed with the notion that their local community was benefiting from concessions granted to investors since 2008 (IMF, 2012). Only 8% of surveyed households agreed with the statement "[My] community is directly benefitting from the concessions agreements signed and ratified by the government since 2008" (IMF, 2012).

Given these widely divergent views on a natural resource FDI-led growth and development strategy, there is a need for rigorous evaluation to determine, whether, to what extent, where, and how extractive sector investment has or has not delivered significant economic benefits to local populations in Liberia. This is the primary objective of our present study. To achieve these ends, we will first present a case study of a natural resource concession that represented an early test of the viability of the government's

[2]Indeed, a 2013 audit of all Liberian concessions awarded since 2009 found that only 2 of 68 were fully compliant with the initial terms of their agreements (United Nations Security Council, 2014).

investment management and coordination strategy. We will then analyze whether the insights derived from this case study are generalizable across the broader array of natural resource concessions granted to foreign investors. However, before we introduce any qualitative or quantitive evidence, we turn to theory to develop expectations about how government strategy can plausibly impact local economic growth outcomes.

3. Theory

3.1. A New Channel: Private Provision of Public Goods

There is a voluminous literature on the many potential causal mechanisms through which FDI can affect economic growth, which we will not attempt to summarize in its entirety.[3] Two of the most prominent explanations relate to the role of knowledge and technology spillovers. Previous scholarship suggests that when domestic firms benefit from a direct transfer of more advanced technologies, they become more productive and make larger contributions to economic growth (Das, 1987). Domestic firms may also benefit indirectly through reverse engineering of advanced technologies (Wang and Blomström, 1992). Other studies argue that the presence of foreign firms enhances the productivity of domestic labor – for example, when outside investors train and educate a locally-sourced labor force (Gorg and Strobl, 2005; Fosfuri, Motta, and Rønde, 2001).

However, these causal transmission channels mostly apply to investment in non-primary sectors (e.g. manufacturing) that are knowledge- and technology-intensive. They are most likely not the main channels through which natural resource sector FDI affects economic growth in Liberia for four reasons. First, as Paus and Gallagher (2007, 58) point out, "[i]nvestment in resource extraction generally provides very limited potential for [technology and knowledge] spillovers, as it tends to be very capital intensive and have no linkages to the host economy." Second, Liberia only recently emerged from a fifteen year civil war that severely depleted its human capital, thereby limiting the skill levels and absorptive capacity of local workers. Third, the civil war decimated the entrepreneurial class, so the number of indigenous businesses that possess that learning and innovation capacities needed to benefit from knowledge and technology transfers is very small.[4] Fourth, sharing technology and knowledge is a lengthy process requiring a stable political environment (Olson, 1993), and the political environment following a post-civil war is not an ideal setting for such transfers.

But there is a separate mechanism through which FDI can plausibly impact economic growth in settings such as Liberia. We argue in this study that, even in post-conflict settings and weak institutional environments, FDI can have a positive effect on growth when the host government actively performs an investment management and coordination function and strategically employs FDI in the service of a broader economic development strategy.[5]

[3] See Section H in the Online Appendix for a more extensive discussion of the existing literature.

[4] Meyer and Sinani (2009) demonstrate that the capacity to absorb FDI spillovers is a function of learning and innovation capacities of domestic firms.

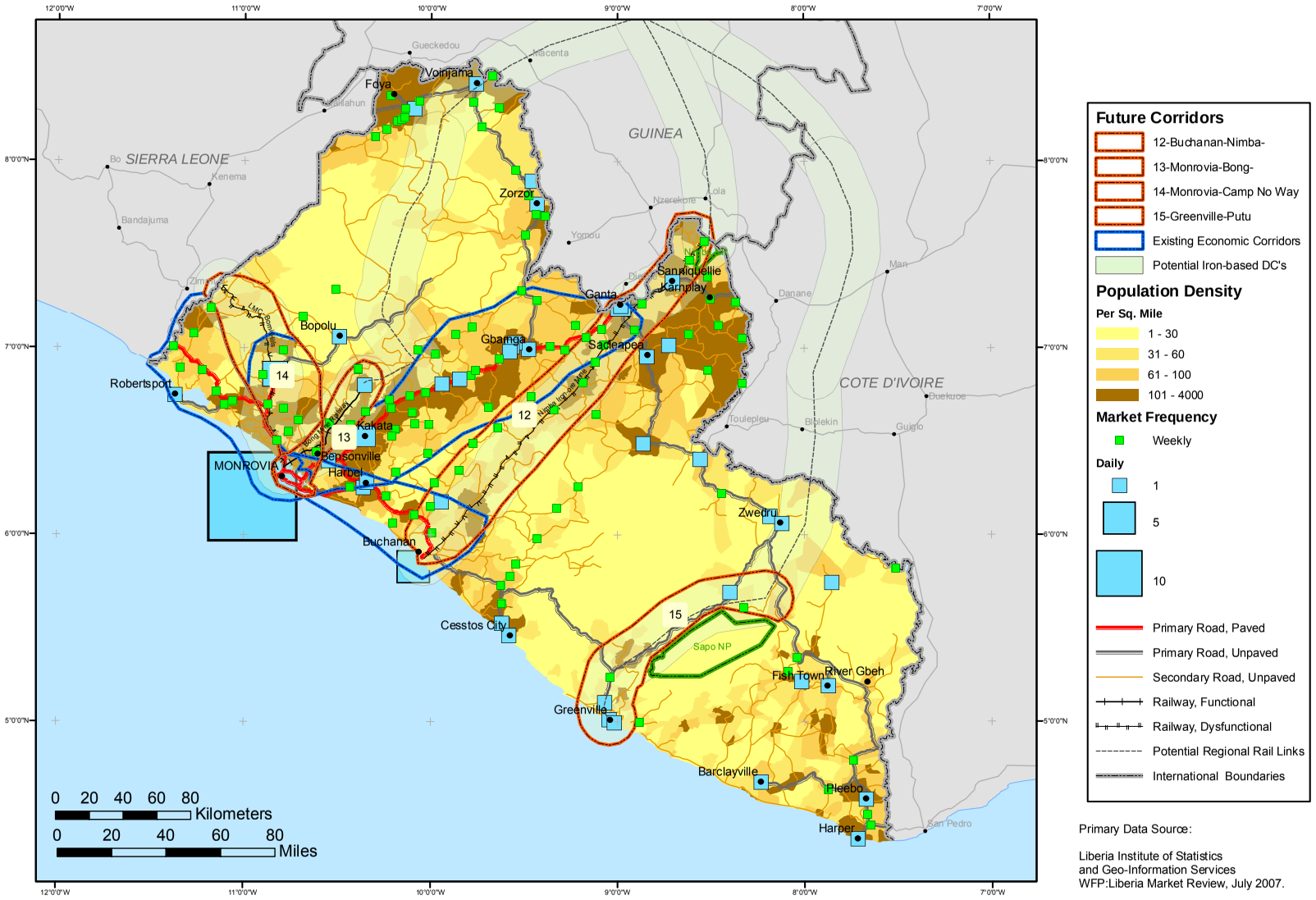
[5] In this respect, our study builds upon the work of Rodrik, Grossman, and Norman (1995) and Rodrik (2004).

Our study therefore speaks to a policy question of relevance to many countries other than Liberia. Governments across the developing world are increasingly requiring foreign investors to provide public goods such as infrastructure. Host governments were previously expected to provide public goods, which would then be used by private investors. However, governments with limited revenue mobilization capabilities and international borrowing options are now turning to one of the few remaining policy instruments at their disposal: the ability to require that incoming investors provide public goods – for example, by building or rehabilitating roads, ports, bridges, power plants, electricity distribution networks, and health and education systems in or near the communities where their investments are physically sited (Jourdan, 2007).

Many governments are also going a step further by developing "growth pole" and "development corridor" strategies that guide their investment management and coordination efforts. Most of these strategies are premised on the idea that the provision of public goods in specific geographic areas (where an initial, flagship investment is sited) can be used to crowd in additional investments, create clusters of interconnected firms, nurture the development of value chains, reduce unemployment, and provide basic public services (e.g. water, sewerage, electricity) to large numbers of firms and households (Speakman and Koivisto, 2013).

In recent years, Mozambique, Sierra Leone, Tanzania, Burkina Faso, Senegal, DRC, and Madagascar have all pursued these types of spatial development strategies (Speakman and Koivisto, 2013; Gelb et al., 2015).[6] Many countries draw inspiration from South Africa, which launched a series of "Spatial Development Initiatives" (SDIs) during the 1990s to build transportation and economic development corridors that linked the rural hinterlands with coastal cities and port facilities (Mulenga, 2013). This SDI approach purportedly helped South Africa transition from an inward-focused, import-substitution industrialization strategy to an export-led development model, while also promoting employment and socioeconomic development gains in the adjacent geographic areas running alongside these corridors (Rogerson, 2001). The Maputo Development Corridor, for example, came about through a series of coordinated investments in roads, railways, and ports along a 590 kilometer route from Johannesburg to Maputo. It is now populated with steel mills, manufacturing and petrochemical plants, mining facilities, and sugar cane and forestry plantations.

[6] In 2007, the African Development Bank and NEPAD formally adopted the "development corridor" approach as a way of designing, prioritizing, and coordinating large-scale economic and infrastructural investments in specific geographic areas. They also prioritized the development of 21 development corridors in 16 countries under a Regional Spatial Development Initiatives Program.



Source: Government of Liberia, 2010. This map was provided by Dr. Lucie Phillips of IBI International upon request, and we are republishing it with permission from Mr. Sebastian Muah, who oversaw the preparation of the Government of Liberia's development corridor strategy during his period of service as Deputy Minister for Economic Affairs and Policy in Liberia's Ministry of Planning and Economic Affairs.

Figure 1: The Johnson-Sirleaf Administration's Development Corridor Priorities.

The Johnson-Sirleaf administration has pursued a similar strategy. It has prioritized the development of three spatial development corridors (see Figure 1) near large population centers and existing markets: one corridor that runs from the iron ore mines in Nimba County to the port city of Buchanan; a second corridor that runs from Monrovia to Tubmanburg and then to the gold and iron ore deposits in Bomi Hills, Bea Mountain, and Mano River; and a third corridor than runs from the Putu Range in Grand Gedeh country to Greenville.[7] The Government of Liberia's goal in developing these corridors has been to maximize the economic multiplier effects produced by concessionaire-supplied infrastructure (Government of Liberia 2010c: 55).

The iron ore concession granted to Mittal Steel Liberia (MSL) was an early test of the viability of this development corridor strategy. It was the first, large-scale mining concession that the Johnson-Sirleaf administration granted to a foreign investor, which could plausibly result in the creation one of the three, new spatial development corridors envisioned for the country.[8] It has also had a relatively long period of time, in comparison to other mining concessions granted during the Johnson-Sirleaf administration, to produce results. It therefore merits special scrutiny.

MSL – a subsidiary of ArcelorMittal, the world's largest steel company– inked a concession agreement with the Government of Liberia in December 2006, and the deal was signed into law by the Liberian Parliament in May 2007. Under the terms of its 25-year, $1.5 billion agreement, MSL was granted rights to explore for, extract, and export iron ore from deposits in Mount Gangra, Mount Tokadeh and Mount Yuelliton in Nimba County (Kaul, Heuty, and Norman, 2009). The concession area granted to MSL under the agreement is primarily in the northern part of the country near the border with Guinea and it consists of approximately 600 square kilometers. It also includes a roughly 12 km swathe of land along the coastline that extends from the port of Buchanan to the town of Niabah and extends inland by roughly 3km (URS, 2013a, 16).

In exchange for the rights that it was granted, MSL agreed to various conditions concerning infrastructure, jobs, social sector investments, and taxes. It agreed to spend roughly $800 million on the rehabilitation of a 267 km railway from Yekepa (Nimba County) and the renovation of the port in Buchanan (Grand Bassa County). It also agreed to place special priority on hiring Liberians as opposed to expatriates, and estimated at the time that the 2006 agreement was signed that it expected to directly employ 3,500 people and generate an additional 15,000 to 20,000 jobs via contractors and suppliers (ArcelorMittal Liberia, 2006, 40).[9] MSL also agreed to pay roughly $73 million over twenty five years – or approximately $3 million a year – into a "Social Development Fund" (SDF) in order to support development projects in the three counties (Nimba, Grand Bassa, and Bong) that overlap with the MSL concession area (Siakor, Urbaniak, and Clerck, 2010). Finally, MSL agreed to pay a 4.5% tax on the market value of all exported iron ore as well as income tax and dividends to the central government (Booth, 2008).

[7]The Government of Liberia also identified a fourth potential development corridor that could run north from Monrovia to the Wologizi deposit (see Figure 1). However, given that this deposit had "not yet been proven economically viable" at the time the authorities drafted their strategy, it was not assigned a high level of priority (Government of Liberia, 2010: 55).

[8]The MSL concession was envisaged as the primary means by which the Government of Liberia would build a development corridor between Nimba County and the city of Buchanan.

[9]MSL's 2006 Mineral Development Agreement (MDA) states that "The concessionaire shall not import unskilled labor into the Republic [of Liberia]. The concessionaire shall employ (and shall give preference, at equality of qualifications, to the employment of) qualified Liberian citizens for skilled, technical, administrative and managerial positions." (Mineral Development Agreement Between the Government of Liberia and Mittal Steel Holdings N.V., Mittal Steel Holding A.G & Mittal Steel (Liberia) Holdings Limited. Section XII. 7 May 2007).

The fact that the government required the concessionaire (a private actor) to provide public infrastructure, which is typically considered a public good to be provided by the government, is not an idiosyncratic feature of MSL's contractual arrangement. Rather, it is consistent with the government's "deliberate intention to develop spatial corridors off the back of concession-sponsored infrastructure" (AFDB, 2013, 34). In 2010, the Government articulated this strategy in a publication entitled "Liberia's Vision for Accelerating Economic Growth," stating that

> "[our] development corridor strategy will allow growth to accelerate by 'crowding in' investment, creating synergies among diverse activities along growth axes where users can share road-, rail-, port-, power-, telecommunications- and water infrastructure. … In the past, wasteful practices included mines created as autonomous island investments with their own infrastructure. Potential other users were closed out. … [Our] development corridor approach identifies potential other users of infrastructure from the start, and factors them into the design of the infrastructure. Planning shared infrastructure and communicating effectively with investors and communities can accelerate the process, reduce wasteful duplication of effort and improve both investor and community benefits" (Government of Liberia, 2010, vii).[10]

To achieve these goals, the Liberian government chose to focus on mining, rather than agricultural, concessions (Government of Liberia, 2010, 55). A 2013 report by the African Development Bank highlights this point, noting that that "new iron ore concessions are [at] …the center of a new development strategy based on development corridors. …The idea is to have concession-sponsored infrastructure (roads, rail, ports, power and water) catalyze [economic] activity in other sectors within viable logistics proximity. Explicit provisions are being made in concession agreements to that end" (AFDB, 2013, 33). Owing to these indirect employment effects, the authorities expected the MSL agreement to produce three jobs for each new mining job created (Government of Liberia, 2010, 87,91).

This case would therefore suggests that if foreign investments register positive effects on local economic growth outcomes in post-conflict settings like Liberia, they are unlikely to do so through the transfer of knowledge and technology. It also calls attention to the fact that even countries with weak public sector institutions can negotiate contracts with foreign investors that require the provision of public goods. The open empirical question is whether this type of FDI-led growth and development strategy can actually improve local economic growth outcomes.

3.2. Deriving Hypotheses

We draw theoretical inspiration from Hirschman (1977) to identify two plausible channels through which extractive sector investment and concession-provided public goods might together result in economic growth that benefits local populations rather than establishing or reinforcing concession enclaves: *backward linkages* and *consumption linkages*. Backward linkages to the local economy occur when the production of a given commodity requires the supply of goods and services as inputs. Extrative sector investments can create such linkages on their own. Walker and Minnitt (2006) and Bloch and Owusu (2012) note

[10] This "corridor strategy" is also acknowledged in the Government's 2010 Mineral Policy and its 2011 Industrial Policy (Republic of Liberia, 2010; Republic of Liberia, 2011).

that the mining industry requires a large and diverse set of inputs, including raw materials (e.g. chemicals, steel), equipment (e.g. drills, generators, pumps), parts (e.g. cables, pipes), and engineering, construction, survey, legal, finance, insurance, laboratory, catering, laundry, janitorial, vehicle maintenance, and logistic/transportation services. These linkages should be even stronger in geographical areas that enjoy higher levels of public good provision since the costs of doing business should also be lower in such areas (Rodrik, 2004). Firms should also be able to more easily reach (larger) markets and integrate themselves into value chains in such areas (Speakman and Koivisto, 2013).

Consumption linkages refer to local spending that occurs as a result of increased incomes (from either wages or profits) related to commodity production. Each employee of a mining company, for example, will spend his or her income, in part, on non-mining related goods and services (e.g. food, clothing, taxi services), and this will in turn create more opportunities for non-mining related enterprises. Tolonen (2014) provides evidence from Burkina Faso, Ghana, Mali, Tanzania, Cote d'Ivoire, Ethiopia, and Senegal that the establishment of a new mine increases income-earning opportunities within the service sector by 41%. Similarly, Fafchamps, Koelle, and Shilpi (2015) find that, in Ghana, locations within 10 kilometers of gold mines had proportionally higher employment in industry and services. They also find that, over time, an increase in gold production is associated with more wage employment and apprenticeship, and fewer people employed in private informal enterprises. Chuhan-Pole et al. (2015) analyzes the effect of gold mines in Ghana, but differentiate between men and women; they find that both benefit from gold mines, but men are more likely to obtain direct employment as miners and women are more likely to gain from indirect employment opportunities in services. Relatedly, Kotsadam and Tolonen (2013) find that increases in mining activity result in sectoral shifts in employment out of agriculture: men move into skilled manual labor, while women find more employment in the service sector.[11] These economic multiplier effects should, in principle, be even larger in setting where public goods are provided (even if by private actors). We therefore propose the following hypothesis:

> **Hypothesis 1** *Natural resource concessions will, on average, result in a higher level of economic growth in surrounding areas.*

We would expect the magnitude of any potential growth effects to also depend on the sector of the investment. Specifically, one would expect agricultural concessions to have weaker economic agglomeration effects than mining concessions for two reasons: First, the potential for backward linkages is likely higher for mining than agriculture concessions. As noted above, the former require more inputs (materials, equipment, engineering, construction, etc.) than the latter (seeds, fertilizer, etc) as a mining operation is a more complex undertaking than cocoa, rubber and palm oil tree harvesting operations. In addition, the infrastructure requirements for operating a mine are higher and thus present more opportunities for local businesses. This reasoning is echoed in the Government of Liberia's development corridor strategy, which states that "[i]n terms of resources that might underpin the provision of critical development corridor infrastructure, the only known suitable mineral deposits are of iron ore. The exploitation of these [can] provide the essential trunk infrastructure (transport, power and water) to catalyse other sectors within viable logistics proximity" (Government of Liberia, 2010, 55).

[11] Related studies include Loayza and Rigolini (2016), Aragón and Rud (2013a), Aragón and Rud (2013b), Wilson (2012), Cavalcanti, Da Mata, and Toscani (2016), and Goltz and Barnwal (2014)

Second, natural resource concessions likely result in stronger consumption linkages than agriculture concessions. While Liberia's agricultural concessions provide more direct employment opportunities than mining concessions (World Bank, 2010), the majority of these jobs for low paid, informal workers. In contrast, mining operations tend to create jobs primarily in the formal sector with higher wages. As a result, agriculture concessions may have lower employment multiplier effect potential than mining projects (AFDB, 2013). Again, this reasoning is echoed in the Government of Liberia's development strategy: "[i]ron ore mining itself is capital intensive and can generate comparatively few jobs. The total number of jobs estimated to be generated by the currently known deposits is about 6,000. The infrastructure it finances, however, can generate/sustain tens of thousands of jobs, both in mining-linked investments and in complementary value chains that are more labor intensive" (Government of Liberia, 2010, 54). For these reasons, we will test the following hypothesis:

> **Hypothesis 2** *Mining concessions will, on average, have larger impacts on economic growth than agricultural concessions.*

Concession agreements also vary on another potentially consequential dimension: some agreeements with foreign investors include corporate social responsibility (CSR) provisions, but others do not. Foreign investors will at times agree to build local schools and staff them with teachers. In other cases, they will agree to support the construction, maintenance, and staffng of health and sanitation facilities aimed at improving the health situation of local workers and their dependents. These types of social sector investments should, in principle, increase the productivity of workers and consequently result in higher levels of economic growth (Borensztein, De Gregorio, and Lee, 1998; Wang and Wong, 2009). In fact, there is some preliminary cross-country evidence suggests that CSR activities might increase FDI's impact on economic growth outcomes. Espigares and Lopez (2006) and Škare and Golja (2014) report that a higher share of CSR firms in the economy results in a small, but statistically significant increase in economic growth.

However, we do not expect CSR investments to have large or easily detectable impacts on local economic growth outcomes in Liberia. First, CSR investments are usually modest in size and spread thinly across many different areas and communities. Consider Mittal Steel Liberia, which pays $3 million a year into a social development fund to support CSR projects. These funds are split across three counties, and then across multiple sectors, resulting in relatively small health and education projects that cost somewhere between $10,000 and $50,000 (Siakor, Urbaniak, and Clerck, 2010). The economic impacts of such projects are likely small. Second, many of the benefits of these projects accrue over relatively long time horizons (Clemens et al., 2011). Third, local politicians have high levels of discretion over the administration of these funds, which has led to various forms of misappropriation (Siakor, Urbaniak, and Clerck, 2010). CSR activities might therefore be better understood as signals from investors of their willingness to reinvest in local communitities rather than as catalysts for growth. For all of these reasons, we hypothesize that:

> **Hypothesis 3** *Natural resource concessions with and without CSR activities will not, on average, produce substantially different economic growth outcomes.*

An investor's country of origin could also condition the effect that natural resource concessions have on

local economic growth outcomes for two primary reasons: differences in employment practices and differences in the pace at which investment projects are implemented. One possibility is that companies from emerging markets do not source local labor to the same degree as Western investors. Chinese companies, for example, purportedly have a preference for hiring Chinese workers to support their overseas investments (Dollar, 2016). Such hiring practices, if widespread, could limit the growth-enhancing effects of FDI by preventing consumption linkages. If migrant workers live and work in territorial enclaves, rely on imported goods, and repatriate their profits, their lack of domestic integration could significantly dampen the indirect demand effects for non-concession related economic activities. On the other hand, if Western companies source more local labor, the concessions granted to these companies might have larger effects on local economic growth outcomes via consumption linkages.

An alternative possibility is that projects managed by U.S. and Chinese investors have similar growth effects, but they implement such projects at varying speeds and as such the timing of economic benefit accrual varies by investor nationality. If, as the conventional wisdom suggests, non-Western investors are faster than Western investors at implementing projects, the growth impacts of non-Western investment should materialize more quickly than the growth impacts of Western investment.[12] Also, if the economic growth effects of natural concessions are most appropriately measured over longer periods of time, our analysis might only be able to detect early signs of impact (Clemens et al., 2011). This too would lead us to expect differentially observable growth impacts from Western and non-Western FDI.

We expect that the latter mechanism is more likely at work in the Liberian case. The Ellen-Johnson Sirleaf administration has uniformly imposed local labor requirements on foreign investors, irrespective of their nationality. Indeed, the local employment provisions of Western and non-Western concessions contracts are remarkably similar. By way of illustration, in 2009, the Government of Liberia and China Union successfully negotiated the single largest investment agreement in the country's history: a 25-year, $2.6 billion iron ore investment in Bong Mines. The local employment provisions in China Union's contract are nearly identical to the provisions contained in the concession contracts held by Western investors like MSL.[13]

By contrast, we expect that the pace at which Western and non-Western companies implement investment projects is a likely source of significant variation in Liberia. We cannot measure this source of variation directly; we are only able to differentiate investors by their countries of origin. However, local reporting by the U.S. Embassy in Monrovia suggests that the Liberian authorities believed that Chinese investors, in particular, were better positioned than other investors to implement large-scale natural resource extraction projects in a timely manner (during our 2007-2013 period of study). In a 2009 cable dispatch, U.S. Ambassador Linda Thomas-Greenfield wrote that, in vetting proposals from prospective concessionaires and ultimately granting the Bong Mines concessions to China Union, the Government

[12] Dollar (2016, 11) notes that "the emergence of China as a major funder of mining and infrastructure projects has been welcomed by most developing countries. China is seen as more flexible and less bureaucratic. It completes infrastructure projects relatively quickly so that the benefits are seen sooner."

[13] China Union's 2009 Mineral Development Agreement (MDA) with the Government, which was expected to generate nearly 20,000 jobs (McMahon, 2010), states that "[t]he Concessionnaire may not hire individuals who are not citizens of Liberia for unskilled labour positions." It also specifies that "[t]he Concessionaire must employ and give preference to the employment of qualified citizens of Liberia for financial, accounting, technical, administrative, supervisory, managerial, and executive positions and other skilled positions as and when they become available …" See Mineral Development Agreement Between the Government of Liberia and China-Union (Hong Kong) Mining Co., LTD. and China-Union Investment (Liberia) Bong Mines Co., LTD. Section 11.1. 19 January 2009).

of Liberia "favor[ed] firms with an appetite for risk, deep pockets, and [an] ability to ramp-up quickly, at the expense, potentially, of better long-term offers from more conservative bidders." Elaborating on this point, she noted that "three years into her tenure, the President [Ellen Johnson-Sirleaf] has become increasingly anxious to conclude concession agreements that have the potential to create jobs and infrastructure. …Time is more important than money" (Thomas-Greenfield, 2009). In light of these considerations, we hypothesize that:

> **Hypothesis 4** *Chinese concessions will, on average, have more easily detectable impacts on economic growth than U.S. concessions.*

In summary, theory provides some reasons to expect that growth effects *can* result from a host government strategy which prods foreign investors to provide public goods. However, whether this is indeed the case is an open question. The next two sections of this paper subject our hypotheses to scrutiny with both qualitative and quantitative sources of evidence.

4. Qualitative Evidence: Mittal Steel Liberia

As an initial plausibility probe of our expectations about how natural resource concessions impact local economic growth outcomes in countries like Liberia, we sought to answer three key questions about the concession granted to Mittal Steel Liberia (MSL): What was the status of the local economy prior to the granting of the concession (pre-treatment conditions)? What specific activities were undertaken by the investor once the concession was granted (the treatment)? Is there any descriptive or correlational evidence that suggests these activites may have affected the local economy (post-treatment conditions)? The answers to these questions should at minimum provide prima facie evidence that establishes the plausibility of our theoretical expectations.

Information concerning the *pre-treatment conditions* is available from a baseline survey commissioned by MSL prior to any investments. It surveyed the socioeconomic conditions of communities inside and near its concession area in Nimba, Grand Bassa, and Bong counties.[14] Households in potentially affected areas – that is, towns and villages within close physical proximity to concessionaire investments and activities – had average annual incomes of $79 (URS, 2010). Most residents in these areas were subsistence farmers, or farmers growing rubber, plantains, or cocoa for small amounts of monetary income. Very few had access to wage employment in the formal economy. Almost no surveyed households had access to grid electricity or a generator. Enumerators found that "[g]enerally 60% of households use candles for lighting, and 40% use kerosene lamps" and "[t]he latter users are those who live near to markets where kerosene is sold" (URS, 2010, 39).[15] The baseline survey data also reveal that most households had no access or very limited access to health, water and sanitation services. Fry (2014) reports that "[t]o get an X-ray at the local hospital [in Yekepa], patients were required to bring a gallon of fuel to power the generator."

[14]This baseline survey was conducted in the towns and villages of Yekepa, Bonlah, Lugbeyee, Kanlah, Gbapa, Zolowee, and Makinto, among others.

[15]In this respect, the areas potentially affected by MSL's investments and activities were very similar to other areas across the country. A 2010 household survey conducted by the Liberian Institute of Statistics and Geo-Information Services (LISGIS) revealed that only 2% of households nationwide had access to electricity or generators for lighting, and that in rural areas this percentage was lower than 1% (World Bank, 2012).

MSL's activities (the *treatment*), which began in 2007, brought far-reaching changes to the region. The company honored its commitment to provide infrastructure. MSL rehabilitated the 267km railway from Yekepa to Buchanan. It built nearly 100 bridges and various hospitals, schools, hand pump wells, markets, and roads along the railway corridor (Booth, 2008; Kramer, 2011). It also renovated the port in Buchanan, creating and upgrading facilities to unload and store iron ore from train wagons and transport ore and other materials onto ships (Fry, 2014).[16] By 2011, MSL was running 3 trains a day to the port in Buchanan, with 20,000 tons of iron ore transported by each train (Thomashausen and Shah, 2014). The company built its headquarters in Yekepa, a town located roughly 20 kilometers north of the primary mining site (Mount Tokadeh), and there it invested in housing facilities for its employees, a hospital, a theater, an airstrip, and water, sewerage, and emergency response services (Fry, 2014; URS, 2013a). Additionally, MSL built a power plant and a power distribution network for the towns of Tokadeh and Yekepa (Booth, 2008; Pearson, 2008), as well as a power plant in Buchanan (ArcelorMittal Liberia, 2012, 5). It also rehabilitated a 35 km road from Saniquellie to Yekepa (Booth, 2008), and agreed to pave a 70 km road from Yekepa to Ganta – at a cost of roughly $40 million (Thomashausen and Shah, 2014).

Estimates vary, but MSL hired somewhere between 2,000 and 5,000 employees and contractors (Government of Liberia, 2010; Kramer, 2011; URS, 2013a; Lanier, Mukpo, and Wilhelmsen, 2012). It also provided on-the-job training to many of its local hires (Kramer, 2011; ArcelorMittal Liberia, 2016). As of 2015, MSL claimed that it had achieved "a 96% Liberian employment rate for full-time employees and 99% Liberian rate for contractors" (ArcelorMittal Liberia, 2016, 11). Many of these unskilled and semi-skilled jobs pay $3 or $3.50 a day (Boimah, 2011). However, Liberia is a country where "only a small share (less than 10%) of the population earns more than the minimum wage of $2 per day" (World Bank, 2010, 51). Therefore, the wages that MSL pays their employees and subcontractors are generally higher than wages paid by other employers (World Bank, 2010, 28).

How did the activities of MSL ('the treatment') affect the local economy? To answer this question, we use evidence from household surveys that were undertaken between 2008 and 2011 to assess the *post-treatment situation* in Yekepa. With respect to *employment*, the percentage of surveyed households in Yekepa with a household member employed by ArcelorMittal increased from 3.3% in 2008 to 10.7% in 2011. Many of these jobs were in construction, private security, and railroad rehabilitation. Thus, "significant employment opportunities [were] created by the Phase 1 mine operations with residents working either directly for [ArcelorMittal], indirectly with contractors, or with other independent businesses established around the mine community" (URS, 2013a, 45). Correspondingly, unemployment declined by 33%.

Households in the nearby towns and villages (including Bonlah, Lugbeyee, Kanlah, Gbapa, Zolowee, and Makinto) saw their *incomes* double, on average, during this same period of time (URS, 2013b, 41). In the port city of Buchanan, household surveys revealed that individuals in the project-affected areas earned, on average, $82 more each year than individuals in the control areas (URS, 2013a, 49). In light of the pre-treatment average income of $79, the post-treatment income in locations close to the concession thus equals $161.

[16] MSL's concession agreement with the Government of Liberia additionally required that it build the port in such a way that it would also "serve non-mineral cargo users" (AFDB, 2013).

In addition, *non-concession related business activities* increased. Between 2008 and 2011, the number of households engaged in small business activity increased by 172%. There was also a major increase in "petty trading and service provision," such as "selling food, artistry, carpentry, hair braiding, [and] motorbike taxi driving." For example, a camp near the mining site was "built by business entities and private individuals who decided that they could take advantage of the business opportunities provided by the presence of [MSL]" (URS, 2010, 31). The mine seemed to prompt a shift away from subsistence farming activities and toward wage labor activities: agricultural work on one's own farmland declined over the same period of time that private sector employment and small businesses activity spiked (URS, 2013a, 46, 88). With respect to the future, a study noted that "[t]he number of local businesses is likely to continue to expand as off-shift workers will spend their wages on food, clothing and other products and services" (URS, 2013a, 45).

Apart from these immediate effects on employment, income, and business activities, household surveys provide evidence of significant, second-order effects. For example, the organization responsible for implementing these surveys has documented significant increases in educational investment at the household level, and concluded that "those residents who now have an income are willing to invest it in education" (URS, 2013b, 88). They also note that "electrification within the study area is expected to improve based on anticipated increase in disposable incomes resulting from increase[d] …employment and [an] increase in business activities" (URS, 2010, 63).

These large-scale changes took relatively little time to materialize. In a February 2008 cable dispatch, the US Embassy in Monrovia informed State Department headquarters that "Mittal's investment is already having a positive impact on the rural population" and it "is already serving as an anchor for other investments in Grand Bassa [County] and Nimba [County]." A 2012 report written by a group of field researchers from Columbia University similarly concluded that "ArcelorMittal's presence in the region is ubiquitous, and its impact on the lives of residents in communities near the mine and along the railroad have been immense" (Lanier, Mukpo, and Wilhelmsen, 2012, 20).

5. Quantitative Evidence: A Quasi-experimental Approach

5.1. The Challenges of Estimating the Effect of FDI on Local Economic Growth

The case study of Mittal Steel Liberia provides some evidence that comports with our theoretical expectations. However, are these insights generalizable? In this section, we estimate the treatment effect of *all* natural resource concessions on local economic growth. Estimating the effect of projects by foreign investors is challenging for three reasons.

First, the relevant data for Liberia are not available. Subnationally georeferenced data on local economic growth outcomes are not regularly or systematically collected in Liberia. The FDI data that do exist are also extremely limited. They consist of aggregate, national data on net FDI inflows, which makes it impossible to evaluate how specific types of FDI impact local growth outcomes in specific locations. To address

these challenges, we assemble a comprehensive dataset of subnationally georeferenced natural resource concessions that the Liberian government granted to investors between 2004 and 2015, and then fuse these investment data with a remotely sensed measure of local economic growth that varies over space and time.

Second, conceptual challenges make it difficult to identify – with existing data and conventional estimation techniques – the effects of FDI. Existing research suggests that the impact of FDI is conditional on several intervening factors. Some scholars have found that FDI has a positive effect in high-income developing countries but not in developing countries (Blomström, Lipsey, and Zejan, 1992; Meyer and Sinani, 2009; Kokko, 1994). Others suggest that FDI has growth-enhancing effects only if host countries are sufficiently open to trade (Bhagwati, 1978; Balasubramanyam, Salisu, and Sapsford, 1996) or have sufficiently developed financial markets (Hermes and Lensink, 2003; Alfaro et al., 2004). However, regression methods that rely upon cross-country data make it difficult to disentangle the effect of FDI from the effects of the conditions under which FDI takes place. After all, wealthy countries that are open to trade and possess well-developed financial markets are precisely the countries scholars expect to grow, even without foreign investment. We attempt to address this problem by approximating the conditions of a controlled experiment with observational data at the subnational level, holding country-level characteristics constant.

The third major challenge that we face is that, even with FDI and growth data that are measured at fine temporal and spatial scales, models will only provide valid causal estimates if they are unaffected by endogeneity. It is, after all, possible that FDI projects do not cause growth, but investors are instead attracted to geographic locations with high growth potential. A positive correlation between local economic growth and FDI might therefore only indicate that the very same locations that received FDI would have also experienced the same level of growth in the absence of FDI.

5.2. Matching Approach: Comparing only similar observations

In order to address the non-random assignment of the treatment (i.e. the posssibility that locations with FDI may be different from locations without FDI in a way that threatens causal inference), we use a case matching procedure that prunes our sample to only include 'treated' and 'untreated' locations that are extremely similar across a large number of observed covariates. This procedure is designed to expunge any potential effects of self-selection bias – that is, the possibility that 'treated' locations have features that predispose them to higher levels of economic growth independently of FDI. Our goal, then, is to identify pairs of treated and untreated locations that are equally likely to receive treatment.

Consider the following example. Location A has favorable geographical and socio-economic features. It is located close to existing transportation networks and the local population is well-educated. Therefore, it is likely to experience growth even in the absence of FDI. At the same time, a number of potential concessionaires consider location A to be an attractive site for investment and at least one concessionaire ultimately secures the right to invest in that location. In order to establish a credible counterfactual, we need to identify a comparison case (location B) that has the same geographical and socio-economic characteristics as location A, which make it equally likely to experience treatment assignment and growth,

but that did not receive FDI. If locations A and B are in fact equally likely to receive investment, then any observed differences in the growth growth rates between these locations should be attributable to the fact that an FDI project is located in A but not in B. This is, in effect, the goal of matching: to address the endogeneity problem by discarding fundamentally different observations and pruning one's dataset to identify a sample of observations that mimic the conditions of a randomized experiment.

That being said, matching only helps solve the endogeneity problem if it is possible to measure the variables that influence treatment assignment (i.e. investment siting decisions). We carefully reviewed the existing literature on the determinants of investment project siting decisions at subnational scales (Cheng and Kwan, 2000; Meyer and Nguyen, 2005; Ledyaeva, 2009; Mukim and Nunnenkamp, 2012; Wattanadumrong, Collins, and Snell, 2010). A set of well-documented factors influence where investor site their projects within countries, including market size, market access, human capital, transportation infrastructure, institutional quality, and sector-specific productivity considerations (e.g.agricultural investors generally prefer locations with fertile soil and high levels of rainfall).

In our case matching procedure, we attempt to account for as many of these factors as possible by drawing on data from satellite imagery, weather stations, household surveys, and administrative records.[17] First, we account for geographical characteristics that are known to influence the siting decisions of investors in the natural resource sector. These include slope and elevation[18] as well as temperature and precipitation.[19] We account for market access by including a measure of distance to roads from the Global Roads Open Access Database as well as a measure of the urban or rural nature of a given location. We also rely on a measure of population density to capture investor access to local labor.[20] We also control for urban travel time to capture the ease with which labor can commute to potential investment project sites.[21]

Additionally, as foreign aid projects may have local economic growth effects, we include a measure of proximity to World Bank and Chinese aid projects from 2000-2006 (our pre-treatment period). More specifically, we calculate the distance between a DHS grid cell and its nearest World Bank or Chinese development project.[22]

We also account for local population characteristics using data from the 2007 Demographic and Health Survey.[23] Access to skilled and semi-skilled labor is often important to foreign investors and may influence their project siting decisions. We capture the expected productivity of the local workforce by measuring the education and literacy levels of households living at a particular location. Given that baseline skills

[17] Descriptive statistics are presented in Section B in the Online Appendix.

[18] Data are sourced from the NASA Shuttle Radar Topography Mission.

[19] Data from the Center for Climactic Research at the University of Delaware.

[20] The data come from the Gridded Population of the World (GPW) v4 dataset and is measured at a resolution of 30-arc seconds and in five-year intervals. We use their 2005 data to avoid concerns of endogeneity, as nighttime light is one of the input variables that CIESIN uses to model population estimates.

