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Is the Sharing Economy Really Sharing?-An Analysis of Resource Efficiency, Market Structure, and Growth Sustainability

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Abstract. Digital platforms such as Airbnb, Didi, Uber, and Xianyu are often promoted as ways to put unused resources into circulation, promising economic growth alongside environmental benefits. This paper examines those claims by raising three core questions. First, does "sharing" actually improve resource efficiency once rebound effects, displacement, and wider externalities are considered? Second, how do two-sided platforms deliver increasing returns while at the same time disrupting established sectors like hotels, taxis, and retail? And third, what new sustainability issues emerge when platforms scale up, and what institutions are needed to manage them? Drawing on growth theory, the analysis suggests that platform-driven reallocation can create short-term gains in productivity, while network effects and data-based learning have the potential to sustain longer-term improvements if externalities are properly governed. Evidence from Chinese studies and policy reports illustrates this mixed picture: short-term rentals reduce some hotel demand but may also stimulate additional travel and strain housing; ride-hailing often replaces public transport and raises overall vehicle use unless pooling and electrification are designed in; and secondhand marketplaces reduce new production only when durability and repair standards extend product lifetimes. Since 2016, Chinese regulation has shifted toward "growth with compliance," from ride-hailing rules to the 2024 trade-in plan that supports resale and repair ecosystems. The conclusion is conditional: the sharing economy is not inherently sustainable. It becomes sustainable only when platform growth is guided by rules and design choices—such as data-sharing, carbon-aware mobility planning, right-to-repair standards, circular economy measures, and competition policies that keep markets contestable.

Keywords: Sharing economy, Resource efficiency, Growth sustainability.

1. Introduction

The term sharing economy usually refers to digital platforms that link spare rooms, empty car seats, or secondhand goods with users almost instantly. In practice, this includes short-term rental services, ride-hailing and pool rides, as well as resale and repair through recommerce platforms. The basic idea seems simple: if society makes fuller use of existing resources, the demand for new production

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should drop, waste can be reduced, and access to services can widen. In practice, short-term rental platforms have already altered hotel demand and reshaped neighborhood life in many cities, with both benefits and drawbacks observed [1]. National reports also note that sharing services are now part of everyday life in China, though their performance has varied across sectors after the pandemic, showing resilience in some areas and uneven recovery in others [2].

Even so, it is not easy to give a straightforward judgment on sustainability. One recurring question is displacement versus induction: does an Airbnb stay or a secondhand purchase truly replace a hotel night or a new item, or does it instead stimulate more travel and extra consumption [1]? Another relates to system-level externalities: ride-hailing shifts travel patterns, creates "deadheading," and often increases vehicle miles traveled (VMT) unless pooling and transit links are strong [2-4]. A third challenge concerns governance at scale: strong network effects and data advantages can push markets toward winner-take-most outcomes, bringing housing pressure, congestion, and enforcement difficulties that call for new policy tools . China's own regulatory path —from the 2016 ride-hailing rules (updated in 2022) to the 2024 national trade-in and circularity plan—illustrates the ongoing move toward "growth with compliance" [5-7].

This paper develops along several lines. It first sets out the theoretical framework, then examines evidence on resource efficiency in short-term rentals, ride-hailing, and recommerce. After that, attention shifts to platform scale and creative disruption through the lens of two-sided market theory. The later sections set out a package of policy options for sustainable growth, before concluding with limitations and areas for future research.

2. Theoretical framework and long-run drivers

From a Solow perspective, platforms improve output mainly by reallocating resources. This raises total factor productivity (TFP) levels but does not alter the long-run growth rate. Put simply, in the Solow model sustained growth comes from outside technological progress, not from better use of what already exists. Once spare rooms, seats, or goods are matched at scale, the gains from utilization alone are mostly exhausted unless institutions or technology keep advancing [8,9].

