The Journal of Economic Concerns | Vol. 12, No. 1, 2021
ISSN Print : 2091-0541 | ISSN Online : 2705-4802 | Published by NECS, NEPAL

Impact of Microfinance Outreach on Social Unrest in Nepal

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Abstract

This paper investigates the impact of microfinance institutions (MFIs) on incidences of social unrest in Nepal. Using data on social unrest and variation of the presence of microfinance institutions in Nepal, we estimate that microfinance institutions have contributed to the decrease in social unrest. The evidence of such a decrease was more pronounced in the case of political violence. However, the impact of the MFIs on non-political violence was small. The first MFI in a district had generally a significant impact on all kinds of violence, including domestic, but the impact became significant as the number of MFIs increased. The MFIs facilitated access to finance, which our data showed an increased number of small firms in the country. We also found that the increased number of MFIs also contributed to the increased agricultural output. The overall increase in wealth, therefore, reduced the incentive to take part in political violence. Furthermore, the overall increase in wealth altered the intra household power structure. Hence, the impacts of MFIs on domestic violence against women and children were significant.

Keywords*: Microfinance, Violence, Rural lending, Women empowerment, Poverty*

1. Background

Microfinance, serving the people by providing small loans with no collateral to the borrowers usually poor in the rural areas, was institutionalized in 1976 by Mohamad Yunis. For Yunis, microfinance is a vision of poverty reduction that centers on self-help. In its greatest prosperity period, microfinance was the basis for the 2006 Nobel Peace Prize and embraced by policymakers, donors, and funders worldwide as an effective policy tool (Banerjee et al., 2015). It paves the way for broadening access to finance, which is something limited but critical for low-income people who are deprived of access to formal financial services. Microfinance can expand households' abilities to cope with emergencies, manage cash flows, and invest for the future, especially critical for low-income households operating on tight margins (Basley & Cord, 2007). The greatest triumph of microfinance is the demonstration that poor households can be reliable customers and access to reliable financial services might help hundreds of millions, perhaps billions, of low-income people currently without access to banks, or at the mercy of exploitative moneylenders (Cull et al., 2008). More specifically, microfinance institutions have proven to reach particularly the poor women, providing the hope of breaking gender-based barriers reducing violence.

Rural lending has been a major financial instrument used by the government of Nepal since 1974. Until 1990s, this lending was carried out by a few dedicated projects run by the commercial banks. However, the 1990s saw the rise of rural development banks established solely to provide access to finance to people in villages. This paper investigates the impact of Microfinance Institutions (MFIs) on unrest in society. We measure this impact by exploiting variation in the presence of MFIs in different regions over time in Nepal.

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The MFIs were initially perceived as a socio-economic approach to alleviate poverty in Nepal. However, in an ethnically heterogeneous country like Nepal, poverty is often an outcome of social fragmentation itself. A recent report by the National Planning Commission has shown that Nepal, despite its medium size, is a home to 125 different communities speaking 122 languages. Lack of modern transportation and other infrastructures, lack of big cities and other centers of economic activities, and the low social mobility due to the semi-feudal nature of Nepali society implies that the country is a mosaic, people rarely mix with each other, inter-caste and interethnic marriages are rare and hence the potential of social unrest is always here. We investigate whether increased rural lending can mitigate some of these risks in this paper. In our view, low social unrest is a channel to address poverty in many countries and its proper investigation helps in our understanding of poverty alleviation.

What rural lending does on the economic and social front is not a clearly understood topic. It is likely that increased access to credit leads to some individuals turning into entrepreneurs. In the absence of MFI lending, people have to borrow from local money lenders whose interest rates tend to be unreasonably high. Only high return enterprises that can pay back such an interest rate can grow under such an interest rate regime. MFIs and other formal institutions can help borrowers by lowering the interest rate and thus making many formerly considered financially unprofitable enterprises profitable. However, whether increased enterprises formation leads to socially more tranquil societies is a topic still poorly understood.

Traditionally, it has been argued that increased enterprises formation and access to credit make women more empowered, and hence crime against them becomes fewer. However, recent studies have questioned the assumption that Microfinance Institutions (MFIs) empower women (Banerjee et al. 2009, 2015 & Echavez et al., 2012). This questioning is, however, not new. While some researchers notably, Hashemi et al. (1996) had earlier asserted that minimalist credit programs do empower women, others believed the optimal solution to address the gender parity issue should be to confront the patriarchy system directly rather than design program around the issue of access to credit (Goetz et al., 1994 & Casper, 1994). There is also disagreement among academicians about the causal relationship between overall economic development and gender empowerment. While some researchers (in particular, Doepke et al., 2019)) assert that economic development is naturally followed by more empowerment of women, others (Duflo et al., 2012 & Goldin, 2006) do not agree that economic development is a sufficient condition for female empowerment.

In Nepal's context, lendings by MFIs were minimalist and not tailored to subvert existing cultural norms that have traditionally managed to place women at the lower echelon of gender hierarchy. Therefore, any improvement in the social position of women due to microfinance lending is channeled through the access to finance for them. Many Nepali women entrepreneurs still face difficulties in accessing credit and, in a recent survey, a fully 46.1 percent of women cited access to credit as the major hurdle faced by them in growing their business, second only to finding customers which were cited as a constraint by 52.2 percent (EESE, 2017). The variation in the target group for different MFIs also affords a good opportunity to test whether overall improvement in lending (thus increasing access to credit for the poor household) has better outcomes in terms of gender parity than gender-specific targeting. Given the heterogeneity in socioeconomic factors across the communities in Nepal, however, all results should be viewed through the lens of different moderating factors.

In this study, we investigate the social unrest issue in two important ways. One is whether MFIs have any influence on politically motivated violence and another is whether MFIs mitigate other general crimes, such as crimes against women, crimes against children, murders, etc. as registered as a criminal offense in the police post. The data used in this study are secondary data, provided by different government and non-government agencies and will be described in detail below.

Earlier studies on the impact of MFIs often relied on regression-based correlation estimations, which often have questionable causal interpretations. New technical methods have been developed recently (such as randomized control trial (RCT) used by Banerjee et al., (2015) which provide an innovative way to look at what MFIs do. Our study employs secondary data and uses policy variations to find a suitable instrumental variable to elicit causal interpretation of data. Since our dataset is comprehensive and produced by different government agencies, it also differs from randomized control datasets used by Banerjee et al., (2015).

Our result indicates that MFIs contributed significantly in reducing political violence but the results on the impact of MFIs on social violence is not conclusive, and probably nonlinear. The interpretation of our results requires a lot of circumspection. In particular, in a country like Nepal with deep rooted conservative values, expecting quick social transformation after any financial interventions is perhaps not tenable. Situation of Afghanistan's women after some empowerment initiatives there is a case in point. Beaman et al., (2009) showed that Afghan women's intrahousehold relative power did not improve much, but varied over time, while their outside roles increased significantly as a result of sudden policy induced uplifting.

