LIUC

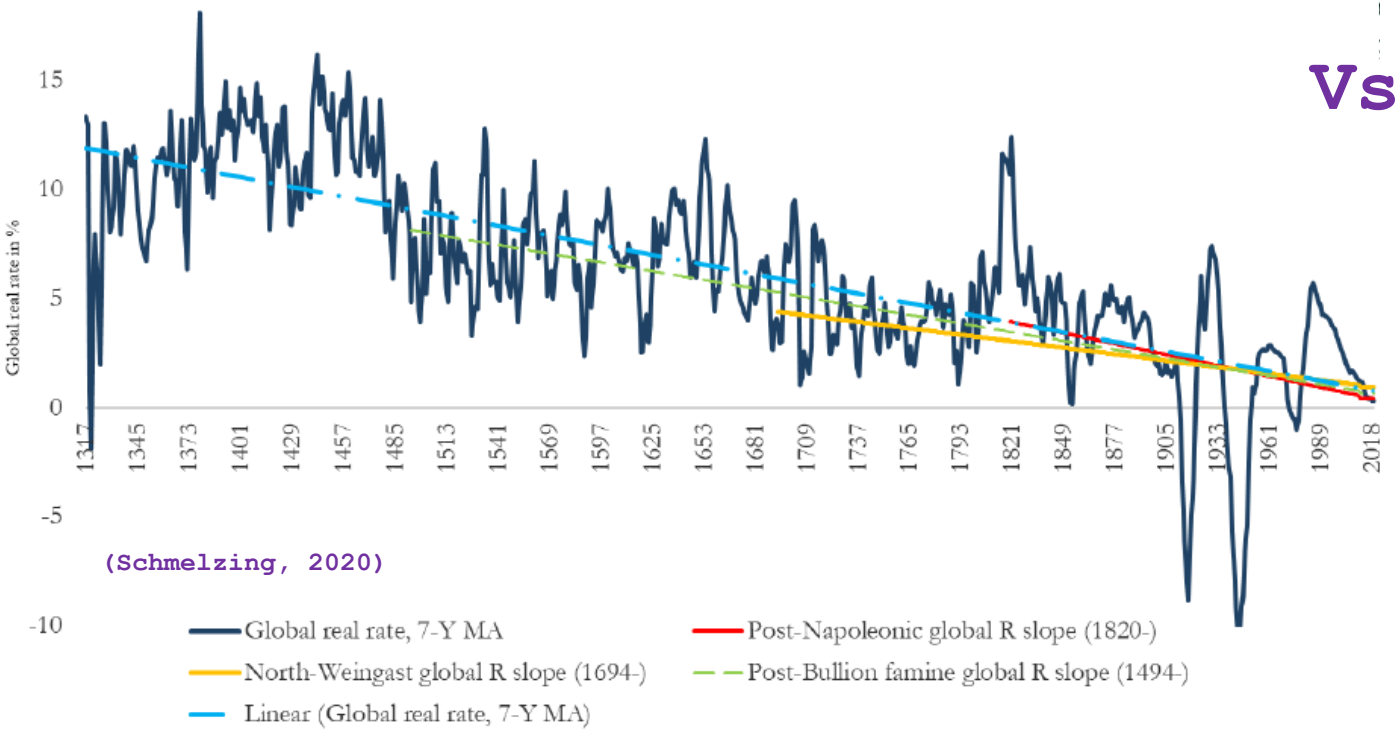
AI FOR E-COMMERCE AND FINTECH

Yari Borbon-Galvez

12 October 2020 from 12:00 to 16:00hrs, during the 35th United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Forum (5-16 October 2020).

