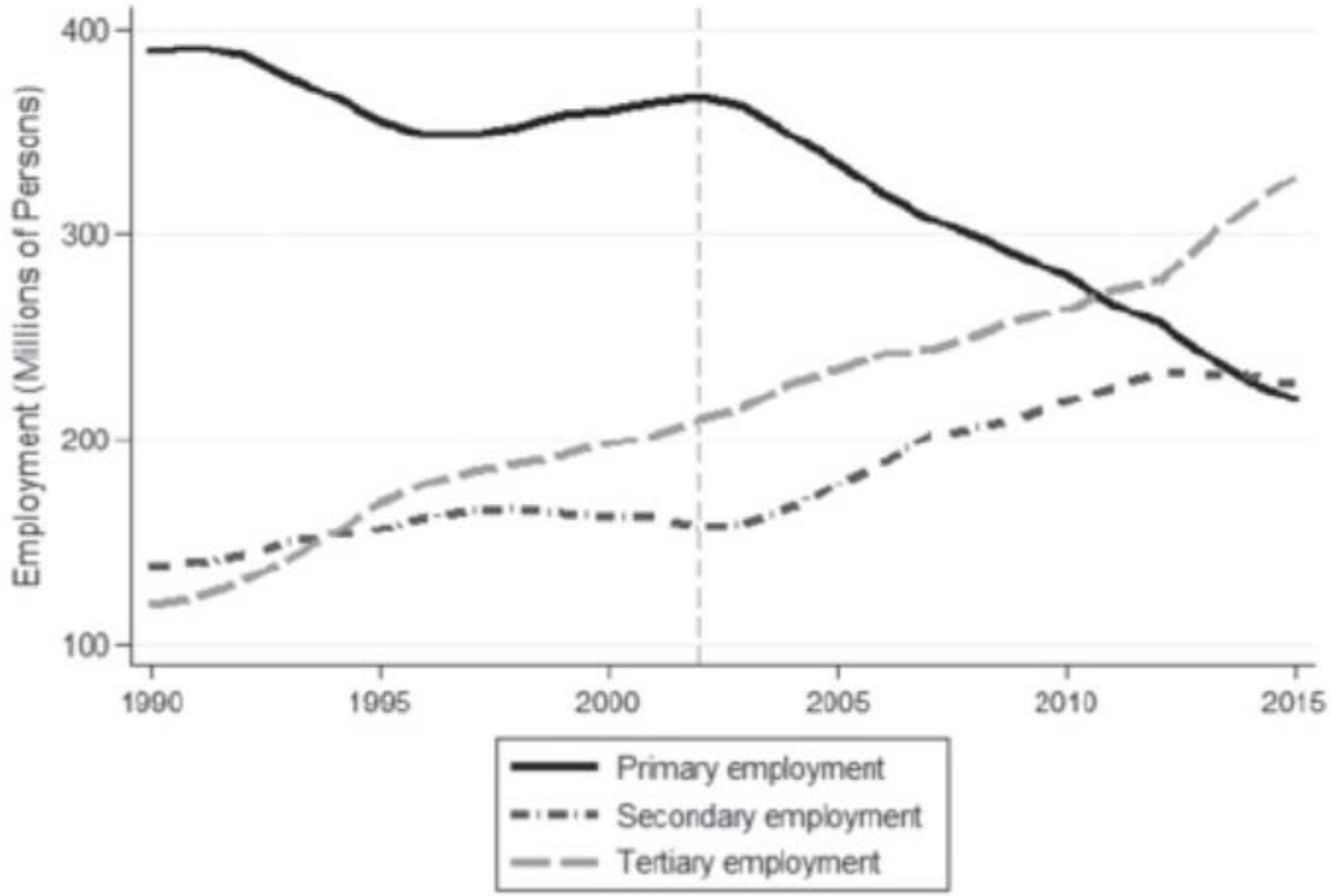
2. China and WTO

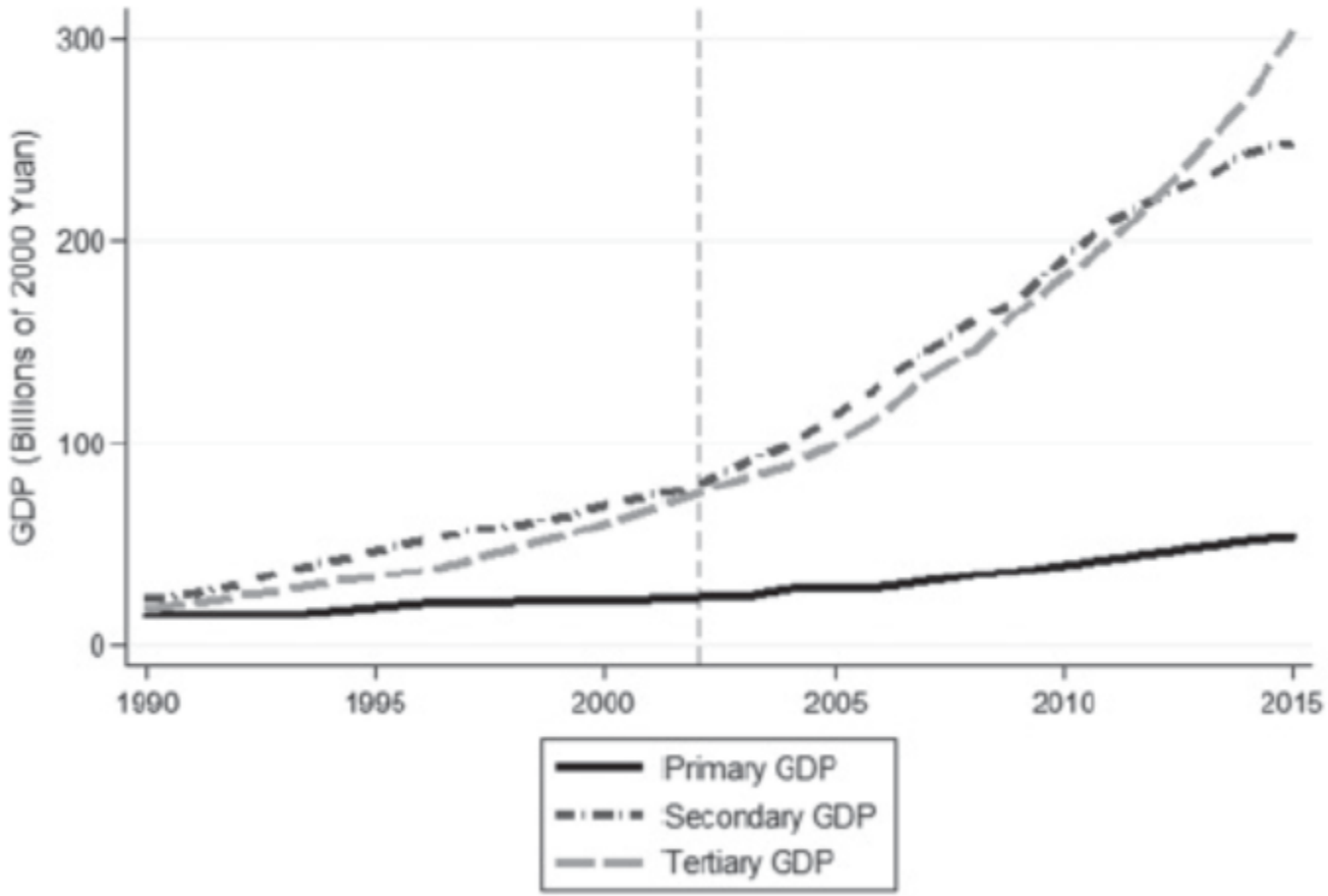
Erten and Leight (2021)

- Structural transformation of China's economy
  - 1995:
    - 60% employment in agricultural sector
    - 2% of global manufacturing exports
  - 2015:
    - 28% employment in agricultural sector
    - 19% of global manufacturing exports
- What caused this change?
  - Is it WTO accession? Reform of state-owned enterprises? Special economic zones? Reduction of domestic tax?