2. Literature Review

Our main theoretical argument is that MFIs provide access to finance to many people in rural areas who otherwise would be borrowing at a higher price. This in turn has made starting more firms feasible and profitable, thereby making more people richer. For violence, we argue that people commit crime if return on criminal activities is higher than the return on the other noncriminal activities. Since committing crime has social cost as well as cost in term of possible imprisonment, prospect of becoming richer in the future discourages people from committing crime. We differentiate between two types of crimes. One is a political crime, another is an apolitical, social crime. Political crime is committed when people fight against the state violently. If people live below a threshold income level, they are likely to gain a lot if they emerge as victorious in the political fight against the state. Gurr (1970) provides a detail theoretical discussion on motivations behind the crime against state, one of which is a financial motivation stimulated by the unfulfilled expectation from the state.

MFIs in Nepal, and elsewhere, arose out of the realization that commercial banks were not going deep enough in rural areas to facilitate access to finance. Beck et al. (2007) suggested that countries with deeper financial intermediation experience high growth. Collier et al., (1998, 2002) also investigate economic causes of social violence. They find support that economic instruments (such as aid) have either direct or indirect impact on conflict.

This study looks at the data on social unrest emanating from both collective action (Maoist insurgency) and individual actions (family or other violence of domestic nature, registered with the police). In the last two decades Nepal experienced both types of violence, allowing us to look at the way deeper access to finance facilitated by MFIs addresses some of these types of violence. Fearon (2007) argued that insofar as seizure

of the power entails capture of the spoils, economic inequality will be a motive for social conflict. But individual gain is not the only factor that motivates social conflict. Participation in a conflict by an individual is spurred by the frustration over inequality (Davies, 1962 & Gurr, 1970). As long as MFIs and their lending at rural level reduce inequality, the impact of MFIs on social conflict would be negative. Another important finding was provided by Chassang et al. (2009) who developed a framework that implies negative economic shocks are followed by armed conflict. Dal Bo et al. (2011) refine this argument further in two-sector models. In their model, an income shock in capital intensive sector increases the likelihood of armed conflict whereas an income shock in labor-intensive sector decreases the likelihood of armed conflict. Assuming the expansion of MFIs in rural areas expands economic opportunities and thus the opportunity cost of taking part in civil conflict, the intensity of civil war in an area should be negatively correlated with the expansion of MFIs in that area.

Connecting violence against some household members by a powerful patriarch or other members of household to economic instrument is not uncommon. Most of such studies have focused on the impact of MFIs on violence against women. Pitt et al. (2006) found that MFIs positively contribute to women's empowerment in Bangladesh. They found bargaining power of women with their husband, among others, have increased as a consequence of their borrowing from MFIs. Haile et al., (2012) studied the impact of MFIs on women empowerment in Ethiopia and found that women's borrowing from MFIs were associated with less conflict at home with their husband. Schuler et al., (1994, 1996) studied the empowerment of women who borrowed from the microcredit institutions using indicators such as the use of contraceptive and domestic violence in rural Bangladesh. Hashemi et al., (1996) chose to build a composite index of empowerment using eight variables: mobility, economic security, ability to make small purchases, ability to make larger purchases, involvement in major decisions, relative freedom, political and legal awareness, and participation in public protests and political campaigning. A woman is said to be empowered if she had a positive score on five or more of the eight indicators given above. But it is incontrovertible to assert that empowerment encompasses many more things than the eight indicators above. As Duflo (2012) lists, women empowerment starts with her ability to be born, be provided equal number of foodstuffs in childhood, be sent to all levels of educational institutes for an equal number of years compared to their male counterparts, and be provided equal power within a household. Even outside the household, women as an employee, a policymaker, and community activist should be treated equally.

Not all empirical evidence would support the view that economic growth reduces violence in society. Htun et al., (2012) argue that variations in policies addressing violence against women are in general not associated with economic factors but are spurred by mobilization of feminist movements. Hence any reduction of social violence against particularly women, if they are caused by relevant legal instruments introduced in a country, would not be linked with the income expanding intervention such as MFIs. Cons et al., (2010) argue that women became targets of violence in Bangladesh after they started borrowing from MFIs because they bore the burden of hostile MFI debt collectors as well as of the opponents of MFI activities (as well as economic activities resulting from it) among women.

3. Institutional Context

This section provides a brief history of the banking sector in Nepal in general and MFIs in particular. An old survey in the early twentieth century Nepal apparently convinced the then feudal ruler, Maharajah

Chandra Shamsher, to start a government-supported lending agency because he realized that lending interest rates in the rural areas of Nepal were too high (often reaching 100 percent per year interest rate). Since Nepal mostly had barter-based exchanges, farmers could not make cash by producing vegetables. They could sell slightly non-perishable crops such as paddy to Indian markets using a middleman and in many instances that is the only source of currency, they could have. There were no government or industrial jobs and there were extremely few markets in the mountains. Maharaj Juddha Shamsher, brother of Maharajah Chandra Shamsher, was the first ruler to set up a bank, allowing a bank to open in 1934.

For a long, the governments of Nepal have regarded both fiscal and monetary policies as instruments to uplift the rural population, despite their occasional clumsy handling of these tools. Many policy experiments were carried out in the past to improve the rural economy. Due to the lack of technological innovation and technology adoption, farm productivity has been stagnant and so has the overall wealth of the nation as agriculture has accounted for a significant fraction of the economy. The government could help farmers in two ways: by industrializing the overall economy where a major fraction of the population could work and increasing the productivity of farmers and thus increasing their income. This approach is a standard textbook approach for poverty alleviation in many countries, and this is where Nepali policies could not deliver.

When Nepal started land reform in 1964, it had asked farmers to deposit certain savings, which later constituted the seed capital of the Sajha Cooperative Program launched in 1976. Sajha had a major role in Nepal for at least one decade. It was a vehicle through which farmers were expected to receive technical help and improved factor inputs for the enhanced production. However, by the late eighties, policymakers agreed that Sajha fell well short of their expectations.

In 1973, finance minister Kirtinidhi Bishta, while presenting the budget, announced that a decrease in crop production in 1972/73 led to the price increase of grains in India and Nepal and provided farmers with the opportunity to profit from the increase in demand from India (Bishta, 1973). However, incentivizing farmers required providing access to finance so that they could invest in new technologies and increase farm productivity. A year later, the government announced in the parliament that commercial banks would limit their lending to wholesale entrepreneurs and export-import traders (Thapa, 1974). The government subsequently made two mutually contradictory decisions. It mandated that commercial banks set aside five percent of their total loans for the priority sector (initially called small sector loans in 1974). It also restricted individual farmers from exporting grains abroad and mandated that government-owned rice export companies would be the sole buyer of surplus rice in Nepal.