GRAPHICAL MOTIVATION FOR ANALYSING AI

Suprasecular economic and productivity decline

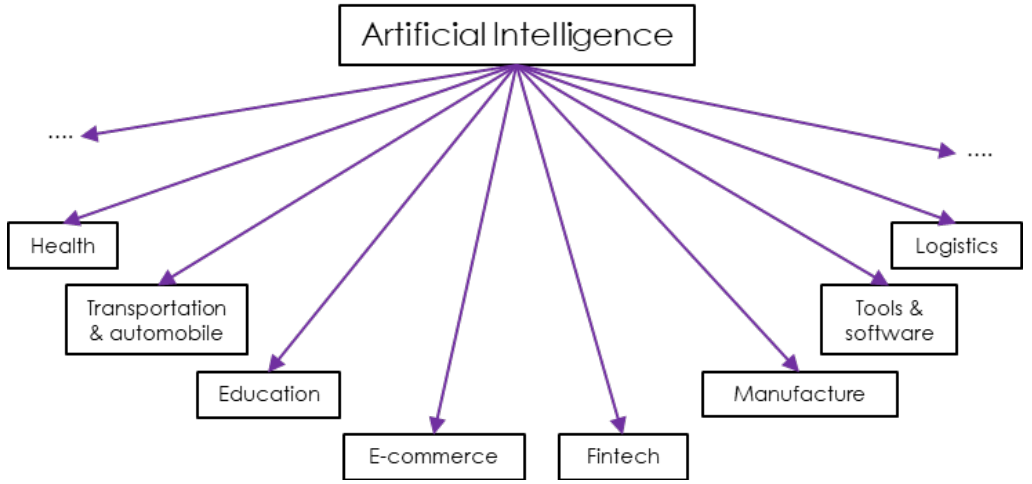


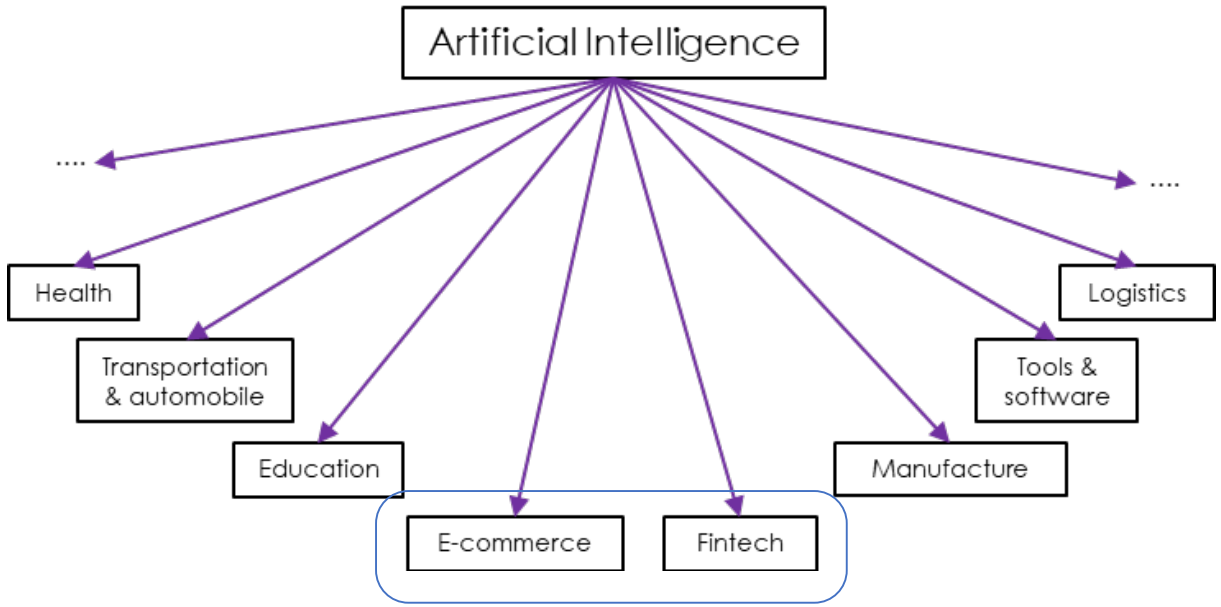
(Schmelzing, 2020)

Figure IV: Headline global real rate, GDP-weighted, and trend declines, 1317-2018.

Vs

General Purpose Technology (GPT)





Does patenting in AI by firms in Fintech and E-commerce sectors boost performance?

Laggard or start-up performance ⇒ **R&D** ⇒ **Innovation output (Complex services, Agile exploitation, Patents)** ⇒ **Performance growth**

Analysis based on study by the JRC,COIN-Competence Centre. INNOVA IV. The impact of Artificial Intelligence on the performance of e-commerce and financial firms

Highlights

- Firms in the e-commerce and fintech sectors with greater number of AI patents granted increase their productivity and wages

- E-commerce and Fintech firms with lower productivity are more likely to show higher productivity gains (i.e. Catching-up)

- Whilst in many cases, AI can lead to labour substitution by capital, for highly innovative E-commerce and Fintech firms, this is not the case

