

# Swiss Watch Cycles: Evidence of Corruption During Leadership Transition in China<sup>\*</sup>

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## Abstract

Political selection is a key channel through which bureaucratic organization affects the level of corruption. This paper presents evidence of corruption during leadership transitions in China. The import value of luxury watches, a popular medium of corrupt exchanges, peaked during regular leadership transitions in 1996-97, 2001-02, and 2006-07. The imports of non-luxury watches and other luxuries unpopular for corrupt exchanges, however, did not exhibit the same cycle. Nor did the imports of luxury watches in Hong Kong, Singapore, and the U.S. In the leadership transition in 2011-12, as wearing a conspicuous luxury watch had become likely to be exposed online in social media and triggered anti-corruption investigation, this “Swiss watch cycle” vanished.

*Key Words:* Corruption, Political Selection, China, Luxury Watches

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## 1 Introduction

The economic theories suggest two key determinants of the level of corruption: the incentive faced by individual government officials and the strategic interaction between them (Becker and Stigler 1974; Shleifer and Vishny 1993). Recent years have seen a fast growth of empirical evidence on the effect of the incentive structure on corruption, while there is little evidence on the effect of bureaucratic organization.<sup>1</sup> In principle, lucrative government positions could be sold for profits to highest bidders by whoever has the power to assign it. The competition between officials drives up the price of these positions, and those officials who do not collect bribes or intent to collect bribes once being established cannot afford the job. This self-selection mechanism would create a large population of corrupted officials. They collude with their superiors who are supposed to serve as monitors but instead sell positions for personal gains. Under such a system, fighting against corruption could be very difficult.

A striking corruption case in China vividly illustrates how the simple logic above works in reality.<sup>2</sup> In a small city in Heilongjiang province in 2000, Ma De secured his job as the secretary of the Communist Party of China (CPC), the first in command superior to the mayor, by paying over \$100,000 to his party superiors in the province. By the time Ma was detained in 2002, about 265 officials under his administration, including a half of county-level top officials, had either bought or sold positions. In just three years, Ma accumulated RMB 20 million (about \$2.5 million in the average exchange rate in 2002). Those who bought a government position from Ma immediately started to sell lower-ranking positions under their control. Li Gang, who paid \$38,000 for the job of the CPC secretary in a small county under Ma's administration, earned about \$630,000 in only two years by selling lower-ranking positions. The monetary return rate of his original investment was above 1,500 percent.

This paper provides the first set of empirical evidence on corruption related to government personnel turnover in China. We exploit the timing of leadership transitions and large-scale government reshuffle over 21 years from 1993 to 2013. As the ruling party, the CPC has held its congress every five years since 1977. Our sample period covers four such five-year cycles of congresses. During congress years, hundreds of thousands of CPC committee members

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<sup>1</sup>Olken and Pande (2012) review the recent findings of the effects of various incentive structures on corruption, such as compensation (Niehaus and Sukhtankar, 2013), monitoring and punishments (Olken, 2007), selection (Ferraz and Finan, 2009), and other incentives (Duflo, Hanna, and Rya, 2012). They also discuss the limited evidence on the effect of bureaucratic organization, with some exceptions such as Olken and Barron (2009) and Burgess et al. (2012).

<sup>2</sup>The following description of the case comes from *China News Weekly* on April 7, 2005: <http://news.qq.com/a/20050407/000528.htm>. For an English version of the story, see McGregor (2010).

are selected, at both local and national levels. These are the leaders of the Chinese polity. Following their installment, the CPC committees make personnel appointments across all levels of government units, the military, judicial system, state-owned enterprises, and other public institutions including universities and the media. During the period of leadership transition, officials eligible for promotions would have incentive to bribe their superiors who have influence over official appointments. The rising intensity of lobbying for promotion at the moment of leadership transition is depicted as “sprints” by a provincial organization department, the “human-resource department” of the CPC, in contrast to “long-distance races” in maintaining a good long-term relations with leaders through all means (McGregor, 2010). Both are necessary for winning the promotion game. The rise of the incidence of corruption during leadership transition is presumably prevalent enough that a specific term has been coined to describe it: *huan jie fu bai* (corruption during leadership transition). As a reflection of the severity of the problem, the Organization Department of the CPC and the Disciplinary Committee of the CPC vowed repeatedly to curb it.<sup>3</sup>

We use an innovative measure of corruption during the leadership transitions: the abnormal fluctuation in the imports of luxury wrist watches, an ideal gift favored by Chinese officials who are mainly men.<sup>4</sup> Luxury watches have high value densities in a small package, and are easy to store, transport, and hide. The top branded watches also retain their value remarkably well in worldwide resale markets, and can be easily pawned for cash. Some known cultural factors may also have promoted watches as ideal gift to superiors. In the Chinese language, the character for watches is “biao,” which can be used as a verb in the phrase, “*yi biao xin yi*,” to mean “in order to express one’s sincerity.” The watch serves as a token to express the gift giver’s sincerity, loyalty, and enduring friendship for the receiver. An internet search by the authors reveals that expensive watches were an indispensable part of nearly all ill-gotten wealth. In February 2013, the Chinese government issued a ban on television advertisements touting expensive watches as “gifts for leaders” because of concerns that they may conjure images of official graft and further erode public faith in the government. Stock prices of two Hong Kong watch retailers fell 8% and 13% just two days later.<sup>5</sup>

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<sup>3</sup>They often announced new policies and methods to curb corruption just before the transition process, and sent special supervision teams to closely monitor the processes of local transition. See <http://dangshi.people.com.cn/GB/146570/198300/200220/200231/12727900.html> for policy announcement in 2001, [http://news.xinhuanet.com/newscenter/2006-05/18/content\\_4568671.htm](http://news.xinhuanet.com/newscenter/2006-05/18/content_4568671.htm) in 2006, and <http://www.nbc.gov.cn/article/rdzz/201201/20120100015778.shtml> in 2011.

<sup>4</sup>Managers of global luxury brands have found that China’s luxury market is unique because men, who make up most of the officials in China, play a more important role than women. Research by an investment bank shows that men account for at least 55% of the market, well above the global average of 40%. Source: <http://luxurysociety.com/blog/2013/02?page=3>.

<sup>5</sup>See: <http://www.ft.com/cms/s/0/3d73d754-71e1-11e2-886e-00144feab49a.html#axzz2KhOj0OuS>.

We find that, the fluctuations in the import of luxury watches in China were driven by the CPC congress cycles. The three import peaks coincided with the first three periods of leadership transition in our sample: 1996-97, 2001-02, and 2006-07. The difference-in-differences (DD) estimates show that more than 54% of the cyclical variations in the log value of the luxury watch imports could be attributable to leadership transitions. Such abnormal variations also exist in the import quantities of luxury watches. They did not exist in Hong Kong and Singapore, however, the societies that are heavily influenced by the Chinese culture but their political economy institutions have little in common with those in mainland China. Nor did the phenomenon exist in the U.S., which differs from China both in culture and in political and economic institutions. In a placebo test designed to exclude other factors that could be driving luxury consumption, we replace non-luxury watch as the control commodities with other luxury imports that are not as appealing as gifts to officials, such as handbags (lower value density and mainly used by women) and cars (required to be registered). Compared to these luxury goods, the import of luxury watches still surged during the transition years.

These “Swiss watch cycles” vanished in the leadership transition in 2011-12, which strengthened our identification of corruption as the driving force behind the cycles. The development of Internet, particularly social media, facilitated exposing conspicuous consumption of government officials online. Wearing an once innocuous luxury watch became a likely trigger of anti-corruption investigation. In December 2008, photos of Zhou Jiugeng, head of the housing bureau of Nanjing, were widely circulated online. Zhou appeared to be smoking \$22-a-pack cigarettes and wearing a \$14,600 Vacheron Constantin watch, both were beyond his modest salary. Zhou was fired two weeks later, convicted of graft and sentenced to 11 years in prison. Since the launching of Sina Weibo in 2009, Twitter-like social media in China, exposing flamboyant corruption has become routine among netizens. In August 2012, Yang Dacai, director of Shaanxi province’s safety inspection bureau, became an overnight suspect of corruption when he was caught on camera smiling on the scene of a deadly highway accident. Enraged internet activists quickly posted photos of him wearing expensive watches on Weibo. Weibo followers identified at least 11 Swiss watches as being owned by Yang, including a \$63,000 Vacheron Constantin and a \$10,000 Rolex. Yang was later fired, convicted of graft and sentenced to 14 years in prison.<sup>6</sup> Multiple campaigns of “living a frugal life” and “frugal working style” were launched as a response to the online public activism and the fervor of netizens, as reported in two *New York Times* articles in 2008 and 2012.<sup>7</sup>

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<sup>6</sup>These two stories were widely reported in the international media. For the coverage from *New York Times*, see Jacob, Andrew, “Chinese Learn Limits of Online Freedom, ” (2009, February 5); and Gough, Neil, “Chinese Official, a Symbol of Greed and Corruption, Is Sentenced, ” (2013, September 5).

<sup>7</sup>McDonald, Mark, “Old Problems, New Theme: China’s Warning on Bribes,” (2008, November 30);

We find the imports of luxury watch *decreased* in China during the leadership transition of 2011-12, while the economic recovery after the financial crisis in 2009 stimulated the imports of luxury watch in 2011-12 in Hong Kong, Singapore, and the U.S.

As far as we know, this is the first paper that relates the imports of luxury goods to the corruption in political selection. We also highlight how the rise of Internet vigilantism affects the form of corrupt exchange. This paper joins the literature of measuring corruption in the field, instead of using perception-based indices or other survey-based measures. This literature has made remarkable progress in recent years, as reviewed by Banerjee, Mullainathan, and Hanna (2012), Olken and Pande (2012), and Sequeira (2012). In particular, we add to the literature of measuring corruption in China, perceived as one of the most politically corrupt countries in the world.<sup>8</sup>

By focusing on the corruption at the moment of political selection, this paper is a step towards understanding the hierarchy of corruption within the government. Contemporary Chinese corruption is often organized as a cooperative venture, including both the alliance between business people and government officials, and the collusion between officials of different levels. The political selection is key to consolidate and stabilize such a corruption network.

The rest of the paper is organized as follows. Section 2 introduces the institutional background. Section 3 describes the data. Section 4 presents the empirical results. Section 5 concludes.

## 2 Institutions

### 2.1 Party and State

Since the founding of the People’s Republic in 1949, China has been governed by the ruling Communist Party of China (CPC).<sup>9</sup> The standing committee of the Politburo of the Central Committee of the CPC, led by the General Secretary, exercises collective control over administrative, legislative, judiciary, and military powers in China. The CPC entrusts

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and Master, Farah, “As Beijing Clamps Down on Gift-Giving, Luxury Goods Losing Their Appeal,” (2012, September 24).

<sup>8</sup>China was ranked among the 10% most corrupt countries out of 140 countries in 2001 based on the International Country Risk Guide (Svensson, 2005), and among the bottom 30% out of over 200 countries in 2010 based on the Index of Control of Corruption (Kaufmann et al., 2010). Various types of corruption in China have been investigated by economists, including tax evasion (Fisman and Wei, 2004), state asset sales (Fisman and Wang, 2015), abnormal bids in the land market auctions (Cai, Henderson, and Zhang, 2013), entertainment and transportation cost of Chinese firms (Cai, Fang, and Xu, 2011), and housing purchases of government officials (Fang, Gu, and Zhou, 2014).

