

The Authoritarian Legacy of a Village Development Program on Authoritarian and Democratic Elections*

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Abstract

This paper investigates the long-term political legacy of a nationwide rural development program established in a rapidly industrializing authoritarian country. We digitize village-level data on the government’s cash transfers to rural villages in South Korea in the 1970s from the administrative records and merge those data with township-level economic statistics and election outcomes from the 1960s to the 2010s. We find that rural villages that received larger cash transfers cast more votes for the authoritarian incumbent party in the next election. More critically, we show that the political effects of the authoritarian rural development program appear almost four decades later in the 2012 election, in which the dictator’s daughter was elected as a democratic president. Using night-time satellite images and agricultural census, we provide evidence that the effects are not driven by the villagers’ long-term income gains from the program and suggest the political legacy as the main channel. Our study offers micro-level empirical evidence examining how a dictator’s development policy leaves a long-standing authoritarian legacy, shadowing the politics of a new consolidating democracy.

Keywords: Authoritarian Legacy, Rural Development Program, Cash Transfer, Authoritarian Election, Democratic Election

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“I did not run for election just to do politics for the sake of politics. It was to help my country to overcome economic crisis, the country my father and people had built with their sweat and blood.” (Park Geun-hye, 1998)

1 Introduction

The growing literature on authoritarian legacy has enlightened that democratization is not necessarily a clear departure from the past autocracy. Many scholarly works show that the former authoritarian party not only survive and thrive (Grzymala-Busse 2002; Levitsky 2003) but also are able to do so due to what they have done and achieved in the past as a dictatorial ruling party (Langston 2017; Loxton 2018; Miller 2019; Riedl 2014; Slater and Wong 2013). Moreover, we also observe that these parties often promote an individual who was an authoritarian leader or was a descendant of the former dictator to a key figure, such a party leader or a presidential candidate, frequently long after democratization. Mahatir Mohamed, who had ruled Malaysia from 1981 to 2003, returned as a democratic leader in 2018. Bongbong Marcos, whose father dictated the Philippines from 1965 to 1986, lost the vice-president election in 2016 with a small margin and is expected to run for office in 2022. Late Gaddafi’s son, Saif al-Islam Gaddafi also publicly announced to run for the presidential office in the 2021 election.¹

Still, it is puzzling why and how some dictator’s legacy persists or resurrects even in a consolidated and stable democracy after significant time has passed since the end of, often infamous, dictatorship. In this study, we focus on the long-term political legacy effect of a large-scale distributive program under dictatorship. When Park Geun-hye, the first daughter of a former dictatorial leader Park Chung-hee was elected as a democratic president in 2012, 25 years after the democratization of the country, numerous observers pointed out the legacy or nostalgia of Park Chung-hee period (Kang 2018) as one of the main contributors. While a dictator’s legacy may be variant, using the case of nationwide rural development program under Korean dictatorial regime, we examine how a distributive program targeting marginalized population in a rapidly industrializing country has left a strong political legacy in a new, yet stable democracy.

For analysis, we collect micro-data on cash transfers from an authoritarian government to villages through a rural development program called the “New Village Movement” (*Sae-*

¹Although not as actively engaged in national-level politics, a daughter of Francis Franco in Spain and Lucia Pinochet, a daughter of Pinochet in Chile, inherited the political legacy of the father.

maeul Undong, NVM, hereafter) in the 1970s, South Korea. This program was a nationwide, community-based, self-help campaign under the Park Chung-hee regime. Through the program, the government conditionally provided the resources for the production of village public goods. Villagers collectively produced them in competition with other villages to obtain larger resources from the government in the next year. While the government provided conditional material and financial assistance, all projects were carried out with voluntary labor and material contributions from rural residents.² While many development economists have studied the economic effects of rural development programs on agricultural production, public hygiene enhancement, and public goods provision (Dercon 2006; Fox 1995; Renkow, Hallstrom and Karanja 2004; Ruttan 1984), few studies have systematically investigated the long-term political economic impact. To trace the political economic effects in the long run, we combine the cash transfer data with population and agriculture census data and electoral outcomes from authoritarian elections in the 1960s and 1970s, as well as the recent democratic elections.

Our analyses provide several critical and novel findings regarding the rural development program and electoral outcomes during the dictatorship and as its legacy. First, the townships³ that received relatively larger benefits from the development program in the year before an election were more likely to support the candidates from the authoritarian incumbent party. The increase in support from beneficiary rural areas was politically critical to the dictator in 1978, as his party obtained unprecedentedly few popular votes nationally, fewer than the opposition party, owing to the regime's mounting unpopularity. More interestingly, we find that the political effects of the authoritarian development program persisted, even long after the country's democratization in 1987. We show that villages that had received more benefits from the program in the 1970s were more likely to vote for Park Geun-hye, the daughter of Park Chung-hee, in the 2012 presidential election. This persistent effect is specific to the daughter of Park, not explained by the legacy effect through the conservative party that succeeded the former authoritarian ruling party after democratization.

To explain the legacy of the rural development program in substantive terms, we explore the potential mechanisms through which the material benefits of the program may have

²The South Korean government officially describes the program as the most successful rural development program in the country's history. The movement has also been globally recognized and decorated by the international organizations including the United Nations, the OECD, and the Asian Development Bank. Numerous developing countries have adopted a similar program. The official documents and records of the NVM were selected as the UNESCO Heritage in 2013.

³All of our analyses are at the township level, i.e., *eup-myeon-dong* (EMD) level in Korean. It is the third administrative layer following province and district, and above village (*li* or *maeul*). As of 2017, 3,503 townships exist in South Korea.

carried out a political influence four decades later. We find that the persisting supports are not explained by a long-term improvement of economic conditions in benefited rural areas. On the contrary, our analyses show that the beneficiary townships are economically less developed and more concentrated on agricultural activities today, in which South Korea has largely lost comparative advantage due to industrialization. Instead, we provide evidence that a relative lack of rural-to-urban migration from the beneficiary villages may explain the political legacy. Where the agricultural infrastructure was improved due to the NVM, agricultural profitability could increase with mechanized cultivation, which demotivated the young generation from emigration. In other villages that failed to secure enough government subsidies, a notable share of villagers migrated to urban districts for better economic opportunities in a rapidly industrializing country. Our data indicate that townships with more substantial transfers experienced a less decline in agricultural population during the 1970s and have a larger share of the population above the age of 55 in 2010, which corresponds to residents 15-years-old and older in 1970.

Our study speaks to the broad literature of authoritarianism and post-democratization politics. In particular, it contributes to our knowledge on how authoritarian distributive policy to rural districts, with no explicit vote-buying intentions, can nevertheless influence the citizens' political behavior in favor of the incumbent dictator and inheriting politicians in the long run. By doing so, we expand the scope of the authoritarian rule and legacy to a variety of policies over which dictators have broad discretion without democratic checks or meaningful electoral constraints. Our paper pertains to the growing literature on authoritarian legacy. Scholars find that authoritarianism often carries long shadow over a democracy through institutional channels including political parties (Kistchelt and Singer 2018; Loxton 2015; Miller 2019; Riedl 2014) and bureaucracy (Albertus 2019), or nostalgic psychology and policy preference among the public (Neundorf, Gerschewski and Olar 2020; Pop-Eleches and Tucker 2017). While the existing literature offers insights drawn from broader contexts, it rarely pins down micro-level mechanisms through which the legacy of former illiberal regime influences the individuals, the communities, and thus the electoral outcomes after democratization. Moreover, our case also sheds lights on the expanding study on political dynasties in democracies (Dal Bó, Dal Bó and Snyder 2009; Geys and Smith 2017; Smith, Daniel M. 2018). While the scholars have studied the causes of political dynasties in democracies including the incumbency advantage (Dal Bó, Dal Bó and Snyder 2009; Querubín 2016), party institutions (Chandra 2016), or electoral system itself, our study points out the possibility of authoritarian legacy as a source of dynastic advantage. Especially, when the dictator is

reputed to have achieved a performative success such as economic development, poverty alleviation, or other popular or populist policies, the descendants can inherit the positive legacy of a benevolent dictator in a democratic election (Miller 2019).

2 Rural Development Program and Election

Distributive politics exists regardless of regime type. Many studies provide evidence on how government subsidies for specific groups benefit the incumbent government both in developed and developing countries (Brazys, Heaney and Walsh 2015; Catalinac and Muraoka Submitted; Cerda and Vergara 2008; De La O 2013; Dionne and Horowitz 2016; Park and Jensen 2007; Thies and Porche 2007). Although most studies examine these effects in democracies, dictators also selectively co-opt certain population groups using available resources under their discretion. Scholars of authoritarian politics have indeed shown how distributive politics work in favor of the ruling party and the leader in authoritarian regimes, in particular where relatively competitive elections exist (Blaydes 2010; Magaloni 2006; Mares and Carnes 2009; Pepinsky 2007; Schady 2000). Often distributive programs under dictatorship specifically target several underprivileged political or social groups, such as ethnic minorities, unprotected workers, or the poor, with or without explicit electoral calculations, which lead to distinctive political effects from those of universal policies in the long run (Kim and Gandhi 2010; Levy 2008; Magaloni 2006; Schady 2000).⁴

South Korea's NVM program in the 1970s is comparable to these distributive policies targeting marginalized population. The beneficiary unit, rural villages, mostly engaged in the agricultural industry, which was rapidly losing comparative advantage to other industries including manufacturing and service sectors in urban areas. In 1970, right before the launch of the program, the average real per capita income of rural resident was already more than 30 percent lower than urban resident's average income (Hwang 2011, 2006). Furthermore,

⁴For politically motivated distribution, clientelism is most widely discussed in the literature. Despite our empirical findings that links the NVM transfers and voting outcomes in the 1970s, we do not claim the NVM was a clientelistic spending by the regime. According to Hicken (2011), clientelism refers to an "iterated patron-client relationship between politicians and voters, in many cases through brokers or networks, with contingent and reciprocal exchanges of economic benefits and votes" (Hicken 2011, p.290). He emphasizes that "contingency on voting" constitutes the difference between clientelism and pork-barrel or programmatic redistribution. Similarly Stokes et al. (2013) also highlight the key distinction between clientelism and pork-barrel politics in this conceptualization of the "conditionality," the notion that voters suffer a punishment, or at least are credibly threatened with potential punishment. From the vast qualitative research and administrative data on the NVM, we could not find concrete evidence pinning down the contingency or the conditionality. Although the elections in the 1970s were dubbed with pervasive manipulations and frauds, we find no direct evidence that the NVM subsidies intended to buy votes from certain villagers in the coming election and punish ones that defected.

besides the cash transfers directly made to villages, the NVM program functioned as a channel through which the dictatorial regime’s political propaganda can spread to the grassroots level (Ban, Moon and Perkins 1982). While the literature disagrees on how much the NVM was motivated by political intentions, scholars have agreed on is that Park himself cared much about the propagandization of the NVM.⁵ Hence, our empirical analyses first focus on directly examining the short-term electoral gains of the regime as an outcome of the NVM cash transfers.