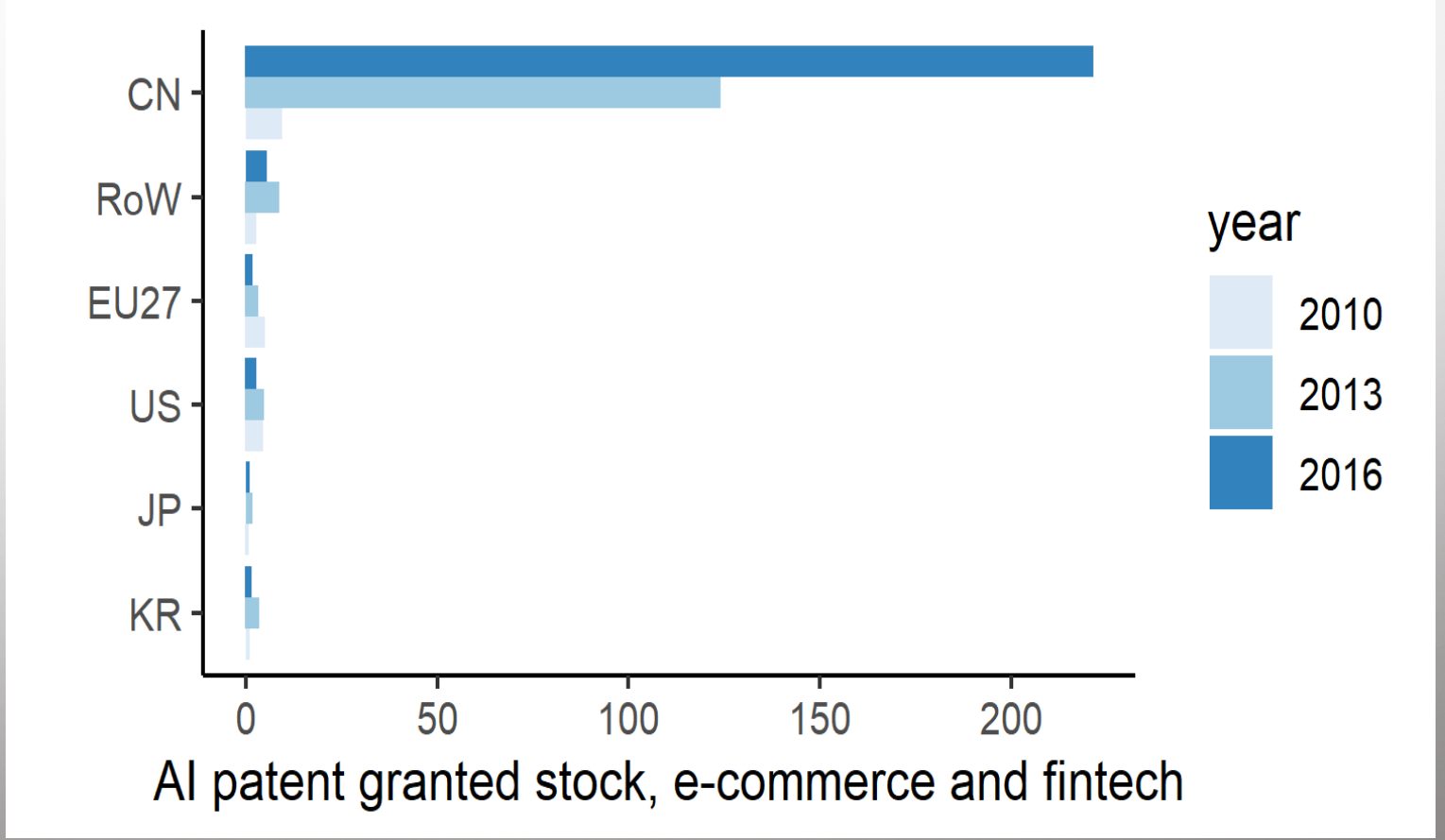
Analysis based on study by the JRC,COIN-Competence Centre. INNOVA IV. The impact of Artificial Intelligence on the performance of e-commerce and financial firms

Highly innovative firms

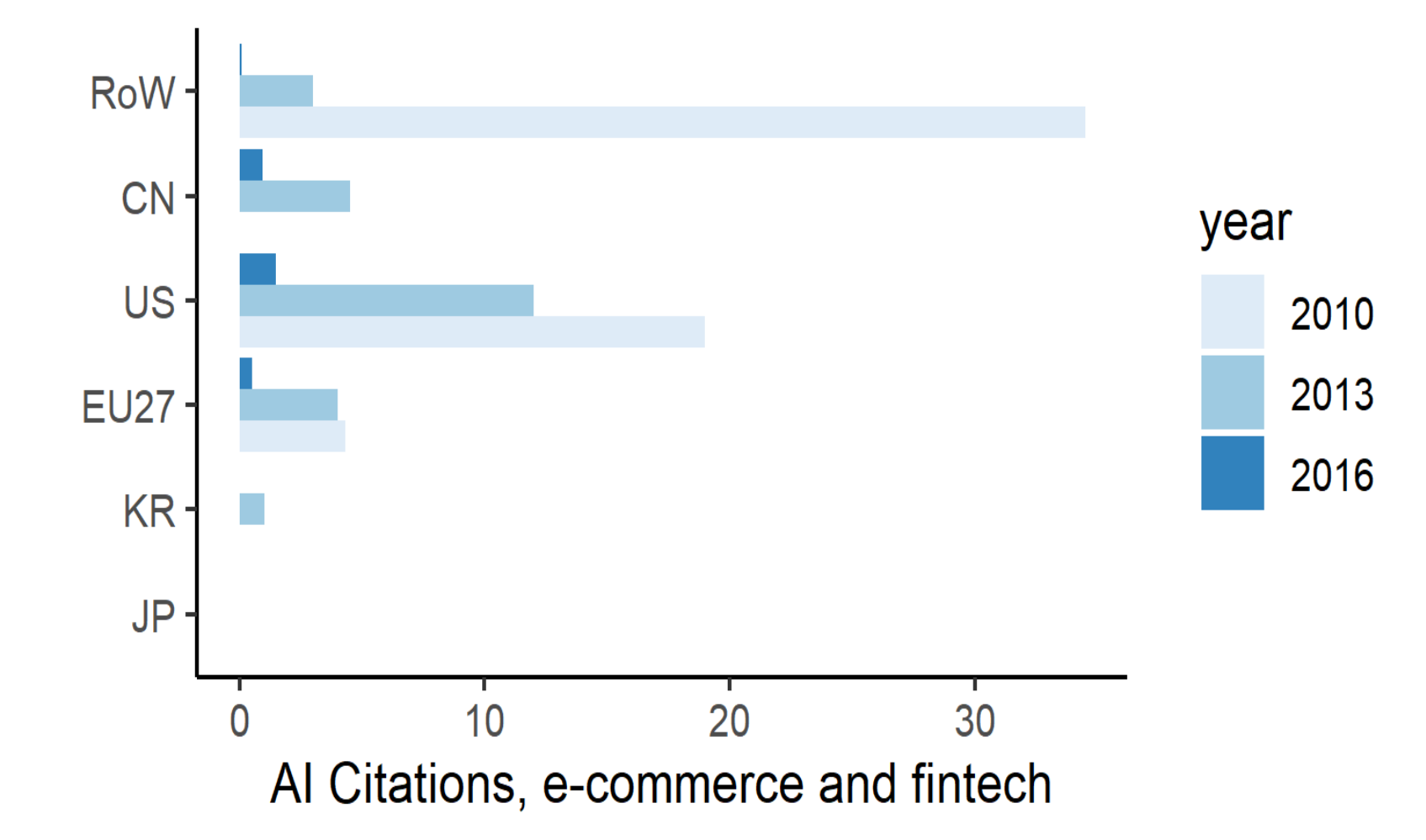
Firms	Number
E-commerce*	60
Fintech	163
ICT	1,597
Total	9,186