<sup>9</sup>For an introduction to China’s political system, see Lieberthal (2004).

the institution of the state to carry out its policies and conduct day-to-day administration. China is organized as a unitary state with four levels of subnational governments: 31 provincial level divisions, 374 prefectures or cities, 2,789 counties or urban districts, and 33,368 townships.<sup>10</sup> Villages, where gross-root election has been introduced since the late 1980s (Martinez-Bravo et al., 2012), are nominally self-governing organizations, and are not officially part of the government. The central CPC committee delegates subnational CPC committees and government units to act on its behalf. Mirroring the hierarchy of power at the center, the secretary of the local CPC committee is the first in command at each subnational level, while the chief executive (*e.g.*, provincial governor or mayor) is actually the second in command. This arrangement institutionalizes the party’s control over the state.

Another institution through which the CPC exercises power is the nomenclature system, run by the Organization Departments of CPC Committees at both the central and subnational levels. With it, the CPC controls personnel appointments across all levels of party committees, government units, the military, state-owned enterprises and other public institutions including universities and the media (Chan, 2004). The system becomes more important with the implementation of reforms that use key political and economic indicators for performance evaluation and promotion, set term limits and mandatory retirement age for cadres at each rank, and encourage job rotation. However, just as the Central Organization Department ultimately reports to the General Secretary, a local Organization Department reports to the local secretary. This arrangement gives the first in command in each subnational jurisdiction a great deal of influence in official appointments.

## 2.2 Leadership Transition

Since the 11th national party congress in 1977, which kindled reforms in China, the CPC has held its congress regularly every five years.<sup>11</sup> It has gradually institutionalized the congress as a venue not only for reviewing past accomplishments, announcing new policies, but also for selecting new local and national leaders. Since the abolition of lifetime appointment and the implementation of mandatory retirement in the 1980s, each CPC congress has resulted in a large scale transition of political leaders at both local and national levels.

Each party congress starts at the lowest subnational division—the townships—where new

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<sup>10</sup>The information is current as of February 12, 2013, when we accessed the People’s Daily Online: <http://english.peopledaily.com.cn/90785/7892933.html>. The provincial level administrative divisions include 22 provinces, 4 municipalities that report directly to the central government, and 5 autonomous regions. In the paper, we refer them simply as provinces.

<sup>11</sup>Founded in 1921, the CPC held 10 congresses before Mao’s death in 1976. The most recent 18th congress concluded in November 2012. For a brief history of CPC congresses, see the Xinhua News Agency’s official history portal, [http://news.xinhuanet.com/ziliao/2003-01/21/content\\_698625.htm](http://news.xinhuanet.com/ziliao/2003-01/21/content_698625.htm).

leadership for each township is determined in an increasingly competitive internal election. Each township party congress also selects delegates for the party congress at the next higher level—the county level. Each county level party congress then convenes and elects new leadership at the county level and delegates for the city level congress. The process continues to the city-level, then provincial level, and finally, after almost two years, ends with the conclusion of the National CPC Congress in Beijing. Figure 1 shows the timeline of the 18th CPC Congress. The subnational congresses started first in January 2011 in Liaoning province at the township level and ended in July 2012 with the conclusion of the provincial level congress for the Beijing municipality. They elected 275,205 CPC committee members at the township level, 30,028 at the county level, 4,384 at the prefecture level and 404 at the provincial level.<sup>12</sup> Held in November 2012 in Beijing, the 18th CPC National Congress elected 205 members of the Central Committee and 7 members of the Politburo Standing Committee, which forms the policy-setting headquarter of the party and the state.

Officials in various institutions of the state are then appointed from candidates nominated by the party in the subsequent local and national meetings of the People’s Congress and the People’s Political Consultative Conference held shortly after the party congress. A seat on the CPC standing committee at a jurisdiction are virtually guaranteed significant posts in either party or state organizations. With the exception of the General Secretary and the Premier, who usually serve two consecutive five-year terms, other official positions are, in principle, subject to a five-year reshuffle finalized in a regular party congress.

### **2.3 Corruption in Political Selection**

While much of China’s economic growth in the past three decades could be attributable to the economic liberalization that started in 1978,<sup>13</sup> the government has retained its dominant role in the economy. In addition to regulating business entry, operations, and exit, the government allocates land and heavily influences the allocation of capital and the mobility of labor (Gordon and Li, 2005 and 2011). However, officials with significant financial responsibilities are not known to receive explicit compensations that are competitive when compared to private sector peers. Since the government has yet to disclose income earned or wealth held by officials, we don’t have verifiable data documenting official’s earnings, whether explicit or implicit. Based on a public speech made by a high ranking official, the regular monthly salary of a member of the CPC politburo was just over 11,000 yuan in 2011 or around

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<sup>12</sup>The numbers are from the Xinhua News Agency: [http://news.xinhuanet.com/politics/2012-07/30/c\\_112570249.htm](http://news.xinhuanet.com/politics/2012-07/30/c_112570249.htm).

<sup>13</sup>See for example, Li (1999) and Gordon and Li (2005) among many others.

US\$1,700.<sup>14</sup> While this is hardly a princely sum, officials also receive various, above-the-table, supplemental earnings, and are often given generous perks, including housing, official cars, and reimbursable banquets and entertainment.

Anecdotal evidence also suggests that official positions can be far more remunerative than what official pays and perks suggest. Based on 2,802 corruption cases reported by the official *Procuratorate Daily* between 2000 and 2009, Gong and Wu (2012) report that the average amount of proceeds from corruption is 30 million RMB (about \$4.4 million using the average exchange rate in 2009). With pervasive corruption, official positions are valuable, and therefore are objects of corruption to be sold by higher level officials to eligible candidates. Gong and Wu (2012) find that corruption related to official promotion and appointment accounts for 13% of the 2,802 convicted cases, the second largest category of corruption. Examining 72 corruption cases involving province-level leaders between 2003 and 2011, Tu (2011) finds that 31 were involved selling or buying government offices.

### 3 Data

Our data are from the United Nations Commodity Trade Statistics Database (UN Comtrade), which contains trade statistics reported by over 140 economies (countries or independent customs territories), recorded by year, commodity and partner economy. Detailed trade data on wrist watches reported by China are available in ten 6-digit sub-categories of the Harmonized Commodity Description and Coding Systems (HS). Table 1 lists the HS codes and product descriptions. For each 6-digit wrist watch sub-category and each year between 1993 and 2013, we obtain import values, including cost, insurance and freight (CIF), in 1,000 current U.S. dollars, reported by China from the following ten partner economies: France, Germany, Hong Kong, Italy, Japan, Singapore, Switzerland, Thailand, the United Kingdom, and the United States. In 2013, the ten partners accounted for 92% of the total values of watch imports in China. We aggregate imports from the rest of the world into one source, so we have a total of 11 partners for China. Values of watch imports reported by China thus cover 10 6-digit products from 11 partners in 21 years between 1993 and 2013. The maximum number of observations is thus  $10 \times 11 \times 21$ , or 2,310 product-partner-years. The available observations are 1,293. Most of the missing observations occurred in early years when China had a more restrictive trade regime and a lower average income.

We divide wrist watches into two product groups. A wrist watch belongs to the luxury

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<sup>14</sup>See, for example, a news report of the speech published on June 24, 2011 by *Nanfang Zhoumuo* (a weekly magazine), available online at <http://www.infzm.com/content/60713>. The approximate US dollar amount is obtained using market exchange rate in the end of June 2011.

group if its mechanism is mechanical, its case is made of precious metal or of metal clad with precious metal (HS code 910121 or 910129), and it is exported from France, Germany, Italy, Switzerland, or the United States. Among the top 40 luxury watch brands tracked by the annual *World Watch Report*, 28 are from Switzerland, 7 from France, 2 from Germany, 2 from Italy, and 1 from the U.S.A.<sup>15</sup> The rest of the wrist watches form the non-luxury group. By definition, luxury watches include two 6-digit product sub-categories imported from five partners between 1993 and 2013. The maximum numbers of observation of luxury and non-luxury watches are thus 210 ( $2 \times 5 \times 21$ ) and 2,100 product-partner-years, while the available observations are 94 and 1,199 respectively. In 2013, the median unit value of watches imported by China was US\$6,960 in the luxury category but only US\$59 in the non-luxury category. Our classification captures well the notion that luxury watches have high value density.

How are Chinese watch imports compared with other economies? We select Hong Kong, Singapore and the United States for comparison. Our choice of Hong Kong and Singapore is based on the fact their societies are heavily influenced by the Chinese culture, but their political economy institutions have little in common with those found on mainland China. If observed patterns of import demand in China are attributable to shared cultural factors, we would expect to see similar patterns in Hong Kong or Singapore. If, on the other hand, observed patterns of import demand in China are attributable to political economy factors that are unique in China, we would expect to see their presence in China and their absence in Hong Kong or Singapore.<sup>16</sup> We also include the United States, which differs from China both in culture and in political and economic institutions, as an alternative control economy. We obtain data on watch imports at the 6-digit HS code level for each of the three reporters, from 11 partners—the same set of ten exporting partners (minus oneself) plus China, and the rest of the world as one source.

A comparison of the summary statistics in Table 2 across economies shows that the value of Chinese watch imports has a lower mean, but a higher standard deviation. This is consistent with the fact that Chinese imports start at the lowest levels but grow at the fastest rate, as shown in Figure 2. What is striking is the fact that China and Hong Kong

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<sup>15</sup>28 brands from Switzerland are: Audemars Piguet, Baume & Mercier, Blancpain, Breguet, Breitling, Chopard, Ebel, Roger Dubuis, Pierre Jaquet Droz, Franck Muller, Frédérique Constant, Girard-Perregaux, Hublot, IWC Schaffhausen, Jaeger-LeCoultre, Longines, Maurice Lacroix, Omega, Patek Philippe, Piaget, Rado, Raymond Weil, Rolex, TAG Heuer, Tudor, Ulysse Nardin, Vacheron Constantin, and Zenith. Seven brands from France are Cartier, Chanel, Dior, Hermès, Richard Mille, Louis Vuitton, and Van Cleef & Arpels. Two brands from Germany are A. Lange & Söhne and Montblanc. Two from Italian are Bvlgari and Panerai. One from the U.S. is Harry Winston. For details, see <http://www.worldwatchreport.com>, published by the Digital Luxury Group.

<sup>16</sup>Taiwan could also be a good control candidate. But its trade data are not available in UN Comtrade.

import much more expensive luxury watches than either the U.S. or Singapore. Even though Singapore has a dominant ethnic Chinese population, the median value of luxury watches it imports is US\$1,256, only a fraction of the median value in China or Hong Kong. Hong Kong and Singapore, despite their small population size, report high volumes of watches imports. Both are larger importers than China, and Hong Kong exceeds even the United States. The data therefore suggest that both Hong Kong and Singapore are regional trade hubs and reexport a large portion of their imports. This is of particular concern for us since Hong Kong may be an important conduit through which luxury watches are reexported or even smuggled into the Mainland (Fisman and Wei, 2004). The inclusion of Hong Kong as a control also affords us the opportunity to investigate the extent to which the influence of Chinese political economy has any spillover effect on the demand for imported watches in Hong Kong, and whether there is a link between Mainland corruption and reexporting or smuggling from Hong Kong. For this reason, we also downloaded data on reexports reported by Hong Kong into the Chinese mainland and will discuss the implication of reexports and smuggling later in the paper.

Table 2 also reports the summary statistics of two economy-level variables used in our estimation. While motivation for inclusion of these variables are discussed in the next section, we give descriptions for these variables here. GDP, measured in millions of current U.S. dollars (converted to U.S. dollars using market exchange rates for non-U.S. economies), are drawn from the World Development Indicators (published by the World Bank). We define income inequality as the ratio of income share of the top 20% income earners to the bottom 20%. We obtain data for computing income inequality for China from the World Development Indicators, for Hong Kong from its Census and Statistics Department, for Singapore from Statistics Singapore, and for the United States from the Census Bureau. When data frequency is less than annual, in the case of China (every three years) and Hong Kong (every five years), we use available data to impute missing values by interpolation. All four economies show rising GDP and income inequality between 1993 and 2013. The Chinese economy grew the fastest and saw the largest increase in income inequality during the sample period.

