NBER WORKING PAPER SERIES

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Working Paper 28370
http://www.nber.org/papers/w28370

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
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January 2021

For comments on an earlier draft the author thanks Francois Bourguignon, Denis Cogneau, Michael Lokshin, Kristen Looney, Will Martin, Berk Ozler, Dominique van de Walle and Nicolas van de Walle. The views expressed herein are those of the author and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 28370
January 2021
JEL No. I32,N35,O53

ABSTRACT

The other side of the coin to post-reform success is often pre-reform failure, and the policy lessons are found on both sides. The paper estimates how much of China's poverty rate around 1980—near the outset of Deng Xiaoping's pro-market reforms—is attributable to the prior Maoist regime. Based on the history, it is argued that South Korea and Taiwan provide a relevant counterfactual. Then a difference-in-difference estimate using historical data indicates that about two thirds of China's poverty in 1980 is attributed to the impact of the Maoist path since 1950. Further checks and tests suggest that (if anything) this is likely to be an underestimate. It took 10-20 years for China's post-reform economy to make up the lost ground. The impact of the Maoist path had begun to fade in the 1970s, and half or more of the catch-up was in period up to 1990, under Deng's rule.

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1. Introduction

There is no doubt that China has seen a large reduction in poverty since 1980. Judged by the World Bank's $1.90 a day poverty line (in 2011 prices at purchasing power parity), the national poverty rate fell from almost 90% in 1981 to under 4% in 2016—implying 800 million fewer people living in poverty.[2] This impressive record has been widely attributed to the pro-market reforms initiated in 1978 by Deng Xiaoping, who ruled China from then until 1990.

China's progress against poverty has been much applauded. For example, on Christmas day, 2020, China Xinhua News (the official news agency) released a video claiming that China's progress against poverty was "the greatest achievement in world history." One need not go quite that far to agree that it is a huge accomplishment.

Many explanations have been offered for that accomplishment.[3] However, any evaluative interpretation of a measure of social or economic outcomes over time requires consideration of a relevant counterfactual trajectory. That is especially important when drawing lessons for policy. If prior policy mistakes left a high initial level of poverty at the outset of a reform period then we would naturally evaluate the overall performance less favorably, even while giving credit for the subsequent correction to those mistakes. When we applaud post-reform success, we cannot ignore pre-reform failure. Then there may not be much left to explain.

In the present context, the fact that Deng's policies are universally seen as "reforms" begs the question of whether their success was simply the undoing of the prior mistakes that called for those reforms. For almost 30 years, the pre-reform policy regime in mainland China followed a path laid out by Mao Zedong from the early 1950s. It must be the case, to some extent, that Deng's reforms corrected Mao's failures, for otherwise why were the reforms necessary? However, the quantification is crucial to the evaluation. Just how much of the subsequent decline in poverty in China can we attribute to undoing the past mistakes, versus creating a new trajectory of progress? The literature has been silent on that question.

This paper adopts an explicit counterfactual perspective on China's progress against poverty since 1950. That requires a defensible counterfactual, in the sense that it can be argued that something close to it was an option. The paper argues that the historical record suggests that

[2] These calculations are from the World Bank's *PovcalNet* interactive data site. For further discussion of the methods see Chen and Ravallion (2010).
[3] See, for example, Ang's (2016, Introduction) review of past explanations; Ang goes on to offer her own.

two relevant counterfactuals for China in the Maoist period were geographically and culturally close at hand, namely South Korea and Taiwan (SKT).[4] Using aggregate SKT as the counterfactual, it will be argued here that the bulk of China's progress against poverty since the reforms began was indeed making up for the country's lack of progress against poverty over the prior 30 years. By interpretation, a large share of China's success following Deng's reforms reflected the prior failure of the Maoist economic-policy model in delivering less poverty when compared to the policy path taken by South Korea and Taiwan over 1950-80.

After reviewing the relevant lessons from history, the paper's data and methods are described, leading to the estimate of the counterfactual for China's trajectory for 1950-80, and implications for an evaluative assessment of China's progress since then. Before concluding, the paper probes the robustness of its main empirical findings, and discusses some implications.

2. Initial conditions and policy paths

The peoples of China, Taiwan and South Korea share many common cultural features, with Confucian philosophical roots. Notable similarities include their work ethic, their respect for harmonious integration in society (rather than individual gratification), the reverence attached to learning, and the importance attached to the family, including in production, especially in peasant farming. These were all strong historical ties, going back to ancient times.