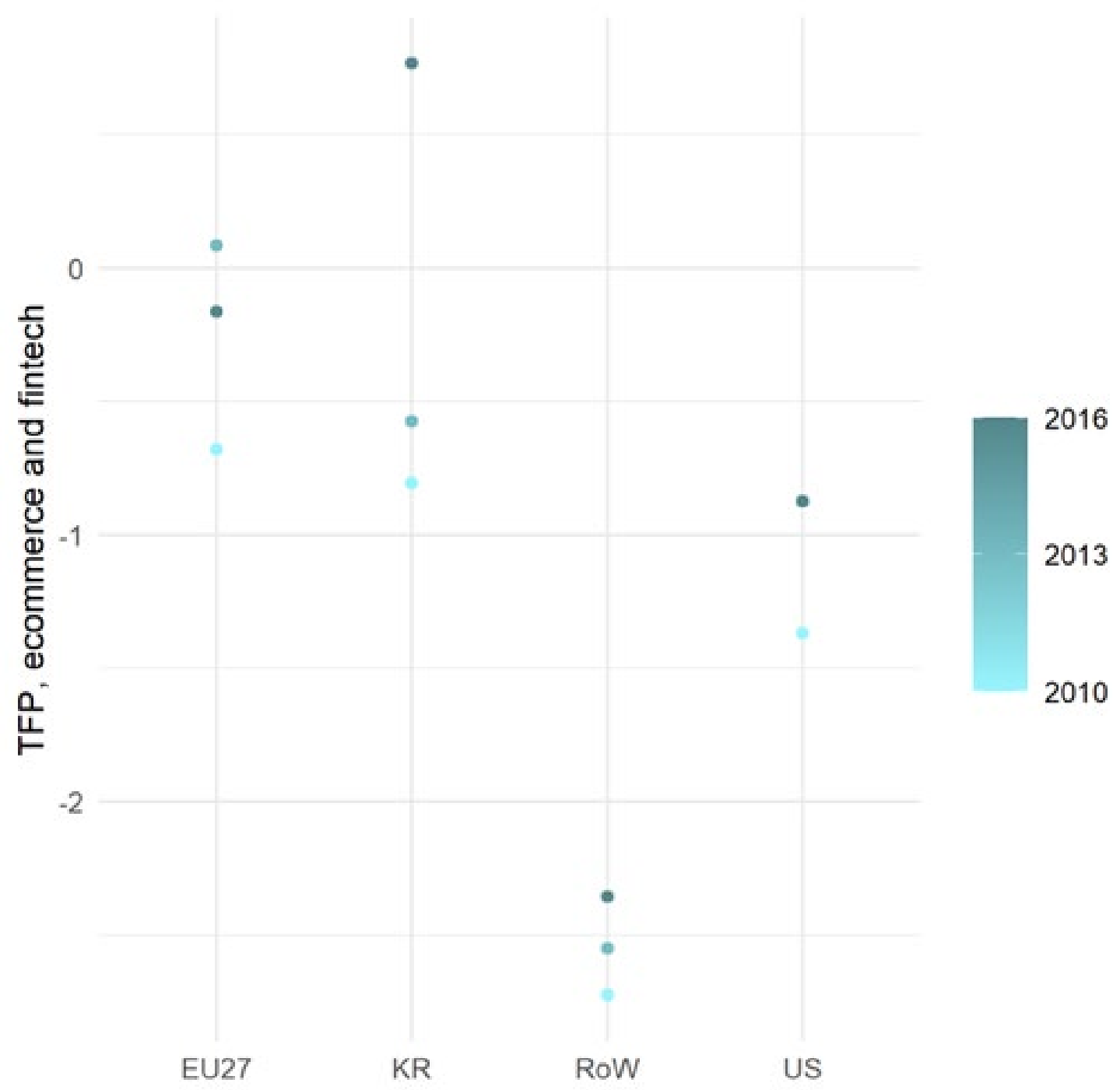
* Based on combination of the patents extracted from the EC TIM text-mining tool with Orbis Patents and Bureau Van Dijk's Orbis database.