HYPOTHESIS 1 [Short-term effect on authoritarian election]: *Rural villages benefited more from the NVM transfers are more likely to vote for the authoritarian ruling party in the next election.*

In the long run, we claim that the political legacy of a massive distributive program can linger long after its economic effects have faded away. This legacy effects may lead voters in beneficiary areas or sectors to support the candidates who are connected to or inherited the legacy of the former leader. Scholars have shown that authoritarian past is not necessarily a burden to the politicians and the political parties with authoritarian backgrounds after democratization, but can be an asset to build on (Albertus 2019; Kistchelt and Singer 2018; Loxton 2015; Miller 2019; Riedl 2014). Using cross-country data of new democracies, Miller (2019) and Jhee (2008) find evidence that a policy success such as economic development in the past can work as an advantage for authoritarian successor party as their legacies would work as an advantage under democracy. Pop-Eleches and Tucker (2017), Neundorf and Pop-Eleches (2020) and Neundorf, Gerschewski and Olar (2020) further argue that a legacy effect of the past dictatorship significantly affects individual voter’s preferences regarding politics and policies.

HYPOTHESIS 2 [Long-term effect on democratic election]: *Rural villages benefited greatly from the NVM transfers cast more votes for the candidate connected to the dictator in a democratic election.*

We argue that the long-term electoral effect of the NVM stems from the political legacy the program left in rural areas rather than the long-lasting economic gains from the program. This argument is relevant to the path of economic development that the country

⁵According to the National Archive, among 1,270 speech records of Park, the NVM was mentioned in 114 speeches.

had taken under the Park regime and maintained afterward. Since the 1960s, the Park regime aggressively pursued economic development through industrialization, concentrating particularly on the export-oriented manufacturing industries (Wade 1990; Woo-Cumings 1999). This industrialization process induced many rural dwellers to migrate to urban areas to work in other industrial sectors.⁶ The NVM discouraged the direct beneficiaries, the farmers of successful villages, from emigrating, and shifted the beneficiary villagers' income upward in the short term (Hwang 2011). Yet, such an increase is in the long run unlikely to exceed the income changes among the population who switched to secondary or tertiary industries. Hence, the farmers participating in the NVM program eventually faced a decline in their relative income, compared to that of the other industry employees, as their industry was losing comparative advantage (Moore 1984). Therefore, an authoritarian distributive policy targeting marginalized rural population likely results in a long-lasting political affinity among the direct beneficiaries of the program for the authoritarian leader and his heirs, in the absence of long-term economic gains. Although a direct exploration of the political legacy perceived among the rural residents is beyond the scope of our data and this research, our analyses examine the demographic change over the decades to indirectly identify the political legacy effect among the direct beneficiaries.

HYPOTHESIS 2-1 [Demographic mechanism of long-term effect]: *Rural villages that received larger NVM transfers currently have larger share of population who directly benefited from the program compared to other villages.*

At the same time, our mechanism analyses reject the most challenging alternative hypotheses, i.e., economic benefit from the authoritarian policy. In this regard, the mechanism we argue hints at a “reversal of fortune” (Robinson, Acemoglu and Johnson 2002) at the subnational level across areas and industries in a developing country. The villages potentially outperformed other villages in productivity, income, and the adoption of advanced technologies in agriculture, such as automated cultivators. However, the national government pursued industrialization aggressively which incentivized significant labor and capital shifts from the agricultural to other sectors. As a result, the share of agricultural production declined from 30 percent in 1970 and 2 percent in 2012 of total value of national economic production,

⁶This structural change indicates that the rural development program which encouraged a technological advancement in the primary industry in a self-help manner had only limited prospects to begin with. For this reason, Lee (2011, p.372) points out that Park was “careful not to make the agricultural sector squeeze too obvious” when he pushed his drive for export-led industrialization and to “mobilize the farmers without giving them much” in order to secure political support in rural areas.

and the share of employment in the agricultural sector dropped from over 50 percent to approximately 5 percent of the population during the same period.⁷ Villages with relative comparative advantages in agriculture consequently specialized in the agricultural sector, while other villages have more likely been exposed to industrial diversification to other sectors such as manufacturing or tourism. The government aggressively built industrial complexes in rural areas in the 1980s to encourage the manufacture of agricultural products (Hong and Park 2016). As a result, the villages privileged under the program as exemplary cases became the subjects of historical irony, eventually left out of further development in the country.

HYPOTHESIS 2-2 [Economic mechanism of long-term effect]: *Rural villages benefited greatly from the NVM transfers are more agriculture-oriented and less prosperous than other rural villages today.*

Our study expands the pertinent literature in several ways. First, we extend the scope of distributive politics to broader development programs, especially those targeting marginalized groups. While many scholars have treated development programs as a representative example of programmatic distribution or a rule-based and efficiency-based type of resource allocation (Kitschelt and Wilkinson 2007), our study claim and show the selective and distributive nature of a rural development program and its lasting political effects.

Moreover, we explore the long-term effect of a rural development program by looking at the elections four decades after its implementation and 25 years after the democratization of the country. In doing so, while most studies have investigated distributive politics within democratic context⁸ or within a non-democratic setting (Blaydes 2010; Magaloni 2006), our study evaluates long-term effects that cut across regime types. Adding to cross-national studies showing the cross-regime effects of development policies (Jhee 2008; Miller 2019), this study provides the micro-level evidence from sub-national analyses ranging several decades. Looking into the long-term persistence effect of a rural development program, we also contribute to the growing literature on authoritarian nostalgia in new democracies (Dinas and Northmore-Ball 2020; Neundorf, Gerschewski and Olar 2020) including South Korea (Chang, Chu and Park 2007; Kang 2018).

Furthermore, we explore the mechanisms through which political legacies of a development program transmit in the long run and crossing regime types. One obvious channel is through an authoritarian successor party (Loxton 2018; Miller 2019). Some studies explain the success

⁷Korean Statistical Information Service (kosis.kr)

⁸See Golden and Min (2013) for a comprehensive survey of this literature.

of former authoritarian ruling parties with the efforts of former authoritarian ruling parties to transform and rebuild themselves with more democratic platforms and electoral strategies (Grzymala-Busse 2002, 2008; Levitsky 2003). However, more recent studies argue that many of the former authoritarian ruling parties win democratic elections with little adaptation and transformation (Birch 2003; Langston 2017; Loxton 2018; Riedl 2014; Slater and Wong 2013). Instead, they win with an authoritarian inheritance (Loxton 2015) and/or authoritarian legacies (Miller 2019).

The question is what types of inheritance or legacies matter and how they persist. To the first question, Loxton (2015) lists party brand, territorial organization, clientelism networks, financial resources, and party cohesion. Many studies, including Cheng and Huang (2018), Kistchelt and Singer (2018), and Self and Hicken (2019) confer with Loxton (2015) using either case study or large-n empirical analysis. In particular, when the dictator achieved considerable economic growth and engaged in pragmatic programs, the successor party is more likely inherit positive legacies (Miller 2019). The conservative party in South Korea that inherited the former authoritarian party has been exceptionally successful after democratization.⁹ However, understanding exactly how the party carries the political legacy is challenging as the political legacy is entangled with many factors. For example, an obvious advantage of the conservative party is the party's credentials regarding economic development and the legacy of successful economic policy (Cheng and Huang 2018, pp.93-94). At the same time, Cheng and Huang (2018, p.96-97) also argue that authoritarian successor party inherited the dictatorship's clientelist network especially in regions with a strong connection to the dictators. Our study adds another mechanism of legacy transmission. We claim that an individual figure with strong connection to the dictator, e.g. family member, benefit the most from the authoritarian legacy.

In the analyses, we attempt to disentangle these diverse mechanisms of authoritarian legacies by identifying the halo effects that only the dictator's descendents relish. While several scholars have studied the various causes of political dynasties in democracies (Chandra 2016; Dal Bó, Dal Bó and Snyder 2009; Geys and Smith 2017; Querubín 2016; Smith, Daniel M. 2018), our study points out authoritarian legacy as a potential source of dynastic advantage. Especially, when the dictator is reputed to have achieved a performative success, the descendants can inherit the positive legacy of a benevolent dictator directly in a democratic election. Although a significant share of citizens might recall the repressive past negatively,

⁹For 25 years from democratization until the 2012 election that elected Park's daughter as the president, the conservative party lost presidential elections only twice (1997, 2002) and legislative elections only once (2004).

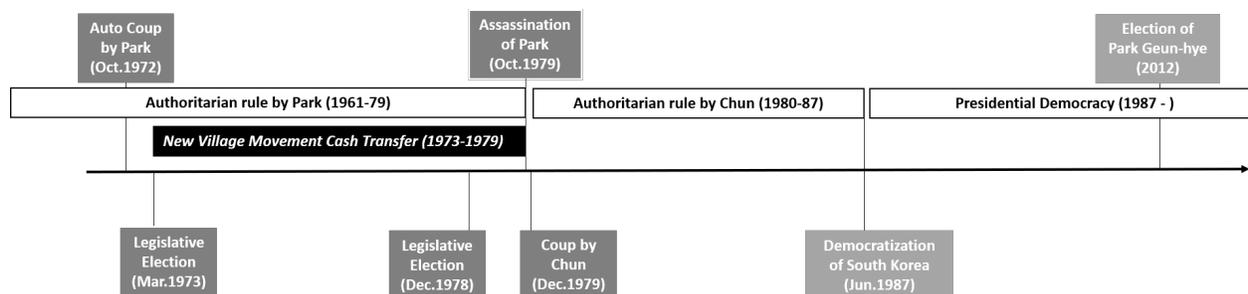


Figure 1: Timeline of the New Village Movement and Key Political Events

the communities or individuals who have directly benefited from the regime might comprise a critical support base for the political candidate who has a family tie to that past.

3 The New Village Movement and Elections in Korea

3.1 The New Village Movement

The New Village Movement (NVM) is the most extensive rural development program in the history of South Korea, initiated by Park Chung-hee in the early 1970s. Figure 1 illustrates a brief summary of South Korea's contemporary history. The nationwide launch of the NVM overlapped with the drastic political changes which concentrated power to Park and suppressed the opposition. The following summarizes the unique political economic features of the movement.

