

Fleeting or Enduring?

Technology Shock, Gender Norms, Feudal Etiquette in China

Abstract

Invoking the technological tremors ushered into China by recent missionaries as a natural experiment, we uncover an intriguing paradox. Since the deep-seated bonds of clan kinship, a surge in women's economic income does not necessarily translate into an elevation of their autonomy. Positive technology shock on gender norms may be evanescent for "Feudal Etiquette". Traditional institutions and cultural norms can influence empowerment technology in ways that distort its true potential.

*Millioner av fuglefri kvinner må jo bryte gjennom buret.*¹

Henrik Johan Ibsen

I. Motivation

In a world where *Nora*² inhabits a tribe, the bonds of blood, clan, and marriage are as deep and unyielding as ancient tree roots, and her economic status whispering in the wind. However, *Columbus*³ came and brought advanced textile crafts, sparking change. Women's income rose and their status momentarily soared. However, if marriage and inheritance laws remain as immovable as mountains, will this positive impact be sustainable?

This world's hidden corners ignite our trio of doubts, also shaping the compass of our research.

Normally, technological advances targeting women, elevate their presence on the economic platform within familial decision-making. This influence, subtle as a mild spring zephyr, permeates the societal fabric, fostering a surge in women's labor force participation.

However, when analyzed from a long-term temporal perspective, the rigidity of societal gender norms may potentially negate the positive externalities generated by technological advancements. If the autonomy of women's marital choices and their rights to inherit assets remain constant, then these elements may overshadow the potential benefits of technological progress.

¹ Ibsen, H., 2021. A doll's house. *Drama & Theatre*, 2020(94), pp.35-35.

² Nora, the main character of the dollhouse.

³ Columbus, a historical figure, is known for his voyages across the Atlantic Ocean.

Numerous studies attempt to depict a village isolated from the world, like a tranquil isle in Australia (Grosjean and Khattar, 2019), the depths of Norwegian forests (Molinder and Pihl, 2023), or the frontier regions of America (Bazzi, et al., 2023). In the late Qing Dynasty, missionaries brought technological skills that specifically aimed to benefit women. This exogenous shock can be used to measure women's empowerment and address endogeneity.

II. Contribution to the Literature

From the first narrative standpoint, numerous scholarly works have delved into the intricacies of a common underlying logic.

The ascension of women's economic status has bestowed upon them an amplified authority in household decision-making, encompassing a wide array of domains (Figure 1). The challenge in studying these phenomena lies in establishing robust causal relationships. Typically, identification strategies (Table 1) incorporate the consideration of apt exogenous shocks. We discuss the serendipitous and unbiased nature of these shocks, while concurrently integrating the influence of institutions, policies, and cultural nuances within the specific effects (Fan and Wu, 2023; et al.).

Venturing into the second tier of analytical framework, we delve into the enfeebling effects of feudal ethics on technological efficacy.

Prominent areas of investigation encompass matrimonial compatibility and property inheritance systems. Deeply ingrained in Chinese culture is the notion of "Three Obediences and Four Virtues"⁴. This inherent subjugation renders women's economic agency arduous to attain, even amidst burgeoning economic revenues. A noteworthy study akin to our research explores the often-neglected 16th-century wage data of Swedish women, revealing the intricate relationship between higher wages and enhanced autonomy (Bhalotra, et al., 2018; Selhausen and Felix, 2016; Molinder and Pihl, 2023).

Lastly, we present the utopian scenario we have constructed.

A series of scholarly works have delved into the multifaceted impact of the arrival of missionaries in China during modern times (Chen, et al., 2014; Ma, et al., 2022; Ma, 2021; Bai, et al., 2023; Chen and Ma, 2023; et al.). The missionaries' introduction of training and promotion in "Drawn Work" has elevated the participation of local women in labor. However, in regions where "Drawn Work" has become more widespread, such as the *Chaoshan* area⁵, instead, the story took on the effect of a long-term reversal.

⁴ The "Three Obediences" refer to a woman's duty to obey her father before marriage, her husband after marriage, and her son in widowhood. The "Four Virtues" encompass the virtues expected of women, including morality, proper speech, modesty, and skill in needlework.

