

Rebuilding Better: How Transport Infrastructure Investment Can Contribute to Economic Recovery and Adapt to a Post-COVID World

### 疫情之后,交通基础设施投资如何带动经济复苏

演讲人: 任斌,世界银行交通全球发展实践局副局长

Presenter: Binyam Reja, Practice Manager, Transport GP, World Bank

演讲时间: 2020年9月8日

Date: September 8<sup>th</sup>, 2020

# wēi jī 危机 Crisis

wēi xiǎn 危险 Danger jī yù 机遇 Opportunity

"Never let a good crisis go to waste."

# Fall and Rise of Mobility in China

疫情对中国交通运输的影响与恢复

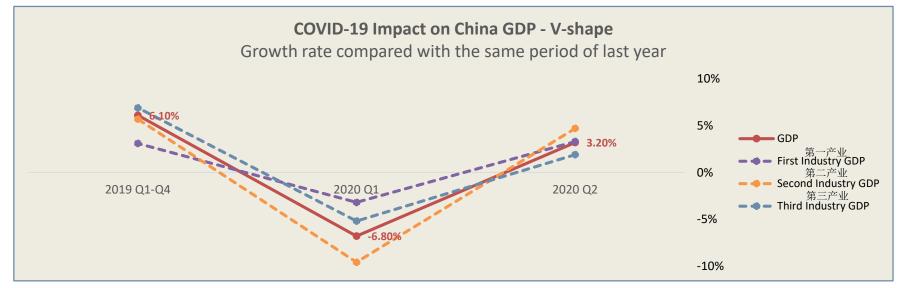


### **COVID-19 impact on China's economy**

疫情对中国经济的影响

As COIVID 19 cases declined and social distancing and lockdown measures gradually lifted, many economic activities have been restored and on a recovery path.

随着COIVID 19例病例的减少和社会隔离和封锁措施的逐步取消,许多经济活动已经恢复并正在恢复。



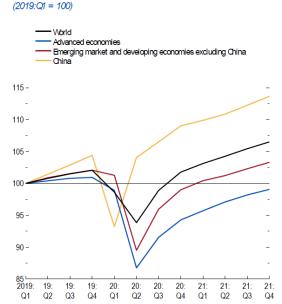
## **COVID-19 impact on world economy**

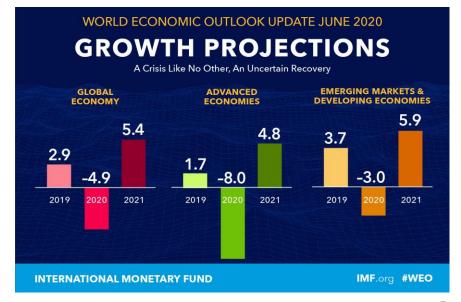
### 疫情对世界经济的影响

According to IMF estimates, global growth is projected at -4.9% in 2020. In China, growth is projected at 1.0% in 2020.

据国际货币基金组织估计,2020年全球经济增长预计为-4.9%。中国2020年的增长率预计为1.0%。



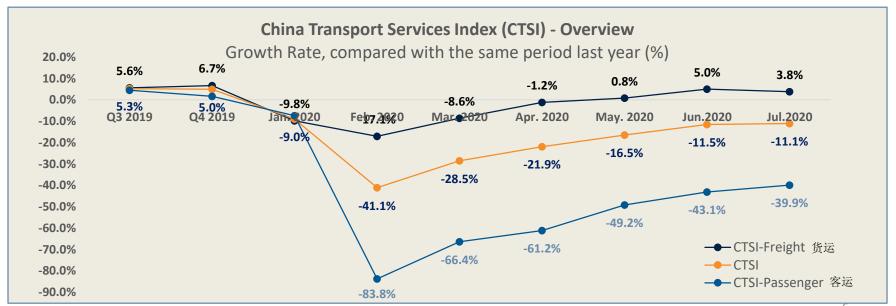




### **COVID-19 impact on China's transport service**

疫情对交通服务的影响 (中国交通生产指数 CTSI) Transport demand has been gradually moving back to its pre-pandemic level.

