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RESEARCH ARTICLE

Markets under Mao: Measuring Underground Activity in the Early PRC

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Abstract
In this article we develop and analyse novel datasets to retrace the persistence and scale of underground market activity in Maoist China. We show that, contrary to received wisdom, Chinese citizens continued to engage in market-based transactions long after "socialist transformation" was ostensibly complete, and that this activity constituted a substantial proportion of local economic output throughout the Maoist era. This helps to explain, in part, why, when markets were officially reopened in China, private economic activity took off. We arrive at these findings through the development and analysis of novel datasets based on unconventional historical sources – namely, a collection of 2,690 cases of "speculation and profiteering" that were recovered from flea markets in eastern China. We show how these grassroots sources can be systematically analysed and used, in lieu of official statistical aggregates, to develop new insights into the macro workings of the Maoist economy.

摘要
本文旨在通过开发和分析新的数据集，追溯毛泽东时代地下市场活动的规模和持久性。我们揭示了与传统观点相反的事实：中国民众在"社会主义改造"完成后继续进行基于市场的交易活动，而这种活动在整个毛泽东时代占当地经济产出相当大的比例。这在一定程度上有助于解释为什么中国正式重新开放市场后，私人经济活动得以蓬勃发展。我们的这些发现是主要是通过分析一系列从中国东部古玩市场收集的 2,690 起 "投机倒把"案例得出的。我们展示了如何系统地分析和利用这些基层数据源，以替代官方统计数据，从而对毛泽东时代经济的运作产生新的洞察。

Keywords: informal economy; black markets; Maoist China; quantitative historical methods; economic history; grassroots data

关键词: 非正式经济; 黑市场; 毛泽东时期中国; 定量历史方法; 经济史; 基层数据源

A Developmental Puzzle

It is often assumed that the Maoist economy was void of market activity. The standard narrative holds that in the first decades of the People's Republic of China (PRC), the Chinese Communist Party (CCP) subjugated the "spontaneous forces of capitalism" by engineering a "cellular economy" with highly atomized production and exchange.[1] Society was formally divided into autarkic administrative units between which the state functioned as the universal mediator of transactions. "Puppet-like micro-management institutions" were established to control production decisions, limit consumption opportunities and capture surplus.[2] Labour markets were effectively abolished.[3]

1 Donnithorne 1972; Eckstein 1977; Lardy 1978.
2 Lin, Cai and Li 2001.
3 See Whyte and Parish 1985.

The currency in circulation was restricted.[4] Additional barriers, such as a household registration system and formal rationing, were erected to bring economic life more fully under state control.[5] Supposedly, such measures "totally squeezed out the market" and gave rise to a fractured economy that "in terms of the movement of people, goods, and services … was less integrated in 1978 than in 1949."[6]

Existing in tension with this orthodox account is a recent body of scholarship that reveals how private enterprise pushed state reforms further and faster than they were originally intended to go. Nicholas Lardy, for example, argues that the rapid development associated with China's reform era is directly attributable to the triumph of markets over Mao, i.e. the gradual displacement of state-owned enterprises by "private business" in the areas of job creation, resource allocation and changes in factors of production.[7] Yasheng Huang demonstrates that the real engine of economic growth resided not in the state-controlled cities but in the entrepreneurial countryside; it was only in the 1990s, when the CCP inhibited rural experimentation, that urban areas once again took the lead.[8] Victor Nee and Sonja Opper show how manufacturing firms in the Yangtze (Changjiang 长江) delta did not originate at the top but instead emerged from below by actively overcoming obstacles set up by the government.[9] These works provide definitive evidence of the shifting balance between state and private enterprise and have forced us to rethink the proximal causes of economic change in China's reform era. They have, however, been somewhat less successful in explaining the origins of this transformation.[10]

We are thus presented with a puzzle: if the Maoist economy was truly atomized, autarkic and void of market activity, then how do we account for bottom-up forces of change in the early years of Reform and Opening Up? Or to pose the question another way: whence came China's entrepreneurial impulse?

There is, we propose, a compelling historical explanation: there was already substantial market-based activity prior to the launch of economic reforms. Even after the "socialist transformation" of the Chinese economy was ostensibly complete, Chinese citizens continued participating in "underground market activity," i.e. private acts of exchange that occurred outside of systems of planned allocation and distribution and which were intentionally concealed from the state.[11] A broad host of actors, ranging from rural people who "abandoned farming to take up commerce" (*qinong jingshang* 弃农经商) to merchants who specialized in the illicit wholesale trade of ration certificates, devised novel strategies to evade state control and engaged in consensual private transactions. While these individuals often filled critical voids in the economy, they were collectively maligned as "speculators and profiteers" (*touji daoba fenzi* 投机倒把分子) and, for three decades, were the recurring targets of mass campaigns. Yet, even at the height of the Cultural Revolution when anti-capitalist sentiments reached their zenith, "speculation and profiteering" were never wholly suppressed. In other words, markets persisted under Mao.

4 Lowenstein 2019.
5 Myers 1980; Riskin 1987; Naughton 1995; Eisenman 2018.
6 Faure 2006, 8; Whyte 2014, 46.
7 Lardy 2014.
8 Huang, Yasheng 2008.
9 Nee and Opper 2012.
10 For instance, Lardy (2014) argues that on the eve of Reform and Opening Up, "private economic activity and the role of the market were severely limited" (11); private production "was almost entirely for self-consumption rather than the market" (12); "labor mobility and labor turnover were nil" (16); and that "for all practical purposes, there was no market for capital" (21). He thus echoes the standard narrative of Maoist development, while making little attempt to account for how private business was able to re-emerge so quickly and outcompete state-run enterprise.
11 We use the term "underground market activity" to distinguish private market activity, which often explicitly violated the rules and was intentionally concealed from the state, from informal economic activity more broadly, which has been invoked to describe a variety of activities that fall outside of the scope of our analysis. See, e.g., Huang, Philip C.C. 2009.

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We arrive at these insights through the development and analysis of datasets derived from unconventional historical sources. We gathered data from thousands of grassroots sources, procured from flea markets, to explore the scale of underground market activity that was prosecuted by two local administrations in eastern China.[12] With these data we show that despite perennial state efforts to suppress "speculation and profiteering," underground market activity did not diminish over time; rather, the average value of prosecuted cases consistently represented between 200 and 388 per cent of local tertiary-sector GDP per capita. We then employ a novel measure of unprosecuted activity to estimate the overall contribution of underground market activity to local GDP and show that underground market activity constituted as much as 15.5 per cent of tertiary output in the two administrations during the period of observation. Finally, to address the generalizability of our findings, we introduce additional data assembled from more than 200 county, prefectural and provincial-level gazetteers. The data indicate that the levels of prosecution within both of the observed administrations fell well within national averages. In short, we demonstrate that underground market activity was persistent, on a reasonably large scale and seemingly pervasive throughout the Maoist era. This lends a partial explanation as to why, following the launch of Reform and Opening Up, private economic activity was so quick to take off.