[21] These data come from the European Commission Joint Research Centre.

[22] These data are drawn from AidData's World Bank IDA-IBRD, Level 1, Version 1.4.1 and Chinese Official Finance to Africa, Version 1.1.1 datasets (available at http://aiddata.org/subnational-geospatial-research-datasets). We only include those projects geocoded with the precision code levels 1 and 2 – that is, projects with latitude and longitude coordinates within 25 km of the exact intervention sites – in our analysis.

[23] We use 2007 DHS data, as opposed to subsequent years of DHS data, to avoid endogeneity issues with our outcome measures. Also, given that we rely upon the 1km $\times$ 1km grid cell as our spatial unit of observation, we assign the modal value of responses for each attribute within an EA to all of the grid cells that fall within that EA.

and work experiences of local residents might also matter to investors, we additionally match on a set of indicators that measure the pretreatment occupations held by members of local households. We also include a measure of the pretreatment employment status of local residents in our matching algorithm to capture prevailing levels of wage competition due to available surplus labor. Given that richer areas generally represent attractive local markets for investors, we also include indicators of household wealth and residence type. A battery of other indicators that measure potentially consequential characteristics of the local population – gender, age, religion, marital status, and household size – are also included.

Finally, we include pretreatment measures of nighttime light levels (2006) and trends (1992-2006) in our matching routine to maximize covariate balance across our treatment and control locations. This is a powerful way of capturing an otherwise unobservable set of factors (e.g. local conflict, local governance quality) that may influence treatment assignment (Cook, Shadish, and Wong, 2008). By effectively rendering many otherwise unobservable confounding factors observed, we can have greater confidence that we are not omitting key variables that make our treated units more likely to grow economically even in the absence of FDI. Relatedly we include regional fixed effects to account for other idiosyncratic factors that may affect investor preferences.

Our spatial units of observation are 1km $\times$ 1km grid cells that fall within buffers around each Demographic and Health Survey (DHS) enumeration area (EA). We rely on the 2007 wave of DHS, which contains 298 spatially-referenced EAs.[24] By constructing 1 km $\times$ 1km grid cells within these DHS EAs, we are able to better capture the spatial variation for our treatment, outcome, and covariate measures at a consistent level of geographic coverage and scale. As a result of this process, we begin the matching process with approximately 13,000 observations at the grid-cell level.

We use propensity score matching to identify locations that are as similar as possible across a variety of factors by minimizing imbalance in pre-treatment confounds between treatment and control units (Ho et al., 2007; Imai, King, and Stuart, 2008). We first employ a logit model that estimates the probability that a given grid cell is proximate to a FDI location. This logit model is then used to derive the propensity that the units will "receive the treatment" of exposure to the concession. The propensity score is, in turn, used in a nearest-neighbor matching routine (caliper = 0.25) to create a matched sub-sample of treatment and control units, where the "treated" grid cells are those near concession areas and "control" grid cells are those faraway from concession areas. After estimating the propensity scores and dropping units that lack common support, we match grid cells without replacement using the nearest-neighbor approach.

If the matching procedure is successful, the treated and untreated samples should be nearly indistinguishable, apart from the fact that the former group received FDI and the latter group did not. Section C of the Online Appendix provides evidence that our matching procedure accomplishes this goal: the summary statistics across both treated and untreated locations after matching are almost identical. After matching, covariate balance improves by 80% to 97%, depending on our treatment definition (see Appendix C). This suggests that our subsequent statistical analysis compares only location pairs that are extremely similar, which significantly reduces the risk of endogeneity bias.[25]

[24] DHS data, similar to other survey-based data, are subjected to geographic displacement procedures to protect respondent anonymity. Urban EAs are displaced by 2km, whle rural EAs are displaced by 5km. Grid cells are placed within the area encompassed by a DHS buffer given the type of enumeration area (Burgert et al., 2013).

[25] Of course, while matching approaches have appealing properties, these approaches are only as useful as the set of observed

5.3. Statistical Analysis: Estimating the treatment effect

Using these preprocessed data, we estimate a linear model with the set of matched control and treatment units for each combination of treatment definition and hypothesis:

$$y = \beta_0 + \beta_1 \times T + \sum_{k=1}(B_k \times x_k) + \beta_k \times P_y + D_\tau + \epsilon \tag{1}$$

where B_k and x_k are the regression coefficients and covariate information for each indexed covariate (k), β_1 is the regression coefficient for the treatment effect, T, and y represents the outcome variable over our study interval. P_y is the pre-treatment trend (nighttime lights) for the outcome variable. D_τ represents fixed effects for regions (to capture region-specific effects). While the use of a grid cell as the spatial unit of observation enables more precise use of the underlying information in this analysis (in particular, satellite data and measurements of the distance to concession areas), and allows for more precise matching, it also introduces the risk of (a) biasing standard errors due to the arbitrary resolution of each unit, and (b) leading to significant spillover effects between cells within a given cluster. We mitigate this problem by clustering our results, following a one-way clustering of standard errors by each DHS cluster. This approach provides more precision while mitigating concerns of within-cluster spatial autocorrelation and the potential deflation of standard errors attributable to arbitrary grid cell sizes (see Cameron, Gelbach, and Miller, 2012).

We measure our outcome of interest – economic development – using spatially-precise satellite data on nighttime lights, which previous research demonstrates is a reliable proxy for local economic development in poor countries where baseline levels of luminosity are low (Chen and Nordhaus, 2011; Henderson, Storeygard, and Weil, 2012; Bundervoet, Maiyo, and Sanghi, 2015).[26] These data, collected nightly using satellite images from the National Oceanic and Atmospheric Administration (NOAA), measure nighttime light activity from 1992 to 2013 for pixels that correspond to individual square kilometers. It is measured on a 0-63 scale, with higher values indicating more intense economic activity, and excludes exceptional instances (such as fires) and other cases of background noise. The nightly data are aggregated into annual measures using the mean for each 1km $\times$ 1km grid cell. To construct our outcome variable, we calculate differences in levels of nighttime light emissions between a baseline period and an endline period. To measure our outcome variable, we first calculate nighttime light emissions levels at baseline (2006) and endline (2013), respectively. We then calculate the differences between the 2013 values and the 2006 values in order to capture local economic growth outcomes between 2007 and 2013.[27]

covariates that are used to achieve balance between treatment and control units. We therefore cannot rule out the possibility that some unobserved confounder biases our findings. Just as instrumental variable approaches need to assume that there are no unobserved variables linking the instrument to the outcome except through the path of the instrumented variable, matching approaches need to rely on the assumption that all unobservable factors have been conditioned on. Ultimately, it is impossible (by definition) to get empirical traction on unobservable factors.

[26] Henderson, Storeygard, and Weil (2012) present an A-E grading system for the quality of a country's statistical systems (A indicating a high quality system and E indicating extremely weak or non-existent system) and and provide evidence that "luminosity is likely to add value as a proxy for [economic] output for countries with the poorest statistical systems, those that receive a D or an E grade…. and [t]his is true at the national level and at subnational levels where data are available." Liberia receives a "D" in their grading system. They conclude that "luminosity data may be a useful supplement to current economic indicators in countries and regions with very poor quality or missing data."

[27] Additional information about the construction of the concessions dataset can be found in Section A of the Online Appendix.

Our causal variable of interest – foreign direct investment in the natural resource sector – necessitates a comprehensive database of natural resource concessions that is spatially precise and has adequate temporal coverage. Our hypothesis tests also require detailed information about the attributes of different types of concessions and concessionaires. For this purpose, we rely on a dataset of all known natural resource concessions granted to concessionaires in Liberia from 2004 to 2015, which we assembled in partnership with AidData and the Concessions Working Group.[28] Each of the 557 concessions in this dataset is categorized along different dimensions, including the nationality of the concessionaire or its parent company, the sector of the concession, and the presence or absence of corporate social responsibility commitments. A polygon-based geocoding methodology was also used to identify the specific tracts of land granted to concessionaires, which allows us calculate at a high-level of spatial resolution whether a particular location has been "treated" with FDI activity. Figure 2 shows all concessions that came into effect in Liberia during our treatment period.[29] This dataset was assembled by merging and reconciling several different official sources of information on concession agreements in Liberia, and supplementing these official data with open-source data.

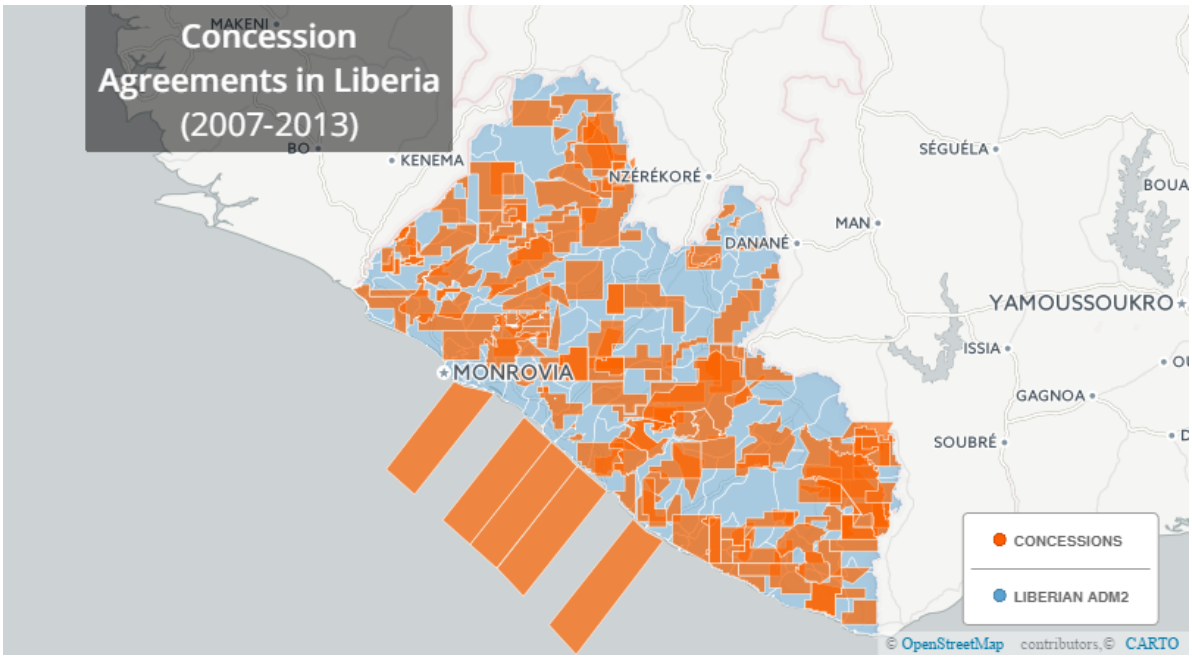
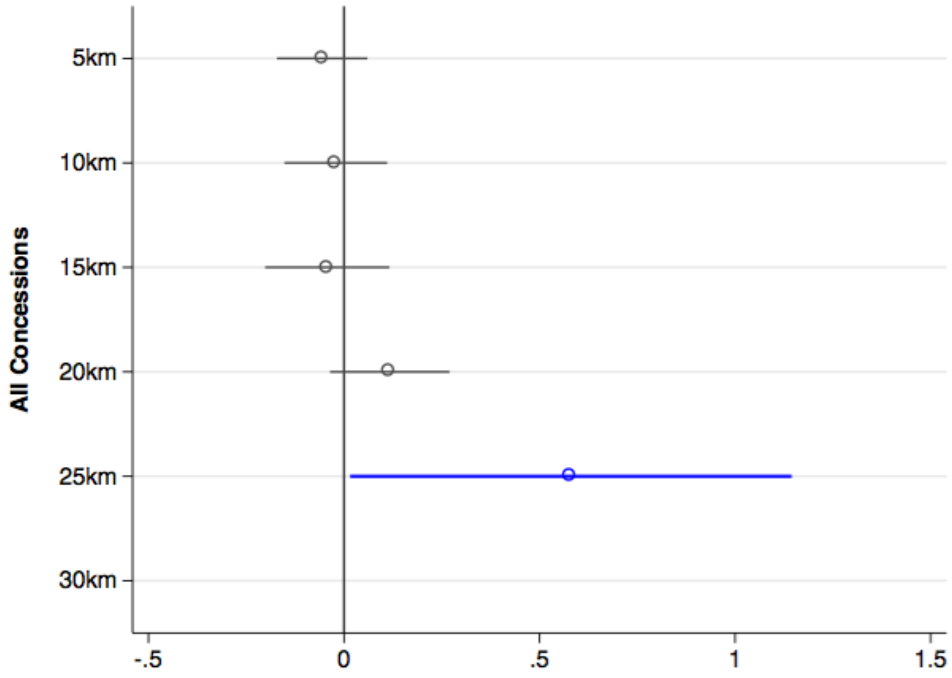


Figure 2: Map of all concessions granted in Liberia from 2007-2013

We include a range of control variables to account for residual variance in our outcome measure (after matching) that is not related to treatment. We account for geographic factors such as temperature, precipitation, slope, elevation, and the urban or rural nature of the location. We control for structural differences across locations, such as distance to roads, urban travel time, population density, proximity to development projects. We account for population characteristics such as household education and literacy, household wealth, household size, various head of household characteristics (age, gender, marital

[28] AidData is a research lab at the College of William and Mary and the Concessions Working Group is a TrustAfrica-facilitated network of civil society organizations and research institutions in Liberia that are engaged in efforts to monitor the activities of natural resource concessionaires.

[29] Although the dataset covers the 2004-2015 period, we exclude 2014 and 2015 from our treatment period because we lack outcome measure (nighttime light) data for these two years. We also exclude 2004-2006 from the treatment period because the earliest point at which we can observe our survey-based covariates is 2007.



Note: Figure displays the difference in night-time lights between a location located close (between 5km and 25km) to a concession and a similar location that is not exposed to a concession. The treatment definition includes any concession, irrespective of the sector, investor nationality, or project characteristics. The results indicate that a positive effect of concessions on local economic growth exists.

Figure 3: Effect of all concessions on local economic growth.

status, religion, employment status). Lastly, we include pretreatment levels of luminosity and nighttime light growth, and region fixed effects.

5.4. Findings

All Concessions Hypothesis 1 suggests that concessions will, on average, increase local economic growth. For this reason, we first estimate the overall treatment effect. Here, we define treatment as proximity to *any* concession, irrespective of the sector, investor nationality, or project characteristics. We then compare the level of night-time lights in 2006 to that in 2013 across locations that are as similar as possible, but where only one location of a given pair has been exposed to a concession.

We varied the definition of 'proximity' by estimating separate models for different cut-offs. We pursue this modeling strategy because we do not have any priors conceding the 'correct' cutoff point. It is possible that a positive effect of concessions does not show up in the immediate vicinity of the concession, even though it exists. For example, if one were to evaluate the effect of free trade on the economy of the United States, and researchers would only look at the city of Detroit, they would likely deny that a positive effect exists. However, considering the whole of the U.S., the effect of free trade is probably positive. For

this reason, we use different cut-offs: a location was defined as treated if it was within 5km, 10km, 15km, 20km, 25km, or 30km of a concession.

Note that the data used to calculate the treatment effect at 30km includes the data used to calculate the treatment effect at 25km. This has important implications: If an effect exists – regardless of positive or negative – it is more likely to be visible at larger distances, for two reasons: First, from a methodological point of view, it is easier to detect statistical significance with larger numbers of observations. If the number of observations included in an analysis rises with an increasing cutoff, this implies that models utilizing a larger cutoff point have a better chance of accurately identifying an effect, should one exist. Second, drawing on the case study presented above, there are conceptual reasons to expect effects to be visible at larger distances: For example, Mittal Steel Liberia built its headquarters in Yekepa, a town located roughly 20 kilometers north of the primary mining site (Mount Tokadeh). Thus, should a positive or negative effect exist due to agglomeration of businesses and better infrastructure, it might occur at some distance from the actual concession site.

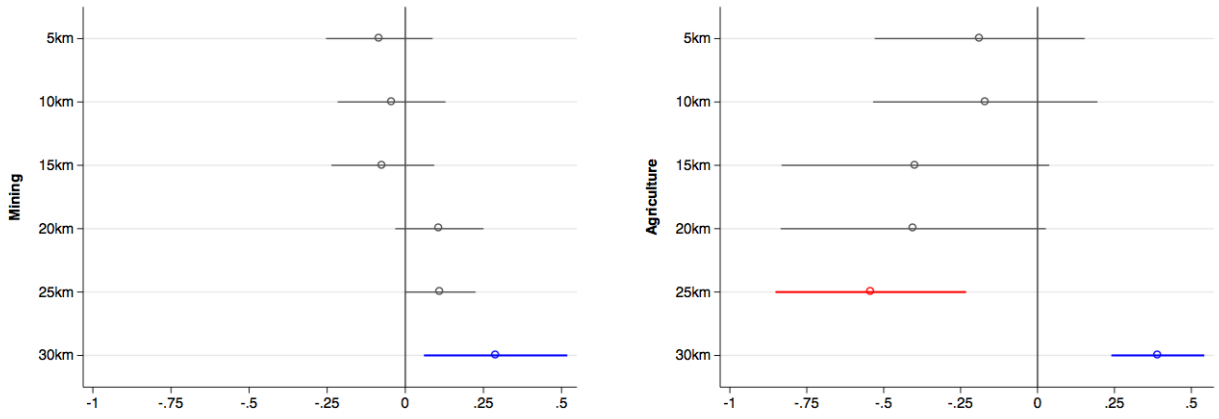
In light of these considerations, the interpretation of our findings requires answering a key question: do the results show a *consistent* effect, irrespective of the kilometer cutoff we choose? In other words, there are four possible patterns and interpretations of the evidence: (1) the coefficient estimates across cutoffs are either consistently positive or insignificant, which would point to a positive treatment effect; (2) the coefficient estimates are either consistently negative or insignificant, which would point to a negative treatment effect; (3) the coefficient estimates are consistently insignificant, which would point to the absence of a treatment effect; or (4) the coefficient estimates cut in opposite directions (negative for some distance cutoffs but positive for others), which would point to the absence of a treatment effect or more complex and countervailing causal heterogeneity.

Figure 3 presents our findings as they related to Hypothesis 1.[30] All treatment effect estimates are either positive and significant or insignificant, consistent with interpretation (1).[31] Therefore, the evidence suggests that concessions improve local economic growth outcomes. To interpret these findings substantively, we follow Henderson, Storeygard, and Weil (2012) and Hodler and Raschky (2014). They estimate elasticities between nighttime lights and GDP at the national and subnational levels, respectively, of around 0.3. Our estimated treatment effect of a 0.58% nighttime light increase in the 25km surrounding concession areas therefore corresponds to a 0.17% increase in subnational GDP (at the 1km $\times$ 1km grid cell level).

Concessions Sector Hypothesis 2 proposed that mining concessions will, on average, have larger impacts on local economic growth outcomes than agricultural concessions. We test this hypothesis by estimating separate models for mining and agricultural concessions (and estimate their respective effects on local economic growth (using different sets of matched location pairs). Figure 4 summarizes our findings. For mining concessions, the treatment effect estimates at various cutoffs suggest that interpretation (1) is most appropriate. Mining concessions appear to have a positive effect on local economic growth outcomes. By contrast, the treatment effect estimates for agricultural concessions are contradictory (in-

[30] Tables with the numerical results of the estimations (which form the basis of all Figures presented in this paper) are available in Section D of the Online Appendix.

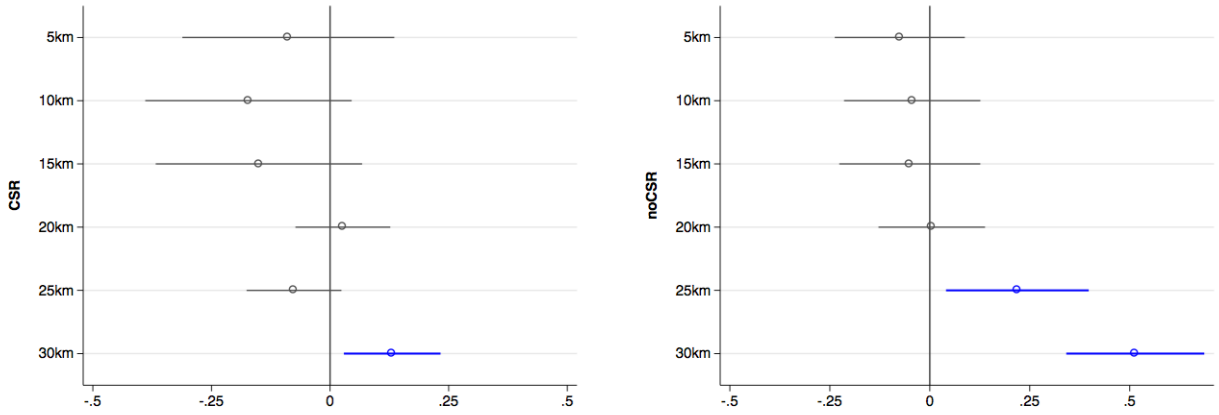
[31] The 30km treatment could not be calculated due to a lack of eligible counterfactual observations.



(a) Mining concession

(b) Agriculture concession

Figure 4: Effect of agricultural and mining concessions on local economic growth.



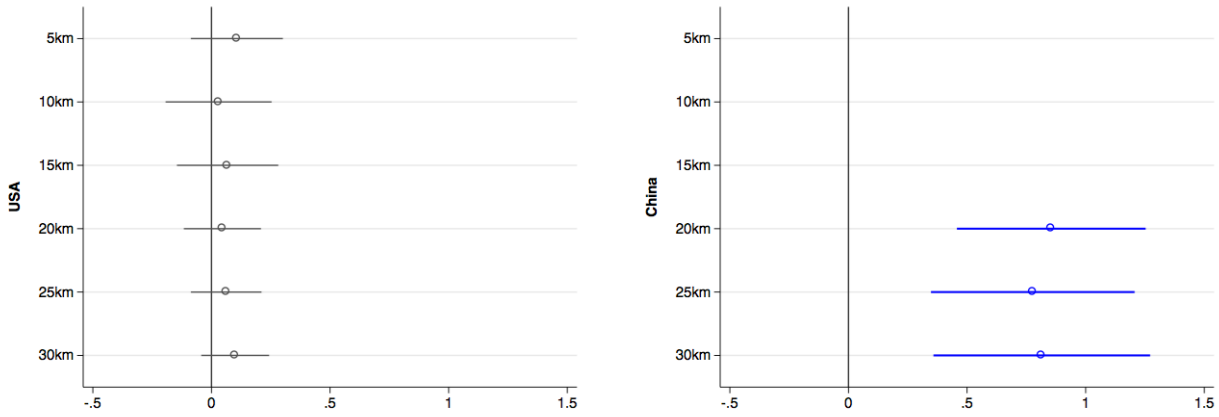
(a) Concession with CSR project

(b) Concession without CSR project

Figure 5: Effect of concessions with and without CSR projects on local economic growth.

terpretation 4). We therefore conclude that there is no robust evidence agricultural concessions register consistent effects on growth. These findings are consistent with the Government of Liberia's spatial development corridor strategy, which expected iron ore investment to produce the largest economic agglomeration dividends. Thus, our results support Hypothesis 2.

CSR Activities Hypothesis 3 proposed that natural resource concessions with and without CSR activities will not, on average, produce substantially different economic growth outcomes. We test this hypothesis by separately estimating treatment effects for concessions including CSR activities and concessions without such activities. Figure 5 summarizes the results from the hypothesis tests. Both types of concessions – those with and those without CSR projects – exhibit patterns of results consistent with interpretation (1). Evidently, both improve local economic growth outcomes by roughly the same magnitude. Thus, the



(a) U.S. concession

(b) Chinese concession

Figure 6: Effect of U.S. and Chinese concessions on local economic growth.

weight of the evidence supports Hypothesis 3.

Investor Nationality We also test for potential investor nationality effects on economic growth (Hypothesis 4). In Liberia, many of the largest non-Western investors hail from China, while U.S. firms are among most prominent Western investors. These two groups of investors differ substantially on an important dimension: the speed with which they implement projects. Hypothesis 4 suggested that Chinese concessions will, on average, have more easily detectable impacts on economic growth than U.S. concessions. To test this hypothesis, we examine the effect of concessions granted to Chinese companies and compare it to concessions given to U.S. companies. Figure 6 presents the treatment effects for concessions granted to U.S. companies as well as for those granted to Chinese companies. The findings indicate that U.S. concessions do not have any discernible effect on local economic growth (interpretation 3), while Chinese concessions do have a strong and consistenly positive effect (interpretation 1).[32] Hypothesis 4 therefore finds strong support.

5.5. Robustness Tests

Thus far, the evidence that we have presented suggest that concessions generally have a positive effect on local economic growth, but that important differences across sectors and investor nationalities exist. These results are robust across different definitions of the treatment area, ranging from 5km to 30km. We now summarize additional robustness tests that are presented in their entirety in the Online Appendix.

Differences in the Propensity to 'Light Up' We have thus far assumed that any 1km $\times$ 1km grid cell will respond in the same manner if exposed to a concession. However, this might not be the case: the

[32] The effect of Chinese concessions on locations within 5km, 10km, or 15km could not be calculated due to insufficient observations after matching.

propensity to "light up" in response to treatment by a concession might differ across grid cells. We now exploit spatial variation in the distance to transportation networks to account for these differences across locations. This choice is motivated by three considerations.

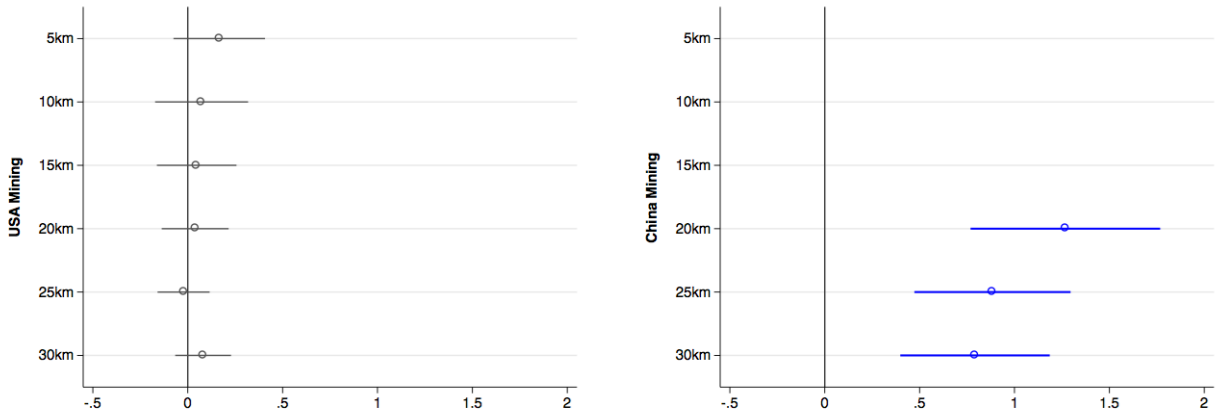
First, as we previously noted, the Liberian government requires concessionaires to build infrastructure. However, if an investor is going to build, say, an additional road, it is reasonable to assume that the investor may begin where existing road networks already exist. Second, investment projects require inputs (Aragón and Rud, 2013b; Fafchamps, Koelle, and Shilpi, 2015). These inputs range from intermediate goods to a pool of readily available labor. Both are more easily available if a firm or individual entrepreneur is located close to major transportation networks. Third, access to road networks and other transportation networks is a good proxy for market access (Chomitz and Gray, 1996; Arima, 2016). It quantifies the difficulty with which producers can reach consumers and thus a location's "market potential". For all of these reasons, one might expect that the propensity of a location to 'light up' when exposed to a new concession will be higher when a location is physically proximate to major transportation networks, and it will decline with increasing distance to transportation networks.

Therefore, by interacting a grid cell's treatment status with a measure of that grid cell's distance from the pre-treatment road network, our goal is to test the robustness of our findings related to the unconditional, direct effects of treatment. It is not to determine whether the growth impacts of concessions are larger in areas with better access to roads – where local markets can be reached at a lower cost. Our outcome variable (nighttime light intensity) strongly correlates with local economic development outcomes when the full range of possible economic development outcomes are measured (across the 0-63 scale of luminosity). However, in very poor, unlit areas (grid cells with values of 0 on the luminosity scale), it is more difficult to detect (modest) changes in local economic development outcomes with the outcome measure we have selected (Jean et al., 2016). Therefore, if very poor, totally unlit grid cells are also located in the grid cells with limited access to roads (markets), a negative and statistically significant interaction effect between treatment status (concession or no concession) and access to roads (markets) likely reflects the "underlying propensity of a given grid cell to light up" rather than a market access amplification of the treatment effect.[33]

We implement this robustness check by rerunning all of our statistical models with this interaction effect. One can think of this interaction effect as a powerful control variable. That is to say, if the direct, unconditional effects of treatment (that we previously identified) still hold after we account for the underlying propensity of grid cells to light up, we can have greater confidence in these findings.

The results from these robustness tests are presented in Section E of the Online Appendix. In short, our findings remain largely consistent. The overall effect of natural resource concessions on nighttime light growth retains the same sign but loses statistical signficance. However, in all of the subsequent model specifications that define treatment status according to specific concession and concessionaire attributes, our previous findings hold. Mining concessions continue to exert a consistently positive effects on local growth, while agricultural concessions do not. Concessions with and without CSR projects continue to have positive treatment effects. The differential effects of Chinese and U.S. concessions also remain un-

[33]We thank Ariel BenYishay for his insights on the distinction between detecting changes on the extensive margin (zero to low) and the intensive margin (low to high).



(a) U.S. mining concession

(b) Chinese mining concession

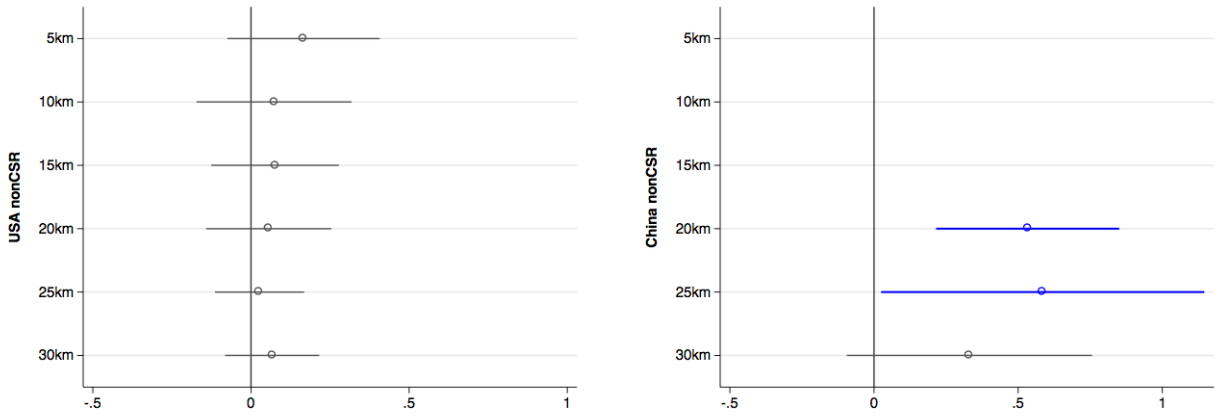
Figure 7: Effect of U.S. and Chinese mining concessions on local economic growth.

changed. In model specifications where the interaction term registers a statistically significant effect, it is always a negative, as expected. A negative interactive term implies that there is less nighttime light growth in treated areas located further away from roads (markets). We interpret these effects as evidence that our outcome measure is better able to detect treatment effects in areas with a higher propensity to light up (and vice-versa).

Including Versus Excluding Urban Areas The models reported above attempt to identify the treatment effect of concessions granted between 2007 and 2013, but not for concessions granted prior to 2007. Admittedly, only very few such concessions exist, as the Ellen Johnson-Sirleaf administration entered office only in 2006. Yet, to avoid contaminating our analysis with these pre-2007 observations, we exclude them from our analysis as the observational penalty (i.e., number of grid cells ignored) is quite small.

However, most of these pre-2007 concessions were granted to urban areas, presumably because they were more easily administered by the incoming administration after a long civil war. Ignoring these concessions implies that the results we have presented so far essentially disproportionately capture concessions in rural areas. While most lands in Liberia are in rural areas, an additional robustness check involves including urban areas in the samples of matched location pairs that we analyze. Section F in the online appendix report the findings of this exercise. In short, the results are not affected by these changes in sample composition.

Combinations of Treatments We also implemented a set of additional tests to assess the robustness of our findings on the heterogeneous impacts of Chinese and U.S. concessions. Given that Chinese firms are more active in some sectors than others and we have identified cross-sectoral differences in the extent to which concessions impact nighttime light growth, it is possible that we are erroneously assigning causal power to investor nationality differences when in fact we are detecting a sectoral "pass through" effect. To



(a) U.S. Concession without CSR project

(b) Chinese Concession without CSR project

Figure 8: Effect of U.S. and Chinese concessions without CSR projects on local economic growth.

account for this possibility, we pruned our sample to only include Chinese and U.S. concessions in a single sector where we have identified evidence of strong treatment effects (mining) and then re-estimated our matching models. This approach eliminates cross-sectoral variation in the sample.

Our results, which are reported in Figure 7, provide evidence for the same treatment heterogeneity across investor nationalities that we previously identified.[34] Chinese mining concessions economically outperform U.S. mining concessions, and if anything the treatment effect sizes for Chinese investment seem to increase in these model specifications. Whereas U.S. mining investments have no detectable treatment effects, we find that Chinese mining investments increase nighttime lights by 1.26% in the 20km surrounding their concession areas, which is roughly equivalent to a .38% increase in subnational GDP (at the 1km x 1km grid cell level).

Similarly, in recognition of the fact that concessions granted to U.S. companies may be more likely than concessions granted to Chinese companies to include CSR provisions (or vice-versa), we sought to account for this potential confound by conducting a head-to-head comparison of U.S. and Chinese concessions without CSR provisions.[35] Figure 8 presents the findings from these models, which indicate that selection of investors into concessions without CSR activities cannot explain the stark differences across investor nationalities. Here again, we see evidence of strong, positive treatment effects for Chinese investment but not for U.S investment.

[34] Full results are available in Section G of the Online Appendix.

[35] We would ideally compare the effect of U.S. concessions with CSR activities to Chinese concessions that also include CSR activities. However, we were unable to conduct this comparison due to an insufficient number of observations. Therefore, we resorted to the second-best alternative of comparing U.S. to Chinese concessions that are both without CSR activities.

6. Conclusion

Since assuming power in 2006, the Ellen Johnson-Sirleaf administration has granted almost a third of Liberia's land to foreign investors in an effort to spur and sustain economic growth and development. However, unlike previous administrations, it has taken steps to reduce the likelihood that this FDI-led growth strategy will result in "concession enclaves" with weak linkages to the local economy. Instead, the authorities have insisted upon contractual provisions that require concessionaires to provide public goods, primarily investments in local infrastructure. The Liberian government has also actively managed and coordinated investors to create 'development corridors.' The broad thrust of this spatial development strategy is to focus public good investments in specific geographic areas (where a flagship investment is being sited) and set in motion economic agglomeration processes that will benefit a large number of households and firms.

Did this strategy work? We provide qualitative and quantitative evidence that, on average, natural resource concessions to foreign investors have indeed improved local economic growth and development outcomes. With respect to the former, we examine a concession granted to Mittal Steel Liberia and compare household-level outcomes before and after the concession (treatment). This descriptive evidence suggested that individuals in close proximity to the concession area had higher posttreatment incomes and more (formal) employment opportunities than those living further away.

We then attempted to test the generalizability of this finding by identifying credible estimate of the causal effect of *all* natural resource concessions on economic growth in Liberia. In light of endogeneity concerns and the fact that a randomized experiment (involving random assignment of concessions across investors and space) is not feasible, we pursued a second-best evaluation strategy. We first created a new, geo-referenced dataset with the precise locations of all known natural resource concessions that the Liberian government granted to foreign investors between 2004 and 2013. We subsequently merged these geocoded investment data with subnational outcome and covariate data at the 1km $\times$ 1km grid cell level. We then used propensity score matching techniques to compare local economic growth outcomes in locational pairs that were identical in most observable ways, but that differ according to whether or not they were physically proximate to a concession area.

We found evidence of a positive, overall effect of natural resource concessions on growth: nighttime light growth in areas near concession areas was not significantly higher than in a set of matched locations faraway from concession areas. We subsequently disaggregated the analysis and differentiated among different types of concessions and concessionaires. We demonstrated that the effect of concessions differs across sectors: mining concessions seem to deliver large economic growth benefits at the local level, while agricultural concessions do not. We also recovered evidence of positive treatment effects for natural resource concessions granted to Chinese investors, but no such effects for concessions granted to U.S. investors. Finally, our results suggested that concessions with contractual provisions for corporate social responsibility (CSR) activities do not perform better or worse than concessions without such provisions. These results are broadly consistent with the expectations that the Government of Liberia held when it first created its development corridor strategy.

These findings have significant policy implications as they point to opportunities for a new type of industrial policy. More specifically, our findings suggest that extractive sector FDI can have a positive effect on economic growth, even in very poor, resource-rich countries, if host governments impose public good requirements on foreign investors and strategically employ FDI in the service of a broader spatial development strategy. Existing work recognizes such strategies in more advanced developing countries. For example, Taiwan and South Korea in the 1980s – as well as China in the 1990s – invited foreign investors to produce consumer goods in specific export processing zones (Chang, 1993; Wade, 1990). These special economic zones were intended to facilitate knowledge andtechnology transfers from foreign investors to domestic companies. However, since success depends on the absorptive capacity of the host country, such strategies may not work in settings where a vibrant private sector does not yet exist. If there are relatively few domestic entrepreneurs to begin with, government policy likely need to focus on creating domestic industries instead of facilitating technology transfer. This process requires public good provision, as economic growth without basic infrastructure, is very difficult. But herein lies a catch-22: without economic activity, there is very limited tax revenus to finance public goods; and without public goods, there is very limited economic activity. To escape this trap, the Liberian government – and many other African governments – are increasingly requiring foreign investors to provide public goods. We have shown in one case (Liberia) that such a strategy can work. However, additional empirical work will be necessary to determine how effectively this type of strategy 'travels'.

There are several other ways that future research could build upon the present study. First, follow-up studies could strengthen the robustness of our findings by analyzing outcome variables other than nighttime light growth. A potential weakness of our outcome variable is that it does a poor job of detecting small or modest development gains that accrue to very poor areas. Jean et al. (2016, 790) find that "[i]n …impoverished areas, luminosity levels are generally …very low and show little variation" and "nightlights [are] potentially less useful for studying and tracking the livelihoods of the very poor." Therefore, future extensions of this study ought to explore the feasibility of using alternative measures of wealth and well-being at the local level. Second, future research could examine the dynamics that determine the extent to which the economic benefits of natural resource concessions are shared. Distinguishing between members of different ethnic or religious groups might help to uncover the political processes that determine who benefits the most and the least from concessions-led growth and development strategies. It would also be useful to understand the effects of concessions on the income and employment prospects of men and women. Third and finally, future research ought to examine the effects that concessions haveon non-economic outcomes, such as social protest, land conflict, violent conflict, and deforestation. Concessions may very well lead to conflict if existing property rights are violated or if citizens perceive unjust treatment by foreign investors. It is also possible that foreign investments fuel environmental degradatation, which may in turn lead to social and political discontent. The growing availability of subnationally georeferenced investment, outcome, and covariate data now makes this type of analysis possible.