The armed conflicts, political realignments and economic setbacks within North East Asia during the first half of the C20th left China, Taiwan and South Korea very poor by 1950, though China was clearly poorer. A number of observers described the extreme poverty of rural China in the decades prior to WW2.[5] Virtually all China's rural peasantry faced regular hunger in what Mallory (1926) dubbed the "land of famine."[6] Maddison's (1995) estimate of GDP per capita is lower for China than SKT in 1950, although longer-term growth rates had been similar; a marked divergence only emerged after 1950 (Figure 1).[7] Both China and SKT had relatively low inequality of incomes, though inequality was lower in China; Figure 2 gives the Lorenz

[4] Hong Kong and Singapore are not considered relevant counterfactuals in this context given that they lacked the rural sectors that were so important to the development paths of Korea, Taiwan and China.
[5] Descriptions can be found in Mallory (1926) and Tawney (1932); also see Schak (2009).
[6] This was clearly a causative factor in the political success of Mao's revolution, as argued by Solomon (1971).
[7] Figure 1 uses the GDP per capita estimates in 1985 prices from Maddison (1995). I have stayed with 1985 prices to be consistent with Bourguignon and Morrisson (2002), but some differences with estimates using 2011 as the base will be noted along the way.

curves for 1950.[8] By 1950, SKT (though very poor) was less poor than China, stemming from advantages that some of the literature has ascribed to prior Japanese Colonial rule.[9] A notable difference in this context is that mainland China lagged in human development relative to SKT; for example, the Barro-Lee data for 1950 indicate that 55% of those aged 15-64 had completed primary school in South Korea, as compared to 29% in Taiwan and only 7% in mainland China.[10]

In the 10 years after the end of WW2, two relatively new but very different economic models emerged out of the poverty of North East Asia. Like mainland China, both South Korea and Taiwan had historically been supportive of governmental intervention in production, and this did not change after 1950 (Kuznets 1988). The point of departure was in whether the state should actually own the means of production. The difference was not just between "communism" and "capitalism" but between the Maoist version of communism and a type of capitalism that emerged in SKT, and in post-Mao China—what Milanovic (2019) dubs "political capitalism" (borrowing the term from Weber 1930).[11] The following discussion describes the different paths taken.

The Maoist path: After a long period of civil war, the Communist Revolutionary Army, led by Mao Zedong, defeated the ruling Chinese Nationalists (Kuomintang) in late 1949, after which the Chinese Communist Party (CCP) declared the creation of a one-party state, the People's Republic of China. With the CCP's victory in 1949, the Kuomintang moved their base to Taiwan, which they ruled for many years (with democratic reforms to assure broader representation only coming in the late 1980s).

From early on, many CCP leaders, including Deng Xiaoping, were clearly not uncompromising ideologues committed to a strictly communist economic model, but rather committed Chinese nationalists, keen to help the country succeed (Gao 2008, Chapter 2). The Maoist path did not emerge immediately after 1949. In the early 1950s, "many urban Chinese viewed the CCP leadership as needed reformers. Indeed, numerous capitalists believed them to

[8] There is Lorenz dominance so (following Atkinson 1970) the ordering in terms of inequality is robust to the choice of inequality index among indices satisfying the Pigou-Dalton transfer principle.
[9] In the context of Korea see Eckert (1991) and Kohli (1994). Note that the same historical record has also pointed to adverse effects of the forceful, even brutal, imposition of Japanese Colonial rule.
[10] This is based on the Lee-Lee segment of the Barro-Lee data set, covering longer-term educational attainments.
[11] "State capitalism" is also used for essentially the same idea. It is sometimes referred to as the "East Asian model." I prefer "political capitalism" because it puts more emphasis on the political role of capitalism in this context—in attempting to assure the productivity growth that would help maintain political control.

be good for business" (Pletcher 2011, p.303). There was a crucial period from 1949 to 1953 in which it seems that China might have taken any number of policy paths, differing in their emphasis on how much market signals should be the main driver of the development path rather than central planning. In due course, the Maoist path was taken, but the initial differences over economic policy would echo over the following decades.

The Maoist path took Soviet-style central planning to be the ideal, with its overriding emphasis on rapid, relatively capital-intensive, industrialization, supported in part by keeping food cheap in urban areas. The Soviet Union, and Joseph Stalin in particular, appears to have been influential, though that influence had faded by the late-Maoist period. This influence reflected a number of factors, including the history of prior links between Moscow and the CCP, the seeming success of the Soviet model, and the Soviet aid that flowed almost immediately after the CCP's 1949 victory.

Chairman Mao's personality and ambition clearly played an important and decisive role in the path taken. Mao appears to have felt a personal rivalry with Stalin, who adopted the role of senior partner. This is hardly surprising given Stalin's greater experience, but Stalin appears to have gone further and been deliberately disrespectful in Mao's first visit to Moscow as leader in December 1949. Mao was keen for a formal alliance. Radchenko (2013) describes the visit as follows: "After their first meeting at the Kremlin, Stalin refused to see Mao for days, leaving the Chinese chairman to vent his rage, privately, at a dacha outside Moscow. Mao had few options, but he did hint to the Soviets that if they did not want an alliance, he would look for friends elsewhere, perhaps in the West."

The alliance was agreed in due course. However, Mao seems to have taken personally the slight in how he was treated by Stalin, leading Mao to embark on a course aiming to reverse the hierarchy—to be seen as more successful than Stalin at his own game, notably in implementing socialist industrialization (Li 2006). Mao's push for rapid industrialization (echoing Stalin's plans for the Soviet economy since the 1920s) was not immediately accepted within the upper echelons of power, with critics arguing that agriculture and rural development should be the higher priority. One of Mao's protagonists in the 1953 debate was Liang Shuming who argued that the much poorer peasants should be favored over industrial workers (Li 2006, Chapter 4). Mao prevailed.

