

Online supplementary materials

Appendix 1.

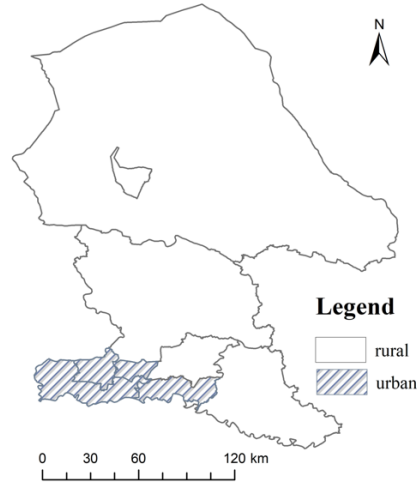


Figure S1. Study area.

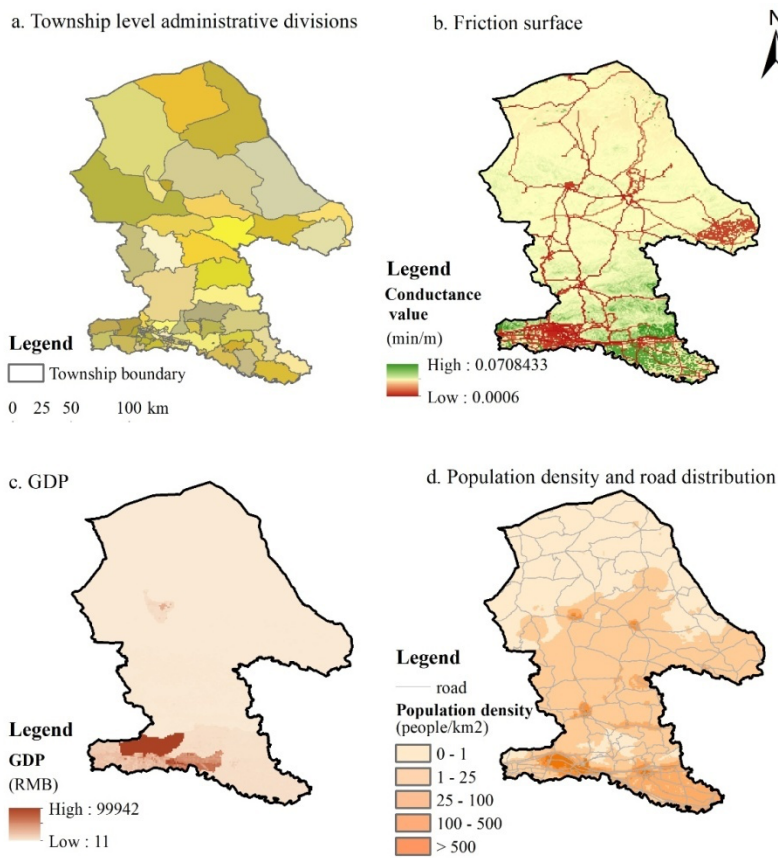


Figure S2. General data information. (a) Township level administrative divisions; (b) Friction surface; (c) GDP; (d) Population density and road distribution

Appendix 2. Point-of-Interest (POI) data retrieval and processing overview

We used the keyword search functionality of Baidu Maps and AutoNavi Maps APIs to search for hospitals and primary healthcare institutions¹(Table S1). Compared to obtaining healthcare institution POIs based on category labels, we obtained a greater quantity of POIs through keyword searches. We merged the search results from Baidu Maps and AutoNavi Maps and used a manual matching approach to remove duplicates. The finalized results are presented in Table S1.