Patents granted stock by country, e-commerce and fintech



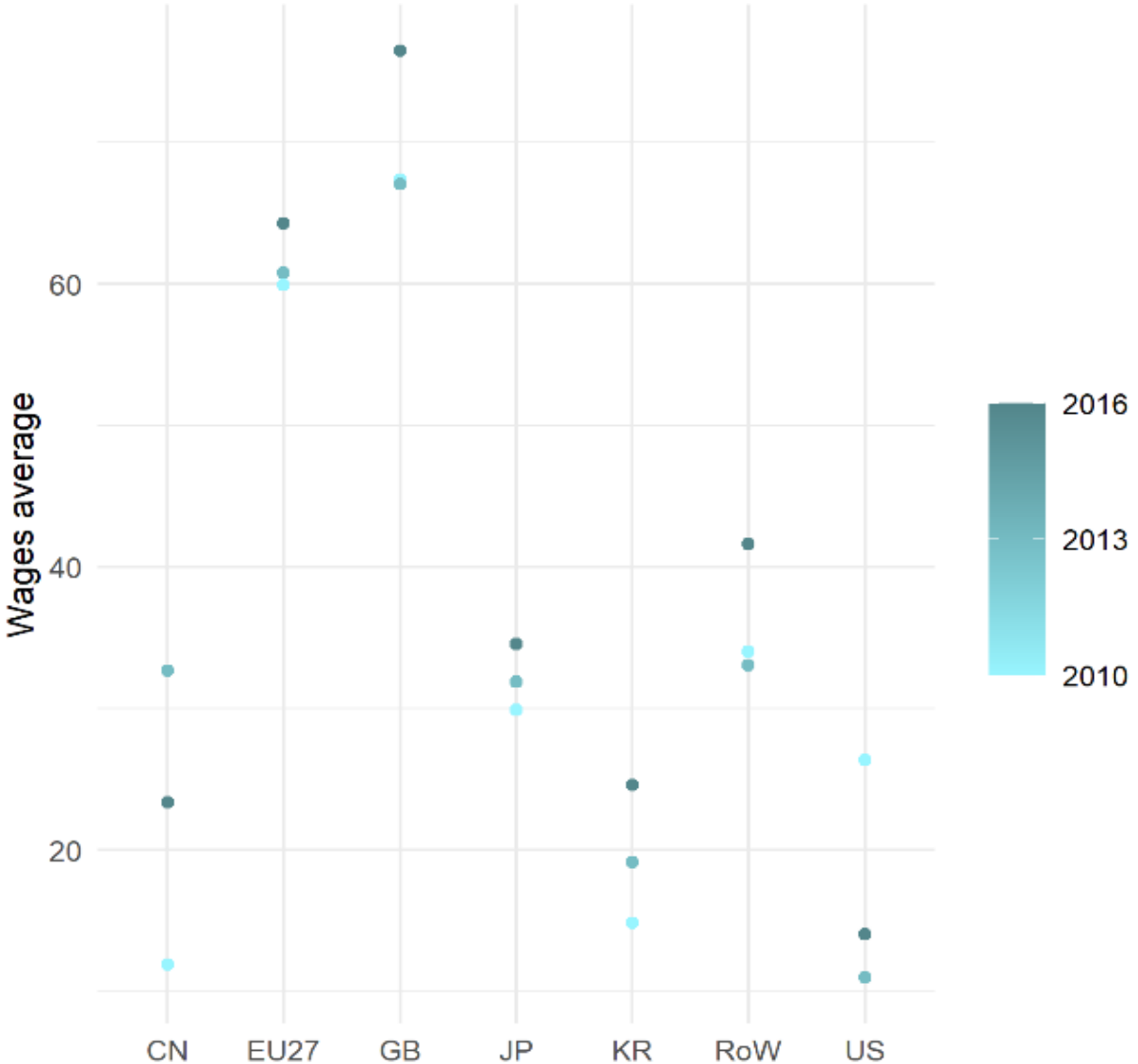
Patents citations by country, e-commerce and fintech