Nonetheless, Mao understood that agricultural productivity had to rise. From the mid-1950s, the Maoist policy for this purpose called for consolidating all family farms into large collectives. This was an ambitious and challenging institutional change, firmly anchored to Mao's ideological principles. This was also part of an effort to undermine the family as an institution. (For example, workers on the collectives were required to take meals together.) There were obvious concerns about incentives, given that the residual outputs were shared more-or-less equally within the collectives, after deducting the public procurement quotas, set at low prices to feed the cities cheaply. There were potential benefits too; for example, the collectives made it easier to mobilize labor for rural infrastructure projects, though with ambiguous implications for poverty, given that the labor recruited this way was typically unpaid.

Mao's frustration with the seemingly slow pace of industrialization led to the Great Leap Forward (GLF), 1958-62. This was an extreme non-market intervention to reallocate the (abundant) labor force and (limited) capital with the aim of increasing the output of industrial products.[12] The subsequent diversion from food production so reduced food supply in some parts of the country as to create one of the worst recorded famines, with some 30-40 million deaths (Ashton et al. 1984; Li and Yang 2005).[13] Not long after, the Cultural Revolution (1966-76) stemmed from Mao's efforts to resist the economic reformers in the CCP (including Deng) who had been boosted politically by the failure of the GLF.[14]

There has been much debate about the Maoist period. The rhetoric was certainly pro-poor. Some aspects of the policy regime probably helped in alleviating poverty over the 30 years following 1950, such as by attenuating income and wealth disparities and investing in basic education and health care. However, the historical record makes it hard to believe that there could have been a large reduction in rural poverty in China over 1950-80. Food availability per capita changed negligibly between the beginning and the end of the 30 years after 1949 (Roser and Ritchie 2013). The real earnings of China's farmers had also stagnated on average over this

[12] Notably steel, although pig iron was often the output of the many backyard furnaces that emerged to try to satisfy the administrative quotas, which were also applied to farmers to assure adequate food supply to the cities, but this left many farmers with too little for their own needs. The policy was premised on false reports of the success of collectivization in raising farm productivity. For further analysis of the Great Leap Forward see Li and Yang (2005).
[13] The famine was exacerbated by geographic food procurement and distribution policies (Meng et al. 2015).
[14] Historical accounts of the Cultural Revolution have been overwhelmingly negative, especially with regard to the atrocities committed by the Red Guards; see, for example, Pomfret (2006, Chapter 2). (Deng and his family were personally targeted by the Red Guards.) Gao (2008) tries to provide a more balanced account, suggesting that the Cultural Revolution might not have been quite as bad as the historical record suggests.

period (Lardy 1983). Retained grain output (output less procurement) per capita of the rural population grew at only 0.6% per annum over 1952-77 (Li and Yang 2005). Multiple indicators point to long-term economic stagnation for the rural sector (Huang et al. 2008).

Bramall (2009 Chapter 9) and others have argued that collectivized agriculture and rural non-farm development efforts did start to bring benefits to China's poor from around 1970. Food output eventually recovered after the sharp decline during the GLF (Roser and Ritchie 2013). Of course, similarly to the central argument of this paper, one cannot applaud that success without noting that it came with the prior failure of the GLF.

All this motivates the need to quantify a defensible counterfactual for the poverty impact of the Maoist path. In reflecting on a counterfactual, it would be naïve to imagine that the Euro-American model of capitalism with electoral democracy would have had appeal to those in power. Having defeated the Kuomintang in 1949, the CCP was not about to relax its political control—quite the opposite. However, some version of political capitalism appears to have been a viable option, both politically and economically. If Chairman Mao had been less confident that the Soviet economic model was right for China at the time, and less keen to outdo Stalin, or Stalin had further shunned the younger Chinese comrade, undermining their alliance, then more market-oriented options might have emerged early on, while retaining the CCP's political control.

The SKT path: Around the time Mao began leading China on his path, SKT adopted versions of political capitalism.[15] The desire to industrialize was similar, but this came with stronger support for agriculture, especially in Taiwan which had more potential for agricultural exports than South Korea. Like most developing countries, both used trade distortions to extract a surplus from agriculture, to help support industrialization, but (unlike China) this did not last long, with domestic producer prices for foodgrains roughly in line with world prices by the 1960s (Honma and Hayami 2009). Family farming remained intact, with land reforms leading to less tenancy, and with public efforts for support to farmers, often working through farmers' associations (Looney 2020).