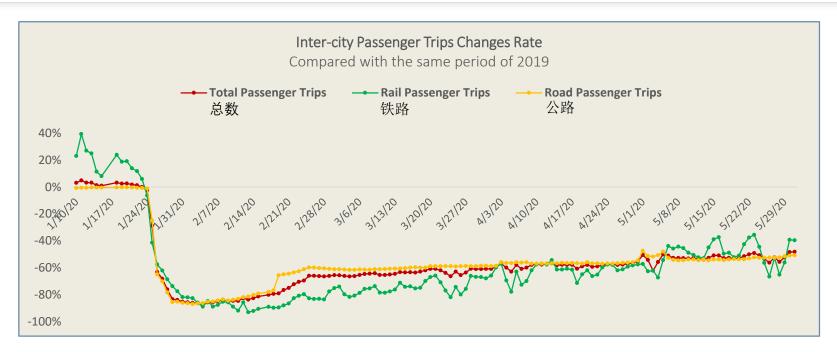
交通生产需求已逐渐回到疫情前的水平。



# COVID-19 impact on China's transport service 疫情对交通服务的影响

Inter-city travel has shown signs of recovery but remained low after 100 days since CNY.

春节过去100天后,跨省出行已显示出复苏的迹象,但仍处于低位水平。

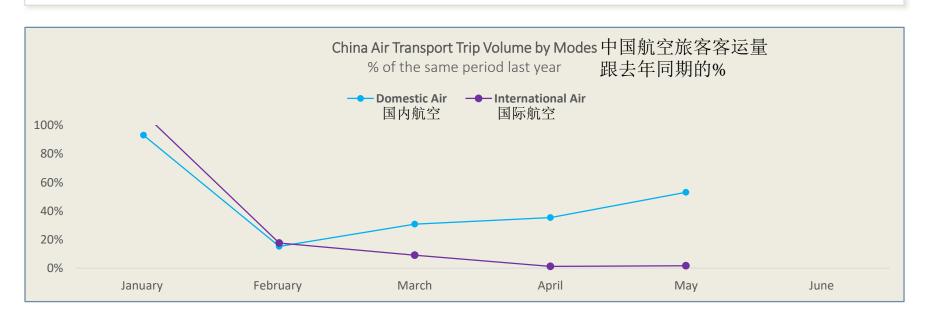


### **COVID-19 impact on China's transport service**

### 疫情对交通服务的影响

Domestic air travel resumed; however international travel still affected.

国内航空旅行恢复; 但是国际航空仍然受到影响。

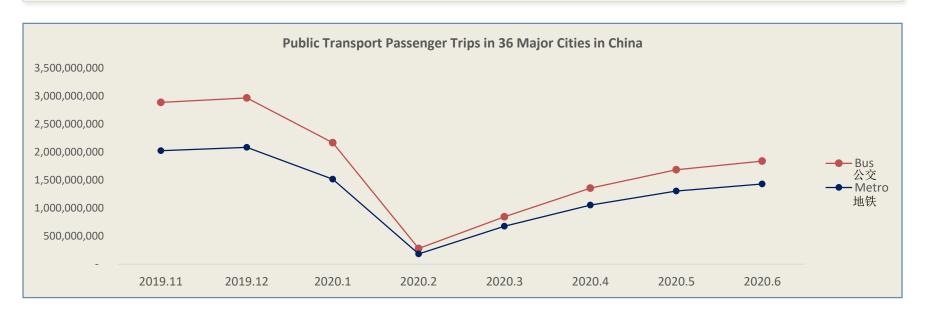


## **COVID-19 impact on China's transport service**

### 疫情对交通服务的影响

**Public transit** including **bus** and **metro** systems in 36 major cities in China was experienced a sharp decline of passenger trips in February 2020 as low as 12 percent and 13 percent respectively of the pre-lockdown level.