These findings resonate with a nascent body of historical scholarship that has begun to reveal important threads of continuity across the early decades of the PRC. For example, Karl Gerth argues that the economic and social policies adopted by the CCP gave rise to a self-expanding consumer culture that irrevocably linked everyday economic life to market participation.[13] He Qiliang provides empirical evidence of the persistent influence of market forces on popular culture throughout the 1960s and 1970s, showing how despite the repeated efforts of the CCP to suppress cultural markets, market activity endured.[14] And, based on his research of local society in the latter part of the Cultural Revolution, Frank Dikötter concludes that there was "a silent revolution" wherein "villagers surreptitiously reconnected with traditional practices."[15] Collectively, this work has laid the groundwork for a radical rethinking of how the economy functioned in practice during China's experiment with socialism.[16]

Our article seeks to propel forward this literature by providing the first systematic evidence of the persistence and scale of underground market activity in Maoist China. Rather than rely upon high-level statistics or fragmentary anecdotal accounts, we bring together and systematically analyse thousands of former low-level administrative archives, revealing patterns of activity that were previously obscured. Such an approach, we argue, is especially well-suited to analysing contexts where activity was intentionally concealed, economic institutions were unevenly enforced and the validity of official statistics is suspect.

Historical Context

Following its rise to power after the defeat of its Nationalist rivals in 1949, the CCP engineered a radical transformation of China's economy. Throughout much of the country's late imperial past, economic life had centred around participation in regional market economies, a context in which "no segment of the population was divorced from the world of business."[17] However, during the early decades of communist rule, market mechanisms were gradually displaced by a complex

12 The source collection and dataset construction were carried out by the first author during five years of doctoral dissertation research. Data analysis and interpretation were conducted in collaboration with the co-author over a period of two years.

13 Gerth 2020, 2.

14 He 2010.

15 Dikötter 2016, 810.

16 For a more thorough review of this literature, see Frost 2022a.

17 Zelin 2013, 772.

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assemblage of state-run institutions. Private production was heavily curtailed, the number of sanctioned marketplaces was radically reduced, and market transactions became governed by strict rules about what could and could not be traded, at what times and at what prices. As Xu Dixin, the leader of the State Administration for Industry and Commerce (SAIC), proclaimed in early 1959:

> Last year in our country, markets underwent a fundamental transformation. Free markets fundamentally no longer exist … The complete abolition of privately-run enterprises and establishment of People's Communes in the countryside eliminated the conditions for free markets. By the second half of 1958, the status of our national market was wholly socialist.[18]

Yet even after declaring that "socialist transformation" was complete, the CCP had to continuously struggle against the re-emergence of "spontaneous capitalist tendencies" among the people. Steeped in a tradition of commerce, ordinary people circumvented formal channels to continue transacting at competitive market rates rather than state-determined prices. To counter this underground market activity, the CCP established "market administration committees" (*shichang guanli weiyuanhui* 市场管理委员会) under the jurisdiction of the SAIC to "manage markets, manage prices, manage reform, and coordinate the relations between the state, collectives, and individuals."[19] However, these institutions proved unequal to this task. As the misguided policies of the Great Leap Forward (1958–1961) gave rise to widespread scarcity, underground market activity continued to grow unchecked. As one SAIC official described:

> When the supplies of goods on markets became constrained, the capitalist business ideologies and speculative behaviour of merchants and peddlers once again reared their heads. No few peddlers and businessmen began illegally buying up and reselling state-controlled goods, mixing in inferior products with good products, evading taxes, and engaging in all manner of illegal activities, thereby driving up prices and throwing the economy into disorder.[20]

In the wake of the Great Leap Forward, as famine conditions gradually abated, the CCP formalized its institutional struggle against underground market activity. The SAIC was given expanded powers to investigate and prosecute individuals for engaging in acts of "speculation and profiteering" (*touji daoba* 投机倒把). During their investigations, SAIC officers detained suspected "speculators and profiteers," subjected them to interrogation and forced them to write self-criticisms or confessions, records of which were compiled into individual case files (*anjian* 案件). After amassing sufficient evidence, officials passed judgments and issued sentences. According to incomplete statistics for 17 provinces, between January and July of 1963 alone, more than 250,000 individuals were prosecuted for being "speculators and profiteers," alongside many others who were accused of engaging in similar, but less severe, "illegal and regulation-breaking activities" (*weifa weizhang huodong* 违法违章活动). Within a year, the official number of prosecutions had risen to more than 700,000 nationwide.

With the onset of the Cultural Revolution, the CCP's institutional struggle against underground market activity entered a new phase. Shortly after Mao Zedong called on revolutionary youths to "bombard the headquarters," the SAIC itself came under attack. High-ranking SAIC officials were accused of aiding and abetting capitalist restoration and were transferred to grassroots posts or sent down to the countryside to participate in agricultural production. Many local governments established new revolutionary institutions, Offices of Attacking Speculation and Profiteering (*daji touji daoba bangongshi* 打击投机倒把办公室, Offices of Attack hereafter), to take over the struggle

18 Xu 1959.
19 State Administration for Industry and Commerce Circular 1960, 11.
20 State Administration for Industry and Commerce Circular 1959, 13.

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against underground market activity. It was only in the early to mid-1970s, with the waning of revolutionary fervour, that regional branches of the SAIC began to fully resume operations.

While the exact number of prosecutions carried out by both the SAIC and Offices of Attack is unknown owing to the state statistical blackout, based on our analysis of fragmentary figures reported in county and provincial-level gazetteers, we estimate that a minimum of 13 million people were prosecuted as "speculators and profiteers" over the course of the Maoist era.[21]

Methods: Data from the Grassroots

Underground market activity is challenging to study from a historical approach, as illicit transactions rarely enter account books, receipts or official statistics. The challenge is further exacerbated by the paucity of economic data for Maoist China. For decades, theories of development in the early PRC were based on production statistics and estimates of GDP reconstructed from the fragmentary data leaked from China.[22] It was only in 1982, when the National Bureau of Statistics began publishing retrospective statistical reports, that official data for the 1960s and 1970s became more plentiful. While the quality of these statistical aggregates is highly suspect, owing to the lack of viable alternatives social scientists have continued to rely on them heavily, even while acknowledging their limitations.[23]

However, the problems with official statistical aggregates run deep. During the Great Leap Forward, the CCP denounced mathematical statistics as a bourgeois science and sought to create in its stead "socialist statistics" that would ascertain social fact through comprehensive and periodic reporting.[24] The rejection of statistical sampling methods rendered this data especially vulnerable to misreporting and manipulation. Officials at every level of the administrative hierarchy misrepresented population and production figures in order to promote their immediate political interests: as one moved up the administrative hierarchy, biases compounded and statistical aggregates became further divorced from the realities they were supposed to represent.[25] More problematic still, trained statisticians were eventually replaced by political cadres who viewed statistical work as a fundamentally ideological task.[26] As the head of the National Bureau of Statistics in 1960 wrote, "statistical work is a weapon of class struggle and political struggle, and therefore statistics should not be a mere display of objective facts."[27]

In order to address these epistemic concerns, we approach data generation from the grassroots, drawing upon sources that were produced by the lowest levels of government administration – case files of "speculators and profiteers" who were prosecuted by local branches of the SAIC and Offices of Attack. These administrative documents were never intended to be preserved for historical analysis and were originally earmarked for destruction during archival restructuring in the 1980s; however, many were instead sold into private circulation and have for the past four decades been traded between the hands of document merchants and private collectors. It has thus been possible to recover large collections of these semi-official materials from physical and online flea markets across China.

