**Xian Zhang, MAE**

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**Education**

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| M.A. in Economics | Duke University (Durham, NC, USA), 2019  Courses: PhD-level Econometrics, micro-econometrics, field course: economics in discrimination and inequality, field course: sensitivity and robustness in econometrics  Award: M.A. Merit Scholar Award |
| B.M. in Corporate Finance | Shanghai University of International Business and Economics (Shanghai, China), 2017  Award: Second Prize Scholar Awards (Ranking 10%) for the 2013-2014 and 2014-2015 Academic Years, Third Prize Scholar Award for the 2015-2016 Academic Year |

**Fellowship**

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| 2024 - 2027 | China Center for Health Economic Research (CCHER) Fellowship, Peking University National School of Development and Institute for Global Health and Development, Beijing, China |

**Professional Experience**

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| 2021.07 – present | **Research Fellow (Full-time)** (Supervisor: Prof. Lijing Yan [lijing.yan@duke.edu](mailto:lijing.yan@duke.edu))  *Global Health Research Center, Duke Kunshan University, Suzhou, China*   * Constructed multiple research cohorts from health administration databases and standardized health data cleaning rules according to gold standard criteria. * Designed and applied methods including synthetic difference-in-differences, propensity score matching, regression discontinuity, instrumental variables, and model simulations to study vaccine effectiveness, vaccine behavior, environmental health, healthcare policy evaluation, and cost-effectiveness analysis, resulting in 10+ academic publications. (See key publication) * Contributed to 4 grant applications. * Led research workshops and journal clubs, supervising10+ students’ theses using CLHLS data, resulting 5+ publications. * Designed and delivered [lectures on data analysis](https://xian152.github.io/teaching/). |
| 2023.6 – present | **Research Assistant (Part-time)** (Supervisor: Prof. Yuyu Chen [chenyuyu@gsm.pku.edu.cn](mailto:chenyuyu@gsm.pku.edu.cn))  *Guanghua School of Management, Peking University, Beijing, China*   * Identify the causal effect of community-level rabies exposure on local influenza vaccination by applying difference-in-differences and instrumental variable regression on health administration databases. |
| 2019.11 – 2021.06 | **Consultant (Contract)** (Supervisor: Economist Sven Neelsen [sneelsen@worldbank.org](mailto:sneelsen@worldbank.org))  *The Universal Health Coverage, The World Bank Group, Washington D.C., USA*   * Cleaned the Demographic Health Survey (DHS) database I-VII. * Supported the development of the [Health Equity and Financial Protection Indicators (HEFPI)](https://datatopics.worldbank.org/health-equity-and-financial-protection/) global database. |
| ﻿2018.06 – 2019.08 | **Research Assistant (Part-time)** (Supervisor: ﻿Prof. Marjorie McElroy [mcelroy@econ.duke.edu](mailto:mcelroy@econ.duke.edu))  ﻿*Department of Economics, Duke University, Durham, NC, USA*   * Developed a simultaneous equation model to analyze gender-specific two-way causality between labor and marriage markets. * Identified and estimated equilibrium with 10+ various instrumental variables. |
| ﻿2018.05 – 2019.01 | ﻿**Research Assistant (Part-time)** (Supervisor: Estuardo Pineda [*estuardo.pineda@duke.edu*](mailto:estuardo.pineda@duke.edu))  *﻿Duke Center for International Development, Duke University, Durham, NC, USA*   * Designed and conducted two online surveys on child malnutrition among 150 Guatemalan NGOs using Qualtrics. * Created an [interactive map](https://xian152.github.io/portfolio/) in ArcGIS to visualize 4,730 nutrition activities. |

**Key Publications** *(\* first author, #corresponding author, +student’s thesis mentored)*

Published 9 peer-reviewed manuscripts, with 2 manuscripts currently under review.

Google Scholar Citations: 26; h-index: 4 (as of 2024.12)

**Manuscripts Under Review：**

1. **Zhang X\***, Zhang X\*, Li Z\*, Fang Y, Dong W, Liu Z, Wu J#, Yan LL#.