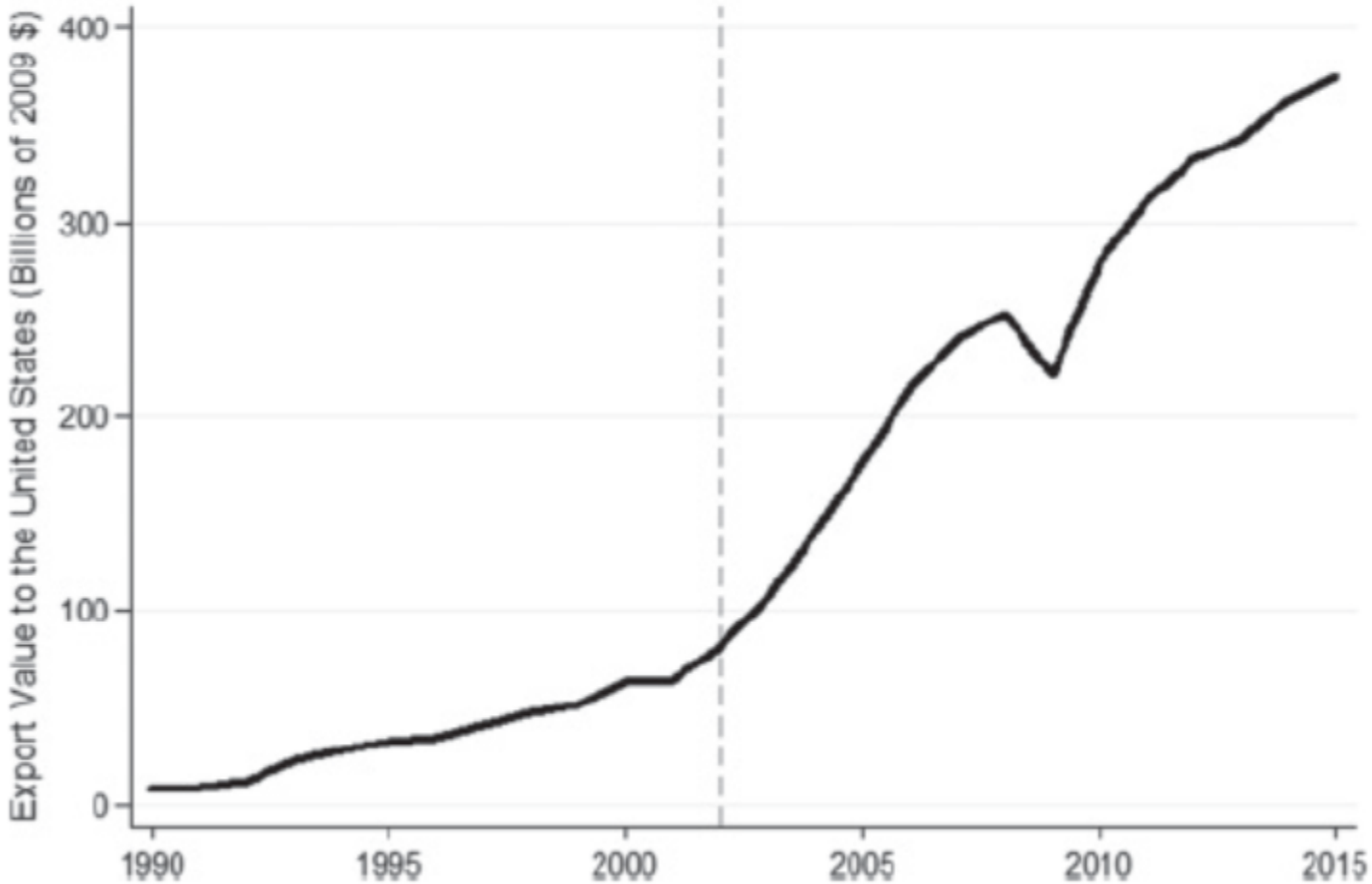
(A) Composition of Employment in China



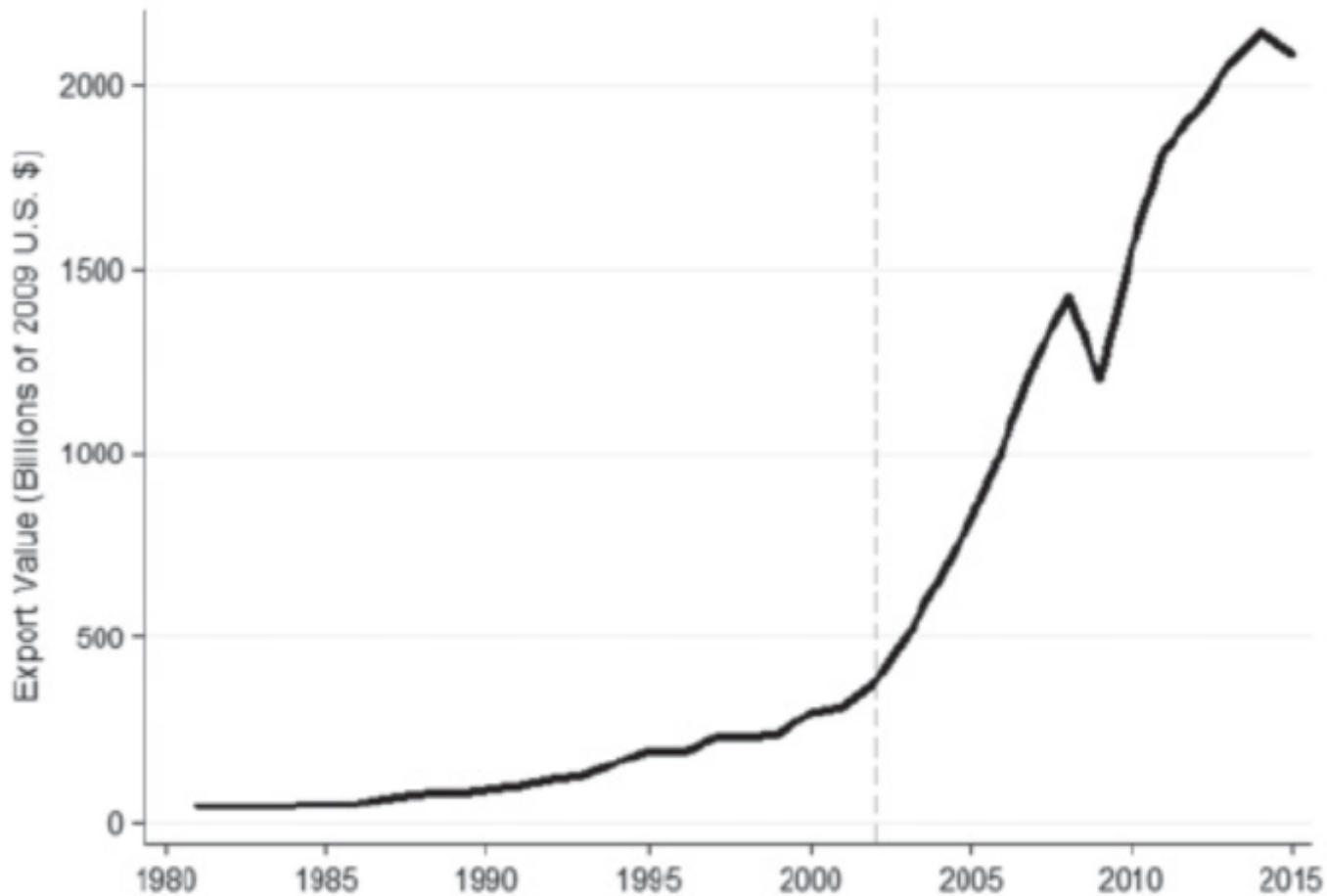
(B) Composition of GDP in China



(c) China's Exports to the United States



(D) China's Total Exports



Why do we care about the shift from agriculture to manufacturing?

- Productivity is much lower in agriculture than manufacturing in developing countries.
- Researchers have looked at positive shocks to agriculture productivity on the structural transformation.
  - Little evidence of positive agriculture growth leading to nonagricultural growth. Horbeck and Keskin (2015) find that the construction of aquifer which leads to positive agricultural growth has no effect on nonagricultural growth.
  - Bustos, Caprettini, and Ponticelli (2016) present evidence that technological innovations in the soybean sector in Brazil generate industrial growth only when they are labor saving.
- What about trade liberalization?