Their governments took a strong role in managing the economy, recognizing both the benefits and the limitations of markets. The development strategy included industrial policy,

[15] Discussions of policy making in South Korea, Taiwan and elsewhere in East Asia can be found in Scitovsky (1985), Kuznets (1988), Savada and Shaw (1990), Rodrik (1995), World Bank (1993) and Booth (1999).

such as in encouraging shifts to new higher value-added sub-sectors when warranted by market signals. And it included governmental efforts at keeping inequality in check, including wealth redistributions (through limits on land rent and "land-for-the-tiller" programs) and investment in agriculture and rural development. Substantial investments in education—especially in Taiwan from the mid-1950s, but South Korea somewhat later—helped avoid rising inequality in labor earnings and assured a high return to capital in that a skilled workforce was available for the emerging labor-intensive and export-oriented manufacturing sectors. Household savings rates were also quite high, as they have been in China.

The subsequent economic success of both South Korea and Taiwan since 1950 is legendary. There were setbacks at times in both cases, and periods of political instability and conflict (not least the Korean War, 1950-53), but their combined real GDP per capita in 1980 was over five times greater than in 1950 (Figure 1).

Deng's path: Mainland China could see clearly what the policy choices of its otherwise similar near neighbors had delivered. Taiwan and Hong Kong were influential as the "offshore precursors-cum-enablers of Chinese capitalism" (Zhang and Peck 2016, p.66). As has been noted by So (2009) and others, China's post-reform policies shared many features of the political capitalism model of SKT.

Given the history, it is not surprising that Deng Xiaoping emphasized agrarian reform, to undo the damage to agricultural productivity associated with low procurement prices and collectivized farming. Over 1979-83, the emphasis shifted back sharply to private production by smallholders responding to agricultural prices (that were at least getting closer to market levels) but with supportive public intervention to raise farm productivity, including by various "modernization campaigns" (Looney, 2020).

Deng's initial policy focus in restoring peasant farming—what was termed the "household responsibility system"—meant that agricultural production decisions would become more market-oriented, with individual farm-households receiving the marginal product of their own labor, rather than sharing with others in the commune. Lin (1992) estimates that de-collectivization of farming accounted for about half of the aggregate output gains from Deng's reforms until the mid-1980s. Bringing public foodgrain procurement prices closer to market prices also helped; indeed, reducing this implicit tax on farmers was to prove to be a powerful instrument against poverty in China (Ravallion and Chen 2007).

In due course, the reforms (cautiously) spread to other sectors of the economy, with the state-owned enterprises fading in importance relative to the private-sector and private-public partnerships. However, as was the case for SKT, the political leadership remained involved in industrial policy, finance, and in efforts to redistribute the benefits of economic growth, such as through public investments in lagging poor areas.

It is hard to be confident of any assessment of what would have been a politically feasible alternative path for China 70 years ago. All that is contended here is that the historical record described above suggests that the model of political capitalism followed by SKT, and China on Deng's path, stands out as an interesting counterfactual for assessing the impact on poverty of the Maoist path. Political capitalism would not have been easy in the 1950s, but nor was the route actually taken by China. And if SKT could make it work then surely that was also true for mainland China.

3. Impact relative to the counterfactual

The World Bank's *PovcalNet* does not include surveys prior to 1980 and the Bank's *World Development Indicators* starts most of its series in 1960. In going back to 1950 (and before that) the best single source is Bourguignon and Morrisson (BM) (2002). The latter paper does not provide country-level estimates of poverty measures, but the authors kindly provided their income shares by decile (with the richest decile split into two ventiles) and GDP per capita for the 11 years spanning 1820-1992 (at irregular intervals), as used in Bourguignon and Morrisson (2002). The data include China and SKT (combined). I have used these data to estimate poverty measures over time. To estimate the measures from the grouped Lorenz shares in the BM dataset I have used parameterized Lorenz Curves, either the General Quadratic form (Villasenor and Arnold 1989) or the Beta form (Kakwani 1980) depending on fit, which was generally better for the Beta form.[16]

An important difference between the BM-based estimates and those from the World Bank is that former anchor the mean income of their distributions to GDP per capita, while the Bank uses mean consumption (or income when consumption is not available) from household surveys,

[16] Given a continuous (differentiable) Lorenz curve $L(p)$ (the share of total income held by the poorest p%) one can calculate the poverty rate using the fact that $y = L'(p)\mu$ is the quantile function (inverse of the CDF) where μ is the overall mean. Datt and Ravallion (1992) provide the formulae for the poverty measures implied by these two parametric specifications for the Lorenz curve. *PovcalNet* implements those formulae.

consistently with the distributional shares (as discussed further in Chen and Ravallion 2010). BM had no choice but to use GDP per capita. However, the increase in the availability of household surveys, notably for developing countries, creates better options for measuring poverty since the early 1980s. (The estimates for the $1.90 a day poverty rate cited at the beginning of this paper use such surveys.)

This methodological difference may not be a concern over long periods, such as going back to the early C19th as in BM (though other concerns about the quality of the available historical data remain). However, it is more worrying in the present context. GDP can grow faster than average household living standards, especially in the context of the North-East Asian economies with their high savings rates. BM recognized this and did a levels adjustment to reflect the fact that their use of GDP rather than survey means would give substantially lower poverty rates than the Bank's line when applied to household survey data for the overlapping period in the 1980s. To make their GDP-based measures line up with the Bank's measures in the overlapping period BM used a poverty line more than double the Bank's; instead of $1.00 a day in 1985 prices, BM used $2.38 a day.[17] This is only done at one base date, so the potential differences in growth rates over time remain a concern. This points to the need for caution in using the BM methods over time for the present purposes. Section 4 returns to this issue.

