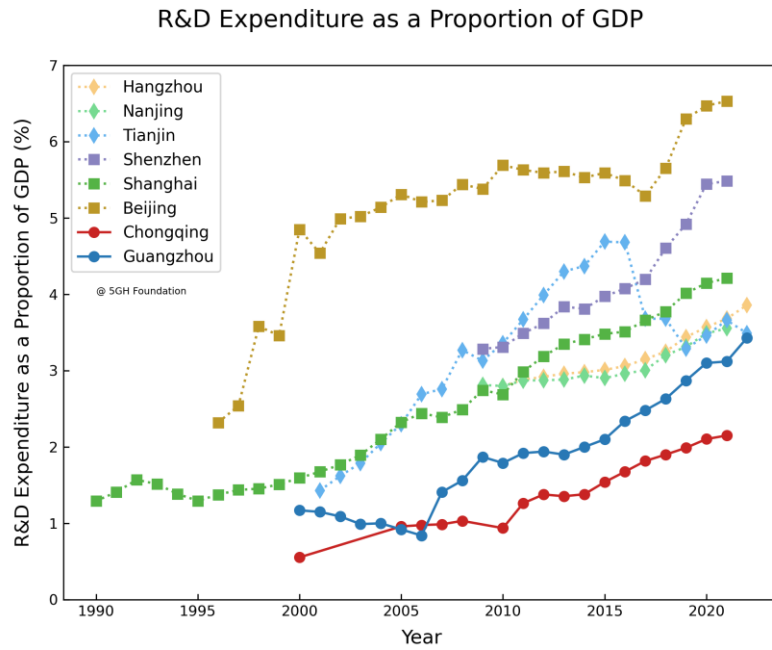
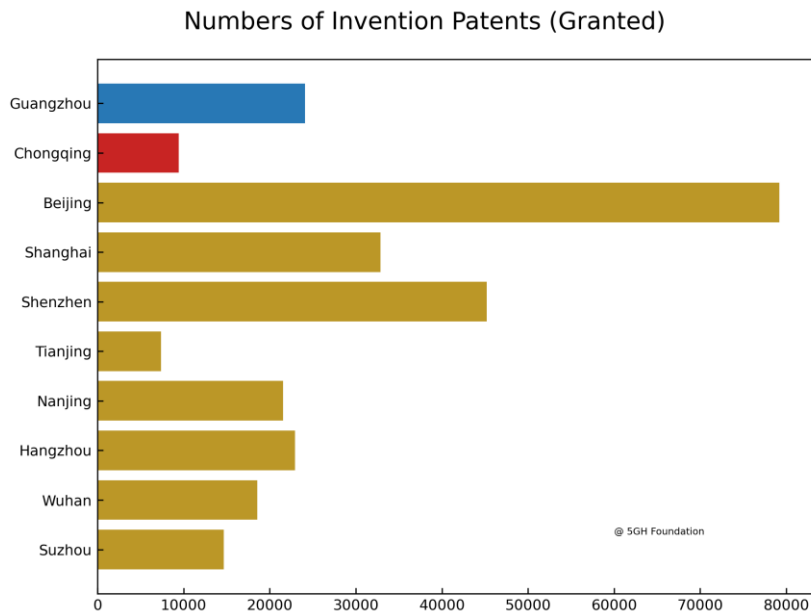




The ratio of R&D expenditure to gross domestic product also increased in top Chinese cities. In 2021, Beijing had the highest ratio about 6.53%, followed by Shenzhen (5.49%), and Shanghai (4.21%).



Other Chinese cities with top R&D expenditure were Guangzhou (98.84 billion CNY in 2022), Hangzhou (72.30 billion CNY in 2022), Nanjing (57.88 billion CNY in 2021), and Tianjin (56.87 billion CNY in 2021).



These cities also had high granted invention patent numbers. The number in Beijing reached 79210 in 2021, followed by Shenzhen (45202) and Shanghai (32860).