⁵ The Chaoshan area, located in eastern Guangdong province, China, is renowned for its unique cultural heritage and

III. Methodology

a. Empirical Strategy⁶

$$\ln FLF_{it} = \alpha + \gamma YRD_{it} + \lambda \ln Pop_i + \mathbf{X}_{it}\mu + \pi_t + \epsilon_{ij}$$

$$\ln FLF_{it} = \alpha + \beta CR_i + \gamma CR_i \times FP_{it} + \delta FP_{it} + \lambda \ln Pop_i + \mathbf{X}_{it}\mu + \pi_t + \epsilon_{ij}$$

$$\ln FLF_{it} = \alpha + \beta CR_i + \gamma CR_i \times YRD_{it} + \delta YRD_{it} + \lambda \ln Pop_i + \mathbf{X}_{it}\mu + \pi_t + \epsilon_{ij}$$

$$\ln MA_{i\ t+T} = \alpha + \beta CR_i + \gamma CR_i \times YRD_{it} + \delta YRD_{it} + \lambda \ln Pop_i + \mathbf{X}_{it}\mu + \pi_t + \epsilon_{ij}$$

FLF_{it} : Number of women engaged in work in county i , period t

CR_i : Clan Relation

YRD_{it} : Number of “Drawn Work” factories

FP_{it} : Food prices of major agricultural products

$MA_{i\ t+T}$: Modern marital autonomy of period $t+T$

Pop_i : population

\mathbf{X}_{it} : a vector of regional characteristics as control variables

π_t : include period fixed effects accounting for period-specific observed and un-observed characteristics

Table 2 presents the intricate tapestry of specific data sources and construction.

b. The Explorable Facts of Existence

Table 3 showcases partial facts regarding clan strength distribution, textile factory distribution, and female labor participation distribution.

IV. Remaining Questions

Our research delves into the intricate complexities, many endogenous complex situations demand our attention and discourse. Four pivotal aspects emerge.

First, we strive to elucidate how the technological impact of enhancing female labor participation during the transition from agriculture to industry. We must delicately navigate the intertwined forces of institutions, wars and culture, embracing the essence of endogeneity.

Second, within mechanistic discussions, we endeavor to unveil the profound influence of arranged marriages and inheritance systems. Yet, in the vast lands of

traditions.

⁶ Theoretical framework is under construction, and our main reference is: Fan, X. and Wu, L., 2023. *The Shaping of a Gender Norm: Marriage, Labor, and Foot-binding in Historical China*. International Economic Review, Forthcoming.

China, women, driven by the pursuit of their own rights, forge steadfast alliances, resolutely shunning the matrimonial market⁷. This detail demands our utmost attention.

Third, behold the intricate tapestry of modern China, a realm of complexity that defies our idyllic utopian assumptions. The arrival of missionaries and the pathways of technological diffusion are not mere whims of fate. Yet, we should not overlook the vital phenomenon of clan culture's counteractive prowess, even could be seen as the supplementation of the "great diversion".

Lastly, our data, still in its embryonic stage, yearns for meaning, meticulous discernment, and vital contributions. May this research be a beacon of purpose as we embark on this journey of discovery.

⁷ "Self-combing women", is a cultural phenomenon unique to China, which refers to young girls who choose to remain unmarried and live a celibate life, often in groups.

