Expected Insurance Coverage and Pharmaceutical Innovation: Evidence from China's National Drug Price Negotiation Policy

Chenyuan LIU, Yi LU, Ronghe SUN (Tsinghua University) and Wanyu YANG (Dongbei University of Finance and Economics)

ABFER 13th Annual Conference
21 May 2026

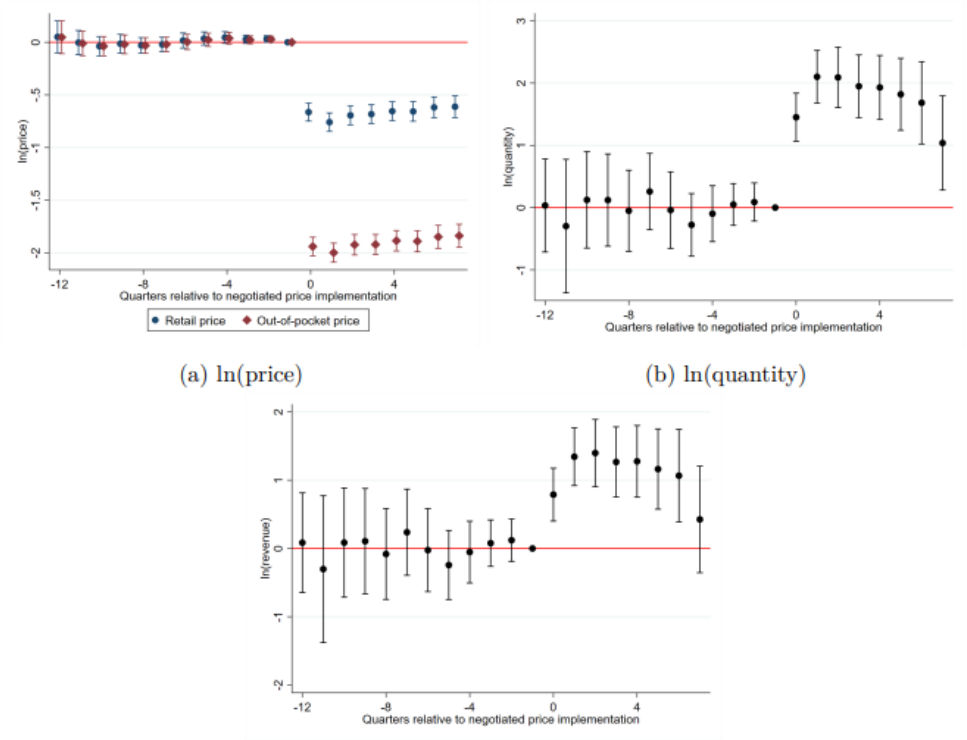
Pharmaceutical innovation is essential for improving population health, yet high drug prices have become a major and growing concern for healthcare systems worldwide. The link between prices and innovation makes drug price regulation inherently controversial: policies that negotiate drug prices can improve affordability and expand access, but may also reduce firms' expected returns and weaken incentives to invest in R&D, potentially harming future innovation. Whether drug pricing policies can contain costs while preserving incentives for pharmaceutical innovation remains a central and unresolved question in health economics.

China offers a particularly instructive lens. Despite hosting one of the largest pharmaceutical markets in the world, domestic firms historically spent less than 2% of sales on R&D — far below the global average of around 8%. The industry was dominated by generic production and incremental modifications, with innovative drugs largely excluded from the National Reimbursement Drug List (NRDL), leaving patients to bear high out-of-pocket costs and diminishing firms' expected returns to R&D investment.

Against this backdrop, the authors — Chenyuan Liu, Yi Lu, and Ronghe Sun from Tsinghua University, and Wanyu Yang from Dongbei University of Finance and Economics — examine whether a policy that pairs aggressive drug price negotiation with expanded insurance coverage can simultaneously improve affordability and stimulate pharmaceutical innovation. Their paper was presented at ABFER's 13th Annual Conference.