Mechanism

- This paper provides new evidence around the effects of China's WTO accession on structural change and growth at the local level, analyzing a newly assembled panel of approximately 1,800 counties observed between 1996 and 2013.
- China's WTO membership significantly reduced uncertainty about U.S. trade policy for China, generating a substantial increase in both total Chinese exports to the United States and total exports.
- This led to significant growth in exports and foreign direct investment in more exposed regions. This in turn stimulated a reallocation of productive factors from agriculture into manufacturing and services and generated a significant increase in county-level output.

China and US Tariff

- China's Most Favored Nation (MFN) status in the United States required annual renewal by Congress prior to 2002, a process entailing considerable risk; if the renewal had failed, Chinese exports would have been subject to the much higher rates reserved for nonmarket economies.
  - For example: in 2000, the average U.S. MFN tariff was 4%, but China would have faced an average non-MFN tariff of 31% (Smoot-Hawley tariff) had its MFN status been revoked.
- The United States permanently granted Normal Trade Relations (NTR) status—a U.S. term for MFN status— to China in October 2000, tied to its WTO membership and effective as of January 1, 2002.

Research design

- This paper utilizes variation across industries in the gap between the NTR tariffs and the non-NTR rates, in conjunction with variation across counties in the composition of employment by industry reported in the 1990 census. The interaction of these two sources of variation generates a county-level variable capturing the exposure of local industries to tariff uncertainty before 2001.

Results

- Results suggest that counties more exposed to tariff uncertainty prior to 2001, which means they experience greater reduction in tariff uncertainty after WTO accession, experienced significantly faster growth in exports, greater expansion in the secondary sector, greater contraction in the primary sector, and more rapid increases in total and per capita GDP following WTO accession.
- This export-driven expansion also has ancillary effects on other sectors: productive factors shift out of agriculture, agricultural production declines, tertiary output expands, and there is some evidence of in-migration. Using firm-level data, this paper documents that more exposed regions also experience an increase in value added per worker in manufacturing and a corresponding rise in wages.

- Importantly, the evidence of contraction in agricultural output in counties more exposed to positive export shocks inducing factor substitution into nonagricultural production is inconsistent with the predictions of a classic surplus labor model. Rather, this pattern is consistent with other recent work arguing that stocks of surplus labor in rural areas have largely been depleted.
  - the decline in agricultural output is accelerating as labor continues to substitute into new sectors, and that this decline is also larger in areas that have experienced an agglomeration of positive shocks to export-oriented production in multiple counties within a prefecture.

Magnitude

- Reduced trade uncertainty accounted for approximately 10% of total output growth during this period and that substitution of productive factors into nonagricultural production generated an increase of at least 10% in aggregate productivity.

Other papers on WTO accession and China

- Brandt and Morrow(2017) and Manova and Zhang (2017) show that reduced tariffs have also resulted in increased access to imported inputs.
- Brandt et al. (2017) demonstrate that both input and output tariff cuts have implications for productivity and mark-ups, but those effects are heterogeneous for incumbent firms vis-a-vis new entrants and also for state-owned vis-a-vis private firms.
- The diminished trade policy uncertainty following China's WTO accession has boosted patent applications (Liu & Ma, 2020) and stimulated entry into export-oriented production (Feng, Li, & Swenson, 2017).
- Bai, Krishna, and Ma (2017) and Khandelwal, Schott, and Wei (2013) analyze the impact of the removal of export restrictions and MFA quotas on export growth and manufacturing productivity at the firm level.

- Evaluating the effects of expanded access to developed country markets largely focus on Vietnam. Exploiting shocks generated by a bilateral trade agreement, McCaig (2011) finds that the U.S. tariff cuts reduced poverty in Vietnam, and McCaig and Pavcnik (2018, 2016), analyze reallocation of labor between household businesses and the formal sector.
- A number of papers have analyzed the effects of domestic tariff cuts on regional labor market outcomes in Brazil (Chiquiar, 2008; Kovak, 2013; Dix-Carneiro & Kovak, 2017).

