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ABSTRACT

Capital Fundamentalism and Structural Transformation*

We conduct the first judicious evaluation of *Capital Fundamentalism*, in the context of the Government of Indonesia's Inpres Desa Tertinggal (IDT or Left Behind Village) Program. Originally scheduled between 1994 and 1997, the IDT program injected capital into the economies of poor households in beneficiary villages. Leveraging administrative- and satellite-based data, we evaluate the impact of IDT capital injections on: (1) household welfare, (2) structural transformation (as captured by movements out of agriculture) and (3) which sectors those in agriculture moved into. For all three analyses we adopt a (fuzzy) regression discontinuity design by exploiting the official village `scores' of the IDT program along with their provincial thresholds. The IDT program significantly increased household welfare (as measured by night time luminosity, enrolment rates, infant mortality rates, numbers of livestock, numbers of poor households and numbers of small and micro enterprises) in Java, Sumatra and Bali and Nusa Tenggara, as households exited agriculture in favour of more productive activities in the secondary sector, namely: construction, industry and trade. We find no evidence however, of the program affecting structural transformation or welfare in Kalimantan, Sulawesi or Papua, which suggests that structural transformation is a necessary condition for capital injections to foster regional development.

JEL Classification: L16, H53, H54, E22, O10, O18, I38

Keywords: capital fundamentalism, structural transformation, government intervention, welfare

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1 Introduction

The process of economic development necessarily involves the reallocation of productive resources between sectors, typically away from the traditional agriculture sector toward more modern and productive enterprises. This process of structural transformation was first enshrined in the Lewis (1954) model in terms of surplus labour[1] moving out of subsistence and into the capitalist sector. It is thus the accumulation of capital deriving from "*profits, distributed or undistributed*" [pg. 157] that "*constitute that model's engine*" (St. Cyr, 1980), which in turn results in structural transformation as households exit agriculture.[2] Capital is therefore fundamental to the models of the period (Harrod, 1939; Domar, 1946; Rostow, 1960), leading to the once conventional wisdom "*that increasing investment is the best way to raise further output, either for an individual or a nation*" (King and Levine, 1994b). If true, how might economies achieve such a virtuous circle of development? Can injections of pure capital subsequently catalyse economic development? While not written in the classic tradition, nor making the classic assumption, in this paper, we introduce for the first time a policy evaluation of what Lewis (1954) termed the 'classical question'.

With the advent of growth accounting (Solow, 1957; Denison et al., 1962; Denison, 1967), Capital Fundamentalism fell out of academic favour, with technology being preferred as the primary explanation for observed differences in living standards.[3] King and Levine in

[1]Otherwise designated disguised unemployment, but has since found expressions in terms of movements of capital and technology.

[2]Lewis, contributed to what Krugman (1993) termed *High Development Theory* [pg. 16], an era of thought in development economics, spanning Rosenstein-Rodan (1943) to Hirschman (1958). In Krugman's own words, the view that "*development is a virtuous circle driven by external economies – that is, that modernization breeds modernization*" (Krugman, 2005, pg. 2). This was the era of 'Big Ideas' the models from which laid the foundations for modern development theory by emphasizing the roles of spillovers, co-ordination failures, multiple equilibria and poverty traps. According to this view, Government intervention is advocated to ensure economies break free from vicious cycles of under-development and Rosenstein-Rodan himself advocated simultaneous investments across many industries, which would only be profitable in tandem, i.e. strategic complementarities. Krugman (1993) regards Rosenstein-Rodan's Big Push Theory, later formalised and enshrined in Murphy et al. (1989) as the 'Essential Development Model'.

[3]Capital can explain *how* countries with varying living standards differ (see for example Mankiw et al. (1992)) and can be intrinsically linked to the process of technological change (Romer, 1990; Grossman and Helpman, 1991; Aghion and Howitt, 1992).

their classic (1994a) article conclude that capital fundamentalism should not be resuscitated since capital "*seems to be part of the process... not the igniting source... indeed, economic growth tends to precede capital accumulation, not the other way round*" [Pg. 282].[4] This opposition to Capital Fundamentalism contrasts with Krugman's counter-revolution of development theory (1993) and Young's (1992, 1994, 1995) 'contrarian view' of the East Asian newly industrialised countries.[5] More recently, Dani Rodrik (2016) mused that public-driven-investment is making a resurgence, citing the examples of Bolivia and Ethiopia, which have both enjoyed remarkable success as a result of large public investments. Indeed, most if not all countries that have grown rapidly in recent years did so, at least in (large) part, by mobilizing domestic savings for public investment.

In this paper, we therefore conduct the first judicious evaluation of Capital Fundamentalism. In other words, we seek to assess whether pure injections of capital, across all sectors - with the notable exception of infrastructure - can catalyse subsequent economic development, *through the mechanism of structural transformation*. Testing these propositions emprically proves difficult since capital is necessarily endogenous to the growth process and capital-intensive projects are nonrandomly allocated across space. Cross-country studies' validity may also be challenged, since nations globally are at different stages of development and countries industrialising today face different conditions to those that industrialised earlier.

The setting for our analysis is the Government of Indonesia's *Inpres Desa Tertinggal* (IDT or Left Behind Village) Program, which was originally planned to be implemented

[4]As popularity in development economics waned, those remaining in the profession "*were most often consulted or given positions of influence in connection with the disbursements of foreign aid*" (Krugman, 1997, p. 23). Easterly (2001) famously lamented the extent to which capital fundamentalism influenced the thinking of 'experts' in international organisations that deemed capital accumulation as a pre-requisite for economic development. Nevertheless, Adelman and Chenery (1966) and more recently Arndt et al. (2016) confirm that foreign aid has over the past 40 years stimulated growth, promoted structural change, improved social indicators and reduced poverty.

[5]This version of events, first told in relation to the Soviet economic growth and then as a means of debunking the "Myth of Asia's Miracle", was perhaps most famously detailed in Krugman's 1994 Foreign Affairs article of the same name.This highlights the fact that the Tiger economies' standout feature as their factor (including capital) accumulation, which played a pivotal role in their development (see also Collins et al., 1996).

between 1994 and 1997. The overarching aim of the IDT program was to inject capital into the economies of poor households in selected villages. The program was abruptly curtailed however due to the Asian Financial Crisis, meaning that the last year of implementation was 1996. Our evaluation focuses on the evaluation of the IDT program in 1995 (*IDT95*) however, but as explained below, the overwhelming majority of villages that received *IDT95*, also received IDT funds in the previous year (please see below for further details).

The IDT program proves to be an ideal setting for our analysis for a number of reasons. First, the IDT program was Indonesia's first targeted poverty alleviation program, such that we need not worry that the effects of other programs might otherwise bias the results in any observed outcomes (see Tohari et al., 2019). The program was large, with no fewer than one-third of the poorest villages in Indonesia receiving US$8,932 per annum.[6] Furthermore, during the period of our study, Indonesia underwent rapid industrialisation and concurrently a (further) fall in the share of agriculture in GDP (please refer to Figure A.1 in the Appendix A). Perhaps above all, we are able to exploit the specificities of the selection mechanism of the 1995 IDT program in order to provide causal estimates of the resulting impacts. Specifically, we are able to exploit the official village 'scores' of the IDT program (henceforth IDT scores) in tandem with their provincial (IDT score) thresholds, to implement a (fuzzy) regression discontinuity design.

Exploiting this set-up, this paper poses the following questions: (1) Does the injection of additional capital in (rural) economies contribute to improved household welfare? (2) Does increased capital investment in a village expedite the process of structural transformation i.e. movements out of agriculture? and (3) If so, which sectors do those leaving agriculture move into?

This paper nestles at the intersection of several branches of the economics literature. Most broadly, our paper contributes to the literatures that explore factors that both expedite and

[6]Based on our interview with some senior staffs at Bappenas and BPS, approximately equal to 8-10 motorbikes per annum.

impede the process of structural transformation and thus economic development including: infrastructure (Gollin and Rogerson, 2010; Adamopoulos, 2011; Herrendorf et al., 2012; Asher and Novosad, 2018), labour regulation (Fallon and Lucas, 1993; Besley and Burgess, 2004; Manning et al., 2014), labour mobility costs (Nickell et al., 2002; Lee and Wolpin, 2006; Messina, 2006; Hayashi and Prescott, 2008) and goods mobility (Gollin and Rogerson, 2010; Adamopoulos, 2011; Herrendorf et al., 2012).

The first part of our analysis contributes to the literature that examines the relationship between structural transformation and welfare (see: Chenery et al., 1986; Syrquin, 1988). Most studies (e.g. Nelson and Pack, 1999; Ngai and Pissarides, 2007) find a positive effect of structural change on economic performance, although Caselli (2005) argues that such effects are negligible. Our measures of welfare include productivity (as captured through nightlight data), enrollment rates, infant mortality, livestock numbers, the number of poor households and the number of small and micro enterprises.

Above all, our paper contributes to the literature that examines the determinants of structural transformation as part of the process of economic development. This literature is essentially founded on the notion of 'dualism' first introduced by Lewis (1954), according to which, areas of differential productivity exist within countries, which provide opportunities for improvements in efficiency. Productivity wedges, between, for example, agricultural and non-agricultural sectors, mean that the reallocation of labour between sectors can yield (aggregate) productivity gains, See: Gollin et al. (2002), Au and Henderson (2006), Lagakos and Waugh (2013), McCaig and Pavcnik (2013), Bryan et al. (2014), Gollin et al. (2014), Herrendorf et al. (2014), Bustos et al. (2016) and Munshi and Rosenzweig (2016).[7] Our paper is also related to the literature on capital reallocation and structural transformation. As opposed to Banerjee and Munshi (2004), however, who study entrepreneurs' access to capital in the garment industry in Tirupur, India and contrary to Bustos et al. (2020) who

[7]For labor reallocation across regions, (as opposed to sectors) see Enrico (2011), Michaels et al. (2012), Munshi and Rosenzweig (2016), Bryan and Morten (2019) and Fajgelbaum and Redding (2014).

examine the linkages with the Brazilian agricultural sector following an exogenous increase in agricultural productivity, we provide causal estimates of capital injections across all sectors (excepting infrastructure) of Indonesian villages.

Our study also contributes to the literature that examines how choices in labor markets affect poverty reduction. Bandiera et al. (2017) for example, show that Bangladeshi women when engaging in livestock rearing, increase their labor supply in addition to their earnings, which in turn lead to sustainable poverty reduction. Notably however, our paper contrasts with studies that evaluate microfinance programs (Kaboski and Townsend, 2011, 2012; Angelucci et al., 2015; Attanasio et al., 2015) since differences arise in the population targeted. Take KUPEDES (*Kredit Umum Pedesaan*) or general village lending program for example, which is comparable with the Thai program evaluated by (Kaboski and Townsend, 2011). In contrast to our policy evaluation, this program was not targeted at poor (farming) households, but rather represented capital support for self-employed microentrepreneurs for those that pass the collateral requirement (Robinson, 2001). *A priori* we would not expect such lending to catalyse structural transformation since no funds were provided to those working in agriculture.

Finally and despite the scale of the IDT Program, insufficient evidence exists on the overall success of the program, not least in regard to the extent that results from existing studies are causal. Molyneaux and Gertler (1999) for example, examine the impact of the IDT program on labour supply and household expenditure, by implementing a matching estimator in combination with village fixed effects. Those authors conclude that the IDT Program had no significant effect on either of those outcomes, although the spectre of omitted unobservables loom large. In contrast, in an unpublished manuscript, Alatas (2000), exploits the design of the IDT Program by implementing a Regression Discontinuity Design using *provincial* thresholds in the running variable to establish causality. Although the results showed that the program increased per capita expenditure by around 13 percentage points in rural areas, while decreasing per capita expenditure by about one percentage point in urban areas, the paucity of sufficient numbers of observations around the cut-off in the running variable evokes fears with regards to the precision of those findings. Akita and Szeto (2000) also using provincial-level data, and highlight the correlation between the receipt of larger IDT per capita grants and a decrease in inequality of consumption within provinces.[8] Significantly, no existing IDT study leverages the administrative data on the IDT program that we have privileged access to, which necessarily stymies any attempt to establish causal estimates.

First, we provide causal estimates of the IDT program on various measures of village welfare. We subsequently focus on rural villages, since we find no statistically significant evidence that the IDT program affected villages located in urban environs, one interpretation of which is that sufficient capital is already available in those locales. The program had a revolutionary effect in Java where: productivity increased by 44 percentage points, enrolment rates increased by 5 percentage points, infant mortality reduced by nearly 15 percentage points, livestock numbers increased by approximately 90 percentage points, the number of poor households reduced by eight percentage points and the number of small and micro enterprises increased by over 78 percentage points. Sumatra and Bali and Nusa Tenggara also significantly benefited from the IDT program, although far fewer impacts of the IDT program are identified in the case of the two most remote parts of the country in Kalimantan and Sulawesi and Papua. The former did experience the largest increases in livestock numbers however, while the latter witnessed a ten-percentage point increase in enrolment rates. These results are robust to alternative specifications, including placebo bandwidths and various order of polynomial.

Although large in absolute magnitude, these effects are relative to the low base from

[8] In the parallel targeting literature that pertains to the IDT Program, Yamauchi (2010), using administrative data combined with SUSENAS and PODES data evaluates whether the IDT targeting mechanisms were pro-poor, finding that in wealthier and more unequal villages more resources tend to be provided to households that are relatively poor within a village. Similarly, Suryadarma and Yamauchi (2013) investigate the relationship between targeting performance and missing IDT Program funds, thereby demonstrating that the targeting effort of the IDT was less pro-poor.

which Indonesian villages began in the early 1990s. Nevertheless, our results do highlight the incredible gains that the Indonesian economy experienced prior to the onset of the Asian Financial Crisis in 1997. Our results therefore speak to the apparent development paradox that emerged in the Indonesian statistics first highlighted in the context of the Indonesian Family Life Survey (IFLS).[9] Between the first two waves of the survey *IFLS1*, conducted in 1993/94, i.e. at our baseline and *IFLS2*, which was carried out in 1997/1998 i.e. our post-treatment period, Indonesia seemingly experienced dramatic economic development, which for many years has been viewed with caution. Appendix Table B.3 for example, shows that the proportion of agricultural households in rural areas fell by 24% between *IFLS1* and *IFLS2*, and Figure A1 that shows this decline relative to its time series. Our results demonstrate that a significant proportion of this decline, for exampe 16% in the case of Java, was caused by the implementation of the IDT program between 1994 and 1996.

We continue by highlighting the mechanism of structural transformation - as captured by the numbers of households in agriculture – through which those welfare gains accrue. Notably, we uncover no statistical evidence that the IDT program exerted any effect whatsoever on structural transformation in the case of Kalimantan and Sulawesi and Papua. Rather, in those islands in which we are able to identify causal effects of the IDT program on household welfare, we first show that villages that comprised more households exiting agriculture fared better in terms of their welfare indicators and secondly provide causal estimates of the *IDT95* program on the percentage of agricultural households in recipient villages. The *IDT95* program significantly reduced the percentage of households working in agriculture, most starkly in the case of Java (16 percentage points) and Sumatra (15 percentage points) and to a lesser extent in Bali and Nusa Tenggara (6 percentage points). These results suggest that structural transformation was a necessary condition for a region to benefit from the injections of capital from the IDT program. In other words, if a region was able to use

[9]We are extremely grateful to the TNP2K workshop participants for pointing out this hitherto unknown fact out to us.

funds from the IDT program, to shift their factors of production away from agriculture and into higher productivity sectors, that region also experienced parallel improvements in their welfare.

The rest of the paper proceeds in six sections. Section 2 provides relevant details on the IDT program, while Section 3 describes our main data sources. Section 4 presents our identification strategy and discusses the reason why our regressions are conducted at the *island* (as opposed to the provincial) level of observation. Section 5 presents our estimates of the impact of the IDT program on household welfare and structural transformation, while also examining to what extent available infrastructure expedites the processes of structural. Finally, we conclude.

2 Institutional Framework: IDT program

2.1 IDT Program

The IDT (*Inpres Desa Tertinggal* or Left-behind village) program, Indonesia's first anti-poverty program, was implemented by the Government of Indonesia (GoI) between 1994 and 1996, since the onset of the Asian Financial Crisis led to the curtailment of the program before any disbursements were made in 1997. The overarching objective of the program was to accelerate poverty reduction in so-called 'left-behind villages' through increasing economic activity in targeted villages (BAPPENAS, 1994). Under the auspices of the IDT Program, the government provided selected poor villages with lump-sum grants designated for small business loans.