21 We arrived at this figure using the following method. Using gazetteer data, we first estimated the total number of cases prosecuted between 1960 and 1978 at the national level as being 8,418,181. We then multiplied this figure by the average number of people prosecuted per case in our microeconomic ss dataset, which is about 1.58 (i.e. 4,258 people / 2,690 cases). We then multiplied these two figures to arrive at an estimate of the total number of people prosecuted as "speculators and profiteers" of about 13 million (8,418,181 * 1.58 = 13,300,725).

22 See, for e.g., Liu and Yeh 2015[1965]; Chen 1967.

23 See Maddison and OECD Development Centre 2007; Chen and Galenson 2011[1969]; Knight 2014; Solinger 2016.

24 Ghosh 2018.

25 Dikötter 2010.

26 Banister 1987.

27 National Bureau of Statistics 1959.

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Here, we follow in the methodological footsteps of PRC historians engaged in "Sinological garbology," i.e. the study of semi-official sources that were "salvaged half-way to the recycling bin by an enterprising Chinese flea-marketer."[28] In the 1990s, Michael Schoenhals pioneered this novel approach when he began procuring discarded archives and using them to investigate, among other topics, Maoist-era spy networks and postal inspection systems.[29] Other historians have since drawn on similarly salvaged documents to explore local political conflict, everyday life under "high socialism," and the tensions between socialist legal principles and practice.[30]

While "rubbish materials" have been celebrated for enabling scholars to explore the minutiae of Maoist society, they are generally regarded as unsuited to the task of building broad generalizations. As Jeremy Brown, a prominent practitioner of Sinological garbology, has argued, "it is near impossible to use a handful of dusty dossiers to build a broad historical argument or to claim that a local example is representative of a wider trend."[31] However, in this study, we attempt exactly that. We aim to show how large collections of recovered case files can be systematically analysed and used to develop macro insights.

Case files offer an unparalleled view into the workings of the Maoist economy. Individual files can range up to several hundred pages in length, and each comprises a collection of investigation notes, written confessions, interrogation transcripts, citizen reports and other material evidence. These documents provide detailed information about the individuals who were prosecuted, the nature of their participation in underground market activity, when and where the activities occurred, what goods were involved and what punishments were dealt out.

However, case files also pose challenges to quantitative historical analysis. They are, after all, instruments of state control that were never intended to be analysed through statistical methods. Most are handwritten accounts produced by semi-literate cadres who made numerous orthographic errors and homophonic substitutions. The difficulty of working with cases is compounded by the fact that reporting practices were highly idiosyncratic, differing across space and time. The materiality of these documents also varies enormously. One often encounters investigation reports scrawled on the backs of other official documents; evidently, not only was there a lack of standardized administrative forms, but even of blank paper.

That said, case files present at least two significant advantages over statistical aggregates. First, the sources are closest in proximity to the events described. Local cadres often produced frank accounts of what they witnessed, written in plain language and full of details that were scrubbed out in higher-level sources. Second, because the information contained is more "raw," i.e. full of messy, unstructured information that has not yet been subjugated and systematized, we are able to impose on it our own categorizing logics. This is important because the frameworks through which historical actors made sense of their world (for example, Maoist theories of class struggle) are very different from our own. Therefore, by using local, raw sources, we are afforded the opportunity to restructure the information they contain into new types of knowledge.

To illustrate how this might work, let us take a case prosecuted by the Dongyang County Office of Attack, which includes a helpful one-page summary, as illustrated in Figure 1. In the first line of text, we are told that the prosecuted individual was a 56-year-old male with rural household registration. We can code this information into the categories of: "Age," "Gender" and "*Hukou* Status." From the second paragraph, we learn that between 1973 and 1976, he privately sold six head of cattle for a total of 1,127 yuan. We can code this as data about the nature, temporal scope and value of underground market activity. Finally, in the third paragraph, the case specifies that for this crime,

28 Schoenhals 2004, 5.
29 Schoenhals 2012; 2013.
30 Brown 2012; Brown and Johnson 2015; Leese and Engman 2018.
31 Brown 2010.

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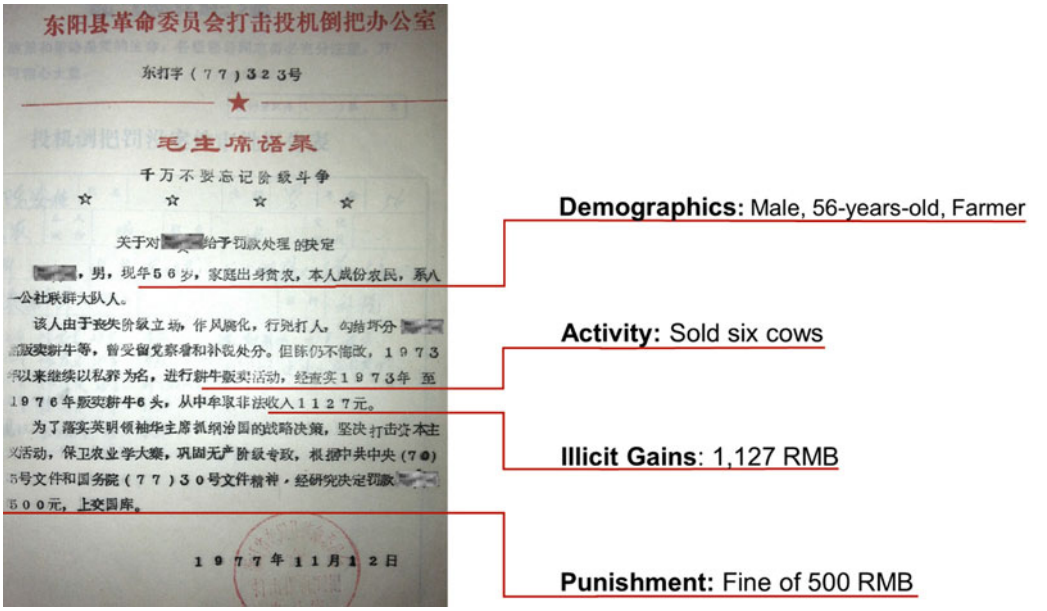

Figure 1. Case Summary Example

the man was punished with a fine of 500 yuan, which we can code as the reported value of fines and seizures.

More challenging than coding, however, was the process of dealing with incomplete data. SAIC regulations stipulated that investigating officers should calculate the total value of "speculative profits" (*baoli* 暴利), loosely defined as all "cash, savings and goods acquired through speculative activities as well as the property purchased therefrom," in order to determine the appropriate level of fines and back-taxes.[32] However, this directive was rarely followed in practice. Lacking either the ability or necessary information to attempt such calculations, local cadres often just listed all items of value that were uncovered over the course of an investigation.

