Introduction

- Do technological developments improve people's living conditions and their welfare, or continue to lead to relative inequality and income gap? This long-standing research question encourages a detailed exploration.

As technology use increases with time, it increases the substitution of labor for capital. We consider an economy with one sector that produces consumer goods using three production factors (Autor & Dom, 2013; Beaudry, Doms, & Lewis, 2010): ICT capital and both low- and highly skilled labor inputs for routine and non-routine tasks.

- Internet access increases information demand and lowered the costs of engaging in economic activities (Malecki, 2002; Forman, Goldfarb, & Greenstein, 2005; Bekkerman & Gilpin, 2013).
- With changing welfare, the ICT capital complement skilled workers and act as a substitute for unskilled workers (Akerman, Gaarder, & Mogstad, 2015).
- As technology use increases with time, it increases the substitution for labor performing non-routine tasks.

- The wage gap increases with increased technology input, but tends to decrease as an inverted U-shape.

Human Capital and Educational Endowment

- The greater the quantity of human capital, the greater the supply of skilled labor in the local market. This will narrow wage inequality through a supply of talent to decrease the wage premiums caused by ICT.
- Educational endowments have a similar impact with increased ICT adoption and the increased demand for skilled labor (Caselli & Coleman, 2001; Glaeser & Saiz, 2004). This increase in demand for skilled labor creates further wage premiums and increases the wage gap.
- We test our model and determine whether the supply of or demand for skilled labor dominates the relationship.

Hypotheses

H1: With greater ICT adoption and skilled labor supply, the area's economic wealth can increase.
H2: The region with higher level of ICT usage will have more pronounced wage inequality.
H3: An inverted U-shaped relationship exists between internet access and economic growth and wage gap.
H4: Technological endowment enhances a region's productivity and increases its economic growth. Technological endowment reshapes skill-biased technology on economic growth and wage inequality.
H5: Education endowment ensures a region's economic growth. Meantime, educational endowment reshapes skill-biased technology on economic growth and wage inequality.

Methods

Data: The study employs the data from mainland Chinese provinces and cities at the prefectural and county level (county-level administrative division municipalities).

We construct the variables and compose 3 sampled panels from the Annual Statistical Yearbook of China, Educational Statistical Yearbook of China, China Labor Statistics Yearbook, provincial statistical yearbooks, local statistical bureau reports, government bulletins, and other formal media documents from 2001 to 2015.

Estimation: We construct the statistical model of the impacts of internet access on economic growth and wage inequality across provinces, prefecture-cities, and county-cities.

Conclusion

Undertaking this examination, we calibrate the puzzle raised by Forman, Goldfarb and Greenstein (2012) that widely-used advanced Internet technology generate unequal distribution of wage growth among regions, depending on how the region is equipped with proper endowments. As these effects can be observed at economies’ different developmental stages, this helps in the search for a solution to the problematic combination of growth and inequality. Our findings help resolve the puzzle in the way that the adverse impact of new technology adoption can be alleviated by increasing supply of skilled labor and accumulating educational endowment. By grouping our results, we attempt to explain the former puzzle of technological optimistic and pessimism in the literature. Our study explains why the wage of workers has risen at information-based skilled cities in China.