China's national drug price negotiation policy provides a unique institutional setting to study this question. Beginning in 2016, the government combined two interventions: bargaining prices directly with firms for exclusive drugs, and — upon successful negotiation — including the drug in the NRDL, making it eligible for generous coverage under the basic public health insurance program. By pairing large price reductions with expanded market access, the policy reshapes firms' expected returns in ways that are theoretically ambiguous, making it particularly well-suited for evaluating how drug price negotiation affects pharmaceutical innovation.

The authors first examine the impact of the negotiation policy on the revenues of successfully negotiated drugs. Using sales data from more than 500 representative public hospitals across 20 cities between 2013 and 2021, they employ a staggered difference-in-differences (DID) design to estimate the policy's effects on retail prices, out-of-pocket prices, quantities sold, and drug revenues. The results are striking: successful negotiation reduces retail prices by 50.2%, while insurance coverage translates this into an 85.5% decline in patients' out-of-pocket payments. At the same time, quantities sold surge by 476.6%, suggesting that the price reduction, along with insurance coverage, greatly expands the market size. The combined effect on revenues is strongly positive, with successfully negotiated drugs seeing a 187.2% increase (see Figure 2). These findings confirm that the policy increases firms' expected value of developing a new drug, thereby incentivizing their R&D.



(a) ln(price) (b) ln(quantity)

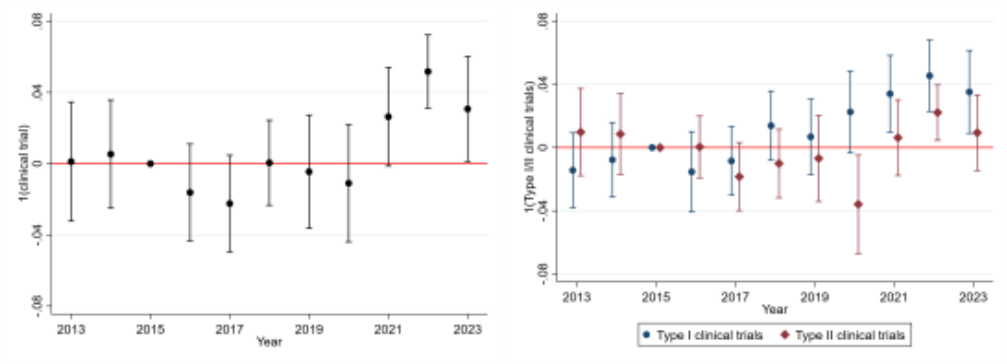
(c) ln(revenue)

Figure 2: Impacts of Successful Negotiation on Price, Quantity, and Revenue

Notes: These figures plot the estimated coefficients of the effects of successful negotiation on the log of retail price, out-of-pocket price, quantity, and revenue, along with their 95% confidence intervals. Standard errors are clustered at the drug level.

Next, the authors examine the policy's impact on pharmaceutical innovation, measured using comprehensive clinical trial data from the Center for Drug Evaluation (CDE) under the National Medical Products Administration (NMPA), covering 2013 to 2023. Focusing on clinical trials for new products not marketed anywhere globally — more likely to represent true innovation — they employ a DID design comparing innovation activity in chemical drugs and therapeutic biologics, both eligible for the negotiation policy, with preventive vaccines, which are unaffected by the policy and serve as a natural control group given their similar technologies and regulatory environment.