Table S1. POI Data Search Keywords and Final Results

| Health-care unit | Key word | POI data | Authoritative data | Identical data |
|------------------|---|----------|--------------------|----------------|
| Hospital | General Hospitals, Mongolian Medicine Hospitals, Traditional Chinese Medicine Hospitals, Obstetrics and Gynecology Hospitals, Orthopedic Hospitals, Psychiatric Hospitals, Rehabilitation Hospitals, Dental Hospitals, Cosmetic Surgery Hospitals, Dermatology Hospitals, Ophthalmology Hospitals, Plastic Surgery Hospitals, Traditional Chinese and Western Medicine Hospitals, Traditional Mongolian Medicine Hospitals, Traditional Chinese Medicine Hospitals, Cancer Hospitals, Infectious Disease Hospitals, Children's Hospitals, Ear, Nose, and Throat Hospitals, Maternal and Child Hospitals, Otorhinolaryngology Hospitals, Cardiovascular Hospitals, Venereal Disease Hospitals, Chest Hospitals, Hematology Hospitals, Dental Clinics, Plastic Surgery Clinics, Occupational Disease Hospitals, Nursing Homes | 127 | 103 | 93 |
| PHC | <u>CHSs and VCs</u> , such as Community Health Stations, Village Clinics | 162 | 575 | 132 |
| | <u>THCs and CHCs</u> , such as Community Health Service Centers, Township Health Centers, Central Health Centers, Street Health Centers, Health Centers | 113 | 134 | 96 |

| | | | | |
|-------------|--|------|------|------|
| | <u>Other PHIs</u> , such as Outpatient Clinics, Health Centers, Medical Offices, Clinics, Dental Outpatient Clinics, Blind Medical Massage Centers, Traditional Chinese and Western Medicine Outpatient Clinics, Traditional Chinese Medicine Outpatient Clinics, General Outpatient Clinics, Orthopedic Clinics, Dental Clinics, Dermatology Clinics), Western Medicine Clinics, Traditional Chinese Medicine Clinics, Specialized Outpatient Clinics, Psychiatric Outpatient Clinics, Medical Aesthetic Clinics, Medical Offices | 1249 | 1103 | 731 |
| Total PHIs | | 1524 | 1812 | 959 |
| Grand total | | 1651 | 1915 | 1052 |

POI=point-of-interest; PHC=primary health care; CHS=community health station; VC=village clinic; THC= township health centres; CHC= community health center; PHI=primary health institution.

Appendix 3. Comparison between POI data and authoritative data.