Appendix

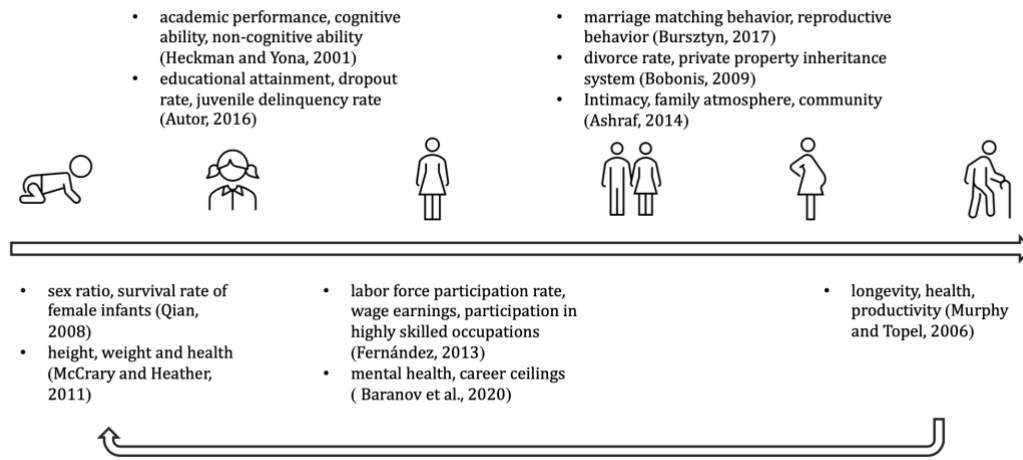


Figure 1: Performance over the female life cycle

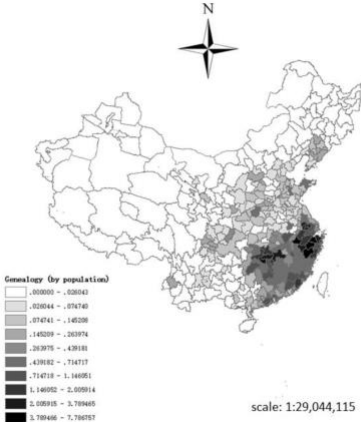

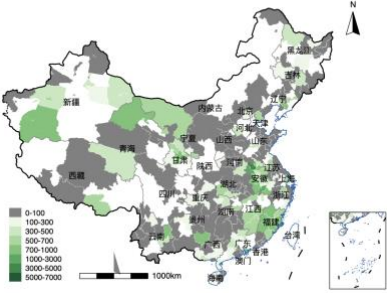
Table 1: Types of exogenous shocks in different historical phases

Social Attributes	types of exogenous shocks		
	Advances in Technology	Price Fluctuations of Products	Institutional Changes
Agricultural System	the promotion of agricultural tools, such as the plough (Alesina et al., 2011), and the popularization of agricultural mechanization (Caprettini and Voth, 2020)	the impact of crop yield and price fluctuations, including a range of proxy variables, such as tea and cotton (Nancy, 2008; Imbert et al., 2022), influenced by geographic factors	
	the promotion of textile technology, expansion of livestock varieties, and the art of brewing, baking, and preserving in household production (Juhász, 2018)	the impact of estate labor costs and food prices (Anenberg and Kung, 2014)	war, revolution, and social movements (Acemoglu et al., 2011; Dippel and Heblich, 2021)
Industrial System	the occurrence of the industrial revolution and technological revolution (Mokyr, 2009)	the establishment of factories and inflows of foreign investment, the impact on labor opportunities, and price shocks in customs product warehouses (Imbert et al., 2022)	

Table 2: Specific data sources and construction

variable	definition	sources and construction
FLF	Number of women engaged in work	labor participation in gazetteer (<i>XIANZHI</i>)
CR	Clan relation	distribution and complexity of dialects (<i>FANGYAN</i>), level of detail in genealogical records (<i>ZUPU</i>), geographic distribution of ancestral halls (<i>CITANG</i>)
YRD	Number of “Drawn Work” factories	Dictionary of the foreign industrial and commercial enterprises in China, 1995.
FP	Food prices of major agricultural products	Qing Dynasty Grain Price Database
MA	Modern marital autonomy	using the judicial document network to identify recent women's marital autonomy rights; using <i>BAOJUAN XINJI</i> to identify modern arranged marriages Compilation of the Social Investigations in Modern china, 2005.
Pop	Population	since nationwide county-level population data during the late Qing Dynasty are not available, using the population measure in 1931 as the closest proxy
Other supplementary information		Swatow Needlework Guild, Introduction to the Past and Present of the Handicraft Industry of Needlework In Chaoshan, 1950.
		Membership Roll of the Swatow Needlework Industry, 1948.
		History of the Development of Chaoshan Needlework and its General Circumstances, 1959.
		HONG KONG, special collection, library of HONG KONG BAPIST UNIVERSITY History of the Women’s Missionary Association, 1899. Records of the Swatow Women’s Missionary Association Council (1904-1915)

Table 3: Explorable Facts of Existence

	Source	Figure
A. Clan strength distribution, genealogical records (<i>ZUPU</i>)	Cheng, J., Dai, Y., Lin, S., & Ye, H. (2021). Clan culture and family ownership concentration: Evidence from China. <i>China Economic Review</i> , 70, 101692.	
B. Textile factory distribution	Liu, C., 2020. The Effects of World War I on the Chinese Textile Industry: Was the World's Trouble China's Opportunity?. <i>The Journal of Economic History</i> , 80(1), pp.246-285.	
C. Female labor participation distribution	Liang, R., Wang, X. and Yamauchi, F., 2021. Cotton revolution and widow chastity in Ming and Qing China. <i>American Journal of Agricultural Economics</i> , 103(1), pp.232-252.	