First, the NVM was a community-based self-help campaign targeting rural villages, mobilizing 18 million people, or about 60% of the national population.¹⁰ Each village was asked by the government to identify public projects deemed important for the village members. While the government directed the overall movement, village members jointly decided on the details of projects through village meetings. The members also had to contribute voluntary labor and sometimes their own assets such as land and devices to complete the projects. While the projects varied across villages, there was a clear preference for projects related to improving village infrastructure related to agricultural production and technological advancement in agriculture. For example, many villages used the subsidy to widen the village roads which is critical for the adoption of mechanical cultivator (Yang 2019). Many villages created water drainage systems along the village roads to prevent flooding during the monsoon season or bridges over creek. Others projects were related to social capital-related construction, such as

¹⁰The calculation is based on the 1970 census.

community center, common laundry facilities, and public wells (Ministry 1983). Depending on the degree of achievement in village improvement projects, each village was classified into three groups, which determines the subsidy amount in the subsequent year. The grades were determined by local officials according to specific targets set beforehand, for example, building 500 meters of village access roads and generating a village public fund above \$10,000. The grades were publicly announced annually.

Second, the NVN was a government-driven rural development project strongly supported by the national leader. Historical documents indicate that the initial idea came from Park Chung-hee (National Archives of the Republic of Korea N.d.), who also set the official objective of the movement, which are to improve the village environment and boost the income of rural households. The Ministry of Internal Affairs, the most powerful ministry at the time, followed the progress. It directed and managed the local governments to assess the progress annually and conditionally transfer cash and other materials to successful villages. At the beginning of the movement, the government facilitated village projects through material transfers such as cement bags or steel rods. Soon, however, cash transfers became the major means of support. Local civil servants were heavily involved; one or two local civil servants in a township office were designated to check the NVM progress in specific villages.¹¹ The Ministry of Internal Affairs also created and managed the national network of New Villages Leaders, who were in charge of the planning and implementing of NVM projects in each village.¹² It also offered training programs to the village leaders and share exemplary cases of NVM projects. Although the nominal institutions of the NVM survive until today, the movement as a government-driven campaign involving a large scale resource transfer and mobilization ended with the end of Park's regime in 1979.

Despite the historical significance of the NVM, systematic empirical research on the political and economic impacts of the movement has been limited. Numerous scholars focus on drawing policy evaluation and implication for other developing countries: they point out the factors that led the village development campaign to successful economic outcomes are the cooperation among village members, the competition across villages, and effective leadership by village leaders (Jwa 2018; Park 2009). Studies also find that the collective experience of the NVM projects boosted village members' social capital and improved the standards of living (Asian Development Bank 2012). Others have taken a more critical view of the program. Looney (2020) and Moore (1984) along with many others have pointed out

¹¹Figure A1 in the Appendix shows a sample list of village leaders and assigned local officials to each village.

¹²Han (2010) estimated approximately 200,000 worked as a NVM leaders during the 1970s.

the overwhelming role of state-driven mobilization in the program's success. Hwang (2011) pointed out that the psychological and moral effects of the movement were more crucial as the income-boosting effect lasted only for a few years.¹³ Hwang (2011) and Oh (2003) further criticize the NVM's heavy reliance on village residents' resources and ineffectiveness in reducing the large flow of rural-to-urban migration. Other critics have noted the political motivation behind the program after the auto-coup in 1972, suggesting that resource transfers through NVM were intended to bolster the political support from rural voters (Hwang 2011; Lee 2011). Some see the NVM as a form of political indoctrination and patronage-building (Hwang 2011; Kim 2004; Moore 1984). Regardless of the conclusion, however, most research so far have been based primarily on aggregate statistics or case studies of a few villages. Our study is among the first academic attempts to provide a systematic micro-level analysis of the NVM program's short- and long-term effects.

3.2 Authoritarian and Democratic Elections in Korea

Another key context of this research is the elections under Park's authoritarian regime and after democratization in Korea. After Park Chung-hee came to power in 1961 in a military coup, he had himself elected as a civilian president in the 1963 election. After a successful re-election in 1967, he was re-elected a third time after changing the constitution to allow for third-term presidents in 1971. In October 1972, facing rising discontents, Park launched an auto-coup, called *Yushin*, to abolish the presidential term limit and direct election for presidency.¹⁴ He also gave himself the authority to appoint one-third of the National Assembly members.¹⁵

Our study relies on the legislative elections under Park's regime, held in 1973 and 1978.¹⁶ Both elections were the only direct election and conducted under multi-member district system to fill in the two thirds of the legislative seats, and the incumbent party won the most seats in each. However, the opposition parties also obtained a large share of popular votes in both elections. The 1973 election was held before the launch of nationwide cash transfer under the NVM and thus serves as our reference in the analyses.¹⁷ In that election, the incumbent party (the Democratic Republican Party) won 73 out of 146 elected seats with

¹³During the NVM years, the income gap between rural and urban households narrowed (Hwang 2006).

¹⁴The direct election of the president was restored in 1987 after democratization.

¹⁵During the first two terms of Park (1963-1971), the Polity score stays at 3, indicating a moderate hybrid regime. It plummets to -9 in 1972 with the auto-coup and remains at -8 until his death in 1979.

¹⁶We also use the 1967 and 1971 legislative election for a robustness check.

¹⁷Before 1973, the government transfer under the NVM was smaller amount and limited to real commodities such as cement, steel, etc.

38.7% of the total vote share, while the opposition party won 52 seats with 32.5%. In the next election held in 1978, the incumbent party won 68 out of 154 seats with 31.7% of votes, whereas the opposition party obtained 61 seats with 32.8% of votes. This election marked the first election in which Park's party lost the plurality of the total vote. Approximately one year after the election, Park Chung-hee was assassinated by the director of the Korean National Intelligence Agency and a long-term subordinate, Kim Jae-gyu. In December of that year, South Korea went through another coup by Chun Doo-hwan.

In 1987, toward the end of Chun Doo-hwan's 7-year term, he faced mounting pressure from popular protests. Preparing for the 1988 Summer Olympics in Seoul, Chun could not rely on the military to repress the popular uprising as he had in Gwangju in 1980. This circumstance forced the dictatorial regime to commit to a political reform, leading to the re-introduction of direct presidential elections. Since 1987, democracy has been gradually consolidated in South Korea.

In 1998, the year of the first alternation in political power to the opposition party, Park Geun-hye, the elder daughter of Park Chung-hee, entered politics by winning a legislative by-election in her hometown after remaining politically inactive for 20 years following her father's death. From that point, Park played a vital role in the major conservative party, eventually being elected as the president in 2012. Her presidential election campaign largely appealed to her father's legacy, and several key campaign mottos recalled the developmental period under her father's regime. Media and political commentators often noted that one of the themes of Park Geun-hye's campaign exploited was nostalgia for the Park Chung-hee period. Supporters often brought photographs of Park Chung-hee and his wife to campaigns and shouted their names. Park Geun-hye persisted on her late mother's hair style. Several key figures from her father's administration also joined her campaign camp. At the same time, Park Geun-hye's ambiguous stance on her father's political decisions, including the coup in 1961 and the auto-coup in 1972, as well as fabricated political scandals under his regime aimed at repressing the opposition, served as heated topics of debate during the electoral campaign.

4 Data and Empirical Strategy

We incorporate various data sets to evaluate the long-term legacy of an authoritarian rural development program. For the amount of cash transfers received by villages, we use the

도별	마을	명	호수	지원	도별	마을	명	호수	지원
province	village.name	number-of	transfer	amount	province	village.name	number-of	transfer	amount
		household	amount	amount			household	amount	amount
경북	청송 현서 모 계 1	70	2,260	원	영천	금호 신 원	25	1,067	원
	" 모 계 2	70	1,614	원	영천	조 교	43	3,146	원
	" 도 동	83	3,195	원	경산	안길 배 여	60	3,353	원
	" 사 촌	34	2,271	원	남산	경 1	30	1,227	원
	" 두 름 2	58	3,842	원	청도	문문 방 음	131	4,936	원
영양	수비 오 기	196	11,465	원	메천	남 양 2	84	3,317	원
영덕	축산 대 곡	333	20,238	원	이서	고 철	36	1,303	원
	빙곡 휘 티	53	2,983	원	금천	신 지	66	1,800	원
	영덕 남 산 2	35	1,940	원	"	박 곡	125	3,200	원
	빙곡 영 4	21	1,023	원	"	임 당	15	800	원
영일	청하 고 름	156	4,940	원	경북	고령 고령 중하지구	365	10,500	원
	동해 발 산 2	164	8,660	원	덕곡	성동 1,2	100	2,000	원
	외창 곡 간 2	185	7,741	원	고령	내 곡	115	4,697	원
	송라 지 경 2	84	3,448	원	덕곡	용흥 옥계	109	4,333	원
월성	서면 도 리 1	213	11,118	원	개진	양 진 1	45	2,744	원
	내남 월산 1,2	140	7,000	원	성주	성주 성산2,3,4	126	4,444	원
	양남 노 곡 1	89	1,600	원	칠곡	해관 금 산 1	64	3,237	원
	" 읍천 1,2	210	5,400	원	지천	연 호 1	135	5,232	원
	양북 봉진 1,2	198	6,344	원	금릉	감문 대 양 2	113	2,000	원
	양남 수 름 2	62	2,000	원	개령	더 천 1	67	1,000	원
영천	화북 신 호	90	3,200	원	감천	용호 1,2	164	3,000	원
	" 선 천 3	46	1,200	원	감문	삼 봉 1	88	1,500	원
	" 금호,오동	49	1,219	원	대덕	화진 1,2	143	3,500	원
	청룡 신원,계지	160	4,400	원	"	후 량 1	65	1,300	원
	화산 덕 암	243	4,385	원	구성	하강 1,2	281	6,200	원
	고경 용 진	87	1,500	원	어모	양각 1,2	111	4,500	원
				원		우래 2,3			원

Figure 2: Raw Data on the NVM Cash Transfer (1974)

Statistics Year Book of Saemaeul, from 1974 to 1978.¹⁸ A sample raw data in Figure 2. It is a yearly government publication that records the amount of cash transfers to villages under the NVM program. We aggregate the number of villages and the amount of cash transfers received at the township (EMD) level. Election data come from the National Election Commission in South Korea.¹⁹ We aggregate the polling-station-level data at the township (EMD) level to merge with the cash transfer data. Additionally, for the confounding variables, we rely on census data from 1966, 1970, 1975, 1980, 2005 and 2010. As the election year and the census year do not overlap, we match the closest census to election outcomes. Finally, for mechanism analysis, we utilize the night-time luminosity data extracted from the satellite images by the National Oceanic and Atmospheric Administration (NOAA) and the *Census of Agriculture, Forestry, and Fisheries* (agricultural census, hereafter) taken every 10 years.

¹⁸The digitization process of the data set was initiated by Yang, Kim and Kim (2020) for a single province. We subsequently digitized data from all remaining provinces.

¹⁹The raw data are available at <http://www.nec.go.kr>.