Targeted villages each received 20 million Rupiah (approximately US$8,932) per annum, which was to be used as a small-scale rotating credit fund for poor households.[10] The wording of the policy allowed recipient households to spend funds from the IDT program on any form

[10]This conversion is based on the 1995 average exchange rate of IDR 2,239 per 1995 US$ (Yamauchi, 2010). During fiscal years 1994-1996, the IDT fund disbursed approximately US$564 million.

of capital expenditure, with the exception of infrastructure projects. This exception was made so as to expedite the process of poverty reduction in rural areas, since it was believed that any outcome from infrastructure projects would take too long to realise (BAPPENAS, 1994). Ultimately, the fund was disbursed across several activities including: husbandry (36%), trade (26%), agriculture (13%), industry (12%), fisheries (5%) and miscellaneous (8%).

2.2 Targeting of IDT Program

Initially, during the first year of the implementation in 1994, the IDT(94) program targeted about one-third (i.e. 20,633) of all Indonesian villages. At this time, the IDT village and province scores were constructed using 25 variables in urban areas and 27 for rural areas, all of which were collected from the 1990 and 1993 PODES, or village census (please refer to Appendix C).[11] At first, the IDT implemented a two-step targeting method. The first step involved selecting eligible villages and the second to select poor households within those selected villages. The GoI initially selected 'left behind villages' by comparing village IDT scores with the standard deviation and range of the provincial IDT scores to which the village belonged. Concurrently, the government conducted a field survey (based on the perceptions of the sub-district head and the Statistical Officer) to evaluate whether indeed selected villages were indeed poor (BPS, 1994), under *IDT94*. Ultimately, villages were deemed eligible for the IDT program should they be deemed poor by two of the three (standard deviation, range, field survey) methods.

The second step subsequently involved electing relatively poor households within selected villages that would be eligible for IDT loans based on local village-level meetings, which were facilitated by the village head and a local government agency called LKMD (for *Lembaga Ketahanan Masyarakat Desa* or Village Community Resilience Board). The selected house-

[11]Fewer variables were used to construct the village and province IDT95 scores (see of Table C.2 in the Appendix C).

holds were formed into POKMAS (for *Kelompok Masyarakat* or community groups) and each POKMAS comprised some twenty selected households. Each POKMAS submitted a brief proposal, called the DUK (for *Daftar Usulan Kegiatan* or List of Proposed Activities), which detailed how their members would use the proposed monies from the IDT fund. These proposals were subsequently reviewed by the LKMD (for *Lembaga Ketahanan Masyarakat Desa* or the village council). According to its guidelines, the IDT program left the POKMAS member to select any possible investment activities, with the *exception* of physical infrastructure for the village.

Given the ad-hoc and arbitrary nature of the field survey conducted as part of *IDT94* however, the focus of our study is on evaluating the impact of *IDT95*, for which we have administrative data on recipient villages and perfect knowledge as to which village *should* have received the program, a setting that naturally lends itself to a (fuzzy) regression discontinuity design. According to the *IDT95* criteria (i.e. the range and standard deviation criteria alone), *all* villages based on *IDT94* methodology were retained, with the exception of those comprising fewer than 50 households. As such, 82.28 percent of *IDT95* recipient villages were also *IDT94* recipients (please refer to Appendix D). A further 3,915 new villages were also added during *IDT95*, 126 of which were not on the *IDT94* recipient list and a further 3,789 village that previously were but whose IDT had since fallen below their provincial cut offs. Importantly therefore, whereas our evaluation focuses on *IDT95*, most of our recipient villages also received funds under *IDT94*, such that our results would be most fairly assigned to both years of the IDT program as opposed to *IDT95* alone.

3 Data

In order to conduct a judicious assessment of the role of capital fundamentalism in fostering structural transformation, it proves necessary to combine administrative data on the IDT Program with granular village level information.

3.1 Administrative IDT Program Data

Our first dataset comprises administrative data from the GoI, which details the actual village and provincial IDT scores, those used to select villages into the IDT program from 1994 to 1996, although our specific focus is on *IDT95*.[12,13] To facilitate the exploration of the effect of the IDT program on village productivity, we also digitised the official BPS map, which details the precise location and area (i.e. polygon) of each village (please refer to Appendices E and F for further details).

3.2 Triennial village administrative census or PODES

Our second source of data is the administrative triennial village census or PODES (for *Potensi Desa* or Village Potential Censuses), which comprises the universe of villages in Indonesia. PODES collects a panoply of data including physical and administrative characteristics, infrastructure and social organizations and amenities. We employ data from the 1990, 1993 and 1996 PODES for a variety of purposes: i) to reconstruct the IDT village and province scores from *IDT94* as a robustness check to test the fidelity of the aforementioned administrative data on the IDT program ii) to use data from PODES 1993 for the construction of some of our pre-treatment baseline measures such as percentage agriculture households (please refer to Appendix G for an exhaustive list of the available variables from PODES 1993 and the IDT Village Census 1994) and iii) to conversely exploit data from 1996 PODES, to construct some of our post-treatment outcomes, a full list of which is provided in Appendix H.

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[12]We would like to thank to Chikako Yamauchi and Jack Molyneaux for providing the administrative data.

[13]These data comprise the value of each constituent variable used to construct both the village and provincial scores.

3.3 Administrative IDT village census

Due to the importance of the IDT program, the GoI, through the BPS, conducted an additional two village censuses in 1994 and 1995. In 1994, the GoI collected additional information on village characteristics, including details about the POKMAS (community groups) within villages. These data were used to construct both the village and province scores for IDT95 and given our privileged access to these data, they were first employed to double-check the construction of the official *IDT95* scores. We further employ administrative data from 1994 and 1995 village censuses to construct a number of our baseline and outcome measures, which includes: rich data on school enrolments and infant mortality rates - neither of which were features of the PODES prior to the implementation of the IDT and livestock numbers – information usually only captured in the agricultural census. Our study is the first to leverage these administrative data, the absence of which would otherwise hamstring attempts to causally identify the impact of the IDT program.

3.4 Night light intensity

Finally, we incorporate night light intensity data from the National Oceanic and Atmospheric Administration (NOAA) into our analysis. Luminosity was first used as a proxy for productivity by Henderson et al. (2012); but has subsequently been used in a similar vein by others including: Hodler and Raschky (2014), Michalopoulos and Papaioannou (2014), Olivia and Gibson (2015) and Bazzi et al. (2016). Olivia and Gibson (2015) in particular, demonstrate that night light luminosity represents a good proxy for capturing subnational variation in productivity in Indonesia. We use the night light intensity both 1993 and 1996 to represent the periods before and after the implementation of IDT.

3.5 Merging the datasets

Since our datasets derive from different sources, the merging of the data proved challenging, not least since over the period 1990-1996, the GoI issued no fewer than 42 separate regulations, which aimed to redefine the administrative boundaries of several municipalities and sub-municipalities (please refer to Appendix I). During this time, no fewer than 3,426 villages changed their village identifier during their realignment to the new administrative boundaries. For each of these villages, we manually tracked their name as stated in the regulations and subsequently painstakingly matched them to their original village identifier. Having combined all the datasets, our methodology yields a consistent and balanced panel dataset spanning 1993 to 1996, comprising some 56,480 villages, equivalent to 86.6 percent of the total number of villages in Indonesia (65,060 in 1993).

4 Estimation Strategy

We exploit the design of the IDT program in order to provide causal estimates of its effects on our outcomes of interest. Once the field survey criteria was dropped, the selection of the poor villages under *IDT95* solely relied upon a comparison of village IDT scores and provincial IDT thresholds. Under this mechanism, the selection of poor villages was formally:

$$Pr(IDT = 1) = \begin{cases} 1 & \text{if } villscore_{v,p} \leq P \\ 0 & \text{if } villscore_{v,p} > P \end{cases} \tag{1}$$

Where $villscore_{v,p}$ is the village score of the village v in province p, while P is the provincial threshold.

In comparison with Alatas' (2000) study therefore, which estimates the impact of the IDT program on household expenditure and child labour at the provincial level, we instead conduct our estimation at the *island* level,[14] in order to significantly increase our sample size, most specifically to better populate the envelope around the threshold of our running variable. One consequence of our doing so however, is that the distinction between our treatment and control villages is no longer sharp around the cut-off (please refer to Figure 1), which in turn lends itself to a fuzzy design.

Initially therefore, we pool all villages according to each major island grouping, together with their provincial thresholds, such that our running variable is then equal to the provincial threshold minus the village score (i.e. the *normalized village score*). Panel A of Figure 2 presents the original distribution of the village score, while Panel B instead depicts the normalised village score i.e. our running variable. We subsequently conduct the manipulation test of Cattaneo et al. (2019) to ensure no discontinuity of the running variable exists around the threshold.[15] The result for each island is presented below the distribution of each figure in Panel B. In all cases we reject the hypothesis, meaning here is no statistical evidence of systematic manipulation of the running variable.

Prior to presenting our estimates, we first investigate whether any other village characteristics, *other* than the IDT program treatment vary around the threshold. As shown in Table 1, while many significant differences exist between the means of the various variables, we do not find any significant differences between these variables around the threshold of our running variable, with the notable exception of the number of cattle in Sumatra which subsequently become statistically insignificant after we combine with the other animals in

[14]During the implementation of the IDT program the BPS defined six areas of Indonesia based on island groups, which is commonly known as Administrative Area Coding System. Under this system, islands are easily identified by the first number of the Administrative Area Code. For example, all provinces in Sumatra had their code starting with the first number equal to one. We adhere to this classification, one a single exception in which we pool Sulawesi (with island code equal 7) together with Maluku and Papua (with island code equal to 8) in order to increase our sample size.

[15]Cattaneo et al. (2019) develop a set of manipulation tests based on a novel local polynomial density estimator, which does not require pre-binning of the data. This test is relatively more flexible than the previous variant of the manipulation test, such as McCrary (2008) who introduced a test based on the nonparametric local polynomial density estimator of Cheng et al. (1997). This requires pre-binning of the data, which therefore introduces additional tuning parameters. Otsu et al. (2013) propose an empirical likelihood method employing boundary corrected kernels.

our sample that results in our measure of livestock. In other words, our outcomes are continuous around the IDT thresholds for all islands. The results of both manipulation tests of the running variable and the balance of baseline covariates confirm the validity of our RD design. This also implies that we need not necessarily include our baseline covariates in our RD estimation (Lee and Lemieux, 2010).

We subsequently implement a fuzzy RDD estimation to causally estimate the Local Average Treatment Effect (LATE) of receiving the IDT program. Following Imbens and Lemieux (2008) and Gelman and Imbens (2019) our estimation is conducted using local linear regressions within a given bandwidth, around the threshold, implementing the normalized village score as our running variable. Our first- and second-stage regressions are therefore modelled as follows:

$$\begin{aligned}\widehat{IDT}_{v,p} = \delta_0 \; + \; \delta_1 1\{villscore_{v,p} \leq P\} \; + \; \delta_2(P - villscore_{v,p}) \; + \\ \delta_3(P - villscore_{v,p}) * 1\{villscore_{v,p} \leq P\} \; + \; \mu_p \; + \; \upsilon_{v,p}\end{aligned} \tag{2}$$

$$\begin{aligned}Out_{v,p} = \beta_0 \; + \; \beta_1 \widehat{IDT}_{v,p} \; + \; \beta_2(P - villscore_{v,p}) \; + \\ \beta_3(P - villscore_{v,p}) * \widehat{IDT}_{v,p} \; + \; \vartheta_p \; + \; \varepsilon_{v,p}\end{aligned} \tag{3}$$

Where $Out_{v,p}$ is the outcome of the interest in the village v and the province-group threshold p. Our outcome variables to investigate the impact of IDT program on welfare include: the log of mean luminosity (NL),[16] school enrolment rates of the population aged between 7-15 years (ER), infant mortality rates per 1000 live birth (IMR), the log of the total number of livestock (LS) which is the sum of all animals in the survey (including: dairy cow, cattle, buffalo, horse, goat/sheep, pig, and broiler chicken), the percentage of poor people living in a village (POOR), and log number of Small and *Micro* Enterprises (SMEs). μ_p and ϑ_p are provincial-threshold fixed effects.

[16] To deal with zeros values, we follow Michalopoulos and Papaioannou (2014) by using Log (0.01 + Average Luminosity) in the regressions

5 Results

5.1 The IDT program and Welfare

Our anlaysis comprises three parts, which all leverage our RD design. First, we provide causal estimates of the IDT program on various measures of village welfare, including: productivity (luminosity), education (enrolment rates), health (infant mortality rate), agriculture (number of livestock), poverty (number of poor households) and industry (number of small and micro enterprises - SMEs). Next, focusing on the mechanism at play, we show that villages experiencing greater numbers of households leaving agriculture are also those that benefit from the largest increases in welfare, as broadly defined by our six measures. We subsequently provide causal results of the impact of the IDT program on the numbers of households engaged in agricultural activities. Finally, we provide causal estimates of those sectors that households exiting agriculture moved in to.

We begin with graphical illustrations of our RD design (please refer to Appendix J), in which the local averages of our outcome variables on each island are plotted against the corresponding normalized village scores. Panel A shows the results for Sumatra island. Panel B, C, D, and E present the results of Java, Bali and Nusa Tenggara, Kalimantan and Sulawesi and Papua, respectively. Each point represents the average value of the outcome in every bin. The solid line plots predicted values, while the outcome trends estimated on either side of the threshold. The dashed lines show 95 percent confident interval. The vertical dashed red line marks the cutoff at zero.

Table 2 and Table 3 report the causal estimates of the effect of the IDT program on productivity as proxied by night time luminosity (col. 1), enrolment rates: ages 7-15 years (col. 2), livestock numbers (col. 3) infant mortality rates (col. 4) the number of poor households (col. 5) and the number of small and micro enterprises (col. 6) for rural and urban villages respectively. Strikingly, in the case of urban villages we find almost no statistically significant results whatsoever, which while perhaps indicative of a real life phenomenon wherein urban villages do not benefit from injections of capital, so too are these results, at least for all island groups with the exception of Java, driven by the absence of sufficient numbers of observations, such that our estimated standard errors are large relative to our point estimates. We focus therefore, for the remainder of the paper, on the impacts of the IDT program on rural villages.

Panel B of Table 2 shows that rural villages in Java benefited from the *IDT95* program as measured by all of our six measures of welfare. Specifically, our causal estimates suggest that the program increased productivity (average luminosity) by 44 percentage points, enrolment rates by 5 percentage points, reduced infant mortality by nearly 15 percentage points, increased livestock numbers by approximately 90 percentage points, reduced the number of poor households by eight percentage points and increased the number of small and micro enterprises by over 78 percentage points.

Our estimates from the outer islands however, vary considerably from those we obtained for the most densely populated and interconnected island, Java. Our results highlight that Sumatra and Bali and Nusa Tenggara benefited the most from the IDT program after Java. Notably, Sumatra experienced a comparable increase in productivity in comparison with Java, while Bali and Nusa Tenggara experienced none. Both Sumatra and Bali and Nusa Tenggara witnessed significant decreases in their infant mortality rate, with Bali and Nusa Tenggara recording more than 32 percentage point fall; while both Sumatra and Bali and Nusa Tenggara experienced significant increases in livestock numbers. While smaller in magnitude, the IDT program nevertheless also played a significant role in bolstering the numbers of small and micro enterprises in both Sumatra and Bali and Nusa Tenggara. Far fewer impacts of the IDT program are identified in the case of the two most remote parts of the country in Kalimantan and Sulawesi and Papua. The former did experience the largest increases in livestock numbers however, while the latter witnessed a ten percentage point increase in enrolment rates.

In summary, the *IDT95* program exerted a positive and significant effect on targeted rural villages in Java, Sumatra and Bali and Nusa Tenggara. Evidence on the impacts on other islands is mixed. These results are robust to alternative specifications, including placebo bandwidths and various order of polynomial (please refer to Appendix K).

5.2 IDT and Structural Change

While the IDT program improved the welfare of rural villages in the central islands of Indonesia, in this section we provide further evidence that the mechanism through which injections of capital alone (i.e. Capital Fundamentalism) affect village welfare is through structural transformation, as captured by the number of households in agriculture.