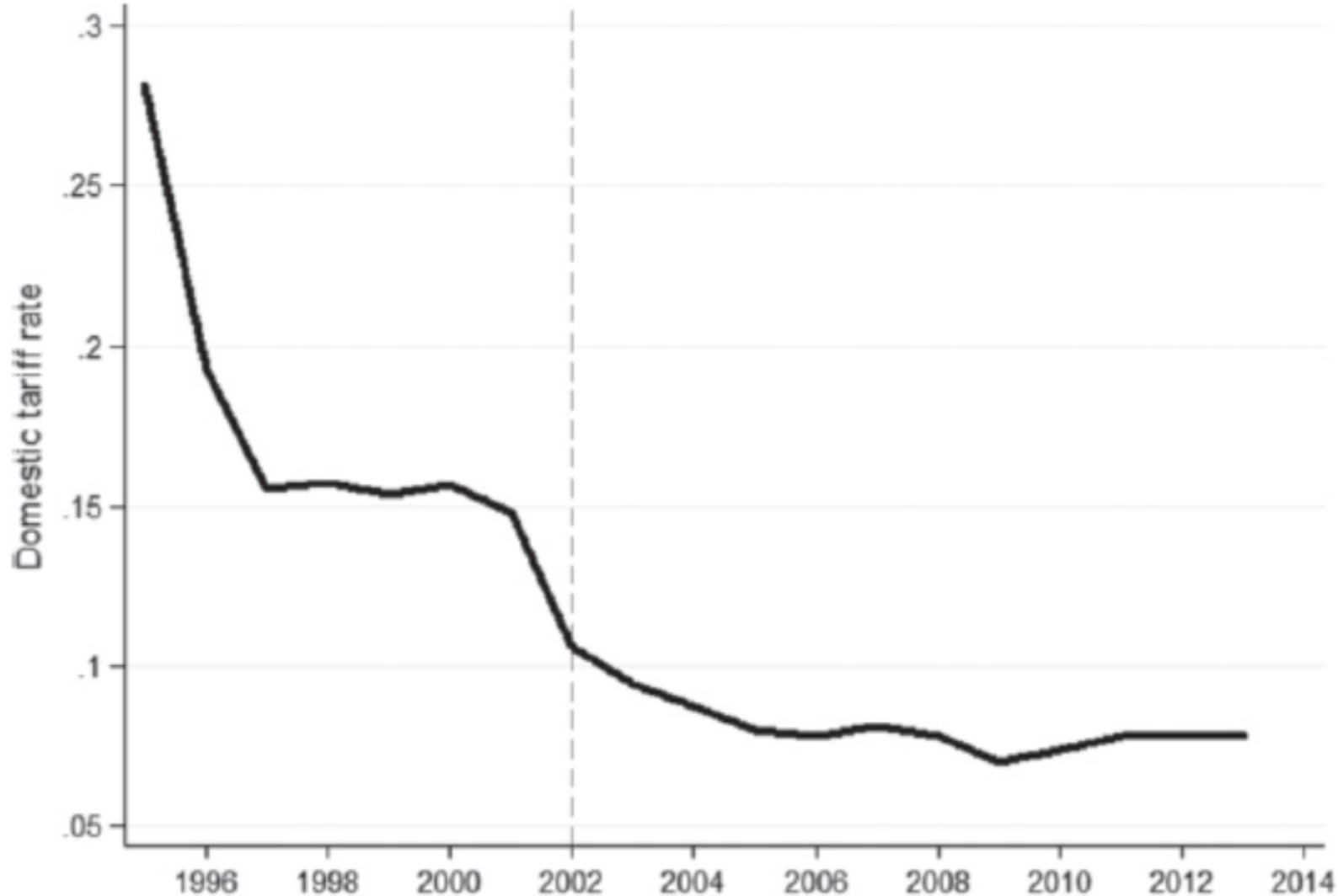
- The effects of Chinese imports on manufacturing in developed economies (Autor et al., 2013, 2016). The identification strategy employed in this paper is closely related to Pierce and Schott (2016) and Handley and Limão (2017), examining the effects of trade policy uncertainty on manufacturing employment and consumer prices in the United States.