2020年2月,中国36个主要城市的**公交**和**地铁**等**公共交通系统**的客运量急剧下降,低至封锁前水平的12%和13%



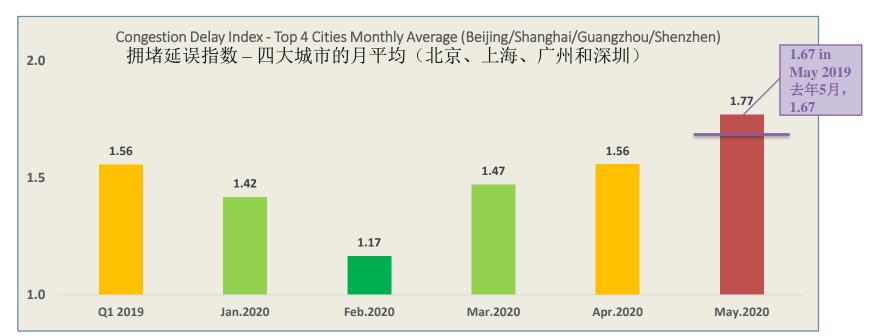


### Congestion is back 大城市交通已经又开始拥堵

Congestion Index in four major cities in China (Beijing/Shanghai/Guangzhou/Shenzhen) was 30% of the prelockdown level. Starting in April, congestion is already back, and even worse than before.

Rush hour traffic is particularly pronounced, suggesting work-from-home has ceased after the pandemic was controlled.

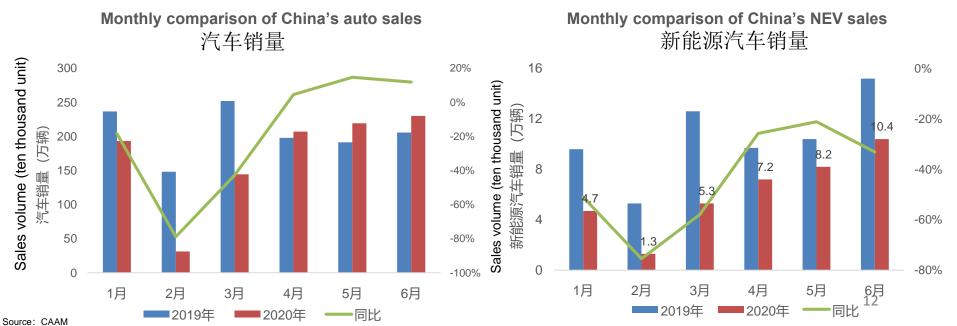
北京、上海、广州和深圳的拥堵延误指数在疫情期间只有平时的30%,但从四月份起,大城市已经又开始拥堵,甚至比往年同期更拥堵。高峰时段的交通特别明显,这表明疫情已得到控制,人们不再在家办公。



### Private Car Sale Went Up 汽车销量回升

Private auto sales has recovered and exceeded last year's except during the peak of the pandemic (February and March), but sales of NEV are lower than last year. Low oil prices and declining government incentives/subsidies are affecting the competitiveness of NEV.

除了在疫情高峰期(2月和3月)外,汽车销售已经恢复并超过了去年,但新能源汽车的销量依然低于去年。 低油价和政府激励/补贴的下降正在影响新能源汽车的市场竞争力。



Urban density is perceived as risk for disease transmission. Some people are moving to lower-density places. 最高人口家庭被认为具具效应情况

城市人口密度被认为是导致疫情传播的因素。人们正在搬迁到低密度的郊区。

There are reports to suggest New Yorkers and other city dwellers are moving to the suburbs.

In July, there was a 44% increase in home sales for the suburban counties surrounding NYC when compared with numbers in 2019

有报道表明纽约居民和其他城市居民正在向郊区迁移。今年7月份,纽约市周边郊区的房屋销售比去年同期增长了44%。

Lower density settlement can potentially increase travel by car.

低密度的发展将会增加对小汽车的依赖。



These emerging travel behavior trends post-COVID could lead to a strong resurgence in demand for fossil fuels with potential setbacks to the global decarbonization trajectory 这些由疫情带来的变化可能会导致对化石燃料需求的增长,从而抵消了全球脱碳的努力。



Transport sector emission, 9.6% of total in 2017, continues to rise along with increasing car ownership and international and domestic trade

随着汽车保有量以及经贸的增长,交通行业的碳排放持续增加(2017年占总排放量的9.6%)