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Online Appendix

This online appendix provides supplementary information on the empirical results presented in the article "Natural resource sector FDI and growth in post-conflict settings: Subnational evidence from Liberia."

A. Geocoding of Natural Resource Concessions

We first compiled all natural resource concession contracts published by the Liberian Extractive Industries Transparency Initiative (LEITI, 2015). We then used the information contained in these detailed contracts to code various attributes (described at greater length below) of concessions that the Government of Liberia granted to investors in the mining, agriculture, forestry, and oil/gas sectors between 2004 and 2015. We then sourced additional data from two other publicly available databases owned and operated by the Liberian government: (a) the Ministry of Lands, Mines, and Energy's Mining Cadastre Administration System (MCAS), which contains detailed, historic, and up-to-date information on mining licenses and agreements, but does not capture licenses in other sectors; and (b) the Liberia National Concessions Portal, which displays attribute data for all active concessions, but does not contain historical data. Standardizing and synthesizing the data from these two official sources allowed us to eliminate many missing data problems (specific to each source).

Following this process of merging and de-duplicating data from diffferent sources, we searched for missing attributes – particularly the financial amounts associated with each investment – through open-source data collection and triangulation methods. In addition, each data source contained geographic information regarding the approximate shape of each concession area,[36] which we used to geo-reference the concession areas as polygons in our investment-level database. Geo-referencing the specific tracts of land upon which investors (concessionaires) were granted rights to explore, extract, or sell natural resources was a crucial first step to operationalize our different measures of what geographic areas were impacted by FDI.

In order to test whether and when different types of concessions have different treatment effects, we further coded each natural resource concession in our dataset on several key dimensions, including: the sector of the concession (agriculture, mining, or forestry), the nationality of the concessionaire or its parent company (Western or non-Western), and whether or not the concession agreement contains provisions for corporate social responsibility. We then calculated each of these treatment measures based on the proximity of DHS grid cells to the nearest concession area. Cells that are assigned a distance measure

[36]The data sources provide different types of spatial information. Concession contracts published by the Liberia Extractive Industries Transparency Initiative (LEITI) generally consist of one of four types: (1) decimal degrees representing the vertices of a concession area, which we then map and compare to digitized maps of concession areas provided by the Ministry of Lands, Mines, and Energy; (2) UTM coordinates corresponding to the vertices of a concession area; (3) survey coordinates that provide the approximate locations of the vertices of a concession area; or (4) survey coordinates that do not provide the approximate locations of the vertices of a concession area. The third and fourth types presented the greatest geo-referencing challenge because survey coordinates had to be converted into sequential points, and then mapped as best as possible. By contrast, the Liberia National Concessions Portal and the MCAS provide readily available geometries for each concession area within their respective databases. Therefore, in cases where we uncovered overlapping concessions (reported in either of these portals and the LEITI contracts) and there was some degree of uncertainty about the survey information contained in LEITI contracts, we relied upon the spatial information contained in the Liberia National Concessions Portal and the MCAS.

less than the mean distance (meaning, they are the most proximate to a surrounding concession) are considered "treated". These concession attribute variables are described in greater detail below:

- Sectors: Our dataset categorizes each concession according to its sector. These sectors including mining, agriculture, and forestry. Mining accounts for approximately two-thirds of investments in Liberia. The lion's share of concessions (about 95%) granted to investors during the treatment period (2007-2013) were in the mining and forestry sector, with mining licenses comprising of 77% of total licenses and forestry accounting for another 18%. The Liberian government has recently begun to grant more agricultural concessions to foreign investors (e.g. to establish palm oil plantations). However, since this is a relatively recent phenomenon and our dataset only includes six agriculture concessions, it is not possible to identify a sufficient number of matched pairs that would allow us to evaluate the independent growth effects of agricultural concessions[37]. We therefore focus our empirical tests on the independent effects of mining concessions and forestry concessions.[38]

- Corporate social responsibility (CSR) activities: We also attributed all concession agreements in our dataset according to to whether or not they contain CRS provisions. These provisions, which are usually legally binding, involve reinvestment in local communities within or surrounding the concession area, such as providing access to schools and health facilities or building new roads and railways.

- Nationalities: To test for differential impacts of Western and non-Western investors, we first obtained data on the nationality of the companies that applied for the concessions. Since most of these firms are subsidiaries of foreign companies, we obtained information on the country in which the parent company is incorporated. In cases where the parent company itself is a subsidiary, we sought information on its owner. In instances where ownership is shared among multiple partners, we used the information of the majority investor (more specifically, greater than 50%) to code nationality. Data sources include self-reported data by concessionaires; proprietary databases such as Dun and Bradstreet, CompuStat, and ORBIS; and annual reports obtained from the websites of companies. All of our empirical analyses rely on the nationality of the ultimate owner – that is, the final company in the path of ownership. Once the nationality of the ultimate owner of each company was identified, we separate companies into an "OECD" cohort and a "non-OECD" cohort based on whether the ultimate owner was based in country that is a member of the Organization for Economic Co-operation and Development (OECD).

[37] The remaining foreign concessions exist in the oil and natural gas sector.

[38] Mining concessions involve the exploration or extraction of more than 15 mineral resources, including gold, diamond, bauxite, iron ore, and base metals. Agriculture concessions involve extraction of palm oil and rubber products, whereas forestry concessions consist of harvesting timber products.

B. Descriptive Statistics

This section presents descriptive statistics of the variables (pre-matching) used in this study. Note that only continuous variables are included in the table.

Table 1: Pre-Balance Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Elevation	11,370	180	142	0	1,081
Pop. Density	11,382	112	512	2	3,897
Dist. to Aid Projects	11,532	83,998	53,165	236	212,370
Dist. to Roads	11,256	1,189	1,924	0	16,521
Slope	11,370	1	1	0	13
Urban Travel Time	11,358	334	226	0	1,648
Pre-Period Precipitation	11,532	152	16	113	178
Pre-Period Temperature	11,532	24	1	21	25
Pre-Period NTL (Avg)	11,532	1	3	0	34
Pre-Period NTL (Trend)	11,532	0	0	−0	1
Household Numbers	11,532	6	2	2	16
Age	11,532	43	11	19	85
Wealth Factor	11,532	−48,128	68,702	−130,674	274,204

C. Performance of matching process

This section provides information on the performance of the matching process for each model reported in the paper.

Table 2: Summary of Post-Matching Covariate Levels and Improvement in Balance for All Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.50	0.47	0.03	86.16
Elevation	178.05	179.92	-1.87	83.06
Pop. Density	38.11	38.47	-0.36	99.69
Dist. to Nearest Project	78315.91	79365.47	-1049.55	88.62
Urban/Rural (Rural)	1.00	1.00	-0.00	98.24
Urban/Rural (Urban)	0.00	0.00	0.00	98.24
Distance to Roads	1061.77	1042.99	18.77	93.18
Slope	1.11	1.07	0.03	85.46
Urban Travel Time	342.16	339.54	2.62	85.16
Pre-Avg. Precipitation	152.13	151.23	0.90	70.99
Pre-Avg. Temperature	23.86	23.85	0.02	71.81
Pre-Avg. NTL	0.19	0.16	0.03	93.72
Pre-Trend NTL	0.01	0.01	0.00	92.93
Edu. Level (Primary)	0.30	0.26	0.05	55.99
Edu. Level (Secondary)	0.02	0.02	0.00	96.77
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.07	0.00	84.01
Household	5.68	5.71	-0.03	84.63
Gender	0.71	0.73	-0.01	50.73
Age	43.09	43.71	-0.62	-129.34
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.02	0.02	-0.00	88.14
Wealth Factor	-56706.14	-55310.10	-1396.05	75.22
Marital Status (Married)	0.74	0.74	-0.01	89.77
Marital Status (Living Together)	0.22	0.22	0.00	96.88
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.81	0.82	-0.01	75.24
Occupation (44)	0.12	0.12	0.01	0.78
Occupation (62)	0.70	0.72	-0.01	78.62
Occupation (65)	0.01	0.01	0.00	94.77
DHS Region (North Central)	0.24	0.28	-0.04	71.29
DHS Region (North Western)	0.13	0.11	0.02	79.76
DHS Region (South Central)	0.19	0.20	-0.00	80.78
DHS Region (South Eastern A)	0.25	0.24	0.01	29.11
DHS Region (South Eastern B)	0.19	0.18	0.01	40.62

Table 3: Summary of Post-Matching Covariate Levels and Improvement in Balance for All Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.54	0.50	0.04	80.79
Elevation	177.48	182.45	-4.96	72.71
Pop. Density	46.85	45.85	1.00	98.34
Dist. to Nearest Project	80558.39	84574.63	-4016.25	60.46
Urban/Rural (Rural)	0.99	0.99	-0.00	98.93
Urban/Rural (Urban)	0.01	0.01	0.00	98.93
Distance to Roads	1079.11	1046.23	32.89	92.11
Slope	1.09	0.99	0.09	70.96
Urban Travel Time	341.12	349.54	-8.42	78.66
Pre-Avg. Precipitation	152.17	150.06	2.11	55.45
Pre-Avg. Temperature	23.84	23.80	0.04	25.59
Pre-Avg. NTL	0.22	0.19	0.03	91.67
Pre-Trend NTL	0.02	0.01	0.00	88.92
Edu. Level (Primary)	0.26	0.26	0.00	92.74
Edu. Level (Secondary)	0.02	0.02	-0.00	71.81
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.07	0.01	-184.50
Household	5.73	5.81	-0.08	66.89
Gender	0.72	0.73	-0.00	89.63
Age	43.23	43.38	-0.15	49.36
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.02	0.03	-0.00	75.21
Wealth Factor	-56956.29	-53566.27	-3390.03	68.02
Marital Status (Married)	0.74	0.73	0.01	56.73
Marital Status (Living Together)	0.22	0.22	0.00	100.00
Marital Status (Not Living Together)	0.00	0.00	-0.00	92.35
Residence	0.00	0.00	-0.00	91.14
Working	0.81	0.80	0.00	93.14
Occupation (44)	0.13	0.11	0.01	35.04
Occupation (62)	0.70	0.70	0.00	99.53
Occupation (65)	0.01	0.01	-0.00	47.80
DHS Region (North Central)	0.25	0.31	-0.06	66.08
DHS Region (North Western)	0.13	0.11	0.02	75.02
DHS Region (South Central)	0.19	0.15	0.03	59.52
DHS Region (South Eastern A)	0.25	0.25	-0.00	94.47
DHS Region (South Eastern B)	0.18	0.17	0.00	93.10

Table 4: Summary of Post-Matching Covariate Levels and Improvement in Balance for All Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.65	0.60	0.05	82.03
Elevation	177.47	179.66	-2.19	91.62
Pop. Density	125.26	119.42	5.84	86.48
Dist. to Nearest Project	84549.50	88766.48	-4216.98	78.34
Urban/Rural (Rural)	0.97	0.97	0.00	90.35
Urban/Rural (Urban)	0.03	0.03	-0.00	90.35
Distance to Roads	1225.54	1230.54	-5.00	92.12
Slope	1.09	0.91	0.18	42.57
Urban Travel Time	371.05	379.81	-8.76	84.03
Pre-Avg. Precipitation	152.59	150.27	2.32	44.93
Pre-Avg. Temperature	23.88	23.88	0.00	93.46
Pre-Avg. NTL	0.56	0.52	0.05	86.96
Pre-Trend NTL	0.04	0.03	0.01	64.88
Edu. Level (Primary)	0.22	0.27	-0.05	-1327.74
Edu. Level (Secondary)	0.04	0.04	-0.00	96.22
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.06	0.04	0.02	47.04
Household	5.75	5.66	0.08	58.15
Gender	0.72	0.71	0.01	-7384.13
Age	43.01	42.21	0.79	60.54
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.04	-0.00	89.23
Wealth Factor	-52752.68	-43845.34	-8907.34	34.62
Marital Status (Married)	0.79	0.77	0.02	81.30
Marital Status (Living Together)	0.17	0.18	-0.01	86.74
Marital Status (Not Living Together)	0.00	0.00	0.00	46.64
Residence	0.00	0.00	0.00	82.13
Working	0.81	0.80	0.01	-7.61
Occupation (44)	0.11	0.10	0.00	87.81
Occupation (62)	0.71	0.69	0.02	74.86
Occupation (65)	0.01	0.01	-0.00	-127.48
DHS Region (North Central)	0.30	0.35	-0.05	75.70
DHS Region (North Western)	0.11	0.06	0.05	67.98
DHS Region (South Central)	0.16	0.14	0.03	64.46
DHS Region (South Eastern A)	0.29	0.26	0.04	-35.45
DHS Region (South Eastern B)	0.12	0.18	-0.06	-130.15

Table 5: Summary of Post-Matching Covariate Levels and Improvement in Balance for All Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.73	0.68	0.04	87.08
Elevation	191.27	201.38	-10.11	67.96
Pop. Density	72.17	62.14	10.03	73.13
Dist. to Nearest Project	92435.86	88483.20	3952.66	83.81
Urban/Rural (Rural)	0.96	0.94	0.02	54.93
Urban/Rural (Urban)	0.04	0.06	-0.02	54.93
Distance to Roads	1093.02	994.62	98.40	69.10
Slope	0.80	0.76	0.04	90.20
Urban Travel Time	439.37	426.51	12.86	85.06
Pre-Avg. Precipitation	146.59	147.24	-0.64	88.15
Pre-Avg. Temperature	24.05	24.08	-0.03	81.51
Pre-Avg. NTL	0.25	0.27	-0.01	93.91
Pre-Trend NTL	0.01	0.01	-0.00	94.41
Edu. Level (Primary)	0.33	0.33	0.00	93.66
Edu. Level (Secondary)	0.02	0.01	0.00	86.25
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.02	0.03	-0.02	-16.86
Household	5.78	5.79	-0.01	93.49
Gender	0.73	0.72	0.01	12.55
Age	41.76	41.93	-0.17	86.73
Literacy (Low)	0.03	0.03	0.00	94.33
Literacy (High)	0.02	0.02	0.00	83.46
Wealth Factor	-52024.86	-54737.16	2712.30	-190.21
Marital Status (Married)	0.77	0.81	-0.03	71.36
Marital Status (Living Together)	0.20	0.17	0.03	48.05
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.86	0.86	0.00	100.00
Occupation (44)	0.13	0.20	-0.06	-23.45
Occupation (62)	0.65	0.59	0.06	65.48
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.40	0.39	0.01	93.22
DHS Region (North Western)	0.02	0.00	0.02	87.24
DHS Region (South Central)	0.02	0.02	-0.00	98.39
DHS Region (South Eastern A)	0.36	0.44	-0.08	53.75
DHS Region (South Eastern B)	0.20	0.15	0.05	-164.66

Table 6: Summary of Post-Matching Covariate Levels and Improvement in Balance for All Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.76	0.74	0.02	97.20
Elevation	164.62	213.27	-48.65	43.71
Pop. Density	66.59	52.17	14.42	54.63
Dist. to Nearest Project	74453.64	86959.47	-12505.82	71.57
Urban/Rural (Rural)	0.76	0.86	-0.10	-500.38
Urban/Rural (Urban)	0.24	0.14	0.10	-500.38
Distance to Roads	1201.72	979.11	222.61	53.41
Slope	0.74	0.68	0.05	73.49
Urban Travel Time	325.28	354.74	-29.46	63.28
Pre-Avg. Precipitation	149.16	139.46	9.70	-32.40
Pre-Avg. Temperature	23.72	23.83	-0.11	-115.18
Pre-Avg. NTL	0.72	0.48	0.24	-845.42
Pre-Trend NTL	0.05	0.03	0.02	-562.82
Edu. Level (Primary)	0.18	0.10	0.08	-126.94
Edu. Level (Secondary)	0.14	0.20	-0.06	-489.84
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.02	0.00	0.02	74.44
Household	5.56	5.78	-0.22	70.64
Gender	0.72	0.75	-0.03	-58.32
Age	41.18	40.08	1.10	63.15
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.14	0.22	-0.08	-517.54
Wealth Factor	-14170.96	-1983.68	-12187.28	-200.77
Marital Status (Married)	0.74	0.78	-0.04	85.66
Marital Status (Living Together)	0.16	0.16	0.00	100.00
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.78	0.96	-0.18	-178.24
Occupation (44)	0.32	0.12	0.20	-14.14
Occupation (62)	0.38	0.74	-0.36	11.96
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.32	0.68	-0.36	-73.54
DHS Region (North Western)	0.14	0.00	0.14	18.07
DHS Region (South Central)	0.14	0.00	0.14	20.94
DHS Region (South Eastern A)	0.36	0.10	0.26	-220.92
DHS Region (South Eastern B)	0.04	0.22	-0.18	-154.39

Table 7: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.44	0.42	0.02	97.03
Elevation	90.74	88.24	2.49	96.89
Pop. Density	73.59	77.44	-3.85	91.31
Dist. to Nearest Project	36026.87	34488.63	1538.24	96.25
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	779.26	763.02	16.24	96.32
Slope	1.09	1.02	0.08	61.97
Urban Travel Time	108.97	103.26	5.70	97.77
Pre-Avg. Precipitation	168.86	169.13	-0.26	98.62
Pre-Avg. Temperature	23.56	23.56	-0.00	99.74
Pre-Avg. NTL	0.92	0.87	0.05	74.49
Pre-Trend NTL	0.07	0.07	0.00	85.57
Edu. Level (Primary)	0.18	0.16	0.02	78.39
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.17	0.13	0.04	-26.47
Household	4.93	5.12	-0.18	84.29
Gender	0.66	0.70	-0.04	22.51
Age	38.40	39.84	-1.44	75.08
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-25634.21	-24362.57	-1271.64	96.31
Marital Status (Married)	0.45	0.52	-0.06	78.96
Marital Status (Living Together)	0.53	0.46	0.07	75.86
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.50	0.48	0.02	84.69
Occupation (44)	0.27	0.22	0.05	67.89
Occupation (62)	0.37	0.37	-0.01	97.10
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.07	0.08	-0.01	93.73
DHS Region (North Western)	0.38	0.33	0.05	87.21
DHS Region (South Central)	0.55	0.59	-0.04	82.78
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 8: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.42	0.40	0.02	96.95
Elevation	84.60	87.73	-3.13	96.53
Pop. Density	70.49	81.68	-11.18	76.19
Dist. to Nearest Project	32827.70	34318.42	-1490.72	96.50
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	799.65	766.82	32.84	93.39
Slope	1.07	1.05	0.03	80.06
Urban Travel Time	114.14	119.93	-5.79	97.78
Pre-Avg. Precipitation	169.76	169.83	-0.08	99.62
Pre-Avg. Temperature	23.66	23.65	0.00	98.75
Pre-Avg. NTL	0.72	0.75	-0.03	89.24
Pre-Trend NTL	0.06	0.05	0.00	84.13
Edu. Level (Primary)	0.19	0.17	0.02	80.69
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.17	0.18	-0.01	58.48
Household	4.96	5.12	-0.16	86.52
Gender	0.68	0.70	-0.02	74.77
Age	40.45	43.03	-2.58	24.79
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-37373.39	-43359.85	5986.46	74.74
Marital Status (Married)	0.50	0.53	-0.03	84.70
Marital Status (Living Together)	0.48	0.44	0.03	85.45
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.58	0.58	0.00	98.82
Occupation (44)	0.26	0.20	0.07	45.29
Occupation (62)	0.44	0.49	-0.05	60.03
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.06	0.06	0.00	97.78
DHS Region (North Western)	0.32	0.33	-0.01	98.06
DHS Region (South Central)	0.62	0.62	0.00	98.73
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 9: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.44	0.42	0.02	96.61
Elevation	82.25	81.76	0.49	99.46
Pop. Density	72.50	79.13	-6.63	86.86
Dist. to Nearest Project	29196.19	28604.35	591.84	98.60
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	820.17	780.91	39.27	91.59
Slope	1.00	1.03	-0.03	77.17
Urban Travel Time	118.59	118.17	0.42	99.84
Pre-Avg. Precipitation	169.82	170.12	-0.31	98.47
Pre-Avg. Temperature	23.68	23.72	-0.03	86.85
Pre-Avg. NTL	0.23	0.25	-0.02	91.60
Pre-Trend NTL	0.02	0.02	-0.00	92.61
Edu. Level (Primary)	0.26	0.29	-0.02	81.27
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.18	0.16	0.02	-83.24
Household	5.12	5.26	-0.14	89.33
Gender	0.72	0.74	-0.02	79.54
Age	40.97	42.52	-1.55	60.68
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-31086.21	-30727.30	-358.91	98.08
Marital Status (Married)	0.51	0.54	-0.03	88.48
Marital Status (Living Together)	0.49	0.46	0.03	88.35
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.61	0.60	0.01	93.27
Occupation (44)	0.32	0.28	0.04	59.77
Occupation (62)	0.42	0.43	-0.01	91.08
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.07	0.09	-0.02	92.78
DHS Region (North Western)	0.27	0.23	0.03	92.77
DHS Region (South Central)	0.66	0.68	-0.02	93.00
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 10: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.44	0.42	0.02	96.58
Elevation	81.75	81.80	-0.05	99.94
Pop. Density	72.74	79.13	-6.39	87.56
Dist. to Nearest Project	29327.38	28567.78	759.60	98.17
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	835.25	780.34	54.92	88.40
Slope	1.00	1.03	-0.04	69.42
Urban Travel Time	119.16	118.08	1.07	99.60
Pre-Avg. Precipitation	169.78	170.12	-0.35	98.28
Pre-Avg. Temperature	23.69	23.72	-0.03	87.26
Pre-Avg. NTL	0.24	0.25	-0.02	93.38
Pre-Trend NTL	0.02	0.02	-0.00	93.49
Edu. Level (Primary)	0.27	0.29	-0.02	85.74
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.18	0.16	0.01	-71.64
Household	5.14	5.26	-0.12	91.14
Gender	0.72	0.74	-0.02	78.09
Age	40.88	42.50	-1.61	56.58
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-30977.82	-30813.38	-164.44	99.15
Marital Status (Married)	0.51	0.54	-0.03	88.98
Marital Status (Living Together)	0.48	0.46	0.02	90.39
Marital Status (Not Living Together)	0.01	0.00	0.01	65.59
Residence	0.00	0.00	0.00	100.00
Working	0.61	0.60	0.01	92.70
Occupation (44)	0.33	0.28	0.05	56.43
Occupation (62)	0.42	0.43	-0.02	90.50
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.07	0.09	-0.02	91.07
DHS Region (North Western)	0.26	0.23	0.03	93.38
DHS Region (South Central)	0.67	0.68	-0.01	95.50
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 11: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.53	0.48	0.05	94.54
Elevation	79.78	87.70	-7.92	91.92
Pop. Density	64.88	59.92	4.96	90.03
Dist. to Nearest Project	34404.15	29000.34	5403.82	88.80
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	884.45	834.04	50.41	90.09
Slope	1.13	1.14	-0.02	15.79
Urban Travel Time	129.01	127.15	1.86	99.30
Pre-Avg. Precipitation	170.04	169.50	0.54	97.52
Pre-Avg. Temperature	23.82	23.77	0.05	72.27
Pre-Avg. NTL	0.07	0.28	-0.21	-104.55
Pre-Trend NTL	0.00	0.02	-0.02	-48.36
Edu. Level (Primary)	0.25	0.30	-0.05	14.15
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.10	0.06	0.04	-223.80
Household	5.43	5.87	-0.44	66.70
Gender	0.71	0.77	-0.06	5.51
Age	42.52	39.78	2.74	32.42
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-45697.80	-40094.59	-5603.20	80.72
Marital Status (Married)	0.64	0.57	0.07	70.52
Marital Status (Living Together)	0.36	0.43	-0.07	72.00
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.74	0.66	0.08	60.73
Occupation (44)	0.23	0.26	-0.03	72.24
Occupation (62)	0.52	0.41	0.11	47.63
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.00	0.01	-0.01	94.28
DHS Region (North Western)	0.29	0.16	0.13	62.67
DHS Region (South Central)	0.71	0.82	-0.11	68.27
DHS Region (South Eastern A)	0.00	0.00	-0.00	98.25
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 12: Summary of Post-Matching Covariate Levels and Improvement in Balance for Agriculture Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.50	0.45	0.05	94.47
Elevation	129.12	119.79	9.33	90.63
Pop. Density	44.95	32.82	12.13	68.51
Dist. to Nearest Project	51024.76	50278.99	745.77	98.57
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	968.50	878.38	90.12	83.51
Slope	1.23	1.20	0.03	53.23
Urban Travel Time	125.42	127.88	-2.46	99.08
Pre-Avg. Precipitation	162.40	164.74	-2.34	89.16
Pre-Avg. Temperature	23.71	23.70	0.01	94.96
Pre-Avg. NTL	0.32	0.18	0.14	47.94
Pre-Trend NTL	0.02	0.02	0.00	85.84
Edu. Level (Primary)	0.03	0.03	0.00	100.00
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.27	0.26	0.01	60.01
Household	3.82	3.86	-0.05	96.22
Gender	0.73	0.71	0.02	68.29
Age	44.27	39.87	4.40	-60.04
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-66045.90	-65612.99	-432.91	98.41
Marital Status (Married)	0.56	0.60	-0.05	80.69
Marital Status (Living Together)	0.44	0.40	0.05	82.37
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.67	0.82	-0.15	41.86
Occupation (44)	0.09	0.17	-0.08	6.24
Occupation (62)	0.85	0.82	0.03	87.83
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.07	0.06	0.01	96.14
DHS Region (North Western)	0.57	0.48	0.09	71.13
DHS Region (South Central)	0.36	0.44	-0.08	79.99
DHS Region (South Eastern A)	0.00	0.02	-0.02	92.42
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 13: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.39	0.37	0.02	92.62
Elevation	172.63	174.81	-2.19	79.09
Pop. Density	35.99	35.56	0.43	99.47
Dist. to Nearest Project	68968.96	66586.03	2382.94	85.53
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	1182.64	1252.75	-70.11	-36.97
Slope	1.30	1.23	0.07	78.33
Urban Travel Time	348.64	346.47	2.17	-1127.84
Pre-Avg. Precipitation	157.18	157.15	0.04	99.54
Pre-Avg. Temperature	23.94	23.98	-0.04	66.66
Pre-Avg. NTL	0.30	0.32	-0.01	94.08
Pre-Trend NTL	0.02	0.02	-0.00	62.11
Edu. Level (Primary)	0.36	0.36	-0.00	98.01
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.08	-0.00	77.07
Household	5.22	5.38	-0.16	74.75
Gender	0.70	0.70	-0.00	79.08
Age	41.07	41.73	-0.66	75.94
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-55138.11	-51803.44	-3334.67	-64.51
Marital Status (Married)	0.70	0.71	-0.01	84.60
Marital Status (Living Together)	0.25	0.26	-0.01	90.38
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.75	0.73	0.02	51.55
Occupation (44)	0.13	0.14	-0.00	57.88
Occupation (62)	0.60	0.59	0.02	75.73
Occupation (65)	0.02	0.01	0.01	65.72
DHS Region (North Central)	0.10	0.10	-0.00	98.83
DHS Region (North Western)	0.27	0.22	0.05	77.97
DHS Region (South Central)	0.20	0.22	-0.02	-164.10
DHS Region (South Eastern A)	0.35	0.38	-0.03	81.87
DHS Region (South Eastern B)	0.08	0.07	0.01	96.47

Table 14: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.40	0.38	0.02	92.72
Elevation	160.46	158.78	1.69	94.07
Pop. Density	36.22	37.67	-1.45	98.27
Dist. to Nearest Project	67120.52	65311.21	1809.31	90.74
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	1141.69	1153.80	-12.11	91.86
Slope	1.24	1.19	0.05	80.33
Urban Travel Time	331.45	325.48	5.98	83.57
Pre-Avg. Precipitation	157.56	158.00	-0.44	95.08
Pre-Avg. Temperature	23.92	23.91	0.00	95.26
Pre-Avg. NTL	0.29	0.27	0.02	86.30
Pre-Trend NTL	0.02	0.02	0.00	41.90
Edu. Level (Primary)	0.32	0.31	0.01	59.97
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.11	0.10	0.00	88.15
Household	5.19	5.34	-0.14	82.40
Gender	0.71	0.72	-0.00	75.07
Age	41.86	42.35	-0.49	78.41
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-58546.43	-56549.23	-1997.20	72.90
Marital Status (Married)	0.74	0.75	-0.02	-6.58
Marital Status (Living Together)	0.23	0.23	0.00	87.03
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.75	0.76	-0.01	84.23
Occupation (44)	0.15	0.14	0.01	60.45
Occupation (62)	0.61	0.62	-0.01	82.86
Occupation (65)	0.01	0.01	0.00	88.57
DHS Region (North Central)	0.09	0.10	-0.00	98.23
DHS Region (North Western)	0.26	0.22	0.04	83.18
DHS Region (South Central)	0.25	0.27	-0.03	54.84
DHS Region (South Eastern A)	0.32	0.34	-0.02	81.70
DHS Region (South Eastern B)	0.07	0.06	0.01	95.15

Table 15: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.44	0.42	0.02	92.48
Elevation	166.28	161.25	5.03	67.11
Pop. Density	33.92	31.28	2.64	97.33
Dist. to Nearest Project	71522.94	73847.50	-2324.56	87.66
Urban/Rural (Rural)	1.00	1.00	0.00	100.00
Urban/Rural (Urban)	0.00	0.00	0.00	100.00
Distance to Roads	1286.31	1310.50	-24.20	-35.27
Slope	1.24	1.18	0.06	79.72
Urban Travel Time	349.95	345.44	4.52	-36.26
Pre-Avg. Precipitation	156.08	156.46	-0.39	94.64
Pre-Avg. Temperature	23.89	23.86	0.03	54.51
Pre-Avg. NTL	0.27	0.19	0.08	63.38
Pre-Trend NTL	0.02	0.01	0.01	-15.27
Edu. Level (Primary)	0.34	0.32	0.02	71.94
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.10	-0.01	-30.33
Household	5.51	5.48	0.03	94.09
Gender	0.72	0.72	-0.00	84.82
Age	43.02	42.96	0.06	89.66
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-55497.44	-60047.17	4549.73	24.21
Marital Status (Married)	0.74	0.77	-0.03	-2188.83
Marital Status (Living Together)	0.23	0.21	0.02	18.30
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.77	0.83	-0.05	13.23
Occupation (44)	0.12	0.14	-0.02	14.11
Occupation (62)	0.66	0.71	-0.05	-56.83
Occupation (65)	0.01	0.01	-0.00	74.80
DHS Region (North Central)	0.13	0.13	0.01	97.42
DHS Region (North Western)	0.18	0.18	0.00	99.79
DHS Region (South Central)	0.23	0.22	0.01	76.70
DHS Region (South Eastern A)	0.30	0.30	-0.00	99.47
DHS Region (South Eastern B)	0.15	0.17	-0.01	87.32

Table 16: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.53	0.48	0.06	87.09
Elevation	192.45	183.31	9.15	40.49
Pop. Density	32.92	40.77	-7.86	93.69
Dist. to Nearest Project	84019.23	82738.70	1280.52	94.95
Urban/Rural (Rural)	1.00	1.00	-0.00	99.13
Urban/Rural (Urban)	0.00	0.00	0.00	99.13
Distance to Roads	1336.48	1371.55	-35.06	69.14
Slope	1.25	1.19	0.05	81.96
Urban Travel Time	354.43	343.02	11.41	52.84
Pre-Avg. Precipitation	152.77	152.77	-0.00	99.99
Pre-Avg. Temperature	23.87	23.89	-0.01	84.07
Pre-Avg. NTL	0.12	0.13	-0.01	97.20
Pre-Trend NTL	0.01	0.01	0.00	98.11
Edu. Level (Primary)	0.30	0.27	0.04	-125.51
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.11	-0.03	52.87
Household	5.59	5.43	0.16	68.08
Gender	0.71	0.69	0.02	-686.23
Age	42.40	42.03	0.38	-1026.72
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.01	0.00	0.01	87.26
Wealth Factor	-56908.82	-57860.23	951.41	88.63
Marital Status (Married)	0.71	0.70	0.01	72.52
Marital Status (Living Together)	0.27	0.28	-0.02	18.72
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.85	0.86	-0.01	-73.69
Occupation (44)	0.14	0.17	-0.03	41.20
Occupation (62)	0.74	0.74	0.00	92.07
Occupation (65)	0.00	0.01	-0.00	-72.44
DHS Region (North Central)	0.23	0.23	0.00	100.00
DHS Region (North Western)	0.17	0.19	-0.02	66.26
DHS Region (South Central)	0.14	0.12	0.01	92.19
DHS Region (South Eastern A)	0.25	0.23	0.01	87.18
DHS Region (South Eastern B)	0.21	0.22	-0.01	92.07

Table 17: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.57	0.51	0.07	84.80
Elevation	192.04	196.07	-4.03	89.16
Pop. Density	35.77	39.77	-4.00	97.19
Dist. to Nearest Project	90872.03	94647.24	-3775.21	82.91
Urban/Rural (Rural)	0.99	0.98	0.01	77.08
Urban/Rural (Urban)	0.01	0.02	-0.01	77.08
Distance to Roads	1181.77	1259.74	-77.97	61.34
Slope	1.24	1.20	0.03	78.89
Urban Travel Time	345.82	343.41	2.41	89.30
Pre-Avg. Precipitation	151.53	150.38	1.14	85.87
Pre-Avg. Temperature	23.80	23.78	0.02	70.93
Pre-Avg. NTL	0.11	0.14	-0.02	94.46
Pre-Trend NTL	0.01	0.01	-0.00	98.93
Edu. Level (Primary)	0.27	0.25	0.03	-541.06
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.10	0.11	-0.01	76.94
Household	5.82	5.62	0.19	59.80
Gender	0.71	0.70	0.00	18.64
Age	43.02	42.95	0.07	90.01
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	91.80
Wealth Factor	-53684.75	-54405.43	720.68	91.57
Marital Status (Married)	0.70	0.70	0.00	68.26
Marital Status (Living Together)	0.25	0.27	-0.02	74.84
Marital Status (Not Living Together)	0.01	0.00	0.01	-145.58
Residence	0.00	0.00	0.00	100.00
Working	0.83	0.84	-0.01	40.46
Occupation (44)	0.14	0.16	-0.02	49.90
Occupation (62)	0.72	0.71	0.01	77.51
Occupation (65)	0.01	0.01	-0.00	-610.03
DHS Region (North Central)	0.26	0.29	-0.03	88.72
DHS Region (North Western)	0.20	0.19	0.00	84.57
DHS Region (South Central)	0.08	0.07	0.01	93.80
DHS Region (South Eastern A)	0.22	0.19	0.04	77.94
DHS Region (South Eastern B)	0.24	0.27	-0.02	74.89

Table 18: Summary of Post-Matching Covariate Levels and Improvement in Balance for CSR Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.61	0.56	0.06	86.33
Elevation	183.47	187.76	-4.29	91.47
Pop. Density	44.93	44.90	0.03	99.98
Dist. to Nearest Project	91438.03	95515.78	-4077.75	74.59
Urban/Rural (Rural)	0.98	0.99	-0.01	83.74
Urban/Rural (Urban)	0.02	0.01	0.01	83.74
Distance to Roads	1094.00	1124.04	-30.04	91.39
Slope	1.18	1.16	0.03	71.19
Urban Travel Time	311.91	313.97	-2.07	96.39
Pre-Avg. Precipitation	152.03	150.75	1.28	85.24
Pre-Avg. Temperature	23.78	23.77	0.00	90.97
Pre-Avg. NTL	0.21	0.21	0.00	99.22
Pre-Trend NTL	0.01	0.01	0.00	97.82
Edu. Level (Primary)	0.25	0.26	-0.01	66.69
Edu. Level (Secondary)	0.04	0.05	-0.01	75.01
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.10	0.12	-0.02	75.73
Household	5.79	5.79	-0.00	99.86
Gender	0.70	0.71	-0.00	71.03
Age	42.98	43.35	-0.36	86.01
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.05	0.05	-0.00	98.83
Wealth Factor	-42208.52	-43220.14	1011.62	91.88
Marital Status (Married)	0.70	0.71	-0.01	84.11
Marital Status (Living Together)	0.22	0.22	0.00	97.05
Marital Status (Not Living Together)	0.01	0.00	0.01	-209.21
Residence	0.00	0.00	0.00	100.00
Working	0.78	0.79	-0.01	-18.91
Occupation (44)	0.14	0.14	-0.00	43.46
Occupation (62)	0.66	0.66	-0.00	82.39
Occupation (65)	0.01	0.01	0.00	72.52
DHS Region (North Central)	0.26	0.31	-0.05	84.27
DHS Region (North Western)	0.19	0.18	0.01	-70.17
DHS Region (South Central)	0.13	0.11	0.02	82.12
DHS Region (South Eastern A)	0.19	0.15	0.04	78.53
DHS Region (South Eastern B)	0.23	0.25	-0.02	22.26

Table 19: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.39	0.39	0.00	96.58
Elevation	180.58	184.87	-4.29	-294.34
Pop. Density	38.67	38.38	0.29	99.68
Dist. to Nearest Project	81136.94	82722.22	-1585.28	61.16
Urban/Rural (Rural)	0.99	0.99	0.00	99.04
Urban/Rural (Urban)	0.01	0.01	-0.00	99.04
Distance to Roads	978.32	1003.68	-25.36	91.99
Slope	1.16	1.21	-0.05	25.58
Urban Travel Time	307.74	311.20	-3.46	89.75
Pre-Avg. Precipitation	151.30	151.21	0.08	91.80
Pre-Avg. Temperature	23.80	23.81	-0.01	74.12
Pre-Avg. NTL	0.09	0.11	-0.02	96.22
Pre-Trend NTL	0.01	0.01	-0.00	97.84
Edu. Level (Primary)	0.33	0.31	0.01	81.42
Edu. Level (Secondary)	0.03	0.02	0.01	11.52
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.06	0.05	0.01	79.91
Household	5.78	5.83	-0.04	85.00
Gender	0.70	0.71	-0.01	49.45
Age	43.73	44.22	-0.49	79.39
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.03	0.01	-13.62
Wealth Factor	-50716.14	-53694.18	2978.04	-1235.54
Marital Status (Married)	0.71	0.73	-0.02	-86.64
Marital Status (Living Together)	0.24	0.25	-0.00	95.83
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.83	0.87	-0.04	42.99
Occupation (44)	0.13	0.12	0.01	23.08
Occupation (62)	0.72	0.75	-0.03	19.12
Occupation (65)	0.01	0.01	-0.00	88.55
DHS Region (North Central)	0.28	0.29	-0.02	-252.19
DHS Region (North Western)	0.12	0.11	0.01	78.53
DHS Region (South Central)	0.19	0.19	-0.00	96.96
DHS Region (South Eastern A)	0.17	0.19	-0.02	56.05
DHS Region (South Eastern B)	0.24	0.22	0.02	78.72