We provide two pieces of evidence in this regard. First, as shown in Figure 3, we provide simple correlations, which demonstrate that villages that comprised more households exiting agriculture fared better in terms of their welfare indicators. In other words, greater proportions of households reliant upon agriculture in particular villages are associated with lower productivity, lower enrolment rates, higher infant mortality rates, higher livestock numbers, a higher incidence of poor households and fewer small and micro enterprises.

Secondly, again turning to our RD specification, we further provide causal estimates of the *IDT95* program on the percentage of agricultural households in recipient villages, the results of which are shown in Table 4, which presents the results for each island grouping (panels A-E) as well various specifications of the polynomials and bandwidths. Our results show that the *IDT95* program significantly reduced the percentage of households working in agriculture, most starkly in the case of Java (16 percentage points) and Sumatra (15 percentage points) and to a lesser extent in Bali and Nusa Tenggara (6 percentage points). We find no statistical (and negligible economic) evidence that the *IDT95* program had any effect whatsoever on structural transformation in the case of Kalimantan and Sulawesi and Papua.

Taken together, our evidence suggests that the IDT program exerted by far the largest impacts on rural villages in the central islands of Java, Sumatra and Bali and Nusa Tenggara.

Concurrently, it was only these islands that experienced structural transformation as a result of the *IDT95* program. These results suggest that structural transformation was a necessary condition for a region to benefit from the injections of capital from the IDT program. In other words, if a region was able to use funds from *IDT95* to shift their factors of production away from agriculture and into higher productivity sectors, that region also experienced parallel improvements in their welfare. For example, in Sumatra, falling numbers of households in agriculture were accompanied by a boost to productivity, lower infant mortality rates, fewer poor households and a dramatic increase in the number of small and micro enterprises. These results are consistent with previous studies, including: Gollin et al. (2002), Lagakos and Waugh (2013) and Gollin et al. (2014), which collectively demonstrate that structural transformation impacts positively on productivity.

5.3 Identifying the Nature of Structural Change

In the final part of our analysis, we again depend upon our RD framework to estimate which sectors those households leaving agriculture move into, the results of which are shown in Table 5. Our focus is again on the islands of Sumatra, Java and Bali and Nusa Tenggara, those islands that have previously been shown to have benefited from the IDT program in terms of structural transformation as measured by households leaving agriculture. Our results show that households experiencing structural transformation exited agriculture into the industrial, trade and construction sectors. Java experienced the most structural transformation with the industrial, trade and construction sectors expanding by 4.4%, 6.8% and 1.2% respectively. In other words, households exiting agriculture left to enter the secondary sector.

6 Conclusion

Capital Fundamentalism endures as one of the 'Big Ideas' of the golden era of development economics and is at the core of many of the most important contributions of the period

(Harrod, 1939; Rosenstein-Rodan, 1943; Domar, 1946; Lewis, 1954; Rostow, 1960). More recently, the centrality of Capital Fundamentalism has been questioned (King and Levine, 1994a), with capital being advocated as part of the process of development, as opposed to constituting a catalyst of development in and of itself. This view has been generally accepted, despite the fact that a fundamental assessment has yet to be judiciously conducted.

In this paper we therefore provide the first causal estimates of the effects of capital injections on household welfare and structural transformation in local economies in the context of the Government of Indonesia's *Inpres Desa Tertinggal* (or Left Behind Village) Program. In other words, we provide evidence that capital injections alone can catalyse economic development.

Our results constitute causal evidence that the IDT program significantly improved the welfare of rural households in Java, Sumatra and Bali and Nusa Tenggara, through the process of structural transformation. In the outlying islands, the program had no effect on structural transformation and subsequently little development occurred in these areas. These results suggest that structural transformation was a necessary condition for regions to benefit from capital injections. In other words, capital injections alone are found, at least for the more central islands of Indonesia, to spur economic development in and of themselves, which therefore lends credence to Capital Fundamentalism remaining relevant. While technology no doubt is key in elucidating the growth process, our results nevertheless suggest that capital plays a key role in economic development, at least in regards to poor rural Indonesia villages in the mid-1990s, for which technology no doubt played a more relevant role as these entities developed further.

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Tables

Table 1: Summary Statistics – Pre-Treatment in the Island:

Panel A: Island 1 - Sumatra

Variable	NON - IDT		IDT		Difference of		RD Estimation	
	Mean	SD	Mean	SD	Mean	S.E	Mean	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre -93- Percentage Agriculture Households in (1993)	0.793	0.182	0.893	0.100	0.101***	[0.003]	0.004	[0.006]
Pre -94- Percentage Agriculture Households	0.763	0.199	0.895	0.100	0.132***	[0.004]	-0.006	[0.007]
Pre -94- Percentage Trade Households	0.049	0.058	0.022	0.027	-0.026***	[0.001]	0.000	[0.002]
Pre -94- Percentage daily/manual Households	0.078	0.126	0.091	0.168	0.013***	[0.003]	0.009	[0.008]
Pre -94- School Enrol rate population aged 7-15 years	0.880	0.152	0.793	0.192	-0.087***	[0.003]	-0.016	[0.011]
Pre -94- Infant Mortality Rate per 1000 live birth	71.657	84.204	94.534	92.333	22.877***	[1.688]	1.937	[5.417]
Pre -94- Number of Livestock: 1. Dairy cow	0.188	5.218	0.126	4.329	-0.062	[0.099]	0.275	[0.216]
Pre -94- Number of Livestock: 2. Cattle	66.756	157.520	33.981	85.813	-32.775***	[2.877]	-15.674**	[7.807]
Pre -94- Number of Livestock: 3. Buffalo	24.967	66.045	25.412	73.519	0.446	[1.329]	-8.240	[6.574]
Pre -94- Number of Livestock: 4. Horse	0.603	6.133	0.889	5.654	0.285**	[0.119]	-0.371	[0.333]
Pre -94- Number of Livestock: 5. Goat/sheep	85.698	196.155	56.547	109.232	-29.151***	[3.588]	2.273	[6.326]
Pre -94- Number of Livestock: 6. Pig	39.350	205.938	52.524	208.725	13.174***	[4.061]	7.975	[8.178]
Pre -94- Number of Livestock: 7. Broiler Chicken	1595.397	3902.121	814.692	1377.933	-780.705***	[69.859]	-125.730	[139.477]
Pre -93- Night-Light indicators in 1993	1.635	4.585	0.371	2.327	-1.264***	[0.084]	-0.005	[0.184]
Number of villages	13195		3219					

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Panel B: Island 2 - Java

Variable	NON - IDT		IDT		Difference of		RD Estimation	
	Mean	SD	Mean	SD	Mean	S.E	Mean	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre -93- Percentage Agriculture Households in (1993)	0.686	0.171	0.808	0.127	0.121***	[0.003]	0.002	[0.006]
Pre -94- Percentage Agriculture Households	0.657	0.179	0.809	0.130	0.152***	[0.003]	0.012*	[0.006]
Pre -94- Percentage Trade Households	0.084	0.077	0.043	0.043	-0.042***	[0.001]	-0.002	[0.002]
Pre -94- Percentage daily/manual Households	0.099	0.114	0.099	0.126	0.000	[0.002]	0.002	[0.005]
Pre -94- School Enrol rate population aged 7-15 years	0.870	0.138	0.809	0.150	-0.061***	[0.002]	0.002	[0.007]
Pre -94- Infant Mortality Rate per 1000 live birth	45.287	61.713	58.151	72.551	12.864***	[1.051]	2.105	[3.011]
Pre -94- Number of Livestock: 1. Dairy cow	9.518	93.896	4.485	45.283	-5.033***	[1.367]	-2.168	[2.764]
Pre -94- Number of Livestock: 2. Cattle	158.401	263.159	246.575	333.854	88.174***	[4.602]	0.793	[14.367]
Pre -94- Number of Livestock: 3. Buffalo	22.338	70.886	26.055	64.538	3.716***	[1.127]	-0.361	[2.368]
Pre -94- Number of Livestock: 4. Horse	2.703	27.552	1.511	17.580	-1.192***	[0.412]	0.311	[1.002]
Pre -94- Number of Livestock: 5. Goat/sheep	346.703	494.488	467.927	583.801	121.224***	[8.438]	-19.275	[25.868]
Pre -94- Number of Livestock: 6. Pig	7.230	117.298	6.011	146.191	-1.219	[2.039]	-1.631	[4.823]
Pre -94- Number of Livestock: 7. Broiler Chicken	4481.246	7590.127	2792.072	3546.724	-1,689.174***	[110.283]	-297.657	[234.143]
Pre -93- Night-Light indicators in 1993	6.080	5.539	1.992	2.723	-4.088***	[0.081]	0.024	[0.144]
Number of villages	14684		5100					

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Panel C: Island 3 - Bali and Nusa Tenggara

Variable	NON - IDT		IDT		Difference of		RD Estimation	
	Mean	SD	Mean	SD	Mean	S.E	Mean	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre -93- Percentage Agriculture Households in (1993)	0.792	0.177	0.882	0.120	0.091***	[0.008]	0.027*	[0.014]
Pre -94- Percentage Agriculture Households	0.802	0.190	0.905	0.085	0.103***	[0.008]	0.008	[0.012]
Pre -94- Percentage Trade Households	0.031	0.055	0.012	0.024	-0.018***	[0.002]	-0.001	[0.003]
Pre -94- Percentage daily/manual Households	0.034	0.091	0.022	0.062	-0.012***	[0.004]	-0.017*	[0.009]
Pre -94- School Enrol rate population aged 7-15 years	0.821	0.178	0.802	0.186	-0.019**	[0.008]	-0.006	[0.021]
Pre -94- Infant Mortality Rate per 1000 live birth	90.172	86.074	94.117	85.268	3.946	[3.987]	-3.234	[9.766]
Pre -94- Number of Livestock: 1. Dairy cow	0.209	6.681	0.019	0.460	-0.190	[0.279]	0.176	[0.183]
Pre -94- Number of Livestock: 2. Cattle	426.196	682.322	467.873	802.006	41.677	[32.815]	35.403	[71.118]
Pre -94- Number of Livestock: 3. Buffalo	128.847	300.849	120.771	257.641	-8.076	[13.611]	8.705	[27.561]
Pre -94- Number of Livestock: 4. Horse	72.944	142.349	78.319	145.350	5.375	[6.637]	-2.213	[14.004]
Pre -94- Number of Livestock: 5. Goat/sheep	334.741	601.420	278.773	573.968	-55.968**	[27.689]	50.621	[50.274]
Pre -94- Number of Livestock: 6. Pig	745.496	1016.953	518.550	694.394	-226.946***	[44.758]	73.539	[73.357]
Pre -94- Number of Livestock: 7. Broiler Chicken	4546.323	7932.085	3152.896	5472.746	-1,393.427***	[349.470]	-407.991	[660.563]
Pre -93- Night-Light indicators in 1993	1.626	3.551	0.434	1.128	-1.191***	[0.151]	0.168	[0.147]
Number of villages	2434		574					

Continue to the next page....

Panel D: Island 4 - Kalimantan

Variable	NON - IDT		IDT		Difference of		RD Estimation	
	Mean	SD	Mean	SD	Mean	S.E	Mean	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre -93- Percentage Agriculture Households in (1993)	0.769	0.179	0.869	0.116	0.100***	[0.006]	-0.012	[0.012]
Pre -94- Percentage Agriculture Households	0.752	0.192	0.880	0.111	0.129***	[0.007]	0.004	[0.012]
Pre -94- Percentage Trade Households	0.048	0.049	0.024	0.023	-0.024***	[0.002]	0.000	[0.002]
Pre -94- Percentage daily/manual Households	0.050	0.105	0.039	0.100	-0.011***	[0.004]	-0.003	[0.013]
Pre -94- School Enrol rate population aged 7-15 years	0.852	0.149	0.765	0.195	-0.087***	[0.006]	-0.014	[0.017]
Pre -94- Infant Mortality Rate per 1000 live birth	60.779	85.467	70.278	90.886	9.499***	[3.234]	0.966	[9.041]
Pre -94- Number of Livestock: 1. Dairy cow	0.135	2.966	0.105	2.863	-0.030	[0.110]	0.225	[0.138]
Pre -94- Number of Livestock: 2. Cattle	46.634	137.175	20.442	57.641	-26.192***	[4.698]	8.830	[5.596]
Pre -94- Number of Livestock: 3. Buffalo	5.927	40.619	12.588	85.830	6.661***	[1.963]	-1.210	[5.642]
Pre -94- Number of Livestock: 4. Horse	0.195	3.050	0.361	4.843	0.166	[0.130]	-0.317	[0.397]
Pre -94- Number of Livestock: 5. Goat/sheep	24.093	56.690	11.436	38.701	-12.657***	[2.005]	3.409	[3.140]
Pre -94- Number of Livestock: 6. Pig	71.774	227.780	107.735	280.494	35.961***	[8.928]	21.928	[23.238]
Pre -94- Number of Livestock: 7. Broiler Chicken	1417.724	3321.796	706.398	1064.012	-711.326***	[112.788]	87.027	[99.750]
Pre -93- Night-Light indicators in 1993	0.744	2.860	0.149	1.081	-0.594***	[0.098]	0.139	[0.115]
Number of villages	3687		889					

Continue to the next page....

Panel E: Island 5 - Sulawesi and Papua

Variable	NON - IDT		IDT		Difference of		RD Estimation	
	Mean	SD	Mean	SD	Mean	S.E	Mean	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre -93- Percentage Agriculture Households in (1993)	0.810	0.158	0.886	0.099	0.076***	[0.005]	0.000	[0.008]
Pre -94- Percentage Agriculture Households	0.779	0.181	0.891	0.101	0.112***	[0.005]	0.008	[0.009]
Pre -94- Percentage Trade Households	0.036	0.053	0.014	0.022	-0.021***	[0.001]	-0.001	[0.002]
Pre -94- Percentage daily/manual Households	0.055	0.125	0.060	0.153	0.005	[0.004]	-0.004	[0.016]
Pre -94- School Enrol rate population aged 7-15 years	0.841	0.174	0.791	0.192	-0.050***	[0.005]	0.007	[0.017]
Pre -94- Infant Mortality Rate per 1000 live birth	85.734	89.167	86.560	89.382	0.826	[2.732]	-0.458	[7.632]
Pre -94- Number of Livestock: 1. Dairy cow	0.559	11.811	0.176	4.320	-0.383	[0.327]	0.295	[0.370]
Pre -94- Number of Livestock: 2. Cattle	143.009	263.500	97.960	249.458	-45.049***	[7.980]	7.322	[16.332]
Pre -94- Number of Livestock: 3. Buffalo	26.207	106.011	23.253	122.511	-2.954	[3.360]	-0.655	[7.932]
Pre -94- Number of Livestock: 4. Horse	15.420	51.069	14.092	57.032	-1.328	[1.604]	-4.879	[4.328]
Pre -94- Number of Livestock: 5. Goat/sheep	71.921	180.337	50.445	117.218	-21.476***	[5.174]	5.973	[8.583]
Pre -94- Number of Livestock: 6. Pig	96.583	343.877	94.501	267.709	-2.081	[10.082]	-47.410	[30.583]
Pre -94- Number of Livestock: 7. Broiler Chicken	1826.357	3269.810	1064.701	2164.947	-761.656***	[93.987]	157.958	[155.395]
Pre -93- Night-Light indicators in 1993	0.593	1.881	0.054	0.482	-0.539***	[0.052]	0.054	[0.044]
Number of villages	5036		1353					

Notes: This table presents the mean value of village characteristics before the implementation of the 1995 IDT Program. Panel A presents the result from Sumatra island. Panel B, C, D, and E present the results of Java, Bali and Nusa Tenggara, Kalimantan and Sulawesi and Papua, respectively. In column 1-4, show unconditional means for Non-IDT and IDT Villages. Column 3 and 4 show the difference in means and standard errors. Column 7 and 8 present the result of the RDD estimation using linear RD polynomial and bandwidth equal to 2. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table 2: RDD Estimation Results of RURAL Village