China’s WTO Accession

- China’s accession to the WTO in 2001 entailed both new trade access benefits for the Chinese economy and a commitment to additional, liberalizing domestic reforms.
- However, both the benefits and the reforms were largely phased in gradually and did not result in any discontinuous jumps in 2001.
- It is useful to highlight the most important policy changes that China implemented as part of this process, including reduced import tariffs, the relaxation of export licensing rules, and fewer barriers to foreign investment.

- First, Chinese import tariffs had already been sharply cut prior to 2001 (from a weighted average of over 45% in 1992 to approximately 13% prior to WTO accession).WTO accession entailed further cuts, but these shifts were small in magnitude (Bhattasali, Li, & Martin, 2004).

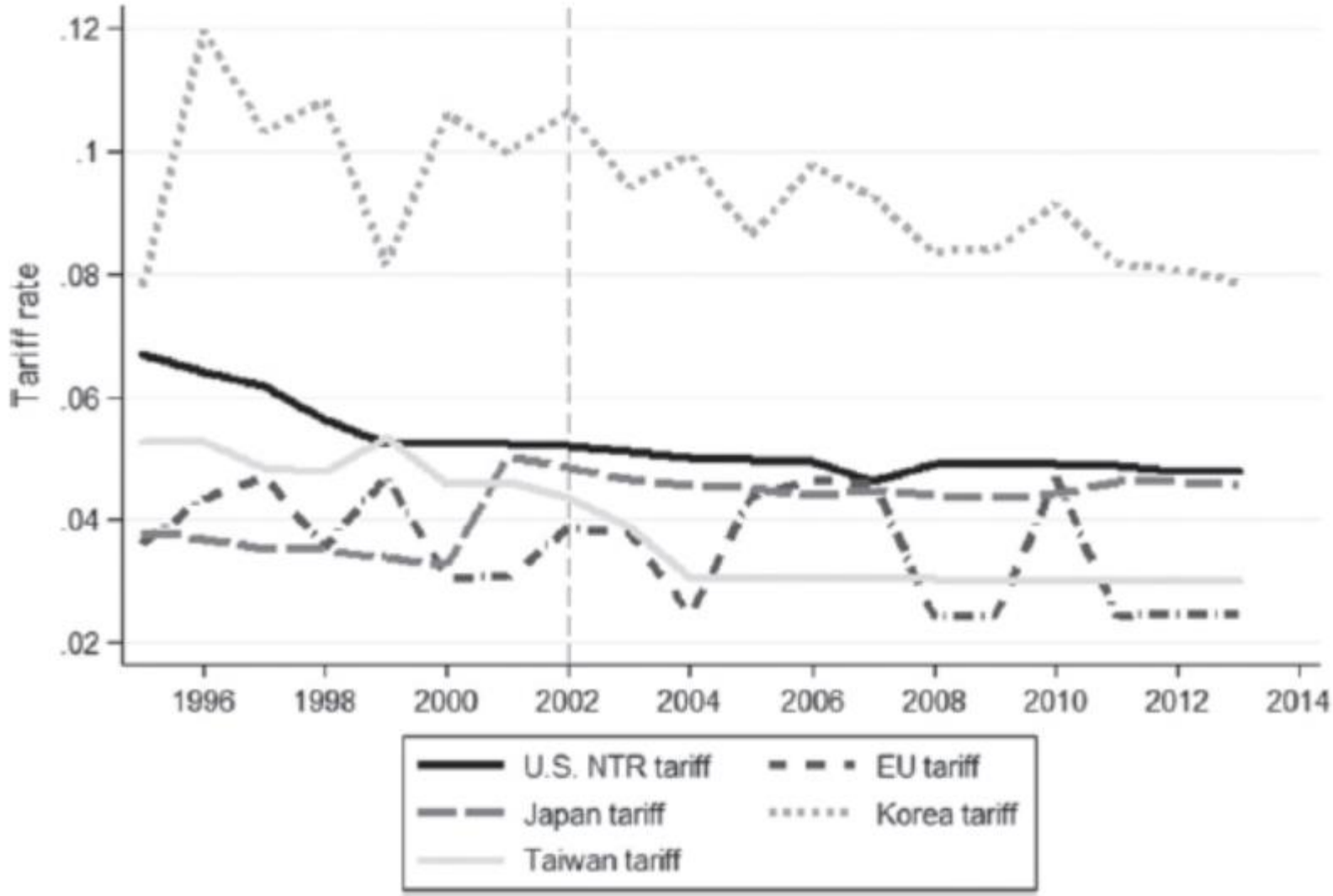
(A) China's Import Tariffs Over Time



- Second, restrictions on direct exporting were previously substantial, and firms that were not granted licenses to export directly were required to export via partners. By 2004, all firms were allowed to export freely (Bai et al., 2017).
- Third, prior to WTO accession, China had generally implemented relatively attractive policies to draw in foreign investment, subject to performance requirements for foreign firms; these requirements were eliminated following 2002 (Long, 2005).

- There is no evidence of any dramatic shifts in tariff rates at the point of China's WTO accession. Despite their gradual nature, however, all of the preceding shifts in trade policy are relevant in understanding structural change during this period, and we include these variables in our empirical specifications.

(B) Major Trading Partners' Tariffs Over Time



- Prior to WTO accession, the United States granted China NTR tariff rates on a discretionary basis subject to annual congressional renewal.
- Failure of that renewal would have triggered the imposition of much higher tariffs, originally set by the Smoot-Hawley Act, and designated for nonmarket economies.
- Hence, although the tariff applied to Chinese imports remained low because China's NTR status was never withdrawn, the required annual approval generated considerable uncertainty.
- Using media and government reports, Pierce and Schott (2016) document that firms perceived the annual renewal of MFN status as far from guaranteed, particularly in periods of political tension in the early 1990s.

- In October 2000, Congress passed a bill that granted permanent NTR status to China, effective as of January 1, 2002.
- This was subsequently followed by a substantial spike in China's exports to the United States.

FDI channel