Table 20: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.46	0.43	0.02	86.04
Elevation	178.04	175.36	2.68	69.97
Pop. Density	47.72	47.90	-0.18	99.36
Dist. to Nearest Project	82610.69	81745.18	865.50	76.56
Urban/Rural (Rural)	0.99	0.99	0.00	100.00
Urban/Rural (Urban)	0.01	0.01	0.00	100.00
Distance to Roads	947.58	970.02	-22.44	95.13
Slope	1.16	1.15	0.00	99.59
Urban Travel Time	299.59	308.89	-9.30	83.49
Pre-Avg. Precipitation	152.53	152.59	-0.05	96.87
Pre-Avg. Temperature	23.79	23.78	0.01	84.04
Pre-Avg. NTL	0.14	0.16	-0.02	93.84
Pre-Trend NTL	0.01	0.01	-0.00	92.99
Edu. Level (Primary)	0.28	0.27	0.01	-20.66
Edu. Level (Secondary)	0.02	0.02	0.00	-187.39
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.08	-0.00	-25.78
Household	5.61	5.72	-0.11	-1255.81
Gender	0.70	0.71	-0.02	57.22
Age	42.58	42.82	-0.23	79.71
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.02	0.00	-53.65
Wealth Factor	-55414.34	-58476.98	3062.64	53.50
Marital Status (Married)	0.72	0.69	0.03	35.17
Marital Status (Living Together)	0.24	0.26	-0.03	-19.05
Marital Status (Not Living Together)	0.00	0.00	-0.00	83.56
Residence	0.00	0.00	-0.00	88.55
Working	0.84	0.82	0.02	75.40
Occupation (44)	0.14	0.13	0.01	72.07
Occupation (62)	0.72	0.73	-0.01	83.15
Occupation (65)	0.01	0.01	-0.00	73.67
DHS Region (North Central)	0.26	0.25	0.01	90.31
DHS Region (North Western)	0.16	0.17	-0.01	15.70
DHS Region (South Central)	0.19	0.18	0.01	72.47
DHS Region (South Eastern A)	0.17	0.21	-0.03	55.56
DHS Region (South Eastern B)	0.21	0.19	0.02	79.17

Table 21: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.58	0.54	0.04	81.81
Elevation	185.02	195.16	-10.14	34.96
Pop. Density	103.68	92.60	11.07	-5.43
Dist. to Nearest Project	83143.27	86348.46	-3205.19	49.96
Urban/Rural (Rural)	0.98	0.98	0.00	89.82
Urban/Rural (Urban)	0.02	0.02	-0.00	89.82
Distance to Roads	1168.89	1152.57	16.31	68.06
Slope	1.12	1.09	0.03	80.53
Urban Travel Time	332.19	352.15	-19.96	73.32
Pre-Avg. Precipitation	151.62	150.66	0.95	67.52
Pre-Avg. Temperature	23.81	23.83	-0.01	63.87
Pre-Avg. NTL	0.35	0.34	0.01	97.50
Pre-Trend NTL	0.02	0.02	0.00	96.49
Edu. Level (Primary)	0.28	0.28	-0.00	99.45
Edu. Level (Secondary)	0.04	0.03	0.00	-20.70
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.05	0.02	67.68
Household	5.71	5.67	0.04	82.52
Gender	0.71	0.72	-0.00	91.85
Age	42.32	41.43	0.89	66.41
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.03	0.01	57.07
Wealth Factor	-50441.13	-49044.80	-1396.33	89.40
Marital Status (Married)	0.71	0.75	-0.04	65.59
Marital Status (Living Together)	0.22	0.19	0.03	70.16
Marital Status (Not Living Together)	0.00	0.00	0.00	69.91
Residence	0.00	0.00	0.00	47.85
Working	0.79	0.80	-0.01	92.06
Occupation (44)	0.12	0.11	0.01	70.11
Occupation (62)	0.68	0.67	0.01	94.63
Occupation (65)	0.01	0.00	0.00	-60.98
DHS Region (North Central)	0.27	0.30	-0.03	66.53
DHS Region (North Western)	0.13	0.10	0.02	83.05
DHS Region (South Central)	0.21	0.18	0.03	-34.35
DHS Region (South Eastern A)	0.22	0.25	-0.03	68.05
DHS Region (South Eastern B)	0.17	0.16	0.01	85.57

Table 22: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.69	0.65	0.04	80.35
Elevation	209.64	204.60	5.04	82.68
Pop. Density	116.07	55.23	60.84	-10.23
Dist. to Nearest Project	91743.65	90224.21	1519.43	78.69
Urban/Rural (Rural)	0.97	0.96	0.01	74.44
Urban/Rural (Urban)	0.03	0.04	-0.01	74.44
Distance to Roads	981.18	1028.44	-47.27	78.44
Slope	1.01	0.95	0.06	72.90
Urban Travel Time	388.71	419.28	-30.57	71.92
Pre-Avg. Precipitation	149.82	150.57	-0.75	63.28
Pre-Avg. Temperature	23.92	23.95	-0.03	80.94
Pre-Avg. NTL	0.55	0.37	0.18	-723.15
Pre-Trend NTL	0.03	0.02	0.01	-119.50
Edu. Level (Primary)	0.30	0.34	-0.04	37.88
Edu. Level (Secondary)	0.03	0.01	0.02	19.65
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.03	0.04	-0.00	94.75
Household	5.77	5.65	0.12	-1569.23
Gender	0.73	0.73	0.00	91.22
Age	42.67	42.92	-0.25	-304.93
Literacy (Low)	0.03	0.03	0.01	73.77
Literacy (High)	0.03	0.01	0.02	27.59
Wealth Factor	-49486.82	-53828.84	4342.02	12.78
Marital Status (Married)	0.80	0.83	-0.03	83.61
Marital Status (Living Together)	0.14	0.12	0.02	83.33
Marital Status (Not Living Together)	0.00	0.00	0.00	65.38
Residence	0.00	0.00	0.00	-6.93
Working	0.79	0.74	0.05	35.75
Occupation (44)	0.10	0.11	-0.00	12.23
Occupation (62)	0.63	0.60	0.04	73.34
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.32	0.27	0.05	-243.04
DHS Region (North Western)	0.07	0.07	0.00	98.51
DHS Region (South Central)	0.12	0.13	-0.02	63.34
DHS Region (South Eastern A)	0.33	0.37	-0.04	81.92
DHS Region (South Eastern B)	0.15	0.16	-0.01	79.89

Table 23: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.74	0.71	0.03	91.09
Elevation	214.53	225.75	-11.22	87.42
Pop. Density	60.36	48.56	11.81	78.56
Dist. to Nearest Project	89042.22	93621.59	-4579.37	73.57
Urban/Rural (Rural)	0.97	0.97	-0.00	90.61
Urban/Rural (Urban)	0.03	0.03	0.00	90.61
Distance to Roads	941.30	843.39	97.91	78.39
Slope	0.89	0.87	0.02	91.10
Urban Travel Time	458.36	480.21	-21.85	84.19
Pre-Avg. Precipitation	147.04	142.99	4.04	60.25
Pre-Avg. Temperature	23.98	23.97	0.01	90.80
Pre-Avg. NTL	0.43	0.18	0.25	-411.38
Pre-Trend NTL	0.02	0.01	0.01	-120.96
Edu. Level (Primary)	0.26	0.34	-0.08	-44.14
Edu. Level (Secondary)	0.02	0.01	0.01	58.53
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.02	0.01	0.01	-9.19
Household	5.93	6.09	-0.16	55.01
Gender	0.74	0.73	0.01	-203.73
Age	42.87	42.84	0.04	95.46
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.02	0.01	-54.22
Wealth Factor	-43278.44	-44797.77	1519.34	60.36
Marital Status (Married)	0.80	0.85	-0.05	72.25
Marital Status (Living Together)	0.16	0.12	0.04	71.10
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.80	0.83	-0.03	-299.03
Occupation (44)	0.16	0.16	0.00	93.82
Occupation (62)	0.50	0.54	-0.03	84.12
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.34	0.38	-0.04	78.12
DHS Region (North Western)	0.02	0.01	0.01	92.13
DHS Region (South Central)	0.10	0.00	0.10	48.44
DHS Region (South Eastern A)	0.41	0.43	-0.02	93.67
DHS Region (South Eastern B)	0.13	0.19	-0.06	-6.56

Table 24: Summary of Post-Matching Covariate Levels and Improvement in Balance for non-CSR Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.59	0.57	0.03	96.80
Elevation	179.83	180.77	-0.95	98.44
Pop. Density	51.46	48.30	3.16	94.41
Dist. to Nearest Project	88192.77	93434.18	-5241.41	-0.94
Urban/Rural (Rural)	0.90	0.87	0.02	72.82
Urban/Rural (Urban)	0.10	0.13	-0.02	72.82
Distance to Roads	841.54	923.75	-82.21	83.27
Slope	0.73	0.66	0.06	81.24
Urban Travel Time	494.95	518.05	-23.10	85.63
Pre-Avg. Precipitation	147.05	144.49	2.55	74.56
Pre-Avg. Temperature	23.74	23.77	-0.03	42.79
Pre-Avg. NTL	0.58	0.82	-0.24	-2.44
Pre-Trend NTL	0.03	0.04	-0.01	-27.51
Edu. Level (Primary)	0.48	0.53	-0.05	84.04
Edu. Level (Secondary)	0.10	0.07	0.03	-172.85
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.00	0.00	0.00	100.00
Household	6.53	6.66	-0.13	38.23
Gender	0.68	0.69	-0.01	90.46
Age	42.34	43.05	-0.71	72.08
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.11	0.09	0.02	-169.89
Wealth Factor	-25732.87	-29711.46	3978.60	46.78
Marital Status (Married)	0.87	0.90	-0.02	89.39
Marital Status (Living Together)	0.10	0.06	0.04	81.69
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.76	0.72	0.03	74.27
Occupation (44)	0.26	0.24	0.02	87.16
Occupation (62)	0.38	0.33	0.05	89.07
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.09	0.08	0.02	84.61
DHS Region (North Western)	0.06	0.00	0.06	67.87
DHS Region (South Central)	0.03	0.00	0.03	82.28
DHS Region (South Eastern A)	0.46	0.55	-0.09	78.93
DHS Region (South Eastern B)	0.35	0.37	-0.02	69.63

Table 25: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.38	0.36	0.02	96.05
Elevation	214.70	224.52	-9.82	77.63
Pop. Density	14.45	15.31	-0.86	99.12
Dist. to Nearest Project	92524.72	94186.87	-1662.15	83.75
Urban/Rural (Rural)	1.00	1.00	-0.00	89.33
Urban/Rural (Urban)	0.00	0.00	0.00	89.33
Distance to Roads	1559.64	1518.10	41.54	87.90
Slope	1.37	1.39	-0.02	93.08
Urban Travel Time	524.68	527.00	-2.32	99.08
Pre-Avg. Precipitation	149.39	148.57	0.81	59.43
Pre-Avg. Temperature	24.17	24.18	-0.01	96.49
Pre-Avg. NTL	0.00	0.00	0.00	100.00
Pre-Trend NTL	0.00	0.00	0.00	100.00
Edu. Level (Primary)	0.45	0.49	-0.04	82.95
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.00	0.00	0.00	100.00
Household	6.02	6.03	-0.01	94.95
Gender	0.71	0.71	0.01	71.03
Age	44.87	46.47	-1.60	-5.31
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	92.10
Wealth Factor	-80609.63	-74346.22	-6263.41	83.53
Marital Status (Married)	0.91	0.89	0.02	91.49
Marital Status (Living Together)	0.08	0.09	-0.00	98.15
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.87	0.89	-0.01	70.00
Occupation (44)	0.00	0.00	0.00	100.00
Occupation (62)	0.77	0.80	-0.03	41.47
Occupation (65)	0.02	0.03	-0.00	85.21
DHS Region (North Central)	0.08	0.11	-0.03	89.01
DHS Region (North Western)	0.05	0.06	-0.01	85.46
DHS Region (South Central)	0.00	0.00	0.00	100.00
DHS Region (South Eastern A)	0.53	0.47	0.07	83.94
DHS Region (South Eastern B)	0.34	0.37	-0.03	43.72

Table 26: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.36	0.35	0.02	94.43
Elevation	196.08	195.75	0.33	98.12
Pop. Density	15.72	15.97	-0.25	99.75
Dist. to Nearest Project	84839.42	84649.94	189.48	93.75
Urban/Rural (Rural)	1.00	1.00	-0.00	89.96
Urban/Rural (Urban)	0.00	0.00	0.00	89.96
Distance to Roads	1409.48	1409.89	-0.41	99.81
Slope	1.31	1.33	-0.01	92.92
Urban Travel Time	480.09	467.85	12.24	93.52
Pre-Avg. Precipitation	151.41	150.94	0.47	-114.21
Pre-Avg. Temperature	24.12	24.10	0.03	92.84
Pre-Avg. NTL	0.00	0.00	0.00	100.00
Pre-Trend NTL	0.00	-0.00	0.00	99.91
Edu. Level (Primary)	0.40	0.40	0.00	100.00
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.04	0.06	-0.02	55.05
Household	5.69	5.54	0.15	-400.77
Gender	0.75	0.73	0.01	73.46
Age	44.72	46.56	-1.84	33.64
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	-0.00	97.48
Wealth Factor	-83890.85	-77026.97	-6863.88	82.16
Marital Status (Married)	0.92	0.93	-0.01	97.59
Marital Status (Living Together)	0.06	0.06	-0.00	98.83
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.87	0.90	-0.03	53.11
Occupation (44)	0.00	0.00	0.00	100.00
Occupation (62)	0.79	0.85	-0.06	41.39
Occupation (65)	0.03	0.02	0.01	60.93
DHS Region (North Central)	0.06	0.06	0.00	99.69
DHS Region (North Western)	0.12	0.13	-0.01	58.95
DHS Region (South Central)	0.11	0.15	-0.03	57.90
DHS Region (South Eastern A)	0.48	0.41	0.07	77.70
DHS Region (South Eastern B)	0.23	0.26	-0.03	-45.66

Table 27: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.40	0.38	0.03	92.64
Elevation	186.99	186.35	0.64	97.53
Pop. Density	20.49	21.80	-1.31	98.72
Dist. to Nearest Project	92551.44	91790.73	760.72	73.69
Urban/Rural (Rural)	0.99	1.00	-0.00	93.82
Urban/Rural (Urban)	0.01	0.00	0.00	93.82
Distance to Roads	1511.36	1342.28	169.07	46.85
Slope	1.31	1.34	-0.03	89.65
Urban Travel Time	433.11	415.26	17.85	89.79
Pre-Avg. Precipitation	152.99	153.86	-0.87	41.08
Pre-Avg. Temperature	23.97	23.98	-0.01	96.02
Pre-Avg. NTL	0.02	0.02	-0.01	98.70
Pre-Trend NTL	0.00	0.00	-0.00	97.98
Edu. Level (Primary)	0.39	0.36	0.03	83.76
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.09	-0.02	26.90
Household	5.75	5.87	-0.13	-19.88
Gender	0.72	0.75	-0.03	-27.85
Age	44.71	44.35	0.36	87.85
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.01	0.01	-0.00	98.40
Wealth Factor	-71270.12	-71883.29	613.17	97.65
Marital Status (Married)	0.89	0.89	-0.00	99.52
Marital Status (Living Together)	0.09	0.09	-0.00	97.59
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.87	0.90	-0.02	63.26
Occupation (44)	0.04	0.05	-0.00	95.54
Occupation (62)	0.81	0.81	0.00	97.38
Occupation (65)	0.01	0.02	-0.01	37.68
DHS Region (North Central)	0.11	0.13	-0.02	89.50
DHS Region (North Western)	0.12	0.11	0.01	80.28
DHS Region (South Central)	0.13	0.16	-0.02	72.72
DHS Region (South Eastern A)	0.33	0.33	0.00	99.06
DHS Region (South Eastern B)	0.31	0.27	0.03	55.29

Table 28: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.52	0.46	0.05	89.97
Elevation	197.77	191.43	6.34	32.17
Pop. Density	31.54	32.57	-1.03	99.11
Dist. to Nearest Project	91998.79	90750.71	1248.07	73.82
Urban/Rural (Rural)	0.99	0.98	0.00	88.68
Urban/Rural (Urban)	0.01	0.02	-0.00	88.68
Distance to Roads	1346.60	1372.15	-25.55	79.67
Slope	1.19	1.19	-0.01	96.66
Urban Travel Time	384.94	380.18	4.76	96.93
Pre-Avg. Precipitation	152.21	153.08	-0.86	-44.84
Pre-Avg. Temperature	23.83	23.90	-0.07	71.62
Pre-Avg. NTL	0.41	0.14	0.28	0.29
Pre-Trend NTL	0.03	0.01	0.03	-282.14
Edu. Level (Primary)	0.30	0.28	0.02	81.46
Edu. Level (Secondary)	0.00	0.00	-0.00	95.82
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.08	0.09	-0.01	81.30
Household	5.55	5.70	-0.14	-119.03
Gender	0.70	0.71	-0.02	60.70
Age	43.62	41.81	1.82	-1.38
Literacy (Low)	0.00	0.00	-0.00	97.21
Literacy (High)	0.01	0.02	-0.00	94.23
Wealth Factor	-56681.01	-63713.33	7032.32	67.86
Marital Status (Married)	0.81	0.82	-0.01	96.23
Marital Status (Living Together)	0.13	0.14	-0.00	98.51
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	-0.00	85.51
Working	0.82	0.83	-0.01	89.34
Occupation (44)	0.10	0.13	-0.02	78.39
Occupation (62)	0.73	0.70	0.02	82.59
Occupation (65)	0.00	0.00	-0.00	88.79
DHS Region (North Central)	0.17	0.16	0.02	93.76
DHS Region (North Western)	0.15	0.13	0.02	89.61
DHS Region (South Central)	0.16	0.14	0.03	72.67
DHS Region (South Eastern A)	0.28	0.35	-0.07	66.08
DHS Region (South Eastern B)	0.24	0.23	0.01	92.93

Table 29: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.48	0.43	0.05	90.84
Elevation	197.43	185.57	11.86	68.43
Pop. Density	41.09	45.23	-4.14	96.63
Dist. to Nearest Project	94050.72	86523.64	7527.09	-110.18
Urban/Rural (Rural)	0.98	0.98	0.00	91.21
Urban/Rural (Urban)	0.02	0.02	-0.00	91.21
Distance to Roads	1075.73	1295.92	-220.20	-472.54
Slope	1.22	1.17	0.05	31.06
Urban Travel Time	342.40	328.16	14.24	90.04
Pre-Avg. Precipitation	152.45	152.36	0.09	97.92
Pre-Avg. Temperature	23.72	23.68	0.05	81.58
Pre-Avg. NTL	0.11	0.11	0.00	99.48
Pre-Trend NTL	0.01	0.01	-0.00	94.02
Edu. Level (Primary)	0.29	0.27	0.02	81.29
Edu. Level (Secondary)	0.00	0.00	-0.00	95.65
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.13	-0.06	39.38
Household	5.89	5.67	0.23	-25.69
Gender	0.70	0.71	-0.01	75.28
Age	41.86	42.02	-0.16	91.54
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	-0.00	95.83
Wealth Factor	-51082.60	-52241.06	1158.46	94.34
Marital Status (Married)	0.74	0.76	-0.02	93.41
Marital Status (Living Together)	0.20	0.17	0.04	84.55
Marital Status (Not Living Together)	0.00	0.00	0.00	78.56
Residence	0.00	0.00	-0.00	88.69
Working	0.77	0.77	0.00	100.00
Occupation (44)	0.17	0.23	-0.06	32.96
Occupation (62)	0.66	0.58	0.08	32.39
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.25	0.20	0.05	84.35
DHS Region (North Western)	0.16	0.20	-0.05	73.88
DHS Region (South Central)	0.13	0.15	-0.02	77.19
DHS Region (South Eastern A)	0.20	0.22	-0.01	94.99
DHS Region (South Eastern B)	0.26	0.22	0.04	69.25

Table 30: Summary of Post-Matching Covariate Levels and Improvement in Balance for Forestry Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.52	0.47	0.05	89.52
Elevation	194.76	188.99	5.77	87.31
Pop. Density	43.54	50.46	-6.92	95.10
Dist. to Nearest Project	94202.82	92577.90	1624.91	65.12
Urban/Rural (Rural)	0.99	0.98	0.00	88.57
Urban/Rural (Urban)	0.01	0.02	-0.00	88.57
Distance to Roads	993.66	1070.79	-77.13	63.19
Slope	1.19	1.16	0.03	-91.02
Urban Travel Time	305.22	295.66	9.56	92.36
Pre-Avg. Precipitation	151.43	152.79	-1.37	53.45
Pre-Avg. Temperature	23.72	23.70	0.03	81.99
Pre-Avg. NTL	0.10	0.15	-0.06	89.45
Pre-Trend NTL	0.01	0.01	-0.00	84.28
Edu. Level (Primary)	0.25	0.22	0.04	77.32
Edu. Level (Secondary)	0.00	0.02	-0.02	63.58
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.09	0.11	-0.02	78.89
Household	5.70	5.57	0.13	57.92
Gender	0.71	0.71	0.00	96.85
Age	43.15	42.08	1.07	47.17
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.02	-0.02	56.26
Wealth Factor	-48483.15	-44918.68	-3564.48	83.17
Marital Status (Married)	0.70	0.66	0.04	77.82
Marital Status (Living Together)	0.24	0.27	-0.03	79.49
Marital Status (Not Living Together)	0.00	0.00	0.00	89.45
Residence	0.00	0.00	0.00	100.00
Working	0.80	0.79	0.01	-3.04
Occupation (44)	0.16	0.20	-0.04	18.75
Occupation (62)	0.71	0.63	0.08	-119.22
Occupation (65)	0.00	0.00	0.00	95.52
DHS Region (North Central)	0.32	0.29	0.02	92.82
DHS Region (North Western)	0.20	0.20	0.00	99.49
DHS Region (South Central)	0.12	0.16	-0.04	58.89
DHS Region (South Eastern A)	0.14	0.13	0.01	94.53
DHS Region (South Eastern B)	0.22	0.22	0.01	94.88

Table 31: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.31	0.30	0.01	98.48
Elevation	95.56	97.77	-2.20	97.70
Pop. Density	247.28	281.51	-34.23	78.22
Dist. to Nearest Project	50782.50	52401.06	-1618.56	95.59
Urban/Rural (Rural)	0.95	0.95	0.00	83.46
Urban/Rural (Urban)	0.05	0.05	-0.00	83.46
Distance to Roads	589.85	586.92	2.92	99.59
Slope	1.04	1.05	-0.01	-238.89
Urban Travel Time	115.74	123.90	-8.16	96.76
Pre-Avg. Precipitation	165.27	165.29	-0.02	99.87
Pre-Avg. Temperature	23.60	23.57	0.04	86.12
Pre-Avg. NTL	1.23	1.31	-0.07	91.82
Pre-Trend NTL	0.08	0.08	0.00	96.82
Edu. Level (Primary)	0.17	0.17	-0.01	94.56
Edu. Level (Secondary)	0.05	0.07	-0.02	-56.88
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.26	0.26	0.00	100.00
Household	5.13	5.34	-0.22	73.70
Gender	0.68	0.66	0.02	20.16
Age	43.56	43.90	-0.35	31.39
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.07	-0.03	-6.13
Wealth Factor	-28259.14	-19640.00	-8619.14	82.84
Marital Status (Married)	0.65	0.65	0.00	100.00
Marital Status (Living Together)	0.29	0.25	0.04	83.10
Marital Status (Not Living Together)	0.00	0.00	0.00	80.63
Residence	0.01	0.01	0.01	67.07
Working	0.70	0.66	0.04	-30.57
Occupation (44)	0.21	0.16	0.05	77.59
Occupation (62)	0.48	0.48	0.00	99.17
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.11	0.10	0.00	98.63
DHS Region (North Western)	0.40	0.44	-0.04	88.62
DHS Region (South Central)	0.45	0.41	0.04	83.51
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 32: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.45	0.42	0.03	96.10
Elevation	101.08	98.02	3.06	97.07
Pop. Density	115.37	109.05	6.32	97.26
Dist. to Nearest Project	48702.73	48174.17	528.56	98.75
Urban/Rural (Rural)	0.99	0.99	-0.00	96.86
Urban/Rural (Urban)	0.01	0.01	0.00	96.86
Distance to Roads	721.11	725.63	-4.52	99.31
Slope	1.08	1.01	0.07	-145.25
Urban Travel Time	126.87	119.09	7.78	97.08
Pre-Avg. Precipitation	165.43	166.20	-0.77	95.79
Pre-Avg. Temperature	23.61	23.61	-0.00	98.62
Pre-Avg. NTL	0.54	0.53	0.01	99.22
Pre-Trend NTL	0.03	0.03	0.00	96.93
Edu. Level (Primary)	0.23	0.21	0.03	73.07
Edu. Level (Secondary)	0.01	0.01	-0.00	93.95
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.21	0.20	0.01	81.59
Household	5.38	5.08	0.30	10.97
Gender	0.66	0.67	-0.00	96.09
Age	41.81	41.43	0.38	71.27
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.01	0.01	-0.00	94.82
Wealth Factor	-25280.76	-27477.31	2196.55	96.01
Marital Status (Married)	0.64	0.64	0.00	99.30
Marital Status (Living Together)	0.33	0.33	0.00	97.73
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	77.01
Working	0.72	0.70	0.02	80.03
Occupation (44)	0.29	0.27	0.02	88.43
Occupation (62)	0.44	0.46	-0.02	93.56
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.11	0.08	0.03	87.18
DHS Region (North Western)	0.40	0.40	-0.00	98.93
DHS Region (South Central)	0.48	0.50	-0.02	91.78
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 33: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.49	0.45	0.04	93.63
Elevation	99.43	103.09	-3.66	96.56
Pop. Density	292.62	69.97	222.65	46.49
Dist. to Nearest Project	48249.29	44068.31	4180.98	90.44
Urban/Rural (Rural)	0.93	1.00	-0.07	-12.09
Urban/Rural (Urban)	0.07	0.00	0.07	-12.09
Distance to Roads	985.66	1024.80	-39.14	91.67
Slope	1.03	1.11	-0.08	-107.84
Urban Travel Time	123.38	118.98	4.40	98.38
Pre-Avg. Precipitation	165.03	166.50	-1.47	91.77
Pre-Avg. Temperature	23.62	23.67	-0.05	79.61
Pre-Avg. NTL	1.22	0.34	0.87	59.16
Pre-Trend NTL	0.07	0.02	0.05	61.01
Edu. Level (Primary)	0.21	0.24	-0.03	74.74
Edu. Level (Secondary)	0.04	0.00	0.04	-8.08
Edu. Level (Higher)	0.01	0.00	0.01	-110.33
Religion	0.24	0.16	0.08	37.93
Household	5.20	4.86	0.34	13.01
Gender	0.66	0.68	-0.02	43.94
Age	42.90	41.28	1.62	-976.50
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.00	0.04	12.37
Wealth Factor	-25874.27	-32361.26	6486.99	87.20
Marital Status (Married)	0.58	0.57	0.01	96.18
Marital Status (Living Together)	0.30	0.38	-0.08	52.60
Marital Status (Not Living Together)	0.03	0.00	0.03	-114.96
Residence	0.04	0.00	0.04	-110.33
Working	0.69	0.74	-0.05	60.40
Occupation (44)	0.26	0.28	-0.01	91.25
Occupation (62)	0.42	0.44	-0.01	95.21
Occupation (65)	0.01	0.00	0.01	-351.27
DHS Region (North Central)	0.07	0.07	0.01	97.52
DHS Region (North Western)	0.43	0.40	0.03	89.53
DHS Region (South Central)	0.44	0.53	-0.10	67.96
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 34: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Mining Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.41	0.38	0.03	96.45
Elevation	76.65	92.70	-16.05	83.49
Pop. Density	310.33	309.72	0.60	99.68
Dist. to Nearest Project	31298.66	39087.94	-7789.28	83.10
Urban/Rural (Rural)	0.94	0.93	0.01	82.34
Urban/Rural (Urban)	0.06	0.07	-0.01	82.34
Distance to Roads	563.16	616.11	-52.96	92.25
Slope	0.95	1.12	-0.17	-197.73
Urban Travel Time	112.67	108.62	4.06	98.39
Pre-Avg. Precipitation	169.69	169.64	0.06	99.72
Pre-Avg. Temperature	23.55	23.55	-0.01	98.05
Pre-Avg. NTL	1.47	1.31	0.16	85.46
Pre-Trend NTL	0.10	0.08	0.01	83.33
Edu. Level (Primary)	0.29	0.21	0.08	7.57
Edu. Level (Secondary)	0.06	0.06	0.00	82.47
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.05	0.00	93.74
Household	5.63	5.14	0.49	17.99
Gender	0.71	0.68	0.03	-20.76
Age	41.34	40.84	0.50	-18.08
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.07	0.06	0.01	63.74
Wealth Factor	-6739.01	-13084.76	6345.75	88.67
Marital Status (Married)	0.60	0.59	0.02	96.06
Marital Status (Living Together)	0.34	0.36	-0.02	93.27
Marital Status (Not Living Together)	0.00	0.00	0.00	88.35
Residence	0.01	0.01	0.01	80.18
Working	0.58	0.59	-0.01	82.97
Occupation (44)	0.26	0.14	0.12	31.28
Occupation (62)	0.32	0.46	-0.13	46.50
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.00	0.01	-0.01	93.40
DHS Region (North Western)	0.24	0.39	-0.15	31.73
DHS Region (South Central)	0.70	0.53	0.17	42.20
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 35: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Mining Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.38	0.36	0.02	97.11
Elevation	89.60	104.52	-14.92	85.88
Pop. Density	196.78	148.25	48.52	81.23
Dist. to Nearest Project	37521.26	43830.03	-6308.77	87.20
Urban/Rural (Rural)	0.97	0.98	-0.01	80.76
Urban/Rural (Urban)	0.03	0.02	0.01	80.76
Distance to Roads	873.05	837.93	35.12	94.42
Slope	1.15	1.25	-0.11	-1407.05
Urban Travel Time	111.59	114.77	-3.18	98.80
Pre-Avg. Precipitation	167.30	166.88	0.42	97.88
Pre-Avg. Temperature	23.59	23.63	-0.04	87.65
Pre-Avg. NTL	0.89	0.67	0.22	86.02
Pre-Trend NTL	0.05	0.04	0.02	86.87
Edu. Level (Primary)	0.24	0.24	0.00	100.00
Edu. Level (Secondary)	0.02	0.02	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.11	0.13	-0.02	75.10
Household	5.18	5.33	-0.15	-23.35
Gender	0.73	0.71	0.01	79.35
Age	41.59	41.65	-0.06	91.81
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.02	0.02	0.00	100.00
Wealth Factor	-18381.44	-25870.62	7489.18	87.35
Marital Status (Married)	0.65	0.68	-0.03	90.73
Marital Status (Living Together)	0.30	0.29	0.02	89.53
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.02	0.00	0.02	34.94
Working	0.68	0.69	-0.02	87.55
Occupation (44)	0.25	0.23	0.02	85.61
Occupation (62)	0.44	0.47	-0.02	92.34
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.04	0.08	-0.05	75.93
DHS Region (North Western)	0.30	0.35	-0.05	80.17
DHS Region (South Central)	0.62	0.55	0.08	76.68
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 36: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Mining Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.46	0.44	0.03	95.85
Elevation	100.49	105.43	-4.94	95.41
Pop. Density	146.40	78.34	68.06	85.05
Dist. to Nearest Project	42606.97	44218.83	-1611.85	96.78
Urban/Rural (Rural)	0.98	0.99	-0.02	77.94
Urban/Rural (Urban)	0.02	0.01	0.02	77.94
Distance to Roads	1294.30	1390.41	-96.11	77.65
Slope	1.22	1.18	0.03	-412.94
Urban Travel Time	121.35	116.94	4.40	98.37
Pre-Avg. Precipitation	166.15	166.16	-0.02	99.90
Pre-Avg. Temperature	23.61	23.62	-0.01	96.83
Pre-Avg. NTL	0.70	0.42	0.29	87.73
Pre-Trend NTL	0.04	0.02	0.02	86.22
Edu. Level (Primary)	0.21	0.18	0.04	63.58
Edu. Level (Secondary)	0.01	0.01	0.00	95.24
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.18	0.18	0.00	90.52
Household	5.10	4.82	0.28	-36.33
Gender	0.68	0.69	-0.00	90.82
Age	43.30	42.66	0.64	-31.30
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.02	0.01	0.02	68.97
Wealth Factor	-21279.68	-36817.85	15538.17	71.22
Marital Status (Married)	0.60	0.57	0.03	88.92
Marital Status (Living Together)	0.34	0.37	-0.02	87.30
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.01	0.00	0.01	35.50
Working	0.70	0.76	-0.06	59.01
Occupation (44)	0.25	0.27	-0.02	83.88
Occupation (62)	0.46	0.50	-0.03	88.57
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.05	0.03	0.02	92.48
DHS Region (North Western)	0.40	0.46	-0.06	76.08
DHS Region (South Central)	0.53	0.50	0.03	92.14
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 37: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Non-CSR Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.40	0.38	0.02	97.56
Elevation	79.44	88.59	-9.15	91.52
Pop. Density	428.24	432.61	-4.36	98.25
Dist. to Nearest Project	42628.99	45588.49	-2959.50	92.32
Urban/Rural (Rural)	0.91	0.90	0.00	90.47
Urban/Rural (Urban)	0.09	0.10	-0.00	90.47
Distance to Roads	646.68	618.32	28.36	95.90
Slope	1.13	1.21	-0.08	-2957.95
Urban Travel Time	110.31	113.15	-2.84	98.90
Pre-Avg. Precipitation	169.47	168.50	0.97	94.94
Pre-Avg. Temperature	23.55	23.53	0.02	92.23
Pre-Avg. NTL	2.06	1.97	0.09	94.04
Pre-Trend NTL	0.12	0.11	0.01	89.48
Edu. Level (Primary)	0.13	0.13	-0.00	96.31
Edu. Level (Secondary)	0.09	0.09	0.00	83.91
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.13	0.10	0.02	34.92
Household	5.14	4.98	0.17	80.15
Gender	0.62	0.60	0.02	58.63
Age	42.94	40.77	2.17	-169.35
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.09	0.09	0.00	100.00
Wealth Factor	1727.70	2265.35	-537.66	99.12
Marital Status (Married)	0.66	0.66	0.00	100.00
Marital Status (Living Together)	0.24	0.25	-0.01	93.76
Marital Status (Not Living Together)	0.01	0.00	0.01	70.83
Residence	0.02	0.01	0.00	87.59
Working	0.69	0.74	-0.05	-20.18
Occupation (44)	0.19	0.29	-0.09	27.59
Occupation (62)	0.50	0.46	0.04	78.93
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.00	0.00	0.00	100.00
DHS Region (North Western)	0.42	0.47	-0.05	84.24
DHS Region (South Central)	0.49	0.43	0.06	81.61
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 38: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Non-CSR Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.37	0.34	0.03	96.50
Elevation	84.55	94.45	-9.90	91.33
Pop. Density	254.26	290.70	-36.43	88.54
Dist. to Nearest Project	42808.91	46231.53	-3422.61	91.98
Urban/Rural (Rural)	0.95	0.96	-0.01	89.66
Urban/Rural (Urban)	0.05	0.04	0.01	89.66
Distance to Roads	1096.83	1157.07	-60.24	90.12
Slope	1.44	1.47	-0.03	39.81
Urban Travel Time	100.63	110.86	-10.24	96.28
Pre-Avg. Precipitation	166.98	166.06	0.92	95.17
Pre-Avg. Temperature	23.60	23.65	-0.05	81.38
Pre-Avg. NTL	1.21	1.48	-0.27	86.53
Pre-Trend NTL	0.06	0.07	-0.01	94.01
Edu. Level (Primary)	0.19	0.13	0.06	45.08
Edu. Level (Secondary)	0.03	0.06	-0.02	47.54
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.24	0.23	0.01	85.25
Household	5.22	5.02	0.20	40.19
Gender	0.74	0.69	0.05	44.38
Age	40.88	40.63	0.25	88.00
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.06	-0.02	55.06
Wealth Factor	-8044.34	722.95	-8767.29	85.99
Marital Status (Married)	0.65	0.65	0.00	100.00
Marital Status (Living Together)	0.31	0.28	0.03	-32.52
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.03	0.00	0.03	-11.71
Working	0.65	0.65	0.01	90.51
Occupation (44)	0.25	0.21	0.04	70.47
Occupation (62)	0.42	0.43	-0.02	93.26
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.00	0.00	0.00	100.00
DHS Region (North Western)	0.38	0.43	-0.05	84.79
DHS Region (South Central)	0.57	0.54	0.04	88.15
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 39: Summary of Post-Matching Covariate Levels and Improvement in Balance for Chinese Non-CSR Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.46	0.43	0.03	96.23
Elevation	104.22	110.22	-6.00	94.77
Pop. Density	171.52	85.80	85.73	84.08
Dist. to Nearest Project	51459.40	52566.32	-1106.91	97.49
Urban/Rural (Rural)	0.97	0.99	-0.02	75.85
Urban/Rural (Urban)	0.03	0.01	0.02	75.85
Distance to Roads	1512.96	1749.09	-236.13	37.27
Slope	1.34	1.40	-0.06	8.40
Urban Travel Time	120.50	120.46	0.04	99.99
Pre-Avg. Precipitation	165.17	164.70	0.47	97.44
Pre-Avg. Temperature	23.63	23.66	-0.03	88.62
Pre-Avg. NTL	0.73	0.31	0.43	84.87
Pre-Trend NTL	0.04	0.02	0.02	89.09
Edu. Level (Primary)	0.15	0.13	0.01	90.95
Edu. Level (Secondary)	0.03	0.01	0.02	70.36
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.26	0.28	-0.02	63.08
Household	4.72	4.73	-0.01	98.08
Gender	0.70	0.69	0.01	87.61
Age	41.61	43.06	-1.46	-183.39
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.01	0.02	71.66
Wealth Factor	-26040.35	-23840.95	-2199.41	96.06
Marital Status (Married)	0.58	0.57	0.01	95.82
Marital Status (Living Together)	0.33	0.37	-0.04	28.47
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.01	0.00	0.01	57.86
Working	0.81	0.84	-0.04	69.45
Occupation (44)	0.25	0.25	-0.01	92.50
Occupation (62)	0.55	0.59	-0.04	84.13
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.00	0.00	0.00	100.00
DHS Region (North Western)	0.55	0.55	0.00	100.00
DHS Region (South Central)	0.42	0.45	-0.02	93.73
DHS Region (South Eastern A)	0.00	0.00	0.00	100.00
DHS Region (South Eastern B)	0.00	0.00	0.00	100.00