The first decision was not as simple as it now sounds. The commercial banks complained that their manpower could not easily go to the villages and provide loans to the small sector beneficiaries. The government established Agriculture Projects Service Center (APROSC) to evaluate the agricultural projects and help the banks. About two decades later, APROSC would also fail (Sijapati, 2020). The first decision theoretically had a positive impact on farmers, but the second policy had a negative impact as the farmers could not maximize the profit of their production. Only five years later, these rice export companies (there were seven of them) would be disbanded by the government.

At that time, lending to farmers in Nepal was mainly channeled through Agriculture Development Bank (ADB), established in 1968. In its early days, ADB was not allowed to collect savings. ADB itself had

transformed from the Cooperative Development Fund established in 1963. ADB was growing fast, however. The lending through ADB in 1974 was 76.5 million Rupees, almost ten percent of total government revenue of that year, and it was expected to reach 180 million in 1975. Despite administrative challenges inherent in lending money in rural areas, the government asked commercial banks to provide seven percent of their total loan to small sectors in 1976 and ten percent in 1982. This success in higher lending in small sectors was partly due to the establishment of the Small Farmer Development Program (SFDP), which debuted in Dhanusha and Nuwakot districts in 1975. SFDP, and its later carnation Small Farmers Cooperative Limited (SFCL), in their initial days worked with very low overhead cost (generally at or below three percent), which contributed to their popularity among policymakers.

Providing access to rural farmers was always a difficult task. Even cooperatives such as those that opened in 1956 were confined within Chitwan. The commercial banks for the first time reached all districts only in 1977. The government was ineffective in other aspects as well. In 1976, government revenue was only six percent of total GDP.

In 1978, the government was also facing a severe economic crisis. Two consecutive years of bad agriculture harvesting had affected the economy severely. The population was increasing but lands, where people could be settled, had been exhausted. Forage land and forests in the mountains were disappearing, further deteriorating agricultural productivity. Sensing the urgency of the situation, the government next announced programs to increase agriculture productivity in 1979. SFDP was considered a major fiscal tool to help farmers. This program along with the expert services and irrigation facilities development was to be a new direction towards which government would focus on reviving the agriculture sector.

At the end of the fifth five-year plan in 1980, the government realized that the plan was a massive failure. The actual growth rate was at 2 percent per annum, instead of the expected 5 percent, and well below the population growth rate of 2.3 percent. It then decided to prioritize expenditure on drinking water, health, primary education, agriculture development, and basic infrastructure. The government mandated that at least two-thirds of the total loans disbursed by the ADB would be in short-term and productive loans. The government reaffirmed its commitment to expand SFDP to many more districts and reduce the interest rate of SFDP participant farmers. At the time there was only one bank per 58 thousand people and the role of these projects in increasing access to finance was going to be significant. In 1980, finance minister Yadav Prasad Pant announced in the parliament that SFDP would no longer be run by ADB (Pant, 1980).

The early eighties saw some other pro-poor initiatives. In 1982 the land tax (malpot) was waived by 99 percent for farmers whose landholding was less than 1.5 bigha. Saghan Banking Karyakram (SBK) which disbursed loans on the basis of project rather than collateral was promoted. Suspecting District Agriculture Offices were not coordinating different aspects of farming properly, the government in 1982 decided to staff them with the senior officers. These officers were charged with coordinating all farm-related efforts including farmers' access to credit. Cottage industries that rely on rural agricultural products were explicitly made the clients of the Integrated Rural Development Program (RDP) and SFDP. Saghan Banking Bikas Karyakram (SBBK) was started and by 1983, forty-six branches of the commercial banks were running SBBK, spearheading the group lending without collaterals. The government wanted to incentivize the private sector in food processing, fruit tree/sapling production, animal reproduction, etc. It also decided to expand Saghan Banking Program and Cottage and Small Industry Projects to other areas.

In 1984, the government decided to allow ADB to collect savings in urban and semi-urban areas and spend that on irrigation and the industrial sector. Furthermore, district Panchayats were also allowed to borrow from ADB. The government was also impressed by the performance of Saghan Banking Program (SBP) in rural areas of Ilam and announced the opening of five regional rural banks to replicate it on a larger scale in rural areas in 1985. These rural development banks, considered the first dedicated MFIs, would eventually be established in 1992 (eastern region and far western region), 1994 (midwestern and western region), and 1995 (central). In the mid-eighties, the government introduced a rule of allowing farmers to start companies to supply raw materials needed for small agriculture-based industries which were increasing in numbers in the eastern part of the country where SBP was operating.

Dependence of agriculture, which in 1986 still accounted for sixty percent of national income, on the weather was the major reason for unstable economic growth during most of Nepal's history. Recognizing that weather fluctuation was an exogenous shock, the government had tried to ensure that farmers adopted modern agricultural methods, relied less on menial labor, and used equipment and technology. In the eighties, it proposed to use consumer groups to repair, operate and maintain irrigation canals, and mobilize bank loans to subsidize irrigation programs such as installation of shallow tube well (see Pradhan, 1986). The following year, several incentives were announced so that farmers could build small or medium irrigation projects on their own and manage Kabuliyat forests which could minimize soil erosion.

To help small farmers, livestock insurance system was started in 1987. Aguwa (leader) banks were established in 21 districts to help pro-poor programs such as SFDP, Women Development Program, Irrigation Development, and Forest Development Programs in 1988. Although the government was still very satisfied with the Saghan Banking program, by this time it was increasingly disenchanted with the performance of Sajha programs. The government, therefore, decided to return funds deposited as part of compulsory savings during the land reform era in Sajha.

Liberal economic policies continued to characterize the late eighties and early nineties. In 1989, government allowed commercial banks to fix their own interest rate. Despite increasing freedom provided to the commercial banks, the government hoped that its refinancing and re-discounting plan will steer loans to priority sectors.

By 1990, the government started to transfer state-owned farms and fisheries to farmers with the promise of providing them temporary operating support. In 1995, it further announced that state-owned but inactive agricultural farms, fishery development centers, bagwani centers, and agricultural labs would be either privatized or transferred to cooperatives on a competitive basis. To make rural integrated development effective, a rural self-reliance fund Gramin Swabalamban Kosh (GSK) was started in the early 90s. Farmers who came up with their own projects were helped by that fund. The government also started to subsidize up to 4 percent in interest rate to the non-collateralized loans of size up to ten thousand rupees given by SFDP to the poor, landless farmers and women. Livestock insurance subsidy of fifty percent was declared in 1990 and was increased to 75 percent in 2014.