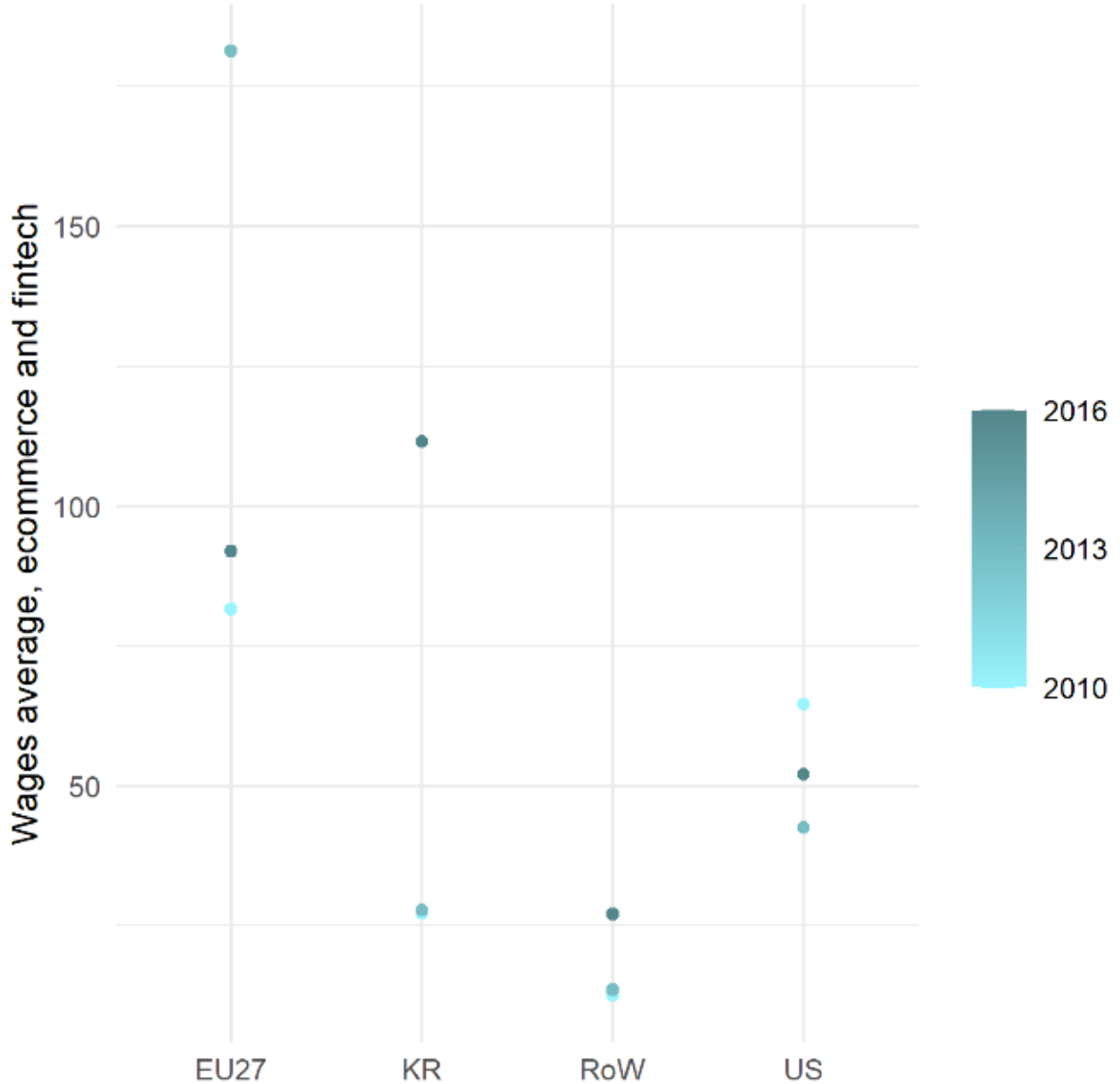




Total Factor Productivity (TFP) by Firms in the E-commerce and Fintech sectors patenting in AI

Average wages by highly innovative AI patented firms





Examples of firm performance AI applications in E-commerce

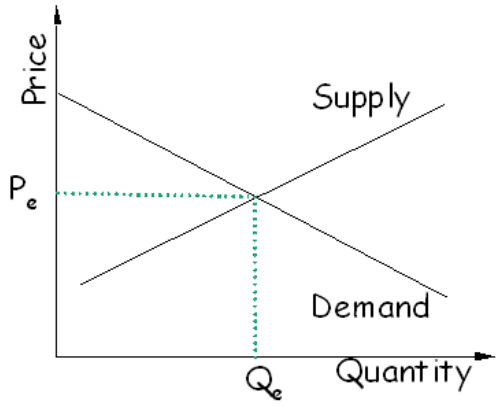
AI applications in E-commerce

- Payment/certification, authentication, security, shopping, and auto content
- Shopping integration with social media
- Online ticketing
- Cashless payments
- Smart city - integrated shopping
- E-commerce and retail – integrated conversational AI
- Unguided vehicle delivery for e-commerce and retail
- Clients identification (eIDAs)
- Drone & AI precision harvesting linked to trade
- Digital cartoon and avatar developing and trade
- Eye fixation data integration with e-commerce and shopping
- Customer data analysis for personalized service/product delivery upon arrival (no fixed time or place)
- Smart hotels – e-commerce and entertainment integration
- Retail analytics, responsive digital signage, in-store displays