Synthetic difference-in-differences method in program evaluation: A case study of the National Integrated Demonstration Areas for Non-Communicable Disease Prevention and Management Program in China. *Health Policy*

2. **Zhang X\***, Chen C, Shen P, Ji X, Yang B, Su K, Hu R, Zhou W, Liu L, Liu J, Jin X, Zhang B, Chen Y, Liu G, Fang H, Lin H, Sun Y#, Yan LL.#

Cost-effectiveness Analysis of a Local Free Influenza Vaccination Program for Older Adults: Real-world Evidence based on 157,554 participants from Yinzhou District, China. *The Lancet Regional Health – Digital Health*

**Selected Peer-Reviewed Publications**

1. Dong W\*, Zhang X\*, Liu S\*, **Zhang X**, Li Z, Gu M, Yang Y, Fang YE, Li H, Qian J, Zhang M, Wang L, Yan LL, Wu J. Effect of the national integrated demonstration area for the prevention and control of noncommunicable diseases programme on behavioural risk factors in China: A synthetic difference-in-differences study. *Lancet Reg Health West Pac.* 2024 Aug 9;50:101167. doi: 10.1016/j.lanwpc.2024.101167. PMID: 39219626; PMCID: PMC11363990
2. Chen X\*, Zheng Y\*, Wang K, **Zhang X**, Nakai K, Yan LL#. Resting heart rate and risk of dementia: A Mendelian Randomization Study in the International Genomics of Alzheimer’s Project and UK Biobank. *PeerJ*
3. Sun Y\*, **Zhang X\***, Shen P, Ye L, Yan LL#, Lin H#. [Effectiveness of free influenza vaccination among elderly people ≥70 years of age in Yinzhou district of Ningbo city: A real-world retrospective cohort study]. *Chinese Journal of Vaccines and Immunization,* 2023,29(03):253-260. DOI:10.19914/j.CJVI.2023043. *(In Chinese)*
4. **Zhang X\***, Shen P\*, Liu J, Ji X, Su K, Hu R, Chen C, Fang H, Jin X, Lin H, Sun Y#, Yan LL#. Evaluating the Effectiveness and Cost-effectiveness of Free Influenza Vaccination Policy for Older Adults in Yinzhou, China: Study Protocol of a Real-World Analysis. *Vaccine.* 2023 Jul 31;41(34):5045-5052. doi: 10.1016/j.vaccine.2023.06.087. Epub 2023 Jul 5. PMID: 37419850
5. Gu Q\*, Zheng Q, Zhang X, Lin L, Li S, Chen F, **Zhang X+**, Yan LL, Chen W. Trends in Health Service Use for Dry Eye Disease From 2017 to 2021: A Real-World Analysis of 369,755 Outpatient Visits. Transl Vis Sci Technol. 2024 Jan 2;13(1):17. doi: 10.1167/tvst.13.1.17. PMID: 38236189; PMCID: PMC10807500.
6. Chen X\*, Wu W, **Zhang X**, Long T, Zhu W, Hu R, Jin X, Yan LL#, Yao Y#. Mediation analysis of leisure activities on the association between cognitive function and mortality: A longitudinal study of 42,942 Chinese adults 65 years and older. *Epidemiol Health.* 2022;44:e2022112. doi: 10.4178/epih.e2022112. Epub 2022 Nov 27. PMID: 36470262; PMCID: PMC10106552
7. Xiong S\*, Wang Z, Lee B, Guo Q, Peoples N, Jin X, Gong E, Li Y, Chen X, He Z, **Zhang X+,** Yan LL#. The association between self-rated health and all-cause mortality and explanatory factors in China's oldest-old population. J Glob Health. 2022 Jul 23;12:11005. doi: 10.7189/jogh.12.11005. PMID: 35866355; PMCID: PMC9305379.
8. Jin X\*, Long T, Chen H, Zeng Y, **Zhang X**, Yan LL.# and Wu C#. Associations of Alcohol Dehydrogenase and Aldehyde Dehydrogenase Polymorphism with Cognitive Impairment Among the Oldest-Old in China. Front. Aging Neurosci. 13:710966. doi: 10.3389/fnagi.2021.710966
9. Jin X\*, Xiong S, Yuan C, Gong E, **Zhang X**, Yao Y, Leng Y, Niu Z, Zeng Y# and Yan LL# Apolipoprotein E Genotype, Meat, Fish, and Egg Intake in Relation to Mortality Among Older Adults: A Longitudinal Analysis in China. Front. Med. 8:697389. doi: 10.3389/fmed.2021.697389