Direct subsidies to poor people were popular around the globe in the early nineties as well. In 1991, the government decided to evaluate SFDP, Priority sector loans, Saghan Banking, and Women Development Programs and announced interest subsidies for loans going to the poor. For example, borrowers who borrowed up to Rs 2500 were provided 80 percent in interest subsidy. Similarly, other borrowers who

borrowed up to ten thousand rupees were subsidized one-third of total accrued interest. This limit was increased to fifteen thousand rupees in 1993. In 1991, the government started funding GSK, remote area development board, and women development program. It also set up National Agriculture Research Council (NARC) to support research in agriculture. The government started to direct ADB, Rural Development Banks, and GSK to fund poor people through the schemes of group-based loans without collaterals.

The government also worked towards simplifying borrowing procedures in the mid-1990s. The interest rate calculation by ADB used to be cumbersome and in 1994, the government announced to simplify them. In the mid-90s, women-oriented access to credit programs such as Gramin Mahila Utpadan Karja Karyakram (GMUKK) for poor women in rural areas was introduced. The government in 1995 decided to allow export from private jungles to foreign countries. In 1995, the government also established Sana tatha Gharelu Udyog Bikas Bank (SGUBB). The same year, the government decided to prioritize women entrepreneurs while lending from rural development banks and allowing NGOs to borrow from GSK. Two years later in 1998, Rural Microfinance Development Center (RMDC), specifically targeting rural women, was established.

Several assistance programs targeted to the poor farmers in the 90s were also a product of the Agriculture Perspective Plan (APP). For example, an irrigation line of credit was started in the mid-nineties, SFDP grew in scope, and rural cooperatives were utilized to distribute agricultural equipment as recommended in APP. The mid-nineties also saw the extension of irrigation and micro-hydro subsidies to the farmers and the introduction of pro-women assistance programs. Women Farmer's Group was established and a revolving fund (ghumtikosh) for women farmers was started in ten districts in 1996. The government also became liberal towards using nongovernment organizations (NGOs) in poverty alleviation in this era. In 1997, the government announced its intention to use NGO/state-owned financial intermediaries for the implementation of priority sector loans due to the high cost of direct funding. Citing the continued lackluster growth of agriculture, the government at the end of the millennium decided to use cooperatives, NGOs, and community groups to help set up agriculture enterprises, promote market-based solutions for storage and input supply, and popularize the use of extension programs. The government also started to develop pocket areas, in accordance with the recommendation of APP, where integrated help for farmers (such as the provision of credit, fertilizers, seed, training, rural roads, and irrigation facilities) would be available.

In 2001, the government decided to form poverty alleviation fund (PAF) by integrating RDB, Bishweshwar With Poor, and Jagriti (Mahila Aya Arjan). The government further announced that ADB would implement special relief provisions to farmers who were heavily indebted, had borrowed small credits and were displaced due to terrorist attacks. Despite economic difficulties, the government made sure that special Agriculture Production Program (supply fertilizer, seeds to remote hills), Karnali Zone Special Agriculture Development Program and goat barter programs, poultry farming program, beekeeping program, and sericulture programs were continued.

The government announced a plan to set up another important major bank, Krishi tatha Gramin Utthan Bank (KGUB), to lend to rural households and compete with ADB in 2003. The government hinted that it would increase the fund to GSK. But probably the most important initiatives to improve the wealth and access to credit of farmers in this era were introduced in 2006. In that year, the government announced a

loan subsidy program for farmers. For loans of up to ten thousand used for agricultural and livestock purposes, up to 2 percent interest waivers were provided. Electricity used by shallow and deep tube well was subsidized by 50 percent. Since civil unrest had recently concluded, some other important announcements regarding rural economies were also made. Community Pashudhan Program on livestock to benefit Dalit communities was announced. The government also announced running 250 irrigation projects in forty districts using Irrigation and Water Resource Management Program. Three tube well programs, i.e. Groundwater Shallow tube well Program (480 tube well), Community land-water Irrigation Sector Project (5400 tube well) and cost-sharing program in Banke, Bardiya, Dang, Kailai, Kanchanpur, Kapilabastu, Nawalaparasi and Rupandehi (4000 tube well), which will cumulatively irrigate 24,700 additional hectares, were announced. Program to install additional twenty thousand shallow tube wells was announced in the following year. Subsidies on tube well installation programs remain up to this day. The loan limit for interest rate and subsidy eligibility for farmers engaged in tea, coffee, cardamom farming was raised from Rs 10k to 15k in 2007. Around that time, the government promised to develop agricultural infrastructure and wholesale and retail sale markets for farmers in Dhading, Chitwan, Bara, Sindhuli, Sunasari, Rautahat, Sarlahi, Solukhumbu, Siraha, and Mahottari.

In 2008, the government announced waiver of loans of up to Rs 30,000 for farmers living below poverty lines who had borrowed from ADB, SFDB, NBL, and RBB. (the government would waive half of the interest on the loans up to 50k borrowed by small farmers and entrepreneurs from these banks the following year.) Fines on interest for farmers who borrowed between Rs 30,000 to 100,000 were also waived in that year. The government also established the Community Animal Development Project at the end of the decade and decided to provide capital grants to cooperatives to establish community-led tea processing factories and powder milk factories. The grant to purchase equipment and machinery was set at 25 percent initially but later increased to 50 percent in 2011. In 2010, the government announced other programs to encourage cooperative-led agricultural and animal farming.

In 2014, the government announced many financial programs to help the modernization of agricultural sector overall. Customs tariff on the purchase of equipment such as tractor, power tiller, feeder machine, and milk machine was set at one percent. Subsequently, in the aftermath of the Indian economic blockade of 2015, the government would waive excise tax on them as well. Fifty percent waiver in custom tariff was announced for up to one vehicle by an animal farm in 2014. Subsidy for non-chemical, non-pesticide organic farming was also announced the same year and the government announced that the farmers wishing to use lift irrigation for at least fifty hectares would get an interest subsidy of fifty percent. In 2017 and afterward, the government decided to divide the country into different pocket zones under a special Agriculture Modernization Plan. These pockets were set up around Midhill Highway and Hulaki highways, and subsidies of different kinds including easier and better access to finance were announced for farmers in those pocket zones. The pocket zone concept was later renamed Prime Minister's Agriculture Program.

From the information above, it can be inferred that the government generally promoted both access to credit and the rural agricultural sector jointly. We will be utilizing this key information later to explain our results.

4. Data

We have collected data on violence from Nepal Police as recorded in their local offices. The data collected belong to several types of crimes. We have ignored data on suicidal nature and focused on data on murder,

violence against women, and household violence against children. Our panel data of violence is from the duration 1996-2020.