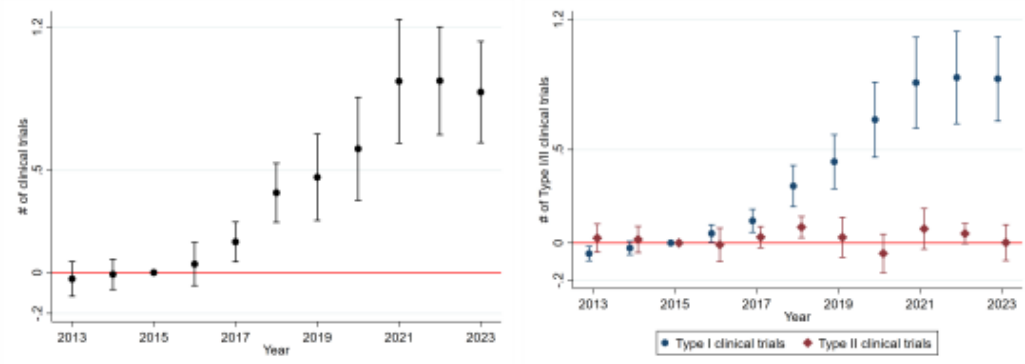
The findings are compelling. The negotiation policy increases both the incidence and the number of clinical trials, with the latter rising by 0.56 per disease per year after the policy, against a pre-policy mean of just 0.18 (see Figures 4 and 5). Critically, the effects are driven primarily by Type I clinical trials — those involving novel chemical entities representing genuine innovation — while the effects are almost zero for Type II trials involving incremental modifications to existing molecules. These patterns indicate that the negotiation policy primarily stimulates more innovative drug development. The results hold across multiple robustness checks, including firm-level analysis and an alternative treatment group of therapeutic biologics, which are even more comparable to preventive vaccines.



(a) All New Clinical Trials (b) Type I and Type II Clinical Trials

Figure 4: Parallel Trends and Dynamic Effects for the Incidence of Conducting Clinical Trials

Notes: These figures plot the estimated event study coefficients of the effects of China's negotiation policy on the incidence of conducting clinical trials (Panel a) and on the incidence of Type I and Type II new drugs (Panel b), together with their 95% confidence intervals. Standard errors are clustered at the disease-treatment level.



(a) All New Clinical Trials (b) Type I and Type II Clinical Trials

Figure 5: Parallel Trends and Dynamic Effects for the Number of Clinical Trials

Notes: These figures plot the estimated event study coefficients of the effects of China's negotiation policy on the number of clinical trials (Panel a) and on the number of Type I and Type II new drugs (Panel b), together with their 95% confidence intervals. Standard errors are clustered at the disease-treatment level.

Finally, the authors examine the policy's impact on industry dynamics. The policy not only expands the scope of firms' R&D activities by increasing the number of research fields pursued by the average pharmaceutical firm, but also encourages entry into the pharmaceutical R&D market — with the increase driven primarily by small and micro firms (see Figure 12). In addition, collaboration and outsourcing among firms become more prevalent after the policy, while marketing authorization holders (MAHs) also strengthen their in-house innovation activities.

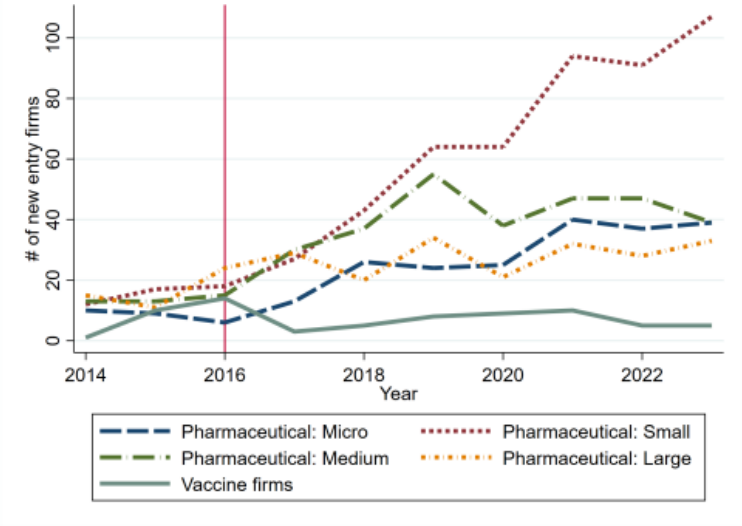


Figure 12: Number of New Firm Entries

Notes: This figure shows the time-series pattern of the number of firms first conducting Phase I clinical trials for drugs or vaccines.