## **4 Empirical Analysis**

### **4.1 The Benchmark Model and Empirical Strategy**

Our data cover four complete processes of leadership transition occurred during the 15th CPC Congress in 1996 and 1997, the 16th in 2001 and 2002, the 17th in 2006 and 2007, and

the 18th in 2011 and 2012. For each of the congresses, we observe values of imports three years before, two years during, and three years after (except for the last congress when we have data covering one year after the congress). In Figure 2, we mark these years of leadership transition using shaded bars. Visual inspection reveals that cycles of leadership transition do not appear to have apparent impact on watch imports in China. Since watch imports exhibit strong time trends, it is plausible that the trends in watch imports are dominant features in the time series dimension of the data. For our analysis, we would need to decompose the value of watch imports into its trend component and its cyclical component. If cycles of leadership transition have any effects on luxury watch imports as we hypothesized, the effects would be part of the cyclical component of luxury watch imports.

There is a natural candidate for describing the trend component of import flows: the gravity equation, which relates bilateral trade volumes to country size and distance.<sup>17</sup> Our empirical specification therefore starts with the gravity equation. Let  $V_{ift}$  denote the import value (1,000 current U.S. dollars, c.i.f., in logarithm) of product  $i$  (identified by a six-digit HS code) from partner economy  $f$  in year  $t$ , reported by home economy. The explanatory variables in the gravity equation typically include log GDP of the home economy,  $M_t$ , log GDP of partner economy,  $M_{ft}$ , and partner economy specific effects,  $\alpha_f$ , which capture bilateral trade costs arising from the geographic distance between the home and partner economies and their bilateral trade institutions. The coefficient on  $M_t$  may be interpreted as a measure of income elasticity of demand for imported watches.

Since imported luxury watches are status goods, the economics of conspicuous consumption based on signaling models offers testable predictions on the effects of income distribution in the reference group. Given the economy-wide import data, we have to consider the population of a home economy as the reference group for keeping-up-with-the-Joneses comparison.<sup>18</sup> The signaling model outlined in Charles, Hurst, and Roussanov(2009) offers two predictions on the consumption of status goods in the separating equilibrium: An increase in income dispersion in the reference group has ambiguous effects, while an increase in the average income has negative effects.<sup>19</sup> GDP per capita and income inequality in each home economy

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<sup>17</sup>For a recent review of gravity equation, see Head and Mayer (2014).

<sup>18</sup>Charles, Hurst, and Roussanov(2009) provide an exposition of the economics of conspicuous consumption by outlining and testing a signaling model similar to the work of Glazer and Konrad (1996). Using U.S. data, they found a significant inter-racial difference in the consumption of visible goods, suggesting that our use of the whole population as the reference group is problematic for the U.S. For the three Asian economies in our data, however, racial or ethnic difference may be less of a problem since 91%, 92% and 74% of residents in China, Hong Kong and Singapore are ethnic Han Chinese.

<sup>19</sup>For an intuitive explanation, consider first a transfer of income from person A to a richer person B that increases income dispersion in the reference group. While this reduces A's consumption for status goods and raises B's consumption, the net effect will depend on the curvature of the equilibrium consumption as a function of income. Consider next an addition of poorer persons to the group that lowers the average income.

are therefore two plausible explanatory variables that we may use to augment the gravity equation. Since home GDP per capita is highly correlated with  $M_t$ ,<sup>20</sup> which is already a part of the gravity equation, we add only income inequality in the home economy,  $U_t$ , as an explanatory variable. Predictions of the signaling model imply that the coefficient on  $M_t$  will be attenuated by the signaling effect and the coefficient on  $U_t$  would be ambiguous.

For each home economy, our augmented gravity equation can be written as

$$V_{ift} = \beta' \mathbf{X}_{ft} + \beta'_L \mathbf{X}_{ft} L_{if} + \gamma L_{if} + \alpha_f + v_{ift}, \quad (1)$$

where  $\mathbf{X}_{ft} = (M_t, M_{ft}, U_t)'$  is a column vector of time-series variables and  $L_{if}$  is the luxury watch dummy that equals 1 if product  $i$  imported from partner  $f$  is a luxury watch and 0 otherwise. We allow the coefficients on  $\mathbf{X}_{ft}$  and the constant term in (1) to be different for luxury and non-luxury watch imports in order to capture the differential trends that we observe in the data. With the first four expressions in (1) define the trend component of watch imports, the residual,  $v_{ift}$ , then captures the cyclical component of watch imports.

We report OLS estimates of (1) in Table 3, for each of the four home economies. As expected, imported watches are normal goods and have positive income elasticities. Income elasticities of luxury imports are higher than non-luxury imports in Singapore and in the U.S., but the differences are statistically insignificant in China and Hong Kong. This finding isn't inconsistent with the prediction that the signaling effect would attenuate the income elasticity of demand for status goods. Anecdotal evidence seems to suggest that consumers in China and Hong Kong are more brand conscious, which is supported by the high median price of imported luxury watches in the two economies in Table 2. Income inequality, whose theoretical effects on the demand for luxury imports are ambiguous, raises demand significantly for luxury watches in China, Hong Kong and Singapore. The effect of partner economies' GDP is significantly more negative for luxury watches. This may be explained by the fact that most of luxury watches are made in Switzerland, a rich but relatively small economy. The large F-statistics of all partner dummies suggest bilateral trade institutions explain a significant part of variation in the data.

## 4.2 Visual Evidence of the Swiss Watch Cycles

By construction, the regression residuals,  $\hat{v}_{ift}$ , are estimates of the cyclical component of  $V_{ift}$ . We compute the mean of  $\hat{v}_{ift}$  over  $i$  and  $f$ , separately for luxury and non-luxury watches,

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In the separating equilibrium, this compels persons of every income level to spend more on conspicuous consumption to distinguish themselves from those who are poorer.

<sup>20</sup>For each economy in our sample, changes in the population over time are small and quite steady over the sample period.

for each home economy in each year, and plot the resulting times series in Figure 3. Our empirical model appears to capture cyclical fluctuations well. For example, we see a decline in imports of luxury watches in Hong Kong and Singapore following the 1997-98 Asian Financial Crisis, and a recovery after the 2001 worldwide recession caused by the bursting of the internet bubble. The cyclical component of watch imports also appears to be procyclical in the United States, falling to a trough during each of the two recessions during our sample period (March–November 2001 and December 2007–June 2009).<sup>21</sup> Visually, cyclical fluctuations are more pronounced in China than in the three control economies.<sup>22</sup>

For each transition episode, we have three years of pre-transition, two years of transition, and three years of post-transition (or one year for the latest transition). Since we are interested in how watch imports change from the pre-transition period of each transition episode to the transition period and then to the post-transition period, we aggregate the data in Figure 3 by taking their simple averages over each of the three periods for each of the four transition episodes. The results are plotted in Figure 4. These figures reveal that the cyclical components of luxury watch imports in China rose to a peak during the transition period and then fell to a trough in the post transition period for each of the first three episodes of leadership transition. The peak in 1994 was not related to leadership transition and was driven by the changes in watch import regimes around 1994. We will discuss the changes and their implications in Section 4.5.

This “pro-transition” cyclicity is unique to luxury watch imports in China. It is not a feature of non-luxury watch imports in China, or of watch imports (luxury or non-luxury) in each of the three control economies. If we consider non-luxury watch imports reported by China as the control group, Figures 3 and 4 then are the results of graphical “difference-in-differences” comparison of luxury vs. non-luxury watch imports between transition and non-transition periods.

During the latest transition, however, the pro-transition cyclical pattern vanished in the Chinese data. It coincided with the rise of internet vigilantism against corruption, mainly by posting online the pictures of conspicuous consumption of government officials. Since the exposure of a luxury watch wore by Zhou Jiugeng in December 2008, as discussed in Introduction, luxury watches attracted much attention. Figure 5 shows the frequency of the words “Internet”(or similar words such as “Web”) and “anti-corruption” and “luxury watch” that appeared in the research reports and articles in the database of China National Knowledge Infrastructure (CNKI.net). Before 2009, the combination of the words generated

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<sup>21</sup>See <http://www.nber.org/cycles.html> for the NBER dating of U.S. recessions.

<sup>22</sup>This is confirmed in Table 2 where we list the standard deviations of the cyclical fluctuations  $\hat{v}_{i,ft}$  for luxury and non-luxury watch imports: Imports in China record the highest standard deviations.

essentially zero result. After that, the frequency surged.

Why would the cyclical components of luxury watch imports be positively correlated with the timing of the CPC Congress? Our hypothesis attributes it to a combination of political corruption and the social norm that a corrupt system has engendered. The evidence we present here is, however, indirect. Our empirical analysis below therefore will consider many alternative interpretation of the data. And more importantly we will take advantage of the rise of internet vigilantism against corruption since the end of 2008 as a natural experiment in empirical identification.

### 4.3 Difference-in-differences estimation

We apply the difference-in-differences approach to analyzing changes in the value of luxury watch imports around leadership transitions in China conditional on the augmented gravity model. To begin with, we use imports of non-luxury watches as the control group. These imports are the utilitarian counterparts of luxury watches. Since they do not have high value density or high value retention, they are not known to be widely used as gifts to officials. The difference-in-differences approach requires the “parallel trend” assumption, which posits that the average change in the control group represents the change in the treatment group if there were treatment. Figure 2 shows that this assumption is not plausible if the outcome variable is the log value of watch imports. Our use of the augmented gravity equation to control for differential trends in watch imports is therefore an important step to take.

The difference-in-differences specification below compares changes in imports of luxury watch between leadership transition and non-transition years with those of non-luxury watch imports, conditional on the augmented gravity model:

$$V_{ift} = \beta' \mathbf{X}_{ft} + \beta'_{\mathbf{L}} \mathbf{X}_{ft} L_{if} + \gamma_L L_{if} + \gamma_T T_t + \delta L_{if} T_t + \alpha_f + \varepsilon_{ift} \quad (2)$$

Compared to the augmented gravity equation, we added two explanatory variables:  $T_t$ , the leadership transition dummy that equals 1 if  $t$  is a leadership transition year in China and 0 otherwise, and the interaction term,  $L_{if} T_t$ .  $T_t$  captures aggregate factors influencing both luxury and non-luxury watch imports during leadership transitions, while  $L_{if} T_t$  captures the impact of leadership transition on luxury vs. non-luxury watch imports.

Column 1 of Table 4 shows the estimates of equation (2) for China. Comparing with the results in Table 3, the addition of  $T_t$  and  $L_{if} T_t$  has little impact on the gravity equation coefficients. The estimated aggregate effect of leadership transition on both luxury and non-luxury watch imports, the coefficient on the transition dummy  $T_t$ , is small and statistically indifferent from zero. And our estimate of interest,  $\hat{\delta}$ , the DD estimate of the average effect of

four leadership transitions on luxury watch imports is around 0.5 log points and statistically significant. Since we use up to 21 years of data, we follow the suggestion by Bertrand, Duflo, and Mullainathan(2004) and estimate robust standard errors clustered at partner-product class (defined by four-digit HS code) level to allow for possible serial correlation within each cluster. The number of clusters is 22.<sup>23</sup>

To take explicit account of the onset of internet vigilantism in the empirical model, we interact all variables in (2) except the partner effects  $\alpha_f$  with the dummy variable,  $W_t$ , which equal 1 when  $t \geq 2009$  and 0 in other years.<sup>24</sup> In this triple-difference setting, we see that the impact of internet vigilantism (the coefficient of  $W_tL_{if}T_t$ , reported in Column 2) is a statistically significant reduction of  $\hat{\delta}$ , compared with the estimates in Column 1. For the first three leadership transitions before 2009,  $\hat{\delta}$  is slightly over 1 log points, markedly higher than the estimate in Column 1. But for Transition 2011-12, which falls after the onset of internet vigilante,  $\hat{\delta}$  is around  $-0.7$  log points. And compared with Column 1, the estimates of the coefficients on the augmented gravity equation variable in Column 2 are largely unchanged. The regressions offer point estimates consistent with the patterns shown in Figures 3 and 4.