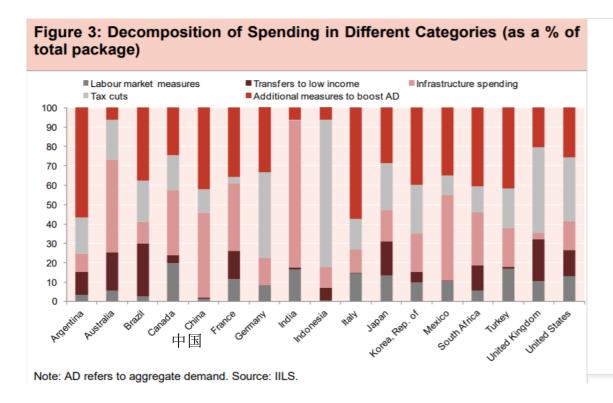
# Lessons from 2008-09 Stimulus Program

2008-09年经济刺激 计划的经验教训





# Composition of fiscal stimulus for Global Financial Crisis (2008) 2008全球金融危机的财政刺激计划构成



The Euro area stimulus consisted mainly of tax cuts and transfers.

US had a combination infrastructure spending and tax cuts and transfers.

China focused primarily on infrastructure investment.

在欧元区,这些措施主要包括减税和增加转移支付。

美国,包括基础设施建设支出与减税和转移支付的组合。

中国的主要集中在基础设施投资上。

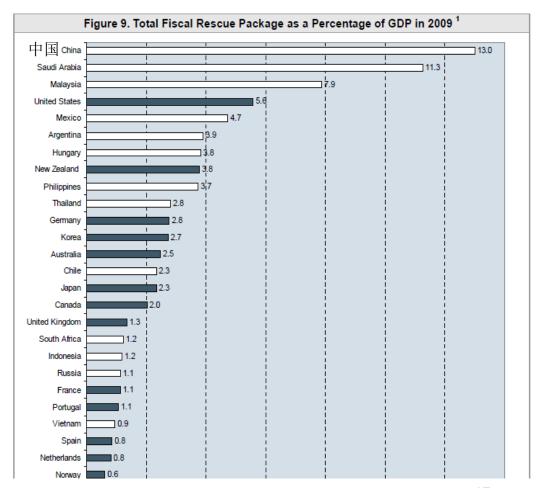
# **2008-09 Fiscal Stimulus 2008-09全球金融危机的** 财政刺激计划

China adopted the largest stimulus package, equivalent to 13% of GDP.

中国推出了最大规模的刺激 计划,相当于GDP的13%。

China's stimulus program was focused in large part on accelerating the high-speed rail network.

中国的刺激计划主要集中在推动高铁的发展。



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# Lessons from 2008-09 Infrastructure Stimulus Program 2008-09年经济刺激计划的经验教训

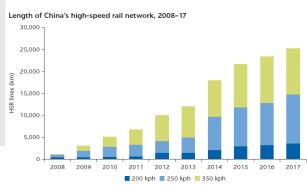
#### China 中国

- Focused on accelerating long-term infra investment, especially High Speed Railway (HSR) 集中在长期基础设施投资,特别是高速铁路(HSR)
- Leveraged local government spending 调动地方政府配套资金
- Incentives provided and accommodating policies for local government borrowing 为地方政府借款提供激励措施和宽松政策
- HSR built more 35,000 km built since 2008 高铁取得了巨大的成功(自2008年以来已建成3.5万公里)
- Other infrastructure investment followed 其他基础 设施投资也紧随其后
- Agglomeration Benefits -- making distance shorter between major cities, creating economic mass, and providing access to jobs 集聚效益-缩短主要城市之间的距离,创造经济规模并提供就业机会

#### USA 美国

- Focused on shovel-ready highway maintenance projects 集中在准备充分的公路养护项目上
- No requirements for local governments to match spending 对地方政府的配套资金没有要求

- Generated short-term construction jobs 推动了短期的建筑工人就业机会
- County-wider employment was negligible (little multiplier effect) 全县范围内的就业微不足道(倍增效应低)
- Crowded out state and local spending (states replaced federal grant; no "flypaper effect"). 取代了州和地方政府的支出(没有"粘蝇纸效应")。