This itemized reporting presents an opportunity. For each case, we can generate a complete list of items, including, whenever possible, information about the quantity and values of said items. We can then take advantage of the large size of the dataset to generate robust estimates of missing values. Finally, with these imputed values, we can calculate the total value of underground market activity described in each case. The workflow of this value imputation process is as follows.

Step I: categorization

We categorize the referenced items into three "item-types": cash, ration certificates or goods. "Cash," as we define it here, includes all forms of fiat currency as well as gold and silver specie, "ration certificates" are the state-issued coupons for grain, cloth, cooking oil and other essentials, and "goods" includes all other agricultural products, handicrafts, manufactured goods and luxury products.

Items belonging to the "goods" item-type are further subdivided into categories and subcategories. This involved creating a dictionary to match related terms. For example, the entries for "hens" (*muji* 母鸡), "dark-boned chickens" (*wuguji* 乌骨鸡), "chickens" (*jizi* 鸡子) and "chicks" (*xiaoji* 小鸡) are all matched to the subcategory "chicken" (*ji* 鸡). Subcategories can then be grouped based on the similarity of their characteristics and values. For example, "chickens" can be bundled

32 Ministry of Finance of the PRC 1963.

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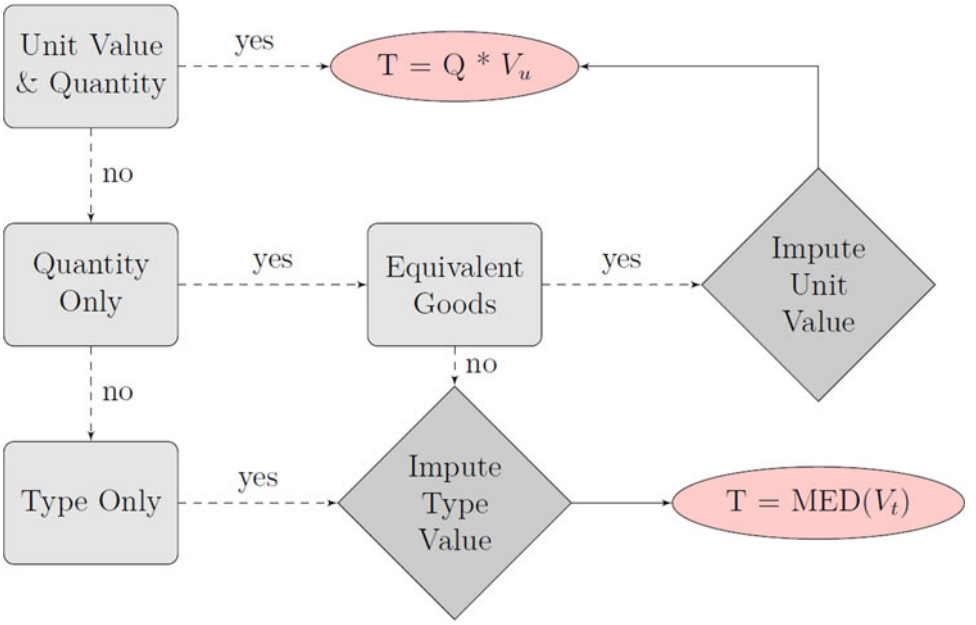

Figure 2. The Value Imputation Process

together with "ducks" (*yazi* 鸭子), "geese" (*e* 鹅), and "quail" (*chun* 鹑) into the goods category of "domestic fowl" (*jiaqin* 家禽). Based on this logic, we create 40 unique categories.

Step II: valuation

We estimate the aggregate values of items belonging to each item-type. For cash valuations, we take the sum of the face value of all reported cash and the market value of any reported gold or silver. Because consumption was artificially constrained, cash values are roughly comparable across time.

For ration certificates, we use underground market prices. Ration certificates were a type of "non-priced security" (*wujia zhengquan* 无价证券), which theoretically possessed no value and could not legally be bought, sold or traded. As such, seized certificates were not included in official value calculations. We therefore take the averages of rarely reported market prices for each type of certificate to estimate their values.

The values of "goods," by virtue of heterogeneity, are the most difficult to estimate. The process we develop and deploy is illustrated in Figure 2. When a case reports both the unit value (Vu) and quantity (Q) of a given good, then we calculate the total value (T) by multiplying these two figures. Whenever unit values are not reported, we identify whether the dataset includes equivalent goods with reported unit values. If so, the total value is calculated by taking the median value of equivalent goods and multiplying it by the reported quantity. If, however, there are no equivalent goods with specified values (or if the quantity was not recorded), then the total value is directly imputed from the type value (Vt) by taking the median total value of all other goods within a given category. This process is repeated for each item entry in the dataset.

Step III: summation

Finally, we calculate the total value of the three item-types to arrive at an estimate of total case value. This process is repeated for each case in the dataset.

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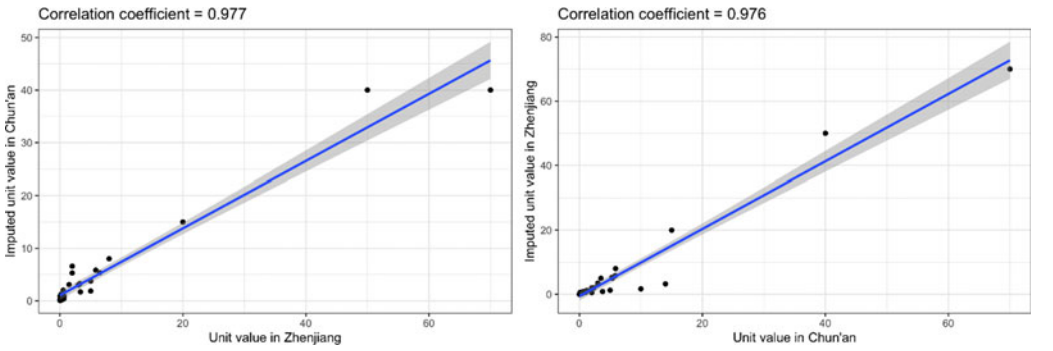

Figure 3. Cross-Administration Imputation Validation

Using this approach, we generate estimates of the total value of underground market activity for a dataset of 2,690 cases of "speculation and profiteering" that were investigated and prosecuted by branches of the SAIC in two local administrations: Chun'an 淳安县, a rural county in Zhejiang, and Zhenjiang 镇江市, a prefecture-level city in Jiangsu. The entire process of data generation took approximately two years. To the best of our knowledge, this is the largest existing dataset of its kind for Maoist China.

To ensure the validity of our approach, we develop a cross-administration validation method. Specifically, we measure how closely the imputed unit value of a given good in one of the two administrations corresponds to the actual reported value of an equivalent good in the other administration. The results of this cross-administration analysis are presented in Figure 3.

Consistent with our expectations, the figure suggests that the imputed and reported unit values are strongly correlated. The correlation coefficients of 0.977 and 0.976 in Zhenjiang and Chun'an respectively are very high, especially given that there were small variations in the prices of some goods between the two administrations. Based on this result, we can be confident that our imputation strategy did not yield value estimates that might bias our analysis.