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.619*	0.012	-16.670**	1.228***	-0.106*	0.624***
	[0.346]	[0.018]	[7.728]	[0.182]	[0.062]	[0.194]
Mean	-2.17	0.908	56.88	5.164	0.199	1.617
R^2	0.014	0.006	0.027	0.21	0.048	0.035
Clusters	52	52	52	52	51	47
Observations	1,787	1,787	1,787	1,778	997	755
Panel B: Java						
IDT	0.440***	0.053***	-14.893***	0.892***	-0.092***	0.781***
	[0.126]	[0.010]	[4.820]	[0.062]	[0.027]	[0.144]
Mean	1.621	0.892	37.310	6.234	0.332	2.789
R^2	0.033	0.041	0.011	0.204	0.025	0.055
Clusters	81	81	81	81	81	81
Observations	3,264	3,264	3,264	3,262	3,032	2,691
Panel C: Bali and Nusa Tenggara						
IDT	0.012	0.018	-32.875***	0.692***	0.068	0.614*
	[0.436]	[0.031]	[10.637]	[0.147]	[0.076]	[0.360]
Mean	-2.056	0.86	70.89	7.376	0.435	3.121
R^2	0.014	0.008	0.035	0.129	0.018	0.055
Clusters	37	37	37	37	37	30
Observations	511	511	511	511	473	261
Panel D: Kalimantan						
IDT	-0.695	0.055*	3.045	1.564***	0.081*	-0.363
	[0.464]	[0.030]	[12.178]	[0.445]	[0.040]	[0.402]
Mean	-3.270	0.885	43.920	4.765	0.097	1.945
R^2	0.051	0.06	0.043	0.166	0.053	0.026
Clusters	24	24	24	24	24	21
Observations	596	596	596	548	342	237
Panel E: Sulawesi and Papua						
IDT	-0.252	0.100***	-22.964	-0.254	0.069	-0.119
	[0.253]	[0.036]	[17.513]	[0.392]	[0.063]	[0.313]
Mean	-3.552	0.882	62.930	5.642	0.269	2.115
R^2	0.013	0.035	0.005	0.006	0.021	0.017
Clusters	47	47	47	47	45	38
Observations	938	938	938	932	699	419

Notes: Panel A examines the impact of IDT program on dependent variables in Sumatra island. Panel B, C, D, and E present the results of Java, Bali and Nusa Tenggara, Kalimantan and Sulawesi and Papua, respectively. In column 1, the dependent variable is the log (0.01 + average luminosity) of the village. Dependent variables in column 2, 3, 4, 5, and 6 are school enrolment rate population aged between 7-15 years, infant mortality rate per 1000 live birth, the log total number of livestock in the village, percentage of poor household per total household in the village, and log number of small and micro enterprises, respectively. Quadratic RD polynomial and bandwidth equal to 2 are used in the estimation. Standard errors are clustered at the district level. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table 3: . RDD Estimation Results of URBAN Village

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	-0.326	-0.023	-16.555	-0.1	0.038	0.178
	[1.338]	[0.022]	[22.633]	[0.642]	[0.035]	[0.488]
Mean	1.975	0.948	40.07	4.07	0.0411	2.192
R^2	0.056	0.091	0.048	0.061	0.015	0.052
Clusters	8	8	8	8	8	8
Observations	175	175	175	156	172	144
Panel B: Java						
IDT	0.351*	-0.031**	-4.071	-0.257	0.026	-0.226
	[0.164]	[0.007]	[2.773]	[0.445]	[0.033]	[0.167]
Mean	3.201	0.935	28.45	4.897	0.122	2.866
R^2	0.044	0.022	0.004	0.024	0.024	0.008
Clusters	5	5	5	4	5	5
Observations	565	565	565	556	562	536
Panel C: Bali and Nusa Tenggara						
IDT	0.57	-0.071*	-19.048	-1.415*	0.116	-0.867
	[1.764]	[0.029]	[9.735]	[0.600]	[0.066]	[1.102]
Mean	2.699	0.936	40.17	5.989	0.104	3.486
R^2	0.099	0.167	0.243	0.371	0.132	0.147
Clusters	4	4	4	4	4	4
Observations	31	31	31	31	30	28
Panel D: Kalimantan						
IDT	0.679	-0.003	14.379	0.682	0.023	0.952
	[4.062]	[0.016]	[32.406]	[0.395]	[0.015]	[0.512]
Mean	1.49	0.947	38.25	4.31	0.0212	2.945
R^2	0.065	0.117	0.05	0.071	0.08	0.08
Clusters	4	4	4	4	4	4
Observations	29	29	29	19	26	26
Panel E: Sulawesi and Papua						
IDT	-2.501	0.101**	-27.5	-0.192	0.006	-1.853*
	[1.357]	[0.033]	[51.291]	[0.419]	[0.084]	[0.830]
Mean	1.682	0.914	51.37	4.43	0.087	2.367
R^2	0.338	0.203	0.046	0.17	0.014	0.208
Clusters	6	6	6	6	6	6
Observations	39	39	39	37	36	34

Notes: Panel A examines the impact of IDT program on dependent variables in Sumatra island. Panel B, C, D, and E present the results of Java, Bali and Nusa Tenggara, Kalimantan and Sulawesi and Papua, respectively. In column 1, the dependent variable is the log (0.01 + average luminosity) of the village. Dependent variables in column 2, 3, 4, 5, and 6 are school enrolment rate population aged between 7-15 years, infant mortality rate per 1000 live birth, the log total number of livestock in the village, percentage of poor household per total household in the village, and log number of small and micro enterprises, respectively. Quadratic RD polynomial and bandwidth equal to 2 are used in the estimation. Standard errors are clustered at the provincial level. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table 4: RDD Estimation of the IMPACT of IDT on Structural Change

	Bandwidth (BW): 2			BW: 3	BW: 4	BW: 5	BW: 10
	Quadratic	Linear	Cubic				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Sumatra							
IDT	-0.149***	-0.157***	-0.149***	-0.155***	-0.154***	-0.155***	-0.157***
	[0.026]	[0.018]	[0.026]	[0.019]	[0.017]	[0.015]	[0.015]
Mean	0.734						
R^2	0.179			0.176	0.187	0.199	0.197
Clusters	52			53	54	55	61
Observations	1,781			3,015	4,205	5,367	10,504
Panel B: Java							
IDT	-0.159***	-0.159***	-0.159***	-0.159***	-0.154***	-0.160***	-0.159***
	[0.013]	[0.009]	[0.013]	[0.010]	[0.009]	[0.008]	[0.007]
Mean	0.641						
R^2	0.209			0.198	0.194	0.191	0.172
Clusters	81			82	83	86	90
Observations	3,258			5,299	7,390	9,218	16,198
Panel C: Bali and Nusa Tenggara							
IDT	-0.064***	-0.086***	-0.064***	-0.082***	-0.083***	-0.082***	-0.079***
	[0.019]	[0.019]	[0.019]	[0.020]	[0.020]	[0.018]	[0.017]
Mean	0.778						
R^2	0.115			0.104	0.094	0.085	0.103
Clusters	37			39	39	39	39
Observations	511			832	1,116	1,354	2,285
Panel D: Kalimantan							
IDT	0.023	0.01	0.023	0.004	0.013	0.014	0.006
	[0.028]	[0.021]	[0.028]	[0.024]	[0.020]	[0.017]	[0.019]
Mean	0.762						
R^2	0.013			0.014	0.018	0.032	0.056
Clusters	24			25	25	25	25
Observations	596			1,012	1,395	1,765	3,139
Panel E: Sulawesi and Papua							
IDT	0.011	0.01	0.011	0.01	0.018	0.01	0.01
	[0.020]	[0.013]	[0.020]	[0.016]	[0.012]	[0.011]	[0.009]
Mean	0.801						
R^2	0.006			0.014	0.012	0.02	0.061
Clusters	47			48	48	48	50
Observations	938			1,525	2,063	2,535	4,419

Notes: This table presents the impact of IDT program on percentage of the household working in Agriculture. The dependent variable is the percentage of the household working in agriculture. BW represents the Bandwidth used in the estimations. Standard errors are clustered at the district level. Quadratic, Linear, and Cubic represent different functional forms, $f(.)$, for the RD polynomial. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table 5: RDD Estimation of the IMPACT of IDT on Structural Change

	Dependent variable:							
	Industry (1)	Trade (2)	Construction (3)	Mining (4)	LGA (5)	Transport (6)	Finance (7)	Services (8)
Panel A: Sumatera								
IDT	0.027***	0.056***	0.010***	0.001	0.000	0.000	0.000	-0.005
	[0.006]	[0.012]	[0.002]	[0.001]	[0.000]	[0.002]	[0.000]	[0.008]
Mean	0.0433	0.0877	0.0207	0.00538	0.00079	0.0139	0.000683	0.0696
R^2	0.072	0.119	0.039	0.002	0.005	0.001	0.003	0.004
Clusters	52	52	52	52	52	52	52	52
Observations	1,787	1,787	1,787	1,787	1,787	1,787	1,787	1,787
Panel B: Java								
IDT	0.044***	0.068***	0.012***	0.002*	0.000	0.002	0.000	0.003
	[0.005]	[0.007]	[0.002]	[0.001]	[0.000]	[0.001]	[0.000]	[0.002]
Mean	0.0608	0.114	0.03	0.0073	0.0005	0.0208	0.0011	0.0732
R^2	0.082	0.191	0.051	0.002	0.001	0.006	0	0.009
Clusters	81	81	81	81	81	81	81	81
Observations	3,264	3,264	3,264	3,264	3,264	3,264	3,264	3,264
Panel C: Bali and Nusa Tenggara								
IDT	0.027***	0.031***	0.005*	0.000	0.000	-0.005***	-0.001**	-0.002
	[0.009]	[0.008]	[0.003]	[0.002]	[0.000]	[0.002]	[0.000]	[0.008]
Mean	0.0502	0.0625	0.0206	0.0045	0.0004	0.0112	0.0015	0.0789
R^2	0.107	0.105	0.03	0.007	0.008	0.047	0.039	0.01
Clusters	37	37	37	37	37	37	37	37
Observations	511	511	511	511	511	511	511	511

Notes: Panel A examines the impact of IDT program on dependent variables in Sumatra island. Panel B and C present the results of Java, Bali and Nusa Tenggara, respectively. In column 1, the dependent variable is the percentage of the household working in agriculture. Dependent variables in column 2, 3, 4, 5, 6, 7 and 8 are the percentage of the household working in industrial, trade, construction, mining, LGA (Electricity, Gas & Water), Transport, Finance, and Services sectors, respectively. Quadratic RD polynomial and bandwidth equal to 2 are used in the estimation. Standard errors are clustered at the provincial level. *** significant at 1%, ** significant at 5%, * significant at 10%.

Figures

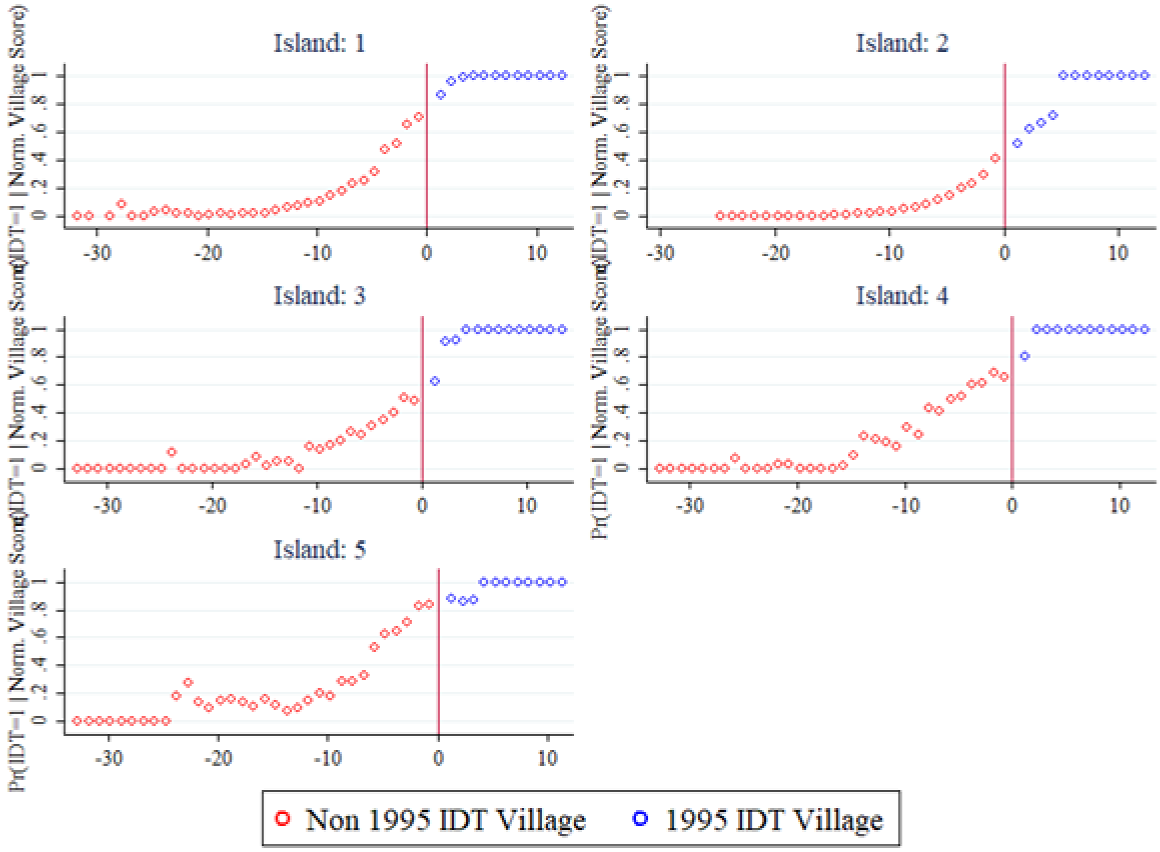


Figure 1: Probability of Village receiving IDT given their normalized village score on each island

Notes: These figures present the probability of the village to receive the IDT program given their normalized village score. Island 1 is the Sumatra island, and Island 2, 3, 4, and 5 are Java, Bali and Nusa Tenggara, Kalimantan, and Sulawesi and Papua, respectively.

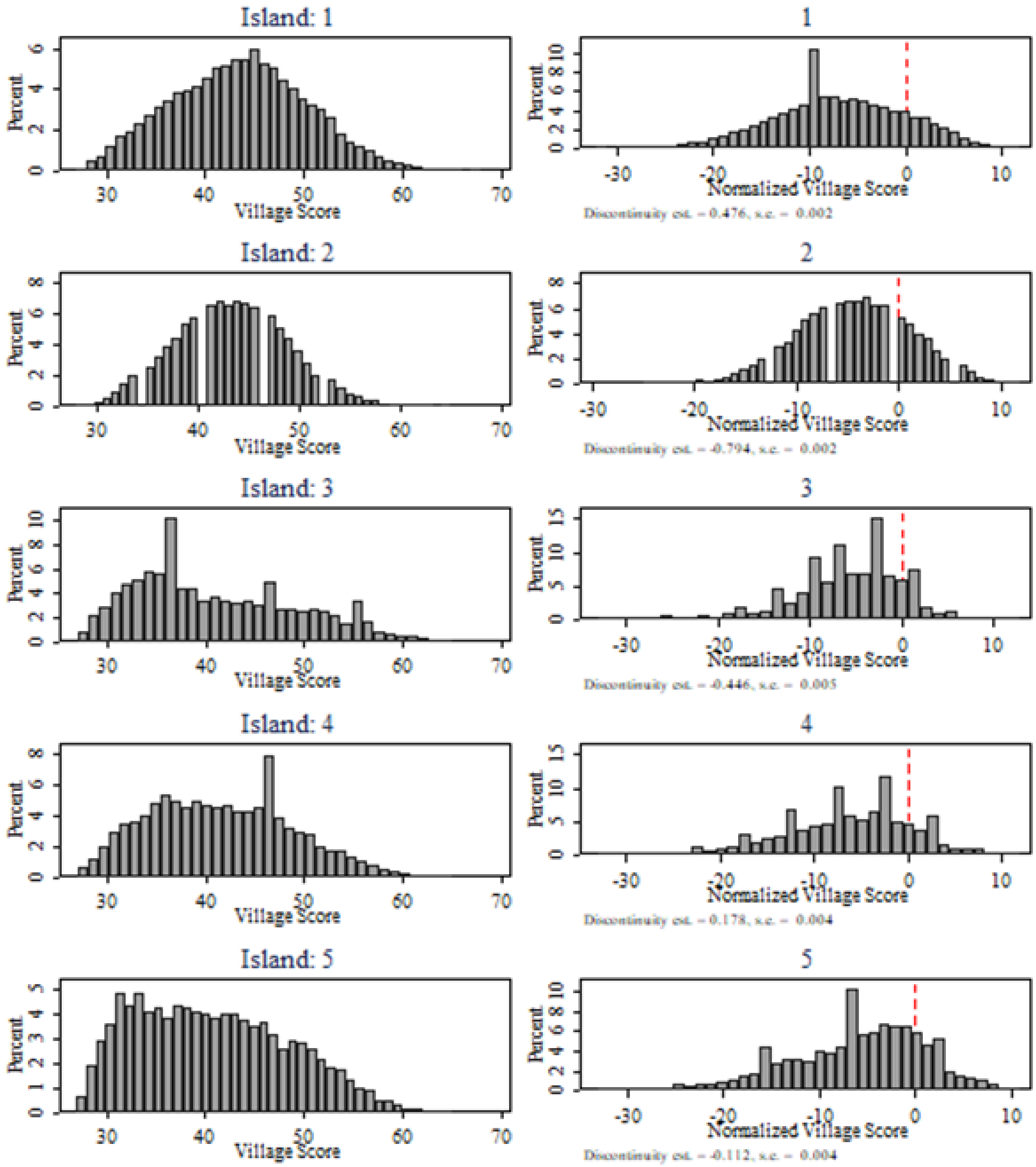


Figure 2: Village Score and the Normalized Village Score

Notes: Panel A show the distribution of the original village score, and Panel B is the normalized village score around the cut-off. Island 1 is the Sumatra island, and Island 2, 3, 4, and 5 are Java, Bali and Nusa Tenggara, Kalimantan, and Sulawesi and Papua, respectively. The numbers inside each figure in Panel B are the point estimate for the discontinuity and its standard error.