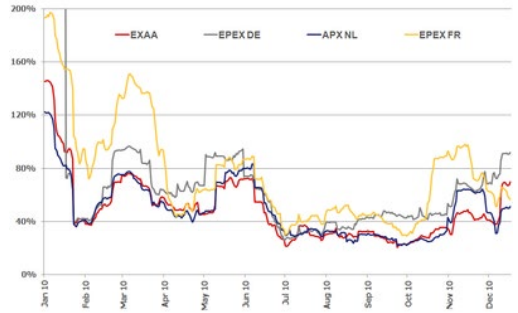
AI applications in E-commerce
(Drone & AI precision harvesting linked to trade)

Ripeness

Lead time



Price nowcasting
& forecasting

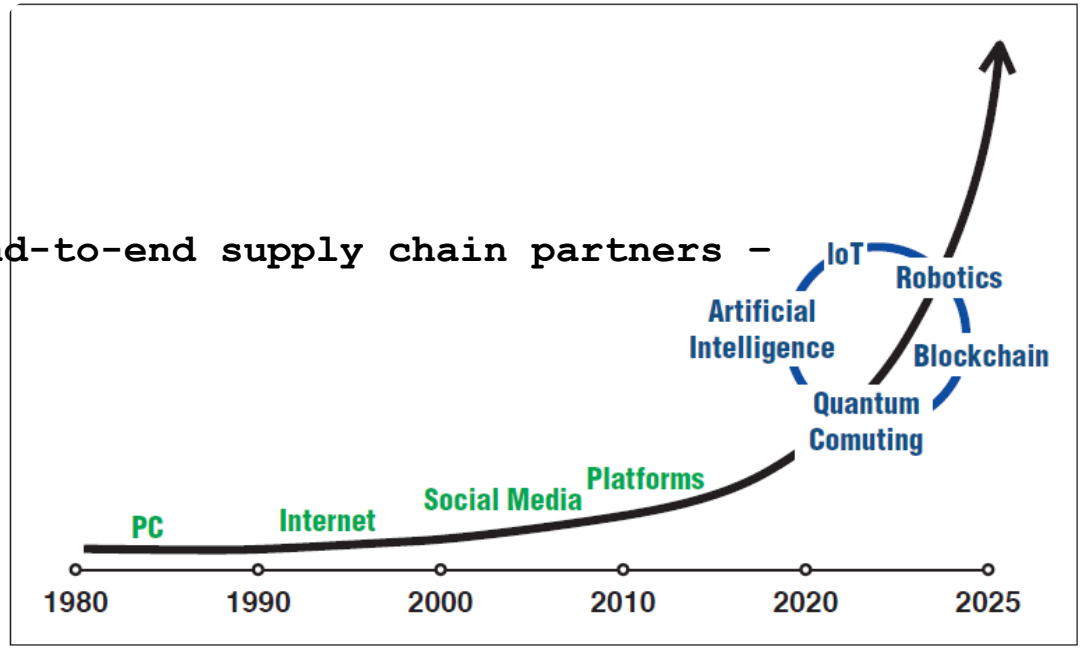


AI/ML based optimised value = f (Customer preferences met)

Examples of firm performance AI applications in Fintech

AI applications in Fintech

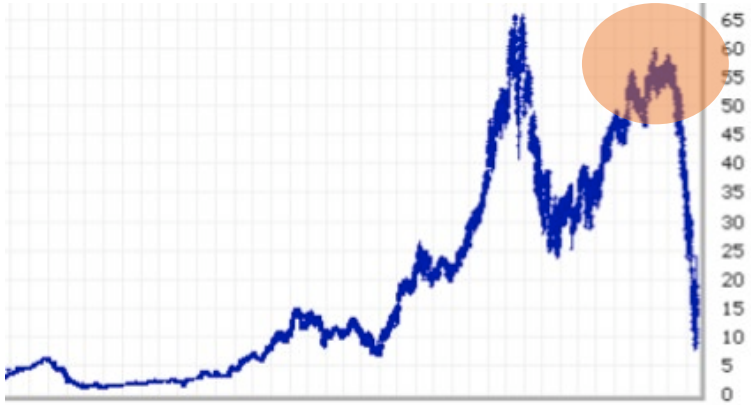
- Cross-border matching services communication + service + transaction + operation
- Real-time risks controls
- Automated instant loans for SMEs linked to business short-time instability measures
- Firms' risk-based loans for epidemic response and resumption
- Cloud credit
- E-wallets for open internet financial services
- Smart contracts
- Tax refunds e-loans
- B2B lending
- Big data anti-fraud systems
- Blockchain based supply chain finance (loans) for end-to-end supply chain partners – integrated to digital credit ratings
- Automated investments
- Blockchain based commodity trade finance platform
- Full Stack based Payouts globally
- Machine learning based Account takeover protection
- Serveless analytics, data platforms, payments,
- Portfolio optimization, resources allocation