Table 40: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.26	0.26	0.01	95.16
Elevation	171.81	175.03	-3.22	78.26
Pop. Density	36.30	36.45	-0.15	99.80
Dist. to Nearest Project	80642.30	84800.86	-4158.56	17.21
Urban/Rural (Rural)	1.00	1.00	0.00	93.90
Urban/Rural (Urban)	0.00	0.00	-0.00	93.90
Distance to Roads	1170.87	1071.89	98.98	-3092.07
Slope	1.07	1.10	-0.03	55.61
Urban Travel Time	333.51	330.11	3.39	62.75
Pre-Avg. Precipitation	155.40	155.79	-0.39	92.00
Pre-Avg. Temperature	23.86	23.85	0.01	75.79
Pre-Avg. NTL	0.00	0.00	0.00	100.00
Pre-Trend NTL	0.00	0.00	0.00	99.74
Edu. Level (Primary)	0.29	0.27	0.02	-300.49
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.05	-0.00	88.96
Household	5.71	5.89	-0.18	-12324.48
Gender	0.74	0.73	0.01	80.92
Age	42.55	41.92	0.63	-422.63
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-52192.71	-50871.78	-1320.92	16.28
Marital Status (Married)	0.73	0.76	-0.03	-24.20
Marital Status (Living Together)	0.27	0.24	0.03	53.37
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.90	0.93	-0.03	76.32
Occupation (44)	0.16	0.18	-0.02	78.56
Occupation (62)	0.65	0.65	-0.00	98.74
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.20	0.19	0.01	88.57
DHS Region (North Western)	0.12	0.13	-0.01	83.28
DHS Region (South Central)	0.18	0.18	-0.01	32.56
DHS Region (South Eastern A)	0.33	0.32	0.02	88.49
DHS Region (South Eastern B)	0.17	0.18	-0.01	71.82

Table 41: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.27	0.27	0.00	97.72
Elevation	174.76	182.24	-7.48	50.34
Pop. Density	52.68	56.94	-4.26	91.57
Dist. to Nearest Project	78441.02	80818.06	-2377.04	71.55
Urban/Rural (Rural)	0.99	0.99	0.00	93.91
Urban/Rural (Urban)	0.01	0.01	-0.00	93.91
Distance to Roads	1073.16	1126.18	-53.03	69.06
Slope	1.18	1.17	0.01	71.41
Urban Travel Time	300.65	305.52	-4.87	90.32
Pre-Avg. Precipitation	156.59	156.02	0.57	90.74
Pre-Avg. Temperature	23.83	23.85	-0.02	-615.25
Pre-Avg. NTL	0.14	0.16	-0.02	76.62
Pre-Trend NTL	0.01	0.01	0.00	95.24
Edu. Level (Primary)	0.25	0.27	-0.02	63.03
Edu. Level (Secondary)	0.04	0.03	0.01	51.92
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.08	-0.01	74.48
Household	5.63	5.62	0.01	85.31
Gender	0.71	0.70	0.00	40.46
Age	42.69	42.68	0.01	89.78
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.03	0.01	-8.57
Wealth Factor	-39192.30	-40054.14	861.84	93.24
Marital Status (Married)	0.73	0.74	-0.01	75.45
Marital Status (Living Together)	0.23	0.22	0.01	-62.79
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	-0.00	70.08
Working	0.87	0.89	-0.02	78.69
Occupation (44)	0.18	0.16	0.02	70.60
Occupation (62)	0.61	0.64	-0.02	79.63
Occupation (65)	0.00	0.00	0.00	37.78
DHS Region (North Central)	0.20	0.21	-0.01	93.15
DHS Region (North Western)	0.13	0.14	-0.01	86.64
DHS Region (South Central)	0.24	0.23	0.01	91.39
DHS Region (South Eastern A)	0.29	0.28	0.00	95.90
DHS Region (South Eastern B)	0.14	0.14	0.00	100.00

Table 42: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.37	0.36	0.01	93.21
Elevation	171.61	173.80	-2.20	89.58
Pop. Density	116.91	82.86	34.04	69.76
Dist. to Nearest Project	78100.00	81569.99	-3469.99	64.06
Urban/Rural (Rural)	0.98	0.98	-0.00	-200.87
Urban/Rural (Urban)	0.02	0.02	0.00	-200.87
Distance to Roads	1086.55	1136.71	-50.17	10.95
Slope	1.16	1.16	0.00	96.13
Urban Travel Time	302.35	313.48	-11.13	80.69
Pre-Avg. Precipitation	154.69	155.29	-0.60	87.63
Pre-Avg. Temperature	23.77	23.79	-0.02	75.93
Pre-Avg. NTL	0.38	0.31	0.07	51.38
Pre-Trend NTL	0.02	0.02	0.01	27.00
Edu. Level (Primary)	0.27	0.28	-0.01	79.42
Edu. Level (Secondary)	0.05	0.04	0.01	81.55
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.14	0.11	0.03	72.13
Household	5.53	5.64	-0.11	58.45
Gender	0.71	0.70	0.01	35.01
Age	42.92	42.52	0.41	37.66
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.05	0.04	0.01	75.61
Wealth Factor	-39412.68	-46601.41	7188.73	45.57
Marital Status (Married)	0.77	0.76	0.01	90.67
Marital Status (Living Together)	0.19	0.21	-0.02	42.38
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	90.39
Working	0.87	0.90	-0.03	68.75
Occupation (44)	0.22	0.20	0.02	88.42
Occupation (62)	0.60	0.63	-0.03	73.61
Occupation (65)	0.00	0.00	0.00	86.27
DHS Region (North Central)	0.16	0.16	0.00	98.00
DHS Region (North Western)	0.18	0.15	0.04	10.74
DHS Region (South Central)	0.23	0.22	0.00	95.61
DHS Region (South Eastern A)	0.23	0.27	-0.04	20.38
DHS Region (South Eastern B)	0.18	0.19	-0.01	62.21

Table 43: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.44	0.42	0.02	89.55
Elevation	187.98	167.72	20.26	-289.13
Pop. Density	54.92	41.91	13.01	91.91
Dist. to Nearest Project	85203.11	82943.08	2260.02	15.51
Urban/Rural (Rural)	0.99	0.99	-0.00	93.29
Urban/Rural (Urban)	0.01	0.01	0.00	93.29
Distance to Roads	1297.09	1328.99	-31.89	56.64
Slope	1.20	1.16	0.04	33.02
Urban Travel Time	339.87	354.58	-14.71	-62.70
Pre-Avg. Precipitation	153.35	155.37	-2.02	42.21
Pre-Avg. Temperature	23.83	23.82	0.01	-341.76
Pre-Avg. NTL	0.14	0.09	0.05	87.60
Pre-Trend NTL	0.01	0.00	0.00	84.62
Edu. Level (Primary)	0.25	0.25	0.00	95.26
Edu. Level (Secondary)	0.03	0.02	0.01	78.14
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.13	0.08	0.05	54.91
Household	5.50	5.58	-0.08	26.29
Gender	0.69	0.70	-0.01	70.49
Age	42.75	42.75	0.01	97.21
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.02	0.01	72.78
Wealth Factor	-51217.56	-53468.33	2250.77	64.03
Marital Status (Married)	0.79	0.81	-0.02	76.23
Marital Status (Living Together)	0.19	0.18	0.01	85.05
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.86	0.88	-0.02	73.15
Occupation (44)	0.17	0.15	0.01	79.92
Occupation (62)	0.66	0.69	-0.04	62.16
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.20	0.16	0.04	66.45
DHS Region (North Western)	0.16	0.13	0.03	-1263.16
DHS Region (South Central)	0.19	0.22	-0.03	-20.74
DHS Region (South Eastern A)	0.22	0.26	-0.04	-32.19
DHS Region (South Eastern B)	0.23	0.23	-0.00	98.36

Table 44: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.51	0.47	0.04	81.76
Elevation	189.51	163.66	25.85	-109.95
Pop. Density	49.53	38.30	11.23	90.96
Dist. to Nearest Project	83534.72	85283.75	-1749.03	85.24
Urban/Rural (Rural)	0.99	0.99	0.00	72.22
Urban/Rural (Urban)	0.01	0.01	-0.00	72.22
Distance to Roads	1225.51	1288.95	-63.44	-0.24
Slope	1.22	1.15	0.07	37.92
Urban Travel Time	335.70	357.32	-21.62	54.31
Pre-Avg. Precipitation	152.96	154.58	-1.62	63.80
Pre-Avg. Temperature	23.83	23.80	0.03	-338.91
Pre-Avg. NTL	0.28	0.20	0.08	83.05
Pre-Trend NTL	0.02	0.01	0.01	81.29
Edu. Level (Primary)	0.28	0.26	0.03	46.48
Edu. Level (Secondary)	0.02	0.02	-0.00	98.09
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.10	0.05	0.05	52.39
Household	5.55	5.56	-0.01	80.40
Gender	0.69	0.70	-0.01	74.76
Age	42.39	42.49	-0.10	93.96
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.02	0.02	-0.00	92.69
Wealth Factor	-53297.52	-54953.00	1655.48	73.30
Marital Status (Married)	0.79	0.79	-0.00	96.30
Marital Status (Living Together)	0.19	0.20	-0.01	87.88
Marital Status (Not Living Together)	0.00	0.00	-0.00	93.60
Residence	0.00	0.00	0.00	95.61
Working	0.82	0.82	-0.00	93.71
Occupation (44)	0.14	0.11	0.03	67.01
Occupation (62)	0.68	0.71	-0.03	75.51
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.20	0.17	0.03	84.31
DHS Region (North Western)	0.18	0.16	0.02	74.66
DHS Region (South Central)	0.19	0.20	-0.00	94.94
DHS Region (South Eastern A)	0.23	0.24	-0.01	66.57
DHS Region (South Eastern B)	0.20	0.23	-0.03	-24.43

Table 45: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.60	0.55	0.05	79.31
Elevation	184.18	168.47	15.72	-335.37
Pop. Density	50.23	42.61	7.62	91.40
Dist. to Nearest Project	81097.37	86028.49	-4931.12	28.23
Urban/Rural (Rural)	0.99	0.99	0.00	8.77
Urban/Rural (Urban)	0.01	0.01	-0.00	8.77
Distance to Roads	1238.19	981.28	256.91	55.01
Slope	1.18	1.09	0.09	52.29
Urban Travel Time	354.25	347.08	7.17	-320.52
Pre-Avg. Precipitation	152.52	153.35	-0.83	82.66
Pre-Avg. Temperature	23.87	23.82	0.05	12.11
Pre-Avg. NTL	0.27	0.18	0.09	79.07
Pre-Trend NTL	0.02	0.01	0.01	77.77
Edu. Level (Primary)	0.30	0.32	-0.03	69.82
Edu. Level (Secondary)	0.03	0.03	0.00	92.79
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.03	0.04	60.63
Household	5.68	5.74	-0.05	79.87
Gender	0.71	0.72	-0.01	65.39
Age	43.24	42.38	0.86	-73.05
Literacy (Low)	0.02	0.03	-0.01	-67.39
Literacy (High)	0.03	0.03	0.00	100.00
Wealth Factor	-52321.57	-56901.02	4579.45	-34.81
Marital Status (Married)	0.75	0.77	-0.02	77.47
Marital Status (Living Together)	0.21	0.19	0.02	74.90
Marital Status (Not Living Together)	0.00	0.00	0.00	78.33
Residence	0.00	0.00	0.00	100.00
Working	0.82	0.81	0.01	69.26
Occupation (44)	0.11	0.08	0.03	67.90
Occupation (62)	0.72	0.73	-0.02	84.44
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.24	0.23	0.01	96.87
DHS Region (North Western)	0.16	0.11	0.05	66.02
DHS Region (South Central)	0.17	0.18	-0.01	89.76
DHS Region (South Eastern A)	0.22	0.22	0.00	97.67
DHS Region (South Eastern B)	0.21	0.27	-0.06	37.07

Table 46: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.22	0.22	0.00	99.56
Elevation	170.22	172.09	-1.87	88.77
Pop. Density	39.37	39.89	-0.52	99.21
Dist. to Nearest Project	83958.10	88577.81	-4619.71	-203.17
Urban/Rural (Rural)	1.00	1.00	0.00	97.63
Urban/Rural (Urban)	0.00	0.00	-0.00	97.63
Distance to Roads	1101.05	1072.70	28.36	72.51
Slope	1.03	1.03	0.00	98.84
Urban Travel Time	304.00	300.93	3.08	93.02
Pre-Avg. Precipitation	155.29	154.75	0.54	87.51
Pre-Avg. Temperature	23.77	23.75	0.02	62.52
Pre-Avg. NTL	0.00	0.00	0.00	100.00
Pre-Trend NTL	0.00	0.00	-0.00	98.66
Edu. Level (Primary)	0.28	0.33	-0.05	-606.60
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.05	-0.00	90.86
Household	5.77	5.67	0.10	-11.41
Gender	0.74	0.73	0.01	86.59
Age	42.18	41.50	0.68	25.01
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-45955.81	-46301.39	345.58	94.54
Marital Status (Married)	0.69	0.67	0.01	35.66
Marital Status (Living Together)	0.31	0.33	-0.01	85.16
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.89	0.90	-0.02	86.38
Occupation (44)	0.18	0.15	0.03	66.72
Occupation (62)	0.71	0.74	-0.04	-1719.56
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.23	0.25	-0.02	64.58
DHS Region (North Western)	0.14	0.14	0.00	95.32
DHS Region (South Central)	0.19	0.19	-0.00	93.81
DHS Region (South Eastern A)	0.25	0.21	0.03	26.73
DHS Region (South Eastern B)	0.19	0.21	-0.02	-214.13

Table 47: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.24	0.24	0.00	96.82
Elevation	175.91	176.41	-0.50	96.57
Pop. Density	59.54	59.61	-0.08	99.90
Dist. to Nearest Project	80401.08	82582.83	-2181.75	68.51
Urban/Rural (Rural)	0.99	0.99	0.00	87.16
Urban/Rural (Urban)	0.01	0.01	-0.00	87.16
Distance to Roads	1012.96	1030.63	-17.67	93.02
Slope	1.14	1.15	-0.01	-137.50
Urban Travel Time	279.39	276.47	2.92	96.24
Pre-Avg. Precipitation	156.32	156.77	-0.45	92.39
Pre-Avg. Temperature	23.74	23.76	-0.01	85.53
Pre-Avg. NTL	0.17	0.20	-0.03	-300.38
Pre-Trend NTL	0.01	0.01	-0.00	72.94
Edu. Level (Primary)	0.26	0.23	0.02	52.70
Edu. Level (Secondary)	0.04	0.05	-0.01	53.81
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.06	-0.00	-24.98
Household	5.78	5.84	-0.06	55.80
Gender	0.70	0.72	-0.02	-13714.05
Age	41.78	41.48	0.30	61.06
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.05	-0.01	35.45
Wealth Factor	-35050.31	-35291.11	240.80	98.79
Marital Status (Married)	0.70	0.72	-0.02	-42.32
Marital Status (Living Together)	0.26	0.25	0.01	76.08
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	-0.00	63.91
Working	0.85	0.85	0.01	88.40
Occupation (44)	0.21	0.16	0.05	53.16
Occupation (62)	0.64	0.70	-0.06	27.28
Occupation (65)	0.00	0.00	0.00	63.42
DHS Region (North Central)	0.23	0.23	-0.00	97.20
DHS Region (North Western)	0.12	0.13	-0.01	84.84
DHS Region (South Central)	0.27	0.23	0.04	74.14
DHS Region (South Eastern A)	0.21	0.24	-0.03	-4100.60
DHS Region (South Eastern B)	0.17	0.16	0.00	93.35

Table 48: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.33	0.32	0.01	95.03
Elevation	172.65	161.29	11.36	38.23
Pop. Density	123.44	84.69	38.75	72.07
Dist. to Nearest Project	77672.74	78225.31	-552.56	94.33
Urban/Rural (Rural)	0.97	0.98	-0.01	-9.10
Urban/Rural (Urban)	0.03	0.02	0.01	-9.10
Distance to Roads	1152.20	1177.40	-25.21	68.40
Slope	1.18	1.19	-0.01	77.85
Urban Travel Time	285.82	292.06	-6.24	91.31
Pre-Avg. Precipitation	155.06	155.22	-0.16	96.47
Pre-Avg. Temperature	23.70	23.69	0.01	93.43
Pre-Avg. NTL	0.40	0.29	0.11	53.61
Pre-Trend NTL	0.02	0.02	0.01	41.59
Edu. Level (Primary)	0.27	0.29	-0.02	43.80
Edu. Level (Secondary)	0.07	0.04	0.03	50.72
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.12	0.12	0.01	93.31
Household	5.59	5.54	0.05	47.13
Gender	0.71	0.71	-0.00	81.37
Age	43.15	42.93	0.21	65.83
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.07	0.04	0.03	38.01
Wealth Factor	-35258.63	-46051.05	10792.42	44.93
Marital Status (Married)	0.73	0.74	-0.01	81.66
Marital Status (Living Together)	0.22	0.24	-0.02	-672733.28
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	65.93
Working	0.85	0.89	-0.04	37.26
Occupation (44)	0.21	0.20	0.02	86.14
Occupation (62)	0.64	0.70	-0.06	25.94
Occupation (65)	0.00	0.00	0.00	74.36
DHS Region (North Central)	0.17	0.14	0.04	70.11
DHS Region (North Western)	0.17	0.17	-0.00	-2.71
DHS Region (South Central)	0.25	0.24	0.01	89.18
DHS Region (South Eastern A)	0.18	0.23	-0.05	-64.94
DHS Region (South Eastern B)	0.20	0.21	-0.01	-132.45

Table 49: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.39	0.37	0.02	89.72
Elevation	183.19	150.94	32.25	-159.49
Pop. Density	50.91	42.09	8.82	95.43
Dist. to Nearest Project	86255.54	84766.92	1488.62	23.36
Urban/Rural (Rural)	0.99	0.99	-0.00	97.72
Urban/Rural (Urban)	0.01	0.01	0.00	97.72
Distance to Roads	1255.68	1175.21	80.48	-411.79
Slope	1.17	1.16	0.01	27.04
Urban Travel Time	307.78	302.35	5.43	89.15
Pre-Avg. Precipitation	153.93	155.90	-1.97	50.93
Pre-Avg. Temperature	23.76	23.72	0.05	43.73
Pre-Avg. NTL	0.13	0.13	-0.00	99.90
Pre-Trend NTL	0.01	0.01	0.00	97.59
Edu. Level (Primary)	0.27	0.24	0.03	37.18
Edu. Level (Secondary)	0.04	0.02	0.01	75.09
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.12	0.10	0.02	69.92
Household	5.62	5.65	-0.03	60.92
Gender	0.69	0.71	-0.02	38.85
Age	42.85	42.88	-0.03	77.53
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.02	0.01	70.57
Wealth Factor	-48476.85	-53255.15	4778.31	52.61
Marital Status (Married)	0.75	0.77	-0.01	64.18
Marital Status (Living Together)	0.22	0.21	0.01	35.51
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.85	0.88	-0.03	42.08
Occupation (44)	0.17	0.18	-0.01	87.43
Occupation (62)	0.69	0.70	-0.01	85.08
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.19	0.12	0.07	48.79
DHS Region (North Western)	0.16	0.17	-0.01	63.31
DHS Region (South Central)	0.21	0.23	-0.01	78.98
DHS Region (South Eastern A)	0.17	0.20	-0.03	8.31
DHS Region (South Eastern B)	0.27	0.29	-0.02	78.43

Table 50: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.46	0.44	0.02	89.90
Elevation	177.83	174.51	3.32	87.27
Pop. Density	46.73	38.65	8.08	94.54
Dist. to Nearest Project	83724.30	86610.04	-2885.74	77.38
Urban/Rural (Rural)	0.99	0.99	0.00	83.69
Urban/Rural (Urban)	0.01	0.01	-0.00	83.69
Distance to Roads	1200.56	1200.90	-0.34	99.60
Slope	1.18	1.17	0.00	88.68
Urban Travel Time	310.49	327.25	-16.76	75.66
Pre-Avg. Precipitation	154.15	154.05	0.10	98.02
Pre-Avg. Temperature	23.80	23.79	0.01	77.95
Pre-Avg. NTL	0.27	0.22	0.04	92.99
Pre-Trend NTL	0.02	0.01	0.00	91.12
Edu. Level (Primary)	0.28	0.27	0.01	62.77
Edu. Level (Secondary)	0.04	0.03	0.01	69.02
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.09	0.08	0.01	88.17
Household	5.60	5.52	0.08	51.20
Gender	0.70	0.70	-0.00	91.91
Age	42.04	42.10	-0.05	96.87
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.03	0.01	59.57
Wealth Factor	-51780.64	-53962.51	2181.86	79.34
Marital Status (Married)	0.77	0.76	0.01	87.01
Marital Status (Living Together)	0.21	0.22	-0.01	54.71
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	95.60
Working	0.79	0.80	-0.01	79.12
Occupation (44)	0.14	0.13	0.00	95.49
Occupation (62)	0.69	0.70	-0.01	90.60
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.19	0.18	0.01	95.16
DHS Region (North Western)	0.17	0.17	0.00	95.47
DHS Region (South Central)	0.22	0.19	0.02	79.07
DHS Region (South Eastern A)	0.21	0.23	-0.03	-135.36
DHS Region (South Eastern B)	0.22	0.23	-0.01	55.05

Table 51: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.55	0.50	0.04	76.86
Elevation	178.76	171.47	7.30	28.81
Pop. Density	79.30	40.19	39.11	64.25
Dist. to Nearest Project	82355.35	86100.12	-3744.77	40.90
Urban/Rural (Rural)	0.99	0.99	0.00	90.71
Urban/Rural (Urban)	0.01	0.01	-0.00	90.71
Distance to Roads	1227.77	1017.91	209.85	64.52
Slope	1.15	1.09	0.06	56.34
Urban Travel Time	342.92	343.45	-0.53	62.93
Pre-Avg. Precipitation	153.18	152.48	0.71	86.24
Pre-Avg. Temperature	23.86	23.79	0.07	1.45
Pre-Avg. NTL	0.34	0.17	0.17	68.97
Pre-Trend NTL	0.02	0.01	0.01	62.85
Edu. Level (Primary)	0.29	0.30	-0.01	87.60
Edu. Level (Secondary)	0.03	0.02	0.00	89.68
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.09	0.08	0.01	80.36
Household	5.71	5.72	-0.01	48.29
Gender	0.71	0.71	-0.00	80.16
Age	42.81	42.34	0.47	20.75
Literacy (Low)	0.02	0.02	-0.00	-392.21
Literacy (High)	0.03	0.03	-0.00	80.45
Wealth Factor	-50012.86	-54890.96	4878.09	56.56
Marital Status (Married)	0.77	0.78	-0.02	79.42
Marital Status (Living Together)	0.20	0.20	0.01	79.26
Marital Status (Not Living Together)	0.00	0.00	-0.00	88.84
Residence	0.00	0.00	0.00	74.94
Working	0.81	0.82	-0.00	88.93
Occupation (44)	0.12	0.11	0.01	82.83
Occupation (62)	0.70	0.72	-0.02	73.72
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.21	0.21	0.00	98.48
DHS Region (North Western)	0.16	0.16	-0.00	91.86
DHS Region (South Central)	0.19	0.16	0.03	74.43
DHS Region (South Eastern A)	0.24	0.24	0.00	100.00
DHS Region (South Eastern B)	0.20	0.23	-0.03	18.98

Table 52: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 5 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.22	0.22	0.00	99.56
Elevation	170.22	172.09	-1.87	88.77
Pop. Density	39.37	39.89	-0.52	99.21
Dist. to Nearest Project	83958.10	88577.81	-4619.71	-203.17
Urban/Rural (Rural)	1.00	1.00	0.00	97.63
Urban/Rural (Urban)	0.00	0.00	-0.00	97.63
Distance to Roads	1101.05	1072.70	28.36	72.51
Slope	1.03	1.03	0.00	98.84
Urban Travel Time	304.00	300.93	3.08	93.02
Pre-Avg. Precipitation	155.29	154.75	0.54	87.51
Pre-Avg. Temperature	23.77	23.75	0.02	62.52
Pre-Avg. NTL	0.00	0.00	0.00	100.00
Pre-Trend NTL	0.00	0.00	-0.00	98.66
Edu. Level (Primary)	0.28	0.33	-0.05	-606.60
Edu. Level (Secondary)	0.00	0.00	0.00	100.00
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.05	-0.00	90.86
Household	5.77	5.67	0.10	-11.41
Gender	0.74	0.73	0.01	86.59
Age	42.18	41.50	0.68	25.01
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.00	0.00	0.00	100.00
Wealth Factor	-45955.81	-46301.39	345.58	94.54
Marital Status (Married)	0.69	0.67	0.01	35.66
Marital Status (Living Together)	0.31	0.33	-0.01	85.16
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.89	0.90	-0.02	86.38
Occupation (44)	0.18	0.15	0.03	66.72
Occupation (62)	0.71	0.74	-0.04	-1719.56
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.23	0.25	-0.02	64.58
DHS Region (North Western)	0.14	0.14	0.00	95.32
DHS Region (South Central)	0.19	0.19	-0.00	93.81
DHS Region (South Eastern A)	0.25	0.21	0.03	26.73
DHS Region (South Eastern B)	0.19	0.21	-0.02	-214.13

Table 53: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 10 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.24	0.24	0.00	96.82
Elevation	175.91	176.41	-0.50	96.57
Pop. Density	59.54	59.61	-0.08	99.90
Dist. to Nearest Project	80401.08	82582.83	-2181.75	68.51
Urban/Rural (Rural)	0.99	0.99	0.00	87.16
Urban/Rural (Urban)	0.01	0.01	-0.00	87.16
Distance to Roads	1012.96	1030.63	-17.67	93.02
Slope	1.14	1.15	-0.01	-137.50
Urban Travel Time	279.39	276.47	2.92	96.24
Pre-Avg. Precipitation	156.32	156.77	-0.45	92.39
Pre-Avg. Temperature	23.74	23.76	-0.01	85.53
Pre-Avg. NTL	0.17	0.20	-0.03	-300.38
Pre-Trend NTL	0.01	0.01	-0.00	72.94
Edu. Level (Primary)	0.26	0.23	0.02	52.70
Edu. Level (Secondary)	0.04	0.05	-0.01	53.81
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.06	-0.00	-24.98
Household	5.78	5.84	-0.06	55.80
Gender	0.70	0.72	-0.02	-13714.05
Age	41.78	41.48	0.30	61.06
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.05	-0.01	35.45
Wealth Factor	-35050.31	-35291.11	240.80	98.79
Marital Status (Married)	0.70	0.72	-0.02	-42.32
Marital Status (Living Together)	0.26	0.25	0.01	76.08
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	-0.00	63.91
Working	0.85	0.85	0.01	88.40
Occupation (44)	0.21	0.16	0.05	53.16
Occupation (62)	0.64	0.70	-0.06	27.28
Occupation (65)	0.00	0.00	0.00	63.42
DHS Region (North Central)	0.23	0.23	-0.00	97.20
DHS Region (North Western)	0.12	0.13	-0.01	84.84
DHS Region (South Central)	0.27	0.23	0.04	74.14
DHS Region (South Eastern A)	0.21	0.24	-0.03	-4100.60
DHS Region (South Eastern B)	0.17	0.16	0.00	93.35

Table 54: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 15 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.34	0.33	0.01	94.55
Elevation	179.29	165.30	13.99	37.40
Pop. Density	110.04	96.59	13.44	89.60
Dist. to Nearest Project	81178.52	78076.90	3101.62	58.73
Urban/Rural (Rural)	0.98	0.98	-0.00	88.54
Urban/Rural (Urban)	0.02	0.02	0.00	88.54
Distance to Roads	1142.90	1071.71	71.19	43.00
Slope	1.22	1.20	0.01	81.05
Urban Travel Time	291.80	287.57	4.23	94.91
Pre-Avg. Precipitation	154.26	156.33	-2.07	53.44
Pre-Avg. Temperature	23.72	23.77	-0.04	70.97
Pre-Avg. NTL	0.36	0.37	-0.00	98.91
Pre-Trend NTL	0.02	0.02	0.00	91.50
Edu. Level (Primary)	0.28	0.26	0.02	69.01
Edu. Level (Secondary)	0.04	0.05	-0.01	81.63
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.13	0.12	0.01	91.96
Household	5.48	5.53	-0.05	80.02
Gender	0.72	0.70	0.01	-87.95
Age	42.48	43.46	-0.98	-425.58
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.04	0.05	-0.01	76.48
Wealth Factor	-41086.14	-47985.36	6899.22	64.17
Marital Status (Married)	0.75	0.74	0.00	90.91
Marital Status (Living Together)	0.22	0.23	-0.01	61.44
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	-0.00	61.82
Working	0.88	0.89	-0.01	90.01
Occupation (44)	0.24	0.21	0.03	79.66
Occupation (62)	0.64	0.69	-0.05	50.26
Occupation (65)	0.00	0.00	0.00	83.27
DHS Region (North Central)	0.18	0.15	0.03	76.20
DHS Region (North Western)	0.18	0.17	0.01	88.49
DHS Region (South Central)	0.23	0.25	-0.02	82.87
DHS Region (South Eastern A)	0.19	0.22	-0.03	23.74
DHS Region (South Eastern B)	0.21	0.20	0.01	10.31

Table 55: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 20 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.41	0.39	0.02	89.37
Elevation	180.84	155.16	25.68	-60.28
Pop. Density	85.04	42.35	42.69	76.95
Dist. to Nearest Project	87416.07	86869.14	546.93	-59.66
Urban/Rural (Rural)	0.99	0.99	-0.00	95.14
Urban/Rural (Urban)	0.01	0.01	0.00	95.14
Distance to Roads	1185.88	1125.05	60.83	-146.74
Slope	1.17	1.16	0.01	62.14
Urban Travel Time	304.12	308.43	-4.31	92.89
Pre-Avg. Precipitation	153.81	156.42	-2.61	34.59
Pre-Avg. Temperature	23.77	23.73	0.03	58.47
Pre-Avg. NTL	0.22	0.12	0.11	78.75
Pre-Trend NTL	0.01	0.01	0.01	72.30
Edu. Level (Primary)	0.26	0.25	0.01	81.27
Edu. Level (Secondary)	0.03	0.03	0.00	98.05
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.15	0.09	0.06	51.85
Household	5.54	5.68	-0.14	-212.51
Gender	0.69	0.71	-0.02	29.88
Age	42.69	42.59	0.10	51.21
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.03	-0.00	98.45
Wealth Factor	-48271.07	-54841.24	6570.17	35.47
Marital Status (Married)	0.76	0.76	0.01	89.47
Marital Status (Living Together)	0.21	0.22	-0.01	65.93
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	96.26
Working	0.85	0.87	-0.02	66.18
Occupation (44)	0.18	0.17	0.01	87.06
Occupation (62)	0.68	0.70	-0.02	75.50
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.18	0.12	0.06	55.60
DHS Region (North Western)	0.17	0.14	0.03	-25.22
DHS Region (South Central)	0.21	0.23	-0.03	48.97
DHS Region (South Eastern A)	0.17	0.21	-0.04	7.51
DHS Region (South Eastern B)	0.26	0.29	-0.03	55.13

Table 56: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 25 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.47	0.44	0.03	88.66
Elevation	186.67	173.63	13.04	39.81
Pop. Density	45.53	38.95	6.58	95.26
Dist. to Nearest Project	86429.51	85946.00	483.50	95.26
Urban/Rural (Rural)	0.99	0.99	0.00	100.00
Urban/Rural (Urban)	0.01	0.01	0.00	100.00
Distance to Roads	1208.63	1117.77	90.86	14.95
Slope	1.20	1.16	0.04	52.02
Urban Travel Time	320.92	324.33	-3.40	95.72
Pre-Avg. Precipitation	153.59	154.05	-0.45	90.46
Pre-Avg. Temperature	23.82	23.78	0.04	30.33
Pre-Avg. NTL	0.26	0.21	0.06	89.92
Pre-Trend NTL	0.02	0.01	0.00	92.21
Edu. Level (Primary)	0.29	0.27	0.02	43.78
Edu. Level (Secondary)	0.03	0.03	0.00	99.04
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.07	0.06	0.01	89.62
Household	5.57	5.55	0.02	25.34
Gender	0.70	0.70	-0.00	86.66
Age	42.30	42.38	-0.08	96.20
Literacy (Low)	0.00	0.00	0.00	100.00
Literacy (High)	0.03	0.03	0.00	100.00
Wealth Factor	-53871.30	-54586.62	715.32	92.27
Marital Status (Married)	0.77	0.74	0.03	64.41
Marital Status (Living Together)	0.20	0.24	-0.04	17.94
Marital Status (Not Living Together)	0.01	0.00	0.01	-15.71
Residence	0.00	0.00	0.00	100.00
Working	0.79	0.80	-0.01	86.34
Occupation (44)	0.11	0.13	-0.01	89.19
Occupation (62)	0.71	0.72	-0.01	93.71
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.19	0.19	0.00	99.71
DHS Region (North Western)	0.16	0.16	0.00	97.85
DHS Region (South Central)	0.21	0.19	0.01	86.54
DHS Region (South Eastern A)	0.21	0.21	-0.00	86.69
DHS Region (South Eastern B)	0.23	0.25	-0.02	-219.00

Table 57: Summary of Post-Matching Covariate Levels and Improvement in Balance for US Concessions, 30 km

Covariate	Treatment Mean	Control Mean	Difference in Means	% Balance Improvement
Propensity Score	0.56	0.51	0.05	80.20
Elevation	188.38	167.82	20.56	-348.24
Pop. Density	51.83	41.46	10.37	89.35
Dist. to Nearest Project	86626.66	86676.52	-49.85	98.43
Urban/Rural (Rural)	0.99	0.98	0.01	-398.11
Urban/Rural (Urban)	0.01	0.02	-0.01	-398.11
Distance to Roads	1189.42	1005.14	184.28	64.84
Slope	1.13	1.08	0.05	68.61
Urban Travel Time	366.38	361.06	5.32	80.89
Pre-Avg. Precipitation	152.11	153.26	-1.15	75.60
Pre-Avg. Temperature	23.90	23.84	0.07	-1101.60
Pre-Avg. NTL	0.21	0.19	0.02	95.73
Pre-Trend NTL	0.01	0.01	0.00	92.39
Edu. Level (Primary)	0.30	0.31	-0.01	81.29
Edu. Level (Secondary)	0.03	0.03	0.00	89.22
Edu. Level (Higher)	0.00	0.00	0.00	100.00
Religion	0.05	0.02	0.02	79.73
Household	5.81	5.84	-0.03	85.54
Gender	0.72	0.71	0.01	65.12
Age	43.84	43.02	0.82	-4.93
Literacy (Low)	0.02	0.02	-0.00	73.06
Literacy (High)	0.03	0.04	-0.00	47.54
Wealth Factor	-52770.60	-57280.97	4510.37	36.94
Marital Status (Married)	0.78	0.77	0.01	91.31
Marital Status (Living Together)	0.19	0.19	0.00	93.42
Marital Status (Not Living Together)	0.00	0.00	0.00	100.00
Residence	0.00	0.00	0.00	100.00
Working	0.81	0.81	0.00	83.18
Occupation (44)	0.09	0.08	0.01	92.38
Occupation (62)	0.72	0.74	-0.02	78.61
Occupation (65)	0.00	0.00	0.00	100.00
DHS Region (North Central)	0.24	0.23	0.01	93.60
DHS Region (North Western)	0.11	0.10	0.01	92.20
DHS Region (South Central)	0.17	0.16	0.00	93.30
DHS Region (South Eastern A)	0.25	0.25	0.00	79.49
DHS Region (South Eastern B)	0.23	0.26	-0.04	46.21

D. Regression Outputs for Main Models

Tables containing the regression outputs for all models are presented in this section. These numerical results are the basis for the various Figures reported in the article.