**Selected Non-peer-reviewed publications** *(+student’s thesis mentored)*

1. **Zhang, X.**, 2024. The Association between Leisure Activities and the Risk of Cardiometabolic Multimorbidity among Older Chinese Adults. Accepted by EPI | Lifestyle Scientific Sessions 2025.
2. Shen, J., Zhuge, J., Lin, J., Zhou, X., Ding, X., Zhou, H., Wang, Y., **Zhang, X.**+, Xu, X., and Yan, L. 2024. The Mediation Effect of Dietary Diversity on the Association between Oral Health and Cognitive Function among Chinese Older Adults. Abstract accepted by the 8th Global Public Health Conference 2025.
3. Zhou, X., Wang Y., Shen, J., Li, D., Ding, X., Zhou, H., **Zhang, X.***+*, and Yan, L. The Mediating Role of Intrinsic Capacity in the Association Between Multimorbidity and All-cause Mortality among Chinese Older Adults. Accepted by the 8th Global Public Health Conference 2025.
4. **Zhang, X**. 2024. Estimating the Joint Effect of Household Solid Fuel Use and Ambient Dust Pollution on Hearing Loss Among Chinese Older Adults. Accepted by 2025 Asian Conference on Aging & Gerontology.
5. Peng N, **Zhang X**, Zhang J, Fan Y, Yao D, Gao P, Lyu B, Liu GG. 2024. EPH217: Prescription Medication Patterns and Polypharmacy Among Chinese Patients with Diabetes: a Retrospective Cohort Study. Value in Health, Volume 27, Issue 12.
6. **Zhang, X**., 2024. Long-Term Care Insurance Promoted the Diagnosis and Management of Hypertension in Older Adults. The International Conference/Training Workshop on Projections/analyses of Households and Living Arrangements, and Applications in Healthy Aging and Sustainable Development Studies.
7. Zhang R, Ding X, Zhou H, **Zhang X.+**, He Z, and Yan L.L, 2024. Abstract P438: Combined Association of Body Mass Index and Central Obesity on Mortality Risk in Diabetes Population: The China Health and Retirement Longitudinal Study (CHARLS). Circulation, 149(Suppl 1), pp.AP438-AP438.
8. Zhou H, He Z, Ding X, Jie H, **Zhang X.+**, and Yan L.L, 2024. Abstract P260: Association of Hearing Impairment and Physical Functioning Among Chinese Adults Aged 60 Years or Older: Evidence from the China Health and Retirement Longitudinal Study (CHARLS). Circulation, 149(Suppl 1), pp.AP260-AP260.
9. Ding X, Su K, Guo Q, Xiong S, Li Y, Ling Y, He Z, **Zhang X.+**, and Yan L.L, 2023. Abstract P311: Lifestyle Factors Substantially Contributed to Urban-Rural Disparity in All-Cause Mortality Among Chinese Adults 65 or Older. Circulation, 147(Suppl 1), pp.AP311-AP311.
10. He Z, Zou S, Guo Q, Lee B, **Zhang X.+**, Li Y, Hu R, Ding X, Li C, Guo X, and Yan L.L, 2023. Abstract P303: Time-Varying Healthy Lifestyle Profile and All-Cause Mortality Among the Oldest-Old in China. Circulation, 147(Suppl 1), pp.AP303-AP303.
11. **Zhang X**. 2022. Evaluating the Cost-effectiveness of a Local Free Influenza Vaccination Programme for Older Adults: Real-world Data from Yinzhou District, China. The 5th China Healthy Economy Development Forum.
12. Asturias G, Cordon A, Pineda E, Figueroa A, **Zhang X**, Proaño G, Jimenez E, Rohloff P. Mapping Nutrition Interventions in Guatemala to Identify Opportunities to Improve Coverage and Coordination, 18 October 2021, PREPRINT, available at Research Square [https://doi.org/10.21203/rs.3.rs-957590/v1]