One challenge in creating a township-level panel data set spanning more than four decades is tracking changes in administrative boundaries. We use the administrative boundary of 1970 as the base in order to trace the administrative units over time. For example, if a township splits into multiple townships after 1970, we combine the fragments and treat as one unit to prevent those data coded as missing. To accurately track administrative unit changes, we use various methods such as verifying city and county ordinance related to administrative boundary changes and cross-checking GIS boundary maps in different years.²⁰

Our first empirical specification is a township-level cross-sectional analysis using two consecutive authoritarian legislative election outcomes from the 1973 and 1978 election.

$$\Delta\text{IncumbentVoteShare}_{i,c,1978-1973} = \beta_1\text{CashTransfer}_{i,c,t} + X_{i,c,t}\eta + \tau_c + \varepsilon_{i,c,t}. \quad (1)$$

Our dependent variable, $\Delta\text{IncumbentVoteShare}_{i,c,t}$, captures the changes in the authoritarian ruling party’s vote share in township i in county c between 1973 and 1978. The key independent variable, $\text{CashTransfer}_{i,c,t}$, is the logarithm of cash transfer amount per voter distributed to villages in township i in county c in years between 1974 to 1978. Figure 3 illustrates the spatial distribution of the total amount of cash transfers townships received between 1974 and 1978 under the NVM program.²¹ We investigate different time spans to determine whether the timing of cash transfer affects the impact on electoral outcomes. $X_{i,c,t}$ includes control variables that allow us to address various features of each township. We first control for area in 1970 (km²) and whether the township is a main town (*Eup*) in a county (*Control 1*). We then expand the controls to account for a township’s development level *before* the beginning of the NVM program, including the total population in 1966, the female share of the population in 1966, the illiterate share of the population in 1966, and population change between 1966 and 1970 (*Control 2*). We also include county (τ_c) fixed effects (*si-gun-gu* in Korean terms), which is one layer above the township level, to address all time-invariant omitted variables at the county level. In all analyses, we cluster the standard errors ($\varepsilon_{i,c,t}$) at the county level.

In subsequent analyses, we use a similar model to estimate the effects of past cash transfers

²⁰Statistics Korea’s Statistics Geographic Information Service produces GIS boundary maps (<https://sgis.kostat.go.kr>).

²¹Missing observations are either city districts, ineligible for the NVM program, or untraceable districts due to a complete administrative boundary change.

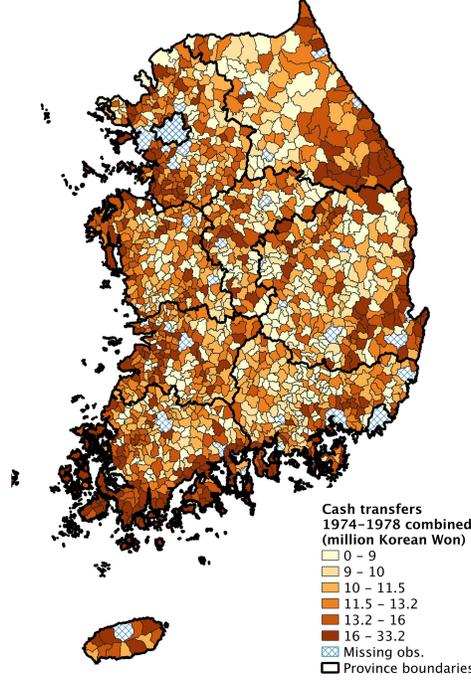


Figure 3: Cash Transfers from 1974 to 1978

under the dictatorial regime’s rural development program on democratic elections.

$$\Delta \text{IncumbentVoteShare}_{i,c,2012} = \beta_1 \text{CashTransfer}_{i,c,1970s} + X_{i,c,t}\eta + \tau_c + \varepsilon_{i,c,t}. \quad (2)$$

We use the vote share of the conservative party candidate, Park Geun-hye, in the 2012 election as the dependent variable. While controlling for various township-level traits, we also control for the vote share for the conservative party in the 2007 election, which elected the conservative party candidate, Lee Myung-bak, as the president.²² If any detected support for the political party is a function of support inherited from the authoritarian incumbent party, the candidates in 2007 and 2012 benefit from the legacy in the same manner. If, instead, the legacy is conferred to a specific person connected to the dictator who launched the program, support will be detectable in the 2012 election for the candidate with a direct connection to Park Chung-hee. Figure 4 describes how Park Geun-hye’s vote share looks like in 2012 in comparison to Lee’s in 2007. Table A1 in online appendix presents the descriptive statistics of all variables.

²²In 2007, another major conservative candidate, Lee Hoi-chang obtained 15.1% of total votes. We include his votes in control to examine whether the results change.

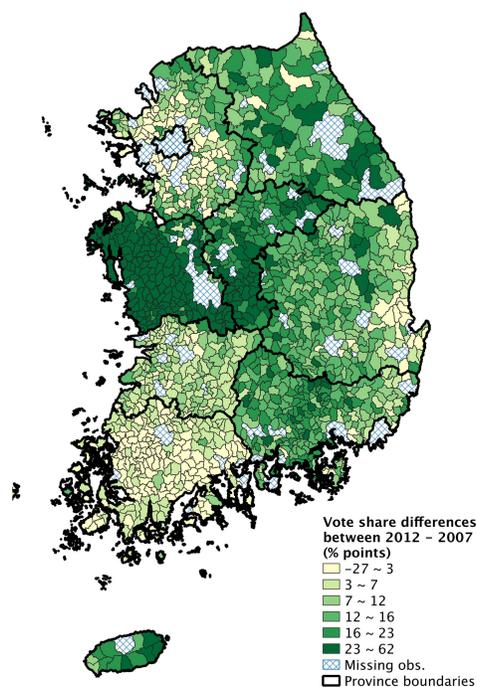


Figure 4: Vote Share Change for Conservative Party Candidate (2007-2012)

5 Empirical Findings

5.1 The short-term effects on authoritarian elections

We first examine the direct short-term electoral effects of the NVM cash transfers. In Table 1, we use the per capita cash transfer in the year before the 1978 legislative election as the independent variable and the incumbent party's vote share change between the two elections (1973-1978) at the township level as the dependent variable. We find that the cash transfers under the rural development program is positively associated with the support for the ruling party in the next legislative election; the previous year's subsidy amount is positively related to the township's support for the incumbent party in the election. A 1 percent increase in cash transfers per voter is associated with a 3.3 percentage-point increase in the incumbent vote share, compared to the election held just prior to the cash transfer (see Model (4)). Given the electoral success of the opposition in direct legislative elections in the 1970s despite multiple institutional obstacles that Park's regime had set, the magnitude of boosting effect is substantial for the ruling party.

We examine various lags to understand the logic of citizens' voting behavior in authoritarian elections as a response to material benefits. Table 2 presents the results with different time gaps between the transfer year and the 1978 election. Interestingly, we find that cash

Table 1: Cash Transfer and Voting Outcome (NVM Year: 1977)

Dependent variable: Δ <i>incum_share</i> btw 1978 - 1973 (mean -0.04, s.d. 0.21)				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter</i> (1977)	0.081*** (0.031)	0.030** (0.015)	0.033** (0.016)	0.033** (0.017)
Controls 1	N	N	Y	Y
Controls 2	N	N	N	Y
County FE	N	Y	Y	Y
No. of counties	129	129	129	129
Adjusted R^2	0.004	0.838	0.838	0.839
Observations	1,339	1,339	1,339	1,337

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A2 in online appendix presents full results.

transfers only in the year before the election have an effect. Other years, including the year of the election, have no significant impact on the election outcome in 1978. These results imply that voters in rural townships at the time reacted to immediate benefits, not to the overall transfers. These results are consistent with the findings of previous studies of pork-barrel politics in non-democratic settings, where the effects of material benefits on voting are found to be myopic (Costa-i Font, Rodriguez-Oreggia and Lunapla 2003; Hong and Park 2016).

Table 2: Cash Transfer by Year and Voting Outcome (NVM Years: 1974-1978)

Dependent variable: Δ <i>incum_share</i> btw 1978 - 1973 (mean -0.04, s.d. 0.21)					
	(1)	(2)	(3)	(4)	(5)
	1974	1975	1976	1977	1978
<i>log(transfer+1) per voter</i> (1974-1978)	0.017 (0.019)	-0.020 (0.022)	0.007 (0.022)	0.033** (0.017)	0.005 (0.018)
Controls 1	Y	Y	Y	Y	Y
Controls 2	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y
No. of counties	129	129	129	129	129
Adjusted R^2	0.838	0.838	0.838	0.839	0.838
Observations	1,337	1,337	1,337	1,337	1,337

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A3 in online appendix presents full results.

Additionally, we conduct several robustness checks by employing alternative measures of the NVM-related benefits. First, we check subsample results across different regions at the province level (Table A4 in online appendix). The effects are overall positive across the regions, but we find a particularly strong and significant effects in Chungcheong provinces and Jeolla provinces. Second, instead of the amount of cash transfers to villages, we count the number of beneficiary villages among townships (Table A5). Third, instead of using the number of voters as the denominator, we use the total population within a township drawn from censuses (Table A6). Finally, we use the difference between the incumbent’s vote share and all opposition parties’ vote share, instead of the the dependent variable (Table A7). In all specifications, the empirical results remain similar to those in Table 1 and Table 2.

5.1.1 Non-Random Cash Transfer and Challenges in Estimation

It is worth discussing the potential non-randomness in cash transfers in the 1970s and how it affects our estimation. First, we investigate whether the government favored the villages that had supported the incumbent party strongly in the previous election held in 1973 in distributing cash beginning from 1974. In Table A8, the results show the townships where the incumbent party got more votes received more generous cash subsidies in the following years.²³ This non-random pattern of subsidy distribution suggests that the “change” in vote share between 1973 and 1978, rather than the “level” of support in 1978 is more appropriate as a dependent variable. The pattern also implies that it might be difficult to capture any additional positive effect of cash transfers on electoral support for the ruling party in 1978 because those townships with large subsidies had already likely been strong supporters of ruling party in 1973.

A greater potential challenge to our specification is the possibility of prominent prior trend in electoral supports before the rural development program under the same authoritarian regime (Xu 2017). In that case, the positive difference we find for the incumbent party between 1973 and 1978 elections might be a mere extension of the prior trend and thus we cannot claim it is caused by the cash transfers. We directly test this possibility by regressing the pre-transfer voting trend between the 1967 and 1971 elections to the cash transfers in 1973-1978. As Table A9 shows, there is no evidence that these townships were increasingly more supportive of the ruling party prior to the cash transfer.

²³Model (5) rejects the hypothesis of U-shaped relationship between electoral support and redistribution (Horiuchi and Lee 2008).