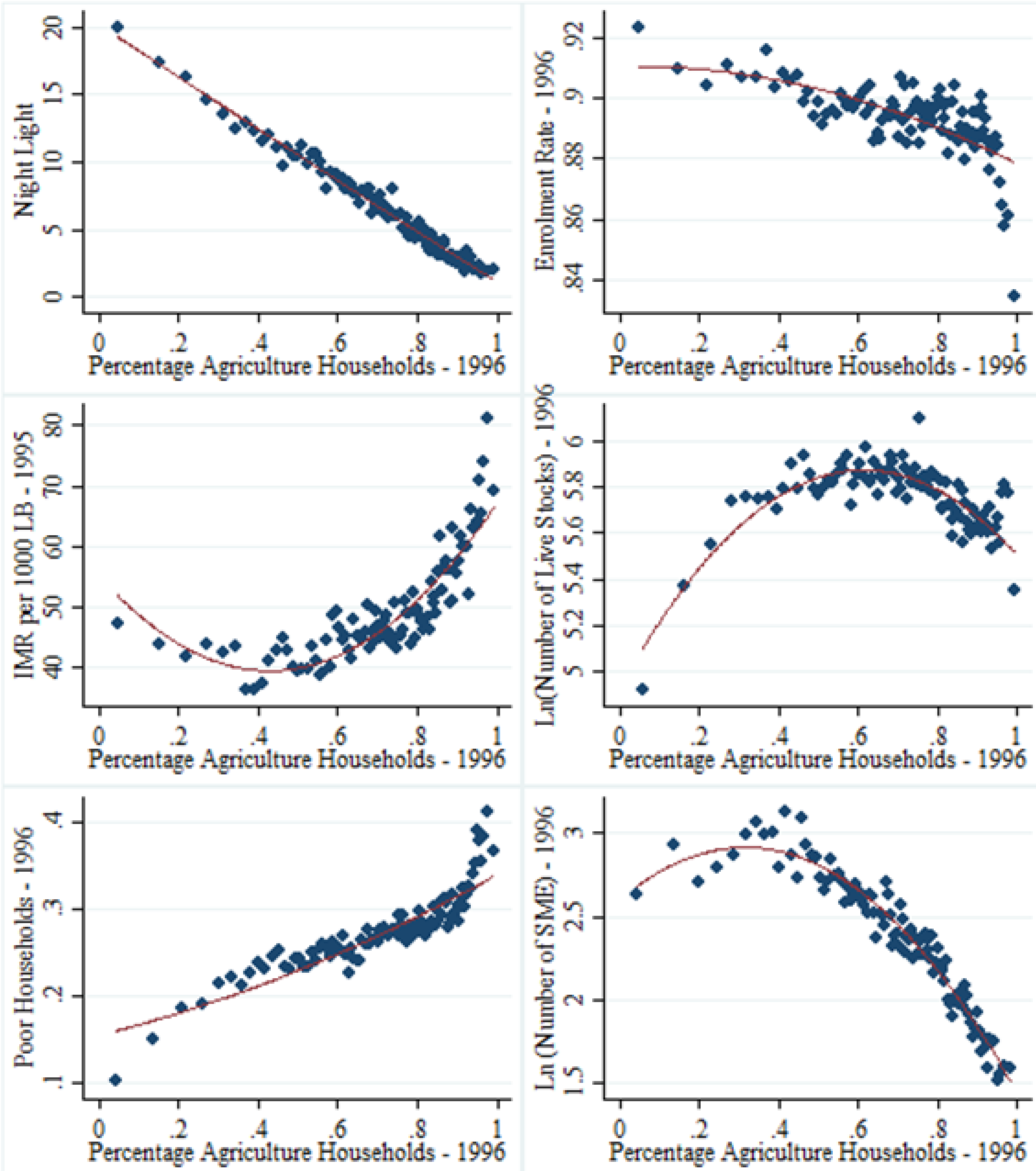


Figure 3: Correlation between Structural Transformation and Outcomes

Notes: This figure plots simple correlation between welfare measures and percentage household working in agriculture. The solid line plots predicted values.

Appendix

A Share of Agriculture to GDP and IDT Periods

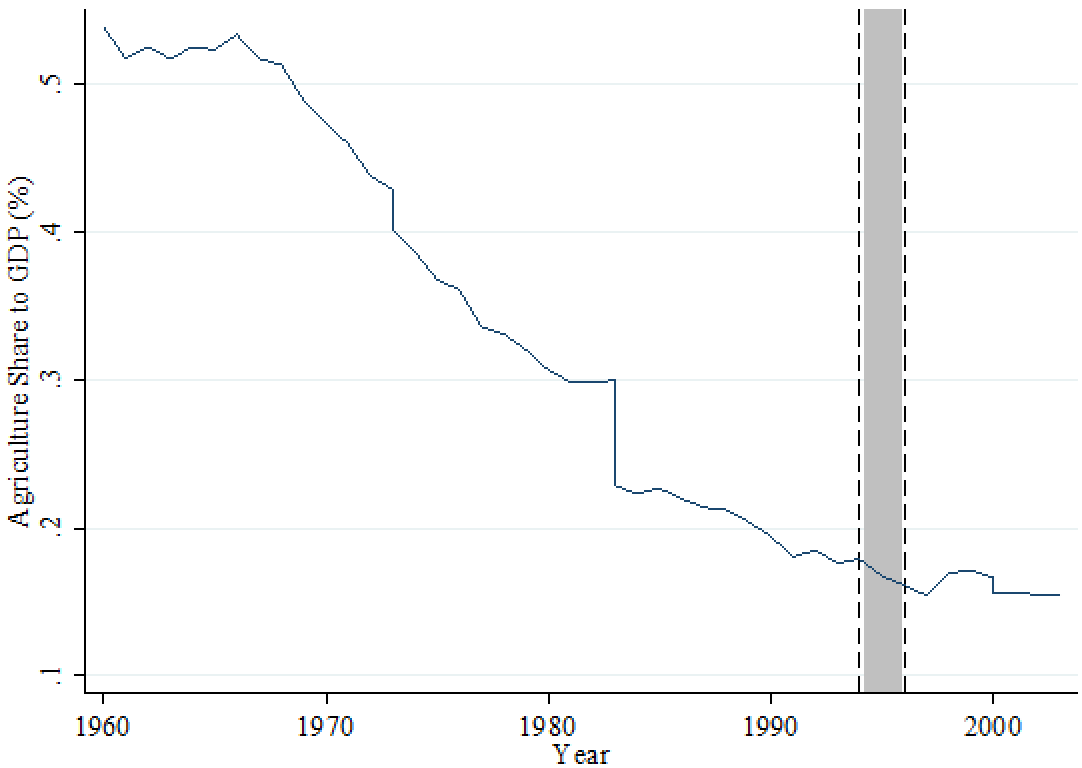


Figure A.1: Share of Agriculture to GDP and IDT Periods

Notes: This figure plots fall in the share of agriculture in GDP during the periods from 1960 to 2000. The area within the vertical dashed lines represents the period of the IDT program.

B IFLS Robustness Checks

We also corroborate our results using IFLS 1993 and 1997 data in which represent the *pre* and *post* periods of the IDT program.[17] In this exercise we follow about 6685 of total 7185 households in 1993. The results are provided in the Table Table B.1 - Table B.3 of Appendix B. For example, as in Table Table B.1, there was a more than 28 percent of the farmer households moved out from agriculture sectors in the period between 1993 and 1997. Similar evidence also occurred in the rural area in which the farmer households decreased about 24 percent in this period (please refers to Table B.3).

Table B.1: Proportion of the Farmer Household in 1993 and 1997 - National

			1997		Households
			Yes	No	
1993	Yes	n	1,931	772	2,703
		%	71.44	28.56	100
	No	n	455	3,527	3,982
		%	11.43	88.57	100
Households			2,386	4,299	6,685
		%	35.69	64.31	100

Table B.2: Proportion of the Farmer Household in 1993 and 1997 - Urban

			1997		Households
			Yes	No	
1993	Yes	n	195	195	390
		%	50	50	100
	No	n	138	2,260	2,398
		%	5.75	94.25	100
Households			333	2,455	2,788
		%	11.94	88.06	100

[17]The Indonesian Family Life Survey (IFLS) is an on-going longitudinal survey in Indonesia. The sample is representative of about 83% of the Indonesian population contains over 30,000 individuals living in 13 provinces.

Table B.3: Proportion of the Farmer Household in 1993 and 1997 - Rural

			1997		Households
			Yes	No	
1993	Yes	n	1,695	535	2,230
		%	76.01	23.99	100
	No	n	287	995	1,282
		%	22.39	77.61	100
Households			1,982	1,530	3,512
		%	56.44	43.56	100

C Variables were used to select targeted villages under the IDT Program

Table C.1: IDT 1994

	Rural	Urban
1	Type of local Community Organisation	Type of local Community Organisation
2	Type of main road	Type of main road
3	Main sector	Main sector
4	Average agriculture area per household (are)	Average agriculture area per household (are)
5	Distance to district capital	Distance to district capital
6	Education facility	Education facility
7	Health facility	Health facility
8	Type of Paramedics	Type of Paramedics
9	Communication Facility	Communication Facility
10	Type of market	Type of market
11	Density	Density
12	Source of Drinking Water	Source of Drinking Water
13	Is there any Epidemic last year	Is there any Epidemic last year
14	Type of fuel	Type of fuel
15	Type of Garbage Dump	Type of Garbage Dump
16	Type of Toilet	Type of Toilet
17	Type of Electricity	Type of Electricity
18	Ratio place of worship/1000 citizens	Ratio place of worship/1000 citizens
19	Crude Birth Rate per 1000 citizens	Crude Birth Rate per 1000 citizens
20	Crude Mortality Rate per 1000 citizens	Crude Mortality Rate per 1000 citizens
21	Enrolment rate (7-15 years old)	Enrolment rate (7-15 years old)
22	Number of livestock	Number of livestock
23	Percentage of households having TV	Percentage of households having TV
24	Percentage of households having telephone	Percentage of households having telephone
25	Socio culture status	Socio culture status
26	Percentage Agriculture Households	
27	Type of transportation mode	

Table C.2: IDT 1995

	Rural	Urban
1	Type of main road	Main sector of Work of the Villagers
2	Main sector of Work of the Villagers	Education facility
3	Education facility	Health facility
4	Health facility	Communication Facility
5	Type of Paramedics	Density
6	Communication Facility	Source of Drinking Water
7	Density	Source of fuel
8	Source of Drinking Water	Type of Garbage Dump
9	Source of fuel	Type of Toilet
10	Percentage of households with Electricity	Percentage of households with Electricity
11	Percentage of households having TV	Percentage of households having TV
12	Percentage of Agriculture Households	Percentage of Agriculture Households
13	Percentage of Households having motor cycles	Percentage of Households with college students
14	Socio Economic status of the villagers	Percentage of Households with car or boat
15	Access to Health Facility	Socio Economic status of the villagers
16	Is there any subscriber of newspaper/magazine	Access to Health Facility
17	Access to Markets	Access to Markets
18	Access to Stores	

D IDT94 vs IDT95 recipients

Table D.1: IDT94 vs IDT95 recipients

			IDT 1995 Recipients		Villages
			IDT	Non-IDT	
IDT 1994 Recipients	Not in the list	n	126	519	645
		%	0.57	1.2	0.99
	IDT	n	18,179	2,319	20,498
		%	82.28	5.35	31.33
	Non-IDT	n	3,789	40,492	44,281
		%	17.15	93.45	67.68
	Villages		22,094	43,330	65,424
			100	100	100

E The example of the administrative data and map for IDT Program

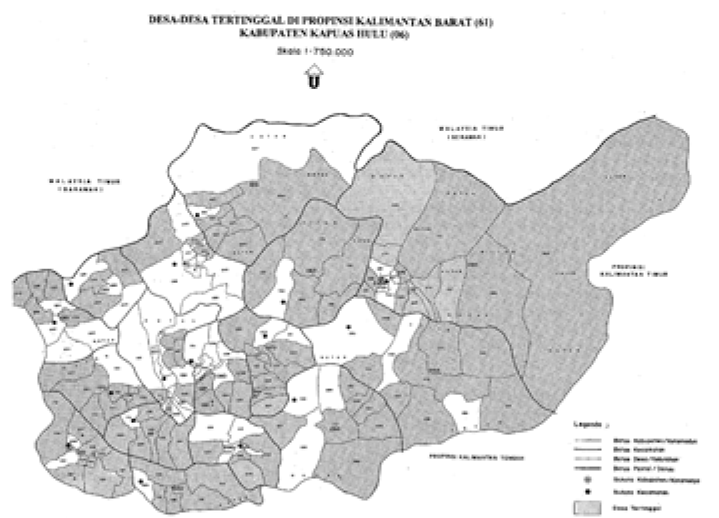
Daftar Nama Desa Menurut Kabupaten/Kotamadya
dan Kecamatan 1995

PROPINSI : (61) KALIMANTAN BARAT
KABUPATEN/KODYA: (06) KAPUAS HULU
KECAMATAN : (010) SILAT HILIR

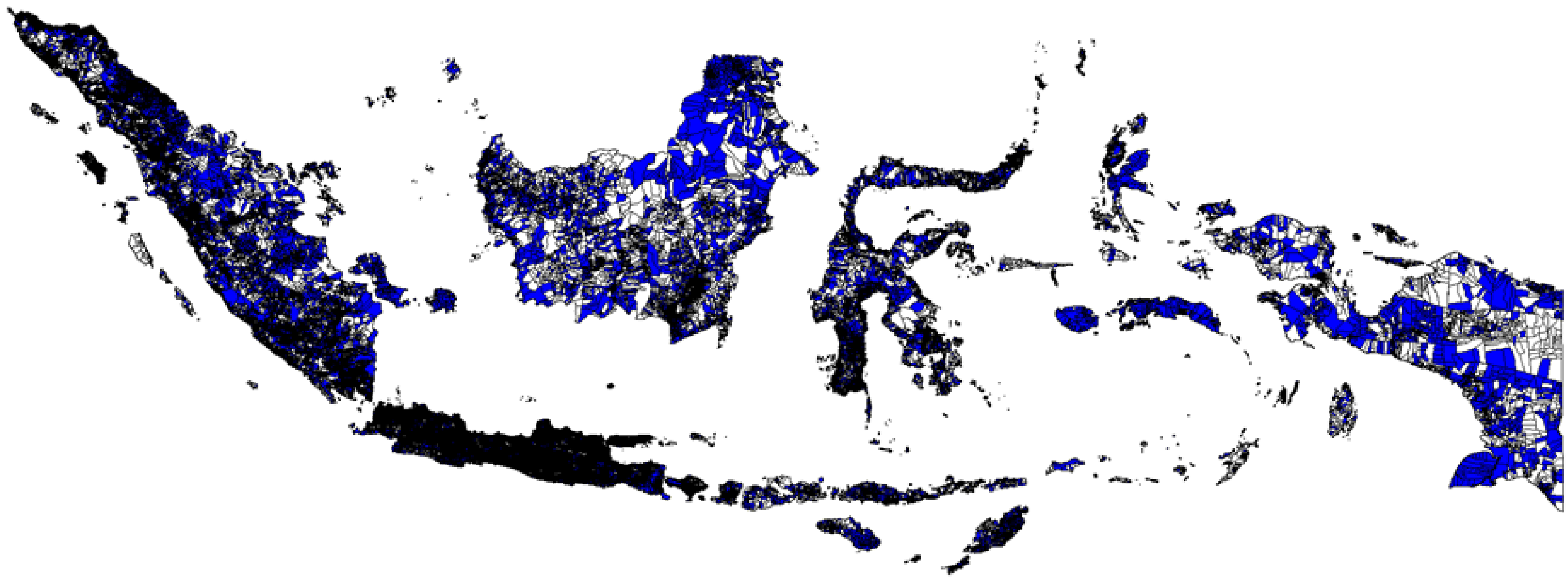
NAMA DESA/KELURAHAN	STATUS IDT 1996/1997	STATUS PERKOTAAN	STATUS HUKUM
(007) NANGANUAR	IDT	DESA	DEFINITIF
(015) MIAU MERAH	IDT	DESA	DEFINITIF
(019) SETUNGGUL	IDT	DESA	DEFINITIF
(020) SUNGAI SENA	IDT	DESA	DEFINITIF
(021) PANGERAN	NON IDT	DESA	DEFINITIF
(024) PULAU BERGERAK PENAI	IDT	DESA	DEFINITIF
(027) BARU	IDT	DESA	DEFINITIF
(028) PERIGI	NON IDT	DESA	DEFINITIF
(031) BONGKONG I	IDT	DESA	DEFINITIF