Main References

- [1] Acemoglu, D., Cantoni, D., Johnson, S. and Robinson, J.A., 2011. The consequences of radical reform: The French Revolution. *American Economic Review*, 101(7), pp.3286-3307.
- [2] Alesina, A., Giuliano, P. and Nunn, N., 2013. On the origins of gender roles: Women and the plough. *The Quarterly Journal of Economics*, 128(2), pp.469-530.
- [3] Anenberg, E. and Kung, E., 2014. Estimates of the size and source of price declines due to nearby foreclosures. *American Economic Review*, 104(8), pp.2527-2551.
- [4] Bai, Y., Jia, R. and Yang, J., 2023. Web of power: How elite networks shaped war and politics in China. *The Quarterly Journal of Economics*, 138(2), pp.1067-1108.
- [5] Bazzi, S., Brodeur, A., Fiszbein, M. and Haddad, J., 2023. Frontier History and Gender Norms in the United States (No. w31079). *National Bureau of Economic Research*.
- [6] Bhalotra, S., Clots-Figueras, I. and Iyer, L., 2018. Pathbreakers? Women's electoral success and future political participation. *The Economic Journal*, 128(613), pp.1844-1878.
- [7] Caprettini, B. and Voth, H.J., 2022. New Deal, New Patriots: how 1930's Government Spending Boosted Patriotism during WW II. *Quarterly Journal of Economics*.
- [8] Chen, Y., Wang, H. and Yan, S., 2014. The long-term effects of Protestant activities in China. Available at SSRN 2186818.
- [9] Chen, Z. and Ma, C., 2023. Quantitative history studies on China: State capacity, institutions, culture and human capital from prehistoric times to the present. *Australian Economic History Review*.
- [10] Dippel, C. and Heblich, S., 2021. Leadership in social movements: Evidence from the “forty-eighters” in the civil war. *American Economic Review*, 111(2), pp.472-505.
- [11] Fan, X. and Wu, L., 2023. The Shaping of a Gender Norm: Marriage, Labor, and Foot-binding in Historical China. *International Economic Review*, Forthcoming.
- [12] Grosjean, P. and Khattar, R., 2019. It's raining men! Hallelujah? The long-run consequences of male-biased sex ratios. *The Review of Economic Studies*, 86(2), pp.723-754.
- [13] Imbert, C., Seror, M., Zhang, Y. and Zylberberg, Y., 2022. Migrants and firms: Evidence from china. *American Economic Review*, 112(6), pp.1885-1914.
- [14] Juhász, R., 2018. Temporary protection and technology adoption: Evidence from the napoleonic blockade. *American Economic Review*, 108(11), pp.3339-3376.
- [15] Ma, C., 2021. Knowledge diffusion and intellectual change: when Chinese literati met European Jesuits. *The Journal of Economic History*, 81(4), pp.1052-1097.
- [16] Ma, N., Yan, S. and Zhao, Y., 2022. The Mission to Educate Women: a Protestant legacy in China.
- [17] Meier zu Selhausen, F. and Weisdorf, J., 2016. A colonial legacy of African gender inequality? Evidence from Christian Kampala, 1895–2011. *The Economic History Review*, 69(1), pp.229-257.
- [18] Michalopoulos, S. and Xue, M.M., 2021. Folklore. *The Quarterly Journal of Economics*, 136(4), pp.1993-2046.
- [19] Mokyr, J., 2009. Intellectual property rights, the industrial revolution, and the beginnings of modern economic growth. *American Economic Review*, 99(2), pp.349-355.
- [20] Molinder, J. and Pihl, C., 2023. Women's work and wages in the sixteenth century and Sweden's position in the ‘little divergence’. *The Economic History Review*, 76(1), pp.145-168.
- [21] Qian, N., 2008. Missing women and the price of tea in China: The effect of sex-specific earnings on sex imbalance. *The Quarterly Journal of Economics*, 123(3), pp.1251-1285.