5.2 The long-term effects on democratic elections

To estimate the long-term effect of the NVM’s legacy, we employ the share of votes for Park Geun-hye in the 2012 presidential election. If the rural development program contributed to a lasting, positive image of the authoritarian ruler who initiated the program and distributed subsidies to improve village environment and infrastructure, such legacy effects would lead the benefited village voters to support the dictator’s daughter as the next president.

To differentiate the legacy effect of the NVM from the political support for conservatism and other authoritarian legacies inherited through the party, we control for the vote share in the 2007 presidential election, where the same conservative party’s candidate, Lee Myung-bak won.²⁴ If the voters of a township support the conservative party for ideological or political reasons, they are likely to have supported the conservative candidate in 2007 as well. The results in Table 3 demonstrate consistently positive effects across different specifications.

Table 3: Cash Transfer and Democratic Election

Dependent variable: Park’s vote share in 2012 (mean 0.55, s.d. 0.28)				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter</i> (1974-1978 combined)	-0.054* (0.028)	0.020*** (0.007)	0.014* (0.008)	0.015* (0.008)
Control 1	N	N	Y	Y
Control 2	N	N	Y	Y
Lee’s vote share	N	N	N	Y
County FE	N	Y	Y	Y
No. of counties	131	131	131	131
Adjusted R^2	0.002	0.967	0.967	0.971
Observations	1,302	1,302	1,302	1,300

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A10 in online appendix presents full results.

The overall positive findings of the NVM’s long-term effects is noticeable in many aspects. First, primarily due to rapid industrialization and urbanization since the 1970s, many formerly rural townships became urban districts, which also were the destination of the large-scale domestic migration. In particular, many districts in greater Seoul area have urbanized and become dense in population with migrants seeking economic opportunities around the capital. Secondly, due to political regionalism, particularly after the Gwangju

²⁴We include the other conservative candidate Lee Hoi-chang’s votes in control and confirm that the results remain qualitatively the same.

Massacre in 1980 under the Chun Doo-hwan regime, Honam region (two Southwestern provinces) became a strong base of the opposition party, where candidates from the former authoritarian party routinely receive a small share of votes. For instance, Lee received 9 percent of the vote in 2007, and Park obtained 10.3 percent in 2012 in the region. In contrast, in Youngnam region (two Southeastern provinces), which includes the birth province of former authoritarian leaders, a strong support base for the conservative party has emerged. Given these structural features of democratic elections in South Korea, the overall positive and statistically significant results in Table 3 reflect a legacy of the rural development program at the grassroots level across country.²⁵ The size of the effect is also significant: a 1 percent increase in cash transfer amounts per voter during the 1974-1978 period leads to a 1.5 to 2 percentage-point increase in the vote share of Park in 2012. The race between Park Geun-hye and Moon Jae-in was fairly tight, where the difference in vote share was merely 3.6 percent (51.6 percent for Park and 48 percent for Moon).

We conduct several robustness checks by employing alternative measures of the NVM-related benefits confirm the results in Table 3. When the NVM benefits are measured either by the number of beneficiary villages among townships (Table A12) or the amount of cash transfer per population (Table A13), results remain qualitatively the same as those in Table 3. When using the difference between Park’s vote share and all other candidates’ vote shares, the results also remain consistent with the main ones in Table 3 (Table A14).

As our final robustness check, we adopt an instrumental variable approach. A concern one may raise is that omitted variables that affects the villagers’ performance in the NVM program may also affect the political ideologies of the villagers and their voting choices. For instance, Yang (2019) finds that the clan structure of a village affect the collective performance of the village in the NVM program. The clan structure may also affect the villagers’ voting behaviors. To address the potential omitted variable bias, we employ exogenous geographic terrain of township as an instrument for the NVM subsidies. Specifically, we use the terrain ruggedness and slope of township to instrument the NVM transfers.²⁶ The logic behind this choice is that an unfavorable terrain might give a village an advantageous

²⁵Motivated by the discussion above regarding the structural feature’s of South Korean democracy, in the subsequent Table A11, we present more nuanced subsample analysis results across different regions. Overall, we find a positive effect of the NVM subsidies in the 1970s across regions, although not all stand above the bar of traditional statistical significance. Indeed, the strongest effect came from Youngnam where a large share of districts remain as rural districts and the legacy of Park remains strongly even after the democratization. However, note that our results are not solely driven by Youngnam as they are drawn from the within-county variations.

²⁶The terrain ruggedness index and slop data is from Nunn and Puga (2012).

benchmark in generating a notable improvement compared to its own status in the past. As discussed before, the NVM mobilized and provided resources for the rural villagers to collectively produce public goods for themselves and check the annual progress compared to the prior years. Naturally, when the initial level of public good provision is low, the inferior condition ironically provides a relatively advantageous start point to generate a visible progress within a short period to the local government office. The IV analysis in Table 4 support this logic. As we predicted, the first stage results suggest that those villages with poorer geographic condition for agriculture tend to benefit more from the NVM program. Furthermore, the government transfers under the NVM program instrumented by unfavorable terrain conditions increases the township’s vote share for Park Guen-hye in the 2012 presidential election.²⁷

Table 4: Instrumental Variable Analysis

Dependent variable: Park’s vote share in 2012		
	(1)	(2)
<i>log(transfer +1) per voter</i> (1974-1978 combined)	0.070** (0.03)	0.073** (0.03)
<i>First stage</i>		
Terrain slope	0.027*** (0.004)	
Terrain ruggedness		0.077*** (0.012)
Controls 1	Y	Y
Controls 2	Y	Y
County FE	Y	Y
No. of counties	131	131
R ²	0.973	0.973
<i>F</i> (8, 1161)	33.00	35.00
Observations	1,300	1,300

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A15 in online appendix presents full results.

²⁷F-statistics of our IV are 33 and 35, which is well above 10, the rule of thumb in the discipline. To our best knowledge, there is no theory or empirical evidence directly linking geographic conditions to voting behavior. We also have little concern about other channels through which the terrain of a township (compared to other townships within a county) indirectly affect the political decisions of villagers.

5.3 Mechanism Analyses

How did a rural development program at the village level in the 1970s affect the electoral results in the 2010s in a country that transformed from a low-income state to an advanced economy during the same period? Here, we present a series of analyses to elucidate the mechanism of the long-term effect found in the previous section. In the theory section, we claim that the NVM helped Park Geun-hye through the political legacy of her father, not because the long-term improvement of economic conditions in the benefited townships. We reason the claim from the structural transformation of national economy where the agricultural sector, the beneficiary sector of the NVM program, became inevitably marginalized with the rapid industrialization at the national level.

A major empirical challenge we face in mechanism test is that the political legacy effect among voters is unable to identify directly, as it represents a psychological reaction to historical memories or political campaigning based on the achievement in the past. Anecdotal evidence well describes how Park Geun-hye recalled the NVM experiences and her father's legacy to appeal to voters. Throughout her political career, Park Geun-hye repeatedly reminded the public of the NVM's successful influence on rural economic development and emphasized that she would follow the same model for another success. For example, when she began the political career by running in the legislative by-election in 1998, her camp used the NVM song as the main campaign song (Sonn 2011). In 2012, on the last campaign day for the presidential election, her speech cited the famous NVM slogan, "Let's live rich" as she emphasized that her presidency would revive her father's economic success (Kim 2013).

The Korean public, especially the old generations who had experienced the Park Chung-hee era and the NVM, perceives that the NVM was monumental for rural development. In a recent polling conducted by the largest newspaper in South Korea, *Chosun Ilbo* in 2010, the NVM was chosen as the most influential policy in national development by the nationally representative respondents. Almost all respondents (95.8%) answered that the NVM contributed to the national economic development and 81.6% responded that it helped their household economically.²⁸ In the 2012 presidential campaign, Park's supporters publicly expressed that their support for Park Geun-hye was based on her family heritage. Several interviewees shown in *Miss President*, a documentary film illustrating Park's political supporters in 2012, expressed that Park Geun-hye would be the best president because she is a

²⁸<https://bit.ly/2LhgWUs> (last access on February 3, 2021). Ironically, when the NVM was ongoing, the public's evaluation about the movement not as enthusiastic. For example, in a public survey conducted in 1980, only 6.8% of urban residents answered that the NVM helped their livelihood, while about a half (51.5%) of rural residents answered that it did (Kim 2013).

daughter of Park Chung-hee.

At the same time, there may be potential alternative channels, instead of the psychological political legacy effect as we argue. We first focus on testing the prime alternative channel explaining the long-term effects, namely the economic channel. We implement multiple tests to see whether the benefited villagers reward Park Geun-hye because their village has been economically better off due to the NVM program.

In the 1970s, villages that received larger NVM transfers could successfully improve their economic conditions by expanding public goods such as infrastructure, advancing agricultural technologies, and enhancing rural household income (Hwang 2006). If the economic advancement induced by the NVM program has persisted until 2012, at least compared to other rural areas, the voters in these villages may rationally vote for his daughter Park Geun-hye as a reward for the economic gains they directly experienced from Park Chung-hee's policy. To examine whether this hypothesis is empirically supported, we analyze whether the townships that received larger NVM subsidies showed better economic conditions compared to other rural areas in the long run. By comparing among rural districts, we are ruling out any confounding effects from other development policy that have industrialized or urbanized an area.

Since no local GDP data is available at the township level, we utilize other measures as a proxy for township-level economic development. First, we employ the nighttime lights data drawn from satellite images observed by the NOAA. Nighttime luminosity data are considered a reasonable proxy for economic activities and development (Henderson, Storeygard and Weil 2012).²⁹ We construct the night-time luminosity data for multiple years within the data availability – 1992, 1996, 2002, 2006, and 2011 – to trace the levels of local economic activity over a substantial period. Table 5 displays the results from regression analyses, in which we find the accumulated NVM transfers from 1974 to 1978 per voter (log) is negatively associated with the average intensity of night-time luminosity. As shown in all models of Table 5, villages that received larger NVM-related cash transfers in the 1970s consistently show lower levels of economic activity from 1992 to 2011. These findings strongly support our theoretical argument. Although the beneficiary villages could construct and share more public goods and advance the production mode of their primary industry, the performance

²⁹Henderson, Storeygard and Weil (2012) demonstrates that night-time luminosity has a strong linear correlation with GDP. The NOAA's night-time image data are publicly available from 1992 to 2013 at <http://ngdc.noaa.gov/eog/dmsp.html>. The data consists of geocoded 1-square-kilometer pixels. Each pixel contains light intensity integer values ranging from 0 to 63. We use the 1970 administrative boundary GIS data and the “zonal statistics” command in QGIS 3.10 to average the night-time light intensity values for each township.

did not lead to a large enough economic production compared to other rural areas as early as the early 1990s, by which time the country had largely transformed into an industrialized economy. Hence, voters in beneficiary villages supported Park Geun-Hye not because the program made the benefited village significantly richer than other rural districts in 2012.