PROPINSI : (61) KALIMANTAN BARAT
KABUPATEN/KODYA: (06) KAPUAS HULU
KECAMATAN : (020) SILAT HULU

NAMA DESA/KELURAHAN	STATUS IDT 1996/1997	STATUS PERKOTAAN	STATUS HUKUM
(012) NANGA LUAN	IDT	DESA	DEFINITIF
(015) NANGA LUNGU	IDT	DESA	DEFINITIF
(018) LANDAU BADAI	IDT	DESA	DEFINITIF
(021) NANGA NGERI	IDT	DESA	DEFINITIF
(028) NANGA DANGKAN	NON IDT	DESA	DEFINITIF
(030) BELIMBING	IDT	DESA	DEFINITIF



F Spatial location of villages which received IDT Programs in 1995



G List of variables from PODES 1993 and IDT Village Census 1994

PODES 1993	IDT Village Census 1994
Pre -93- Population Density	Pre -94- Percentage LGA Households
Pre -93- Source of Drinking Water	Pre -94- Percentage Construction Households
Pre -93- Cooking Fuel	Pre -94- Percentage Trade Households
Pre -93- Type of Garbage Dump	Pre -94- Percentage Transport Households
Pre -93- Type of Toilet	Pre -94- Percentage Financial Households
Pre -93- Percentage of households having Electricity	Pre -94- Percentage Service Households
Pre -93- Percentage of households having Television	Pre -94- Percentage Others Households
Pre -93- Percentage Agriculture Households	Pre -94- Percentage daily/manual Households
Pre -93- Percentage Mining Households	Pre -94- Percentage of Households having university child
Pre -93- Percentage Industry Households	Pre -94- Percentage of Households having 4 wheels
Pre -93- Percentage LGA Households	Pre -94- Percentage of Households having motorcycle/Boat
Pre -93- Percentage Construction Households	Pre -94- Village has access to road
Pre -93- Percentage Trade Households	Pre -94- Road type: Asphalt
Pre -93- Percentage Transport Households	Pre -94- Road type: Hardened
Pre -93- Percentage Financial Households	Pre -94- Road type: Soils
Pre -93- Percentage Service Households	Pre -94- Road type: Others
Pre -93- Percentage Others Households	Pre -94- Road can be used by 4 wheels or more whole year
Pre -93- Percentage daily/manual Households	Pre -94- Public Transportation :1. Bicycle Taxi
Pre -93- Percentage of Households having university child	Pre -94- Public Transportation :2. Pedicab
Pre -93- Percentage of Households having 4 wheels	Pre -94- Public Transportation :3. Horse-drawn cart
Pre -93- Percentage of Households having motorcycle/Boat	Pre -94- Public Transportation :4. horse-drawn buggy/carriage
Pre -93- Public Transportation :1. Bicycle Taxi	Pre -94- Public Transportation :5. Motor cycle taxi
Pre -93- Public Transportation :2. Pedicab	Pre -94- Public Transportation :6. 3 wheeled motor vehicles
Pre -93- Public Transportation :3. Horse-drawn cart	Pre -94- Public Transportation :7. 4 wheeled motor vehicles
Pre -93- Public Transportation :4. horse-drawn buggy/carriage	Pre -94- Public Transportation :8. Rowboat
Pre -93- Public Transportation :5. Motor cycle taxi	Pre -94- Public Transportation :9. Motor boat
Pre -93- Public Transportation :6. 3 wheeled motor vehicles	Pre -94- Public Transportation :10. Motor ship
Pre -93- Public Transportation :7. 4 wheeled motor vehicles	Pre -94- Public Transportation :11. Others

Continue to the next page....

PODES 1993	IDT Village Census 1994
Pre -93- Public Transportation :8. Rowboat	Pre -94- Main Transportation Mode
Pre -93- Public Transportation :9. Motor boat	Pre -94- School Enrol rate population aged 7-15 years
Pre -93- Public Transportation :10. Motor ship	Pre -94- Infant Mortality Rate per 1000 live birth
Pre -93- Public Transportation :11. Airplane	Pre -94- Percentage Husbandry Households: 1. Dairy cow
Pre -93- Public Transportation :12. Others	Pre -94- Percentage Husbandry Households: 2. Cattle
Pre -93- Percentage of population aged 7-15 years who work	Pre -94- Percentage Husbandry Households: 3. Buffalo
Pre -93- Infant Mortality Rate per 1000 live birth	Pre -94- Percentage Husbandry Households: 4. Horse
Pre -93- Type of Main Road	Pre -94- Percentage Husbandry Households: 5. Goat/Sheep
Pre -93- Whether Village has access to public transport	Pre -94- Percentage Husbandry Households: 6. Pig
Pre -93- Distance village to subdistrict office	Pre -94- Percentage Husbandry Households: 7. Broiler Chicken
Pre -93- Distance village to subdistrict office	Pre -94- Number of Livestock: 1. Dairy cow
	Pre -94- Number of Livestock: 2. Cattle
	Pre -94- Number of Livestock: 3. Buffalo
	Pre -94- Number of Livestock: 4. Horse
	Pre -94- Number of Livestock: 5. Goat/sheep
	Pre -94- Number of Livestock: 6. Pig
	Pre -94- Number of Livestock: 7. Broiler Chicken

H List of variables from IDT Village Census 1995 and PODES 1996

IDT Village Census 1995	PODES 1996
Post -95- Population Density	Post -96- Population Density
Post -95- Source of Drinking Water	Post -96- Source of Drinking Water
Post -95- Cooking Fuel	Post -96- Type of Garbage Dump
Post -95- Type of Garbage Dump	Post -96- Type of Toilet
Post -95- Type of Toilet	Post -96- Percentage of households having Electricity
Post -95- Percentage of households having Electricity	Post -96- Percentage of households having Television
Post -95- Percentage of households having Television	Post -96- Percentage Agriculture Households
Post -95- Percentage Agriculture Households	Post -96- Percentage Mining Households
Post -95- Percentage Mining Households	Post -96- Percentage Industry Households
Post -95- Percentage Industry Households	Post -96- Percentage LGA Households
Post -95- Percentage LGA Households	Post -96- Percentage Construction Households
Post -95- Percentage Construction Households	Post -96- Percentage Trade Households
Post -95- Percentage Trade Households	Post -96 Percentage Transport Households
Post -95- Percentage Transport Households	Post -96- Percentage Financial Households
Post -95- Percentage Financial Households	Post -96- Percentage Service Households
Post -95- Percentage Service Households	Post -96- Percentage Others Households
Post -95- Percentage Others Households	Pre -96- Percentage of Households having university child
Post -95- Percentage daily/manual Households	Post -96- Percentage of Households having 4 wheels
Post -95- Percentage of Households having university child	Post -96- Percentage of Households having motorcycle/Boat
Post -95- Percentage of Households having 4 wheels	Post -96- Number of Joint Business
Post -95- Percentage of Households having motorcycle/Boat	Post -96- Number of Joint Business members
Post -95- Public Transportation :1. Bicycle Taxi	Post -96- Percentage of Pre-Prosperous
Post -95- Public Transportation :2. Pedicab	Post -96- Percentage of Prosperous Stage I
Post -95- Public Transportation :3. Horse-drawn cart	Post -96- Percentage of Prosperous Stage II
Post -95- Public Transportation :4. horse-drawn buggy/carriage	Post -96- Percentage of Prosperous Stage III
Post -95- Public Transportation :5. Motor cycle taxi	Post -96- Percentage of Prosperous Stage III Plus
Post -95- Public Transportation :6. 3 wheeled motor vehicles	Post -96- Percentage of community support to the total village income
Post -95- Public Transportation :7. 4 wheeled motor vehicles	Post -96- Percentage central gov. aid to the total village income

Continue to the next page....

IDT Village Census 1995	PODES 1996
Post -95- Public Transportation :8. Rowboat	Post -96- Percentage provincial gov. aid to the total village income
Post -95- Public Transportation :9. Motor boat	Post -96- Percentage district gov. aid to the total village income
Post -95- Public Transportation :10. Motor ship	Post -96- Percentage development expense to the total expense
Post -95- Public Transportation :11. Others	Post -96- Percentage infrastructure expense to the total expense
Post -95- Main Transportation Mode	Post -96- Percentage production expense to the total expense
Post -95- School Enrol rate population aged 7-15 years	Post -96- Percentage transport expense to the total expense
Post -95- Infant Mortality Rate per 1000 live birth	Post -96- Percentage marketing expense to the total expense
Post -95- Percentage Husbandry Households	Post -96- Percentage social expense to the total expense
Post -95- Percentage Husbandry Households: 1. Dairy cow	Post -96- Number of community groups
Post -95- Percentage Husbandry Households: 2. Cattle	Post -96 Number of community groups receiving IDT
Post -95- Percentage Husbandry Households: 3. Buffalo	Post -96- Number of families receiving IDT
Post -95- Percentage Husbandry Households: 4. Horse	Post -96- Number of community group supports
Post -95- Percentage Husbandry Households: 5. Goat/Sheep	Post -96- Age of Head of village
Post -95- Percentage Husbandry Households: 6. Pig	Post -96- Gender of Head of village
Post -95- Percentage Husbandry Households: 7. Broiler Chicken	Post -96- Education Head Village: No Educ
Post -95- Number of Livestock: 1. Dairy cow	Post -96- Education Head Village: Primary
Post -95- Number of Livestock: 2. Cattle	Post -96- Education Head Village: Junior High
Post -95- Number of Livestock: 3. Buffalo	Post -96- Education Head Village: Senior High
Post -95- Number of Livestock: 4. Horse	Post -96- Education Head Village: University High
Post -95- Number of Livestock: 5. Goat/sheep	Post -96- Number of SMEs in the Village
Post -95- Number of Livestock: 6. Pig	Post -96- Education H Village: categorical
Post -95- Number of Livestock: 7. Broiler Chicken	Post -96- Main Transportation Mode

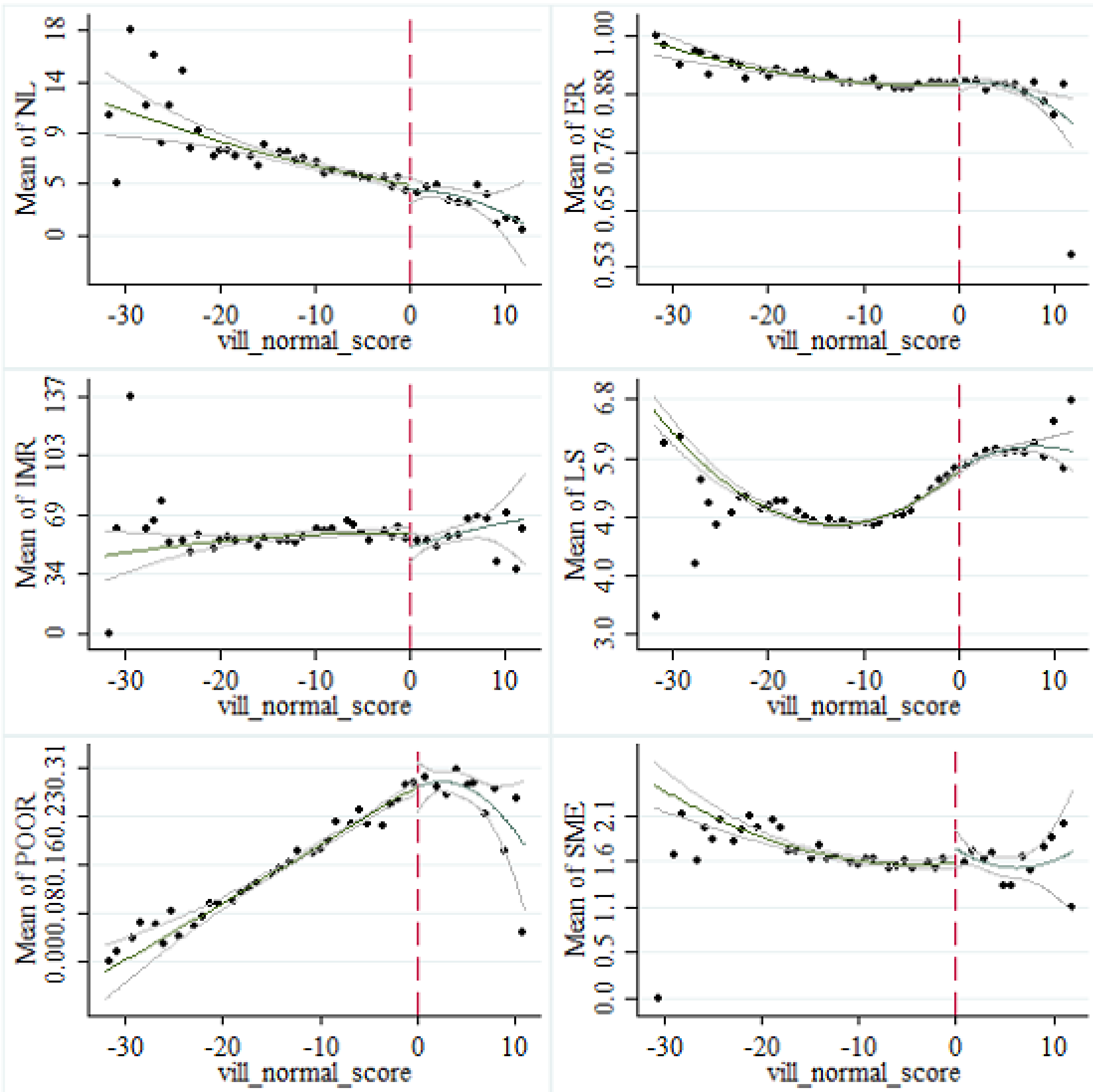
I List of regulations

No	Regulations	Year	Number of Villages
1	Government Regulation No. 44	1986	28
2	Presidential Decree No. 44	1990	54
3	Law No. 7	1990	44
4	Government Regulation No. 49	1991	22
5	Government Regulation No. 50	1991	126
6	Government Regulation No. 53	1991	24
7	Government Regulation No. 54	1991	23
8	Government Regulation No. 60	1991	165
9	Government Regulation No. 61	1991	139
10	Government Regulation No. 62	1991	19
11	Government Regulation No. 63	1991	84
12	Government Regulation No. 64	1991	77
13	Law No. 6	1991	163
14	Government Regulation No. 1	1992	43
15	Government Regulation No. 16	1992	116
16	Government Regulation No. 26	1992	139
17	Government Regulation No. 28	1992	50
18	Government Regulation No. 29	1992	55
19	Government Regulation No. 3	1992	252
20	Government Regulation No. 32	1992	23
21	Government Regulation No. 35	1992	226
22	Government Regulation No. 42	1992	55
23	Government Regulation No. 44	1992	229
24	Government Regulation No. 46	1992	48
25	Government Regulation No. 50	1992	274
26	Government Regulation No. 59	1992	66
27	Government Regulation No. 69	1992	22
28	Government Regulation No. 12	1993	23
29	Law No. 4	1994	39
30	Presidential Decree No. 33	1995	144
31	Presidential Decree No. 41	1995	110
32	Government Regulation No. 2	1995	57
33	Government Regulation No. 22	1995	14
34	Government Regulation No. 23	1995	14
35	Government Regulation No. 28	1995	109
36	Government Regulation No. 29	1995	20
37	Government Regulation No. 3	1995	25
38	Government Regulation No. 37	1995	27
39	Government Regulation No. 41	1995	22
40	Government Regulation No. 43	1995	83
41	Government Regulation No. 1	1996	128
42	Law No. 5	1996	45
	Total		3,426

Notes: This table present the government regulations issued in the periods from 1990-1996 which change the village identifier code. Number of villages present how many villages were impacted as a result for regulation issuance.