Endogenous growth theory, by contrast, highlights the role of knowledge, networks, and spillovers. Because knowledge is non-rival, scale can produce increasing returns [10]. Two-sided platforms illustrate this logic: buyers attract sellers, sellers attract buyers, and platforms refine their algorithms for search, pricing, and trust as participation grows [11]. In this view, platforms can keep raising TFP through ongoing learning and complementary innovation, though they also create risks of market concentration that require oversight.

Since 2016, China has shifted from rapid expansion toward what policymaker's call "growth with compliance." Ride-hailing rules set baseline obligations, updated in 2022 to address new challenges, while the 2024 national trade-in plan introduced measures to promote circularity in secondhand and refurbished goods [6-7]. These policies define the environment in which platform growth now has to align with broader goals such as decarbonization, stable housing, and fair competition [5].

3. Resource utilization: when does "sharing" save resources

3.1. Short-Term Rentals (STRs)

Research from both China and abroad shows that short-term rental platforms like Airbnb increasingly compete with hotels as their market share grows. The broader environmental and housing consequences, however, remain less clear. A Chinese review points out that STRs reshape

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hotel demand, change neighborhood dynamics, and in some areas even contribute to overtourism when listings are concentrated [1]. International research also finds uneven effects on hotel revenues and occupancy.

At the same time, lower prices and wider availability can encourage extra travel, which undermines potential environmental gains. In cities where entire apartments shift from long-term rentals to tourist use, local rents and housing prices often rise. How severe this pressure becomes depends on whether host registration is enforced, whether platforms provide verifiable data to local authorities, and how elastic the long-term rental market is [1].

Policy lessons suggest that the most effective response combines platform-verified host registries, regular data feeds for regulators, zoning-based caps in high-demand neighborhoods, and tax and safety standards aligned with hotels. Some jurisdictions outside China already use these tools, while Chinese policy debates now emphasize data access as central to reconciling platform expansion with housing goals [5, 6].

3.2. On-demand mobility (ride-hailing and car-sharing)

City-level studies in China confirm that ride-hailing often substitutes for public transport, with direct implications for emissions. One study of Chengdu found that over half of ride-hailing trips had a viable public transport alternative, suggesting a large potential for emission reductions if transit supply is improved [3]. One study found that about 28–29% of ride-hailing trips in central districts were replacing transit trips, both on weekdays and weekends. The substitution was stronger during peak hours and was clearly linked to accessibility and social factors [4]. This pattern is consistent with international research, which shows that ride-hailing often increases total VMT and congestion unless pooling and transit connections are part of the design.

Three design choices appear crucial. First, setting pooling as the default option in dense corridors can raise average occupancy and reduce VMT per passenger-kilometer, as highlighted in Chinese reviews on mobility management [2]. Second, electrifying transport network company fleets and linking them with micromobility reduces tailpipe emissions; national studies of transport decarbonization stress that efficiency, electric vehicle uptake, and mode shift must go together [6]. Third, integrating ride-hailing with public transit and managing street space—for example, through pickup/drop-off rules or low-traffic zones, helps keep ride-hailing as a feeder rather than a substitute, aligning with evidence from Chengdu [3, 4].

Taken together, conventional ride-hailing based on internal combustion vehicles generally increases VMT and emissions. Designed differently—with pooling defaults, electrification targets, and integration into transit systems—it can instead become a complement to urban decarbonization [2-4].

3.3. Secondhand and recommerce (including Xianyu)

The sustainability payoff from recommerce depends on whether secondhand purchases truly displace new production. Chinese data show that recommerce is growing rapidly, though the displacement rate varies by product. Durable and repairable goods tend to replace new purchases more than fast fashion, especially when products have a longer remaining useful life [5].

Policy support plays an important role. China's 2024 Action Plan for Large-Scale Equipment Renewal and Trade-In of Consumer Goods introduced reverse logistics measures, quality grading for refurbished goods, and information-erasure standards for electronics. These measures directly enhance the circular benefits of platforms such as Xianyu [7]. The greatest environmental benefits

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are achieved when design choices and supportive policies extend product lifetimes—for example, through stronger repairability and higher quality standards.