The results merit discussion. To begin with, at 1 log points, the magnitude of our DD estimate of the average effect of leadership transitions is economically significant. It is one sixth of the mean of the log value of annual luxury watch imports (Table 2), and nearly one third of the standard deviation. Since our DD estimate is conditional on the inclusion of the augmented gravity equation, it is more appropriate to compare it with summary statistics of the gravity equation residuals (*i.e.*, the cyclical component of luxury watch imports). Since the standard deviation of the gravity equation residuals is 1.87 (Table 2), our result suggests that more than 54% of the cyclical variations in the log value of the luxury watch imports in China are attributable to leadership transitions before the onset of internet vigilantism.

The rise of internet vigilantism against corruption since 2009 had a large and significant effect in reducing luxury watch imports during the 18th Party Congress (Transition 2011-12). With an estimated value of around  $-0.7$  log points, Transition 2011-12 is statistically significantly different from transitions before 2009. One might interpret this finding by

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<sup>23</sup>An alternative way is to cluster by year (the number of clusters is 21), which allows for correlation across partners and products within a year. Or we can use two-way clustering both at year and at partner-product class to incorporate correlation at both time and cross-section dimensions (Cameron, Gelbach, and Miller, 2011). These different procedures of calculating standard errors yield quantitatively similar results, which we report in Appendix Table A1. In the rest of the paper, we report only standard errors clustered at partner-product class for all difference-in-differences regressions.

<sup>24</sup>This specification allows the internet vigilantism,  $W_t$ , to affect the long term trend of the demand for watch imports. We also estimated a more restricted specification where we added only the following variables,  $W_t$ ,  $W_tL_{if}$ ,  $W_tT_t$ ,  $W_tL_{if}T_t$  to equation 2. We found almost identical results. This is not surprising since the influence of  $W_t$  on any gravity equation coefficient is not statistically significant, as shown in Appendix Table A3.

crediting President Xi Jinping’s anti-corruption campaigns for the decline in luxury watch imports during Transition 2011-12. But the timing does not agree. Mr. Xi Jinping initiated his anti-corruption campaign after he was crowned the General Secretary of the CPC in November 2012 at the very end of Transition 2011-12.

Are the estimated DD transition effects unique in China? Could they be explained by business cycles in the global market for luxury watches? Figures 3 and 4 show that the effects of Chinese leadership transition are indeed unique in the China data. To address this question formally, we estimate equation (2) using data from Hong Kong, Singapore and the U.S. and report the results in columns 3-8 in Table 4. Since these economies are unaffected by or at least much less influenced by political economy factors in China, we do not expect the estimates of  $\delta$  be positive and statistically significant. The results are in line with our expectation: Estimates of  $\delta$  are either not statistically significant from zero or negative. Also different from China, the coefficients of  $W_t L_{if} T_t$  tend to be positive in these regions. This is expected because for these control economy,  $W_t$  captures the years of recovery from the great recession between 2008 and 2009. Cycles in the worldwide market, therefore, cannot explain the estimated DD effects of leadership transition on Chinese imports of luxury watches.

In an alternative and simpler specification, we replace  $(M_t, U_t, T_t)$  with year fixed effects. We interact the luxury dummy  $L_{if}$  with a linear trend to allow for different trends in luxury and non-luxury watch imports, as shown in Figure 2. Appendix Table A2 show that the results are quantitatively similar. It also shows that our results are similar when we use import quantities instead of import values as the dependent variable, though the data of quantities are only available after the year 2000. Thus in the following analysis, we focus on import values.

#### 4.4 Cycle-by-cycle estimation

So far, our DD specification estimates an average effect of all transitions over the full sample. To obtain estimates of the effect of each of the four transitions in our data, we rewrite (2) as follows,

$$V_{ift} = \beta' \mathbf{X}_{ft} + \beta'_L \mathbf{X}_{ft} L_{if} + \gamma_L L_{if} + \gamma'_T \mathbf{T}_t + \delta' L_{if} \mathbf{T}_t + \alpha_f + \varepsilon_{ift} \quad (3)$$

where  $T_t = (T_t^{1996}, T_t^{2001}, T_t^{2006}, T_t^{2011})'$  is a column vector with four transition dummies:  $T_t^n = 1$  if  $t$  is a leadership transition year corresponding to the two-year CPC Congress started in year  $n$ , or 0 otherwise. The control group comprises of non-luxury watches (where  $L_{if} = 0$ ). The vector of coefficients,  $\delta$ , measures the effect of each of the four leadership transitions on luxury watch imports relative to non-luxury watch imports.

We report regression results in Table 5. Since estimates of  $\beta$  and  $\beta_{\mathbf{L}}$  are nearly identical to those in Table 4, they are not reported in Table 5. Column 1 presents estimates using the Chinese data so that the home economy is China. Across the first three transition cycles, our estimates of  $\delta$ , are positive. The magnitude of the estimate was around 0.9 log points during Transitions 1996-97 and rose markedly to 1.3 by Transition 2006-07. The effects of leadership transition are more precisely estimated during Transitions 2001-02 and 2006-07. However, the positive effect disappeared in Transition 2011-12 after the rise of internet vigilantism against corruption.

Columns 2-4 of Table 5 again show that the leadership transition in China, in general, does not affect watch imports in Hong Kong, Singapore and the U.S. The results reveal finer details than those in Table 4. During Transition 2011-12, estimate of  $\delta$  is positive for every control economies, and is even statistically significant for Hong Kong. Since this estimate compares luxury watch imports in 2011-2012 to those in 2008-2010 and 2013, a simpler explanation is that it is the result of a confounding event—the 2008-09 great recession, which happened to fall on the pre-transition years for Transition 2011-12. The global recession brought about a sizable decrease in luxury watch imports in 2009 and a robust post crisis recovery (Figure 2). But the positive estimate of  $\delta$  for Transition 2006-07 in Hong Kong is harder to explain on the basis of confounding macroeconomic events. We therefore turn our attention to Hong Kong’s special role, first as a British colony and then as a Special Administrative Region of China.

Our choice of Hong Kong as a comparison economy is twofold. First, Hong Kong is culturally close yet institutionally distant from the Mainland. And this in theory makes Hong Kong an ideal control for our purposes. Second, Hong Kong is geographically close to the Mainland China and has served as a conduit through which watch imports are smuggled into the Mainland where tariffs, VAT and consumption tax are high (Fisman and Wei, 2004). This tends to compromise the utility of Hong Kong as a control, since watch imports reported by Hong Kong, with a material portion smuggled to the Mainland, could respond to political economy factors on the Mainland. Below we discuss the implications of smuggling.

In China, smuggled goods are often referred to as “water goods” (*shui huo*), because they arrive on the Mainland across rivers or channels. By definition, they enter the Mainland clandestinely, unbeknownst (at least officially) to China’s General Administration of Customs. They are, therefore, not included in the trade statistics reported by China. But when the water goods leave Hong Kong on its way to the Mainland, some are likely reported as reexports to Hong Kong’s customs authority (Fisman and Wei, 2004), while others are unreported. Official statistics reported by Hong Kong would therefore count the unreported water goods as imports that are consumed locally. Some of the unreported reexports enter

the Mainland through the retail channels when smugglers or visitors from the Mainland buy imported watches from Hong Kong’s retail outlets and carry them to the Mainland without filing customs declaration forms on either side of the border.

To the extent that sufficient numbers of luxury watches imported by Hong Kong were ferried to the Mainland unbeknownst (officially) to customs officials on the Mainland, it is then conceivable that luxury watch imports reported by Hong Kong could be materially affected by demand factors in China, including the political economy factors that drive the Swiss watch cycles. This effect should be more salient when entry barriers against Mainland visitors were lowered starting in 2003.<sup>25</sup> Our empirical evidence appears to lend some support to the conjecture that Hong Kong’s luxury watch imports exhibit the Swiss watch cycles. Column 2 of Table 5 shows that during Transition 2006-07 we observe a small but statistically significant increase in luxury watch imports reported by Hong Kong. Given that luxury watches are cheaper in Hong Kong and it has become easier for mainlanders to travel to Hong Kong, however, why would these estimates be so small? Could smuggled watches have been rather small in magnitude when compared to the level of consumption on the Mainland? Although possible, it is hard to reconcile with the fact that imports of luxury watches by Hong Kong, a territory with a population comparable to a large provincial city on the Mainland, were larger than China’s during our sample period (Figure 2). A more plausible explanation may be that smuggled luxury watches are not perfect substitutes for luxury imports sold by authorized dealers on the Mainland. A shopper who spends her own money on a luxury watch may have an incentive to look for a “water” good version, which is often cheaper as a result of tax evasion. A recipient in a corrupt exchange, however, faces different incentives. Since he gets the watch while someone else pays the bill, he is not sensitive to price discounts, but can be quite sensitive to any uncertainty in the watch’s authenticity. As a result, we will continue to use Hong Kong as a viable, albeit somewhat compromised, comparison economy. It is also important that we include two additional control economies, Singapore and the U.S., in our empirical analysis.

## 4.5 Alternative hypotheses and control groups

Our estimations so far use non-luxury watch imports as the control group. To the extent that the demand for luxury watches in Hong Kong, Singapore or the U.S. are not known,

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<sup>25</sup>The sovereignty of Hong Kong was not transferred to China from the United Kingdom until 1997. In 2003, Hong Kong started to lift travel barriers for individual residents in some cities in the mainland, first in Guangdong province. The program has expanded to 49 mainland cities and greatly facilitated cross-border smuggling (See, for example, a *New York Times* article: [http://sinosphere.blogs.nytimes.com/2015/02/08/protesters-confront-mainland-shoppers-in-hong-kong/?\\_r=0](http://sinosphere.blogs.nytimes.com/2015/02/08/protesters-confront-mainland-shoppers-in-hong-kong/?_r=0)).

ex ante, to be related to China’s cycles of leadership transition, we may alternatively use luxury watch imports by each of the three economy as a control group and rewrite our DD specification as

$$V_{ifht} = \beta' \mathbf{X}_{fht} + \gamma_C C_h + \gamma'_T \mathbf{T}_t + \delta'_C C_h \mathbf{T}_t + \alpha_f + \varepsilon_{ift} \quad (4)$$

For each home economy  $h$ , the sample includes only luxury imports (*i.e.*,  $L_{if} = 1$ ).  $C_h$  is the home economy dummy variable, which equals 1 if the home economy  $h$  is China or 0 otherwise. The coefficients  $\delta_C$  are the parameters of interests.

Table 6 reports the estimates of  $\delta_C$  in panel A. We compare luxury watch imports conditional on augmented gravity equation for  $h = \text{China}$  with  $h = \text{Hong Kong}$ ,  $\text{Singapore}$  or the  $\text{U.S.}$ , respectively over each cycle of leadership transition in China. The estimates for the first three CPC congresses are positive and similar in magnitude to those reported in Table 5. Luxury watch imports behave quite differently in China than in any of the three control economies: In China and only in China, they *consistently* rise during Chinese leadership transitions and *consistently* fall before the next transition during the 15th, 16th and 17th CPC congresses. During the 18th CPC Congress between 2008 and 2013, China’s imports of luxury watch fell significantly during the transition, compared to other regions.