Similarly, our source of data from the Maoist insurgency is Informal Sector Service Center (INSEC), an NGO that kept the record of violence during the insurgency era. INSEC data are widely used by many other researchers analyzing Maoist violence in Nepal. Three types of data are available from INSEC: people murdered, wounded, and missing due to the Maoist insurgency-related violence.

The data on MFIs and other financial institutions are collected from the report of Nepal's Central Bank (Nepal Rashtra Bank). We collected district-level data on other control variables from the Central Bureau of Statistics (CBS). Data on agricultural outputs are collected from the Ministry of Agriculture and Livestock Development (MOALD) of Nepal. We have used the number of firms registered as a proxy of economic activities, and detailed information on the number of firms registered is provided by the Office of Company Registrar (OCR). The OCR has provided detail of all firms registered in the last seventy years, including those firms which are no longer functioning.

Table 6 (Appendix) shows the details of how districts differ by MFI presence in key variables.

5. Model

We measure the incremental impact of microfinance by using matching method using some key matching related assumptions. The following series of regressions are used to do so.

$$SU_{it}^{(k)} = \alpha_i + \beta_t + \gamma^{(k)} D_{it}^{(k)} + x_{it}\beta_0 + D_{it}^{(k)}(x_{it} - \mu_x)\beta^{(k)} + \epsilon_{it} \ldots\ldots\ldots\ldots (1)$$

Where dummy variable $D_{it}^{(k)} = 1$ if the district i has more than k MFIs per one million population. By graphing $D_{it}^{(k)}$ for different k, we will be able to estimate the impact of increasing number of MFIs on social unrest.

Our econometric model relies on the variation in incentives and regulations related to the establishment of microfinance institutes. A survey of relevant important regulatory changes is provided in table 5 in the appendix. The regulations related to the incentives varied quite frequently starting in the early 1980s. Incentives were provided to the two commercial banks then in operation to open branches in rural areas in 1991. This is similar when it comes to the regulations related to the expansion of microfinance institutes (MFIs). Early MFIs were promoted but the central bank started to regulate them tightly gradually. Apparently, the MFIs became a victim of their own success: the higher the repayment rate, the more dividend they were able to distribute to their shareholders, the more resentment was generated towards them as a consequence. In the latest regulatory change, the central bank has limited the new license of the MFIs in only ten remote districts. We exploit the variation in policies related to the governance of non-MFI banks and MFIs to estimate the impact of MFIs on social unrest.

The endogeneity inherent in our particular question is that banks, in general, prefer to open their branches in places that are peaceful and prosperous. This indicates that a simple ordinary least square is likely to estimate the true impact of the presence of these banks in rural areas with bias. We exploit the variation in exogenous regulations to generate instruments for the establishment of MFIs.

We now define the following regression model for our estimate:

$SU_{it} = \alpha_i + \beta_t + \varphi B_{it}^m + x_{it}\beta_0 + \epsilon_{it}$ … …….(2)

Where φ provides the estimate of the impact of MFIs (and, separately, banks) on social unrest. $SUB_{i,1996}$ is the baseline data for social unrest (in our case 1996). Furthermore, x_{it} represents other related variables we control for.

Suppose regulations related to the branch expansions were introduced in year i_c, i_c=1,2, 3,..,n restricting non-MFI banks to operate in districts j_c, j_c =1,2,…,J. Furthermore, suppose regulations related to the branch expansions of MFIs were introduced in year i_m, i_m=1,2,3,..,n_m restricting MFIs to operate in districts j_m, j_m =1,2,…,J_m. Let B_{it}^c and B_{it}^m be cumulative bank opening per one million population in district i in year t.

In our model, we use multiple instrument variables to address the endogeneity of rural bank placement. In particular, deviations introduced by different regulations in year i_c are our instruments. The IV we have used in (2) is similar to what Burgess et al. (2005) used in their study of the impact of rural branches in India. The idea is exogenous change in regulations regarding the opening of bank branches affects the likelihood of opening of bank branches in certain areas. On the other hand, these regulatory interventions are uncorrelated with the social disorder (for example, murder or wife beating).

Hence, the first stage will be the following:

$$B_{it}^m = \alpha_i^f + \beta_t^f + \sum_{r_i=1}^{n_m} \gamma_{r_i}\left(SUB_{i,1996} \times [t - year(r_i)]\right) + x_{it}\beta_0 + \epsilon_{it} \ \ldots \ldots \quad (3)$$

Where we add superscript to indicate the equation is first stage where applicable and $year(r_i)$ is the year when policy r_i was introduced.

6. Results

In table 1.a-1.j, we show the primary evidence of how MFIs affect the social unrest using matching methods. Each table shows difference-in-mean (DIM), average treatment effect, average treatment effect for treated, average treatment effect for nontreated (ATENT) as well as the estimate of ATET using nearest neighbor method and kernel matching methods. Variables in the first column of these tables are similar to $D_{it}^{(k)}$ in (1) and indicate whether the district has k number of MFIs per one hundred thousand (i.e. lakh) population. For example, $D_2 = 1$ if the district has two MFIs per one hundred thousand population and 0 if it has less than two MFIs per one hundred thousand population. We have used number of finance companies, development banks, commercial banks, per capita income, human development index, adult literacy rate, mean year of schooling, GDP, distance from district headquarter to Kathmandu, road length within the district, and human poverty index as control variables. One can clearly see the evidence for the impact of MFIs on variables such as total crime recorded by police, total crimes committed during the Maoists war as well as individual crimes such as crimes against women, children, murders, etc.

Table 1:

Table 1.a: Impact of New MFI Branches on Total Crime Registered at Police

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Neighbor	Kernel Matching
D1	-0.77*	-0.72	-0.34	-0.81*	-0.09	-0.25
D2	0.08	1.19	0.49	1.25	0.65	0.62*
D3	1.66*	8.42*	1.80***	8.68***	2.08***	2.09***

Table 1.b: Impact of MFIs on Total Crime During the Maoists Insurgency

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Neighbor	Kernel Matching
D1	-1.81*	-3.23*	-1.67***	-3.63***	-1.19***	-1.18***
D2	-1.78	-2.67	-0.87**	-2.82***	-0.22	-1.03***
D3	-1.62	-2.63	-0.17	-2.72	-0.09	-0.42

Table 1.c: Impact of MFIs on Sum of Both Maoists and Police Crimes

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Neighbor	Kernel Matching
D1	-2.58**	-3.95**	-2.01***	-4.44***	-1.09*	-1.44***
D2	-1.7	-1.47	-0.37	-1.57	0.43	-0.41
D3	0.04	5.79	1.62*	5.95*	1.98**	1.67**