Data Analysis

We begin our analysis by measuring the average values of cases prosecuted in our two administrations, the summary statistics for which are presented in Table 1. As shown, the mean case value (i.e. the estimated total value of activity described in each case) is about 334 yuan for Chun'an and 362 yuan for Zhenjiang. To put these figures into perspective, in 1955 the national average income was 102 yuan for an urban worker and 94 yuan for a rural farmer, and income levels remained stagnant for most of the 1960s and 1970s.[33] In other words, the mean case involved activity that represented three years' worth of consumption for the mean worker. Given that prosecuted individuals probably succeeded in concealing some portion of their gains, this figure is likely only a fraction of the true quantities of goods, cash, and ration certificates involved in each case.

We also find that the mean value of cash and ration certificates is surprisingly large. During this period, the CCP adopted strict fiscal controls to curb "spontaneous capitalist tendencies," actively withdrawing currency from circulation and "returning it to the cage."[34] Scholars have argued that such measures created a cash-scarce economy, wherein the majority of informal activity must have been conducted through barter exchange.[35] However, according to our data, a large

33 Chen 1967, 184; Maddison and OECD Development Centre 2007.
34 Lowenstein 2019.
35 Solinger 1987.

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Table 1. Summary Statistics for Local Administrations

Statistic	N	Mean	St.Dev.	Min	Pctl(25)	Pctl(75)	Max
Chun'an							
Case value	1,973	333.521	1,435.869	0.495	30.993	227.573	33,042.600
Cash value	1,972	113.622	507.471	0.000	0.000	54.175	12,630.000
Coupon value	1,973	37.305	302.226	0.000	0.000	3.000	12,000.000
Goods value	1,973	122.094	717.499	0.000	2.160	60.550	16,000.000
Zhenjiang							
Case value	717	316.496	1,512.629	0.120	14.992	135.377	20,709.570
Cash value	717	139.930	1,071.522	0.000	0.000	2.700	20,709.570
Coupon value	717	17.062	145.456	0.000	0.000	0.000	2,393.600
Goods value	717	122.748	646.188	0.000	4.000	45.000	11,970.000

amount of cash and ration certificates (a cash substitute) still found its way into private circulation. The mean combined value of these items is 151 yuan in Chun'an and 157 yuan in Zhenjiang, roughly 10 times the annual disposable income of an ordinary labourer.[36] The data suggest that the central government's efforts to limit market transactions by restricting the money supply were ineffective.

While these average values enable us to draw tentative inferences about the relative scale of underground market activity, they provide little insight into the persistence of such activity over time. One would expect, for instance, that underground market activity expanded in the wake of the Great Leap Forward because of famine conditions, contracted again as the CCP gradually re-established administrative control, and disappeared almost entirely during the anti-capitalist fervour of the Cultural Revolution. In this hypothetical scenario, we would anticipate the average values of prosecuted cases to have been very large in the earlier period of observation but then fall towards zero.

To test this hypothesis, we examine how average case values (aggregated by year) changed over time relative to tertiary-sector GDP per capita. We use tertiary-sector GDP because cases prosecuted by the SAIC and Offices of Attack focused overwhelmingly on acts of private exchange.[37] To generate estimates of local GDP in our two administrations, we draw upon the annual agriculture and industrial output figures reported in their local gazetteers. We impute the tertiary sector share of GDP by multiplying total annual output (agricultural and industrial) by the ratio of agricultural output to tertiary-sector GDP in 1978 (the earliest year for which we have these figures). The results of this analysis are illustrated in Figure 4.

We find that in Chun'an, the average case value was 6.6 larger than tertiary-sector GDP per capita in the pre-Cultural Revolution period (1964–1965) and then declined to about 3.9 times tertiary-sector GDP per capita during the early Cultural Revolution (1966–1969).[38] However, rather than falling towards zero, the average case value continued to fluctuate around the mean of 3.3 times of tertiary-sector GDP per capita between 1970 and 1978. The story that unfolds from the data for Zhenjiang is even more surprising. The average case value fell from about 2.2 to 1.1 times tertiary-sector GDP per capita between the pre-Cultural Revolution to Cultural Revolution

36 Chen and Galenson 2011[1969].

37 While state-run and collective enterprises were also thoroughly enmeshed in underground networks, such cases tended to get handled "internally" by the organs of the Discipline Inspection Commission. Primary and secondary sector activity is, therefore, not well-represented in the dataset.

38 The size of this figure is partially attributable to several cases prosecuted in 1965 with measured values in the tens of thousands of yuan.

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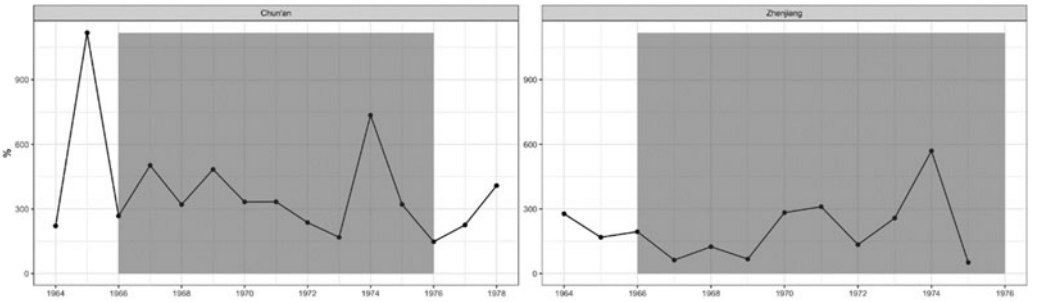

Figure 4. Ratio of Average Case Value to Formal Tertiary-sector GDP per Capita

periods, but then rose again to about 2.6 times tertiary-sector GDP per capita after 1970. These figures indicate that across the period of observation, the average cases prosecuted by each of our two administrations consistently involved values of activity equivalent to multiple times the total amount of formal commercial activity per citizen per year.

To further unpack these numbers, we then conduct a quantile analysis, dividing the probability distribution of case values from each period into four intervals, as illustrated in Table 2. We find that while minimum case values (Q0) remained small throughout the period of observation, there was a large degree of variation at the higher end of the distribution. In Chun'an, the value of cases in the second (Q2) and third quartiles (Q3) were high in the pre-Cultural Revolution period (89.4 and 289 yuan respectively), fell during the early Cultural Revolution, but rose again after 1970. A similar trend is observed in Zhenjiang for case values in the third quartile. These data suggest that while large-value underground market activity may have briefly abated during the most violent period of the Cultural Revolution, it quickly re-emerged thereafter.