Table 1 (Columns 1 and 2) provides the time series of my estimates for China and SKT for all years available in the BM database. Confirming the observations from the literature review in Section 2, it is notable how little progress there was against extreme poverty in either China or SKT over the course of the first half of the C20th. I obtain a poverty rate of 87.5% for China in 1950. The corresponding poverty rate for SKT in 1950 is 73.3%—very high, but not as high as China's. This is also consistent with observations from the historical record (Section 2). For China in 1980 I find a poverty rate of 41.6%, while for SKT in 1980 it is only 0.3% (Table 1). From what we know about the economic success of both South Korea and Taiwan it is not surprising that this kind of extreme poverty was largely eliminated by the 1980. (Poverty remained of course, but judged by higher relative poverty lines, consistent with the rise in average living standards.)

[17] BM give results for two lines, "$2" and "$1" per day at 1985 prices. Here I am using their lower line which they refer to as "extreme poverty."

From the results of Table 1 (Columns 1 and 2) one can construct the difference-in-difference (DID) estimate of the impact of the Maoist path. Let $P_{i,t}$ denote the poverty rate in i = C (China), SKT at date t = 1950,1980. The counterfactual poverty rate for China in 1980 is $P^*_{C,1980} = P_{C,1950} + P_{SKT,1980} - P_{SKT,1950}$ and the impact on poverty is $P_{C,1980} - P^*_{C,1980}$. Then the counterfactual poverty rate for China in 1980 if it had followed the SKT trajectory is 14.5% (Table 1, Column 3), which is 27 percentage points lower than the "actual" value of 41.6%. In other words, about two thirds of the poverty rate at the outset of Deng's reforms is attributed to the impact of the Maoist period. (The next section will discuss possible sources of bias in the DID estimator and provide further tests.)

Given the history of the period, it is of interest to look further into the distribution of the estimated impact within 1950-80. Recall that the late-Maoist period had seen some recovery, notably in the rural sector. On repeating the above calculation for 1950-70, my counterfactual estimate for 1970 is 25.7%, as compared to the actual rate of 52.2%, implying an impact of 26.5% (Table 1). Almost all the impact is in 1950-70, and the majority was in the 1950s.

4. Robustness checks and further tests

There are five main reasons to question these calculations. First, they have been done in 1985 prices, following Maddison (1995) and Bourguignon and Morrisson (2002). Updates of GDP to 2011 prices are available from the site of the Maddison Project. Recall that (given how much the poverty rate fell in SKT over 1950-80) my estimate of the counterfactual poverty rate for China in 1980 is essentially the difference between the country's 1950 poverty rate and that for SKT. The revised estimates in 2011 prices from the Maddison Project indicate that the GDP per capita of SKT in 1950 was 40% higher than for China, as compared to the differential of 45% using 1985 as the base year for prices. This implies that the gap in poverty measures between China and SKT in 2011 prices is lower than 1985 prices, implying that the 14.5% figure is an overestimate. Thus, the switch to 2011 prices would suggest an even higher impact on poverty of the Maoist path in China.

A second source of uncertainty concerns China's poverty rate in 1950. Acknowledging the limitations of the historical data, it is worth considering if 87.5% is a plausible number based on other things we know. The fact that it exceeds the SKT figure for 1950 of 73.3% is believable (Section 2). On probing further, a relevant stylized fact about China around 1950 is the large

difference in living standards between rural and urban areas. Based on the observations from the historical record reviewed in Section 2, it would not be unreasonable to imagine that virtually all of the rural population in 1950 was poor. The cities around 1950 held only about 7% of the population (Hsu 1985), and this was where the country's elite lived (often including absentee landlords), and where the incidence of extreme poverty was probably very low. If we suppose that none of the city population was poor in 1950, but that 95% of those in rural areas and the towns were poor, that implies a poverty rate of 88% for China in 1950[18]—very close to my estimate based on the BM data.

Third, one might question the "parallel trends" assumption of the DID estimator. As we saw in Figure 1, growth rates only started to show systematic divergence after 1950. The absence of a difference in trends before 1950 offers support for the DID estimator. In terms of the levels, however, we know that mainland China as a whole was poorer than either Taiwan or South Korea around 1950. Given diminishing marginal products of capital, the lower capital stocks in China would have implied higher marginal products than in SKT, and thus even higher rates of growth. Against this, it could be argued that the lower educational attainments in China in 1950 (as noted in Section 2) would have probably lowered the marginal products of (physical) capital. On balance it is unclear what the direction of any overall bias would be. Another factor to consider is the lower inequality in China (Figure 2), which suggests that, even if the growth rates were no higher, growth in China would have been more poverty-reducing than in SKT, implying that the DID is likely to overestimate the counterfactual poverty rate for China in 1980.[19]

As a placebo test, one can repeat the calculations for the time periods prior to 1950. Recall that the CCP's victory was in 1949 after which it ruled mainland China. We cannot dismiss the possibility that Maoist policies had some influence prior to that (possibly back to the 1920s), but we would expect almost all the impact to be after the CCP took political control of mainland China. Table 1 provides a sequence of placebo tests, for all the available years pre-1950 in the BM dataset.[20] The mean impact is 1.0%, with a standard error of 2.1%.[21]

[18] Hsu (1985) gives an urban population share of 13.2% for China in 1953 and 18.4% in 1964. Extrapolating backwards to 1950 gives a share of 12%.