Table 5: Cash Transfer and Development (Night-time Luminosity, 1992-2011)

Dependent variable: $\log(\text{night_light} + 1)$					
	(1)	(2)	(3)	(4)	(5)
	1992	1996	2001	2006	2011
$\log(\text{transfer}+1)$ per voter (1974-1978 combined)	-0.433*** (0.060)	-0.439*** (0.057)	-0.401*** (0.051)	-0.429*** (0.060)	-0.415*** (0.059)
Controls 1	Y	Y	Y	Y	Y
Controls 2	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y
No. of counties	131	131	131	131	131
Adjusted R^2	0.763	0.760	0.771	0.740	0.751
Observations	1,368	1,368	1,368	1,368	1,368

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A16 in online appendix presents full results.

To further support the claim, we collect agricultural and demographic data to investigate the structural evolution of the beneficiary villages. First, we evaluate the direct effect of the NVM subsidies on technological advancement in the short- and long-term using the share of households owning a mechanical cultivator. Mechanical cultivators were considered as a critical technological breakthrough in enhancing agricultural productivity in the 1970s and have remained as the main agricultural machine in the agricultural sector today. Naturally, the adoption of mechanical cultivators was one of the main objectives of farmers participated in the NVM projects (Yang 2019). According to agricultural census, the share of households owning a mechanical cultivator increased drastically through the NVM period from 0.3% in 1970 to 10.5% in 1980. Model (1) in Table 6 indeed shows that the townships with larger NVM transfers show a larger increase in households possessing the mechanical cultivator. The trend has sustained until today. As Model (2) shows, townships with larger NVM transfers in the 1970s have more households owning a mechanical cultivator in 2010.

Second, using the proportion of the households engaging in agriculture full time, we estimate the degree of agricultural concentration in economic activities within a township. Full-time farming households refer to households engaging in agricultural cultivation or farming with no member engaging in non-agricultural activities for more than 30 days a year for

economic purposes. As shown in Model (3), townships with larger cash transfers in the 1970s tend to devote more to agricultural production today. Combining these results, they support that the NVM benefits encouraged the villagers to specialize and concentrate on agricultural production, which in the long run did not promote their economic advancement.

Table 6: Cash Transfer and Agricultural and Demographic Changes

Dependent variable	(1) Households w/ Mechanical cultivator ($\Delta\%$, 1970-80)	(2) Households w/ Mechanical cultivator (%, 2010)	(3) Full-time farming households (%, 2010)	(4) Agricultural population ($\Delta\log$, 1970-80)	(5) Share of population age 55 + (%, 2010)
<i>log(transfer+1) per voter (1974-1978 combined)</i>	0.015** (0.007)	0.072*** (0.015)	0.085*** (0.016)	0.080*** (0.036)	0.115*** (0.016)
Controls 1	Y	Y	Y	Y	Y
Controls 2	Y	Y	Y	Y	Y
county FE	Y	Y	Y	Y	Y
No. of counties	131	131	131	131	131
Adjusted R^2	0.575	0.598	0.624	0.265	0.600
Observations	1360	1303	1303	1357	1305

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Table A17 in online appendix present full results.

Next, we investigate the demographic structure of township population to identify who react to political legacy. Although we cannot directly test how voters' memory from the 1970s affect their voting choice, we alternatively analyze the population structure of townships to examine whether the cohorts having directly benefited from the NVM subsidies tend to stay in the township.³⁰ While a large rural population moved to newly emerging urban or suburban districts, larger benefits through the NVM program may have dissuaded the residents of those villages, especially young residents, from moving out of the rural village and encouraged them to grasp the opportunities in home town, instead. We directly examine the changes in agricultural population between 1970 to 1980. Model (4) in Table 6 shows that the agricultural population in 1980 in comparison to 1970 is positively associated with the cash transfer amount from the government, supporting the discouraging effects of the NVM benefits. Next, to test long-term demographic mechanism, we use the population over 55 in the 2010 census as a proxy for the direct beneficiaries of the NVM program, as these cohorts were aged 15 or above in 1970.³¹ Model (5) demonstrates a strong positive association

³⁰This inference is possible because domestic migration in Korea has almost exclusively been from rural to urban districts and from the primary industries to the higher-level industries, until very recently. As a result, the share of the rural population decreased from 44.7 percent of the total population in 1970 to 28.4 percent in 1980.

³¹Fifteen is approximately the age when people at the time entered the labor market in the early 1970s given the educational attainment trend at the time (<http://kostat.go.kr/>).

between the cumulative government transfers under the NVM program and the share of the population over 55 in rural townships in 2010. Given that the migration pattern has been predominantly one-directional, from rural townships to urban districts, the positive correlation indicates a relative lack of emigration of the beneficiary cohorts from the beneficiary townships. The results consistently show that the residents of beneficiary villages from the NVM program were less motivated to move out in search of other economic opportunities. We interpret that these cohorts later support the presidential candidate who inherited the legacy of the NVM program.

6 Conclusion

Economic development represents a key mission for political leaders in developing and less-developed countries, contributing importantly to the legitimacy of their rule and often their political survival. For authoritarian leaders, whose political survival does not directly depend on public support while they hold large discretion over resource allocation, it is not straightforward to understand why and how they distribute economic resources in particular ways across the population. In this paper, we examine the short-term and long-term political and economic effects of a rural development program in South Korea, the New Village Movement, that targeted economically less privileged rural areas during the 1970s, a period of rapid industrialization and urbanization.

Relying on the NVM program in South Korea, arguably one of the most successful rural development programs worldwide, our analyses reveal several critical rationales linking the allocation of government subsidies to electoral outcomes under authoritarianism and after democratization. Rural voters appear to reward the authoritarian government and its ruling party in a nuanced way. In a critical election in 1978 for the dictator's legitimacy, rural voters showed increased support for the authoritarian ruling party only when they saw a significant increase in government transfers in the year prior to the election. In contrast to the reaction during the authoritarian period, we find a long-lasting legacy effect in a democratic election held more than thirty years later. In the presidential election in which the daughter of the dictator ran as the candidate of the conservative party that succeeded the authoritarian ruling party, the rural townships that benefited relatively more from the development program during the 1970s cast more votes for her.

In analyses of potential mechanisms, we find that this support for the dictator's daughter is not a reward for a long-term economic gains. Instead, we find that the beneficiary townships

ultimately performed relatively poorly in terms of economic production. The NVM benefits incentivized the beneficiaries to remain in rural area serving in the agricultural industry while at the national level the secondary and tertiary industries were rapidly replacing agriculture as the major contributors to the economy. We argue that strong political legacy effects from the NVM program lead the benefited rural population to vote for the Park daughter in a democratic election.

Our study is not without limits. We show that the electoral support in 2012 is not because of the long-run economic success of the beneficiary villages. While our analysis rules out the most straightforward channel, the exact channel of the legacy effect is still at large. We hypothesize the collective psychology of villagers or social network originated the NVM as a potential prominent channels, both of which require a new data collection process beyond this observational study. Hence, we leave the further mechanism investigation of the long-term authoritarian legacy to future research.

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Online Appendix

The Authoritarian Legacy of a Village Development
Program on Authoritarian and Democratic Elections

February 25, 2021

Table A1: Descriptive Statistics

Variable	Obs	Mean	S.D.	Min.	Max .
- Outcome variable					
$\Delta incum_share$	1,339	-0.042	0.205	-0.750	0.642
$\Delta incumbent - oppositions$	1,339	-.447	.371	-1.453	.695
<i>incum_share</i> in 2012 elections	1,388	0.547	0.281	0.048	0.931
<i>Park - others vote share</i> in 2012	1,388	.095	.563	-.904	.861
- Explanatory variable					
log(transfer+1) per voter in 1977	1,370	0.481	0.184	0	1.380
log(transfer+1) per population in 1977	1,370	0.276	0.118	0	0.865
Number of beneficiary villages	1,370	.0004	.0002	0	.002
log(transfer+1) per voter (1974-1978 Combined)	1,370	1.170	0.257	0.159	2.342
log(transfer+1) per population (1974-1978 Combined)	1,370	1.170	0.257	0.159	2.342
- Controls 1					
Area in 1975	1,459	.0662	.047	.007	.472
Eup dummy	1,459	0.084	0.280	0	1
- Controls 2					
Pop female share 1966	1,452	0.494	0.015	0.00	0.549
Pop age 15+ share 1966	1,452	0.547	0.021	0.489	1
Pop share illiterate 1966	1,454	0.423	0.087	0.224	1.116
Pop change 1966-1970	1,452	-0.065	0.134	-0.889	3.350
- Long-term variables					
<i>incum_share</i> at 2007 election	1,393	0.415	0.247	0.017	0.918
log(night light+1)	1,459	3.105	.635	1.172	4.159
Δ cultivators (1970-80)	1,445	.102	.065	-.014	.392
Cultivators in 2010	1,391	.212	.130	0	.528
Full-time farming in 2020	1,391	.263	.152	0	.663
Terrain slope (mean)	1,460	4.336	2.920	.01	15.568
Terrain ruggedness (mean)	1,460	1.500	.977	.01	4.995

Table A2: Cash Transfers and Voting (NVM Year: 1977)

Dependent Variable: Δ incum_share btw 1978 - 1973				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter in 1977</i>	0.081*** (0.031)	0.030** (0.015)	0.033** (0.016)	0.033** (0.017)
Area in 1975			0.114 (0.080)	0.077 (0.080)
Eup dummy			0.005 (0.008)	0.008 (0.008)
Pop female share 1966				-0.948** (0.422)
Pop age 15+ share 1966				-0.428 (0.286)
Pop share illiterate 1966				-0.010 (0.068)
Pop change 1966-1970				0.012 (0.014)
Constant	-0.081*** (0.015)	-0.056*** (0.007)	-0.066*** (0.010)	0.645** (0.261)
Observations	1339	1339	1339	1337
Adjusted R^2	0.004	0.838	0.838	0.839

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Cash Transfer and Voting by Each Year (NVM Years: 1974-1978)