Estimating the total value of prosecuted activity

Having demonstrated that the average case value was quite substantial and remained so over time, we now turn to measuring the total size of prosecuted underground market activity relative to local tertiary sector output. We generate this using the following equation:

Total Value of Prosecuted Activity = Average TJDB Case Value * Number of TJDB Cases *1/ Fine Ratio

Our estimation consists of two parts. Because "speculation and profiteering" cases (TJDB cases) represented a subset of all prosecuted underground market activity, i.e. they were included under the more encompassing category of "illegal and regulation-breaking" cases (WFWZ cases), we need to know both the aggregate value of TJDB cases as well as their value as a proportion of all WFWZ cases. Therefore, we first compute the gross case value of TJDB cases by multiplying the average values in our data sample by the total number of cases prosecuted annually in Chun'an and Zhenjiang (as reported in their respective local gazetteers). We then multiply the gross value

Table 2. Average Case Value by Quartiles

	Chun'an				Zhenjiang			
	Q0	*Q1*	*Q2*	*Q3*	*Q0*	*Q1*	*Q2*	*Q3*
1964–1965	0.51	77.5	89.4	289	0.12	14.4	38.1	140
1966–1969	0.50	30.1	63.5	150	0.12	17.1	38.6	86.1
1970–1978	0.57	23.8	72.0	183	0.60	12.2	52.5	269

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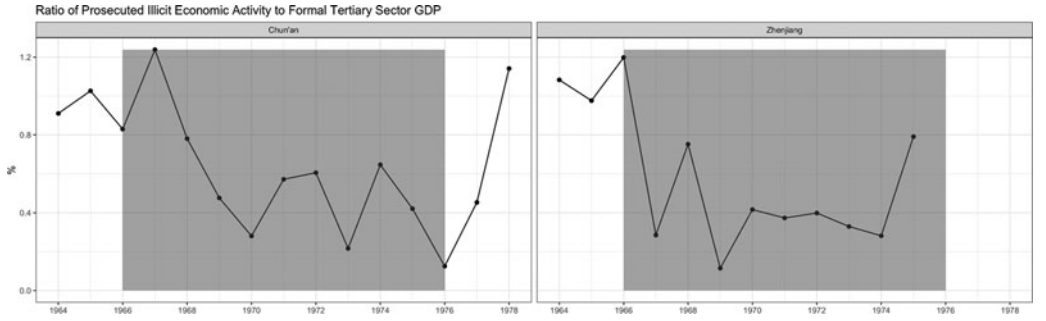

Figure 5. Value of Prosecuted Underground Market Activity

of TJDB cases by the fine ratio of TJDB cases to WFWZ cases (figures obtained from official statistical yearbooks). The resulting figures approximate the total value of underground market activity formally prosecuted in our two administrations. Here, again, for the purpose of meaningful comparison, we represent these values as a proportion of the tertiary-sector GDP per capita, which encompasses all transportation, postal services and wholesale and retail trade. These estimates are illustrated in Figure 5.

We find that the total value of prosecuted cases varied widely from year to year, peaking in both administrations shortly after the launch of the Cultural Revolution and rising again in the mid to late 1970s. The total value of prosecuted underground market activity was about 130,000 yuan per year in Chun'an, equivalent to roughly 1.0 per cent of local tertiary-sector GDP, and about 270,000 yuan per year in Zhenjiang, or 1.7 per cent of tertiary-sector GDP.

Estimating unprosecuted market activity

While seemingly modest, the aforementioned numbers represent only prosecuted activity. There are reasons to suspect that actual underground market activity was many times larger. First, the total value of prosecuted cases may have been mostly a function of administrative capacity; because branches of the SAIC were perennially understaffed and underfunded, they may have simply been unable, given their limited resources, to carry out more prosecutions. Second, even when local cadres prosecuted cases, it is unlikely that they uncovered the full extent of activity, given that those being prosecuted were likely to conceal as much as possible. Unless a cadre conveniently uncovered a ledger of transactions, it was virtually impossible to reconstruct complete histories of underground transactions. Third, corruption likely played a significant role. In case files, there are frequent mentions of "speculators" hosting banquets, giving gifts, doling out cash, or using more nefarious means to convince local officials to turn a blind eye to their activities. In a sense, the cases are recorded instances of failure. The most successful underground actors were those who, by virtue of never getting caught or else being able to bribe their way out of trouble, were never entered into the written historical record.

To estimate the true size of underground market activity, we thus require a measure of the proportion of activities that went undetected or unpunished (see Figure 6). This means that we must add to our equation a final term, representing the ratio of prosecuted cases to unprosecuted underground market activity:

Value of Underground Market Activity = Value of Prosecuted Activity * **1/Prosecution Ratio**

It is notoriously difficult to create such a measure, as unprosecuted activity is, by definition, that which is absent from state administrative records. Fortunately, individual case files do provide some revealing clues. Cadres investigating acts of "speculative purchasing and resale" sometimes reported both the underground market price at which goods were sold *and* the price at which the same goods

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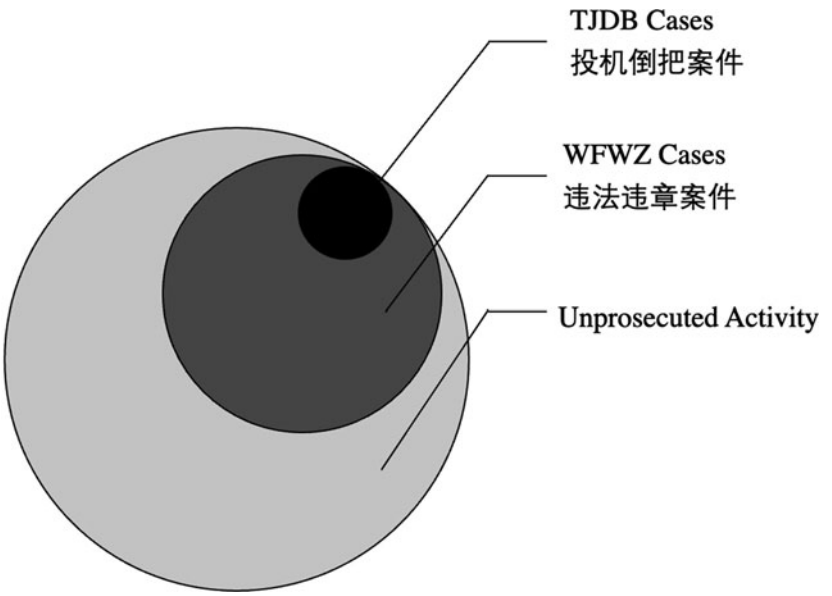

Figure 6. Underground Market Activity

were originally purchased. This reported spread, i.e. difference between the purchase and sales prices for the same goods, provides an upper bound of profits for these transactions. If we then assume that underground market actors were reasonably good at estimating risk and engaged in transactions only when anticipated profits were positive, then we can use the spread to estimate the perceived risk of capture.

The following excerpt, from a written confession of a ration certificate seller, explains how this might work:

> I began trading certificates in April 1963. At first, I couldn't earn any money. But eventually I connected with a broker from Hankou, by the name of Qin. At that time the river inspection station leading to Hankou was poorly managed, and I was able to spin a tale to get the broker through and escort him to Pingzheng Bridge, where we made the deal. I didn't have any capital, so he "kicked the ball" to me, giving me 300 kilos worth of grain ration certificates [on credit]. I took the certificates and sold them off to Hong Zhiyuan, Two-Tongue, Water Dog, Old He and some other friends. By buying at 0.55 yuan per *jin* and selling at 0.60, I earned my first profit of 30 yuan.[39]

In this example, we learn that the underground actor sold ration certificates to his comrades at a 9.1 per cent mark-up over the price he paid for them. If he were caught in the act of transacting the certificates and had them all seized, then he would have incurred a 330 yuan loss. At the reported spread of 0.05 yuan per half-kilo (*jin*), it would take 11 transactions of equivalent size to generate profits equal to this potential loss. Therefore, if this actor only ever engaged in activity with expected positive returns (minus transaction costs), we might infer that his perception of the maximum risk of capture was equivalent to less than 1 in 11.