Table 58: Results for All Concessions (2007-2013)

	5km	10km	15km	20km	25km
Treatment	−0.056	−0.021	−0.043	0.117	0.580**
	(0.059)	(0.067)	(0.081)	(0.078)	(0.288)
Urban/Rural	0.760*	1.070**	1.128***	1.909***	2.172
	(0.398)	(0.425)	(0.414)	(0.563)	(1.814)
Elevation	−0.0001	−0.0003	−0.001	−0.002**	−0.005
	(0.0004)	(0.0004)	(0.0005)	(0.001)	(0.004)
Pop. Density	0.006***	0.002***	0.001***	0.001**	−0.001
	(0.001)	(0.001)	(0.0004)	(0.0004)	(0.008)
Aid Projects	0.00000	0.00000**	0.00000	0.00000**	0.00001
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00001)
Dist. to Roads	0.00001	0.00001	0.00001	0.00001	−0.0001
	(0.00001)	(0.00001)	(0.00002)	(0.00002)	(0.0001)
Slope	0.003	0.002	0.018	−0.022	0.210
	(0.016)	(0.017)	(0.019)	(0.039)	(0.362)
Urban Travel Time	−0.0003*	−0.0003*	−0.0004**	−0.0003*	−0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.002)
Pre-Period Precipitation	0.001	0.001	0.002	−0.007	−0.010
	(0.002)	(0.002)	(0.003)	(0.005)	(0.016)
Pre-Period Temperature	−0.002	0.026	0.026	−0.059	0.108
	(0.047)	(0.048)	(0.076)	(0.143)	(0.790)
Pre-Period NTL (Avg)	−0.279*	−0.264**	−0.425***	−0.248*	−0.159
	(0.164)	(0.115)	(0.137)	(0.138)	(0.700)
Pre-Period NTL (Trend)	5.423***	5.561***	6.981***	1.573	0.330
	(1.933)	(1.404)	(1.626)	(3.872)	(17.880)
Household Numbers	−0.030*	−0.038**	−0.056*	−0.020	0.056
	(0.016)	(0.019)	(0.032)	(0.035)	(0.123)
Gender	−0.169	0.023	−0.078	0.016	−0.705
	(0.254)	(0.283)	(0.337)	(0.288)	(2.040)
Age	0.003	0.004	0.010	0.0003	−0.178**
	(0.004)	(0.004)	(0.006)	(0.004)	(0.070)
Religion	−0.035	0.085	−0.135	−0.017	1.693
	(0.141)	(0.156)	(0.225)	(0.274)	(2.236)
Edu. Level (Primary)	0.137	0.168*	0.207**	0.094	0.913
	(0.097)	(0.099)	(0.102)	(0.068)	(0.699)
Edu. Level (Secondary)	0.218	0.429	0.354	0.341	−0.646
	(0.383)	(0.384)	(0.455)	(0.657)	(0.779)
Wealth	0.00000	0.00000*	0.00000*	0.00000	0.00001
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00001)

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Table 58 – Continued

	5km	10km	15km	20km	25km
Employment (Yes)	−0.133	−0.282**	−0.246**	−0.133	−2.661***
	(0.120)	(0.123)	(0.123)	(0.150)	(0.937)
Marital Status (Married)	−0.196*	−0.183	−0.384	−0.365	−0.070
	(0.110)	(0.213)	(0.269)	(0.588)	(1.288)
Marital Status (Living Together)	−0.073	−0.073	−0.395	−0.533	1.219
	(0.169)	(0.258)	(0.294)	(0.592)	(0.957)
Marital Status (Not Living Together)		−0.625*	−1.018***		
		(0.341)	(0.313)		
Occupation (44)	0.054	0.079	0.194	0.190	0.074
	(0.171)	(0.146)	(0.180)	(0.185)	(1.291)
Occupation (62)	0.083	0.003	0.013	−0.167	1.869
	(0.126)	(0.123)	(0.137)	(0.119)	(1.538)
Occupation (65)	0.074	−0.009	−0.022		
	(0.251)	(0.324)	(0.373)		
Region - North Central		4.553**	2.713**		−9.132
		(2.033)	(1.302)		(31.425)
Region - North Western	−0.021	4.303**	2.389*	−0.146	−11.426
	(0.114)	(2.064)	(1.366)	(0.207)	(31.877)
Region - South Central	0.377**	4.900**	2.939**	2.982***	−9.466
	(0.188)	(2.012)	(1.263)	(0.744)	(32.053)
Region - S. East A	0.374***	4.754**	2.815**	−0.119	−8.228
	(0.139)	(2.041)	(1.323)	(0.196)	(32.196)
Region - S. East B	0.127	4.549**	2.520**	−0.627**	−11.670
	(0.094)	(2.024)	(1.283)	(0.291)	(32.258)
Constant	0.122	−4.965**	−2.819	3.500	16.860
	(1.114)	(2.428)	(2.433)	(3.785)	(39.493)

Table 59: Results for Agriculture Concessions (2007-2013)

	5km	10km	15km	20km	25km	30km
Treatment	−0.118	−0.170	−0.397*	−0.404*	−0.542***	0.391***
	(0.174)	(0.186)	(0.222)	(0.220)	(0.158)	(0.077)
Urban/Rural	−0.00002	−0.004	−0.012***	−0.013***	0.005	−0.002
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Elevation	0.002***	0.001**	0.001	0.001	0.002	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Pop. Density	0.00001	0.00002*	0.00001	0.00001	0.00002*	0.00000
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Aid Projects	−0.0001	−0.00005	−0.0001	−0.0001	0.0003	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)
Dist. to Roads	0.025	0.070	0.129	0.174	−0.037	−0.002
	(0.070)	(0.066)	(0.128)	(0.116)	(0.107)	(0.071)
Slope	−0.002	−0.003*	−0.003	−0.003	−0.011	−0.003*
	(0.002)	(0.001)	(0.003)	(0.003)	(0.007)	(0.001)
Urban Travel Time	0.020	−0.029	−0.037	−0.016	−0.012	−0.021
	(0.018)	(0.021)	(0.026)	(0.021)	(0.038)	(0.017)
Pre-Period Precipitation	−0.549	−0.576	0.525	0.414	0.222	−0.745
	(0.453)	(0.500)	(0.794)	(0.797)	(0.866)	(0.454)
Pre-Period Temperature	−0.624***	−0.220	−0.435**	−0.408**	−0.866*	−0.099
	(0.206)	(0.149)	(0.178)	(0.170)	(0.489)	(0.776)
Pre-Period NTL (Avg)	8.802***	3.687**	7.704***	7.437***	14.691**	1.316
	(2.551)	(1.721)	(2.433)	(2.399)	(6.510)	(10.856)
Pre-Period NTL (Trend)	−0.045	−0.089	0.026	0.014	−0.292**	−0.085
	(0.049)	(0.061)	(0.087)	(0.087)	(0.145)	(0.124)
Household Numbers	0.311	−0.762	−0.401	−0.420	0.114	0.237
	(0.723)	(0.687)	(0.926)	(0.922)	(1.149)	(0.560)
Gender	0.007	0.015	−0.011	−0.015	0.012	0.026
	(0.014)	(0.010)	(0.015)	(0.016)	(0.017)	(0.018)
Age	0.382	0.065	−0.147	−0.678	0.472	−0.144
	(0.268)	(0.270)	(0.616)	(0.625)	(0.705)	(0.396)
Religion	1.943***	1.065***	1.158***	1.089***	2.203***	−0.554
	(0.393)	(0.401)	(0.285)	(0.272)	(0.304)	(0.696)
Edu. Level (Primary)	−0.00000	0.00000	−0.00000*	−0.00001**	−0.00000*	0.00001*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	0.037	−0.475	0.640	0.864	−2.136*	−0.215
	(0.296)	(0.360)	(0.752)	(0.748)	(1.238)	(0.404)
Wealth	0.315	−0.276	−1.299	−1.411		
	(0.445)	(0.233)	(1.323)	(1.342)		
Employment (Yes)	0.397	−0.099	−0.276	−0.443	−0.233	−0.350
	(0.495)	(0.318)	(1.294)	(1.285)	(0.399)	(0.390)
Marital Status (Married)				−4.194***		
				(1.344)		
Marital Status (Living Together)	−0.359	0.093	−1.791**	−2.126**	1.107	2.342***

Continued on Next Page…

Table 59 – Continued

	5km	10km	15km	20km	25km	30km
	(0.487)	(0.592)	(0.869)	(0.880)	(0.900)	(0.688)
Marital Status (Not Living Together)	−0.463	0.016	−2.286**	−2.823***	0.557	1.863***
	(0.310)	(0.393)	(1.004)	(1.048)	(0.896)	(0.671)
Occupation (44)	−0.420	−1.148*	−0.883	−0.260	0.775	−0.323
	(0.590)	(0.586)	(0.921)	(0.896)	(1.342)	(1.010)
Occupation (62)	0.298	0.444	−0.619	−0.884	3.765***	0.065
	(0.402)	(0.357)	(0.632)	(0.666)	(1.272)	(1.012)
Occupation (65)					0.328	0.413
					(1.000)	(1.187)
Region - North Central	9.379	19.783*	−1.718	−1.734	−3.602	19.907**
	(9.092)	(11.988)	(17.885)	(18.665)	(14.218)	(9.755)

Table 60: Results for Mining Concessions (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.083	−0.044	−0.072	0.109	0.111*	
	(0.087)	(0.088)	(0.084)	(0.072)	(0.058)	
Urban/Rural	1.290	1.555	0.652	1.445***	2.055***	
	(0.921)	(1.060)	(0.408)	(0.345)	(0.402)	
Elevation	−0.0002	−0.001	−0.001	−0.0004	−0.0001	
	(0.001)	(0.0005)	(0.001)	(0.001)	(0.001)	
Pop. Density	0.006***	0.003***	0.002***	0.004***	0.003*	
	(0.001)	(0.001)	(0.0004)	(0.001)	(0.001)	
Aid Projects	0.00000	0.00000**	0.00000**	0.00000	−0.00000	
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	
Dist. to Roads	0.00001	0.00001	0.00001	0.00000	−0.00002	
	(0.00001)	(0.00002)	(0.00002)	(0.00002)	(0.00003)	
Slope	−0.004	0.005	0.014	0.031	−0.024	
	(0.025)	(0.023)	(0.022)	(0.024)	(0.039)	
Urban Travel Time	−0.001*	−0.001*	−0.001**	−0.0004**	−0.0001	
	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	
Pre-Period Precipitation	−0.001	−0.001	0.001	0.003	0.003	
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	
Pre-Period Temperature	0.026	0.050	0.011	0.014	−0.163	
	(0.068)	(0.062)	(0.080)	(0.088)	(0.123)	
Pre-Period NTL (Avg)	−0.467**	−0.382***	−0.400***	−0.626***	−0.497***	
	(0.190)	(0.118)	(0.115)	(0.123)	(0.101)	
Pre-Period NTL (Trend)	7.623***	6.676***	7.003***	9.148***	6.668***	
	(2.278)	(1.460)	(1.392)	(2.000)	(1.885)	
Household Numbers	−0.017	−0.021	−0.023	−0.003	0.019	
	(0.020)	(0.022)	(0.027)	(0.030)	(0.061)	
Gender	−0.169	0.001	−0.031	−0.053	0.843	
	(0.307)	(0.322)	(0.295)	(0.304)	(0.593)	
Age	0.002	0.003	0.007	−0.002	0.005	
	(0.005)	(0.005)	(0.006)	(0.003)	(0.005)	
Religion	0.020	0.031	−0.136	0.187	1.181	
	(0.135)	(0.153)	(0.208)	(0.246)	(0.932)	
Edu. Level (Primary)	0.239*	0.250*	0.301**	0.214*	0.070	
	(0.143)	(0.142)	(0.135)	(0.109)	(0.092)	
Edu. Level (Secondary)	0.140	0.197	0.208	−0.023	−0.261	
	(0.396)	(0.442)	(0.383)	(0.423)	(0.603)	
Wealth	0.00000	0.00000**	0.00000	0.00000	−0.00000	
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	
Employment (Yes)	−0.100	−0.248	−0.251*	−0.450***	−0.237	
	(0.182)	(0.153)	(0.129)	(0.144)	(0.147)	
Marital Status (Married)	−0.220	−0.188	−0.431**	−0.362	−0.277	
	(0.225)	(0.220)	(0.206)	(0.281)	(0.404)	
Marital Status (Living Together)	0.066	0.069	−0.207	−0.303	0.020	

Continued on Next Page…

Table 60 – Continued

	5km	10km	15km	20km	25km	30km
	(0.316)	(0.311)	(0.292)	(0.339)	(0.577)	
Marital Status (Not Living Together)		−1.171	−0.831***	−0.782**		
		(1.101)	(0.285)	(0.333)		
Occupation (44)	0.005	0.045	0.327	0.002	0.167	
	(0.300)	(0.259)	(0.213)	(0.168)	(0.157)	
Occupation (62)	0.060	−0.037	0.083	0.123	−0.003	
	(0.222)	(0.190)	(0.151)	(0.133)	(0.190)	
Occupation (65)	0.011	−0.223	−0.035			
	(0.336)	(0.491)	(0.268)			
Region - North Central		5.225**	3.788***	9.669***	6.411	
		(2.314)	(1.467)	(3.011)	(5.207)	
Region - North Western	−0.083	5.059**	3.622**	9.406***	5.242	
	(0.137)	(2.332)	(1.505)	(3.081)	(5.632)	
Region - South Central	0.498**	5.706**	4.233***	9.904***	6.326	
	(0.234)	(2.279)	(1.452)	(3.012)	(5.148)	
Region - S. East A	0.511**	5.551**	4.044***	9.923***	6.486	
	(0.199)	(2.311)	(1.492)	(3.063)	(5.294)	
Region - S. East B	0.142	5.202**	3.712**	9.577***	6.238	
	(0.153)	(2.299)	(1.456)	(3.015)	(5.185)	
Constant	−0.316	−5.926**	−3.882	−9.796**	−3.450	
	(1.632)	(2.912)	(2.538)	(4.005)	(6.477)	

Table 61: Results for Concessions with CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.088	−0.172	−0.149	0.027	−0.076	0.131**
	(0.114)	(0.111)	(0.112)	(0.051)	(0.051)	(0.052)
Urban/Rural					1.246**	0.930**
					(0.510)	(0.467)
Elevation	0.001	0.0003	0.0005	−0.0001	−0.0001	0.001*
	(0.001)	(0.001)	(0.001)	(0.0003)	(0.0003)	(0.0003)
Pop. Density	0.006***	0.005***	0.007***	0.003***	0.005***	0.004***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Aid Projects	0.00000*	0.00000**	0.00000	0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00000	0.00001	0.00000	−0.00000	−0.00000	0.00003**
	(0.00002)	(0.00002)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Slope	−0.036	−0.036	−0.015	0.021*	0.016	−0.002
	(0.033)	(0.035)	(0.028)	(0.011)	(0.012)	(0.015)
Urban Travel Time	−0.0004**	−0.0004**	−0.0002	−0.0001	−0.0001	−0.0005**
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Pre-Period Precipitation	0.006	0.002	0.002	0.002	0.0004	0.005**
	(0.005)	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)
Pre-Period Temperature	0.150	0.067	−0.009	0.023	−0.022	−0.007
	(0.115)	(0.086)	(0.076)	(0.044)	(0.051)	(0.049)
Pre-Period NTL (Avg)	−0.611***	−0.364**		−0.439***	−0.422**	−0.328***
	(0.206)	(0.146)		(0.161)	(0.188)	(0.113)
Pre-Period NTL (Trend)	8.906***	6.199***	1.526***	6.994***	6.252**	6.102***
	(2.531)	(1.796)	(0.534)	(2.272)	(2.510)	(1.601)
Household Numbers	−0.015	−0.027	−0.005	−0.011	−0.021	−0.023**
	(0.022)	(0.024)	(0.016)	(0.012)	(0.015)	(0.011)
Gender	−0.128	−0.205	−0.292	−0.011	0.088	0.135
	(0.345)	(0.396)	(0.373)	(0.197)	(0.157)	(0.179)
Age	0.001	0.004	0.004	0.003	0.001	−0.001
	(0.005)	(0.006)	(0.005)	(0.002)	(0.002)	(0.002)
Religion	0.001	0.076	0.002	0.025	0.082	0.109
	(0.104)	(0.151)	(0.153)	(0.107)	(0.115)	(0.101)
Edu. Level (Primary)	0.357	0.334	0.269	0.106	0.005	0.245***
	(0.223)	(0.217)	(0.173)	(0.100)	(0.063)	(0.087)
Edu. Level (Secondary)						0.434
						(0.292)
Wealth	0.00000	0.00000	0.00000	0.00000	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.130	−0.184	−0.027	−0.116	−0.234	0.007
	(0.132)	(0.124)	(0.119)	(0.097)	(0.161)	(0.092)
Marital Status (Married)	−0.078	0.021	−0.212	−0.317*	−0.377*	−0.419**
	(0.178)	(0.257)	(0.197)	(0.189)	(0.193)	(0.201)
Marital Status (Living Together)	0.282	0.333	−0.002	−0.304	−0.374*	−0.377*

Continued on Next Page…

Table 61 – Continued

	5km	10km	15km	20km	25km	30km
	(0.352)	(0.419)	(0.339)	(0.213)	(0.204)	(0.218)
Marital Status (Not Living Together)					−0.250	−0.563**
					(0.188)	(0.239)
Occupation (44)	−0.215	−0.145	−0.266	0.040	0.148	0.222
	(0.290)	(0.262)	(0.277)	(0.175)	(0.178)	(0.136)
Occupation (62)	−0.058	−0.080	−0.062	0.023	0.202	−0.007
	(0.137)	(0.173)	(0.205)	(0.123)	(0.149)	(0.111)
Occupation (65)	0.249	0.250	0.218	0.162	−0.095	0.455***
	(0.189)	(0.261)	(0.281)	(0.172)	(0.409)	(0.164)
Region - North Central	0.225	0.178	0.234	−0.025	−0.091	−0.084
	(0.167)	(0.153)	(0.151)	(0.109)	(0.098)	(0.108)
Region - North Western	0.874**	0.911***	0.803***	0.530***	0.569***	0.419**
	(0.350)	(0.342)	(0.304)	(0.200)	(0.177)	(0.185)
Region - South Central	0.627**	0.641**	0.552**	0.190	0.347***	0.226*
	(0.271)	(0.257)	(0.221)	(0.116)	(0.130)	(0.118)
Region - S. East A	0.090	0.145	0.145	0.033	0.056	0.191**
	(0.209)	(0.193)	(0.143)	(0.079)	(0.105)	(0.095)
Region - S. East B	−4.887*	−2.259	−0.316	−0.746	0.623	−0.428
	(2.729)	(1.814)	(1.609)	(1.186)	(1.363)	(1.027)

Table 62: Results for Concessions without CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.075	−0.044	−0.050	0.005	0.219**	0.514***
	(0.083)	(0.087)	(0.090)	(0.068)	(0.091)	(0.088)
Urban/Rural	0.986**	1.651**	0.716*	2.072***	2.165***	2.301***
	(0.432)	(0.678)	(0.394)	(0.382)	(0.472)	(0.541)
Elevation	−0.0001	−0.0004	−0.0003	−0.001*	−0.001	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Pop. Density	0.006***	0.002***	0.001***	0.002***	0.006***	0.025***
	(0.002)	(0.0005)	(0.0004)	(0.001)	(0.001)	(0.006)
Aid Projects	0.00000	0.00000*	0.00000	0.00000	0.00000	−0.00001
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00000	0.00000	0.00001	0.00000	−0.00001	−0.0001
	(0.00001)	(0.00001)	(0.00002)	(0.00002)	(0.00004)	(0.0001)
Slope	−0.007	−0.010	0.008	0.020	0.074**	−0.023
	(0.025)	(0.024)	(0.025)	(0.017)	(0.035)	(0.119)
Urban Travel Time	−0.0005*	−0.0004*	−0.0005*	−0.001***	−0.0003	0.001*
	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0004)
Pre-Period Precipitation	−0.0001	0.0001	0.003	0.0001	0.009*	−0.010
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.012)
Pre-Period Temperature	0.025	0.037	0.022	−0.027	−0.266**	−0.142
	(0.062)	(0.061)	(0.082)	(0.088)	(0.132)	(0.263)
Pre-Period NTL (Avg)	−0.728***	−0.432**	−0.434***	−0.555***	−0.557***	−0.250
	(0.251)	(0.197)	(0.137)	(0.109)	(0.183)	(0.442)
Pre-Period NTL (Trend)	12.903***	8.770***	9.082***	7.754***	7.789**	0.309
	(4.130)	(3.261)	(2.322)	(1.546)	(3.764)	(10.066)
Household Numbers	−0.015	−0.012	−0.006	−0.020	−0.071**	0.030
	(0.018)	(0.020)	(0.030)	(0.029)	(0.035)	(0.041)
Gender	−0.006	0.065	0.143	−0.226	−0.073	−1.295
	(0.294)	(0.283)	(0.312)	(0.240)	(0.522)	(0.933)
Age	−0.0003	0.002	0.003	0.002	0.0001	−0.014
	(0.004)	(0.004)	(0.006)	(0.003)	(0.007)	(0.010)
Religion	0.091	0.097	0.032	−0.205	−0.312	0.790
	(0.135)	(0.132)	(0.211)	(0.185)	(0.260)	(0.707)
Edu. Level (Primary)	0.192	0.198	0.265**	0.175**	0.208*	0.464**
	(0.125)	(0.128)	(0.134)	(0.089)	(0.125)	(0.211)
Edu. Level (Secondary)	0.147	0.256	0.174	0.051	0.840	−0.343
	(0.399)	(0.386)	(0.346)	(0.371)	(0.787)	(0.735)
Wealth	0.00000	0.00000**	0.00000	0.00000*	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.233	−0.152	−0.415*	0.108	−0.002	0.209
	(0.238)	(0.161)	(0.223)	(0.160)	(0.457)	(0.422)
Marital Status (Married)	0.054	0.121	−0.130	−0.117	0.016	0.908
	(0.324)	(0.245)	(0.314)	(0.194)	(0.497)	(0.945)
Marital Status (Living Together)		−1.269*	−0.673**	−0.854***		

Continued on Next Page…

Table 62 – Continued

	5km	10km	15km	20km	25km	30km
		(0.755)	(0.304)	(0.219)		
Marital Status (Not Living Together)	−0.111	−0.186	0.063	−0.228**	0.059	0.315
	(0.294)	(0.266)	(0.238)	(0.112)	(0.173)	(0.321)
Occupation (44)	−0.041	−0.214	−0.115	−0.090	0.048	0.499
	(0.206)	(0.191)	(0.143)	(0.093)	(0.159)	(0.333)
Occupation (62)	−0.261	−0.407	−0.097			
	(0.306)	(0.418)	(0.422)			
Occupation (65)		4.261**	2.042*	5.285**		
		(1.767)	(1.131)	(2.454)		
Region - North Central	−0.063	4.109**	1.815	5.342**	−0.258	−0.049
	(0.125)	(1.778)	(1.183)	(2.497)	(0.243)	(1.324)
Region - North Western	0.469**	4.764***	2.467**	5.581**	0.320	−0.674
	(0.222)	(1.724)	(1.076)	(2.415)	(0.456)	(1.461)
Region - South Central	0.445**	4.543***	2.237**	5.458**	0.467**	0.288
	(0.186)	(1.760)	(1.134)	(2.488)	(0.214)	(0.907)
Region - S. East A	0.167	4.259**	2.005*	5.032**	−0.482**	−0.516
	(0.158)	(1.745)	(1.108)	(2.463)	(0.241)	(0.907)
Region - S. East B	−0.455	−4.905**	−2.767	−4.159	5.334*	4.658
	(1.483)	(2.418)	(2.339)	(3.538)	(3.175)	(7.133)

Table 63: Results for All Chinese Concessions (2007-2013)

	20km	25km	30km
Treatment	0.855***	0.776***	0.815***
	(0.203)	(0.219)	(0.233)
Urban/Rural	1.230	−1.260	−0.552
	(1.165)	(3.280)	(3.208)
Elevation	0.004	−0.004	−0.002
	(0.004)	(0.003)	(0.003)
Pop. Density	0.001***	0.002**	0.002***
	(0.0003)	(0.001)	(0.001)
Aid Projects	0.00001	0.00001**	−0.00000
	(0.00001)	(0.00001)	(0.00001)
Dist. to Roads	−0.0001	−0.00003	−0.0001
	(0.0001)	(0.0001)	(0.0001)
Slope	−0.194**	0.025	0.153*
	(0.095)	(0.080)	(0.085)
Urban Travel Time	−0.006*	−0.005*	−0.004*
	(0.004)	(0.003)	(0.003)
Pre-Period Precipitation	−0.008	−0.004	−0.017
	(0.028)	(0.015)	(0.019)
Pre-Period Temperature	−0.168	−0.249	−0.150
	(0.350)	(0.270)	(0.284)
Pre-Period NTL (Avg)	−0.510***	−0.688***	−0.667***
	(0.157)	(0.165)	(0.144)
Pre-Period NTL (Trend)	7.285***	8.743***	8.850***
	(2.006)	(3.038)	(2.343)
Household Numbers	0.078	−0.119*	−0.201***
	(0.102)	(0.072)	(0.075)
Gender	−2.142*	−1.049**	−1.019**
	(1.245)	(0.493)	(0.494)
Age	0.017	0.014	0.010
	(0.011)	(0.011)	(0.012)
Religion	0.133	0.090	0.686
	(0.383)	(0.395)	(0.436)
Edu. Level (Primary)	1.280***	1.089***	0.818*
	(0.484)	(0.373)	(0.429)
Edu. Level (Secondary)	0.888	−2.121**	−2.718**
	(1.159)	(1.033)	(1.331)
Wealth	−0.00000*	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.579	0.143	0.393
	(0.522)	(0.330)	(0.626)
Marital Status (Married)	0.121	0.729*	0.531
	(1.027)	(0.424)	(0.460)
Marital Status (Living Together)	0.433	1.236***	0.679

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Table 63 – Continued

	20km	25km	30km
	(0.856)	(0.479)	(0.577)
Marital Status (Not Living Together)	−2.429**		−1.447**
	(1.154)		(0.728)
Occupation (44)	−0.105	−1.408***	−2.018**
	(0.641)	(0.531)	(0.795)
Occupation (62)	0.107	−0.743*	−1.272*
	(0.541)	(0.412)	(0.656)
Occupation (65)			−2.579
			(3.507)
Region - North Central	−1.939***	−0.579	−0.629
	(0.549)	(0.538)	(0.528)
Region - North Western	−1.704***	−1.576***	−1.333**
	(0.477)	(0.490)	(0.549)
Region - South Central	6.850	7.828	8.909*
	(4.798)	(5.041)	(5.012)

Table 64: Results for All US Concessions (2007-2013)

	5km	10km	15km	20km	25km	30km
Treatment	0.107	0.030	0.068	0.046	0.062	0.100
	(0.099)	(0.114)	(0.109)	(0.083)	(0.076)	(0.073)
Urban/Rural	−0.00004	−0.001	−0.001	−0.001	−0.0005	−0.0005
	(0.001)	(0.001)	(0.001)	(0.0005)	(0.0005)	(0.0005)
Elevation	0.005***	0.001**	0.001***	0.002***	0.002***	0.002***
	(0.002)	(0.001)	(0.0003)	(0.001)	(0.001)	(0.001)
Pop. Density	0.00000	0.00000***	0.00000***	0.00000*	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Aid Projects	−0.00001	0.00000	0.00001	0.00001	0.00001	0.00000
	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00001)
Dist. to Roads	−0.008	0.001	−0.0005	0.012	0.007	0.002
	(0.036)	(0.031)	(0.027)	(0.019)	(0.019)	(0.017)
Slope	−0.001*	−0.001***	−0.001**	−0.0004*	−0.0003*	−0.0004**
	(0.0003)	(0.0004)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
Urban Travel Time	−0.0002	−0.002	−0.001	−0.001	0.0004	−0.0003
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)
Pre-Period Precipitation	−0.016	−0.005	0.007	0.005	−0.012	−0.021
	(0.056)	(0.087)	(0.065)	(0.063)	(0.069)	(0.078)
Pre-Period Temperature		−0.551**	−0.524***	−0.454**	−0.380***	−0.322**
		(0.230)	(0.152)	(0.199)	(0.113)	(0.147)
Pre-Period NTL (Avg)	35.577***	15.802***	12.372***	11.653***	6.833***	5.490**
	(10.681)	(5.139)	(2.710)	(3.671)	(1.423)	(2.265)
Pre-Period NTL (Trend)	−0.023	−0.030	−0.024	−0.026	−0.021	−0.031*
	(0.022)	(0.024)	(0.024)	(0.021)	(0.021)	(0.018)
Household Numbers	−0.028	−0.317	−0.115	−0.179	−0.120	−0.004
	(0.310)	(0.395)	(0.365)	(0.289)	(0.265)	(0.213)
Gender	−0.002	0.005	0.006	0.004	0.003	0.001
	(0.004)	(0.006)	(0.005)	(0.004)	(0.005)	(0.004)
Age	0.348*	0.514**	0.473**	0.306**	0.259**	0.221**
	(0.200)	(0.218)	(0.209)	(0.151)	(0.121)	(0.103)
Religion		−0.093	0.322	0.233	0.587	0.394
		(0.384)	(0.403)	(0.418)	(0.396)	(0.412)
Edu. Level (Primary)	0.00000	0.00000*	0.00000	0.00000*	0.00000*	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	−1.664	−0.030	−0.166	0.002	0.054	−0.240
	(1.193)	(0.323)	(0.383)	(0.396)	(0.468)	(0.197)
Wealth	−1.314	0.459	0.300	0.271	0.255	−0.146
	(1.274)	(0.454)	(0.475)	(0.447)	(0.488)	(0.252)
Employment (Yes)					0.231	−0.215
					(0.593)	(0.429)
Marital Status (Married)	−0.392	−0.388	−0.190	−0.259	−0.169	−0.087
	(0.259)	(0.304)	(0.273)	(0.226)	(0.213)	(0.190)
Marital Status (Living Together)	−0.120	−0.223	−0.208	−0.201	−0.156	−0.146

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Table 64 – Continued

	5km	10km	15km	20km	25km	30km
	(0.175)	(0.189)	(0.206)	(0.159)	(0.122)	(0.128)
Marital Status (Not Living Together)		−0.587**	−0.302			
		(0.268)	(0.281)			
Occupation (44)		5.423**	2.556**		6.224***	3.128
		(2.413)	(1.084)		(2.196)	(2.410)
Occupation (62)	0.003	5.258**	2.465**	−0.155	6.092***	2.910
	(0.107)	(2.413)	(1.069)	(0.135)	(2.208)	(2.433)
Occupation (65)	0.420*	6.197***	3.165***	0.402	6.667***	3.377
	(0.254)	(2.367)	(1.001)	(0.263)	(2.180)	(2.432)
Region - North Central	0.568**	6.120**	3.048***	0.255	6.473***	3.313
	(0.227)	(2.422)	(1.058)	(0.167)	(2.219)	(2.443)
Region - North Western	0.081	5.397**	2.482**	−0.154	6.151***	3.081
	(0.142)	(2.408)	(1.061)	(0.144)	(2.204)	(2.427)
Region - South Central	2.115	−4.888	−2.557	0.302	−5.932**	−2.021
	(1.714)	(3.417)	(2.044)	(1.538)	(2.903)	(3.434)

E. Robustness test 1: Propensity to 'light up'

The models presented in Section D of the Online Appendix assumed that any 1km × 1km grid cell will respond in the same manner if exposed to a concession. However, this might not be the case: the propensity to "light up" in response to treatment by a concession might differ across grid cells. We exploit spatial variation in the distance to transportation networks to account for these differences across locations. Specifically, we include an interaction of the treatment variable with the distance to existing roads. The results of this exercise show that our findings remain largely consistent after including this additional control variable.

Table 65: Results for All Concessions (2007-2013)

	5km	10km	15km	20km	25km
Treatment	−0.066	−0.004	0.011	0.121	0.609**
	(0.086)	(0.101)	(0.109)	(0.103)	(0.272)
Urban/Rural	0.760*	1.070**	1.127***	1.910***	2.191
	(0.397)	(0.425)	(0.414)	(0.564)	(1.873)
Elevation	−0.0001	−0.0003	−0.001	−0.002**	−0.005
	(0.0004)	(0.0004)	(0.0005)	(0.001)	(0.004)
Pop. Density	0.006***	0.002***	0.001***	0.001**	−0.001
	(0.001)	(0.001)	(0.0004)	(0.0004)	(0.008)
Aid Projects	0.00000	0.00000**	0.00000	0.00000**	0.00001
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00001)
Dist. to Roads	0.00000	0.00001	0.00003	0.00001	−0.0001
	(0.00001)	(0.00002)	(0.00002)	(0.00004)	(0.0002)
Slope	0.003	0.001	0.018	−0.022	0.216
	(0.016)	(0.017)	(0.019)	(0.039)	(0.354)
Urban Travel Time	−0.0003*	−0.0003*	−0.0004**	−0.0003*	−0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.002)
Pre-Period Precipitation	0.001	0.001	0.002	−0.007	−0.010
	(0.002)	(0.002)	(0.003)	(0.005)	(0.017)
Pre-Period Temperature	−0.002	0.025	0.018	−0.059	0.104
	(0.047)	(0.048)	(0.075)	(0.144)	(0.793)
Pre-Period NTL (Avg)	−0.279*	−0.264**	−0.426***	−0.248*	−0.161
	(0.164)	(0.116)	(0.136)	(0.138)	(0.699)
Pre-Period NTL (Trend)	5.415***	5.569***	6.996***	1.570	0.309
	(1.941)	(1.410)	(1.615)	(3.878)	(18.079)
Household Numbers	−0.029*	−0.038**	−0.057*	−0.021	0.055
	(0.016)	(0.019)	(0.032)	(0.036)	(0.127)
Gender	−0.172	0.030	−0.075	0.015	−0.711
	(0.257)	(0.289)	(0.338)	(0.288)	(2.052)
Age	0.003	0.004	0.010	0.0003	−0.179**
	(0.004)	(0.004)	(0.006)	(0.004)	(0.072)
Religion	−0.033	0.078	−0.082	−0.017	1.690
	(0.141)	(0.154)	(0.231)	(0.274)	(2.241)

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Table 65 – Continued

	5km	10km	15km	20km	25km
Edu. Level (Primary)	0.137	0.170*	0.211**	0.093	0.917
	(0.097)	(0.100)	(0.101)	(0.070)	(0.688)
Edu. Level (Secondary)	0.219	0.427	0.340	0.342	−0.645
	(0.382)	(0.386)	(0.460)	(0.657)	(0.783)
Wealth	0.00000	0.00000*	0.00000**	0.00000	0.00001
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00001)
Employment (Yes)	−0.133	−0.280**	−0.242**	−0.134	−2.685***
	(0.120)	(0.121)	(0.123)	(0.149)	(0.953)
Marital Status (Married)	−0.200*	−0.179	−0.396	−0.366	−0.068
	(0.114)	(0.215)	(0.273)	(0.592)	(1.287)
Marital Status (Living Together)	−0.077	−0.069	−0.396	−0.535	1.237
	(0.177)	(0.263)	(0.298)	(0.596)	(0.953)
Marital Status (Not Living Together)		−0.621*	−1.008***		
		(0.344)	(0.318)		
Occupation (44)	0.055	0.076	0.182	0.191	0.093
	(0.171)	(0.147)	(0.182)	(0.188)	(1.279)
Occupation (62)	0.084	0.002	0.021	−0.167	1.893
	(0.126)	(0.123)	(0.137)	(0.119)	(1.560)
Occupation (65)	0.076	−0.011	−0.019		
	(0.251)	(0.326)	(0.377)		
Region - North Central		4.554**	2.690**		−9.444
		(2.030)	(1.310)		(30.001)
Region - North Western	−0.021	4.306**	2.301*	−0.141	−11.779
	(0.114)	(2.060)	(1.382)	(0.204)	(30.250)
Region - South Central	0.378**	4.897**	2.892**	2.984***	−9.789
	(0.187)	(2.010)	(1.276)	(0.745)	(30.576)
Region - S. East A	0.374***	4.756**	2.805**	−0.120	−8.542
	(0.139)	(2.038)	(1.329)	(0.196)	(30.765)
Region - S. East B	0.126	4.551**	2.499*	−0.627**	−11.978
	(0.094)	(2.021)	(1.292)	(0.291)	(30.878)
Treatment*Distance to Roads	0.00001	−0.00002	−0.00004	−0.00000	−0.00003
	(0.00003)	(0.00004)	(0.00003)	(0.00005)	(0.0003)
Constant	0.130	−4.955**	−2.687	3.491	17.238
	(1.121)	(2.428)	(2.428)	(3.803)	(38.078)

Table 66: Results for Agriculture Concessions (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.099	−0.197	−0.454	−0.436	−0.430*	0.290**
	(0.212)	(0.232)	(0.287)	(0.284)	(0.220)	(0.122)
Urban/Rural	0.00000	−0.004	−0.012***	−0.013***	0.005	−0.001
	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
Elevation	0.002***	0.001**	0.001	0.001	0.002	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Pop. Density	0.00000	0.00002*	0.00001	0.00001	0.00001	0.00000
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Aid Projects	−0.0001	−0.0001	−0.0001	−0.0002	0.0003	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)
Dist. to Roads	0.024	0.070	0.133	0.176	−0.034	−0.007
	(0.069)	(0.067)	(0.128)	(0.117)	(0.110)	(0.075)
Slope	−0.002	−0.003*	−0.003	−0.003	−0.011	−0.003*
	(0.002)	(0.001)	(0.003)	(0.003)	(0.007)	(0.001)
Urban Travel Time	0.019	−0.028	−0.036	−0.016	−0.013	−0.019
	(0.018)	(0.021)	(0.026)	(0.021)	(0.037)	(0.017)
Pre-Period Precipitation	−0.547	−0.575	0.531	0.418	0.193	−0.777
	(0.455)	(0.501)	(0.786)	(0.791)	(0.879)	(0.472)
Pre-Period Temperature	−0.626***	−0.219	−0.434**	−0.407**	−0.857*	−0.096
	(0.207)	(0.149)	(0.177)	(0.170)	(0.493)	(0.774)
Pre-Period NTL (Avg)	8.825***	3.667**	7.672***	7.419***	14.678**	1.302
	(2.555)	(1.731)	(2.430)	(2.398)	(6.530)	(10.820)
Pre-Period NTL (Trend)	−0.044	−0.089	0.024	0.013	−0.288*	−0.070
	(0.049)	(0.061)	(0.089)	(0.089)	(0.148)	(0.130)
Household Numbers	0.312	−0.766	−0.402	−0.420	0.115	0.197
	(0.723)	(0.682)	(0.910)	(0.914)	(1.160)	(0.563)
Gender	0.007	0.015	−0.010	−0.014	0.010	0.030
	(0.014)	(0.010)	(0.016)	(0.017)	(0.018)	(0.020)
Age	0.382	0.062	−0.154	−0.682	0.592	−0.217
	(0.268)	(0.272)	(0.612)	(0.619)	(0.680)	(0.422)
Religion	1.947***	1.058***	1.148***	1.085***	2.265***	−0.581
	(0.390)	(0.407)	(0.288)	(0.275)	(0.354)	(0.696)
Edu. Level (Primary)	−0.00000	0.00000	−0.00000*	−0.00001**	−0.00000*	0.00001*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	0.041	−0.489	0.587	0.834	−2.000	−0.139
	(0.298)	(0.371)	(0.798)	(0.795)	(1.314)	(0.394)
Wealth	0.319	−0.290	−1.317	−1.418		
	(0.443)	(0.230)	(1.325)	(1.342)		
Employment (Yes)	0.394	−0.106	−0.276	−0.439	−0.350	−0.305
	(0.494)	(0.314)	(1.295)	(1.285)	(0.394)	(0.411)
Marital Status (Married)				−4.201***		
				(1.338)		
Marital Status (Living Together)	−0.358	0.107	−1.738*	−2.097**	0.986	2.306***

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Table 66 – Continued

	5km	10km	15km	20km	25km	30km
	(0.488)	(0.605)	(0.910)	(0.925)	(0.934)	(0.679)
Marital Status (Not Living Together)	−0.463	0.023	−2.253**	−2.804***	0.465	1.790***
	(0.310)	(0.399)	(1.027)	(1.072)	(0.917)	(0.672)
Occupation (44)	−0.411	−1.157**	−0.920	−0.280	0.781	−0.099
	(0.593)	(0.580)	(0.922)	(0.900)	(1.362)	(1.088)
Occupation (62)	0.293	0.455	−0.591	−0.868	3.613**	0.217
	(0.398)	(0.371)	(0.651)	(0.690)	(1.412)	(1.076)
Occupation (65)					0.350	0.644
					(1.029)	(1.311)
Region - North Central	−0.00003	0.00003	0.0001	0.00004	−0.0001	0.0001
	(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)
Region - North Western	9.345	19.664	−1.952	−1.885	−2.520	19.991**
	(9.118)	(12.043)	(17.699)	(18.534)	(14.617)	(10.079)