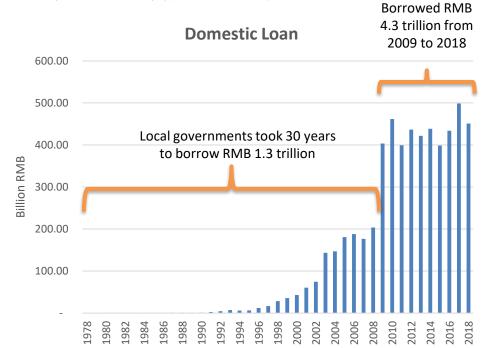


### Impact of Fiscal Stimulus on Local Government Debt 财政刺激对地方政府债务的影响

#### Rapid Accumulation of Debt 债务累累

Since 2008, local debt accelerated. Explicit local government debt was 4.3 trillion between 2009 and 2018, and only 1.3 trillion for preceding 30 years Local governments also had implicit debt related to their UDICs and other

obligations, amounting to RMB 17 trillion. 自2008年以来,地方债务加速增长。2009年至2018年间,地方政府的借贷4.3万亿元,而过去30年仅为1.3万亿美元。地方政府还存在与城投及其他偿债相关的隐性债务,总计人民币17万亿元。



#### Urban Sprawl 城市扩张

The spatial area of the cities grows faster than the population, resulting in the low-density sprawl.

城市的空间面积增长快于人口增长,导致密度低的城市扩张。

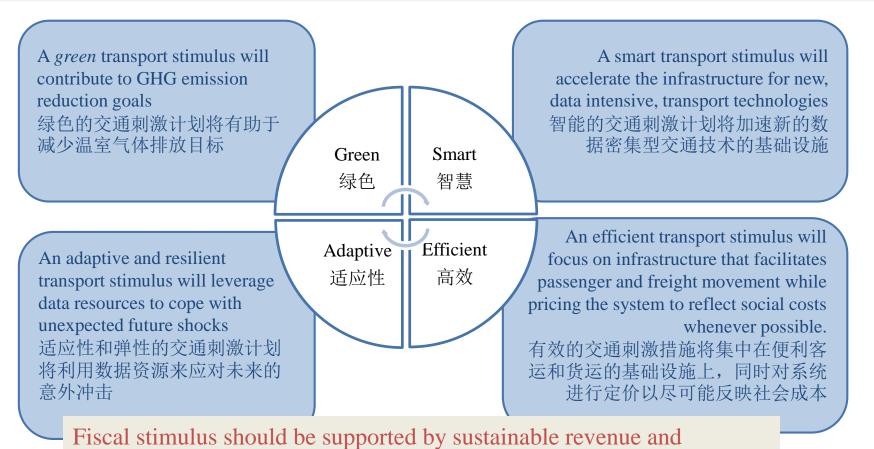


# Lessons from 2008-09 Stimulus Program 2008-09年经济刺激计划的经验教训

- Transport infrastructure stimulus programs can increase net transport spending, but scale and scope matter e.g. transformation projects versus shovel-ready projects 刺激计划可以增加交通运输的净支出,但规模和范围很重要,例如,革新类项目与准备充分的项目
- Trade off between short-term construction jobs versus project to improve economic efficiency and productivity, which lead to employment further down 在短期能大量创造就业的项目与提高经济效率和生产率的项目之间进行权衡,因为后者将在未来创造更多的就业机会。
- Central government sponsored fiscal stimulus program should create incentives and policies for local governments' participation 中央政府的财政刺激计划应该激励与调动地方政府的配套和参与
- Effective transport stimulus programs should be tied to long-term goals, at a scale that can enhance productivity (via agglomeration benefits), efficiency (reduction of trading costs), and improving access to essential services and jobs for the poor and underserved population. 有效的交通刺激计划应与长期发展目标联系在一起,其规模应能提高生产率(通过集聚效益),效率(降低贸易成本),并改善穷人和服务欠缺人群的基本服务和就业机会。
- Infrastructure debt will increase with spending; there will be a need to identify revenues to repay the loans and ensure the sustainability of the infrastructure 基础设施债务也将随着支出而增加; 需要确定收入以偿还贷款并确保基础设施的可持续性