Of the 2,734 cases in the microeconomic dataset, 59 provide this type of information on the prices at which the same goods were both purchased and resold. We report the average value of

39 Zhenjiang Market Administration Bureau 1964.

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Table 3. Average Purchase—Resale Spreads, 1964–1978

Period	Median	Mean
1964–1965	0.17	0.15
1966–1967	0.19	0.16
1968–1969	0.14	0.13
1970–1974	0.13	0.14
1975–1978	0.19	0.19

these spreads in Table 3. While the total number of observations is too low to draw any definitive conclusions, the data do provide some insight into the perceived risk of underground market activity.

From the table, we observe that the average spread between the purchase and resale price of items in underground market transactions was relatively low and remained so throughout the entire period of observation. There was, on average, no more than a 19 per cent mark-up on items that were bought and resold in underground markets. These figures suggest that the maximum perceived risk of capture was low, even during the height of the Cultural Revolution.

By employing a series of maximally conservative assumptions, we can use this data to estimate the relative size of unprosecuted underground market activity. First, we assume that underground market actors were concerned only with potential economic losses, i.e. there was no additional risk premium for being imprisoned or subjected to political violence. Second, we assume that there was no minimum profit threshold, i.e. actors would engage in any activity with a positive expected return, no matter how small. Based on these assumptions, we then calculate the theoretical break-even point (the point at which expected entrepreneurial profits equal 0) at the specified spreads when we range transaction costs (the costs of transportation, smuggling, warehousing, bribing) from 0 to 50 per cent. Finally, we use this to conservatively estimate the ratio of prosecuted to unprosecuted underground market activity. The results of this analysis are presented in Figure 7.

We find that underground market activity represented a substantial share of formal tertiary-sector GDP in both administrations. Our estimates suggest that underground market activity constituted as much as 15 per cent of tertiary-sector GDP in the pre- and early Cultural Revolution periods, fell to about half that in the early 1970s, and began to rise again in the second half of the decade. This was equivalent to approximately 1.95 million yuan per year on average in Chun'an and 4.05 million yuan per year in Zhenjiang.

Here, again, we should note that these are baseline estimates based on maximally conservative (fictitious) assumptions. Underground market actors would have demanded some minimum threshold for profits and factored into their risk calculations the possibility of imprisonment or other forms of punishment, either of which would imply greater total underground market activity. For example, if we relax our assumptions to allow for 10 per cent minimum expected profits and 75 per cent maximum transactions costs, the resulting estimate of the total size of underground market activity would rise to an average of 8.6 million yuan (1.958*1.1/(1-0.75)) per year in Chun'an and 18.82 million yuan (4.05*1.1/(1-0.75)) in Zhenjiang, implying that underground activity constituted as much as 66 per cent of formal tertiary-sector GDP. However, here we report only the most conservative estimates.

Assessing generalizability

Having demonstrated that underground market activity constituted a significant portion of local economic output, we now address the issue of generalizability. Chun'an and Zhenjiang are situated

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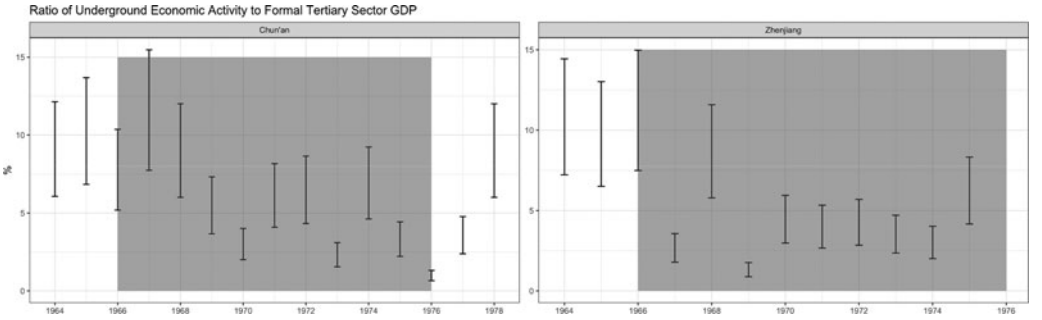

Figure 7. Ratio of Total Underground Market Activity to Formal Tertiary-sector GDP

in the Jiangnan 江南 region, a historical nexus of business and commerce in eastern China. As such, both locations were thoroughly enmeshed in regional commercial networks prior to the founding of the PRC. There are good reasons, therefore, to suspect that the administrations are historical outliers whose traditions of commerce later translated into much higher incidences of underground market activity.

To assess the generalizability of our findings and determine whether they might be extrapolated beyond Jiangnan, we introduce additional data collected from more than 200 county and provincial-level institutional gazetteers. These aggregate data concern the total number of "speculation and profiteering" cases prosecuted in the pre-1978 period, along with the associated value of fines and seizures. Based on this, we generate estimates of the average number of annual prosecutions across 25 provinces as well as national-level averages separated by urban and rural regions. The results of this analysis are presented in Figure 6 and Table 4.

There are good reasons to be wary of statistical aggregates. Based on the analysis of case-level data for Chun'an and Zhenjiang and comparisons with gazetteerial aggregates, we know, for example, that reported fines systematically underrepresented the total value of prosecuted activity and that certain types of activity (namely, those that undermined state revenue generation) were tacitly tolerated while others (namely, those that circumvented controls on mobility) were punished harshly.[40] However, we find that the number of extant case files does correspond closely with aggregate figures. This makes sense given that SAIC cadres were incentivized to report as many cases as possible – to demonstrate the efficacy of their institutions – but to minimize the estimated value of associated fines and seizures, as the resultant funds had to be remitted to state coffers. The aggregate data thus tell us something about the amount of activity that was formally prosecuted and reported by different administrations, but nothing about either the degree to which the true value of the activity was concealed or the extent to which different activities were differentially punished. Consequently, we cannot use these data to develop robust claims about the regional variation or changes in underground market activity over time; however, we can at least use the aggregate data to situate our local data within nationwide prosecution trends.

Figure 8 shows how the density of prosecuted cases per capita in Chun'an and Zhenjiang compares with provincial and national averages. We find that Chun'an prosecuted far fewer cases (~4 cases per 10,000 population) than either the provincial average in Zhejiang (~10/10,000) or the national average for rural counties (~5/10,000). Conversely, Zhenjiang did prosecute more cases (~10/10,000) than the provincial average in Jiangsu (~7.5/10,000) and the national average for urban districts (~6/10,000). However, this makes sense given that southern Jiangsu was more deeply commercialized than northern Jiangsu, which was not part of the Jiangnan economic core.