Table 1.d: Impact of MFIs on Wounded During Maoists Insurgency

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-0.44*	-0.75*	-0.49*	-0.82*	-0.48***	-0.38***
D2	-0.41	-0.58	-0.29***	-0.60***	-0.16	-0.29***
D3	-0.41	-0.58	-0.19*	-0.6	-0.1	-0.20**

Table 1.e: Impact of MFIs on Number of Death During Maoists Insurgency

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-3.08*	-5.60*	-2.78***	-6.32***	-2.00***	-2.02***
D2	-3	-4.62	-1.36*	-4.90***	-0.31	-1.73***
D3	-2.7	-4.58	-0.08	-4.75	-0.02	-0.61

Table 1.f: Impact of MFIs on Number of Missing Incidences During the Maoists Insurgency

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-0.6	-0.92	-0.59***	-1.01***	-0.32	-0.31***
D2	-0.65	-0.81	-0.41***	-0.84***	-0.11	-0.36***
D3	-0.62	-0.73	-0.30*	-0.75	-0.2	-0.26***

Table 1.g: Impact of MFIs on Number of Crime Against Women

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-0.84*	0.84	-1.18***	-0.76	-0.2	-0.64*
D2	0.29	2.04	0.09	2.22	0.58	0.74
D3	2.22**	13.33***	1.70***	13.78***	2.43**	2.43***

Table 1.h: Impact of MFIs on Murder

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-2.07*	-1.92	-1.06	-2.14*	0.07	-0.82
D2	0.11	3.05	1.1	3.22	1.6	1.49
D3	4.26*	22.35**	4.58***	23.03***	5.44***	5.43***

Table 1.i: Impact of MFIs on Crime Against Others

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Meighbor	Kernel Matching
D1	-0.96	-0.84	0.52	-1.18**	0.62	0.18
D2	-0.1	0.85	1.28*	0.81	1.1	0.88
D3	1.83	6.44	2.73***	6.58	2.64**	2.61***

Table 1.j: Impact of MFIs on Crime Against Children

MFI Penetration	DIM	ATE	ATET	ATENT	Nearest Neighbor	Kernel Matching
D1	-0.25	-0.23	-0.39***	-0.18	-0.34*	-0.36***
D2	-0.18	0.14	-0.27*	0.18	-0.08	-0.14
D3	0.2	2.56*	0.13	2.65**	0.47	0.38*

Table 1.a shows that having at least one branch per one lakh population reduces total crimes registered with the police (difference-in-mean). Though negative in sign, the average treatment effect calculated using both parametric and non-parametric methods (such as nearest neighbor, kernel matching) are insignificant. As the number of branches grows, the impacts become positive and significant. To look at what is driving these results, we also look at the violence due to the Maoist insurgency. We calculated total Maoist violence by giving 50 percent weight to the murder linked to the Maoist violence, 25 percent weight to the wounded and 25 percent weight to the missing individuals during the Maoist insurgency. We find that districts with at least one MFI per lakh population were less likely than the districts which have less than one MFI per lakh population to have suffered from the Maoist violence. This result is significant (table 1.b) for all criterion. Significant negative results are also reported for wounded, dead, and missing individuals (table 1.d, 1.e, 1.f) indicating that having more MFIs would have reduced the intensity of Maoist insurgency.

Table 1.g-1.j show that the impact of MFIs on other crimes reported to the Nepal police tends to be nonlinear. While districts with at least one MFI per lakh population generally have lower crimes against women, children, others, as well as aggregate murder, this decreases as the number of branches per lakh

population increases. In particular, the sign for the impact of MFIs on crime changes if we compare districts having at least three branches per lakh population and districts having less than three branches per lakh population.

The results from our regressions are presented in the table 2. They are presented in a slightly different model than our previous matching results but they do tell same story. Unlike in matching model, here we look at the new MFIs each year in a particular district and regress it against a number of covariates.

Table 2: Impact of Microfinance Branches on Different Crimes

Dependent Variables	OLS	IV
Civil War:		
Missing	-0.16	-8.47*
Dead	-0.49	-42.95*
Wounded	-0.08	-2.33
Police Record:		
Crime Against Women	-0.08	-3.76*
Crime Against Children	0.01	0.18
Murder	-0.07	-3.82
Other Controls	Yes	
Year Dummy	Yes	
District Dummy	Yes	
Observations	1792	1792

We first note that all OLS coefficients are insignificant and smaller in absolute value than 2SLS coefficients. This is not surprising. OLS results suffer from attenuation bias if there is omitted variable bias causing endogeneity. The opening of a bank branch relies on many factors that are not even measurable. Often these branches are opened because of a hunch of a randomly determined employee who was able to influence the people who matter in opening a branch.

We next note that all crimes associated with normal, non-political violence are insignificant. This is a trend consistent with what descriptive statistics showed in table 6 (appendix). The impacts are nevertheless negative for violence against women, murders, and total number of crimes per lakh population registered with the police. They show for example that one additional number of branches opened is associated with the 3.76 less number of crimes against women per one lakh population.

When total crime was regressed on total new MFIs, by adding total number of Maoist violence and other violence, the impact was significant. Each new branch opening of MFIs was associated with 26.05 less crimes. However, this result was driven by the impact of MFIs on Maoists insurgency. Indeed, when only total violence associated with the Maoist insurgency was regressed on number of new MFIs, we found that one additional branch opened was associated with 24.48 fewer composite violence. The composite violence was the weighted sum of dead, missing and wounded as explained earlier in the data section. The precise interpretation of this causal impact is somewhat more complicated. It actually means that the lessening of violence during the Maoist insurgency was caused by the MFIs in the subgroup of population that experienced a new branch of MFI because of policy intervention and was otherwise unlikely to receive a new branch.

We looked at the Maoist violence further and note that the result was driven by the impact of MFIs on missing and dead during the Maoist insurgency. In particular, the result from the IV regression shows that one additional opening of MFI branch in a particular area (due to policy initiative of the government) led to the decrease of the missing population by 8.47 individuals per lakh population. Similarly, one additional branch of MFI in a region decreased the number of dead individuals per lakh population by 42.95. This was a significant decrease.

We did not find the overall impact of MFI branch opening on other registered crimes such as violence against women or children. This can be explained in two important ways. One is that, as researches have shown (see for example, Hashemi et al., 1996), violence against women or children cannot be wiped out just by making people rich, and deep-seated historical prejudices and preferences play equally important roles. Many researchers have also shown that direct, anti-violence regulations that protect women, are necessary to address the issue of violence against women, and indirect instruments (like increasing access to finance) are unlikely to be sufficient. However, results from matching provide us slightly nuanced understanding of the impacts. In almost all cases, as table 1.g-h show, districts with at least one branch for one lakh population had experienced less crime against women and children compared to those with no branches. However, these impacts are reversed when number of branches per lakh increases. IV estimates, which include over all data for all groups by number of branches, show no aggregate impact.