Table 67: Results for Mining Concessions (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.096	−0.019	−0.033	0.148	0.138*	0.271**
	(0.136)	(0.134)	(0.110)	(0.096)	(0.081)	(0.117)
Urban/Rural	1.291	1.552	0.637	1.452***	2.054***	1.513***
	(0.919)	(1.063)	(0.403)	(0.346)	(0.402)	(0.423)
Elevation	−0.0002	−0.001	−0.0005	−0.0004	−0.0001	−0.0002
	(0.001)	(0.0005)	(0.001)	(0.001)	(0.001)	(0.001)
Pop. Density	0.006***	0.003***	0.002***	0.004***	0.003*	0.001***
	(0.001)	(0.001)	(0.0004)	(0.001)	(0.001)	(0.0004)
Aid Projects	0.00000	0.00000**	0.00000*	0.00000	−0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00000	0.00001	0.00003	0.00003	−0.00000	0.00000
	(0.00003)	(0.00003)	(0.00002)	(0.00003)	(0.00003)	(0.00004)
Slope	−0.004	0.006	0.012	0.031	−0.025	−0.005
	(0.025)	(0.022)	(0.023)	(0.024)	(0.039)	(0.030)
Urban Travel Time	−0.001*	−0.001*	−0.001**	−0.0004**	−0.00004	−0.0003
	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Pre-Period Precipitation	−0.001	−0.001	0.002	0.003	0.003	0.003
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.004)
Pre-Period Temperature	0.026	0.049	0.005	0.018	−0.163	−0.036
	(0.069)	(0.062)	(0.080)	(0.088)	(0.123)	(0.112)
Pre-Period NTL (Avg)	−0.467**	−0.382***	−0.400***	−0.627***	−0.497***	−0.400***
	(0.190)	(0.118)	(0.115)	(0.123)	(0.101)	(0.127)
Pre-Period NTL (Trend)	7.616***	6.681***	7.005***	9.161***	6.655***	4.880*
	(2.288)	(1.462)	(1.387)	(2.002)	(1.889)	(2.498)
Household Numbers	−0.017	−0.021	−0.023	−0.005	0.020	0.009
	(0.019)	(0.022)	(0.027)	(0.030)	(0.061)	(0.037)
Gender	−0.174	0.013	−0.027	−0.060	0.817	0.612
	(0.317)	(0.333)	(0.298)	(0.303)	(0.604)	(0.404)
Age	0.002	0.003	0.007	−0.002	0.005	0.009
	(0.005)	(0.005)	(0.006)	(0.003)	(0.005)	(0.006)
Religion	0.026	0.024	−0.111	0.195	1.184	0.177
	(0.132)	(0.148)	(0.216)	(0.245)	(0.927)	(0.220)
Edu. Level (Primary)	0.238	0.252*	0.301**	0.213*	0.071	0.381***
	(0.146)	(0.144)	(0.135)	(0.109)	(0.091)	(0.135)
Edu. Level (Secondary)	0.142	0.192	0.191	−0.030	−0.267	−0.166
	(0.396)	(0.445)	(0.389)	(0.422)	(0.603)	(0.412)
Wealth	0.00000	0.00000**	0.00000	0.00000	−0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.103	−0.245	−0.241*	−0.449***	−0.238	−0.245
	(0.179)	(0.150)	(0.128)	(0.143)	(0.147)	(0.173)
Marital Status (Married)	−0.224	−0.183	−0.476**	−0.368	−0.279	−0.035
	(0.232)	(0.225)	(0.209)	(0.281)	(0.404)	(0.293)
Marital Status (Living Together)	0.060	0.078	−0.243	−0.307	0.023	0.440

Continued on Next Page…

Table 67 – Continued

	5km	10km	15km	20km	25km	30km
	(0.332)	(0.323)	(0.286)	(0.339)	(0.576)	(0.431)
Marital Status (Not Living Together)		−1.153	−0.853***	−0.785**		−0.512*
		(1.112)	(0.284)	(0.333)		(0.287)
Occupation (44)	0.007	0.041	0.319	0.001	0.165	0.112
	(0.305)	(0.263)	(0.216)	(0.167)	(0.157)	(0.198)
Occupation (62)	0.061	−0.039	0.088	0.123	−0.002	−0.231
	(0.225)	(0.191)	(0.150)	(0.132)	(0.189)	(0.167)
Occupation (65)	0.012	−0.223	−0.032			−0.177
	(0.337)	(0.492)	(0.267)			(0.243)
Region - North Central		5.211**	3.780**	9.683***	6.418	−0.041
		(2.318)	(1.470)	(3.027)	(5.227)	(1.670)
Region - North Western	−0.088	5.048**	3.593**	9.419***	5.247	−0.202
	(0.150)	(2.334)	(1.512)	(3.097)	(5.651)	(1.641)
Region - South Central	0.498**	5.691**	4.216***	9.923***	6.337	0.693
	(0.234)	(2.283)	(1.456)	(3.028)	(5.167)	(1.476)
Region - S. East A	0.508**	5.542**	4.052***	9.927***	6.488	0.295
	(0.206)	(2.312)	(1.491)	(3.078)	(5.315)	(1.620)
Region - S. East B	0.139	5.194**	3.712**	9.591***	6.243	−0.057
	(0.159)	(2.301)	(1.457)	(3.030)	(5.206)	(1.632)
Treatment*Distance to Roads	0.00001	−0.00003	−0.00003	−0.00004	−0.00003	0.00003
	(0.0001)	(0.0001)	(0.00003)	(0.00003)	(0.00004)	(0.00005)
Constant	−0.326	−5.892**	−3.758	−9.901**	−3.475	−0.367
	(1.631)	(2.922)	(2.555)	(4.013)	(6.491)	(3.202)

Table 68: Results for Concessions with CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.120	−0.249*	−0.180	0.072	−0.090	0.184***
	(0.157)	(0.148)	(0.151)	(0.071)	(0.062)	(0.069)
Urban/Rural					1.248**	0.911*
					(0.511)	(0.465)
Elevation	0.001	0.0003	0.0005	−0.0001	−0.0001	0.001*
	(0.001)	(0.001)	(0.001)	(0.0003)	(0.0003)	(0.0003)
Pop. Density	0.006***	0.005***	0.007***	0.003***	0.005***	0.004***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Aid Projects	0.00000*	0.00000**	0.00000	0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	−0.00001	−0.00001	−0.00001	0.00001	−0.00001	0.00005***
	(0.00002)	(0.00002)	(0.00002)	(0.00001)	(0.00001)	(0.00002)
Slope	−0.035	−0.031	−0.013	0.018*	0.017	−0.005
	(0.032)	(0.034)	(0.027)	(0.011)	(0.013)	(0.015)
Urban Travel Time	−0.0004**	−0.0004**	−0.0002	−0.0001	−0.0001	−0.0005**
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Pre-Period Precipitation	0.006	0.002	0.002	0.003	0.0002	0.005**
	(0.005)	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)
Pre-Period Temperature	0.146	0.070	−0.010	0.021	−0.021	−0.011
	(0.115)	(0.084)	(0.076)	(0.043)	(0.051)	(0.049)
Pre-Period NTL (Avg)	−0.609***	−0.363**		−0.440***	−0.422**	−0.328***
	(0.205)	(0.144)		(0.161)	(0.188)	(0.113)
Pre-Period NTL (Trend)	8.889***	6.186***	1.531***	7.001***	6.254**	6.099***
	(2.524)	(1.782)	(0.536)	(2.280)	(2.510)	(1.607)
Household Numbers	−0.015	−0.028	−0.005	−0.012	−0.021	−0.023**
	(0.022)	(0.024)	(0.016)	(0.012)	(0.015)	(0.011)
Gender	−0.134	−0.226	−0.280	−0.021	0.092	0.122
	(0.343)	(0.391)	(0.379)	(0.200)	(0.158)	(0.179)
Age	0.001	0.004	0.004	0.003	0.001	−0.001
	(0.005)	(0.006)	(0.005)	(0.002)	(0.002)	(0.002)
Religion	0.004	0.076	−0.005	0.039	0.079	0.128
	(0.104)	(0.151)	(0.147)	(0.107)	(0.114)	(0.102)
Edu. Level (Primary)	0.356	0.332	0.268	0.105	0.004	0.248***
	(0.223)	(0.216)	(0.172)	(0.099)	(0.063)	(0.087)
Edu. Level (Secondary)						0.442
						(0.291)
Wealth	0.00000	0.00000	0.00000	0.00000	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.124	−0.179	−0.018	−0.126	−0.231	0.002
	(0.129)	(0.119)	(0.114)	(0.100)	(0.160)	(0.092)
Marital Status (Married)	−0.083	0.019	−0.218	−0.308*	−0.386*	−0.401**
	(0.176)	(0.258)	(0.198)	(0.183)	(0.198)	(0.194)
Marital Status (Living Together)	0.282	0.340	−0.004	−0.298	−0.381*	−0.367*

Continued on Next Page…

Table 68 – Continued

	5km	10km	15km	20km	25km	30km
	(0.351)	(0.421)	(0.338)	(0.207)	(0.206)	(0.211)
Marital Status (Not Living Together)					−0.250	−0.556**
					(0.188)	(0.230)
Occupation (44)	−0.217	−0.141	−0.269	0.039	0.152	0.211
	(0.291)	(0.258)	(0.278)	(0.176)	(0.180)	(0.135)
Occupation (62)	−0.061	−0.086	−0.073	0.033	0.202	−0.007
	(0.137)	(0.170)	(0.212)	(0.124)	(0.148)	(0.110)
Occupation (65)	0.251	0.261	0.215	0.163	−0.091	0.438***
	(0.190)	(0.267)	(0.286)	(0.169)	(0.412)	(0.156)
Region - North Central	0.232	0.193	0.256*	−0.056	−0.084	−0.125
	(0.169)	(0.152)	(0.155)	(0.109)	(0.096)	(0.114)
Region - North Western	0.880**	0.924***	0.811***	0.517***	0.569***	0.399**
	(0.355)	(0.347)	(0.310)	(0.197)	(0.177)	(0.185)
Region - South Central	0.629**	0.634**	0.545**	0.194*	0.346***	0.231**
	(0.273)	(0.256)	(0.219)	(0.116)	(0.131)	(0.117)
Region - S. East A	0.090	0.134	0.148	0.026	0.059	0.187**
	(0.209)	(0.191)	(0.145)	(0.080)	(0.107)	(0.093)
Region - S. East B	0.00003	0.0001	0.00002	−0.00003	0.00001	−0.00005**
	(0.00004)	(0.00004)	(0.00004)	(0.00002)	(0.00002)	(0.00002)
Treatment*Distance to Roads	−4.768*	−2.250	−0.271	−0.770	0.630	−0.387
	(2.701)	(1.794)	(1.611)	(1.193)	(1.361)	(1.027)

Table 69: Results for Concessions without CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.078	−0.008	−0.010	−0.016	0.262**	0.331*
	(0.130)	(0.133)	(0.126)	(0.094)	(0.118)	(0.170)
Urban/Rural	0.985**	1.655**	0.713*	2.070***	2.172***	2.278***
	(0.433)	(0.680)	(0.394)	(0.383)	(0.472)	(0.529)
Elevation	−0.0001	−0.0004	−0.0002	−0.001*	−0.001	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Pop. Density	0.006***	0.002***	0.001***	0.002***	0.006***	0.025***
	(0.002)	(0.0005)	(0.0004)	(0.001)	(0.001)	(0.006)
Aid Projects	0.00000	0.00000*	0.00000	0.00000	0.00000	−0.00001*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00000	0.00001	0.00003	−0.00001	0.00002	−0.0002
	(0.00002)	(0.00002)	(0.00003)	(0.00003)	(0.00004)	(0.0002)
Slope	−0.007	−0.009	0.007	0.020	0.073**	−0.023
	(0.024)	(0.023)	(0.025)	(0.017)	(0.035)	(0.115)
Urban Travel Time	−0.0005*	−0.0004*	−0.0005*	−0.001***	−0.0003	0.0004
	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0004)
Pre-Period Precipitation	−0.0001	0.0001	0.004	0.0001	0.010*	−0.011
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.011)
Pre-Period Temperature	0.025	0.035	0.018	−0.029	−0.265**	−0.144
	(0.063)	(0.061)	(0.082)	(0.087)	(0.132)	(0.252)
Pre-Period NTL (Avg)	−0.728***	−0.432**	−0.435***	−0.555***	−0.559***	−0.245
	(0.252)	(0.197)	(0.137)	(0.109)	(0.183)	(0.444)
Pre-Period NTL (Trend)	12.902***	8.776***	9.093***	7.748***	7.762**	0.345
	(4.145)	(3.258)	(2.315)	(1.547)	(3.768)	(10.301)
Household Numbers	−0.015	−0.013	−0.006	−0.019	−0.072**	0.038
	(0.018)	(0.019)	(0.030)	(0.029)	(0.035)	(0.040)
Gender	−0.007	0.082	0.149	−0.226	−0.067	−1.255
	(0.305)	(0.295)	(0.316)	(0.241)	(0.522)	(0.931)
Age	−0.0003	0.002	0.002	0.003	0.0002	−0.011
	(0.004)	(0.004)	(0.007)	(0.003)	(0.007)	(0.010)
Religion	0.092	0.085	0.062	−0.209	−0.297	0.807
	(0.128)	(0.127)	(0.225)	(0.184)	(0.259)	(0.698)
Edu. Level (Primary)	0.192	0.201	0.266**	0.176**	0.203	0.456**
	(0.128)	(0.130)	(0.134)	(0.090)	(0.124)	(0.211)
Edu. Level (Secondary)	0.147	0.249	0.158	0.055	0.842	−0.346
	(0.399)	(0.390)	(0.353)	(0.372)	(0.789)	(0.714)
Wealth	0.00000	0.00000**	0.00000	0.00000*	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.234	−0.140	−0.429*	0.113	−0.0004	0.145
	(0.251)	(0.165)	(0.224)	(0.160)	(0.455)	(0.408)
Marital Status (Married)	0.053	0.138	−0.136	−0.113	0.025	0.729
	(0.346)	(0.260)	(0.312)	(0.192)	(0.495)	(0.918)
Marital Status (Living Together)		−1.246	−0.677**	−0.861***		

Continued on Next Page…

Table 69 – Continued

	5km	10km	15km	20km	25km	30km
		(0.764)	(0.303)	(0.225)		
Marital Status (Not Living Together)	−0.111	−0.190	0.056	−0.228**	0.051	0.351
	(0.296)	(0.268)	(0.242)	(0.111)	(0.174)	(0.300)
Occupation (44)	−0.041	−0.214	−0.112	−0.089	0.037	0.571*
	(0.207)	(0.191)	(0.141)	(0.093)	(0.161)	(0.321)
Occupation (62)	−0.261	−0.407	−0.098			
	(0.305)	(0.421)	(0.422)			
Occupation (65)		4.246**	2.015*	5.280**		
		(1.768)	(1.143)	(2.445)		
Region - North Central	−0.063	4.096**	1.769	5.338**	−0.267	−0.174
	(0.131)	(1.778)	(1.201)	(2.488)	(0.244)	(1.316)
Region - North Western	0.469**	4.744***	2.431**	5.573**	0.313	−0.812
	(0.221)	(1.725)	(1.090)	(2.406)	(0.456)	(1.465)
Region - South Central	0.445**	4.532***	2.217*	5.458**	0.460**	0.242
	(0.189)	(1.759)	(1.142)	(2.479)	(0.212)	(0.896)
Region - S. East A	0.167	4.247**	1.978*	5.025**	−0.474**	−0.571
	(0.159)	(1.745)	(1.120)	(2.454)	(0.241)	(0.897)
Region - S. East B	0.00000	−0.00004	−0.00003	0.00002	−0.00005	0.0002
	(0.0001)	(0.0001)	(0.00004)	(0.00004)	(0.0001)	(0.0002)
Treatment*Distance to Roads	−0.455	−4.859**	−2.712	−4.101	5.246	4.975
	(1.483)	(2.427)	(2.345)	(3.521)	(3.191)	(6.851)

Table 70: Results for All Chinese Concessions (2007-2013)

	20km	25km	30km
Treatment	1.016***	0.883***	1.116***
	(0.261)	(0.282)	(0.308)
Urban/Rural	1.132	−1.437	−0.395
	(1.178)	(3.272)	(3.197)
Elevation	0.004	−0.004	−0.0005
	(0.004)	(0.003)	(0.003)
Pop. Density	0.001***	0.002**	0.002***
	(0.0003)	(0.001)	(0.001)
Aid Projects	0.00001	0.00001**	−0.00001
	(0.00001)	(0.00001)	(0.00001)
Dist. to Roads	0.0001	0.00004	0.0001
	(0.0001)	(0.0001)	(0.0001)
Slope	−0.198**	0.017	0.100
	(0.090)	(0.080)	(0.088)
Urban Travel Time	−0.006*	−0.005*	−0.005*
	(0.004)	(0.003)	(0.003)
Pre-Period Precipitation	−0.008	−0.005	−0.019
	(0.028)	(0.015)	(0.019)
Pre-Period Temperature	−0.190	−0.246	−0.104
	(0.345)	(0.268)	(0.286)
Pre-Period NTL (Avg)	−0.506***	−0.683***	−0.683***
	(0.158)	(0.167)	(0.139)
Pre-Period NTL (Trend)	7.228***	8.696***	9.353***
	(2.023)	(3.044)	(2.367)
Household Numbers	0.078	−0.115	−0.203***
	(0.102)	(0.073)	(0.076)
Gender	−2.191*	−1.104**	−1.257**
	(1.273)	(0.505)	(0.513)
Age	0.017	0.012	0.007
	(0.011)	(0.011)	(0.011)
Religion	0.145	0.093	1.048**
	(0.383)	(0.390)	(0.450)
Edu. Level (Primary)	1.275***	1.108***	0.826**
	(0.482)	(0.378)	(0.418)
Edu. Level (Secondary)	0.939	−2.034**	−2.857**
	(1.158)	(1.025)	(1.322)
Wealth	−0.00000*	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.588	0.142	0.486
	(0.518)	(0.334)	(0.633)
Marital Status (Married)	0.148	0.791*	0.662
	(1.034)	(0.435)	(0.479)
Marital Status (Living Together)	0.438	1.271***	0.720

Continued on Next Page…

Table 70 – Continued

	5km	10km	15km	20km	25km
	(0.857)	(0.488)	(0.572)		
Marital Status (Not Living Together)	−2.423**		−1.147		
	(1.155)		(0.709)		
Occupation (44)	−0.109	−1.419***	−2.163***		
	(0.637)	(0.530)	(0.797)		
Occupation (62)	0.124	−0.705*	−1.293**		
	(0.536)	(0.411)	(0.642)		
Occupation (65)			−3.039		
			(3.517)		
Region - North Central	−1.908***	−0.548	−0.677		
	(0.542)	(0.529)	(0.541)		
Region - North Western	−1.712***	−1.564***	−1.427**		
	(0.472)	(0.485)	(0.560)		
Region - South Central	−0.0003	−0.0002	−0.0003***		
	(0.0002)	(0.0002)	(0.0001)		
Region - South Eastern A	7.299	7.931	8.254*		
	(4.710)	(4.989)	(4.661)		

Table 71: Results for All US Concessions (2007-2013)

	5km	10km	15km	20km	25km	
Treatment	0.181	0.106	0.155	0.096	0.097	0.091
	(0.161)	(0.183)	(0.168)	(0.127)	(0.110)	(0.099)
Urban/Rural	−0.0001	−0.001	−0.001	−0.001	−0.0005	−0.0005
	(0.001)	(0.001)	(0.001)	(0.0005)	(0.0005)	(0.0005)
Elevation	0.005***	0.001**	0.001***	0.002***	0.002***	0.002***
	(0.002)	(0.001)	(0.0004)	(0.001)	(0.001)	(0.001)
Pop. Density	0.00000	0.00000***	0.00000***	0.00000*	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Aid Projects	0.00002	0.00003	0.00003	0.00002	0.00002	−0.00000
	(0.00003)	(0.00003)	(0.00003)	(0.00002)	(0.00002)	(0.00002)
Dist. to Roads	−0.004	0.004	0.003	0.014	0.008	0.001
	(0.033)	(0.029)	(0.026)	(0.018)	(0.019)	(0.017)
Slope	−0.001*	−0.001**	−0.001**	−0.0004*	−0.0003*	−0.0004**
	(0.0004)	(0.0005)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
Urban Travel Time	−0.001	−0.002	−0.002	−0.002	0.0001	−0.0002
	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
Pre-Period Precipitation	−0.006	−0.002	0.006	0.012	−0.007	−0.022
	(0.056)	(0.087)	(0.065)	(0.062)	(0.068)	(0.077)
Pre-Period Temperature		−0.552**	−0.525***	−0.453**	−0.381***	−0.322**
		(0.228)	(0.151)	(0.198)	(0.113)	(0.147)
Pre-Period NTL (Avg)	35.494***	15.801***	12.406***	11.655***	6.840***	5.492**
	(10.503)	(5.098)	(2.708)	(3.658)	(1.424)	(2.267)
Pre-Period NTL (Trend)	−0.023	−0.031	−0.025	−0.026	−0.020	−0.031*
	(0.022)	(0.024)	(0.024)	(0.021)	(0.022)	(0.018)
Household Numbers	−0.001	−0.287	−0.094	−0.185	−0.123	−0.009
	(0.322)	(0.409)	(0.371)	(0.288)	(0.266)	(0.217)
Gender	−0.002	0.005	0.007	0.004	0.003	0.001
	(0.004)	(0.006)	(0.005)	(0.004)	(0.005)	(0.004)
Age	0.341*	0.516**	0.479**	0.300**	0.253**	0.221**
	(0.194)	(0.218)	(0.209)	(0.147)	(0.118)	(0.104)
Religion		−0.090	0.329	0.231	0.587	0.394
		(0.377)	(0.404)	(0.424)	(0.398)	(0.411)
Edu. Level (Primary)	0.00000	0.00000*	0.00000	0.00000	0.00000*	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	−1.656	0.015	−0.101	0.041	0.072	−0.234
	(1.182)	(0.327)	(0.390)	(0.399)	(0.470)	(0.205)
Wealth	−1.288	0.524	0.400	0.332	0.285	−0.142
	(1.270)	(0.486)	(0.515)	(0.474)	(0.499)	(0.254)
Employment (Yes)					0.257	−0.210
					(0.602)	(0.427)
Marital Status (Married)	−0.398	−0.404	−0.206	−0.273	−0.178	−0.088
	(0.262)	(0.313)	(0.279)	(0.235)	(0.215)	(0.190)
Marital Status (Living Together)	−0.135	−0.237	−0.212	−0.207	−0.159	−0.145

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Table 71 – Continued

	5km	10km	15km	20km	25km	
	(0.182)	(0.198)	(0.206)	(0.163)	(0.124)	(0.129)
Marital Status (Not Living Together)		−0.615**	−0.318			
		(0.290)	(0.297)			
Occupation (44)		5.338**	2.445**		5.193**	3.136
		(2.399)	(1.115)		(2.240)	(2.420)
Occupation (62)	0.027	5.196**	2.398**	−0.147	5.069**	2.914
	(0.120)	(2.393)	(1.085)	(0.141)	(2.250)	(2.436)
Occupation (65)	0.427*	6.116***	3.083***	0.411	5.643**	3.382
	(0.257)	(2.345)	(1.016)	(0.268)	(2.223)	(2.438)
Region - North Central	0.578**	6.054**	2.987***	0.266	5.450**	3.322
	(0.232)	(2.400)	(1.068)	(0.172)	(2.261)	(2.453)
Region - North Western	0.099	5.332**	2.413**	−0.135	5.135**	3.086
	(0.149)	(2.389)	(1.077)	(0.146)	(2.245)	(2.432)
Region - South Central	−0.0001	−0.0001	−0.0001	−0.00004	−0.00003	0.00001
	(0.0001)	(0.0001)	(0.0001)	(0.00004)	(0.00003)	(0.00003)
Region - South Eastern A	1.933	−4.882	−2.502	0.158	−5.003*	−2.017
	(1.749)	(3.408)	(2.050)	(1.513)	(2.921)	(3.421)

F. Robustness test 2: Including versus excluding urban areas

The models reported in the paper attempt to identify the treatment effect of concessions granted between 2007 and 2013, but not for concessions granted prior to 2007. Admittedly, only very few such concessions exist, as the Ellen Johnson-Sirleaf administration entered office only in 2006. To avoid contaminating our analysis with these pre-2007 observations, we exclude them from our analysis as the observational penalty (i.e., number of grid cells ignored) is quite small. However, most of these pre-2007 concessions were granted to urban areas. The tables presented in this section utilize the full sample of concessions to examine whether the exclusion of these cells changes the findings reported in the paper. The results are not affected by these changes in sample composition.

Table 72: Results for All Concessions (2007-2013)

	5km	10km	15km	20km	25km	
Treatment	−0.133	−0.094	−0.115	0.047	0.107*	0.224***
	(0.084)	(0.084)	(0.086)	(0.058)	(0.058)	(0.087)
Urban/Rural	1.127***	1.369***	1.109***	1.778***	1.693***	2.372***
	(0.280)	(0.327)	(0.326)	(0.503)	(0.474)	(0.625)
Elevation	0.0002	0.0001	0.001	−0.0003	−0.0001	−0.003***
	(0.001)	(0.0005)	(0.0005)	(0.0003)	(0.0004)	(0.001)
Pop. Density	0.005***	0.005***	0.006***	0.002***	0.003***	0.003**
	(0.001)	(0.001)	(0.001)	(0.0004)	(0.0005)	(0.001)
Aid Projects	0.00000**	0.00000**	0.00000	0.00000**	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00002	0.00002	0.00001	0.00002*	0.00003	0.00003
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00002)	(0.00004)
Slope	−0.013	−0.011	−0.023	0.007	0.004	0.049
	(0.020)	(0.017)	(0.021)	(0.014)	(0.019)	(0.036)
Urban Travel Time	−0.0004**	−0.0004**	−0.0003	−0.0004**	−0.0003	−0.00002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0004)
Pre-Period Precipitation	−0.001	−0.002	−0.0003	−0.002	−0.003	0.010
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.006)
Pre-Period Temperature	0.068	0.049	−0.008	0.078	0.057	0.244
	(0.062)	(0.052)	(0.053)	(0.063)	(0.067)	(0.204)
Pre-Period NTL (Avg)	−0.400**	−0.323*	−0.437**	−0.578***	−0.547***	−0.543***
	(0.197)	(0.175)	(0.197)	(0.176)	(0.090)	(0.121)
Pre-Period NTL (Trend)	7.140***	6.186***	7.645***	9.454***	8.470***	6.861**
	(2.519)	(2.239)	(2.562)	(3.319)	(2.098)	(2.859)
Household Numbers	−0.018	−0.018	−0.016	−0.005	0.007	0.106***
	(0.023)	(0.022)	(0.017)	(0.014)	(0.013)	(0.038)
Gender	−0.083	−0.075	−0.171	0.191	0.152	0.013
	(0.297)	(0.282)	(0.255)	(0.243)	(0.309)	(0.449)
Age	0.003	0.004	0.004	0.003	0.001	0.002
	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.005)
Religion	−0.047	0.013	−0.004	0.038	0.361	2.554***

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Table 72 – Continued

	5km	10km	15km	20km	25km	
	(0.134)	(0.185)	(0.142)	(0.110)	(0.260)	(0.941)
Edu. Level (Primary)	0.245*	0.210	0.238*	0.212**	0.103	−0.128
	(0.143)	(0.139)	(0.133)	(0.100)	(0.097)	(0.139)
Edu. Level (Secondary)	0.270	0.221	0.802**	0.753*	0.175	0.562
	(0.376)	(0.322)	(0.351)	(0.427)	(0.541)	(0.628)
Wealth	0.00000	0.00000	0.00000	0.00000**	0.00000	−0.00000**
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.137	−0.229*	−0.118	−0.191**	−0.489***	−0.808***
	(0.092)	(0.122)	(0.128)	(0.096)	(0.176)	(0.279)
Marital Status (Married)	−0.360**	−0.283*	−0.461**	−0.787	−0.179	0.696
	(0.181)	(0.158)	(0.189)	(0.576)	(0.549)	(1.060)
Marital Status (Living Together)	−0.164	−0.073	−0.246	−0.754	−0.099	0.083
	(0.245)	(0.221)	(0.243)	(0.581)	(0.577)	(1.039)
Marital Status (Not Living Together)		−0.812**	−0.862***	−1.525***	−0.212	
		(0.342)	(0.327)	(0.559)	(0.578)	
Occupation (44)	0.223	0.118	0.021	0.094	0.181	0.896**
	(0.225)	(0.180)	(0.197)	(0.150)	(0.185)	(0.354)
Occupation (62)	0.091	0.133	0.059	−0.010	0.068	0.128
	(0.121)	(0.131)	(0.146)	(0.082)	(0.104)	(0.269)
Occupation (65)	0.125	0.036	0.008	0.195*	0.174	
	(0.169)	(0.211)	(0.280)	(0.113)	(0.281)	
Region - North Central				5.325***	7.047***	9.008*
				(1.781)	(1.670)	(5.066)
Region - North Western	0.092	−0.003	0.115	5.260***	6.674***	3.927
	(0.101)	(0.113)	(0.116)	(1.823)	(1.783)	(5.994)
Region - South Central	0.577**	0.509**	0.624***	5.733***	7.393***	7.925
	(0.228)	(0.214)	(0.233)	(1.765)	(1.608)	(5.129)
Region - S. East A	0.411***	0.416***	0.487***	5.459***	7.188***	6.932
	(0.152)	(0.155)	(0.172)	(1.800)	(1.698)	(5.285)
Region - S. East B	0.090	0.102	0.189*	5.203***	6.858***	7.400
	(0.110)	(0.106)	(0.107)	(1.773)	(1.653)	(5.160)
Treatment*Distance to Roads	−1.556	−0.968	0.322	−6.293**	−7.720***	−16.590**
	(1.548)	(1.276)	(1.268)	(2.535)	(2.328)	(7.751)

Table 73: Results for Agriculture Concessions (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.090	−0.163	−0.211	−0.225	−0.348**	0.290***
	(0.183)	(0.160)	(0.190)	(0.188)	(0.168)	(0.079)
Urban/Rural	−0.002	−0.003*	−0.003	−0.003	−0.001	−0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Elevation	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.0004)	(0.001)	(0.001)	(0.001)	(0.0004)	(0.001)
Pop. Density	0.00002**	0.00002**	0.00002***	0.00002***	0.00001**	0.00002***
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Aid Projects	−0.0001	−0.0001*	−0.0001	−0.0001	0.0001	−0.00003
	(0.0001)	(0.0001)	(0.0001)	(0.00005)	(0.0001)	(0.00003)
Dist. to Roads	−0.016	−0.044	0.008	−0.019	0.030	0.023
	(0.047)	(0.054)	(0.053)	(0.053)	(0.055)	(0.035)
Slope	−0.0003	−0.001	−0.001	−0.001	−0.005*	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)
Urban Travel Time	−0.007	−0.031**	−0.024**	−0.026**	0.013	−0.014
	(0.010)	(0.014)	(0.012)	(0.012)	(0.019)	(0.020)
Pre-Period Precipitation	0.366	−0.108	−0.567	−0.555	−0.368	−1.216***
	(0.518)	(0.493)	(0.402)	(0.408)	(0.401)	(0.346)
Pre-Period Temperature	−0.450***	−0.258**	−0.381***	−0.395***	−0.203	0.014
	(0.147)	(0.103)	(0.128)	(0.140)	(0.146)	(0.277)
Pre-Period NTL (Avg)	6.526***	4.198***	5.573***	5.714***	3.856**	−1.019
	(1.767)	(1.337)	(1.660)	(1.781)	(1.704)	(4.156)
Pre-Period NTL (Trend)	0.028	−0.052	−0.032	−0.031	−0.101	0.035
	(0.081)	(0.066)	(0.064)	(0.063)	(0.066)	(0.061)
Household Numbers	−0.654	−1.508***	−1.451**	−1.390**	−0.179	0.332
	(0.487)	(0.577)	(0.654)	(0.656)	(0.581)	(0.453)
Gender	0.011	0.025***	0.023**	0.022**	0.019	0.045***
	(0.010)	(0.009)	(0.009)	(0.009)	(0.012)	(0.007)
Age	0.068	−0.108	−0.201	−0.165	−0.613	−0.554
	(0.204)	(0.261)	(0.268)	(0.265)	(0.558)	(0.484)
Religion	1.158***	1.255***	1.383***	1.360***	2.465***	0.156
	(0.436)	(0.447)	(0.490)	(0.505)	(0.399)	(0.358)
Edu. Level (Primary)						−0.767
						(0.768)
Edu. Level (Secondary)	−0.00000	0.00000	−0.00000	−0.00000	0.00000	0.00001***
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Wealth	−0.152	−0.391	−0.477	−0.415	−1.391**	−0.748*
	(0.262)	(0.315)	(0.349)	(0.342)	(0.642)	(0.390)
Employment (Yes)	−0.423**	−0.659***	−0.734*	−0.747*	−0.104	−2.058***
	(0.213)	(0.251)	(0.406)	(0.431)	(0.297)	(0.416)
Marital Status (Married)	−0.004	−0.280	−0.187	−0.211	0.160	−2.104***
	(0.257)	(0.293)	(0.480)	(0.509)	(0.362)	(0.476)
Marital Status (Living Together)				−2.858***	−3.190***	

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Table 73 – Continued

	5km	10km	15km	20km	25km	30km
				(0.601)	(0.436)	
Marital Status (Not Living Together)	−0.364	−0.340	−0.346	−0.428	1.147**	3.380***
	(0.458)	(0.518)	(0.503)	(0.503)	(0.582)	(0.578)
Occupation (44)	−0.216	−0.209	−0.213	−0.245	0.866*	2.949***
	(0.225)	(0.315)	(0.293)	(0.294)	(0.511)	(0.511)
Occupation (62)	−0.941**	−0.471	−0.604	−0.657		3.473***
	(0.414)	(0.509)	(0.509)	(0.516)		(0.744)
Occupation (65)	−0.773	−0.839**	−1.089**	−1.038**	−0.990*	0.383
	(0.535)	(0.398)	(0.473)	(0.468)	(0.565)	(0.432)
Region - North Central	0.810**	0.704*	0.850**	0.843**	0.442	1.334**
	(0.357)	(0.376)	(0.380)	(0.393)	(0.450)	(0.581)
Region - North Western						4.293***
						(1.573)
Region - South Central	−7.419	9.061	18.525*	18.448*	7.130	28.013***
	(12.754)	(12.398)	(10.129)	(10.277)	(10.550)	(8.428)

Table 74: Results for Mining Concessions (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.173***	−0.070	−0.248***	0.061	0.080	−0.005
	(0.060)	(0.060)	(0.093)	(0.059)	(0.063)	(0.072)
Urban/Rural	0.982	1.666***	1.714***	1.809***	1.833***	1.665***
	(1.278)	(0.376)	(0.391)	(0.361)	(0.356)	(0.355)
Elevation	0.001	0.001	0.001	−0.0001	−0.001	−0.0003
	(0.001)	(0.0005)	(0.001)	(0.0004)	(0.0003)	(0.001)
Pop. Density	0.006***	0.005***	0.005***	0.002***	0.002***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)	(0.001)
Aid Projects	0.00000**	0.00000	0.00000	0.00000***	0.00000***	0.00000***
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00001	0.00002	0.00002	0.00002	0.00002*	−0.00000
	(0.00002)	(0.00002)	(0.00002)	(0.00001)	(0.00001)	(0.00002)
Slope	−0.032	−0.039	−0.027	0.0001	0.002	−0.037
	(0.021)	(0.029)	(0.027)	(0.020)	(0.017)	(0.047)
Urban Travel Time	−0.0004	−0.0005	−0.001	−0.0004**	−0.0005***	−0.001**
	(0.0005)	(0.0004)	(0.001)	(0.0002)	(0.0002)	(0.0002)
Pre-Period Precipitation	0.006**	0.002	−0.002	−0.002	−0.003	−0.002
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)
Pre-Period Temperature	0.122*	0.031	0.016	0.054	0.095	0.263**
	(0.062)	(0.040)	(0.061)	(0.054)	(0.077)	(0.128)
Pre-Period NTL (Avg)	−0.446***	−0.229	−0.549**	−0.532***	−0.516***	−0.599***
	(0.168)	(0.181)	(0.222)	(0.185)	(0.118)	(0.103)
Pre-Period NTL (Trend)	7.207***	4.711**	8.823***	9.680***	8.001***	8.216***
	(2.058)	(2.113)	(2.742)	(3.254)	(1.678)	(2.657)
Household Numbers	−0.010	−0.020	−0.029	0.001	−0.025	−0.030
	(0.022)	(0.025)	(0.025)	(0.020)	(0.016)	(0.020)
Gender	0.187	0.003	0.099	−0.150	−0.174	0.035
	(0.195)	(0.188)	(0.244)	(0.250)	(0.232)	(0.368)
Age	−0.00002	0.004	0.004	0.006	0.006**	0.006
	(0.003)	(0.004)	(0.005)	(0.004)	(0.003)	(0.004)
Religion	−0.101	−0.215*	0.048	0.072	0.138	−0.447
	(0.128)	(0.118)	(0.203)	(0.155)	(0.203)	(0.317)
Edu. Level (Primary)	0.031	0.006	0.302**	0.220**	0.192*	0.139
	(0.097)	(0.076)	(0.148)	(0.108)	(0.099)	(0.091)
Edu. Level (Secondary)	0.034	0.207	0.250	0.410	0.180	0.154
	(0.360)	(0.317)	(0.300)	(0.423)	(0.340)	(0.313)
Wealth	0.00000	0.00000	0.00000	0.00000	0.00000**	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.235*	−0.171	−0.286*	−0.288***	−0.378***	−0.470***
	(0.128)	(0.117)	(0.154)	(0.103)	(0.111)	(0.133)
Marital Status (Married)	−0.232	−0.367***	−0.457***	−0.699**	−0.357	−0.615**
	(0.218)	(0.140)	(0.172)	(0.350)	(0.231)	(0.309)
Marital Status (Living Together)	−0.100	−0.175	−0.251	−0.581*	−0.268	−0.785**

Continued on Next Page…

Table 74 – Continued

	5km	10km	15km	20km	25km	30km
	(0.243)	(0.157)	(0.211)	(0.352)	(0.255)	(0.331)
Marital Status (Not Living Together)		−0.462	−0.556**		−0.881***	−1.780***
		(0.324)	(0.226)		(0.286)	(0.382)
Occupation (44)	1.066***	0.781***	0.275	0.196	0.179	0.487***
	(0.373)	(0.236)	(0.266)	(0.175)	(0.150)	(0.168)
Occupation (62)	0.098	0.211	0.070	0.132	0.109	0.154
	(0.199)	(0.142)	(0.205)	(0.093)	(0.081)	(0.107)
Occupation (65)	−0.195	0.264	0.169	0.305*	0.364**	0.586***
	(0.249)	(0.161)	(0.354)	(0.184)	(0.170)	(0.209)
Region - North Central				6.873***	5.107***	6.977**
				(2.329)	(1.374)	(2.787)
Region - North Western	−0.183	−0.052	−0.105	6.819***	4.858***	6.864**
	(0.128)	(0.108)	(0.134)	(2.378)	(1.455)	(2.880)
Region - South Central	0.430**	0.374***	0.468**	7.375***	5.474***	7.365***
	(0.167)	(0.138)	(0.199)	(2.305)	(1.354)	(2.774)
Region - S. East A	0.458*	0.427**	0.458*	7.092***	5.336***	7.184**
	(0.250)	(0.185)	(0.257)	(2.354)	(1.379)	(2.828)
Region - S. East B	0.093	0.243	0.285	6.847***	5.019***	6.764**
	(0.164)	(0.152)	(0.242)	(2.336)	(1.370)	(2.806)
Treatment*Distance to Roads	−4.029**	−1.024	0.325	−7.492***	−6.439***	−12.313***
	(1.759)	(1.026)	(1.606)	(2.755)	(2.495)	(4.347)

Table 75: Results for Concessions with CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.024	−0.079	−0.120	0.001	−0.047	0.125*
	(0.107)	(0.102)	(0.100)	(0.063)	(0.060)	(0.066)
Urban/Rural					1.635***	1.477***
					(0.455)	(0.405)
Elevation	−0.00001	0.0003	−0.00002	−0.0002	−0.0002	0.0002
	(0.001)	(0.001)	(0.001)	(0.0004)	(0.0004)	(0.0004)
Pop. Density	0.003*	0.005***	0.003***	0.002***	0.003***	0.005***
	(0.001)	(0.001)	(0.001)	(0.0005)	(0.001)	(0.001)
Aid Projects	0.00000**	0.00000**	0.00000	0.00000	0.00000**	0.00000*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00000	0.00000	0.00000	0.00000	0.00001	0.00004**
	(0.00002)	(0.00002)	(0.00001)	(0.00001)	(0.00002)	(0.00002)
Slope	0.008	−0.014	−0.002	0.025*	0.005	−0.002
	(0.026)	(0.028)	(0.026)	(0.015)	(0.014)	(0.016)
Urban Travel Time	−0.001***	−0.001***	−0.0003**	−0.0002	−0.0003*	−0.001***
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0003)
Pre-Period Precipitation	0.004	0.002	−0.001	−0.001	−0.001	−0.001
	(0.004)	(0.004)	(0.003)	(0.002)	(0.002)	(0.003)
Pre-Period Temperature	0.245**	0.156	0.013	0.032	0.025	0.004
	(0.115)	(0.098)	(0.084)	(0.057)	(0.046)	(0.063)
Pre-Period NTL (Avg)	−0.522**	−0.444***		−0.439**	−0.747***	−0.675***
	(0.209)	(0.144)		(0.180)	(0.169)	(0.159)
Pre-Period NTL (Trend)	8.234***	7.304***	1.791***	7.515***	11.030***	11.543***
	(2.632)	(1.886)	(0.600)	(2.177)	(2.214)	(2.176)
Household Numbers	−0.033	−0.027	−0.007	−0.002	−0.016	−0.022
	(0.030)	(0.027)	(0.018)	(0.013)	(0.015)	(0.018)
Gender	−0.297	−0.203	−0.185	−0.132	−0.119	−0.038
	(0.308)	(0.333)	(0.297)	(0.220)	(0.210)	(0.244)
Age	0.003	0.004	0.005	0.002	0.003	0.005
	(0.005)	(0.006)	(0.005)	(0.003)	(0.003)	(0.004)
Religion	0.013	0.034	0.029	0.099	−0.005	−0.042
	(0.125)	(0.139)	(0.135)	(0.116)	(0.110)	(0.095)
Edu. Level (Primary)	0.415**	0.348*	0.278*	0.163	0.143	0.293**
	(0.204)	(0.207)	(0.168)	(0.106)	(0.101)	(0.121)
Edu. Level (Secondary)		2.694***	3.452***	0.076	0.260	0.493
		(0.920)	(1.232)	(0.684)	(0.627)	(0.302)
Wealth	0.00000**	0.00000*	0.00000	0.00000*	0.00000**	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.301***	−0.192*	−0.109	−0.143	−0.283*	−0.104
	(0.114)	(0.104)	(0.100)	(0.106)	(0.145)	(0.095)
Marital Status (Married)	−0.527**	−0.504*	−0.572**	−0.836***	−0.369**	−0.426**
	(0.257)	(0.265)	(0.245)	(0.281)	(0.174)	(0.203)
Marital Status (Living Together)	−0.277	−0.316	−0.446	−0.718**	−0.252	−0.441**

Continued on Next Page…

Table 75 – Continued

	5km	10km	15km	20km	25km	30km
	(0.324)	(0.337)	(0.325)	(0.300)	(0.195)	(0.215)
Marital Status (Not Living Together)				−0.707*	−0.555***	−0.804***
				(0.399)	(0.199)	(0.251)
Occupation (44)	0.021	0.009	−0.046	0.102	0.223	0.220
	(0.252)	(0.216)	(0.216)	(0.201)	(0.200)	(0.163)
Occupation (62)	−0.005	0.063	0.046	0.038	0.232	0.068
	(0.119)	(0.124)	(0.139)	(0.117)	(0.152)	(0.127)
Occupation (65)	0.437**	0.295*	0.244	0.424	0.197	0.401**
	(0.186)	(0.164)	(0.240)	(0.267)	(0.190)	(0.177)
Region - North Central		15.464***	7.793**	−0.074	1.008	
		(3.507)	(3.258)	(0.870)	(0.781)	
Region - North Western	0.152	15.674***	7.900**	−0.108	0.986	−0.087
	(0.183)	(3.525)	(3.268)	(0.840)	(0.786)	(0.114)
Region - South Central	0.841***	16.237***	8.540***	0.440	1.555**	0.266
	(0.295)	(3.470)	(3.239)	(0.827)	(0.750)	(0.165)
Region - S. East A	0.618***	16.114***	8.227**	0.195	1.438*	0.288*
	(0.236)	(3.524)	(3.272)	(0.838)	(0.778)	(0.164)
Region - S. East B	0.050	15.494***	7.805**	0.030	1.062	0.012
	(0.203)	(3.535)	(3.268)	(0.846)	(0.769)	(0.134)
Treatment*Distance to Roads	−6.043**	−19.280***	−7.714*	0.201	−1.215	0.147
	(2.843)	(3.957)	(4.067)	(1.709)	(1.450)	(1.324)

Table 76: Results for Concessions without CSR projects (2007-2013).