40 Frost, Pillai and Khanna n.d.

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Table 4. Provincial Statistics

Province	Cases per 10,000 Pop.	Fines per Case
Fujian	20.63	13.26
Henan	18.67	12.55
Shandong	15.25	4.02
Xinjiang	14.27	9.10
Heilongjiang	10.73	32.03
Zhejiang	10.37	20.14
Guizhou	8.96	12.13
Sichuan	8.65	5.69
Jiangsu	7.42	9.35
Hebei	7.41	5.88
Shaanxi	7.11	7.29
Guangdong	6.77	13.62
Anhui	6.27	9.45
Yunnan	5.62	8.89
Guangxi	5.13	14.55
Qinghai	4.74	83.94
Ningxia	4.61	44.15
Jilin	4.31	16.09
Gansu	3.89	7.65
Hunan	3.75	22.86
Shanxi	3.31	23.03
Hubei	3.06	20.90
Liaoning	2.81	20.02
Jiangxi	2.18	41.15
Inner Mongolia	1.12	23.03

Turning to Table 4, we find that these figures fall well within the range of provincial-level averages. There were far more prosecutions per capita across the whole of Fujian, Henan, Shandong and Xinjiang (i.e. ~14–20 cases per 10,000 population) than in Zhenjiang. Moreover, neither Zhejiang nor Jiangsu were national outliers. They ranked 6th and 9th (out of the 25 provinces for which we have data) in terms of the number of prosecuted cases per capita, and 17th and 8th in terms of the average value of reported fines per case respectively. The aggregate data suggest that our findings can likely be generalized well beyond the Jiangnan region.

Discussion

Dominant theories of Chinese economic development are predicated on the assumption that the Maoist economy was void of market activity. Early generations of social scientists concluded, on the basis of the deductive analysis of formal institutions and official statistical aggregates, that the role of markets was completely squeezed out by the Maoist state. Given the dearth of reliable

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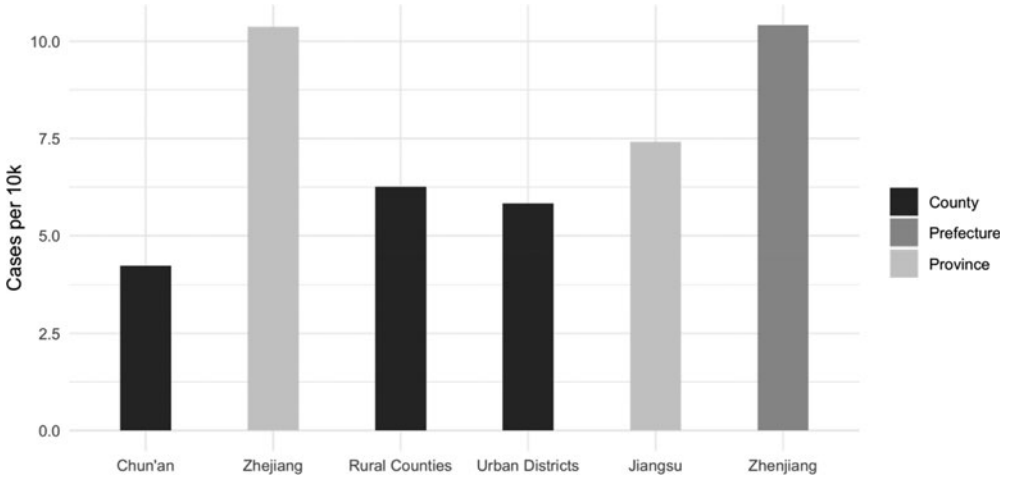

Figure 8. Prosecution Density

data for the period, there were little grounds for challenging such interpretations. But an absence of evidence is not evidence of absence. In this article, we have attempted to assemble original data derived from recovered administrative archives to demonstrate empirically that there was indeed widespread market activity under Mao.

Employing a local approach to data generation, we developed and analysed the largest existing dataset on underground market activity in Maoist China – a collection of 2,690 cases of "speculation and profiteering" prosecuted by two local administrations in eastern China between 1964 and 1978. With these data, we first showed that local underground market activity was reasonably large in scale, with prosecuted cases involving goods with values equivalent to multiple years of income for the average citizen. We then developed a novel measure of unprosecuted activity to conservatively estimate the overall size of underground market activity and found that it constituted a substantial proportion (as much as 15 per cent) of local tertiary-sector GDP. Finally, we introduced additional data collected from institutional gazetteers to show that neither of the two observed administrations were outliers at the national level.

Collectively, these findings paint a radically different portrait of the Maoist economy, revealing both the tenacity of markets and the apparent limits of state power. The evidence indicates that while the CCP carried out a series of escalating campaigns to purge "speculation and profiteering" from the economy, they were ultimately unsuccessful. Even during the Cultural Revolution, underground market activity continued to represent a substantial portion of overall economic activity and seemingly grew over time. This helps to partially explain the resurgence of entrepreneurship in the early reform era. It was not that markets and entrepreneurship re-emerged only after Reform and Opening Up; rather, it was that they never completely went away. Such a reconceptualization enables us to better bridge the history of the early PRC with the preceding and subsequent eras.

This article also represents a tentative step towards integrating Maoist China into global histories of capitalism. Our research suggests that even though Maoist China is characterized as an extreme context in which private market activity was almost completely suppressed, the size of underground market activity was probably not that far off the global mean. According to the economist Friedrich Schneider, the "shadow economy" of the average nation – defined by Schneider as all legal business activities that are deliberately concealed and performed outside the reach of state authorities – is equivalent to roughly 30 per cent of its domestic GDP.[41] While our presented evidence does not

41 See Schneider 2002; Schneider and Enste 2013; Medina and Schneider 2018.

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speak to the overall size of the shadow economy (it focuses only on the tertiary sector), there are good reasons to suspect that there was also substantial underground activity in the primary and secondary sectors; recently, historical research has begun to reveal how state-run and collective enterprises in Maoist China were thoroughly enmeshed in underground networks of production and exchange.[42] The scale of this activity relative to the tertiary sector remains an area of open inquiry. But, given what we know so far, we suspect that while underground activity in Maoist China was probably less pervasive than in present-day Russia or Kyrgyzstan (nations with "shadow economies" larger than 40 per cent of their respective GDPs), neither was it a historical outlier.[43]

Fundamental questions about the Maoist economy remain. What, for instance, were the mechanisms by which underground actors coordinated their activities? To what extent did they recombine capital, labour and knowledge in novel ways? And how did their activities interact with (or perhaps even support) the planned economy? Similarly, what was the diversity of underground activity across time and across space? Might it have been tacitly tolerated within certain local administrations and prosecuted more heavily in others? And, if so, did the different degrees of tolerance differentially impact subsequent economic development? While we make no attempt at present to address these questions, we hope that by providing robust empirical evidence of the persistence of large-scale underground market activity in Maoist China, we have at least shown that these are important questions that merit future investigation.

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42 See Frost 2022b; Thai 2018.

43 Putniņš and Sauka 2018.

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