Our results would be consistent with the economic theories if it were to be true that people take part in rebellion if they are economically struggling and MFIs help in creating and distributing wealth in such a way that people do not feel hostility against others in the society. A paper by Poudel et al. (2020), which analyzed the relationship between victory in local elections and subsequent intensity of civil war, also shows that villages associated with the leftist victory in the local election of 1997 were associated with the less death during the Maoist insurgency period. This is a rational outcome if the rebels were homo economicus and a victory in local election gave them power and subsequently access to resources.

The MFI related regulations during or before the Maoist insurgency that we noted constitute two major types. One was the expansion of Gramin Bikas Bank. The other was the permit given to the MFIs to open their branch in five new districts without having to increase their paid-up capital. Both led to the expansion of the MFI branches in the countryside. The significance of these initiatives and their impact on social unrest is not clear but we next argue that there were economic channels through which a decrease in violence happened.

Our finding is also consistent with the recent findings (Beath et al., 2013) in Afghanistan that women empowerment at home and outside are two different goals. After a policy intervention favoring increased women involvement in running development projects in Afghanistan, women were found to be more empowered outside the home but their intrahousehold decision-making power remained the same.

7. Mechanism

We examined two possible mechanisms which led to the improvement in social unrest. One, MFIs and other financial institutions contribute to the alleviation of poverty. This tilts trade-off between committing crime and not committing crime in the latter's favour. Since Nepal is largely an agricultural country, we examine correlation between rural lending and agricultural outputs to see if this channel was working in

reducing social unrest. Assuming land ownership did not change a lot during the period of Maoist violence, one could argue that increased agricultural output, *ceteris paribus*, led to the decrease in the incidence of poverty. To buttress our argument, we examine whether increased presence of MFIs has led to the increased establishment of firms in those districts. A positive impact of MFIs on both the agricultural outputs and firm establishment indicates that sustainable poverty alleviation is happening both at the farm (household) level and firm level. Our model to examine whether MFIs have affected the growth of agricultural output and firms is given by the following:

$$y_{j,it} = \beta_{j,0} + \beta_{j,1} MFI_{j,it} + \gamma_j' x_{j,it} + \epsilon_{j,it}$$

Where dependent variable y_{it} is agricultural output for j=1 and number of firms established for j=2 in district i in year t. Since both of these variables exhibit sequential exogeneity with the MFI, because one could expect the increase in number of firms or agricultural output after a MFI is set up in a district I, we use differences as an instrument variable to estimate the coefficient of MFI.

Table 3 and 4 show our results. Table 3 provides evidence of the fact that MFIs may have made some of the localities richer. In particular, regions where paddy is produced must have benefitted as both quantity and value of paddy had increased. Paddy is overwhelmingly produced in the southern part of the country, but is also produced in some areas in the mountains. A government data indicates that 80 percent of Nepal's arable region produces rice. Maize is the major crop in the mountains and it also appreciated in value as a result of MFI opening.

Table 3: Impact of MFIs on Agriculture Production

Dependent Variables	**OLS**	**IV**
Quantity of:		
Maize	0.001	0.030*
Paddy	-0.001	0.010*
Millet	-0.004*	0.001
Wheat	0.001	-0.005
Value of:		
Total Crop	-0.001	0.010**
Paddy	0	1.13e-13***
Maize	-0.001	0.018*
Other Controls	Yes	
Year Dummy	Yes	
District Dummy	Yes	
Observations	1792	1792

Table 4: Impact of MFIs on Firm's Registration

Dependent Variables	OLS	IV
Male Owned	1.56*	12.62***
Female Owned	-0.11	1.48***
Total	0.07	2.60***
Other Controls	Yes	
Year Dummy	Yes	
District Dummy	Yes	
Observations	1792	1792

Table 4 shows that both male owned and female owned firms increased significantly due to the opening of MFIs, thus increasing overall prosperity. One new branch opening was associated with 1.48 new opening of firms owned by women, but 2.62 new opening of firm owned by male. On aggregate, one new MFI branch opening led to the opening of 2.6 new firms.

This also explains why opening of MFIs led to the decrease in the overall political violence but not violence targeted at women. The domestic violence is an outcome of intrahousehold power asymmetry, where as political violence is the outlet for collective or individual frustration over state as his or her income drops. The frustration often arises from the deep sense of antipathy against inequality and accumulation of wealth by a few. When overall prosperity is rising, it is likely that the second frustration is felt less, while higher number of beneficiaries among male leads to their higher intrahousehold power and increases domestic violence against women.

8. Conclusion

Microfinance Institutes (MFIs) are part of socio-economic approach in alleviating poverty. Sufficient focus has not been given to quantify their impact on many social problems in an economically emerging country like Nepal. In this paper, impact of MFIs on social unrest is analyzed. We find that while impact of MFIs on indicators related to the violence during Maoist insurgency were relatively significant, impact on other indicators of social violence were more nuanced. The marginal impact of MFIs was decreasing after the number of MFIs per lakh population increased in a district.

We also argue that one channel through which MFIs were able to make impact on the intensity of an ideological civil war was due to the rising prosperity. We showed two sources of prosperity: one was the total number of firms and another was increased paddy and maize production both in quantity and value. An insignificant reduction in maize, which is produced in mountains, was associated with the MFIs branch expansion.

Our results also provide additional credence to the theory that women empowerment is not an automatic event that follows economic growth. Lending money to woman can make her rich, but not powerful enough within her household to stop aggression against her.

Our study further shows the need to investigate impacts of MFIs in areas such as social crimes. For example, are social crimes U shaped with respect to access to credit? Can there be 'too many' MFIs? If so, how many is too many? We also imply that the effectiveness of different instruments of women empowerment should be investigated further and directly. It is likely that MFIs alone are not effective in reducing crime against

women and empowering them but they work effectively when used in tandem with other regulatory interventions. In such a case, more investigation should be done to identify the effectiveness of the joint effect of MFIs and those regulatory interventions.