While the findings support the analysis of China’s political economy institutions in Section 2, one may still wonder if our results could be alternatively explained by the factors that are unique to the Chinese culture. To address this question, we note that our control groups include two economies, Hong Kong and Singapore, where Han Chinese are the dominant ethnic group in the population. Presumably these two control economies are more ethnoculturally similar to China than any other economies for which we have trade data from UN Comtrade. But their political economy institutions have little in common with those found on mainland China. Our results therefore suggest that the observed pro-transition cycles of luxury watches cannot be attributed to Chinese cultural factors.

But it is still possible that institutional factors other than corruption could be driving the results during each of the first three CPC congresses in our sample. Given the dominant role that the party and the state play in the Chinese economy, leadership transition can be an engine of business cycles in China. For example, Li (2011) documents that gross capital formation rises shortly after a leadership transition and then falls before the next. Since Chinese GDP growth is largely driven by investment, aggregate income in China also tend to exhibit political cycles. And if consumers anticipate the political cycles of income growth, they may increase demand for imported goods with high income elasticities during the leadership transition and then decrease luxury demand before the next transition. In other words, our observed pro-transition cycles could be explained by as part of a common

feature of the Chinese demand for the imported goods with high income elasticities.

But if so, how would one explain the fall in luxury watch imports during the 18th CPC Congress? If demand for luxury watch imports were driven by political business cycles in general, but not by corruption, one would expect the Swiss watch cycles to continue during the 18th CPC Congress, perhaps at a slightly reduced scale. The reason is that even if demand from officials is expected to fall as a result of internet vigilantism, demand from the general public should increase sufficiently to compensate for lost sales to officials. Since luxury watch imports fell during the 18th CPC Congress, our data therefore suggest that transition induced business cycle is unlikely to be the main driving force for the pro-transition luxury watch cycles observed in the Chinese data.

Nonetheless, to investigate further, we conduct two more placebo tests. First, we compare the demand for non-luxury watches in China with that in each of the three control economy by estimating specification 4 and restricting the sample to non-luxury watch imports (*i.e.*,  $L_{if} = 0$ ). We report the estimates of  $\delta_C$  in Panel B of Table 6. We do not see a single estimate that is both positive and statistically significant. The results therefore show that unlike luxury watch imports, non-luxury watch imports in China behave no differently from those in the three control economies over cycles of Chinese leadership transition.

It is worth noting that Table 6 now contains the ingredients needed to compute triple-differences estimates. For example, for the China and Hong Kong pairing, the triple-differences estimate is simply the DD estimate in luxury watches between the two economies minus the DD estimates in non-luxury watches between the two economies. The triple-differences estimates are presented in columns 1 and 2 in Panel A of Table 7, for the first three CPC Congresses and the last, separately.<sup>26</sup> Columns 3-6 in Panel A show the triple-difference estimates by using Singapore and the U.S. as the control economy to pair with China. We find that the triple-differences estimates are very similar to the DD estimates in Tables 5 and 6. This is not surprising since non-luxury watch imports in China behave no differently from those in the three control economies over CPC congressional cycles, while luxury watch imports in China and only in China exhibit strong pro-transition cycles during the first three CPC congressional cycles.

Perhaps imported non-luxury watches just do not have sufficient brand cachet. To err on the side of caution, we turn to our second placebo test. This time, the control groups we select are imported goods that are dominated by internationally recognized brand names and presumably exhibit high income elasticities. Specifically, we select imports of handbags (HS codes: 420221, 420222, 420229) and passenger cars (HS codes: 870321, 870322, 870323,

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<sup>26</sup>Estimates for each individual cycle, as in Tables 5 and 6, are shown in Appendix Table A4. The results are quantitatively similar.

870324)<sup>27</sup> as alternative control groups for luxury watch imports. The two categories of imports certainly fit the definition of superior goods with high income elasticities. However, they do not exhibit all the salient features of luxury watches as popular media of corrupt exchanges.

Handbags, according to a research report published by Bain & Company in 2011,<sup>28</sup> are the second fastest growing category of luxury goods consumed in China, after wrist watches. Compared to watches, however, handbags are not usually given to officials who are mostly men. In addition, handbags have much lower value density and depreciate in value much faster than luxury watches. Cars, though they can be pricey, are much more conspicuous than wrist watches. They must be registered and their ownership records are potentially open to the public. And most cars are depreciating assets and cannot easily accompany corrupt officials on their flight to safe havens. These factors reduce the popularity of handbags and cars as media of corrupt exchanges.

For our second placebo test, we repeat the triple-differences estimation shown in Panel A of Table 7, replacing non-luxury watches as the control group with handbags or cars. The results are shown in Panels B and C. The estimates are qualitatively similar to those in Panel A. Like non-luxury watch imports, these alternative control groups do not respond to leadership transition nearly as strongly as luxury watch imports.<sup>29</sup>

## 4.6 Tariff and other trade policies

There are a number of reasons that our estimates may not accurately measure the impact of leadership transitions on the cyclical fluctuations of luxury watch imports in China. To begin with, during our sample period, there were changes in trade and tax policies, which would have influenced China's imports of watches and other goods. In early 1990s, China overhauled its tax system, replacing its product tax with value added tax (VAT) and consumption tax. On imported watches, the applicable VAT rate has been 17%. Starting on April 1, 2006, China imposed a consumption tax of 20% on imported *upscale* watches that have an after-tariff-price of RMB10,000 (about \$1,250 based the exchange rate in April 2006) or above,<sup>30</sup> which applies to a broader set of watches than our definition of luxury watches.

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<sup>27</sup>Passengers cars powered by spark-ignition (gasoline) engines. We exclude diesel powered passenger cars because China limits diesel sales to trucks.

<sup>28</sup>Source: <http://www.bain.com/Images/2011%20Bain%20China%20Luxury%20Market%20Study.pdf>.

<sup>29</sup>We note that the number of observations is smaller in Panels B and C, a result of missing trade values since some of China's trade partners do not export handbags or cars. For example, as a world major exporter of watches, Thailand does not export cars to China.

<sup>30</sup>The policy details and all taxable import goods can be found on the website of the General Administration of Customs of the People's Republic of China: <http://www.customs.gov.cn/publish/portal0/tab399/info22352.htm>.

Imported watches are of course subject to custom duties.

We use the MFN (most-favored-nation) applied tariffs, which do not vary across partner economies. We extract Chinese tariff data from the WITS, derived from the United Nations Conference on Trade and Development Trade Analysis and Information System database. The data include year-end tariffs for the ten categories of watches at the HS 6-digit level. Three years of tariff data are missing (1995, 2002, and 2008) and we impute them by using the simple average of the neighboring two years. We add the 20% consumption tax rate to the tariff as a measure of the total tax burden, for the watches that are most likely to be taxed (HS 4-digit code=9101, that is, watches with case made of precious metal or of metal clad with precious metal).<sup>31</sup> We do not explicitly consider the effect of the introduction of VAT. Because VAT applies a uniform rate of 17% on all categories of imports included in our analysis, its effects, considered separately, would be absorbed by year dummies in the specification that we consider below. Let  $\tau_{it}$  denote the sum of import tariff rate and consumption tax rate levied on watches of category  $i$  in year  $t$ .

By taking into account of trade and tax policies, we amend our benchmark specification (2) as follows

$$V_{ift} = \beta_{Mf}M_{ft} + \beta'_L \mathbf{X}_{ft} L_{if} + \gamma_L L_{if} + \gamma_T \mathbf{T}_t + \delta' \mathbf{T}_t L_{if} + \alpha_f + \theta_t + \lambda' \mathbf{Y}_t L_{if} + (\mu_1 + \mu_2 L_{if}) \tau_{it} + \epsilon_{ift}. \quad (5)$$

The inclusion of the year specific effects,  $\theta_t$ , has absorbed variables that are only time variant, such as,  $M_t$ ,  $U_t$ , and  $T_t$  in (2). The coefficient  $\delta$  measures the treatment effect of leadership transitions on luxury watch imports. Since the tariff data are available only up to 2010, we restrict our sample to between 1993 and 2010. We also include a vector of year dummies  $\mathbf{Y}_t = (Y_t^{1994}, Y_t^{1995}, Y_t^{1998})'$ , where  $Y_t^n = 1$  if  $t = n$  and 0 otherwise, to interact with  $L_{if}$ .

We include  $Y_t^{1994} L_{if}$  and  $Y_t^{1995} L_{if}$  to account for changes in China's quota regimes that were expected to have affected watch imports. In addition to tariffs and taxes, China imposed quota restrictions on watch imports until January 1, 2003, two years after joining the WTO.<sup>32</sup> Before 1995, import quotas and licenses for watches were allocated by provincial governments.<sup>33</sup> In 1994, the government announced that it would centralize the allocation of import quotas in 1995. Concerned that they might lose their licenses in 1995, local license holders exhausted their full quotas in 1994 and shifted imports to more expensive watches, resulting in a surge in the value of luxury watch imports (Figures 2 and 3). In 1995, there

<sup>31</sup>In 2006, the average price (before tariff) of this category of imported watches was \$2,700, compared to the average price of \$24 of all other watches.

<sup>32</sup>Source: <http://news.sohu.com/20080928/n259807354.shtml>, in Chinese.

<sup>33</sup>Source: <http://202.107.212.154:8088/datalib/2003/PolicyLaw/DL/DL-54163>, in Chinese.

was a subsequent fall in the value of luxury imports under the newly implemented centralized quota regime. Since the changes in the quota regime apply to all watch imports, we include year specific effects in (5). In addition, since the centralization in quota allocation was widely expected in 1994 and was implemented in 1995 and were expected to affect luxury watch imports, we also include two interaction terms,  $Y_t^{1994}L_{if}$  and  $Y_t^{1995}L_{if}$ .

The Asian Financial Crisis that started with the collapse of the Thai Baht sent most Asian economies into a deep recession in 1998. The negative impact of the economy downturn on China's imports of luxury watches is visible in Figures 2 and 3. Since 1998 was not a transition year, we are concerned that this episode of economic downturn, as a confounding event, could lead to an upward bias in estimating  $\delta$ . To err on the side of caution and make it harder to find a significant effect of leadership transition, we include  $Y_t^{1998}L_{if}$  in the specification.

The results of the estimation of (5) are shown in Table 8. Column 3 shows the results of the full specification. In Column 2, we estimate only the average effect of leadership transition during the first three CPC Congresses in the data. In Column 1, we drop the variables that measure trade and tax policies. As expected, the anticipated centralization of China's quota regime has a large, positive, and significant effect on luxury watch imports in 1994; and the 1998 recession brought about by the 1997 Asian Financial Crisis has a sizable negative impact. Also as expected, tariffs and consumption taxes has a negative effect on watch imports. The average effect of leadership transition over the first three CPC Congresses in our data is slight larger than 1 in column 1, similar to our earlier results reported in Tables 4–7. As we add trade and tax variables in the specification (Column 2), the average effect of leadership transition rises to 1.4. And in Column 3 where we estimate the transition effect for each CPC Congress, we see a monotone increase in the estimate over time. The results suggest that adding trade and tax policies as explanatory variables does not weaken the estimated effects of leadership transition, but strengthens them. More importantly, we find evidence that the pro-transition cycles of luxury watch imports are increasing in magnitude over time, before it collapsed during the 18th CPC Congress.

## 5 Conclusions

This paper presents the first set of evidence on corruption in Chinese political selection. During the years of leadership transition and government personnel turnover in China, bribery and gift-sending was rampant. We find that the Chinese imports of luxury watches, a popular medium of corrupt exchanges, were driven by the local and national leadership transitions. For each of the three regular leadership transitions in 1996-97, 2001-02, and 2006-07, luxury

watch imports rose from pre-transition levels and then fell after transition. The imports of non-luxury watches and other luxuries unpopular for corrupt exchanges did not exhibit the same cycle in China, nor did the imports of luxury watches in Hong Kong, Singapore, and the U.S.