	5km	10km	15km	20km	25km	30km
Treatment	−0.039	−0.023	−0.110	0.068	0.145**	0.123**
	(0.049)	(0.060)	(0.080)	(0.084)	(0.058)	(0.061)
Urban/Rural	1.129***	1.032**	0.712*	2.032***	1.898***	1.801***
	(0.393)	(0.457)	(0.429)	(0.351)	(0.396)	(0.421)
Elevation	0.001**	0.001*	0.0004	0.0001	−0.0004	−0.0005
	(0.001)	(0.0004)	(0.001)	(0.0005)	(0.0004)	(0.0004)
Pop. Density	0.005***	0.005***	0.006***	0.003***	0.002***	0.001***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.0003)
Aid Projects	0.00000*	0.00000*	0.00000	0.00000*	0.00000**	0.00000**
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	0.00004*	0.00002	0.00001	0.00003**	0.00003*	0.00003*
	(0.00002)	(0.00002)	(0.00002)	(0.00001)	(0.00002)	(0.00002)
Slope	−0.054*	−0.035*	−0.009	−0.009	0.002	−0.008
	(0.028)	(0.018)	(0.018)	(0.019)	(0.019)	(0.024)
Urban Travel Time	−0.0002	−0.0004	−0.0004	−0.0004**	−0.0004**	−0.0004*
	(0.0004)	(0.0004)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
Pre-Period Precipitation	0.002	−0.001	−0.0004	0.002	−0.002	−0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)
Pre-Period Temperature	0.034	−0.002	0.013	−0.024	0.029	0.150
	(0.040)	(0.035)	(0.052)	(0.077)	(0.072)	(0.110)
Pre-Period NTL (Avg)	−0.570***	−0.416**	−1.010***	−0.541***	−0.384***	−0.636***
	(0.137)	(0.203)	(0.341)	(0.111)	(0.126)	(0.094)
Pre-Period NTL (Trend)	9.980***	8.537***	17.304***	8.714***	5.607***	9.526***
	(1.664)	(3.053)	(5.661)	(1.442)	(1.800)	(1.796)
Household Numbers	−0.003	−0.015	−0.021	−0.003	0.006	−0.013
	(0.014)	(0.019)	(0.021)	(0.022)	(0.015)	(0.015)
Gender	0.259*	0.051	0.292	−0.001	0.014	0.202
	(0.151)	(0.181)	(0.259)	(0.370)	(0.233)	(0.302)
Age	−0.001	0.003	−0.0001	0.004	0.003	−0.002
	(0.002)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)
Religion	0.009	−0.168	−0.008	−0.030	0.013	−0.214
	(0.070)	(0.110)	(0.155)	(0.187)	(0.192)	(0.216)
Edu. Level (Primary)	0.041	0.060	0.208*	0.302**	0.295**	0.320***
	(0.068)	(0.078)	(0.115)	(0.141)	(0.115)	(0.102)
Edu. Level (Secondary)	0.694***	0.276	0.496	1.255***	0.818**	0.400
	(0.260)	(0.299)	(0.368)	(0.336)	(0.386)	(0.437)
Wealth	0.00000	0.00000*	0.00000	0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−0.215	−0.362**	−0.378*	−0.123	−0.317	−0.269
	(0.170)	(0.162)	(0.202)	(0.234)	(0.349)	(0.328)
Marital Status (Married)	−0.038	−0.062	−0.113	0.061	−0.187	−0.185
	(0.202)	(0.190)	(0.242)	(0.307)	(0.364)	(0.341)
Marital Status (Living Together)		−0.823	−0.426*	−0.620*	−0.850**	−1.123***

Continued on Next Page…

Table 76 – Continued

	5km	10km	15km	20km	25km	30km
		(0.641)	(0.259)	(0.368)	(0.418)	(0.282)
Marital Status (Not Living Together)	0.460***	0.414*	0.036	0.124	0.066	0.272*
	(0.176)	(0.240)	(0.285)	(0.199)	(0.139)	(0.163)
Occupation (44)	0.049	0.067	−0.174	−0.022	−0.028	0.009
	(0.104)	(0.124)	(0.192)	(0.134)	(0.094)	(0.081)
Occupation (62)	−0.230	0.097	−0.209	0.446***	0.099	0.340**
	(0.255)	(0.139)	(0.258)	(0.122)	(0.123)	(0.152)
Occupation (65)			19.160***	8.411***	4.940***	2.148**
			(5.776)	(2.489)	(1.416)	(0.997)
Region - North Central	−0.001	0.080	19.165***	8.409***	4.812***	2.062**
	(0.091)	(0.101)	(5.785)	(2.538)	(1.477)	(1.014)
Region - North Western	0.354**	0.469***	19.636***	8.940***	5.396***	2.686***
	(0.140)	(0.159)	(5.860)	(2.465)	(1.378)	(0.936)
Region - South Central	0.313**	0.449**	19.469***	8.692***	5.137***	2.181**
	(0.152)	(0.180)	(5.842)	(2.529)	(1.441)	(1.028)
Region - S. East A	0.115	0.269*	19.417***	8.433***	4.643***	1.926*
	(0.123)	(0.139)	(5.846)	(2.504)	(1.412)	(1.000)
Region - S. East B	−1.517	−0.053	−19.341***	−8.398***	−5.504**	−5.421**
	(1.107)	(0.952)	(5.618)	(2.974)	(2.236)	(2.746)

Table 77: Results for All Chinese Concessions (2007-2013)

	20km	25km	30km
Treatment	1.318***	0.736***	0.601***
	(0.261)	(0.234)	(0.191)
Urban/Rural	−2.272	1.145	0.159
	(2.468)	(1.024)	(1.067)
Elevation	0.001	−0.005	−0.003
	(0.005)	(0.003)	(0.002)
Pop. Density	0.002***	0.003***	0.002***
	(0.001)	(0.001)	(0.001)
Aid Projects	−0.00001	0.00001	0.00001
	(0.00001)	(0.00001)	(0.00001)
Dist. to Roads	−0.0001	0.0001	0.0001**
	(0.0001)	(0.0001)	(0.0001)
Slope	−0.052	0.054	0.070
	(0.099)	(0.062)	(0.054)
Urban Travel Time	−0.009**	−0.003	−0.002*
	(0.004)	(0.002)	(0.001)
Pre-Period Precipitation	−0.008	0.013	0.017
	(0.043)	(0.018)	(0.016)
Pre-Period Temperature	−0.608	−0.369	−0.506
	(0.811)	(0.376)	(0.383)
Pre-Period NTL (Avg)	−0.597***	−0.657***	−0.399***
	(0.166)	(0.159)	(0.105)
Pre-Period NTL (Trend)	8.001***	9.059**	6.114***
	(1.976)	(3.522)	(2.166)
Household Numbers	0.039	−0.111	−0.154*
	(0.088)	(0.085)	(0.079)
Gender	−1.696*	−0.742	−0.418
	(0.941)	(0.731)	(0.571)
Age	0.001	0.030***	0.014
	(0.012)	(0.010)	(0.013)
Religion	−0.041	−0.124	0.290
	(0.601)	(0.449)	(0.337)
Edu. Level (Primary)	0.918**	1.230**	0.661
	(0.437)	(0.481)	(0.409)
Edu. Level (Secondary)	−1.566	−0.500	0.491
	(2.029)	(1.092)	(0.778)
Wealth	−0.00001**	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−2.652*	−0.309	−0.040
	(1.541)	(0.657)	(0.574)
Marital Status (Married)	−3.764***	0.315	−0.224
	(1.309)	(0.666)	(0.341)
Marital Status (Living Together)	−3.768***	0.693	−0.271

Continued on Next Page…

Table 77 – Continued

	20km	25km	30km
	(1.258)	(0.607)	(0.340)
Marital Status (Not Living Together)	−4.307***		
	(1.655)		
Occupation (44)	2.426	−0.594	−1.125**
	(1.662)	(0.649)	(0.560)
Occupation (62)	2.748*	−0.407	−0.840
	(1.606)	(0.589)	(0.520)
Occupation (65)		−1.493	−1.250
		(1.362)	(1.244)
Region - North Central	1.408	7.570**	3.362
	(1.332)	(3.315)	(2.263)
Region - North Western	−0.852	6.181*	2.458
	(0.679)	(3.357)	(2.310)
Region - South Central		7.286**	3.884*
		(3.170)	(2.131)
Region - S. East A	21.816	−0.294	7.084
	(14.117)	(7.234)	(7.477)

Table 78: Results for All US Concessions (2007-2013)

	5km	10km	15km	20km	25km	30km
Treatment	0.066	0.040***	0.024**	0.004	−0.016	−0.0003
	(0.044)	(0.013)	(0.009)	(0.012)	(0.015)	(0.015)
Urban/Rural	−0.001	−0.00004	−0.0002**	0.00002	0.0001	−0.0001
	(0.001)	(0.0001)	(0.0001)	(0.00005)	(0.0001)	(0.0001)
Elevation	0.001**	0.00000	−0.001	−0.0003	0.001*	0.002**
	(0.0005)	(0.001)	(0.0004)	(0.0003)	(0.0005)	(0.001)
Pop. Density	0.00000	0.00000	0.00000**	0.00000	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Aid Projects	−0.00001	−0.00000	0.00000	0.00000	0.00000	0.00000
	(0.00001)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Dist. to Roads	−0.009	−0.005	−0.0002	−0.003	−0.005	0.004
	(0.039)	(0.003)	(0.002)	(0.003)	(0.003)	(0.005)
Slope	−0.0001	0.00000	0.00000	−0.00005	−0.00001	−0.00002
	(0.0001)	(0.0001)	(0.00005)	(0.00003)	(0.00003)	(0.00003)
Urban Travel Time	−0.006*	−0.001	−0.001*	−0.001*	−0.001	−0.001
	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Pre-Period Precipitation	0.048	−0.042**	−0.043*	−0.008	0.007	0.003
	(0.095)	(0.021)	(0.023)	(0.011)	(0.013)	(0.014)
Pre-Period Temperature	0.442				−0.727***	0.421**
	(0.312)				(0.125)	(0.211)
Pre-Period NTL (Avg)	−10.022*			−1.006	10.755***	−11.087***
	(5.978)			(1.322)	(1.882)	(4.257)
Pre-Period NTL (Trend)	0.022	0.011	0.006*	0.005	0.004	−0.009*
	(0.017)	(0.008)	(0.003)	(0.006)	(0.004)	(0.005)
Household Numbers	0.030	0.012	−0.019	0.015	0.089*	0.035
	(0.244)	(0.054)	(0.029)	(0.033)	(0.053)	(0.048)
Gender	0.005	−0.0003	−0.0003	−0.0004	−0.001	−0.001
	(0.003)	(0.001)	(0.0004)	(0.001)	(0.001)	(0.001)
Age	−0.052	−0.017	−0.024	−0.032	−0.012	−0.019
	(0.072)	(0.018)	(0.016)	(0.021)	(0.019)	(0.021)
Religion	1.099					0.490
	(0.853)					(0.329)
Edu. Level (Primary)	0.00000	0.00000	−0.00000	0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	−0.659**					−0.190
	(0.300)					(0.124)
Wealth	−0.550*	0.084**	0.046**	0.043	0.042	−0.167
	(0.306)	(0.033)	(0.019)	(0.029)	(0.026)	(0.130)
Employment (Yes)	−0.273					
	(0.438)					
Marital Status (Married)	−0.034		0.004	0.002	−0.031	0.007
	(0.197)		(0.017)	(0.017)	(0.027)	(0.068)
Marital Status (Living Together)	0.143*	0.014	0.018**	0.009	−0.052*	−0.037

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Table 78 – Continued

	5km	10km	15km	20km	25km	30km
	(0.084)	(0.016)	(0.009)	(0.010)	(0.028)	(0.038)
Marital Status (Not Living Together)	−0.072		−0.031	0.051	0.160	0.083
	(0.117)		(0.022)	(0.071)	(0.120)	(0.064)
Occupation (44)	−6.764***					
	(1.498)					
Occupation (62)	−6.735***	0.014	−0.008	0.016	0.006	−0.032
	(1.480)	(0.033)	(0.017)	(0.016)	(0.015)	(0.034)
Occupation (65)	−6.057***					−0.566*
	(1.459)					(0.303)
Region - North Central	−6.599***	0.042*	0.038	0.057*	0.032	0.040
	(1.494)	(0.025)	(0.030)	(0.031)	(0.032)	(0.034)
Region - North Western	−6.827***	0.047*	0.038	0.061*	0.079**	0.073**
	(1.462)	(0.027)	(0.028)	(0.033)	(0.038)	(0.036)
Region - South Central	6.834**	1.070*	1.228*	0.350	−0.118	0.323
	(2.730)	(0.569)	(0.648)	(0.321)	(0.349)	(0.426)

G. Robustness test 3: Combinations of treatments

The article reports findings suggesting that investor nationality matters for growth outcomes. However, Chinese firms might be more active in some sectors than others, as are U.S. firms. Therefore, it is possible that we are erroneously assigning causal power to investor nationality differences when in fact we are detecting differences in sectors in which the respective investors operate, or differences in CSR activities that investors implement. To account for this possibility, we pruned our sample to only include Chinese and U.S. concessions in a single sector where we have identified evidence of strong treatment effects (mining) and then re-estimated our matching models. We repeated the same exercise with U.S. and Chinese concessions without CSR provisions.[39] The results do not change, suggesting that the differences in growth performance is indeed driven by investor nationality.

Table 79: Results for Chinese Mining Concessions (2007-2013)

	20km	25km	30km
Treatment	1.268***	0.892***	0.792***
	(0.255)	(0.210)	(0.201)
Urban/Rural	3.715	−10.747***	−4.108**
	(3.275)	(2.691)	(1.870)
Elevation	0.004	−0.001	−0.002
	(0.005)	(0.004)	(0.002)
Pop. Density	0.001	0.005***	0.002***
	(0.001)	(0.001)	(0.0005)
Aid Projects	−0.00001	0.00001	0.00001
	(0.00002)	(0.00001)	(0.00001)
Dist. to Roads	−0.00002	0.00000	0.00004
	(0.0001)	(0.0001)	(0.0001)
Slope	−0.156	−0.060	0.072
	(0.117)	(0.102)	(0.055)
Urban Travel Time	−0.009**	−0.005	−0.003
	(0.004)	(0.003)	(0.002)
Pre-Period Precipitation	−0.010	−0.017	0.005
	(0.030)	(0.014)	(0.018)
Pre-Period Temperature	−0.420	0.325	−0.348
	(0.554)	(0.273)	(0.407)
Pre-Period NTL (Avg)	−0.520***	−0.677***	−0.399***
	(0.152)	(0.161)	(0.103)
Pre-Period NTL (Trend)	7.516***	9.125***	5.935**
	(1.895)	(3.511)	(2.523)
Household Numbers	0.093	−0.082	−0.102
	(0.082)	(0.084)	(0.075)
Gender	−1.164	−0.892	−1.209**
	(0.984)	(0.782)	(0.507)

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[39] We would ideally compare the effect of U.S. concessions with CSR activities to Chinese concessions that also include CSR activities. However, we were unable to conduct this comparison due to an insufficient number of observations.

Table 79 – Continued

	20km	25km	30km
Age	0.003	0.030***	0.022**
	(0.015)	(0.008)	(0.009)
Religion	−0.045	−0.065	0.284
	(0.684)	(0.537)	(0.414)
Edu. Level (Primary)	0.932**	0.741*	0.705**
	(0.422)	(0.393)	(0.354)
Edu. Level (Secondary)	−1.120	−2.764**	1.552**
	(2.358)	(1.227)	(0.723)
Wealth	−0.00001***	0.00000	−0.00000
	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−2.144**	0.205	0.203
	(0.933)	(0.508)	(0.722)
Marital Status (Married)	−1.910	0.827	−0.542
	(2.034)	(0.800)	(0.424)
M. Status (Living Together)	−1.828	1.264*	−0.401
	(2.044)	(0.747)	(0.500)
M. Status (Not Living Together)	−3.729*		
	(2.231)		
Occupation (44)	2.019**	−1.289**	−0.980
	(0.971)	(0.575)	(0.668)
Occupation (62)	2.172**	−0.728	−0.732
	(0.905)	(0.509)	(0.616)
Occupation (65)	1.364	−0.960	−1.423***
	(1.667)	(0.613)	(0.424)
Region - North Central	−0.775	−1.258**	−1.569***
	(0.839)	(0.531)	(0.506)
Region - North Western	14.885*	−4.794	9.174
	(9.003)	(4.374)	(6.765)

Table 80: Results for Chinese Concessions w/o CSR Provisions (2007-2013)

	20km	25km	30km
Treatment	0.533***	0.573**	0.331
	(0.162)	(0.280)	(0.216)
Urban/Rural	−13.431***	3.322*	−3.155*
	(3.633)	(1.846)	(1.643)
Elevation	−0.003	−0.0002	−0.001
	(0.003)	(0.004)	(0.002)
Pop. Density	0.005***	0.001	0.001***
	(0.001)	(0.0004)	(0.0004)
Aid Projects	0.00004**	−0.00000	−0.00000
	(0.00002)	(0.00001)	(0.00001)
Dist. to Roads	0.00004	0.0001*	0.00001
	(0.0001)	(0.0001)	(0.00004)
Slope	0.025	−0.078	−0.0002
	(0.070)	(0.108)	(0.053)
Urban Travel Time	−0.003**	−0.003**	−0.001
	(0.001)	(0.002)	(0.001)
Pre-Period Precipitation	0.014	−0.028**	−0.014
	(0.027)	(0.013)	(0.015)
Pre-Period Temperature	−0.261	0.581	0.134
	(0.598)	(0.455)	(0.383)
Pre-Period NTL (Avg)	−0.558***	−0.745***	−0.462***
	(0.139)	(0.138)	(0.142)
Pre-Period NTL (Trend)	8.520***	10.319***	9.854**
	(1.874)	(2.678)	(4.797)
Household Numbers	0.174**	−0.420***	−0.252***
	(0.083)	(0.064)	(0.087)
Gender	−0.152	−1.794*	−1.104
	(0.977)	(0.970)	(0.736)
Age	0.016	0.047***	0.028**
	(0.012)	(0.008)	(0.011)
Religion	−1.498**	0.642	0.441
	(0.611)	(0.414)	(0.313)
Edu. Level (Primary)	−0.460	1.397***	0.980**
	(0.344)	(0.390)	(0.420)
Edu. Level (Secondary)	0.288	−0.612	−0.497
	(1.899)	(1.355)	(1.453)
Wealth	−0.00001***	0.00001***	0.00000
	(0.00000)	(0.00000)	(0.00000)
Employment (Yes)	−1.069	0.289	0.410
	(1.464)	(0.582)	(1.582)
Marital Status (Married)	−0.795	1.249	−0.583
	(1.676)	(1.400)	(0.502)
Marital Status (Living Together)	0.130	0.392	−0.997*

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Table 80 – Continued

	20km	25km	30km
	(1.716)	(1.421)	(0.559)
Marital Status (Not Living Together)	−0.651		
	(1.615)		
Occupation (44)	1.950	−1.687***	−1.874
	(1.449)	(0.543)	(1.646)
Occupation (62)	2.010	−1.947***	−1.611
	(1.432)	(0.642)	(1.614)
Occupation (65)	−1.951**	−0.567	−1.118
	(0.972)	(0.652)	(0.813)
Region - North Central	2.006	−6.767	2.602
	(10.497)	(8.500)	(6.978)

Table 81: Results for US Mining Concessions (2007-2013)

	5km	10km	15km	20km	25km	30km
Treatment	0.166	0.073	0.047	0.039	−0.022	0.081
	(0.123)	(0.125)	(0.107)	(0.090)	(0.070)	(0.075)
Urban/Rural	−0.00004	−0.001	−0.001	−0.0005	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)	(0.0005)
Elevation	0.005***	0.002***	0.002***	0.002***	0.003***	0.001***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)
Pop. Density	0.00000	0.00000**	0.00000***	0.00000**	0.00000**	0.00000*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Aid Projects	0.00002	0.00001	0.00000	0.00001	0.00001	0.00000
	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00001)	(0.00001)
Dist. to Roads	−0.026	−0.015	−0.002	0.006	0.008	0.005
	(0.041)	(0.038)	(0.030)	(0.023)	(0.016)	(0.017)
Slope	−0.001**	−0.001**	−0.001**	−0.001**	−0.0004**	−0.0005***
	(0.001)	(0.001)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
Urban Travel Time	−0.001	−0.002	−0.001	−0.002	−0.001	0.0002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Pre-Period Precipitation	−0.061	0.009	0.060	0.029	0.024	−0.004
	(0.077)	(0.096)	(0.073)	(0.073)	(0.060)	(0.062)
Pre-Period Temperature		−0.519**	−0.462***	−0.507***	−0.364***	−0.223*
		(0.204)	(0.125)	(0.191)	(0.110)	(0.130)
Pre-Period NTL (Avg)	37.234***	13.623***	11.480***	11.959***	6.857***	4.321**
	(7.131)	(4.142)	(2.601)	(3.655)	(1.398)	(1.821)
Pre-Period NTL (Trend)	−0.017	−0.023	−0.017	−0.023	−0.032*	−0.033*
	(0.027)	(0.025)	(0.025)	(0.024)	(0.019)	(0.019)
Household Numbers	−0.223	−0.296	−0.126	−0.080	−0.017	0.018
	(0.322)	(0.408)	(0.381)	(0.331)	(0.267)	(0.246)
Gender	−0.001	0.005	0.006	0.005	0.004	0.004
	(0.004)	(0.007)	(0.006)	(0.005)	(0.005)	(0.004)
Age	0.549**	0.532**	0.455**	0.370**	0.184*	0.218*
	(0.237)	(0.259)	(0.223)	(0.171)	(0.103)	(0.117)
Religion		0.364	−0.059	0.214	0.188	0.421
		(0.428)	(0.420)	(0.440)	(0.401)	(0.423)
Edu. Level (Primary)	0.00000	0.00000	0.00000	0.00000	0.00000**	0.00000**
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	−1.646**	0.014	−0.395	−0.061	−0.349	−0.353*
	(0.832)	(0.366)	(0.385)	(0.307)	(0.352)	(0.210)
Wealth	−1.160	0.460	0.011	0.255	−0.225	−0.192
	(0.932)	(0.519)	(0.434)	(0.361)	(0.359)	(0.265)
Employment (Yes)						−0.054
						(0.293)
Marital Status (Married)	−0.312	−0.495	−0.301	−0.226	−0.151	−0.171
	(0.411)	(0.387)	(0.363)	(0.291)	(0.174)	(0.177)
Marital Status (Living Together)	−0.110	−0.351	−0.385	−0.185	−0.158	−0.209

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Table 81 – Continued

	5km	10km	15km	20km	25km	30km
	(0.307)	(0.323)	(0.324)	(0.230)	(0.123)	(0.143)
Marital Status (Not Living Together)		−0.609*	−0.588*			
		(0.364)	(0.341)			
Occupation (44)		4.669**	3.923**		7.434**	0.866
		(2.188)	(1.808)		(3.108)	(1.499)
Occupation (62)	0.016	4.480**	3.861**	−0.061	7.310**	0.683
	(0.115)	(2.195)	(1.806)	(0.145)	(3.129)	(1.506)
Occupation (65)	0.543**	5.219**	4.525**	0.539**	7.743**	1.275
	(0.274)	(2.144)	(1.770)	(0.272)	(3.104)	(1.490)
Region - North Central	0.836***	5.319**	4.392**	0.481**	7.731**	1.113
	(0.280)	(2.187)	(1.822)	(0.213)	(3.155)	(1.519)
Region - North Western	0.068	4.484**	3.772**	−0.056	7.409**	0.852
	(0.183)	(2.185)	(1.812)	(0.161)	(3.134)	(1.504)
Region - South Central	3.187*	−4.260	−4.751*	−0.418	−7.377**	−0.200
	(1.789)	(3.407)	(2.637)	(1.726)	(3.556)	(2.278)

Table 82: Results for US Concessions w/o CSR Provisions (2007-2013)

	5km	10km	15km	20km	25km	30km
Treatment	0.166	0.073	0.076	0.056	0.027	0.067
	(0.123)	(0.125)	(0.103)	(0.101)	(0.072)	(0.076)
Urban/Rural	−0.00004	−0.001	−0.001	−0.001	−0.001	−0.0004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0005)	(0.001)
Elevation	0.005***	0.002***	0.002***	0.001***	0.003***	0.001**
	(0.001)	(0.001)	(0.001)	(0.0003)	(0.001)	(0.001)
Pop. Density	0.00000	0.00000**	0.00000**	0.00000*	0.00000**	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Aid Projects	0.00002	0.00001	−0.00000	0.00001	0.00001	0.00000
	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00001)	(0.00002)
Dist. to Roads	−0.026	−0.015	0.011	0.009	0.003	−0.010
	(0.041)	(0.038)	(0.024)	(0.022)	(0.018)	(0.021)
Slope	−0.001**	−0.001**	−0.001**	−0.001**	−0.0005***	−0.001***
	(0.001)	(0.001)	(0.0004)	(0.0004)	(0.0002)	(0.0002)
Urban Travel Time	−0.001	−0.002	−0.003	−0.002	−0.001	−0.0001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Pre-Period Precipitation	−0.061	0.009	0.014	0.025	0.031	−0.032
	(0.077)	(0.096)	(0.073)	(0.071)	(0.066)	(0.077)
Pre-Period Temperature		−0.519**	−0.546***	−0.346*	−0.417***	−0.252
		(0.204)	(0.126)	(0.183)	(0.122)	(0.163)
Pre-Period NTL (Avg)	37.234***	13.623***	12.170***	9.218***	7.434***	4.656*
	(7.131)	(4.142)	(2.599)	(3.548)	(1.634)	(2.781)
Pre-Period NTL (Trend)	−0.017	−0.023	−0.014	−0.023	−0.024	−0.037*
	(0.027)	(0.025)	(0.025)	(0.024)	(0.019)	(0.019)
Household Numbers	−0.223	−0.296	−0.198	−0.037	0.058	0.027
	(0.322)	(0.408)	(0.387)	(0.317)	(0.230)	(0.233)
Gender	−0.001	0.005	0.006	0.004	0.002	0.001
	(0.004)	(0.007)	(0.006)	(0.005)	(0.004)	(0.004)
Age	0.549**	0.532**	0.445**	0.376**	0.234*	0.241**
	(0.237)	(0.259)	(0.223)	(0.176)	(0.123)	(0.121)
Religion		0.364	0.326	0.310	0.449	0.429
		(0.428)	(0.446)	(0.384)	(0.353)	(0.361)
Edu. Level (Primary)	0.00000	0.00000	0.00000	0.00000	0.00000*	0.00000*
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Edu. Level (Secondary)	−1.646**	0.014	−0.559	0.049	−0.210	−0.276
	(0.832)	(0.366)	(0.453)	(0.306)	(0.313)	(0.177)
Wealth	−1.160	0.460	−0.124	0.361	−0.010	−0.077
	(0.932)	(0.519)	(0.542)	(0.373)	(0.339)	(0.251)
Employment (Yes)					−0.487	−0.148
					(0.373)	(0.430)
Marital Status (Married)	−0.312	−0.495	−0.354	−0.301	−0.097	−0.186
	(0.411)	(0.387)	(0.391)	(0.301)	(0.204)	(0.170)
Marital Status (Living Together)	−0.110	−0.351	−0.396	−0.266	−0.201	−0.194

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Table 82 – Continued

	5km	10km	15km	20km	25km	30km
	(0.307)	(0.323)	(0.355)	(0.235)	(0.127)	(0.121)
Marital Status (Not Living Together)		−0.609*	−0.566			
		(0.364)	(0.390)			
Occupation (44)		4.669**	5.318**	2.582**		
		(2.188)	(2.286)	(1.302)		
Occupation (62)	0.016	4.480**	5.232**	2.472*	−0.095	−0.262*
	(0.115)	(2.195)	(2.292)	(1.291)	(0.124)	(0.144)
Occupation (65)	0.543**	5.219**	5.918***	3.106**	0.401*	0.307
	(0.274)	(2.144)	(2.254)	(1.257)	(0.224)	(0.244)
Region - North Central	0.836***	5.319**	5.834**	3.006**	0.330**	0.268
	(0.280)	(2.187)	(2.308)	(1.290)	(0.163)	(0.165)
Region - North Western	0.068	4.484**	5.235**	2.496*	0.020	0.010
	(0.183)	(2.185)	(2.295)	(1.278)	(0.158)	(0.145)
Region - South Central	3.187*	−4.260	−4.657	−2.862	−0.360	1.481
	(1.789)	(3.407)	(3.021)	(2.302)	(1.673)	(1.963)

H. A Brief Review of Existing Studies

In order to address the challenge of endogeneity (i.e. the possibility that two-way causation undermines the interpretation of the cross-country regressions reported earlier), previous research has generally taken one of three approaches. The first approach involves analysis of cross-country, macro-economic, panel data. In contrast to cross-country regressions, these studies use panel cointegration techniques to analyze the time-series properties of the aggregated FDI flows for multiple countries to properly identify the direction of (granger) causality. Mello (1999) analyzes 32 countries between 1970-1990 and provides evidence that FDI causes growth in OECD countries, but fails to find the same relationship in developing countries. However, Hansen and Rand (2006) find that FDI increases GDP in 32 developing countries between 1970-2000, and Nair-Reichert and Weinhold (2001) also find that FDI promotes growth in a sample of 24 developing countries between 1971 and 1995, although the relationship is heterogeneous across countries. Others do not identify a one-directional, causal relationship from FDI to growth, but rather bi-directional causality between FDI and growth (Choe, 2003; Basu, Chakraborty, and Reagle, 2003).

This literature have been criticized by Banerjee, Marcellino, and Osbat (2004) and Gutierrez (2003) on thre grounds that it is possible for the null hypotheses of 'no panel cointegration' to be rejected, even though this conclusion is driven only by a few cointegrated relationships. Therefore, researchers can mistakenly assume a whole panel to be cointegrated.

As a consequence, a separate group scholars have conducted country-by-country panel analysis of macro-economic data. However, the results from this literature are also inconsistent. FDI has purportedly increased growth in South Africa (Fedderke and Romm, 2006), Mexico (Ramirez, 2000), and Argentina (Cuadros, Orts, and Alguacil, 2004), as well as in Singapore, Hong Kong, and Taiwan (Zhang, 2001). Yet others have found that strong economic performance attracts FDI in India (Chakraborty and Basu, 2002), Chile (Chowdhury and Mavrotas, 2006), Brazil (Cuadros, Orts, and Alguacil, 2004; Zhang, 2001), and Colombia (Zhang, 2001). Still another groups finds evidence of a bi-directional relationship in Malaysia and Thailand (Chowdhury and Mavrotas, 2006), China (Liu, Burridge, and Sinclair, 2002), and Indonesia (Zhang, 2001).

Data limitations have also prevented this literature from reaching its full potential. FDI inflows are usually reported as net flows, making it impossible to differentiate between a host country that had FDI activities and a country that received FDI in-flows and out-flows that cancelled each other out (Kerner, 2014). Also, in spite of the fact that most theories relate to the effect of specific investment projects or the activities of specific firms, the FDI data used to test the observable implications of these theories are aggregate measures that remove any information about the investor or investment-specific characteristics from the equation. "All that we observe is the cross-national distribution of MNCs' collective investments (net profit repatriations and other reverse flows) during a given year" (Barry, 2015, 247). This disconnect implies that "[aggregate] FDI [flows] are merely a second-best or proxy measure"(Stephan and Pfaffmann, 2001, 197).

A third literature uses firm-level panel data instead of cross-country, macroeconomic data. These studies typically analyze panels of firms operating in a single country. They seek to identify the positive spillovers from foreign to domestic firms suggested by the endogenous growth theory. For this reason, the productivity of domestic firms is correlated with the extent of foreign presence in their sector. However, the

results from this literature are contradictory. Studies of firms in Morocco (Haddad and Harrison, 1993), Venezuela (Aitken and Harrison, 1999), the Czech Republic (Djankov and Hoekman, 2000), and Bulgaria, Romania, and Poland (Konings, 2001) find no evidence of positive technology spillovers and conclude that FDI does not accelerate growth. By contrast, firm-level studies in Lithuania (Javorcik, 2004), the U.K. (Haskel, Pereira, and Slaughter, 2007), and the U.S. (Keller and Yeaple, 2009) suggest that FDI does increase economic growth.[40]

These studies also face significant data limitations. Sorens and Ruger (2012) point out that most firm-level datasets are plagued by systematically missing data, resulting in selection bias. For example, many studies utilize data on outward U.S. investment from the Bureau of Economic Analysis, but this dataset only includes "data for countries that are major investment partners of the United States, as detailed information on smaller FDI hosts is not provided due to corporate confidentiality concerns" (Blanton and Blanton, 2012, 437). Thus, the data from the Bureau of Economic Analysis are effectively censored both with respect to the set of home countries and host countries.

In summary, these three different empirical approaches — cross-country, panel data analysis, country-by-country panel data analysis, and country-by-country, firm-level, panel data analysis — have failed to produce a consensus about the nature of the relationship between FDI and growth.

[40] A review of firm-level studies by Gorg and Greenaway (2004) confirms the heterogeneity in findings by reporting that six studies find evidence of positive spillover effects, while 19 do not.