[19] Ravallion (1997) demonstrates that over time, countries with higher initial level of inequality tend to have a higher elasticity of absolute poverty measures with respect to economic growth.

[20] Table 1 takes the tests back as far as possible, but it should be noted that with the limited availability of historical data, BM had to assume that the Lorenz curve was the same for China and SKT up to 1910. So, there is not much more information in the historical poverty rates for the C19th and early C20th than in the GDP numbers in Figure 1.

[21] Note that this standard error only reflects the inter-temporal variability in the placebo impact estimates.

Fourth, there is a concern as to whether the 41.6% figure for 1980 might be implausibly low. The main concern about bias is that (for lack of any option) the BM methodology anchors the mean to GDP per capita, which may well have grown faster than mean household consumption or income. International comparisons of the gap between survey-based estimates and national accounts (using county panel data over time) suggest that a reasonable assumption for East Asia is that 75% of a change in GDP is reflected in household mean consumption (Ravallion 2003). On repeating the calculations but only passing on 75% of the GDP gain, I find that the poverty rate in 1980 is 51.9% rather than 41.6%. Then the impact of the Maoist period was to add 37% points to the poverty rate around the time Deng's reforms began.

Finally, there is a concern that my calculations may have overstated the success of SKT against poverty. There are two data issues here. The first is the choice of base year for prices. Switching to 2011 prices using the series available in the Maddison Project, the 1980 GDP per capita of SKT is six times higher than in 1950 instead of five times higher. (For China, GDP in 1980 is 2.4 times that in 1950 in either base year's prices.) So, this change would make it even more likely that SKT had eliminated extreme poverty by 1980.

A second concern under this heading is (again) BM's use of GDP rather than survey means. Similarly to the China calculation above, suppose that the actual growth in the mean in SKT was 75% of that implied by the BM series using GDP per capita. Using the BM Lorenz shares for 1980, and the corresponding revised mean for 1980, this implies a poverty rate of 3% in SKT rather than 0.3% (again combining the parametric Lorenz curve with the new mean). This would bring the counterfactual poverty rate for China in 1981 up to 17%, still well below the 41.6% figure using the BM-based estimate anchored to growth in GDP per capita.

5. How long to catch up?

The Introduction to this paper noted the huge reduction in poverty in China since the early 1980s. The counterfactual estimates in the last two sections suggest that a large share of this drop in the poverty rate was China catching up for the lost progress during the Maoist period. Just how long did the catch-up take?

It would not make much sense to use the World Bank's $1.90 international poverty line to address this question since it is clearly higher than the implicit lines in the BM historical data used for the counterfactual analysis. Instead, I will use two lower lines that are better anchored to

the series based on the BM data. The first is $0.90 a day, which is my estimate of the implicit line in 2011 prices corresponding to the 41.6% poverty rate for 1980 based on BM. (I calculated this from the *PovcalNet* data for China in 1981 using a line search.) Note that, while the $0.90 line is certainly low, it is only a little below China's 1985 official poverty line in 2011 prices, which was $0.98 a day (Chen and Ravallion 2020). Also note that this adds further emphasis to the observation that China and SKT were both exceptionally poor at the time their policy paths diverged around 1950 (Section 2).

The second line is based on my estimate of the poverty rate for China around this time anchored to the household survey data available in *PovcalNet* (for both the Lorenz curve and the mean) but still consistent with BM's global estimates. Similarly to BM's method of adjusting the poverty line to reflect the fact that they had no choice but to use GDP per capita for the mean, we can ask what poverty line gives the same global poverty rate between *PovcalNet* (for 1981) and the BM data for 1980. The BM world poverty rate for 1980 is 31.5%. I find that the poverty line for 1981 (again, doing a line search using *PovcalNet*) that comes closest to giving the BM poverty rate for 1980 is $1.40, which gives a 1981 global poverty rate of 31.3%. Adjusting only for price inflation, this implies a poverty rate for China (based on household income per person) of 73.6% in 1981.

Figure 3 provides the time series of my estimates of the post-1980 poverty rate in China using both these lines. The Figure also indicates the counterfactual poverty rate for 1980 of 14.5% (Section 3). By 1990, just after Deng had resigned as leader, the post-reform trajectory of (rapid) poverty reduction had fully made up for the estimated "lost ground" attributed to the Maoist regime. However, by the higher line, this did not happen until 2003, though 50% of the gap between the 1981 rate and the counterfactual was reached by the end of Deng's rule.