- Second, a reduction in tariff uncertainty induces U.S. firms to increase foreign direct investment (FDI) in China, as again the option value of delaying investment declines.
- In addition, export-oriented industries in China are generally characterized by high FDI, as foreign investors producing for export have benefited from a variety of preferential policies, including the exemption of imported components from import duties and the establishment of preferential zones that offer reduced taxes on profits and other benefits (Cheng & Kwan, 2000).

- Accordingly, a growing export sector can be expected to attract increased FDI, and these effects would be particularly large in industries and counties more exposed to tariff uncertainty ex ante and those industries facing nontrivial foreign demand, primarily in manufacturing.
- This investment channel is therefore likely to enhance the structural change induced by the expansion of exports.

- Third, the reduction in tariff uncertainty will induce a reallocation of productive factors across sectors.
- Increased demand for exports and increased FDI in the secondary sector will increase the returns to capital and labor, and this local reallocation effect implies an in-flow of productive factors into secondary sector (Acemoglu et al., 2016).
- On the other hand, an increase in exports and FDI at the county level generates positive local demand effects, benefiting producers of nontradables.
- If there is some input in nontradable (tertiary) production that is not mobile across sectors, the local demand effect will dominate the local reallocation effect, suggesting that reduced trade uncertainty will stimulate growth in both the secondary and tertiary sectors.

- Finally, given non-homothetic preferences, a positive local income effect will shift consumption away from agricultural goods, reinforcing the reallocation of productive factors toward the secondary sector.
  - Homothetic preference: distribution of income does not affect quantity consumed.
  - Non-homothetic preference: distribution of income matters in determining the amount of quantity demanded (consumed).

- Shifting consumption patterns in conjunction with the local reallocation effect implies that the net effect on agriculture is plausibly negative.
  - If there is considerable surplus labor employed in low-productivity activities in agriculture, then labor reallocation may not lead to an immediate decline in agricultural output, as predicted by classic surplus labor models (Lewis, 1954; Fei&Ranis, 1964).
- In the presence of a sustained labor drain, however, agricultural output will decline over time in counties that are relatively more exposed to the trade shock.