### A green recovery should focus on four big goals 绿色复苏的四大主题



financing mechanism 财政刺激应以可持续的收入和融资机制为支撑

### Green Mobility 绿色出行

- Promote Non-motorized transport (walking, bicycling) and micro-mobility (e.g. dockless bicycles or scooters) 推动非机动出行(步行,骑自行车)和微出行(例如共享单车或平衡车);
- Provide high-quality public transport system 提供高质量的公交系统
- Retrofit urban streets to accommodate safe use of non-motorized transport 改造城市街道,以保障非机动车出行安全
- Complete missing links for public transport connectivity (last mile, feeder services) 完善公共交通连接的缺失环节(最后一公里,接驳服务)
- Policy, technology and infrastructure that support shared mobility and electric mobility 支持共享出行和电动出行的政策、技术和基础设施
- Shift from supply expansion to travel demand management with policies to disincentivize private car use, e.g. congestion pricing, parking management, zoning 从供应扩张转向出行需求管理,制定政策以抑制私家车的使用,例如拥堵定价、停车管理和分区
- Build institutional framework at metropolitan level to develop low-carbon transport strategy both for supply and demand side 在城市群层面建立机构框架,以制定包括供给和需求方面的低碳交通战略



### Smart and Connected Mobility 智慧交通

- Expand the application of disruptive and established technologies to plan, manage, and operate transport infrastructure and services 扩大颠覆性和成熟技术的应用范围,以规划、管理和运营交通基础设施和服务
- Develop data infrastructure and analytics to support shared-passenger ride-hailing, micro-mobility 开发数据基础架构和分析以支持拼车服务和微出行
- 5G wireless telecommunications system will be game changer for urban mobility 5G无线电信系统将改变城市出行:
- New policies and procedures will be required for data specifications/standardization and data sharing to allow collaboration across sectors, modes, and providers. 数据规范/标准化和数据共享将需要新的政策和规范,以允许跨部门,模式和供应商的协作:
- Transport agencies should develop protocols for data sharing, anonymizing data to ensure that travelers cannot be individually identified, storing samples and aggregates of historical data, and analyzing data in real-time to adjust systems 交通部门应制定数据共享协议,对数据进行匿名处理以确保不能单独识别个体用户,存储历史数据的样本和集合以及实时分析数据来调整系统;



### Efficient Transport and Logistics 高效交通和物流

China's Logistics Cost as %

of GDP still high

16.0%

14.0%

China

India

Enhance efficiency of interurban transport and logistics through: 通过以下方式提高城际交通运输和物流效率:

- Intermodal integration to promote low carbon modes such as waterways and railways 多式联运以促进低碳模式,例如 水路和铁路
- Internalizing external costs of fossil fueled transport to further incentivize road users and logistics service providers 将化石 物流服务供应商



### Adaptive and Resilient Transport 适应性和弹性交通

- Develop multi-modal mobility system to create choice, "redundancy", and flexibility开发多式联运系统,以增加出行方式的选择性、"多样性"和灵活性;
- Leverage the big data to facilitate service adjustments to reflect crisis situation. 利用大数据促进服务调整,以应对危机情况;
- Develop coordination at metropolitan level to share information and coordinate emergency response and logistics 在城市群层面开展协调,以共享信息、协调应急响应和物资调配;
- Invest more in integrated management systems, digital solutions, and flexible contingency plan 在综合管理系统、数字解决方案和灵活应急计划方面投入更多





### Fiscal stimulus should be supported by sustainable revenue and financing mechanism 财政刺激应以可持续的收入和融资机制为支撑

Expand and diversify revenue sources to fund transport investment and services 扩大收入来源并使 其多样化,为交通运输投资和服务提供资金:

• Land Value Capture: Property tax/betterment tax 土 地价值捕获: 地产税/改良税

Introduce optimal pricing mechanism for effective use of transport facilities and services, while generating revenues that could be ploughed back to improve services 为有效利用交通设施和服务,引入最佳定价机制,同时创造可用于改善服务的收入:

- Congestion price for road 道路拥堵费
- Dynamic parking charges 动态停车收费
- Targeted user-side subsidy for public transport users 定向公交用户补贴
- Fuel levies for green mobility system 绿色交通系统燃油税
- Vehicle-miles travel charging 车辆行驶里程收费

Move away from land-based financing and explore New Financing Mechanism 从土地融资转向新的融资机制:

- Project Financing 项目融资
- Long-term loans/bonds 长期贷款/债券
- PPP政府与社会资本合作
- Asset Recycling (Infrastructure REITs) 资产循环(基础设施房地产投资信托 基金)