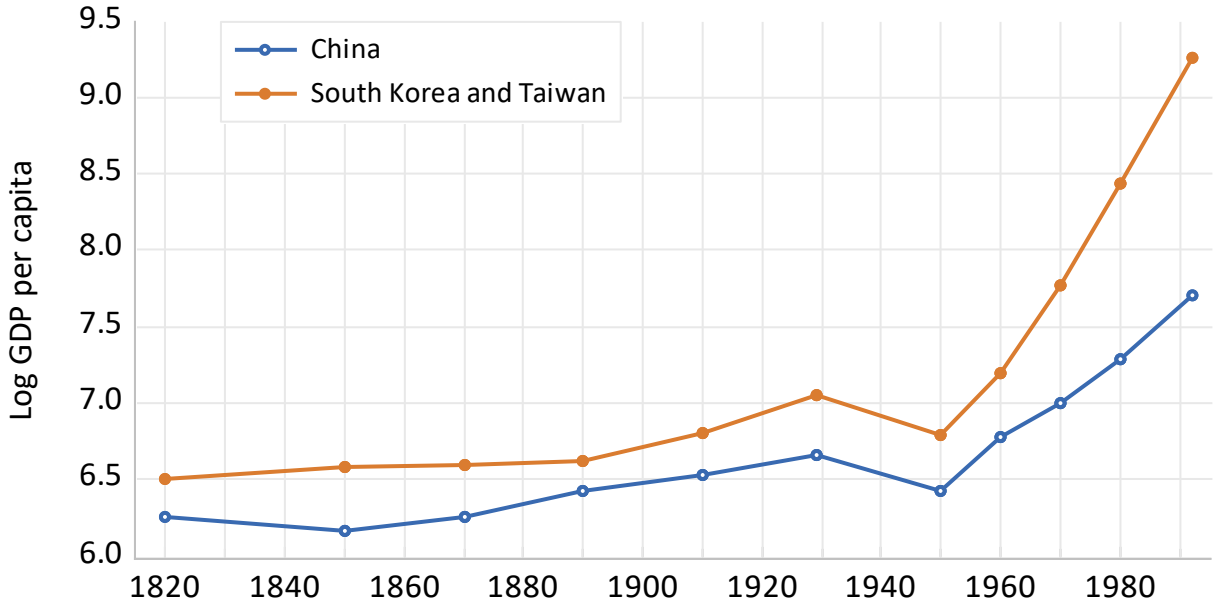
A striking observation from Figure 3 is that the bulk of the overall reduction in poverty over the post-reform period was in the initial period up to 1987—the period when the agrarian reforms were likely to be doing the heavy lifting against poverty in China (Section 2). Using the $0.90 a day line, the poverty rate had reached 35% of its 1981 level by 1987, and 51% using the $1.40 line. This suggests that a large share of China's post reform success against poverty was from Deng's initial agrarian reforms.

6. Conclusions

To draw useful policy lessons, our applause for China's post-reform success against poverty needs to come hand-in-hand with an acknowledgment of the preceding policy failures. That is not to deny that China has made enormous progress against poverty since Deng Xiaoping unleashed the country's pro-market reforms. Rather, it is to remind us of both stages in China's history post-1949. When judged against the development paths of South Korea and Taiwan, this paper's calculations suggest that the Maoist path meant that an extra quarter or more of the Chinese population were living in poverty by the time Deng's reforms began. Considering the possible biases in the available data, it seems more likely that this is an underestimate of the poverty impact of the Maoist path than an overestimate. While data uncertainties remain, it is clear enough that a large share of China's post-reform reduction in the incidence of poverty can be thought of as the country's success in correcting the past failures in its economic policies.

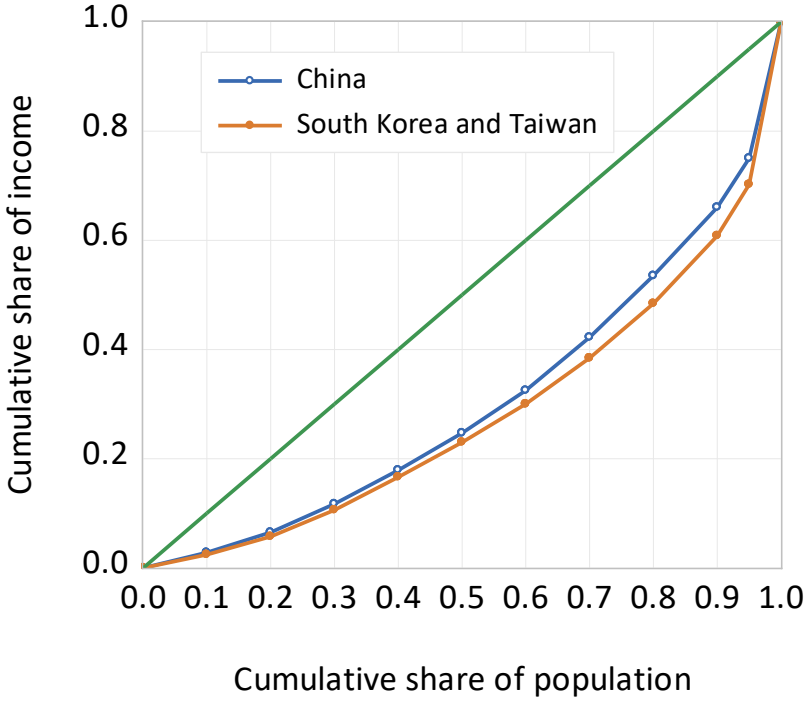
Two further insights emerge. First, a closer alignment of poverty reduction trajectories between China and SKT had already begun by the time Deng's reforms started. Indeed, virtually all the poverty impact of the Maoist regime was in its first 20 years. This is consistent with the greater emphasis given to rural development in the late Maoist period. Second, a large share of the extra poverty in 1980 attributed to the prior Maoist regime was eliminated less than 10 years into Deng's reform period—when the main focus was on agrarian reforms. This is at least suggestive that the bulk of the "catch up" was accountable to the two key aspects of those reforms: de-collectivization and restoring more market-based incentives for farming.