This “Swiss watch cycle” vanished in the leadership transition in 2011-12, as wearing a luxury watch had become likely to be exposed online by netizens and triggered anti-corruption investigation. The decline of luxury watch imports under cyber scrutiny, however, does not necessarily reflect the decline of the level of corruption. Officials could adapt to their environment, and one form of corruption could be substituted to another, as emphasized by Olken and Pande (2012).

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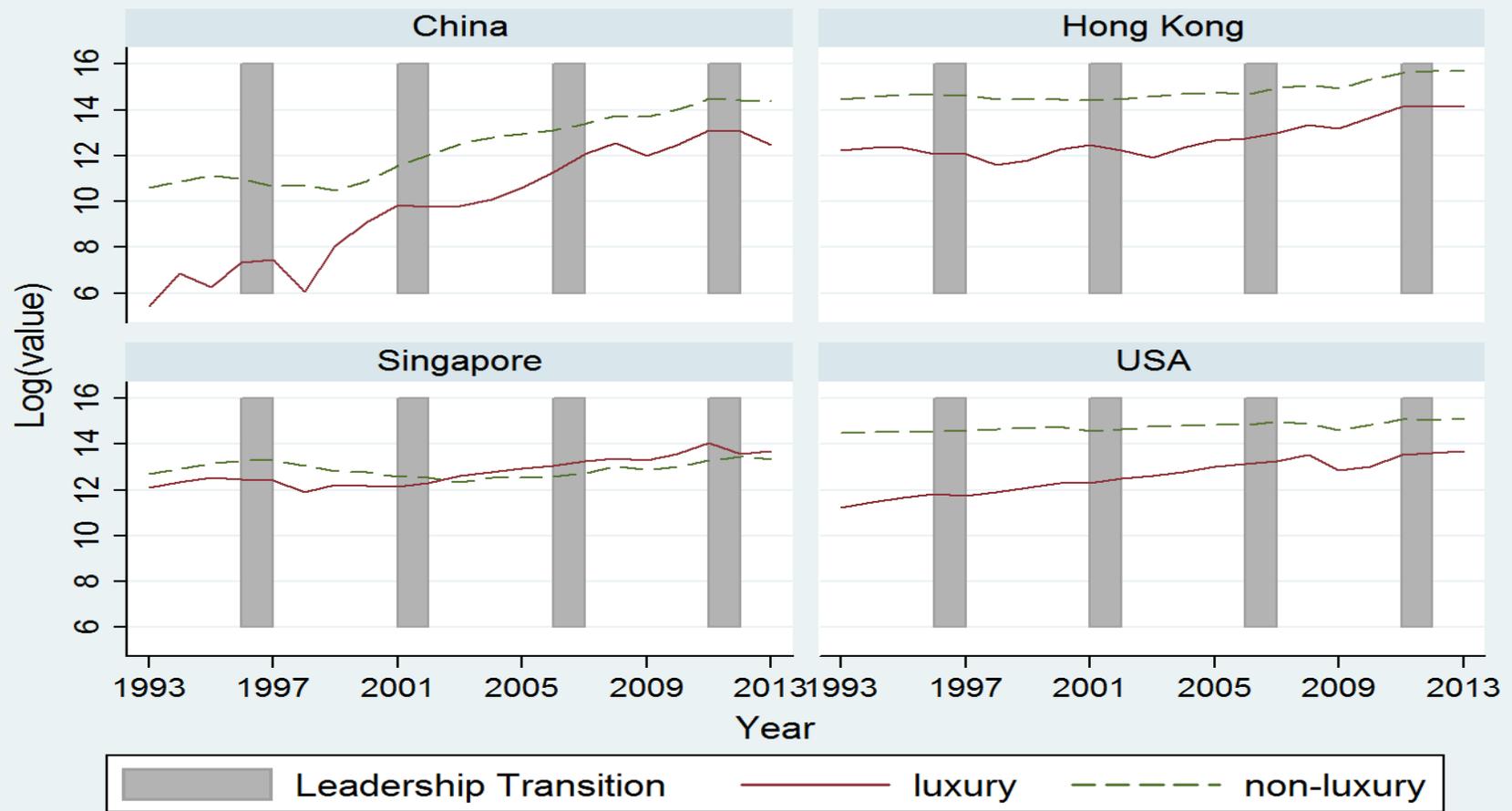
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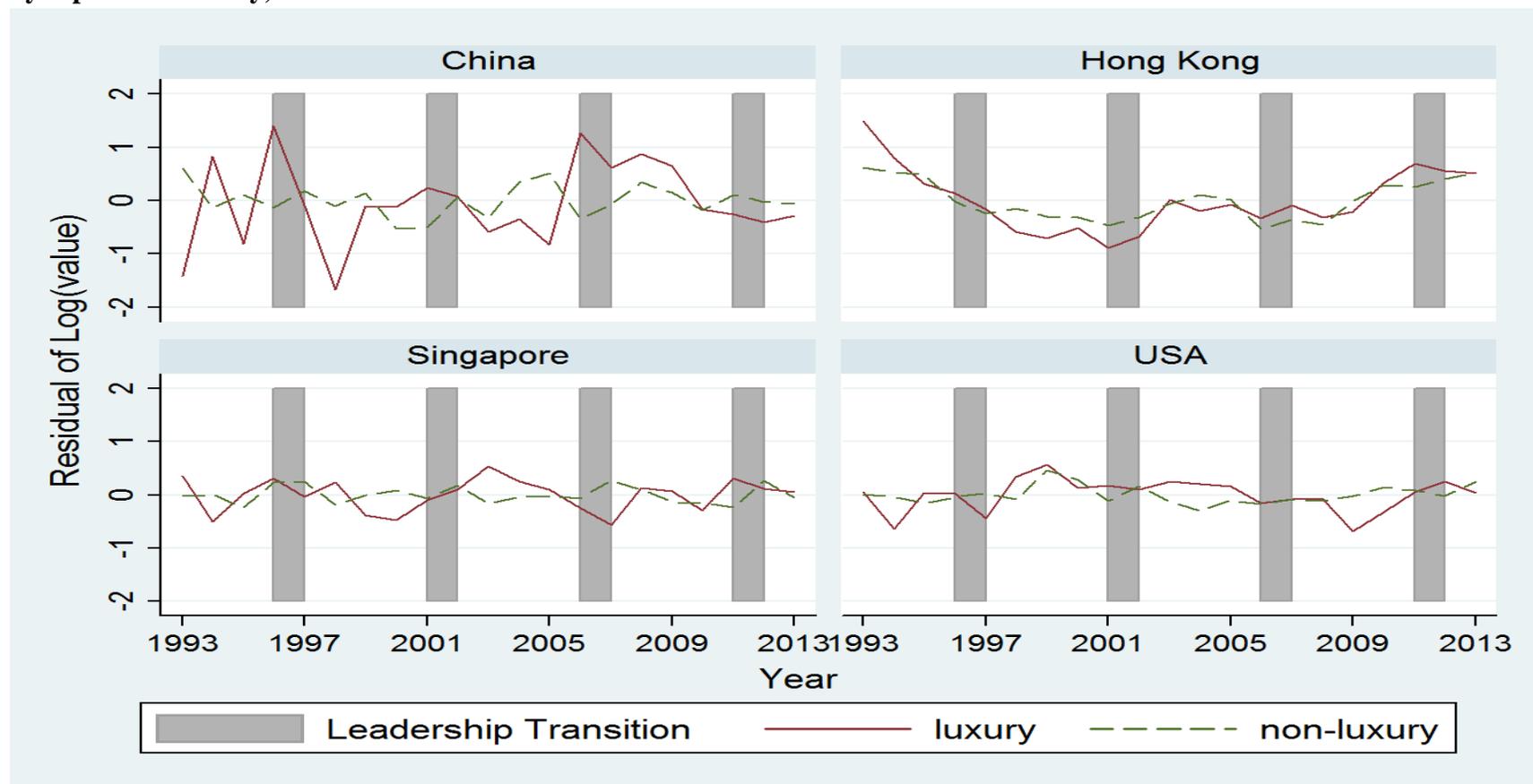


Figure 2: Aggregate value (in logarithm) of luxury vs. non-luxury wrist watch imports by reporter economy, 1993-2013



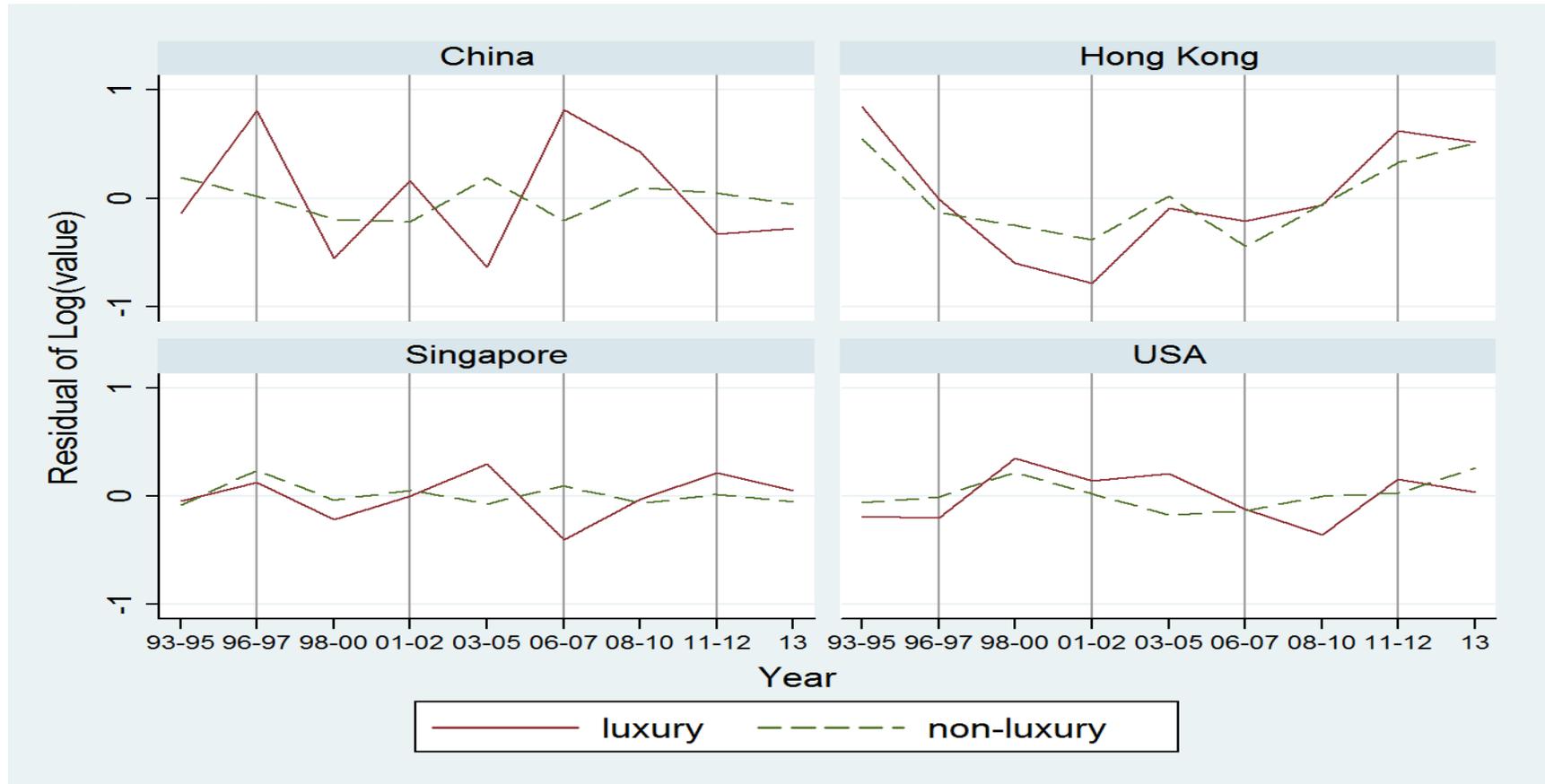
Shaded bars mark the Congress years of the Communist Party of China when the transition of local and national leadership takes place.