4. Market structure and growth: increasing returns in two-sided networks

Two-sided platforms function through indirect network effects. As more riders, guests, or buyers join, the platform becomes more attractive to drivers, hosts, or sellers—and the reverse also holds true. Pricing choices—such as subsidies for one side of the market—shape participation and liquidity. With scale, platforms also build strong data assets and trust systems, reinforcing incumbents by improving matches and reducing fraud [11].

The sectoral impacts are clear. STRs affect hotel revenues and force adjustments in product mix and location strategies. Taxis face pressure from ride-hailing, which broadens supply and increases temporal coverage. Recommerce reduces demand for some new goods while extending the service life of durable ones, with the net effect depending on product categories and repairability, both of which can be influenced by policy [5, 7].

From an endogenous growth perspective, these dynamics create micro-foundations for increasing returns. Algorithmic learning and two-sided network effects allow platforms to sustain productivity gains beyond the one-time reallocation captured in the Solow view. To achieve this, however, government must ensure contestable markets, interoperability, and responsible use of data advantages [10, 11].

5. Sustainability challenges and policy package

5.1. Housing and neighborhoods (short-term rentals)

Unchecked STR growth can reduce long-term rental supply, change neighborhood composition, and complicate tax and safety enforcement. A workable strategy requires host registration, platform verification before bookings, and regular data feeds for city authorities. These tools allow regulators to set neighborhood-specific caps based on housing indicators and tourist capacity. Chinese studies highlight that overcoming data asymmetries is essential to balance platform expansion with housing objectives [1, 5].

5.2. Congestion, emissions, and safety (mobility)

Studies from Chinese cities provide numbers on how ride-hailing substitutes for transit, highlighting the potential to cut emissions if more trips are shifted toward public transport at certain places and times [3, 4]. A carbon-aware mobility strategy would mix pooling defaults where they make sense, clear electrification goals for fleets, and tighter integration with transit and curb management. At the same time, safety and liability rules need to be updated to reflect the mix of professional and peer drivers. Together, these measures can redirect the convenience of platforms toward system-wide decarbonization instead of higher VMT [2, 6].

5.3. Market power, tipping, and fairness

Because strong network effects and data moats can tilt markets, governance should aim to preserve contestability. This includes interoperability standards, data portability, and monitoring exclusionary practices by gatekeepers. Chinese scholarship frames this as a shift from unregulated scale to

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"governed scale," aligning platform incentives with social goals while protecting smaller sellers and workers [8].

5.4. Verifying sustainability claims

Platforms often report avoided emissions, pooling rates, or displacement effects. For credibility, authorities should require consistent definitions, independent auditing, and privacy-preserving data access for researchers. National reporting already emphasizes the value of standardized metrics; extending this to city dashboards would support adaptive regulation over time [5].

6. Conclusion

The sharing economy reallocates existing capacity and can improve the use of resources, but it is not automatically sustainable. STRs enhance lodging flexibility yet can also generate more travel and housing pressure unless registries, data-sharing, and zoning caps are enforced. Ride-hailing broadens mobility access but typically increases VMT unless pooling defaults, electrification goals, and transit integration are embedded. Recommerce reduces new production most effectively when durability and repairability standards extend product lifetimes.

In Solow terms, platforms mainly deliver one-time productivity gains through reallocation. From an endogenous growth view, however, ongoing learning and network effects can sustain improvements—if externalities and market concentration are properly managed.

Limitations. This paper synthesizes existing studies rather than providing causal estimates of net carbon or welfare outcomes in a specific context. Some findings are tied to local conditions and may not be held on the national scale.

Future research. Promising directions include: (1) city-level causal designs, such as regulatory discontinuities or onboarding freezes, to measure net housing, mobility, and emission effects; (2) verified displacement rates in recommerce, broken down by product category with rebound effects considered; (3) privacy-preserving platform data feeds that allow standardized measures of VMT, pooling, and housing indicators; and (4) competition and data-access pilots, such as interoperability experiments, to assess how openness influences innovation and sustainability.

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