Figure 1: GDP per capita in China and South Korea-Taiwan



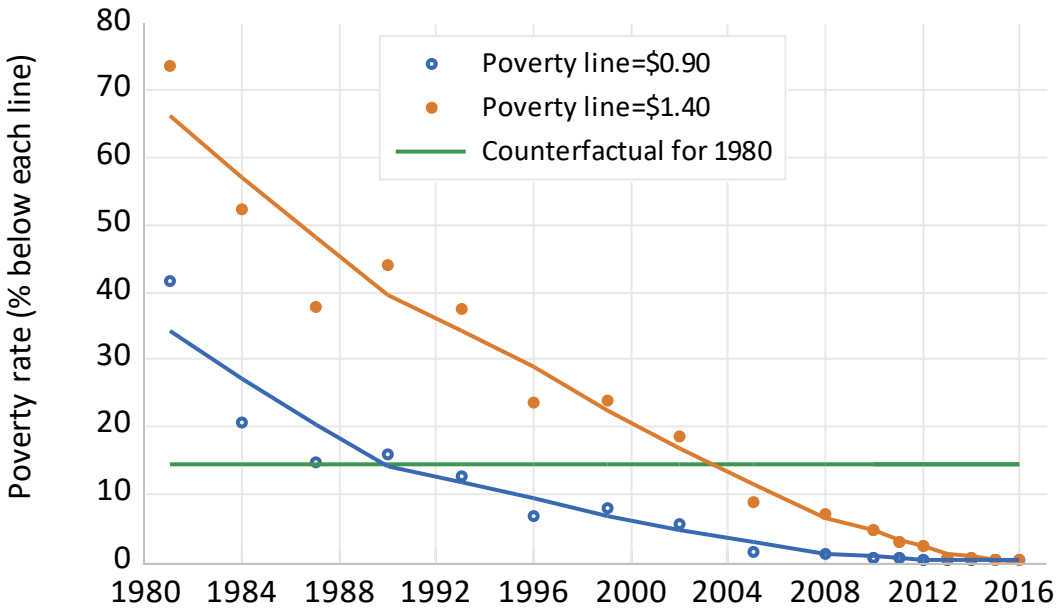
Source: Bourguignon and Morrison (2002) after Maddison (1995).

Figure 2: Lorenz curves for China and South Korea-Taiwan in 1950



Source: Estimates by Bourguignon and Morrison (2002) from data files kindly provided by Francois Bourguignon.

Figure 3: Poverty rates for China and counterfactuals for 1980



Source: Author's estimates using *PovcalNet* (accessed 01/03/2021). Note: the estimates for the 1980s used household income per person, while the rest use household consumption per person. 2011 prices, using the World Bank's purchasing power parity rates for consumption. Nearest-neighbor smoothed scatter plot for the poverty rate (0.4 share for bandwidth).

Table 1: Estimates of the poverty impact of the Maoist path for China and placebo tests

	Poverty rates (%)			
	(1)	(2)	(3)	(4)
	South-Korea and Taiwan	China	Counterfactual poverty rate for China	Estimated impact of the Maoist path
	Placebo tests pre-1950 (each year relative to the previous year in the series)			
1820	86.5	94.5	n.a.	n.a.
1850	84.3	96.2	92.3	3.9
1870	83.8	94.5	95.7	-1.2
1890	83.0	90.7	93.7	-3.0
1910	74.2	86.0	81.9	4.1
1929	60.0	79.9	71.8	8.1
1950	73.3	87.5	93.2	-5.7
	Impact estimates (each year relative to 1950)			
1960	36.7	69.5	50.9	18.6
1970	11.5	52.2	25.7	26.5
1980	0.3	41.6	14.5	27.1

Source: Author's estimates. The income shares from Bourguignon and Morrisson (2002) were used to calibrate parametric Lorenz curves which were then combined with GDP per capita and BM's "extreme poverty line." See the text for further details.

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