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Appendix

Table 5: Major Policies Regarding MFIs in Nepal

2053 BS	Rural Development Bank (Gramin Bikash Bank) are opened in all five regions by this year
2063 BS	Since most of the microfinance companies are found to be concentrated in Terai, government allows all MFIs allowed to operate in 4-10 districts to expand to further five districts in mountainous regions. For this, MFIs don't have to increase their paid-up capital.
2064 BS	Removal of Priority sector lending requirement for commercial bank. Strengthening of Rural Self-Reliance Fund. MFIs are allowed to expand to one additional district if they add a mere Rs 2.5 million in their paid-up capital.
2067 BS	MFIs are allowed to open, close, relocate or merge its offices within areas where it is licensed to operate without getting permission from the central bank. However, they need to notify the central bank within fifteen days. MFIs can add further number of districts to their operational areas by increasing paid up capital by Rs 2.5 million per districts.
2069 BS	The facility to add one district in their operational area by increasing paid up capital by Rs 2.5 million per district is continued. The government starts providing Rs 1.5 million per branch in zero interest rate to MFIs if they start new branches in nine districts (Manang, Humla, Dolpa, Kalikot, Mugu, Jajarkot, Bajhang, Bajura, Darchula).
2071 BS	The facility to add one district in their operational area by increasing paid up capital by Rs 2.5 million per district is continued. The government increases zero interest facility to twenty-two districts: Manang, Humla, Dolpa, Kalikot, Mugu, Jajarkot, Bajhang, Bajura, Darchula, Okhaldhunga, Jumla, Achham, Baitadi, Rukum, Salyan, Bhojpur, Mustang, Rolpa, Taplejung, Khotang, Rasuwa, and Solukhumbu. The zero-interest loan facility is increased to Rs 2 million per branch. New liberal provision on upgrade of MFIs (MFIs were graded in terms of number of districts they have license to operate in. For example, 1-3 districts, 4-10 districts, regional, national.)
2072 BS	The facility to add one district in their operational area by increasing paid up capital by Rs 2.5 million per district is continued. For twenty-two districts mentioned in 2071, zero interest loan facility is increased from Rs 2 million per branch to Rs 3 million per branch. For class A and B banks, if they open branches in fourteen districts (Bhojpur, Okhaladhunga, Manang, RUkum, Salyan, Jumla, Mugu, Humla, Kalikot, Dolpa, Jajarkot, Bajhang, Bajura, Darchula), they will get Rs 5 million (if inside district headquarter) or Rs 10 million (if outside district headquarter) zero interest subsidy per branch. However, these subsidies would not be available to branches that are open in municipalities/rural municipalities connected to main highways. These banks are also not allowed to open a branch inside Kathmandu valley they open three branches outside valley (at least 1 in one of the fourteen districts given above, rest in other districts outside Kathmandu valley one of which should be outside both district headquarter and municipalities).

Table 6: District Level Variables by MFI Density

Definition of Dummy Variables:

D1: =1 if the district has more than or equal to 1 MFI branch per 100k population

D2: =1 if the district has more than or equal to 1 MFI branch per 100k population

D8: =1 if the district has more than or equal to 8 MFI branch per 100k population

	D1=0	**D1=1**	**D2=0**	**D2=1**	**D3=0**	**D3=1**	**D4=0**	**D4=1**
Total Crime/per 1k population	6.3	5.6	6.2	6.3	6.1	7.8	6.1	7.5
Per capita income	523	345.1	502.1	316.4	493.7	311.2	490.4	315.4
HDI	0.44	0.46	0.45	0.46	0.45	0.47	0.45	0.46
Adult Literacy Rate	50.9	52.5	51.2	52.2	51.2	52.4	51.2	53
Mean Year of Schooling	3.1	3	3.1	2.8	3.1	2.8	3.1	2.4
Population ('000)	316.4	379.6	317.7	458.8	321.5	530.5	323.4	616.5
GDP	13749	9655	13125	10603	12962	11803	12899	13965
Distance from KTM	532.3	465.2	527.9	415.4	523.9	384.3	518.9	511.2
Road Length	105.1	105.4	105	107.2	104.9	111.5	104.8	127.1
Human Poverty Index	27.94	26.1	27.9	23	27.9	18.9	27.8	15
	D5=0	**D5=1**	**D6=0**	**D6=1**	**D7=0**	**D7=1**	**D8=0**	**D8=1**
Total Crime	6.2	6.5	6.2	6.4	6.2	5.9	6.2	11.1
Per Capita Income	489.7	287.1	488.7	294.9	487.2	375.8	487	460.2
HDI	0.45	0.45	0.45	0.46	0.45	0.5	0.45	0.63
Adult Literacy Rate	51.2	51.3	51.2	53.7	51.2	57.7	51.2	72.33
Mean Year of Schooling	3.12	2.4	3.1	2.6	3.1	2.8	3.1	3.4
Population (‘000)	324.8	657.7	326.1	681.2	328.1	770.5	328.8	896
GDP	12910	13657	12909	14129	12903	19537	12912	25604
Distance from KTM	518.2	555	518.3	562.5	518.8	469.4	519	0
Road Length	104.8	135.6	104.8	146	105	179.4	105	91.2
Human Poverty Index	27.7	15.1	27.6	22.6	27.6	16.3	27.6	0
	D1=0	**D1=1**	**D2=0**	**D2=1**	**D3=0**	**D3=1**	**D4=0**	**D4=1**
Total Crime/per 1k population	6.3	5.6	6.2	6.3	6.1	7.8	6.1	7.5
Per capita income	523	345.1	502.1	316.4	493.7	311.2	490.4	315.4
HDI	0.44	0.46	0.45	0.46	0.45	0.47	0.45	0.46
Adult Literacy Rate	50.9	52.5	51.2	52.2	51.2	52.4	51.2	53
Mean Year of Schooling	3.1	3	3.1	2.8	3.1	2.8	3.1	2.4
Population ('000)	316.4	379.6	317.7	458.8	321.5	530.5	323.4	616.5
GDP	13749	9655	13125	10603	12962	11803	12899	13965
Distance from KTM	532.3	465.2	527.9	415.4	523.9	384.3	518.9	511.2

	D1=0	**D1=1**	**D2=0**	**D2=1**	**D3=0**	**D3=1**	**D4=0**	**D4=1**
Road Length	105.1	105.4	105	107.2	104.9	111.5	104.8	127.1
Human Poverty Index	27.94	26.1	27.9	23	27.9	18.9	27.8	15
	D5=0	**D5=1**	**D6=0**	**D6=1**	**D7=0**	**D7=1**	**D8=0**	**D8=1**
Total Crime	6.2	6.5	6.2	6.4	6.2	5.9	6.2	11.1
Per Capita Income	489.7	287.1	488.7	294.9	487.2	375.8	487	460.2
HDI	0.45	0.45	0.45	0.46	0.45	0.5	0.45	0.63
Adult Literacy Rate	51.2	51.3	51.2	53.7	51.2	57.7	51.2	72.33
Mean Year of Schooling	3.12	2.4	3.1	2.6	3.1	2.8	3.1	3.4
Population (‘000)	324.8	657.7	326.1	681.2	328.1	770.5	328.8	896
GDP	12910	13657	12909	14129	12903	19537	12912	25604
Distance from KTM	518.2	555	518.3	562.5	518.8	469.4	519	0
Road Length	104.8	135.6	104.8	146	105	179.4	105	91.2
Human Poverty Index	27.7	15.1	27.6	22.6	27.6	16.3	27.6	0