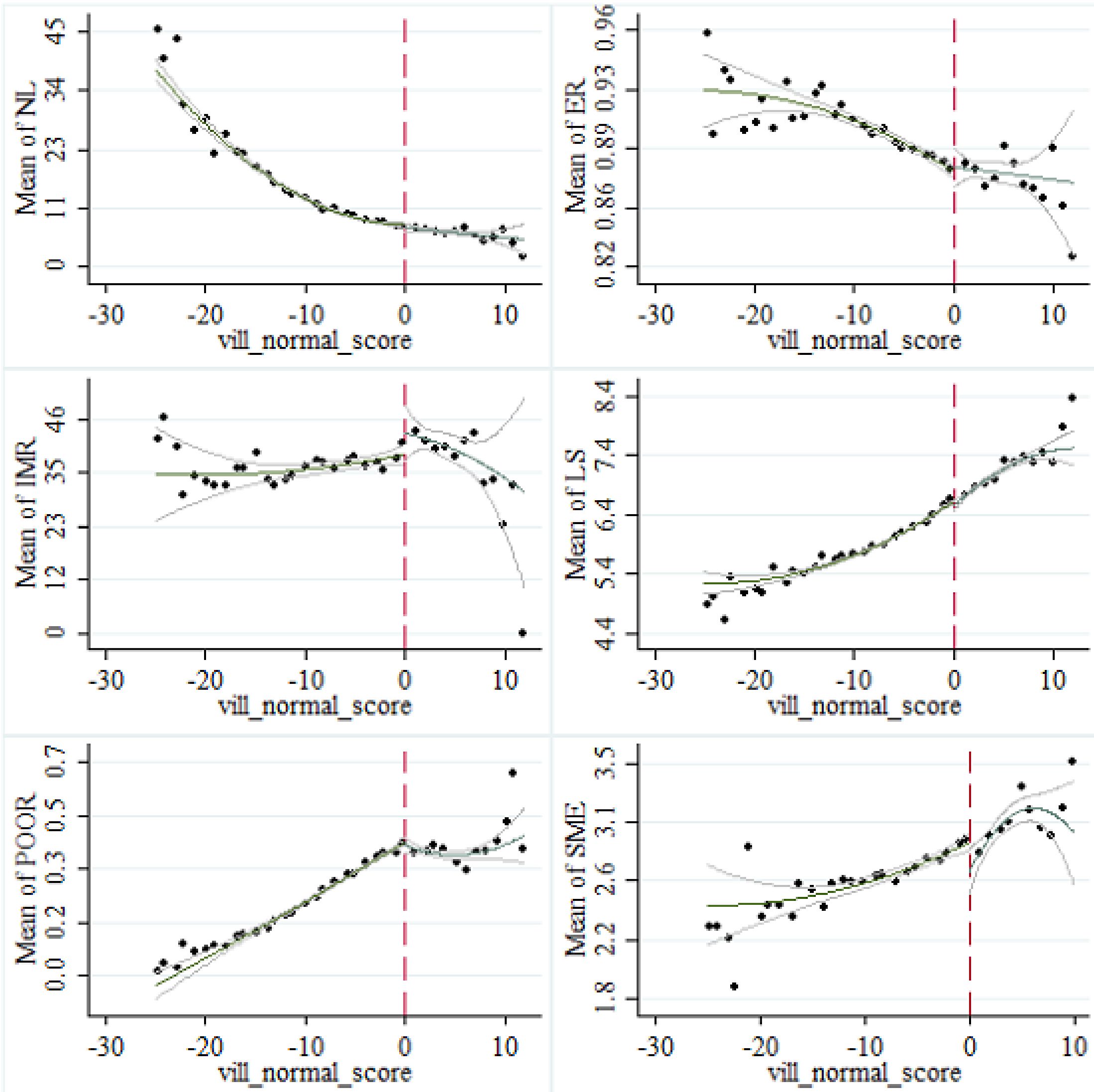
J Graphical illustration of the RD design

Panel A: Sumatra



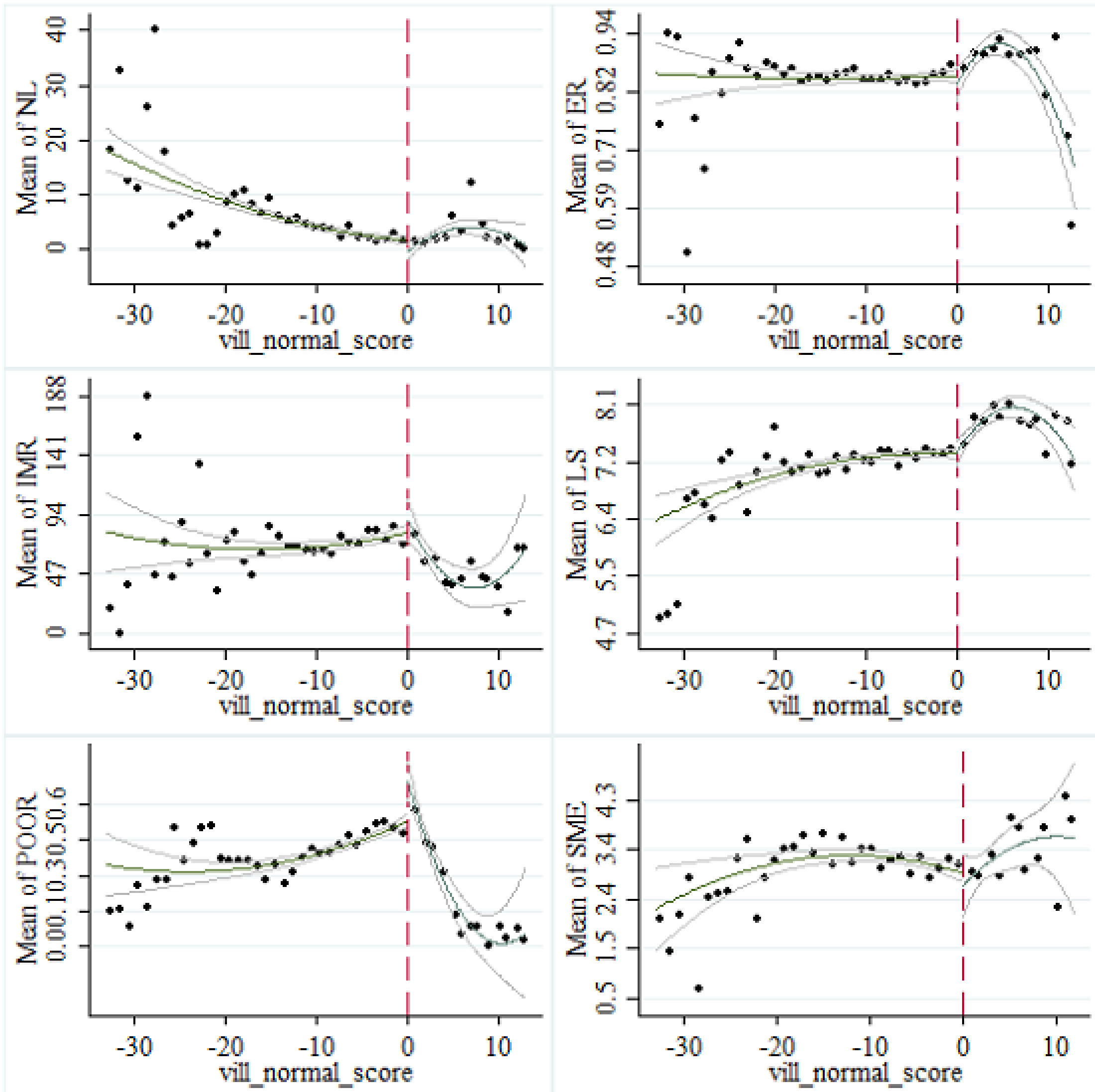
Notes: This figure plots welfare measures against the normalized IDT score for Sumatra island, with a negative score indicating the village did not receive IDT Program. Each point represents the average value of the outcome in score spread. The solid line plots predicted values, with separate quadratic vote spread trends estimated on either side of the provincial threshold. The dashed lines show 95 percent confident interval.

Panel B: Java



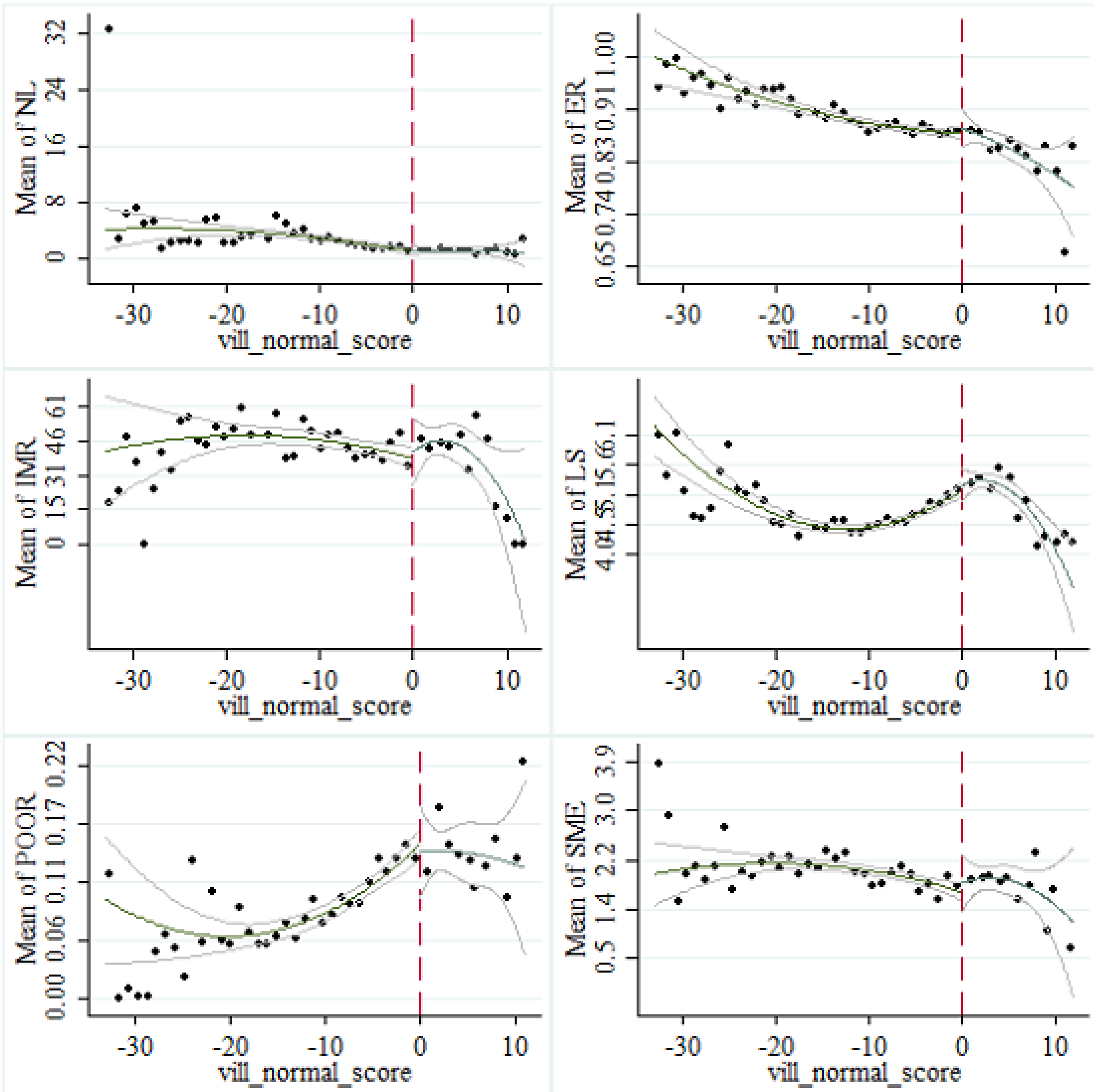
Notes: This figure plots welfare measures against the normalized IDT score for Java island, with a negative score indicating the village did not receive IDT Program. Each point represents the average value of the outcome in score spread. The solid line plots predicted values, with separate quadratic vote spread trends estimated on either side of the provincial threshold. The dashed lines show 95 percent confident interval.

Panel C: Bali and Nusa Tenggara



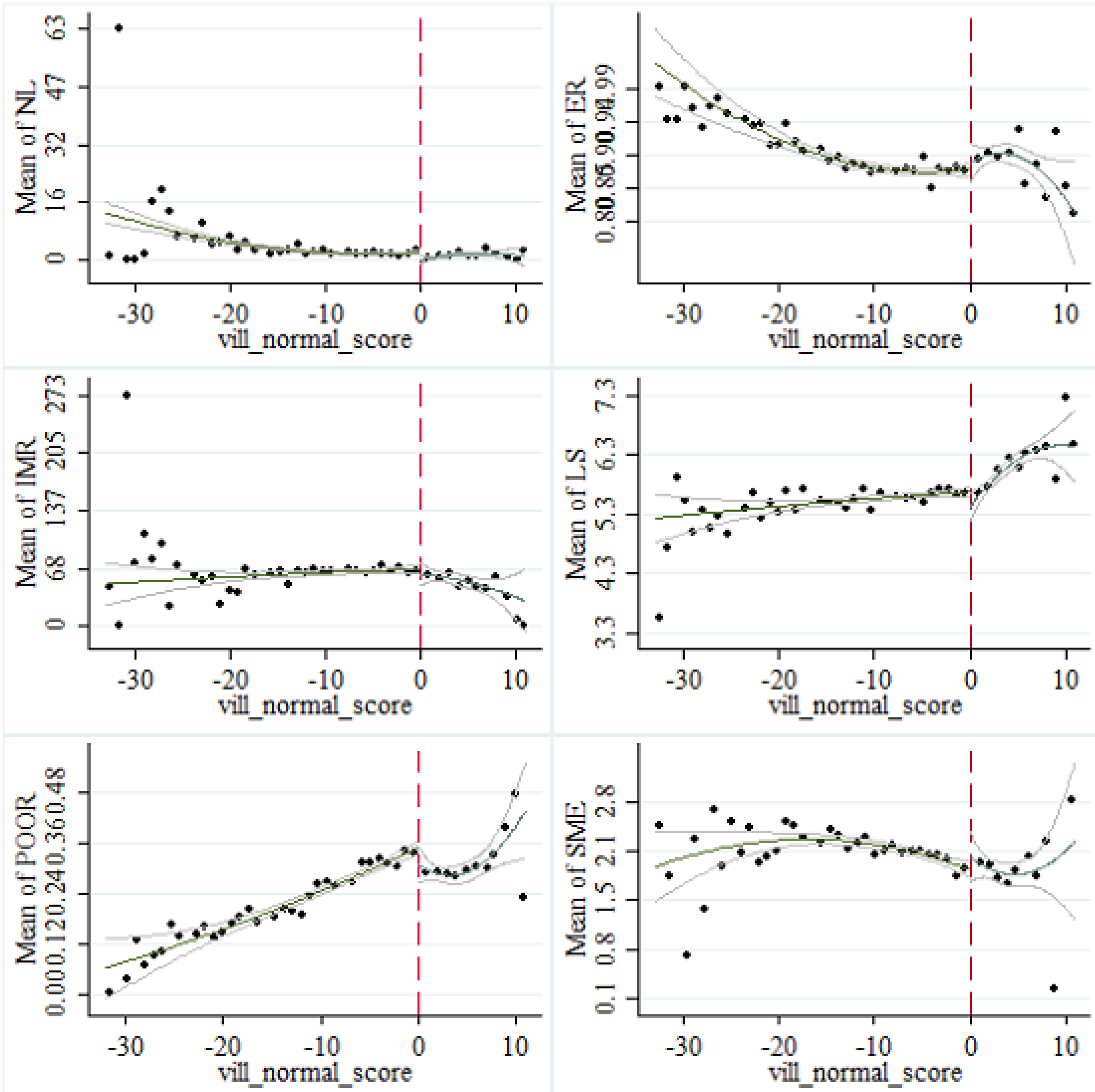
Notes: This figure plots welfare measures against the normalized IDT score for Bali and Nusa Tenggara islands, with a negative score indicating the village did not receive IDT Program. Each point represents the average value of the outcome in score spread. The solid line plots predicted values, with separate quadratic vote spread trends estimated on either side of the provincial threshold. The dashed lines show 95 percent confident interval.