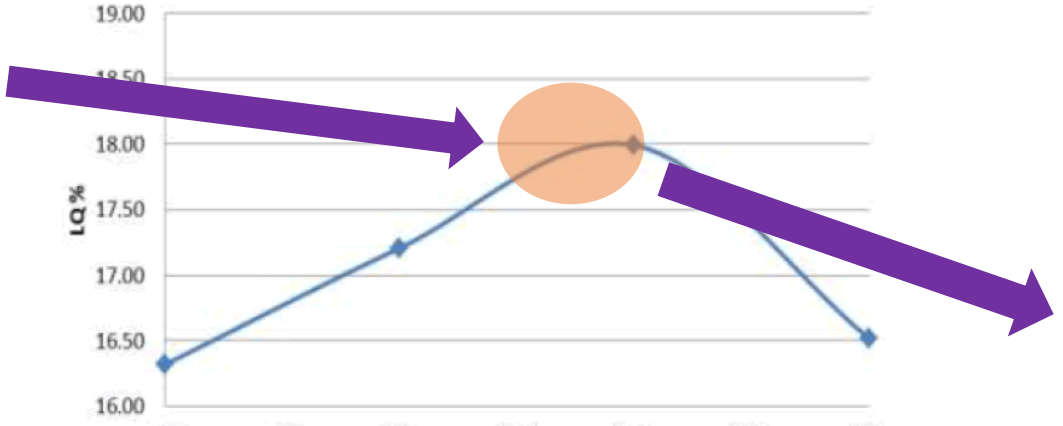
Fenwick, Mark, and Erik PM Vermeulen. "How to Respond to Artificial Intelligence in FinTech." (2017)

AI applications in Fintech

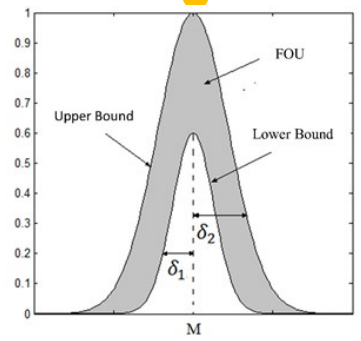
(Automated instant loans for SMEs linked to business short-time instability measures)



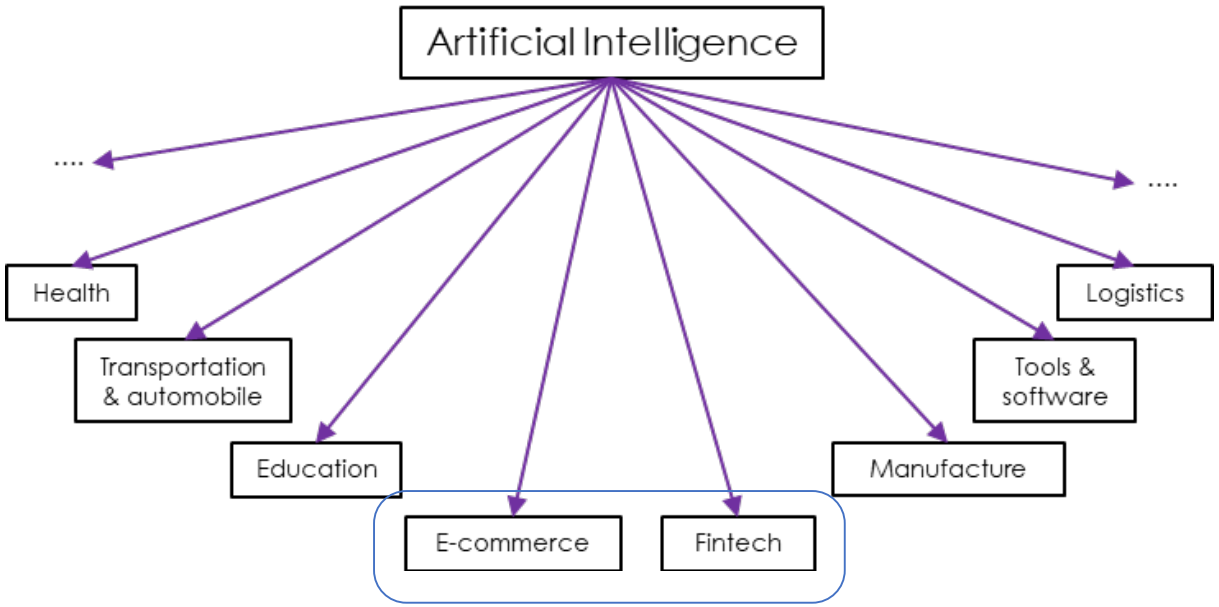
Market crash = f (COVID-19 lockdowns)



SME's liquidity evolution after lockdowns



Type-2 fuzzy forecast of severe decline in firms' liquidity > automatic line of credit.



Does patenting in AI by firms in Fintech and E-commerce sectors boost performance?

Laggard or start-up performance ⇒ **R&D** ⇒ **Innovation output (Complex services, Agile exploitation, Patents)** ⇒ **Performance growth**

Analysis based on study by the JRC,COIN-Competence Centre. INNOVA IV. The impact of Artificial Intelligence on the performance of e-commerce and financial firms

THANK YOU FOR YOUR ATTENTION

YARI BORBON-GALVEZ, PHD
YBORBON@LIUC.IT
LIUC UNIVERSITÀ CARLO CATTANEO
CENTRO SULLA LOGISTICA E IL SUPPLY CHAIN MANAGEMENT