Dependent Variable: Δ incum.share btw 1978 - 1973					
	(1)	(2)	(3)	(4)	(5)
	1974	1975	1976	1977	1978
<i>log(transfer+1) per voter</i>	0.017 (0.019)	-0.020 (0.022)	0.007 (0.022)	0.033** (0.017)	0.005 (0.018)
Area in 1975	0.074 (0.079)	0.060 (0.078)	0.067 (0.079)	0.077 (0.080)	0.069 (0.080)
Eup dummy	0.004 (0.008)	-0.000 (0.008)	0.002 (0.007)	0.008 (0.008)	0.002 (0.008)
Pop female share 1966	-0.930** (0.423)	-0.996** (0.418)	-0.962** (0.421)	-0.948** (0.422)	-0.961** (0.418)
Pop age 15+ share 1966	-0.444 (0.285)	-0.428 (0.290)	-0.453 (0.283)	-0.428 (0.286)	-0.451 (0.286)
Pop share illiterate 1966	-0.012 (0.068)	-0.013 (0.069)	-0.016 (0.069)	-0.010 (0.068)	-0.013 (0.068)
Pop change 1966-1970	0.006 (0.013)	-0.000 (0.013)	0.003 (0.013)	0.012 (0.014)	0.004 (0.014)
Constant	0.655** (0.262)	0.693*** (0.260)	0.683** (0.262)	0.645** (0.261)	0.679*** (0.259)
Observations	1337	1337	1337	1337	1337
Adjusted R^2	0.838	0.838	0.838	0.839	0.838

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Cash Transfers and Voting By Province

Dependent Variable: Δ incum_share btw 1978 - 1973						
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Honam	Youngnam	Chungcheong	Gyeonggi	Gangwon
<i>log(transfer+1) per voter in 1977</i>	0.033** (0.017)	0.057* (0.032)	0.025 (0.026)	0.078* (0.041)	-0.006 (0.052)	-0.021 (0.040)
Area in 1975	0.077 (0.080)	0.079 (0.260)	0.078 (0.171)	-0.154 (0.217)	0.019 (0.412)	0.084 (0.103)
Eup dummy	0.008 (0.008)	-0.004 (0.016)	0.004 (0.012)	0.033* (0.018)	0.052* (0.025)	-0.015 (0.025)
Pop female share 1966	-0.948** (0.422)	-0.475 (0.952)	-2.338*** (0.740)	0.815 (0.979)	-2.236** (1.033)	0.066 (1.176)
Pop age 15+ share 1966	-0.428 (0.286)	-0.008 (0.435)	-1.307** (0.549)	0.145 (0.827)	0.769 (0.491)	-0.357 (0.886)
Pop share illiterate 1966	-0.010 (0.068)	0.078 (0.096)	-0.068 (0.130)	-0.040 (0.177)	0.211 (0.173)	-0.355* (0.197)
Pop change 1966-1970	0.012 (0.014)	-0.102 (0.107)	-0.053 (0.071)	0.025 (0.075)	-0.009 (0.016)	0.040 (0.078)
Constant	0.645** (0.261)	0.138 (0.614)	1.820*** (0.440)	-0.461 (0.684)	0.466 (0.422)	0.261 (0.795)
Observations	1337	362	429	282	146	105
Adjusted R^2	0.839	0.871	0.847	0.805	0.744	0.611

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Number of Beneficiary Villages and Voting (NVM Year: 1977)

Dependent Variable: Δ incum_share btw 1978 - 1973				
	(1)	(2)	(3)	(4)
Number of beneficiary villages in 1977	65.814** (27.685)	23.265* (12.460)	25.451* (13.493)	24.854* (13.893)
Area in 1975			0.114 (0.080)	0.077 (0.080)
Eup dummy			0.003 (0.008)	0.006 (0.008)
Pop female share 1966				-0.952** (0.421)
Pop age 15+ share 1966				-0.428 (0.286)
Pop share illiterate 1966				-0.011 (0.068)
Pop change 1966-1970				0.010 (0.013)
Constant	-0.070*** (0.013)	-0.052*** (0.005)	-0.061*** (0.009)	0.652** (0.261)
Observations	1339	1339	1339	1337
Adjusted R^2	0.004	0.838	0.838	0.838

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Cash Transfers per Population (NVM Year: 1977)

Dependent Variable: Δ incum_share btw 1978 - 1973				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per population in 1977</i>	0.119** (0.049)	0.061*** (0.022)	0.071*** (0.025)	0.069*** (0.025)
Area in 1975			0.123 (0.080)	0.087 (0.079)
Eup dummy			0.008 (0.008)	0.011 (0.008)
Pop female share 1966				-0.924** (0.426)
Pop age 15+ share 1966				-0.425 (0.287)
Pop share illiterate 1966				-0.009 (0.068)
Pop change 1966-1970				0.011 (0.015)
Constant	-0.075*** (0.014)	-0.059*** (0.006)	-0.070*** (0.010)	0.626** (0.262)
Observations	1339	1339	1339	1337
Adjusted R^2	0.004	0.838	0.839	0.839

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Difference between Incumbent and All Oppositions Vote Share (NVM Year: 1977)

Dependent Variable: $\Delta incumbent - oppositions$				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter in 1977</i>	0.154*** (0.052)	0.135*** (0.029)	0.112*** (0.031)	0.113*** (0.033)
Area in 1975			0.445** (0.193)	0.417** (0.199)
Eup dummy			-0.041** (0.019)	-0.039** (0.019)
Pop female share 1966				-1.840* (1.004)
Pop age 15+ share 1966				0.421 (0.611)
Pop share illiterate 1966				0.302** (0.116)
Pop change 1966-1970				-0.032 (0.030)
Constant	-0.521*** (0.027)	-0.512*** (0.014)	-0.527*** (0.020)	0.023 (0.676)
Observations	1339	1339	1339	1337
Adjusted R^2	0.005	0.786	0.788	0.789

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: The Allocation of Rural Development Cash Transfers

Dependent Variable: Cash transfer per vote (1974-1978)					
	(1)	(2)	(3)	(4)	(5)
incumbent vote share in 1973	0.183*** (0.037)	0.501*** (0.113)	0.345*** (0.097)	0.321*** (0.093)	0.184 (0.284)
incumbent vote share ² in 1973					0.158 (0.312)
Area in 1975			-0.424** (0.200)	-0.572*** (0.209)	-0.569*** (0.209)
Eup dummy			-0.408*** (0.027)	-0.335*** (0.027)	-0.334*** (0.027)
Pop female share 1966				-2.842** (1.238)	-2.844** (1.245)
Pop age 15+ share 1966				0.026 (0.849)	0.029 (0.849)
Pop share illiterate 1966				-0.060 (0.133)	-0.062 (0.133)
Pop change 1966-1970				-0.507*** (0.095)	-0.507*** (0.095)
Constant	1.097*** (0.016)	0.972*** (0.045)	1.096*** (0.040)	2.495*** (0.803)	2.518*** (0.807)
No. of counties	131	131	131	131	131
Observations	1370	1370	1370	1368	1368
Adjusted R^2	0.017	0.118	0.315	0.367	0.367

Robust standard errors in parenthesis.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Cash Transfer and Pre-treatment Voting (NVM Year: 1974-1978, Election Year: 1971-1967)

Dependent variable: Δ <i>incum_share</i> btw 1971 - 1967 (mean -0.04, s.d. 0.21)				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter</i>	0.399 (0.341)	0.357 (0.339)	0.389 (0.367)	0.407 (0.389)
area_1975			-1.237 (1.232)	-1.406 (1.405)
Emp dummy			0.071 (0.065)	0.077 (0.068)
Pop female share 1966				-6.347 (6.472)
Pop age 15+ share 1966				-3.267 (3.079)
Pop share illiterate 1966				1.669 (1.760)
Pop change 1966-1970				0.185 (0.201)
Constant	-0.428 (0.332)	-0.378 (0.397)	-0.340 (0.355)	3.884 (3.786)
controls 1	N	N	Y	Y
controls 2	N	N	N	Y
county FE	N	Y	Y	Y
No. of counties	131	131	131	131
Adjusted R^2	0.001	-0.002	-0.003	-0.005
Observations	1366	1366	1366	1364

Notes. Robust standard errors in parenthesis. Standard errors clustered at county level when county fixed effects are used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A10: Cash Transfers and Democratic Election

Dependent Variable: Park's vote share in 2012				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per voter</i> (1974-1978 combined)	-0.054*	0.020***	0.014*	0.015*
Area in 1975			0.013 (0.054)	0.045 (0.052)
Eup dummy			-0.015* (0.008)	-0.018** (0.007)
Pop female share 1966			0.138 (0.424)	0.172 (0.398)
Pop age 15+ share 1966			-0.231 (0.192)	-0.313* (0.172)
Pop share illiterate 1966			0.049 (0.031)	0.040 (0.031)
Pop change 1966-1970			0.011 (0.019)	0.024 (0.015)
Lee's vote share				0.403*** (0.060)
Constant	0.601*** (0.033)	0.513*** (0.009)	0.558** (0.246)	0.424* (0.235)
Observations	1302	1302	1300	1300
Adjusted R^2	0.002	0.967	0.967	0.971

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Cash Transfers and Democratic Election By Region (NVM Year: 1974-1978)

	Dependent Variable: Park's vote share in 2012					
	(1) All	(2) Honam	(3) Youngnam	(4) Chungcheong	(5) Gyeonggi	(6) Gangwon
<i>log(transfer +1) per voter</i> <i>(1974-1978 combined)</i>	0.015* (0.008)	0.013 (0.010)	0.027** (0.012)	-0.020 (0.014)	0.049 (0.032)	-0.007 (0.027)
Area in 1975	0.045 (0.052)	0.054 (0.096)	0.042 (0.084)	0.014 (0.159)	-0.255 (0.311)	-0.057 (0.086)
Eup dummy	-0.018** (0.007)	0.007 (0.005)	-0.012 (0.012)	-0.039** (0.017)	-0.041 (0.031)	0.018 (0.026)
Pop female share 1966	0.172 (0.398)	-0.100 (0.348)	0.272 (0.661)	-0.443 (1.008)	2.617** (0.999)	-1.434* (0.744)
Pop age 15+ share 1966	-0.313* (0.172)	-0.118 (0.238)	-0.436 (0.353)	1.025** (0.452)	-0.858 (0.550)	-0.773** (0.310)
Pop share illiterate 1966	0.040 (0.031)	0.027 (0.037)	0.084* (0.043)	-0.131* (0.068)	0.288* (0.139)	-0.265** (0.113)
Pop change 1966-1970	0.024 (0.015)	0.034 (0.041)	-0.020 (0.039)	-0.161* (0.084)	0.063*** (0.020)	-0.090 (0.109)
Lee's vote share	0.403*** (0.060)	0.284* (0.150)	0.415*** (0.067)	0.303*** (0.101)	0.655*** (0.205)	0.257* (0.137)
Constant	0.424* (0.235)	0.178 (0.186)	0.551 (0.454)	0.252 (0.518)	-0.720 (0.631)	1.758*** (0.396)
Observations	1300	373	419	262	134	99
Adjusted R^2	0.971	0.530	0.769	0.368	0.467	0.209

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Number of Beneficiary Villages and Democratic Election