Panel D: Kalimantan



Notes: This figure plots welfare measures against the normalized IDT score for Kalimantan island, with a negative score indicating the village did not receive IDT Program. Each point represents the average value of the outcome in score spread. The solid line plots predicted values, with separate quadratic vote spread trends estimated on either side of the provincial threshold. The dashed lines show 95 percent confident interval.

Panel E: Sulawesi and Papua



Notes: This figure plots welfare measures against the normalized IDT score for Sulawesi and Papua islands, with a negative score indicating the village did not receive IDT Program. Each point represents the average value of the outcome in score spread. The solid line plots predicted values, with separate quadratic vote spread trends estimated on either side of the provincial threshold. The dashed lines show 95 percent confident interval.

K Robustness Check

K.1 Placebo Bandwidths

Table K.1.1: RDD Estimation Results of RURAL Village with Bandwidth = 1

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.619*	0.012	-16.670**	1.228***	-0.106*	0.624***
	[0.346]	[0.018]	[7.730]	[0.182]	[0.062]	[0.194]
R^2	0.011	0.001	0.009	0.212	0.042	0.053
Clusters	48	48	48	47	40	39
Observations	615	615	615	611	336	244
Panel B: Java						
IDT	0.440***	0.053***	-14.893***	0.892***	-0.092***	0.781***
	[0.126]	[0.010]	[4.820]	[0.062]	[0.027]	[0.144]
R^2	0.02	0.039	0.014	0.21	0.03	0.057
Clusters	78	78	78	78	78	78
Observations	1,046	1,046	1,046	1,046	954	861
Panel C: Bali and Nusa Tenggara						
IDT	0.012	0.018	-32.875***	0.692***	0.068	0.614*
	[0.436]	[0.031]	[10.623]	[0.147]	[0.076]	[0.359]
R^2	0.000	0.005	0.046	0.142	0.01	0.029
Clusters	35	35	35	35	35	27
Observations	181	181	181	181	169	104
Panel D: Kalimantan						
IDT	-0.695	0.055*	3.045	1.564***	0.081*	-0.363
	[0.463]	[0.030]	[12.157]	[0.444]	[0.040]	[0.402]
R^2	0.025	0.029	0	0.144	0.056	0.015
Clusters	24	24	24	24	23	18
Observations	205	205	205	189	118	83
Panel E: Sulawesi and Papua						
IDT	-0.252	0.101***	-24.377	-0.267	0.064	-0.119
	[0.253]	[0.036]	[17.296]	[0.392]	[0.063]	[0.313]
R^2	0.003	0.048	0.014	0.005	0.011	0.002
Clusters	38	38	38	38	36	30
Observations	319	319	319	316	243	142

Notes: All specifications in this table are the same with Table 2, except Bandwidth equal to 1. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table K.1.2: RDD Estimation Results of RURAL Village with Bandwidth = 3

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.612**	0.019	-25.286***	1.199***	-0.113**	0.485***
	[0.296]	[0.016]	[6.516]	[0.151]	[0.055]	[0.165]
R^2	0.009	0.012	0.024	0.193	0.045	0.031
Clusters	53	53	53	53	52	50
Observations	3,021	3,021	3,021	3,001	1,685	1,305
Panel B: Java						
IDT	0.487***	0.053***	-11.095***	0.881***	-0.082***	0.755***
	[0.110]	[0.008]	[3.866]	[0.051]	[0.025]	[0.098]
R^2	0.04	0.039	0.013	0.22	0.02	0.051
Clusters	82	82	82	82	82	82
Observations	5,308	5,308	5,308	5,304	4,933	4,366
Panel C: Bali and Nusa Tenggara						
IDT	0.204	-0.005	-26.929**	0.642***	0.062	0.698**
	[0.420]	[0.027]	[11.370]	[0.129]	[0.083]	[0.311]
R^2	0.014	0.007	0.022	0.157	0.011	0.034
Clusters	39	39	39	39	39	33
Observations	832	832	832	832	760	431
Panel D: Kalimantan						
IDT	-0.557	0.073***	-19.824	1.472***	0.034	-0.43
	[0.328]	[0.023]	[12.011]	[0.276]	[0.034]	[0.370]
R^2	0.035	0.05	0.015	0.127	0.035	0.033
Clusters	25	25	25	25	24	22
Observations	1,012	1,012	1,012	949	566	416
Panel E: Sulawesi and Papua						
IDT	-0.271*	0.080**	-14.049	-0.238	0.058	-0.258
	[0.161]	[0.032]	[14.194]	[0.346]	[0.048]	[0.247]
R^2	0.008	0.042	0.006	0.004	0.022	0.011
Clusters	48	48	48	48	46	41
Observations	1,525	1,525	1,525	1,514	1,142	689

Notes: All specifications in this table are the same with Table 2, except Bandwidth equal to 3. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table K.1.3: RDD Estimation Results of RURAL Village with Bandwidth = 4

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.401	0.031*	-27.424***	1.132***	-0.113**	0.501***
	[0.287]	[0.016]	[6.650]	[0.152]	[0.047]	[0.152]
R^2	0.015	0.012	0.025	0.208	0.037	0.031
Clusters	54	54	54	54	54	51
Observations	4,211	4,211	4,211	4,177	2,420	1,841
Panel B: Java						
IDT	0.471***	0.053***	-11.542***	0.913***	-0.078***	0.740***
	[0.095]	[0.007]	[3.162]	[0.049]	[0.022]	[0.085]
R^2	0.055	0.038	0.01	0.226	0.022	0.05
Clusters	83	83	83	83	83	82
Observations	7,403	7,403	7,403	7,398	6,903	6,098
Panel C: Bali and Nusa Tenggara						
IDT	0.261	0.003	-25.713**	0.658***	0.06	0.637**
	[0.461]	[0.026]	[11.548]	[0.124]	[0.085]	[0.298]
R^2	0.012	0.011	0.018	0.164	0.021	0.021
Clusters	39	39	39	39	39	36
Observations	1,117	1,117	1,117	1,117	1,010	598
Panel D: Kalimantan						
IDT	-0.700**	0.069***	-14.549	1.478***	0.049	-0.528*
	[0.331]	[0.020]	[10.514]	[0.228]	[0.030]	[0.285]
R^2	0.029	0.056	0.018	0.112	0.033	0.021
Clusters	25	25	25	25	24	23
Observations	1,395	1,395	1,395	1,318	777	597
Panel E: Sulawesi and Papua						
IDT	-0.244	0.089***	-13.449	-0.307	0.073	-0.267
	[0.145]	[0.027]	[12.672]	[0.344]	[0.050]	[0.221]
R^2	0.007	0.039	0.006	0.01	0.015	0.012
Clusters	48	48	48	48	47	41
Observations	2,063	2,063	2,063	2,045	1,539	952

Notes: All specifications in this table are the same with Table 2, except Bandwidth equal to 4. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table K.1.4: RDD Estimation Results of RURAL Village with Bandwidth = 5

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.383	0.027**	-28.426***	1.154***	-0.119***	0.514***
	[0.285]	[0.013]	[5.900]	[0.143]	[0.044]	[0.145]
R^2	0.025	0.016	0.026	0.222	0.038	0.031
Clusters	55	55	55	55	55	54
Observations	5,375	5,375	5,375	5,319	3,184	2,406
Panel B: Java						
IDT	0.484***	0.052***	-11.327***	0.907***	-0.078***	0.740***
	[0.097]	[0.006]	[3.101]	[0.049]	[0.022]	[0.079]
R^2	0.073	0.036	0.009	0.235	0.024	0.047
Clusters	86	86	86	86	86	83
Observations	9,235	9,235	9,235	9,229	8,633	7,607
Panel C: Bali and Nusa Tenggara						
IDT	0.143	0.002	-18.597	0.668***	0.077	0.519**
	[0.436]	[0.023]	[11.792]	[0.110]	[0.079]	[0.227]
R^2	0.017	0.016	0.019	0.168	0.022	0.02
Clusters	39	39	39	39	39	36
Observations	1,355	1,355	1,355	1,355	1,211	740
Panel D: Kalimantan						
IDT	-0.776**	0.064***	-12.351	1.466***	0.058*	-0.582*
	[0.317]	[0.021]	[9.758]	[0.205]	[0.028]	[0.290]
R^2	0.022	0.067	0.023	0.107	0.027	0.021
Clusters	25	25	25	25	24	24
Observations	1,765	1,765	1,765	1,680	982	776
Panel E: Sulawesi and Papua						
IDT	-0.124	0.077***	-3.54	-0.18	0.056	-0.192
	[0.131]	[0.024]	[10.303]	[0.318]	[0.047]	[0.202]
R^2	0.011	0.043	0.006	0.011	0.014	0.019
Clusters	48	48	48	48	48	42
Observations	2,535	2,535	2,535	2,513	1,911	1,194

Notes: All specifications in this table are the same with Table 2, except Bandwidth equal to 5. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table K.1.5: RDD Estimation Results of RURAL Village with Bandwidth = 10

	Dependent Variables:					
	NL	ER	IMR	LS	POOR	SME
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Sumatra						
IDT	0.542	0.029**	-28.341***	1.166***	-0.093*	0.479***
	[0.346]	[0.013]	[5.940]	[0.127]	[0.047]	[0.146]
R^2	0.058	0.016	0.022	0.249	0.022	0.027
Clusters	61	61	61	61	61	59
Observations	10,517	10,517	10,517	10,304	7,234	5,146
Panel B: Java						
IDT	0.527***	0.052***	-9.804***	0.905***	-0.084***	0.728***
	[0.089]	[0.006]	[2.396]	[0.048]	[0.021]	[0.067]
R^2	0.145	0.03	0.005	0.271	0.052	0.039
Clusters	90	90	90	90	90	89
Observations	16,218	16,218	16,218	16,204	15,301	13,518
Panel C: Bali and Nusa Tenggara						
IDT	0.22	0.003	-20.528*	0.677***	0.069	0.448**
	[0.444]	[0.020]	[11.981]	[0.110]	[0.079]	[0.201]
R^2	0.041	0.017	0.018	0.162	0.047	0.013
Clusters	39	39	39	39	39	37
Observations	2,286	2,286	2,286	2,285	2,062	1,422
Panel D: Kalimantan						
IDT	-0.804**	0.062***	-17.013*	1.197***	0.055*	-0.296
	[0.308]	[0.018]	[8.446]	[0.146]	[0.029]	[0.210]
R^2	0.05	0.079	0.018	0.142	0.042	0.004
Clusters	25	25	25	25	25	25
Observations	3,139	3,139	3,139	2,962	1,908	1,590
Panel E: Sulawesi and Papua						
IDT	-0.203*	0.088***	-8.157	-0.061	0.033	-0.289
	[0.117]	[0.020]	[9.724]	[0.285]	[0.045]	[0.181]
R^2	0.035	0.03	0.004	0.021	0.021	0.016
Clusters	50	50	50	49	50	43
Observations	4,419	4,419	4,419	4,363	3,472	2,313

Notes: All specifications in this table are the same with Table 2, except Bandwidth equal to 10. *** significant at 1%, ** significant at 5%, * significant at 10%.

K.2 Order Polynomial

Table K.2.1: RDD Estimation Results of RURAL Village with Linear Order Polynomial

	Dependent Variables:					
	NL	ER	IMR	LS	POOR	SME
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Sumatra						
IDT	0.516*	0.024	-22.968***	1.184***	-0.117**	0.510***
	[0.295]	[0.014]	[6.706]	[0.146]	[0.053]	[0.141]
R^2	0.013	0.005	0.026	0.209	0.048	0.033
Clusters	52	52	52	52	51	47
Observations	1,787	1,787	1,787	1,778	997	755
Panel B: Java						
IDT	0.506***	0.052***	-11.505***	0.891***	-0.080***	0.758***
	[0.100]	[0.007]	[3.473]	[0.049]	[0.023]	[0.086]
R^2	0.031	0.04	0.01	0.204	0.022	0.055
Clusters	81	81	81	81	81	81
Observations	3,264	3,264	3,264	3,262	3,032	2,691
Panel C: Bali and Nusa Tenggara						
IDT	0.271	-0.002	-25.698**	0.645***	0.054	0.619**
	[0.432]	[0.026]	[11.139]	[0.120]	[0.081]	[0.291]
R^2	0.011	0.004	0.028	0.128	0.012	0.053
Clusters	37	37	37	37	37	30
Observations	511	511	511	511	473	261
Panel D: Kalimantan						
IDT	-0.779**	0.068***	-14.967	1.551***	0.050*	-0.477
	[0.349]	[0.021]	[11.040]	[0.248]	[0.028]	[0.303]
R^2	0.05	0.059	0.032	0.166	0.048	0.024
Clusters	24	24	24	24	24	21
Observations	596	596	596	548	342	237
Panel E: Sulawesi and Papua						
IDT	-0.224*	0.080***	-11.165	-0.188	0.057	-0.258
	[0.132]	[0.027]	[12.966]	[0.328]	[0.046]	[0.220]
R^2	0.009	0.033	0.003	0.006	0.02	0.016
Clusters	47	47	47	47	45	38
Observations	938	938	938	932	698	419

Notes: All specifications in this table are the same with Table 2, except using linear RD polynomial. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table K.2.2: RDD Estimation Results of RURAL Village with Cubic Order Polynomial

	Dependent Variables:					
	NL (1)	ER (2)	IMR (3)	LS (4)	POOR (5)	SME (6)
Panel A: Sumatra						
IDT	0.619*	0.012	-16.656**	1.225***	-0.106*	0.624***
	[0.346]	[0.018]	[7.727]	[0.183]	[0.062]	[0.194]
R^2	0.014	0.006	0.027	0.209	0.048	0.035
Clusters	52	52	52	52	51	47
Observations	1,787	1,787	1,787	1,778	997	755
Panel B: Java						
IDT	0.440***	0.053***	-14.893***	0.892***	-0.092***	0.781***
	[0.126]	[0.010]	[4.820]	[0.062]	[0.027]	[0.144]
R^2	0.033	0.041	0.011	0.204	0.025	0.055
Clusters	81	81	81	81	81	81
Observations	3,264	3,264	3,264	3,262	3,032	2,691
Panel C: Bali and Nusa Tenggara						
IDT	0.012	0.018	-32.875***	0.692***	0.068	0.614*
	[0.436]	[0.031]	[10.637]	[0.147]	[0.076]	[0.360]
R^2	0.014	0.008	0.035	0.129	0.018	0.055
Clusters	37	37	37	37	37	30
Observations	511	511	511	511	473	261
Panel D: Kalimantan						
IDT	-0.695	0.055*	3.045	1.564***	0.081*	-0.363
	[0.464]	[0.030]	[12.178]	[0.445]	[0.040]	[0.402]
R^2	0.051	0.06	0.043	0.166	0.053	0.026
Clusters	24	24	24	24	24	21
Observations	596	596	596	548	342	237
Panel E: Sulawesi and Papua						
IDT	-0.251	0.100***	-23.834	-0.262	0.066	-0.119
	[0.253]	[0.036]	[17.348]	[0.392]	[0.063]	[0.313]
R^2	0.013	0.035	0.005	0.006	0.021	0.017
Clusters	47	47	47	47	45	38
Observations	938	938	938	932	698	419

Notes: All specifications in this table are the same with Table 2, except using cubic RD polynomial. *** significant at 1%, ** significant at 5%, * significant at 10%.