**﻿Conference Presentations**

1. Epidemiology and Prevention | Lifestyle and Cardiometabolic Health, Louisiana, USA, 2025 (accepted, poster).
2. The Asian Conference on Aging & Gerontology (AGEN), Tokyo, Japan, 2025 (accepted).

2. ISPOR Europe, Barcelona, Spain, 2024 (poster).

3. International Conference on Household Projections and Healthy Aging, Beijing, China, 2024.

4. The 5th China Healthy Economy Development Forum, online, 2022 (First Prize).

**Work in progress**

1. **Gossip Cue: The Impact of Community-Level Rabies Exposure on Influenza Vaccination Among Older Adults**with Yuyu Chen, Yang Yue, Meilan zhang  
   We analyzed how rabies exposure events influence influenza vaccination uptake among older adults in Yinzhou, China. Vaccination rates increased significantly in weeks 3, 5, and 6 post-exposure. Using dog ownership restrictions as an instrumental variable, we established causality, offering insights into peer effects on vaccination behavior. These findings prove the gossip cue as a mechanism-based explanation for peer effects on vaccination behavior.
2. **The Impact of Long-Term Care Insurance on Hypertension and Dementia Misreporting: Evidence of Moral Hazard in China**

This study examines how China’s long-term care insurance (LTCI) reforms incentivized older adults to misreport hypertension without high blood pressure and dementia without a low Mini-Mental State Examination score. Using PSM-DID and longitudinal data, findings highlight moral hazard behaviors, suggesting policy adjustments are needed to improve LTCI efficiency.

1. **The Association Between Cognitive Impairment and Intensive Procedures in End-of-Life Medical Spending: Evidence from Health Administrative Data** (Supervised by Prof. Ming Gu):

Using health records from Yinzhou, we matched individuals with cognitive impairment to non-impaired peers. Results showed higher utilization of intensive procedures among those with cognitive impairment, emphasizing its role in end-of-life healthcare decisions.

1. **The Impact of Cultural Beliefs on End-of-Life Medical Expenditures**

This study investigates how cultural norms influence end-of-life healthcare. Using regression discontinuity around the Chinese New Year, I explore how beliefs about longevity shape medical spending during life’s final stages.

1. **The long-term effect of economic recession on dementia and cognitive impairment**

This research examines the 1997 Asian Financial Crisis’s impact on cognitive health using a regression discontinuity design. By analyzing employment disruptions among Chinese graduates using a regression discontinuity design, I highlight how economic shocks during critical life transitions affect long-term well-being.

1. **Estimating the Joint Effect of Household Solid Fuel Use and Ambient Dust Pollution on Hearing Loss** (accepted by AGen2025)

Using CLHLS data (2011–2018), I found that solid fuel use and high ambient dust pollution independently increased hearing loss risk among older adults. Joint exposure had the highest risk, emphasizing the need for cleaner energy and pollutant reduction.

7. **Prescription Medication Patterns and Polypharmacy Among Chinese Patients with Diabetes** (accepted by ISPOR 2024)

In a 6-year study, polypharmacy prevalence among diabetic patients increased from 21.89% to 37.22%, with older adults experiencing the highest rise (28.61% to 45.91%). Findings underscore the need for better medication management.

**Skills Summary**

**Programming Skills:** STATA, R, ArcGIS, Python, SQL(dbvisualizer), Plink, Quartrics, Zotero, LaTex

**Experimental Skills:** Data analyses, Causal Inference, Empirical Application of Econometrics Model, Academic Writing, Literature Review, Fund Application