Dependent Variable: Park's vote share in 2012				
	(1)	(2)	(3)	(4)
<i>Number of Beneficiary Villages</i> <i>(1974-1978 combined)</i>	-32.537*** (9.065)	6.270*** (2.375)	4.552* (2.499)	4.654** (2.319)
Area in 1975			0.010 (0.054)	0.041 (0.053)
Eup dummy			-0.017** (0.008)	-0.020*** (0.007)
Pop female share 1966			0.185 (0.429)	0.205 (0.403)
Pop age 15+ share 1966			-0.226 (0.198)	-0.312* (0.178)
Pop share illiterate 1966			0.046 (0.031)	0.035 (0.031)
Pop change 1966-1970			0.008 (0.018)	0.021 (0.014)
E17ConsSh				0.399*** (0.062)
Constant	0.615*** (0.020)	0.532*** (0.005)	0.549** (0.253)	0.426* (0.243)
Observations	1271	1271	1269	1269
Adjusted R^2	0.010	0.966	0.966	0.970

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Cash Transfers per Population

Dependent Variable: Park's vote share in 2012				
	(1)	(2)	(3)	(4)
<i>log(transfer+1) per population</i> <i>(1974-1978 combined)</i>	-0.033 (0.033)	0.031*** (0.009)	0.023** (0.010)	0.018* (0.010)
Area in 1975			0.015 (0.050)	0.046 (0.049)
Eup dummy			-0.013 (0.008)	-0.018** (0.007)
Pop female share 1966			-0.013 (0.203)	-0.148 (0.181)
Pop age 15+ share 1966			-0.194 (0.173)	-0.234 (0.154)
Pop share illiterate 1966			0.051* (0.030)	0.043 (0.030)
Pop change 1966-1970			0.006 (0.018)	0.016 (0.015)
E17ConsSh				0.394*** (0.058)
Constant	0.572*** (0.026)	0.523*** (0.007)	0.621*** (0.193)	0.552*** (0.180)
Observations	1385	1385	1383	1383
Adjusted R^2	-0.000	0.967	0.967	0.971

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A14: Difference between Incumbent and All Oppositions Vote Share

Dependent Variable: <i>Park – others vote share</i> in 2012				
	(1)	(2)	(3)	(4)
<i>log(transfer +1) per voter</i>	-0.108*	0.041***	0.028*	0.030*
<i>(1974-1978 combined)</i>	(0.056)	(0.015)	(0.017)	(0.016)
area in 1975			0.027	0.090
			(0.108)	(0.104)
Eup dummy			-0.030*	-0.036**
			(0.016)	(0.014)
Pop female share 1966			0.275	0.345
			(0.849)	(0.797)
Pop age 15+ share 1966			-0.461	-0.626*
			(0.384)	(0.343)
Pop share illiterate 1966			0.099	0.081
			(0.062)	(0.061)
Pop change 1966-1970			0.021	0.047
			(0.038)	(0.030)
E17ConsSh				0.807***
				(0.121)
Constant	0.201***	0.026	0.117	-0.151
	(0.066)	(0.017)	(0.492)	(0.470)
Observations	1302	1302	1300	1300
Adjusted R^2	0.002	0.967	0.967	0.971

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A15: Instrumental Variable Analysis

	(1)	(2)
<i>2nd Stage</i>		
log(transfer+1) per voter	0.070** (0.029)	0.073** (0.031)
Area in 1975	0.075 (0.055)	0.078 (0.056)
Eup dummy	-0.000 (0.011)	0.001 (0.011)
Pop female share 1966	0.334 (0.412)	0.341 (0.412)
Pop age 15+ share 1966	-0.312** (0.157)	-0.312** (0.157)
Pop share illiterate 1966	0.043 (0.030)	0.043 (0.030)
Pop change 1966-1970	0.051*** (0.019)	0.052*** (0.019)
Lee's vote share	0.406*** (0.057)	0.406*** (0.057)
Constant	0.264 (0.262)	0.257 (0.262)
Observations	1300	1300
Adjusted R^2	0.973	0.970
<i>1st Stage</i>		
<i>Terrain slope</i>	0.027*** (0.004)	
<i>Terrain ruggedness</i>		0.077*** (0.012)
Area in 1975	-1.300*** (0.278)	-1.264*** (0.273)
Eup dummy	-0.304*** (0.027)	-0.305*** (0.027)
Pop female share 1966	-2.424* (1.332)	-2.489* (1.330)
Pop age 15+ share 1966	-0.056 (0.891)	-0.088 (0.893)
Pop share illiterate 1966	-0.014 (0.141)	-0.010 (0.140)
Pop change 1966-1970	-0.503*** (0.086)	-0.502*** (0.086)
Lee's vote share	-.057 (0.138)	-0.058 (0.138)
Constant	2.425*** (0.849)	2.471*** (0.848)
Observations	1300	1300
Adjusted R^2	0.378	0.376
$F(8, 1161)$	33.00	35.00

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A16: The Effect of Rural Development Cash Transfers on the Nighttime Luominacy

Dependent Variable: $\log(\text{nightlight} + 1)$					
	(1)	(2)	(3)	(4)	(5)
	1992	1996	2001	2006	2011
<i>log(transfer+1) per voter</i> (1974-1978 combined)	-0.433*** (0.060)	-0.439*** (0.057)	-0.401*** (0.051)	-0.429*** (0.060)	-0.415*** (0.059)
Area in 1975	-4.800*** (0.539)	-4.920*** (0.574)	-4.430*** (0.549)	-4.965*** (0.596)	-5.096*** (0.638)
Eup dummy	0.277*** (0.040)	0.336*** (0.042)	0.327*** (0.040)	0.374*** (0.045)	0.346*** (0.045)
Pop female share 1966	0.020 (2.554)	-0.251 (2.284)	-0.793 (1.989)	-1.177 (2.337)	-1.531 (2.377)
Pop age 15+ share 1966	5.611*** (1.651)	4.699*** (1.457)	5.270*** (1.396)	6.317*** (1.608)	5.609*** (1.559)
Pop share illiterate 1966	-0.622* (0.327)	-0.351 (0.273)	-0.360 (0.272)	-0.438 (0.297)	-0.346 (0.297)
Pop change 1966-1970	0.169 (0.191)	0.059 (0.156)	0.063 (0.147)	0.061 (0.158)	0.015 (0.140)
Constant	0.286 (1.646)	1.295 (1.307)	1.225 (1.168)	0.829 (1.331)	1.577 (1.319)
Observations	1368	1368	1368	1368	1368
Adjusted R^2	0.763	0.760	0.771	0.740	0.751

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A17: Mechanism of the Long-term Effect of Cash Transfers

Dependent variable	(1) Households w/ Mechanical cultivator ($\Delta\%$, 1970-80)	(2) Households w/ Mechanical cultivator (%, 2010)	(3) Full-time farming households (%, 2010)	(4) Agricultural population ($\Delta\log$, 1970-80)	(5) Total population (log, 2010)	(6) Share of population age 55 + (%, 2010)
<i>log(transfer+1) per voter</i> (1974-1978 combined)	0.015** (0.007)	0.072*** (0.015)	0.085*** (0.016)	0.080** (0.036)	-1.298*** (0.121)	0.115*** (0.016)
Area.1975	-0.146*** (0.046)	-0.165 (0.103)	0.117 (0.121)	0.000 (0.000)	0.251 (0.712)	0.294** (0.122)
Eup dummy	-0.047*** (0.005)	-0.120*** (0.012)	-0.141*** (0.013)	0.073*** (0.026)	1.143*** (0.114)	-0.138*** (0.014)
Pop female share 1966	-0.207 (0.376)	1.650*** (0.461)	1.408*** (0.535)	1.836** (0.784)	-2.043 (4.530)	1.880*** (0.586)
Pop age 15+ share 1966	-0.524** (0.205)	-1.757*** (0.308)	-2.146*** (0.329)	1.322*** (0.500)	13.065*** (2.864)	-1.654*** (0.365)
Pop share illiterate 1966	-0.060* (0.031)	-0.111* (0.066)	-0.237*** (0.068)	0.091 (0.070)	-0.148 (0.435)	-0.016 (0.062)
Pop change 1966-1970	-0.043 (0.028)	-0.014 (0.037)	-0.012 (0.049)	-0.056 (0.046)	-0.133 (0.660)	0.008 (0.051)
Constant	0.510** (0.203)	0.338 (0.264)	0.745** (0.310)	-2.074*** (0.467)	3.741 (2.549)	0.309 (0.332)
Observations	1360	1303	1303	1357	1305	1305
Adjusted R^2	0.575	0.598	0.624	0.265	0.636	0.600

Standard errors in parentheses.

Standard errors clustered at county level when county fixed effects are used.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(自助마을) 昌寧郡

村落位置		指導者	年令	性別	部族	職業	職業	村落統計		區長		郡長	
Code No	邑里洞	姓名	(生年月日)	性別	部族	職業	職業	戶數	人口	洋灰	鉄筋	姓名	姓名
153	昌寧 本岾 本岾	河仁德	51 21.12.23	男	국졸	지도자	농업	260	1852	300	0.5	정영금	김방형
		金楊球	41 31.12.26	女								具道春	재무과
164	道岾 道岾	曹周安	50 22.6.30	男				117	681	300	0.5	주사보	金判石
		蔡永道	46 26.11.19	女								보건소	김영삼
774	余草 余草	姜燦基	43 27.6.20	男				115	661	300	0.5	서기보	姜鎭大
		宋達望	51 21.5.8	女								진선과	농지과
772	南田 新田 新田	黃德淳	47 25.6.2	男		개발위원		104	625	300		남지음	기환부
		朴乙連	44 28.9.18	女								黃景淳	식산과
776	成七 船羽	趙鑄受	42 24.4.3	男				63	327	300		김방형	金七 凡
		鄭今順	40 32.9.17	女								진선과	보조원
802	辰谷 辰谷	河正吉	51 41.12.28	男	교졸			65	443	300	0.57	지방도무	河正 龍
		金泰任	44 28.9.4	女	국졸							기도소	金鍾相
823	南岩 牛川 牛川	盧相虎	56 16.3.3	男				56	319	300	0.5	지방농림	李碩 熙
		盧玉達	41 31.11.13	女								고압면	내무과
829	甘里 南枝	金恩慶	49 25.12.11	男				87	482	300	0.5	부면장	河鎭 均
		崔羅陽	46 24.5.21	女		부녀회장						농림과	행정상
832	城山 冷泉 石亭	成錫仁	46 24.5.24	男		개발위원		35	189	300	0.5	성산면	김방형
		李伊先	46 26.11.29	女								주사보	河在 烈
836	大見 大見	金燭植	40 32.2.11	男				122	703	300		서기	鄭奭 岩
		韓且達	41 31.3.10	女		부녀회장						보건소	車蘇 龍

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Figure 1: The NVM leaders and assigned local officials