**Figure 3: Cross-sectional mean of the estimated cyclical fluctuations of the log value of luxury and non-luxury watch imports by reporter economy, 1993-2013.**



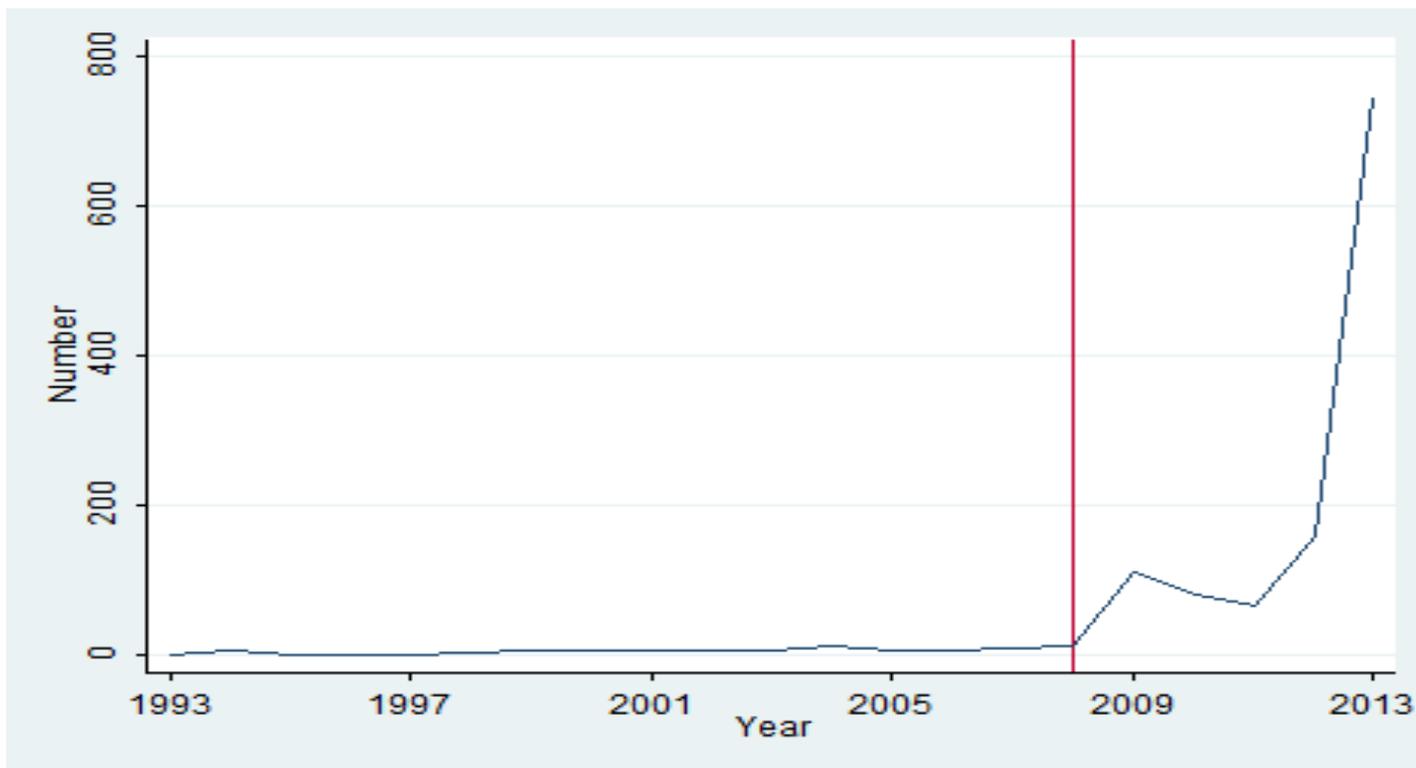
This figure plots the estimated residuals, average over products and partner countries, of the log value of luxury and non-luxury watch imports from the gravity equation in Table 3. Shaded bars mark the Congress years of the Communist Party of China when the transition of local and national leadership takes place.;

**Figure 4: Cross-sectional mean of the estimated cyclical fluctuations of the log value of luxury and non-luxury watch imports by reporter economy, 1993-2013.**



This figure plots the estimated residuals of the log value of luxury and non-luxury watch imports from the gravity equation in Table 3, average over products, partner countries, and leadership transition years or other years. Vertical lines mark the Congress years of the Communist Party of China when the transition of local and national leadership takes place.

**Figure 5: The Frequency of the Words, “Internet” and “Anti-corruption” and “Luxury Watch”, Mentioned in Research Reports and Articles in China, 1993-2013**



This figure shows the number of the words, “Internet”(or similar words such as “Web”) and “anti-corruption” and “luxury watch” , appeared in various research reports and articles collected by the database of China National Knowledge Infrastructure (CNKI.net). These reports are from researchers in governments, universities, and think-tanks.

**Table 1: HS Codes, Product Descriptions, and Luxury Designations of Wrist Watches**

HS CODE	Product Description	Luxury
910111	Wrist-watches, with case of precious metal or of metal clad with precious metal, electrically operated, with mechanical display only	No
910112	Wrist-watches, with case of precious metal or of metal clad with precious metal, electrically operated, with optoelectronic display only	No
910119	Wrist-watches with display, electrically operated, with cases of precious metal or of metal clad with precious metal, not either specified or included	No
910121	Wrist-watches, with case of precious metal or of metal clad with precious metal, with automatic winding	Yes if exported from France, Germany, Italy, Switzerland, and the U.S.; no otherwise.
910129	Wrist-watches, with case of precious metal or of metal clad with precious metal, other than those electrically operated or with automatic winding	Yes if exported from France, Germany, Italy, Switzerland, and the U.S.; no otherwise.
910211	Wrist-watches, other than those with case of precious metal or of metal clad with precious metal, electrically operated, with mechanical display only	No
910212	Wrist-watches, other than those with case of precious metal or of metal clad with precious metal, electrically operated, with optoelectronic display only	No
910219	Wrist-watches, other than those with case of precious metal or of metal clad with precious metal, electrically operated, not either specified or included	No
910221	Wrist-watches, other than those with case of precious metal or of metal clad with precious metal, with automatic winding	No
910229	Wrist-watches, other than those with case of precious metal or of metal clad with precious metal, other than those electrically operated or with automatic winding	No

**Table 2: Summary Statistics**

	China (1)	Hong Kong (2)	Singapore (3)	U.S. (4)
log(value) of luxury watch† (standard deviation)	6.405 (3.858)	8.417 (2.359)	7.513 (2.718)	8.240 (2.360)
n	94	204	204	168
log(value) of non-luxury watch	3.920 (3.858)	7.510 (2.831)	6.025 (2.590)	6.524 (2.995)
n	1,199	1,608	1,886	1,901
median unit price of luxury watch \$	6960	8549	1256	2063
median unit price of non-lux watch \$	59	238	83	21
Log(GDP)	14.50 (0.91)	12.12 (0.22)	11.76 (0.48)	16.24 (0.28)
Log(GDP 1993)	13.00	11.70	11.01	15.74
Log(GDP 2013)	16.04	12.52	12.60	16.63
Income Inequality††	8.48 (1.74)	18.33 (2.68)	11.05 (1.57)	14.47 (0.84)
Income Inequality (1993)	5.88	14.04	8.38	13.58
Income Inequality (2013)	10.46	22.88	12.06	15.94
Standard deviations of the residual log(value) from the augmented gravity equation, luxury watch	1.872	1.569	1.203	1.055
Standard deviations of the residual log(value) from the augmented gravity equation, non-luxury watch	3.261	2.589	1.866	2.690

† in 1,000 U.S. dollars

†† The ratio of income share of the top 20% income earners to the bottom 20%

**Table 3: Augmented gravity equation regression results.**

	China (1)	Hong Kong (2)	Singapore (3)	U.S. (4)
Luxury	-1.714 (6.737)	17.661 (18.558)	-4.559 (2.985)	-39.265*** (12.187)
Log(GDP)	1.085*** (0.337)	2.830*** (0.901)	0.436** (0.200)	0.691 (0.611)
Luxury*log(GDP)	0.408 (0.623)	-1.362 (1.715)	0.690** (0.335)	2.912*** (1.017)
inequality	-0.413*** (0.153)	-0.062 (0.073)	-0.154*** (0.052)	-0.121 (0.192)
Luxury*inequality	0.742** (0.368)	0.286** (0.136)	0.303*** (0.112)	-0.216 (0.331)
Log(partner GDP)	1.396** (0.655)	-0.210 (0.288)	1.051*** (0.199)	0.353 (0.249)
Luxury*log(partner GDP)	-0.680*** (0.242)	-0.364*** (0.123)	-0.342*** (0.079)	-0.225 (0.174)
constant	-23.148*** (6.390)	-21.010** (9.493)	-7.757*** (1.848)	-4.519 (6.898)
F-statistics of partner fixed effects	52.78***	28.40***	198.22***	42.82***
n	1,293	1,812	2,090	2,069

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. All regressions include a set of dummies for partner countries. Robust standard errors are in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 4: Estimates of the impact of leadership transition on the value of luxury watch imports, 1993-2013**

	China		Hong Kong		Singapore		U.S.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Luxury*transition	0.501*** (0.160)	1.020** (0.432)	0.097 (0.141)	0.074 (0.181)	-0.196* (0.099)	-0.271 (0.165)	0.026 (0.096)	-0.184 (0.127)
Luxury*transition *web scrutiny transition		-1.721* (0.897)		-0.201 (0.401)		1.077** (0.420)		0.697** (0.313)
luxury	-0.159 (0.101)	-0.265 (0.172)	-0.276*** (0.064)	-0.198** (0.093)	0.170 (0.100)	0.168 (0.137)	-0.037 (0.051)	-0.011 (0.056)
Log(GDP)	-0.649 (9.278)	-19.096 (13.904)	20.015* (10.897)	29.980** (14.354)	-4.774 (3.969)	3.899 (7.026)	-39.286** (17.578)	-44.221** (17.082)
Luxury*log(GDP)	1.105*** (0.331)	1.293** (0.538)	3.406*** (0.581)	1.189* (0.671)	0.407 (0.322)	0.700 (0.575)	0.685 (0.445)	1.364** (0.544)
inequality	0.293 (0.767)	1.714 (1.198)	-1.579 (1.010)	-2.318 (1.382)	0.708* (0.398)	-0.131 (0.778)	2.917** (1.051)	3.144*** (1.006)
Luxury*inequality	-0.417** (0.200)	-0.460* (0.234)	-0.093* (0.048)	-0.063 (0.042)	-0.163 (0.107)	-0.207* (0.117)	-0.114 (0.087)	-0.510** (0.208)
Log(partner GDP)	0.783 (0.506)	0.214 (0.695)	0.299** (0.117)	0.320** (0.120)	0.312** (0.131)	0.441** (0.187)	-0.220 (0.255)	-0.102 (0.254)
Luxury*log(partner GDP)	1.388 (0.833)	1.212 (0.831)	-0.249 (0.342)	-0.282 (0.300)	1.084*** (0.298)	1.124*** (0.303)	0.351 (0.217)	0.304 (0.259)
	-0.675*** (0.238)	-0.476** (0.215)	-0.364** (0.136)	-0.464*** (0.121)	-0.343*** (0.095)	-0.369*** (0.088)	-0.226 (0.595)	-0.243 (0.543)
Web scrutiny*all variables								
above	No	Yes	No	Yes	No	Yes	No	Yes
n	1,293	1,293	1,812	1,812	2,090	2,090	2,069	2,069