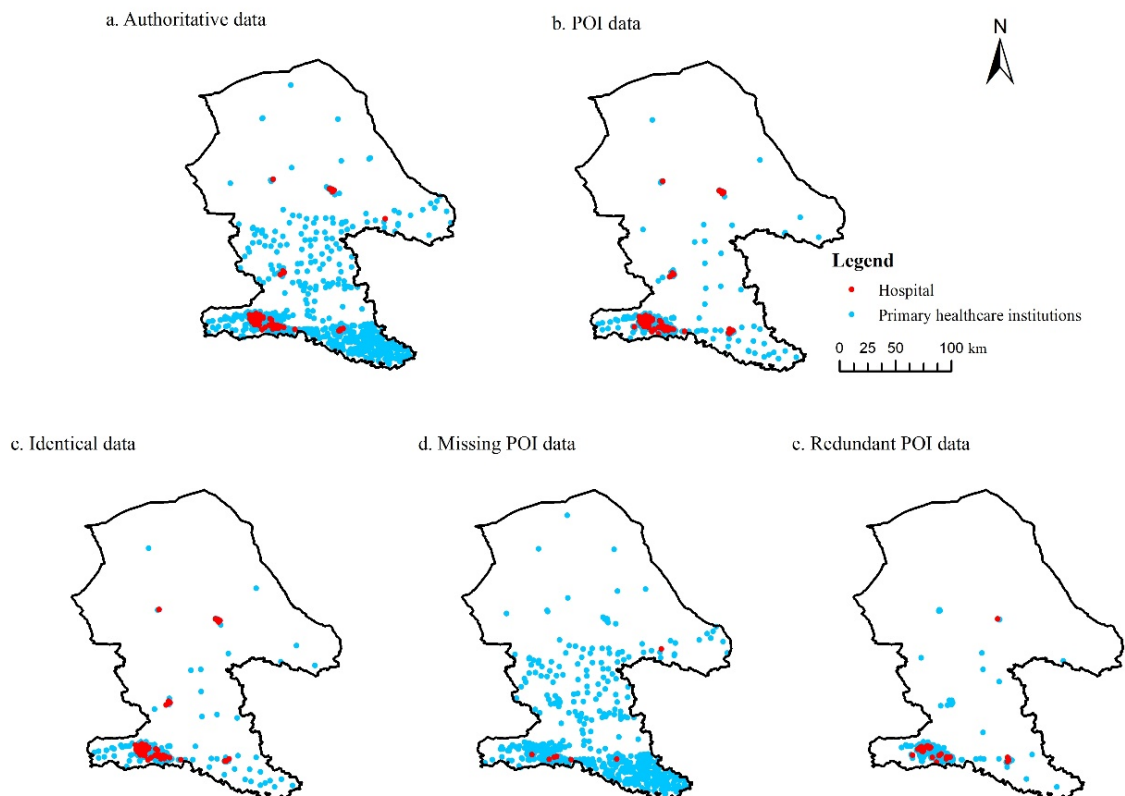


Figure S3. Comparison between POI data and authoritative data. (a) Authoritative data; (b) POI data; (c) Identical data; (d) Missing POI data; (e) Redundant POI data.

Appendix 4. Geographic accessibility at the township level.

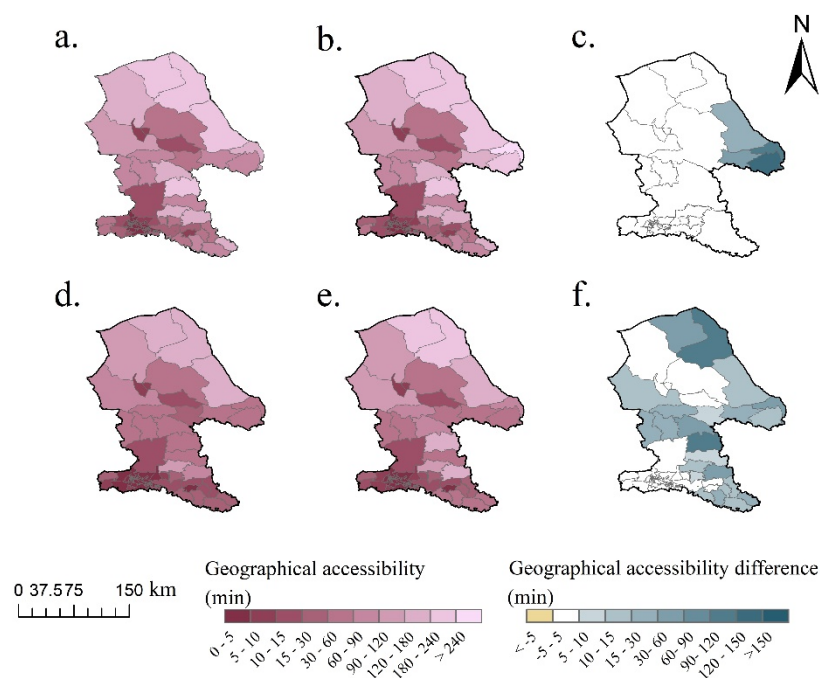


Figure S4. Geographic accessibility at the township level.

a and b, Geographic accessibility to hospitals calculated by authoritative data (a) and POI data (b), respectively; c, differences of geographic accessibility to hospitals between authoritative data and POI data; d and e, geographic accessibility to primary healthcare institutions calculated by authoritative data (d) and POI data (e); f, differences of geographic accessibility to primary healthcare institutions between authoritative data and POI data.

References

- 1 Ministry of Health Health Statistics Information Center. Vol. WS 218-2002 1-16 (Ministry of Health of the People's Republic of China, 2002).