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Non-luxury watch imports are used as the control group. All regressions include a set of dummies for partner countries. Standard errors are clustered at product class and partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 5: Estimates of the impact of leadership transition on the value of luxury watch imports, by transitions cycles**

	China (1)	Hong Kong (2)	Singapore (3)	U.S. (4)
Luxury*transition 1996-97	0.907 (0.683)	0.323 (0.202)	-0.060 (0.283)	-0.243 (0.172)
Luxury*transition 2001-02	0.882* (0.491)	-0.437 (0.340)	-0.288 (0.346)	0.121 (0.193)
Luxury*transition 2006-07	1.313*** (0.443)	0.317** (0.149)	-0.673** (0.283)	0.043 (0.180)
Luxury*transition 2011-12	-0.541 (0.490)	0.534** (0.189)	0.245 (0.254)	0.289 (0.197)
luxury	-9.176 (12.169)	36.583** (14.949)	-1.198 (3.222)	-39.268** (18.157)
transition 1996-97	0.103 (0.271)	-0.192 (0.164)	0.333* (0.164)	-0.006 (0.103)
transition 2001-02	-0.395 (0.324)	-0.545** (0.203)	0.096 (0.303)	0.006 (0.090)
transition 2006-07	-0.344 (0.262)	-0.501*** (0.113)	0.132 (0.101)	-0.177 (0.150)
transition 2011-12	0.078 (0.194)	0.366*** (0.101)	0.082 (0.134)	0.050 (0.190)
n	1,293	1,812	2,090	2,069

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Non-luxury watch imports are used as the control group. All regressions include log(GDP) and inequality of the reporter country, log(GDP) of partner countries, their interactions with the dummy for luxury watches, and a set of dummies for partner countries. Standard errors are clustered at product class and partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 6: Estimates of the impact of leadership transition on the value of luxury and non-luxury watch imports, by transition cycles**

Panel A: Luxury Watches			
	China and Hong Kong	China and Singapore	China and U.S.
	(1)	(2)	(3)
China*transition 1996-97	0.922 (0.695)	0.754 (0.725)	1.204 (0.685)
China*transition 2001-02	1.565* (0.779)	1.052 (0.726)	1.177 (0.716)
China*transition 2006-07	0.882** (0.320)	1.194** (0.419)	0.752** (0.316)
China*transition 2011-12	-1.186** (0.446)	-0.632 (0.469)	-0.718 (0.414)
n	298	298	262
Panel B: Non-Luxury Watches			
China*transition 1996-97	0.298 (0.313)	-0.234 (0.312)	0.112 (0.286)
China*transition 2001-02	0.153 (0.376)	-0.495 (0.438)	-0.411 (0.331)
China*transition 2006-07	0.160 (0.282)	-0.476* (0.277)	-0.164 (0.299)
China*transition 2011-12	-0.286 (0.213)	-0.000 (0.230)	0.035 (0.266)
n	2,807	3,085	3,100

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Hong Kong, Singapore and the U.S. are used separately as the control group. All regressions include log(GDP) and inequality of the reporter country, log(GDP) of partner countries, a dummy for China, dummies for partner countries and their interactions with the dummy for China, and dummies for the four transition cycles. Standard errors are clustered at reporter country-product class-partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 7: Triple differences estimates of the impact of leadership transition on the value of luxury watch imports in China, 1993-2013**

	China and Hong Kong		China and Singapore		China and the U.S.	
	1993-2008	2009-13	1993-2008	2009-13	1993-2008	2009-13
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Luxury Watch and Non-luxury Watch						
Luxury watch*China*transition	1.290**	-0.892	1.501***	-1.425**	1.226**	-1.201
	(0.567)	(0.568)	(0.534)	(0.645)	(0.509)	(0.755)
n	2,275	830	2,526	857	2,548	814
Panel B: Luxury Watch and Handbags						
Luxury watch*China*transition	1.799**	-0.686	1.847**	-1.210	1.497**	-0.892
	(0.760)	(0.671)	(0.727)	(0.785)	(0.668)	(0.763)
n	1,155	393	1,196	404	1,157	392
Panel C: Luxury Watch and Cars						
Luxury watch*China*transition	1.190**	-0.705	1.315**	-1.435**	0.818	-0.260
	(0.579)	(0.614)	(0.567)	(0.695)	(0.500)	(0.749)
n	1,140	398	1,122	396	1,099	371

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Hong Kong, Singapore and the U.S. are used separately as the control group. All regressions include a dummy for the transition years, a dummy for luxury watches, a dummy for China, all pairwise interactions of the three dummies, log(GDP) and inequality of the reporter country and their pairwise interactions with a dummy for China and a dummy for luxury watches, log(GDP) of partner countries and their pairwise interactions with a dummy for China and a dummy for luxury watches, and dummies for partner countries and their interactions with a dummy for China. In panels B and C, we replace the non-luxury watch imports with other control commodities. Standard errors are clustered at reporter country-product class-partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 8: Estimates of the impact of leadership transition on the value of luxury watch imports in China, taking into account the effects of trade policies and taxes, 1993-2010**

	(1)	(2)	(3)
Luxury*transition	1.127** (0.478)	1.398*** (0.407)	
Luxury*transition 1996-97			1.076 (1.637)
Luxury*transition 2001-02			1.311** (0.572)
Luxury*transition 2006-07			1.558*** (0.429)
luxury	-15.725 (14.582)	-26.912** (11.114)	-28.723* (15.283)
Luxury*log(GDP)	1.666 (1.202)	2.582*** (0.762)	2.827** (1.346)
Luxury*inequality	0.249 (0.655)	0.119 (0.356)	-0.061 (0.621)
log(partner GDP)	1.154 (0.984)	1.168 (0.915)	1.169 (0.918)
Luxury*log(partner GDP)	-0.691*** (0.214)	-0.776*** (0.183)	-0.778*** (0.187)
tariff+consumption tax		-0.045* (0.023)	-0.045* (0.023)
Luxury*(tariff+consumption tax)		0.009 (0.029)	0.004 (0.040)
Luxury*1994 Dummy		1.370** (0.539)	1.263* (0.645)
Luxury*1995 Dummy		-0.516 (1.208)	-0.683 (1.015)
Luxury*1998 Dummy		-1.097** (0.507)	-1.337 (0.782)
Year fixed effects	yes	yes	yes
partner fixed effects	yes	yes	yes
n	1,063	1,063	1,063

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Non-luxury watch imports are used as the control group. Standard errors are clustered at product class and partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Appendix Table A1: Various Standard Errors for the Estimates in Column 2 of Table 4**

	Huber-White (1)	Newey-West (lag=2) (2)	one way cluster at partner country (3)	one-way cluster at partner and product-class (4)	one-way cluster at year (5)	two-way cluster at product-class and year (6)
luxury*transition	1.020* (0.537)	1.020** (0.507)	1.020* (0.484)	1.020** (0.432)	1.020** (0.368)	1.020* (0.536)
Luxury*transition *web scrutiny	-1.721 (1.399)	-1.721* (1.027)	-1.721 (0.976)	-1.721* (0.897)	-1.721*** (0.457)	-1.721** (0.722)
N	1,293	1,293	1,293	1,293	1,293	1,293
number of clusters			11	22	21	22 and 21

This table calculates various standard errors for the key estimated coefficients in column 2 of Table 4, using the same specification as in that column.

**Appendix Table A2: The impact of leadership transition on the value of luxury watch imports, 1993-2013, using year fixed Effects**

	Log (import value)				Log (import quantity)			
	China (1)	Hong Kong (2)	Singapore (3)	U.S. (4)	China (5)	Hong Kong (6)	Singapore (7)	U.S. (8)
Luxury*transition	1.208** (0.516)	-0.009 (0.204)	-0.211 (0.142)	-0.171 (0.131)	0.952*** (0.307)	0.010 (0.244)	-0.323 (0.293)	0.028 (0.173)
Luxury*transition *web scrutiny	-1.850** (0.813)	0.306 (0.186)	0.385 (0.354)	0.567** (0.239)	-1.418** (0.560)	0.189 (0.312)	0.371 (0.369)	0.507 (0.315)
luxury	-1.804*** (0.434)	0.390 (0.424)	0.882* (0.474)	0.503 (0.355)	-2.324* (1.332)	-4.145*** (0.881)	-1.522* (0.862)	-1.661** (0.736)
Luxury*trend	0.235*** (0.070)	0.063** (0.029)	0.104*** (0.035)	0.140*** (0.045)	0.039 (0.078)	0.132*** (0.040)	0.194*** (0.062)	0.065 (0.064)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Partner fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n	1,293	1,812	2,090	2,069	943	1,239	1,419	1,260

The dependent variable in the first four columns is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Non-luxury watch imports are used as the control group. All regressions include the interactions of “web scrutiny” and transition dummy, luxury dummy, and the trend term. In the last four columns, we use the log of import quantities as the dependent variable, for which the data are available only after the year 2000. Standard errors are clustered at product class and partner country level.

**Appendix Table A3: Augmented gravity equation regression in China before and after the web scrutiny**

Luxury	-22.756*	Luxury*web	-22.394
	(12.334)		(377.756)
Log(GDP)	1.187**	Log(GDP)*web	0.560
	(0.576)		(5.224)
Luxury*log(GDP)	2.098*	Luxury*log(GDP)*web	-0.000
	(1.137)		(0.000)
inequality	-0.435**	inequality*web	-1.424
	(0.207)		(9.043)
Luxury*inequality	0.100	Luxury*inequality*web	3.392
	(0.490)		(38.951)
Log(partner GDP)	1.247*	Log(partner GDP)*web	0.218
	(0.669)		(0.141)
Luxury*log(partner GDP)	-0.514*	Luxury*log(partner GDP)*web	-0.673
	(0.263)		(0.478)
web	2.557	constant	-22.446***
	(18.216)		(7.526)
F-statistics of web and all its interaction terms		N	1,293
		1.04	

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. All regressions include a set of dummies for partner countries. Robust standard errors are in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Appendix Table A4: Triple differences estimates of the impact of leadership transition on the value of luxury watch imports in China, by transition cycles**

	China and Hong Kong (1)	China and Singapore (2)	China and U.S. (3)
China*luxury*transition 1996-97	1.342 (0.950)	1.216 (0.871)	0.679 (0.860)
China*luxury*transition 2001-02	1.039** (0.486)	0.937* (0.505)	0.895* (0.483)
China*luxury*transition 2006-07	0.932* (0.497)	1.888*** (0.547)	1.124** (0.523)
China*luxury*transition 2011-12	-0.748 (0.606)	-0.579 (0.633)	-0.733 (0.575)
n	3,105	3,383	3,362

The dependent variable is the log of the value (1,000 U.S. dollars, c.i.f., in logarithm) of imported watches. Hong Kong, Singapore and the U.S. are used separately as the control group. All regressions include four dummies for the transition years, a dummy for luxury watches, a dummy for China, all pairwise interactions of these dummies, log(GDP) and inequality of the reporter country and their pairwise interactions with a dummy for China and a dummy for luxury watches, log(GDP) of partner countries and their pairwise interactions with a dummy for China and a dummy for luxury watches, and dummies for partner countries and their interactions with a dummy for China. Standard errors are clustered at reporter country-product class-partner country level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$